Constant current independent driver

BEL Series

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, high efficiency
- SELV and Class II design, suitable for use outside of the light
- Passed CE,ENEC,UKCA,RCM,CCC,EL and other certifications
- IP20 protection grade, indoor use
- Nominal life-time up to 100,000 h
- 5-year guarantee

Functions

- Support central emergency application (100% output in DC input)
- Support self-contained emergency application
- Protective features (short-circuit,no-load protection)

Suitable for lights

- Suitable for lights with independent drivers such as downlights, spotlights, panel lights, etc
- Not suitable for lights with built-in drivers

Typical applications

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

Model coding rules of BEL series

BK - BELXXX - Z XXXX A

- BK — BOKE
- BEL — Product series
- Z — Distinguish code
- XXXX — Output current
- A — Output load voltage range identification code

Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension	Certifications
BK-BEL009-BxxxxA	200-240VAC/DC	10.5W MAX.	30-42VDC	0.15-0.25A	L95*W36.5*H24mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL013-BxxxxA	200-240VAC/DC	14.0W MAX.	30-40/42VDC	0.3-0.35A	L95*W36.5*H24mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL018-AxxxxA	200-240VAC/DC	18.0W MAX.	28-40/42VDC	0.35-0.45A	L114.5*W41*H24.5mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL022-AxxxxA	200-240VAC/DC	22.8W MAX.	28-38/40/42VDC	0.45-0.6A	L114.5*W41*H24.5mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL040-CxxxxA	200-240VAC/DC	40.0W MAX.	30-40/42VDC	0.6-1A	L119*W42.5*H28mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL042-AxxxxA	200-240VAC/DC	42.0W MAX.	28-38/40/42VDC	1-1.1A	L135*W45*H29mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL050-AxxxxA	200-240VAC/DC	50.4W MAX.	28-40/42VDC	1.05-1.25A	L135*W45*H29mm	CE,ENEC,UKCA,RCM,CCC,EL
BK-BEL060-AxxxxA	200-240VAC/DC	63.0W MAX.	28-38/40/42VDC	1.25-1.65A	L156*W50*H38mm	CE,ENEC,UKCA,RCM,CCC,EL

Technical data

Product model	BK-BEL009-B0250A	
Output parameters		
Regulation method	Constant Current	
Rated output current range	0.15-0.25A	
Rated output voltage range	30-42VDC	
Rated output power	10.5W Max	
Output current adjustment	Fixed output	
Output current ripple LF	±1%	
Output current accuracy	±5%	
Linear regulation	±5%	
Load regulation	±5%	
No load output voltage	50VDC	
Flicker-free(typical)	Flickering percent(IEEE 1789)=1.373%, Flicker index(IEEE 1789)=0.003, Pst LM = 0.038, SVM = 0.038, (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 200-264VDC	
Input votage shock	<380V AC	
Input current	<0.07A (Rated input voltage)	
Input frequency	0/50/60Hz	
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)	
Input THD	15% (230V AC & Full load)	
Efficiency(typical)	83% (230V AC & Full load)	
In-rush current	5.1A peak ,230us 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):12.7W, 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 (Performance criterion:B)	
Leakage current	0.29mA (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	N/A	
Auxiliary power supply	N/A	
Dimming range	N/A	
Dimming drive mode	N/A	
Emergency support		
Central emergency system	Supported(100% output in DC input)	
Self-contained emergency	Supported	
Environment & Life time		
Operating temperature	Ta=-20-60°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	<25dB(30cm, Normal operation)	
Environmental protection	RoHS	
Certifications and standards		
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL013-B0300A	BK-BEL013-B0350A	
Output parameters			
Regulation method	Constant Current	Constant Current	
Rated output current range	0.3A	0.35A	
Rated output voltage range	30-42VDC	30-40VDC	
Rated output power	12.6W Max	14W Max	
Output current adjustment	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	
Output current accuracy	±5%	±5%	
Linear regulation	±5%	±5%	
Load regulation	±5%	±5%	
No load output voltage	50VDC		
Flicker-free(typical)	Flickering percent(IEEE 1789)=1.527%, Flicker index(IEEE 1789)=0.004, Pst LM = 0.050, SVM = 0.049, (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 200-264VDC		
Input votage shock	<380V AC		
Input current	<0.08A (Rated input voltage)		
Input frequency	0/50/60Hz		
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)		
Input THD	15% (230V AC & Full load)		
Efficiency(typical)	83% (230V AC & Full load)		
In-rush current	6A peak ,208us 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):17W, 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 (Performance criterion:B)		
Leakage current	0.3mA (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	N/A		
Auxiliary power supply	N/A		
Dimming range	N/A		
Dimming drive mode	N/A		
Emergency support			
Central emergency system	Supported(100% output 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	<25dB(30cm, Normal operation)		
Environmental protection	RoHS		
Certifications and standards			
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL018-A0400A	BK-BEL018-A0450A	
Output parameters			
Regulation method	Constant Current	Constant Current	
Rated output current range	0.35-0.4A	0.45A	
Rated output voltage range	28-42VDC	28-40VDC	
Rated output power	16.8W Max	18W Max	
Output current adjustment	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	
Output current accuracy	±5%	±5%	
Linear regulation	±5%	±5%	
Load regulation	±5%	±5%	
No load output voltage	50VDC		
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.195%, Flicker index(IEEE 1789)=0.000, Pst LM = 0.000, SVM = 0.005, (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 200-264VDC		
Input votage shock	<380V AC		
Input current	<0.11A (Rated input voltage)		
Input frequency	0/50/60Hz		
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)		
Input THD	15% (230V AC & Full load)		
Efficiency(typical)	86% (230V AC & Full load)		
In-rush current	13.75A peak ,220us 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):21W, 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 (Performance criterion:B)		
Leakage current	0.42mA (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	N/A		
Auxiliary power supply	N/A		
Dimming range	N/A		
Dimming drive mode	N/A		
Emergency support			
Central emergency system	Supported(100% output 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	<25dB(30cm, Normal operation)		
Environmental protection	RoHS		
Certifications and standards			
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL022-A0500A	BK-BEL022-A0550A	BK-BEL022-A0600A	
Output parameters				
Regulation method	Constant Current	Constant Current	Constant Current	
Rated output current range	0.45-0.5A	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	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	±1%	
Output current accuracy	±5%	±5%	±5%	
Linear regulation	±5%	±5%	±5%	
Load regulation	±5%	±5%	±5%	
No load output voltage	50VDC			
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.249%, Flicker index(IEEE 1789)=0.001, Pst LM = 0.000, SVM = 0.006, (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 200-264VDC			
Input votage shock	<380V AC			
Input current	<0.14A (Rated input voltage)			
Input frequency	0/50/60Hz			
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)			
Input THD	15% (230V AC & Full load)			
Efficiency(typical)	87% (230V AC & Full load)			
In-rush current	13.5A peak ,220us 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):26.4W, 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 (Performance criterion:B)			
Leakage current	0.52mA (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	N/A			
Auxiliary power supply	N/A			
Dimming range	N/A			
Dimming drive mode	N/A			
Emergency support				
Central emergency system	Supported(100% output 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	<25dB(30cm, Normal operation)			
Environmental protection	RoHS			
Certifications and standards				
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL040-C0950A	BK-BEL040-C1000A	
Output parameters			
Regulation method	Constant Current	Constant Current	
Rated output current range	0.6-0.95A	1A	
Rated output voltage range	30-42VDC	30-40VDC	
Rated output power	39.9W Max	40W Max	
Output current adjustment	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	
Output current accuracy	±5%	±5%	
Linear regulation	±5%	±5%	
Load regulation	±5%	±5%	
No load output voltage	50VDC		
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.177%, Flicker index(IEEE 1789)=0.000, Pst LM = 0.000, SVM = 0.001, (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 200-264VDC		
Input votage shock	<380V AC		
Input current	<0.24A (Rated input voltage)		
Input frequency	0/50/60Hz		
Input PF/Input DF	PF<0.95 (230V AC & Full load),DF<0.95 (230V AC & Full load)		
Input THD	15% (230V AC & Full load)		
Efficiency(typical)	88% (230V AC & Full load)		
In-rush current	20A peak ,356us 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):45.5W, 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 (Performance criterion:B)		
Leakage current	0.57mA (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	N/A		
Auxiliary power supply	N/A		
Dimming range	N/A		
Dimming drive mode	N/A		
Emergency support			
Central emergency system	Supported(100% output in DC input)		
Self-contained emergency	Supported		
Environment & Life time			
Operating temperature	Ta=-20-45°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			
Certification	CE, ENEC, RCM, UKCA, CCC, 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.

2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL042-A1000A	BK-BEL042-A1050A	BK-BEL042-A1100A	
Output parameters				
Regulation method	Constant Current	Constant Current	Constant Current	
Rated output current range	1A	1.05A	1.1A	
Rated output voltage range	28-42VDC	28-40VDC	28-38VDC	
Rated output power	42W Max	42W Max	41.8W Max	
Output current adjustment	Fixed output	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	±1%	
Output current accuracy	±5%	±5%	±5%	
Linear regulation	±5%	±5%	±5%	
Load regulation	±5%	±5%	±5%	
No load output voltage	50VDC			
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.335%, Flicker index(IEEE 1789)=0.001, Pst LM = 0.012, SVM = 0.008, (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 200-264VDC			
Input votage shock	<380V AC			
Input current	<0.25A (Rated input voltage)			
Input frequency	0/50/60Hz			
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)			
Input THD	15% (230V AC & Full load)			
Efficiency(typical)	87% (230V AC & Full load)			
In-rush current	14.22A peak ,270us 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):48.3W, 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 (Performance criterion:A)			
Leakage current	0.32mA (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	N/A			
Auxiliary power supply	N/A			
Dimming range	N/A			
Dimming drive mode	N/A			
Emergency support				
Central emergency system	Supported(100% output in DC input)			
Self-contained emergency	Supported			
Environment & Life time				
Operating temperature	Ta=-20-45°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				
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL050-A1200A	BK-BEL050-A1250A	
Output parameters			
Regulation method	Constant Current	Constant Current	
Rated output current range	1.05-1.2A	1.25A	
Rated output voltage range	28-42VDC	28-40VDC	
Rated output power	50.4W Max	50W Max	
Output current adjustment	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	
Output current accuracy	±5%	±5%	
Linear regulation	±5%	±5%	
Load regulation	±5%	±5%	
No load output voltage	50VDC		
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.267%, Flicker index(IEEE 1789)=0.001, Pst LM = 0.018, 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 200-264VDC		
Input votage shock	<380V AC		
Input current	<0.29A (Rated input voltage)		
Input frequency	0/50/60Hz		
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)		
Input THD	15% (230V AC & Full load)		
Efficiency(typical)	88% (230V AC & Full load)		
In-rush current	18.4A peak ,302us 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):57.1W, 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 (Performance criterion:A)		
Leakage current	0.32mA (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	N/A		
Auxiliary power supply	N/A		
Dimming range	N/A		
Dimming drive mode	N/A		
Emergency support			
Central emergency system	Supported(100% output in DC input)		
Self-contained emergency	Supported		
Environment & Life time			
Operating temperature	Ta=-20-45°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			
Certification	CE, ENEC, UKCA, RCM, CCC, 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.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

Technical data

Product model	BK-BEL060-A1500A	BK-BEL060-A1550A	BK-BEL060-A1650A	
Output parameters				
Regulation method	Constant Current	Constant Current	Constant Current	
Rated output current range	1.25-1.5A	1.55A	1.6-1.65A	
Rated output voltage range	28-42VDC	28-40VDC	28-38VDC	
Rated output power	63W Max	62W Max	62.7W Max	
Output current adjustment	Fixed output	Fixed output	Fixed output	
Output current ripple LF	±1%	±1%	±1%	
Output current accuracy	±5%	±5%	±5%	
Linear regulation	±5%	±5%	±5%	
Load regulation	±5%	±5%	±5%	
No load output voltage	50VDC			
Flicker-free(typical)	Flickering percent(IEEE 1789)=0.165%, Flicker index(IEEE 1789)=0.000, Pst LM = 0.016, SVM = 0.004, (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 200-264VDC			
Input votage shock	<380V AC			
Input current	<0.38A (Rated input voltage)			
Input frequency	0/50/60Hz			
Input PF/Input DF	PF>0.95 (230V AC & Full load),DF>0.95 (230V AC & Full load)			
Input THD	15% (230V AC & Full load)			
Efficiency(typical)	89% (230V AC & Full load)			
In-rush current	23.65A peak ,358us 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):71.2W, 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 (Performance criterion:A)			
Leakage current	0.32mA (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	N/A			
Auxiliary power supply	N/A			
Dimming range	N/A			
Dimming drive mode	N/A			
Emergency support				
Central emergency system	Supported(100% output in DC input)			
Self-contained emergency	Supported			
Environment & Life time				
Operating temperature	Ta=-20-45°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				
Certification	CE, ENEC, UKCA, RCM, CCC, 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			

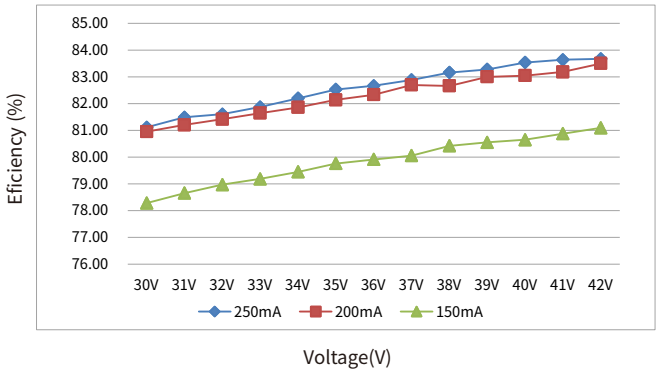
Remarks

1.By default, all parameter are measured at 230VAC input, full load and 25°C of ambient temperature.
2.The driver can not be installed inside the light. when the driver is used with the light, the EMC of the whole light needs to be tested.

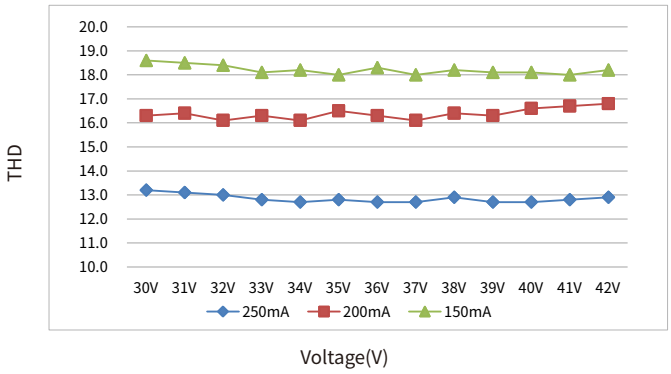
Electrical values

BK-BEL0009-BxxxxA

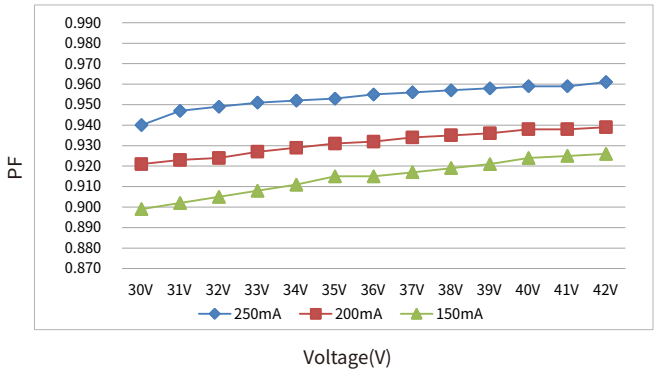
Efficiency vs voltage



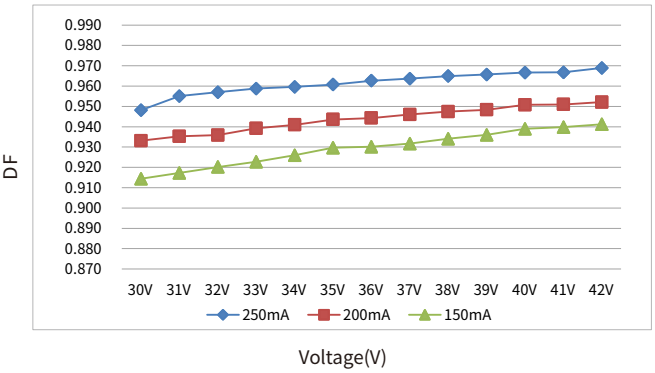
THD vs. voltage



Power factor vs. voltage

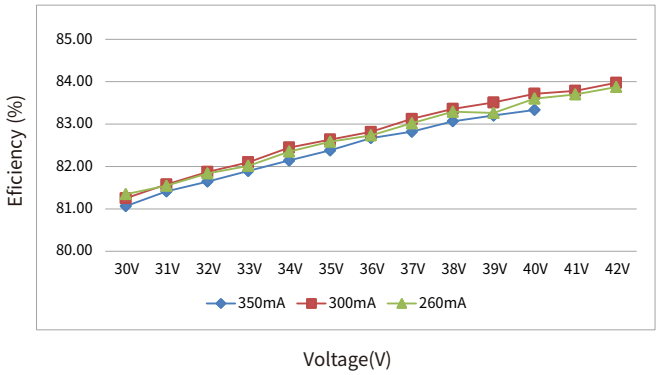


Displacement factor vs. voltage

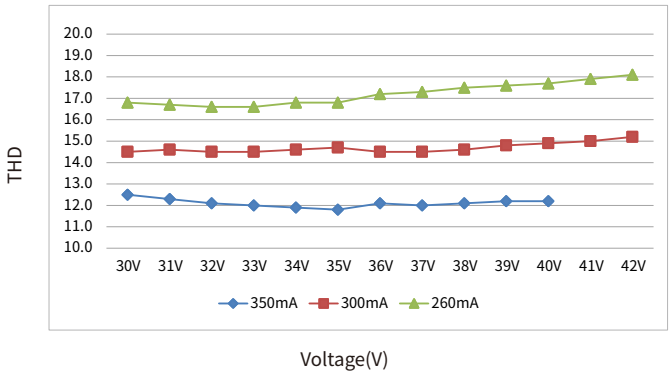


BK-BEL013-BxxxxA

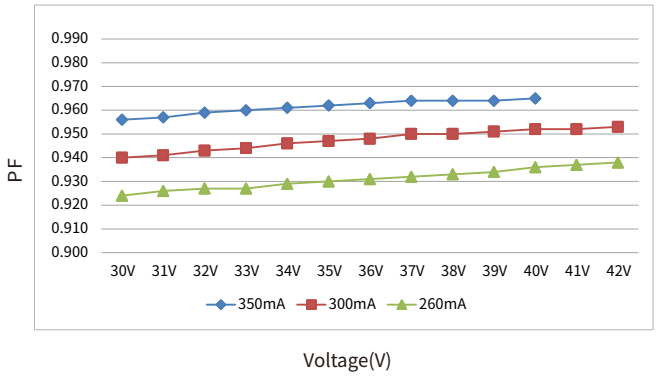
Efficiency vs voltage



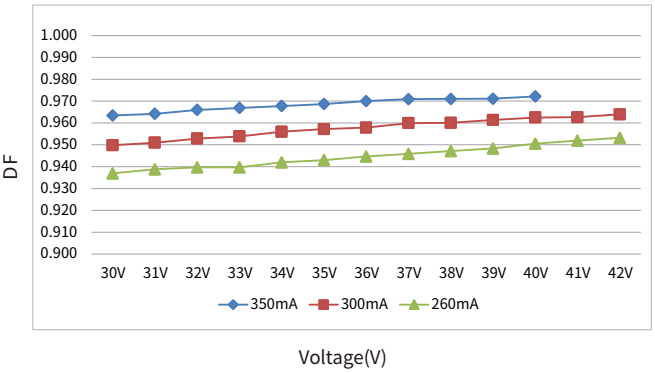
THD vs. voltage



Power factor vs. voltage



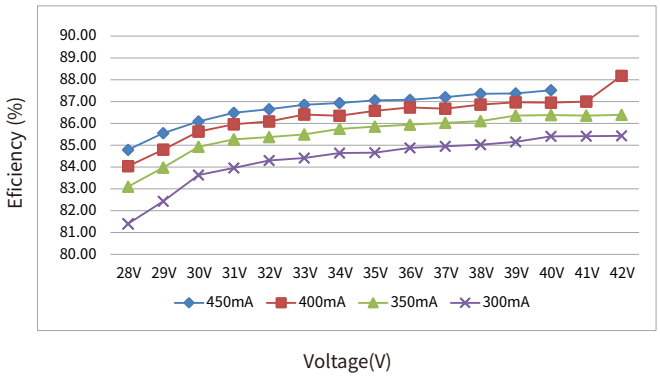
Displacement factor vs. voltage



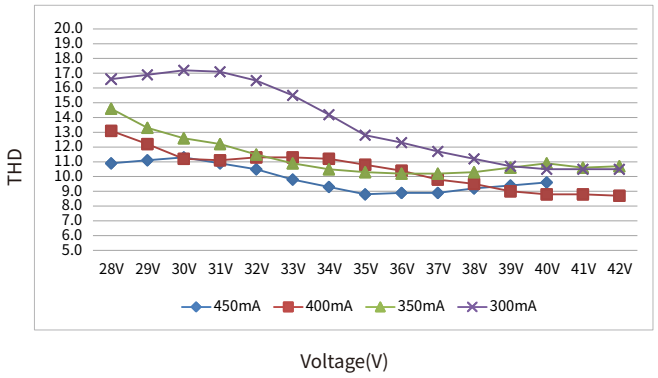
Electrical values

BK-BEL018-AxxxxA

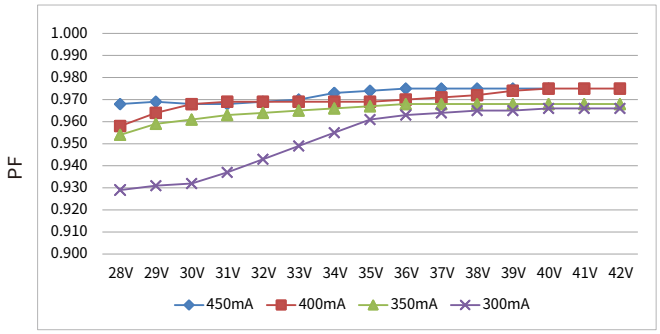
Efficiency vs voltage



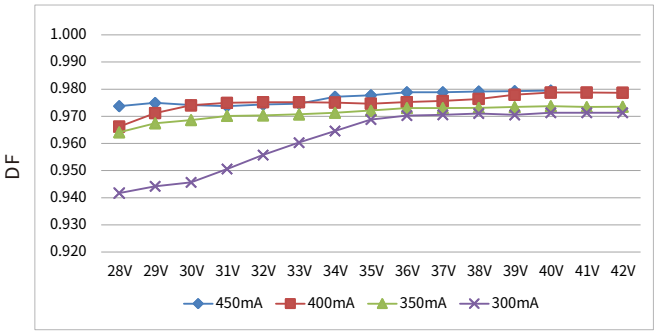
THD vs. voltage



Power factor vs. voltage

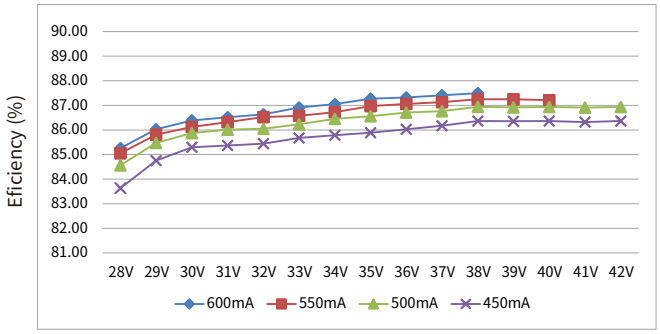


Displacement factor vs. voltage

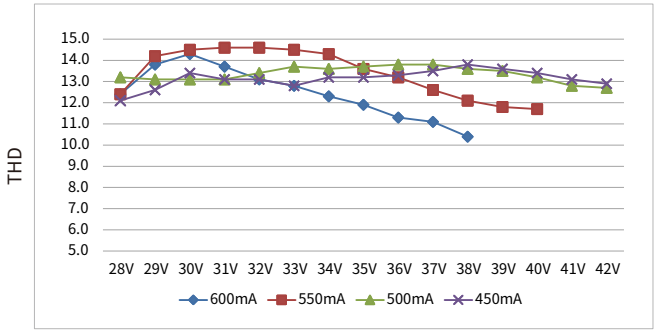


BK-BEL022-AxxxxA

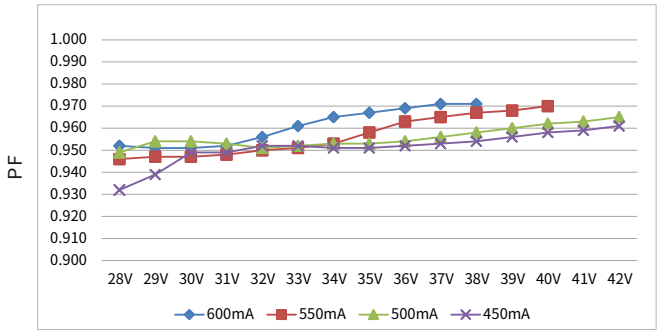
Efficiency vs voltage



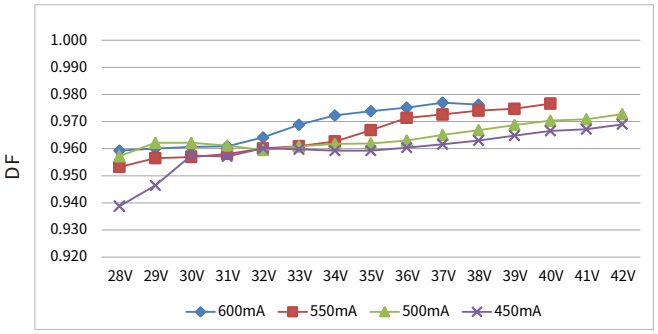
THD vs. voltage



Power factor vs. voltage



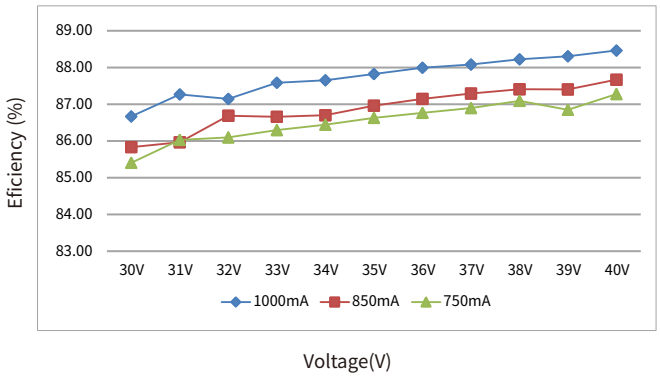
Displacement factor vs. voltage



Electrical values

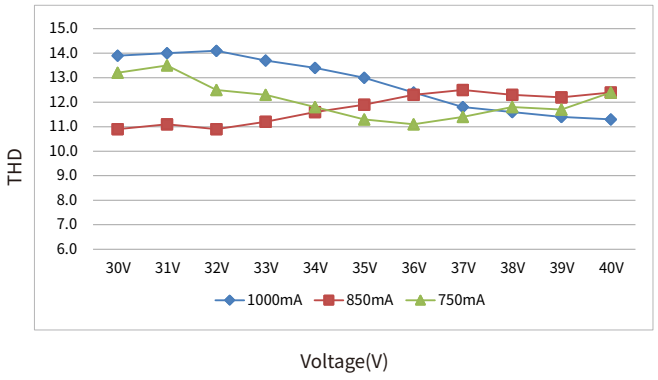
BK-BEL040-CxxxxA

Efficiency vs voltage



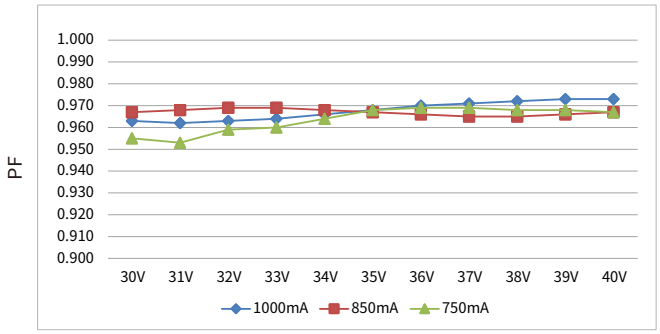
Voltage(V)

THD vs. voltage



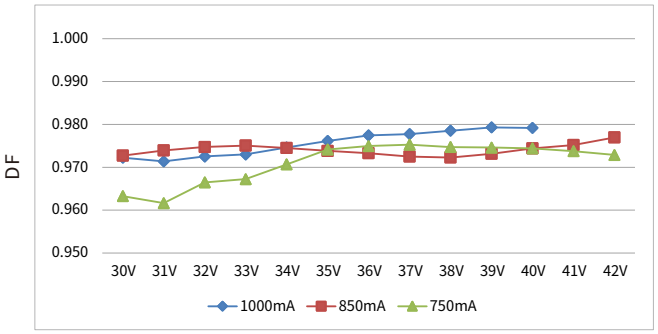
Voltage(V)

Power factor vs. voltage



Voltage(V)

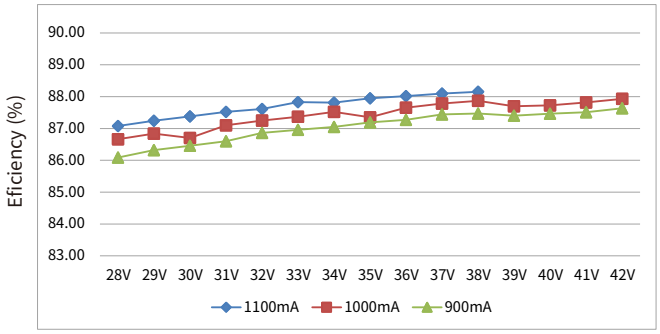
Displacement factor vs. voltage



Voltage(V)

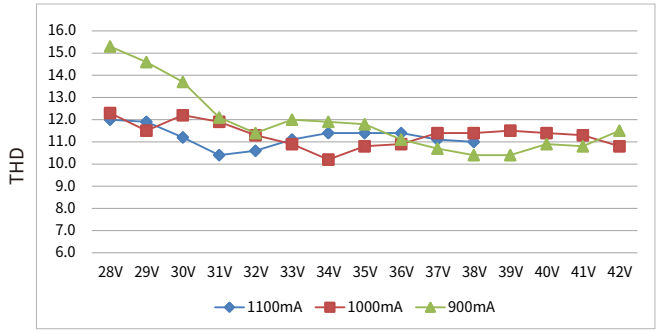
BK-BEL042-AxxxxA

Efficiency vs voltage



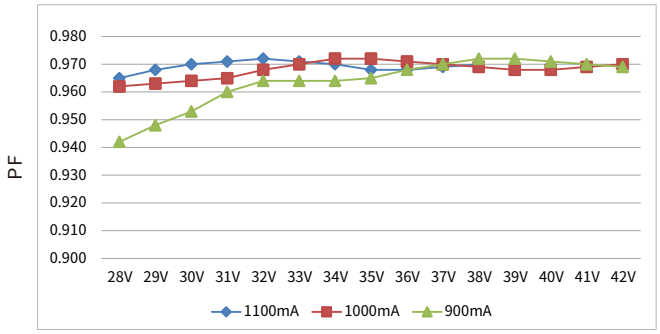
Voltage(V)

THD vs. voltage



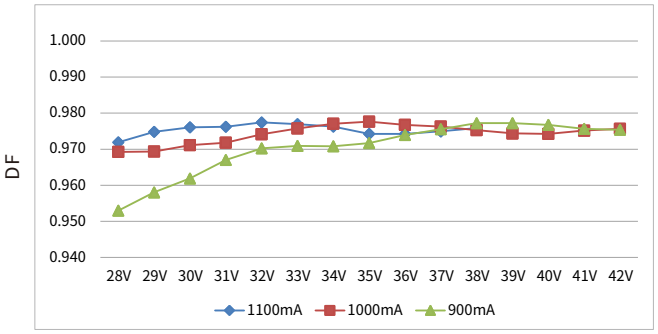
Voltage(V)

Power factor vs. voltage



Voltage(V)

Displacement factor vs. voltage

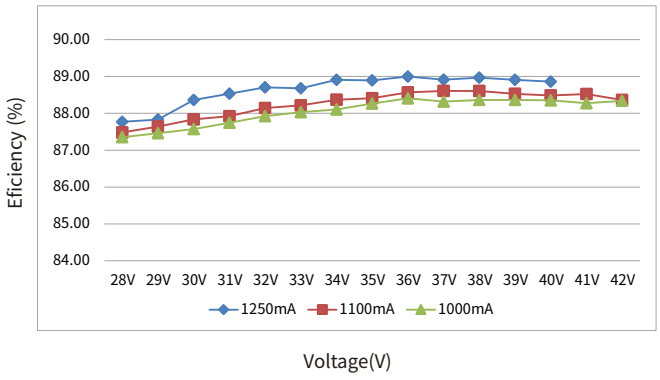


Voltage(V)

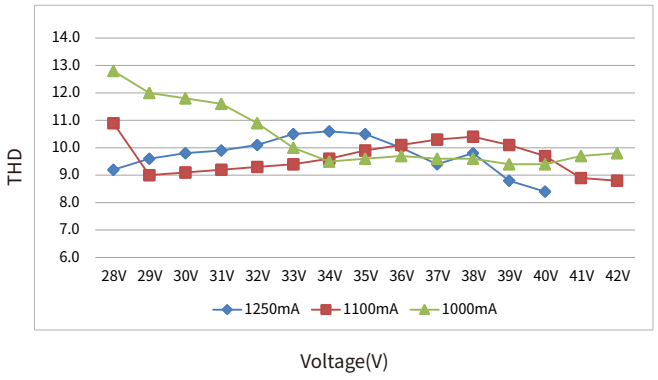
Electrical values

BK-BEL050-AxxxxA

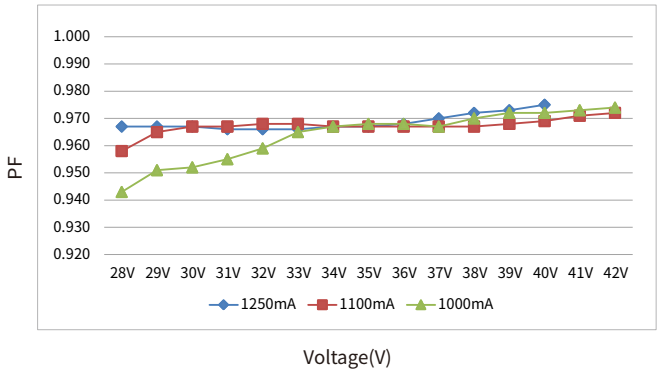
Efficiency vs voltage



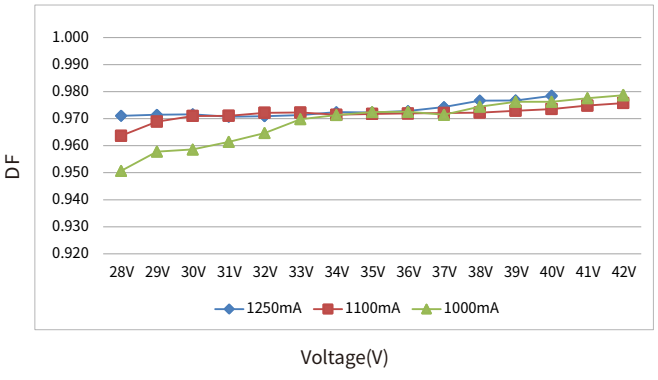
THD vs. voltage



Power factor vs. voltage

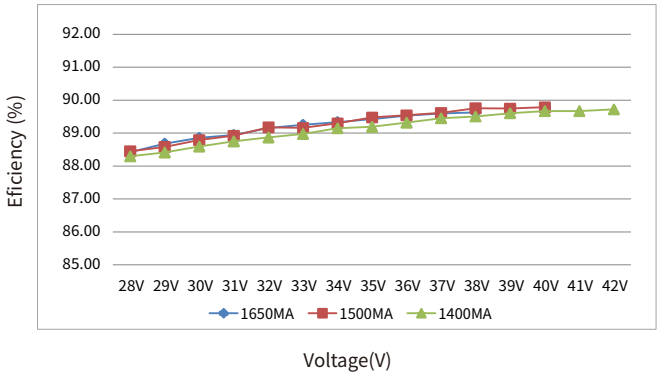


Displacement factor vs. voltage

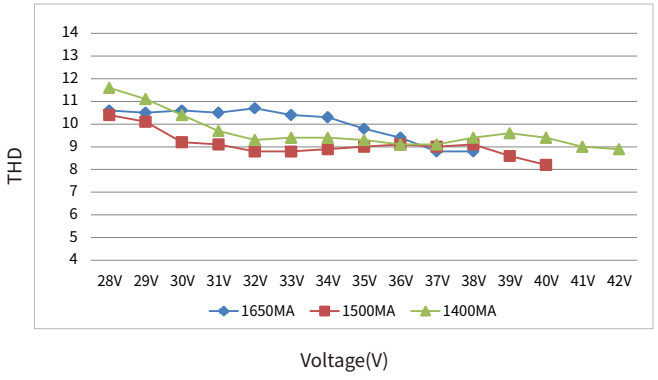


BK-BEL060-AxxxxA

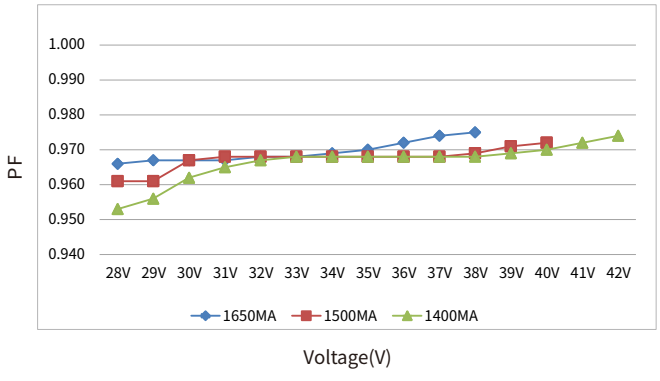
Efficiency vs voltage



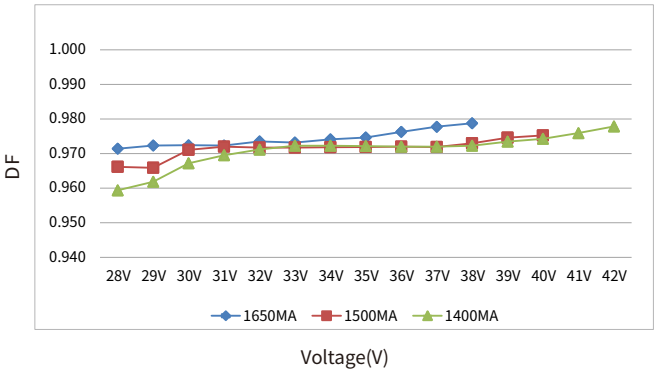
THD vs. voltage



Power factor vs. voltage



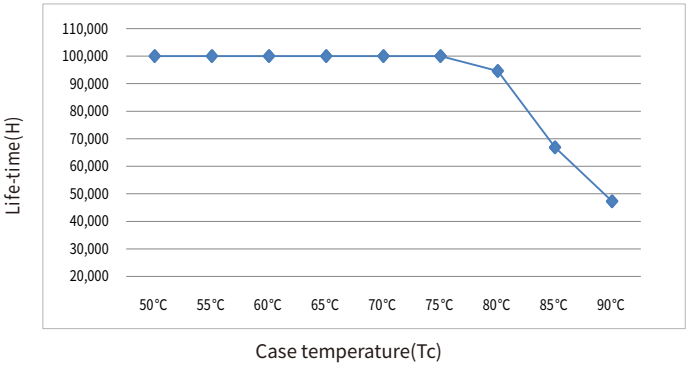
Displacement factor vs. voltage



Expected life-time

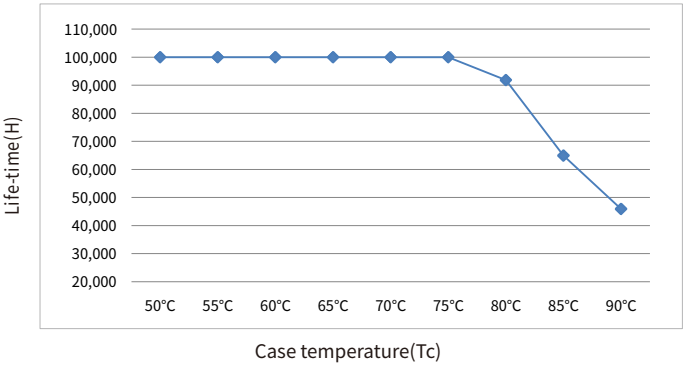
BK-BEL009-BxxxxA

Life-time vs. case temperature



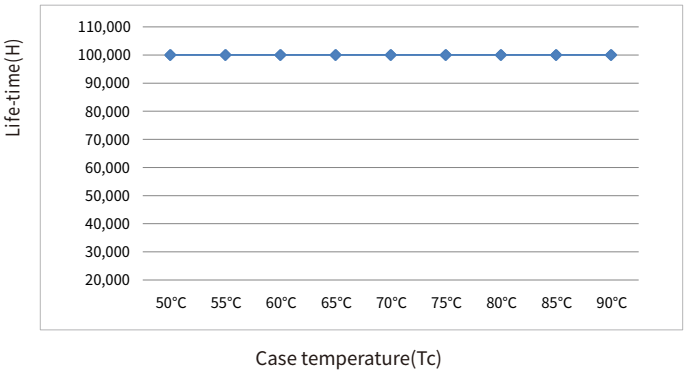
BK-BEL013-BxxxxA

Life-time vs. case temperature



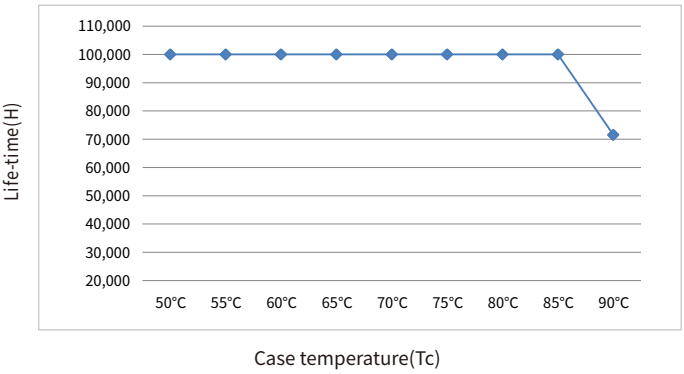
BK-BEL0018-AxxxxA

Life-time vs. case temperature



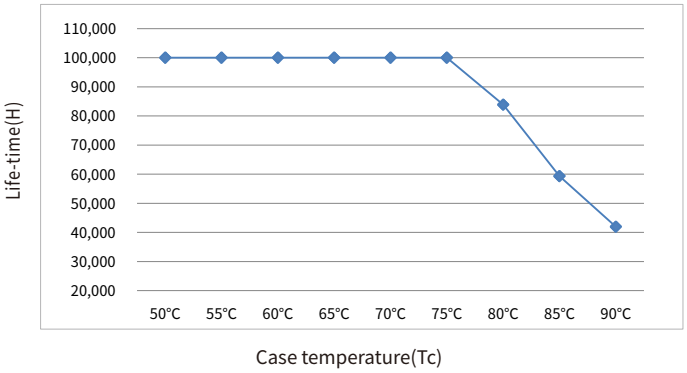
BK-BEL022-AxxxxA

Life-time vs. case temperature



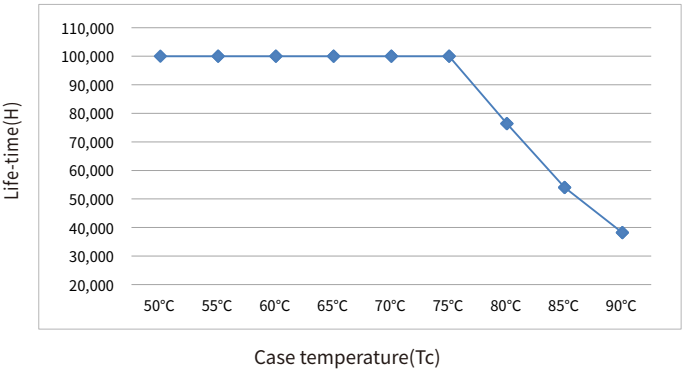
BK-BEL040-CxxxxA

Life-time vs. case temperature



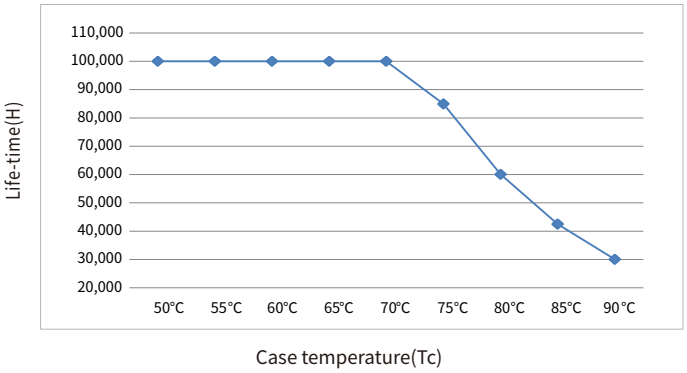
BK-BEL042-AxxxxA

Life-time vs. case temperature



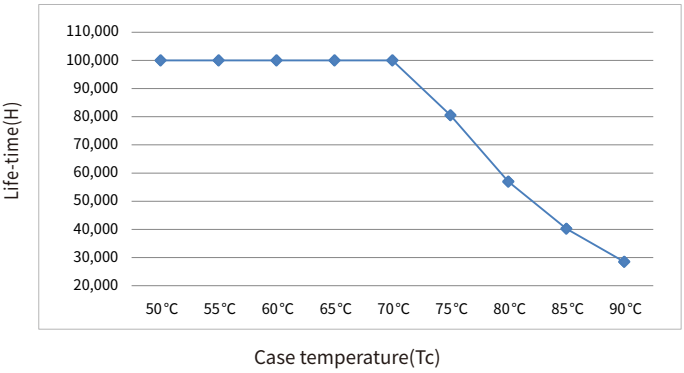
BK-BEL050-AxxxxA

Life-time vs. case temperature



BK-BEL060-AxxxxA

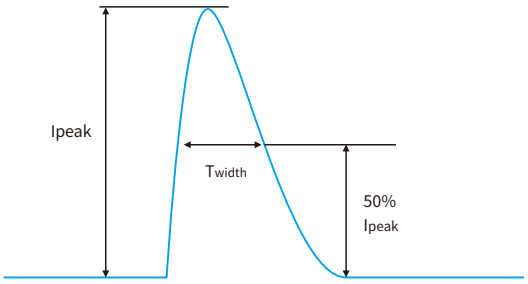
Life-time vs. case temperature



-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-BEL009-B	5.1A	230us	AC 230V,Full load, Cold start,Ta≤30°C, MCB is not installed side by side	54	70	86	107	134	89	116	143	178	223	123	160	198	247	309
BK-BEL013-B	6A	208us		50	65	80	100	125	85	108	133	167	209	93	120	148	185	231
BK-BEL018-A	13.75A	220us		21	27	33	41	52	34	45	55	69	86	69	89	110	137	172
BK-BEL022-A	13.5A	220us		21	27	34	42	53	35	46	56	70	88	60	77	95	119	149
BK-BEL040-C	20A	356us		8	10	13	16	20	13	17	21	26	33	26	34	42	53	66
BK-BEL042-A	14.22A	270us		16	20	25	31	39	26	34	41	52	65	32	42	52	65	81
BK-BEL050-A	18.4A	302us		10	13	16	21	26	17	22	27	34	43	27	35	44	55	68
BK-BEL060-A	23.65A	358us		7	9	11	13	17	11	15	18	22	28	22	29	35	44	55



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.

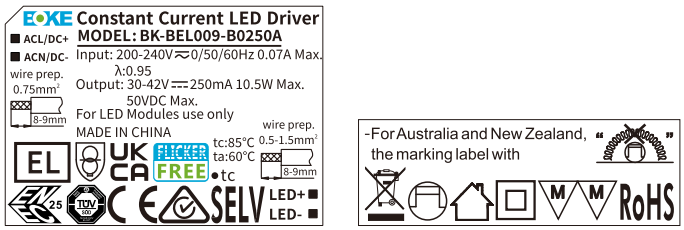
Please turn off the driver first if you need to connect the LED load.

Insulation between circuits

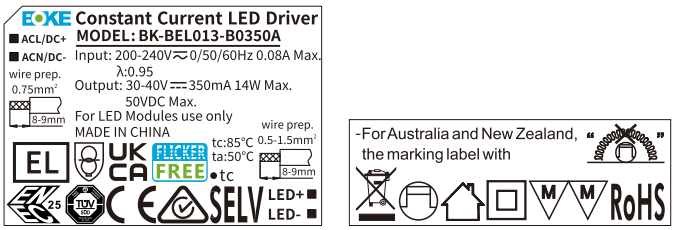
Isolation	Input	Output	Case
Input	-	Double	Double
Output	Double	-	Basic
Case	Double	Basic	-

Label

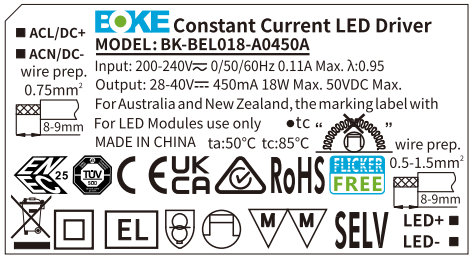
BEL009-B



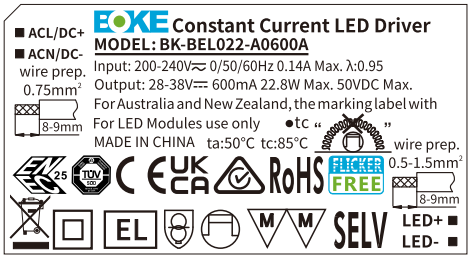
BEL013-B



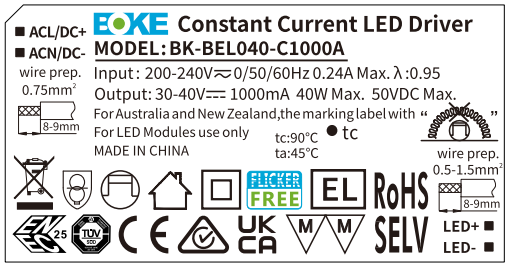
BEL018-A



BEL022-A

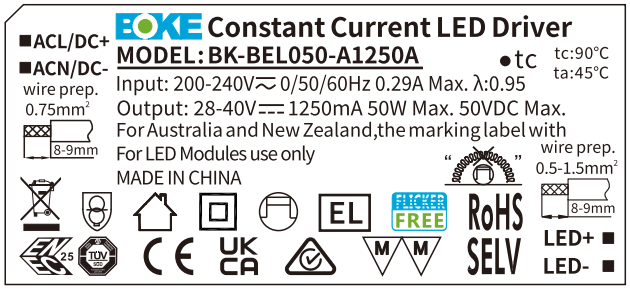


BEL040-C

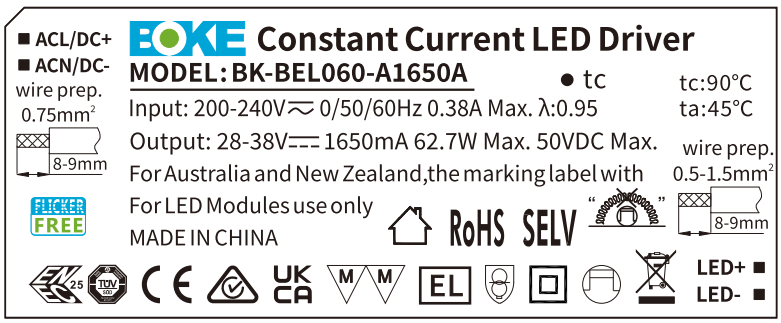


BEL042-A

BEL050-A



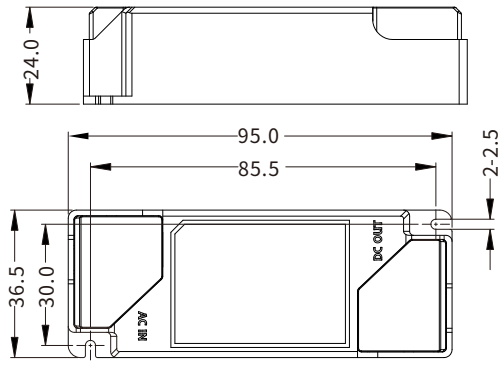
BEL060-A



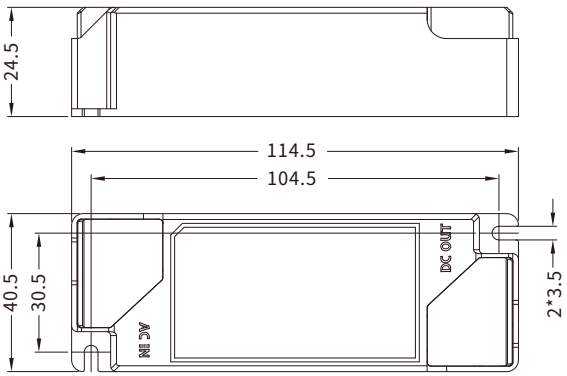
Installation

Unit:mm

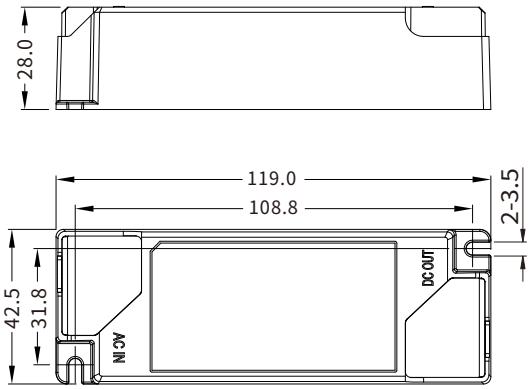
BEL009-B/BEL013-B



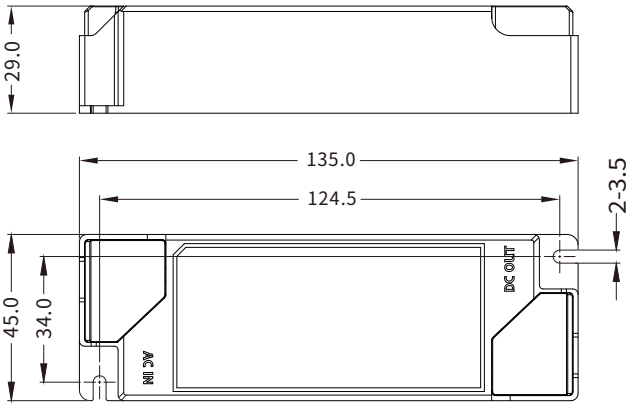
BEL018-A/BEL022-A



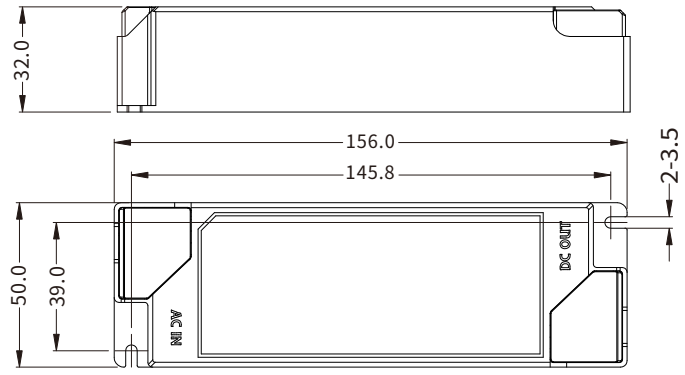
BEL040-C



BEL042-A/BEL050-A



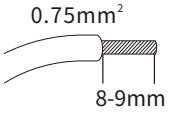
BEL060-A



INPUT

Numbering	function	colour
1	ACL/DC+	orange
2	ACN/DC-	orange

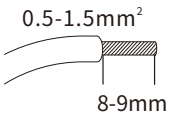
Input wire



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.

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.

Mounting screw specifications and torque

- Max. torque at the clamping screw: 0.5 Nm / M3

Replace LED module

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

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 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.

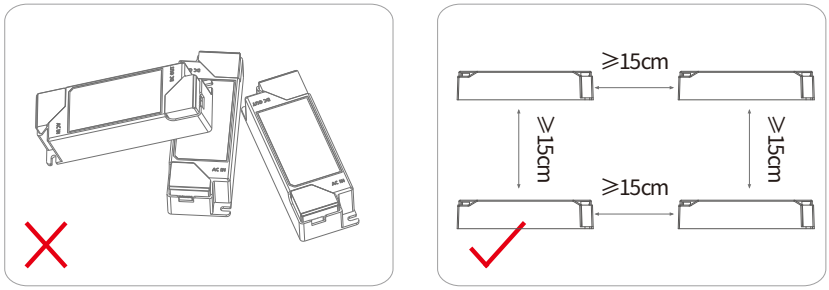


Figure 1

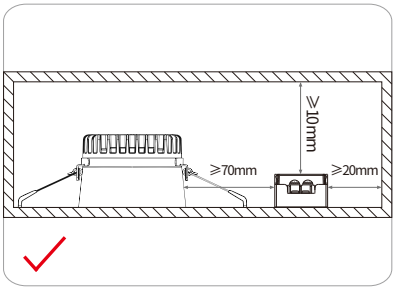
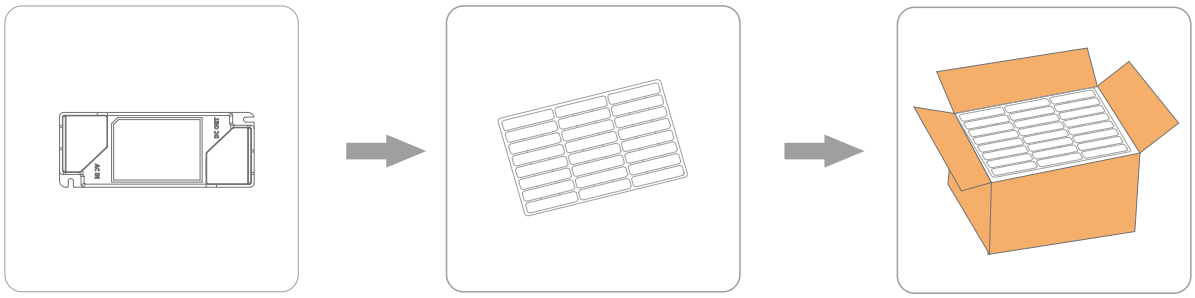


Figure 2

Packaging

Optional 1: factory default



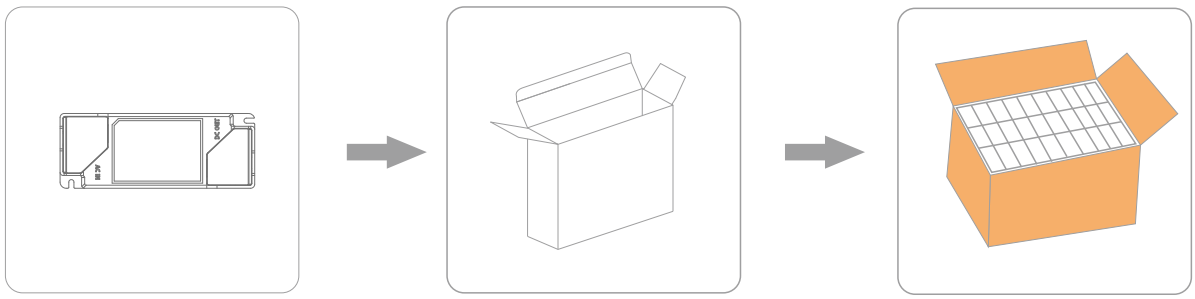
Product

Blister

24pcs×6layer=144pcs/CIN
24pcs×3layer=72pcs/CIN
18pcs×3layer=54pcs/CIN

Model	Product size	Weight	Blister size	Carton size	Qty/carton	N.W	G.W
BEL009-B	L95*W36.5*H24mm	54g	L430*W340*H25mm	L450*W350*H180mm	144pcs	7.78kg	9.23kg
BEL013-B	L95*W36.5*H24mm	54g	L430*W340*H25mm	L450*W350*H180mm	144pcs	7.78kg	9.23kg
BEL018-A	L114.5*W41*H24.5mm	65g	L430*W340*H47mm	L450*W350*H180mm	72pcs	4.68kg	5.70kg
BEL022-A	L114.5*W41*H24.5mm	65g	L430*W340*H47mm	L450*W350*H180mm	72pcs	4.68kg	5.70kg
BEL040-C	L119*W42.5*H28mm	102.4g	L430*W340*H47mm	L450*W350*H180mm	72pcs	7.37kg	8.50kg
BEL042-A	L135*W45*H29mm	118g	L430*W340*H47mm	L450*W350*H180mm	72pcs	8.50kg	10.5kg
BEL050-A	L135*W45*H29mm	151g	L430*W340*H47mm	L450*W350*H180mm	72pcs	10.9kg	12.0kg
BEL060-A	L156*W50*H38mm	195g	L430*W340*H48mm	L450*W350*H180mm	54pcs	10.5kg	12.0kg

Optional 2:



Product

Packaging

30pcs×5layer=150pcs/CIN
60pcs×1layer=60pcs/CIN
14pcs×4layer=56pcs/CIN
18pcs×3layer=54pcs/CIN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
BEL009-B	L95*W36.5*H24mm	54g	L125*W30*45mm	L395*W320*H240mm	150pcs	8.10kg	9.50kg
BEL013-B	L95*W36.5*H24mm	54g	L125*W30*45mm	L395*W320*H240mm	150pcs	8.10kg	9.50kg
BEL018-A	L114.5*W41*H24.5mm	65g	L140*W35*H50mm	L345*W310*H170mm	54pcs	3.51kg	4.81kg
BEL022-A	L114.5*W41*H24.5mm	65g	L140*W35*H50mm	L345*W310*H170mm	54pcs	3.51kg	4.81kg
BEL040-C	L119*W42.5*H28mm	102.4g	L140*W35*H50mm	L345*W310*H170mm	54pcs	5.53kg	6.83kg
BEL042-A	L135*W45*H29mm	118g	L169*W42*H55mm	L450*W350*H180mm	60pcs	7.08kg	8.38kg
BEL050-A	L135*W45*H29mm	151g	L169*W42*H55mm	L450*W350*H180mm	60pcs	9.06kg	10.4kg
BEL060-A	L156*W50*H38mm	195g	L178*W59*H50mm	L440*W375*H222mm	56pcs	10.9kg	12.0kg

Additional information

1. This product can only be used outside the light body, Can not be used inside of the light, and it must be used within the specified working environment.
2. The life and MTBF of the product are for reference only, and do not represent a warranty statement.
3. For more information, please send an email to info@bokedriver.com.