# Constant current independent driver
# PQL Series


## Features

- Soft dimming and flicker-free at any brightness
- Screw-free design,easywiring
- Pushable strain relief design,easy to crimp and install
- Compact housing design
- High PF, high efficiency, low THD
- SELV and Class II design, suitable for use outside of the light
- Passed ENEC-TUV,CE,RCM,CCC and other certifications
- IP20 protection grade, indoor use
- Nominal life-time up to 100,000 h
- 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
- 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 - PQLXXX - XXXX

- Output current
- Product series
- BOKE

## Technical data

| | | |
|---|---|---|
| Product model | BK-PQL009-0250 | |
| Output parameters | | |
| Regulation method | Constant Current | |
| Rated output current | 0.15-0.25A | |
| Rated output voltage | 28-42V | |
| Rated output power | 10.5W Max | |
| Output current adjustment | N/A | |
| Output current ripple LF | ±1% | |
| Output current accuracy | ±15mA@230VAC | |
| Linear regulation | ±5% | |
| Load regulation | ±5% | |
| No load output voltage | 50V | |
| Flicker-free(typical) | Modulation depth =0.850% (100 Hz), Pst LM = 0.164, SVM = 0.022,(The above parameters are obtained from testing the panel lights) | |
| Input parameters | | |
| Rated input voltage | 200-240VAC 200-240VDC | |
| Rated input voltage | 180-264VAC 180-264VDC | |
| Input votage shock | <380V AC, 1 h | |
| Input current | <0.1A (AC input) | |
| Input frequency | 47-63Hz | |
| Input power factor | >0.95 (230V AC & Full load) | |
| Input THD | <10% (230V AC & Full load) | |
| Efficiency(typical) | 83% (230V AC & Full load) | |
| In-rush current | 6.84A peak ,212us 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(Pmax):10.5W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | |
| Safety | | |
| Withstand voltage | I/P-O/P:3750V AC | |
| Mains surge capability | L-N:2KV | |
| Leakage current | <0.7mA (230V AC & Full load) | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | |
| Control interface | | |
| DALI dimming port | N/A | |
| PUSH dimming port | N/A | |
| 1-10V 2in1 dimming port | N/A | |
| Auxiliary power supply | N/A | |
| Dimming range | N/A | |
| Dimming drive mode | N/A | |
| Emergency support | | |
| Central emergency system | Supported(Support 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, 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, Full load) | |
| Environmental protection | RoHS | |
| Certifications and standards | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | |
| 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 | N/A | |
| 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-PQL013-0300 | BK-PQL013-0350 | |
|---|---|---|---|
| Output parameters | | | |
| Regulation method | Constant Current | Constant Current | |
| Rated output current | 0.25-0.3A | 0.3-0.35A | |
| Rated output voltage | 28-42V | 28-40V | |
| Rated output power | 12.6W Max | 14W Max | |
| Output current adjustment | N/A | N/A | |
| Output current ripple LF | ±1% | ±1% | |
| Output current accuracy | ±20mA@230VAC | ±25mA@230VAC | |
| Linear regulation | ±5% | ±5% | |
| Load regulation | ±5% | ±5% | |
| No load output voltage | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.980% (100 Hz), Pst LM = 0.117, SVM = 0.016,(The above parameters are obtained from testing the panel lights) | | |
| Input parameters | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | |
| Rated input voltage | 180-264VAC 180-264VDC | | |
| Input votage shock | <380V AC, 1 h | | |
| Input current | <0.1A (AC input) | | |
| Input frequency | 47-63Hz | | |
| Input power factor | >0.95 (230V AC & Full load) | | |
| Input THD | <10% (230V AC & Full load) | | |
| Efficiency(typical) | 83% (230V AC & Full load) | | |
| In-rush current | 6.78A peak ,222us 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(Pmax):14.7W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | |
| Safety | | | |
| Withstand voltage | I/P-O/P:3750V AC | | |
| Mains surge capability | L-N:2KV | | |
| Leakage current | <0.7mA (230V AC & Full load) | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | |
| Control interface | | | |
| DALI dimming port | N/A | | |
| PUSH dimming port | N/A | | |
| 1-10V 2in1 dimming port | N/A | | |
| Auxiliary power supply | N/A | | |
| Dimming range | N/A | | |
| Dimming drive mode | N/A | | |
| Emergency support | | | |
| Central emergency system | Supported(Support 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, 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, Full load) | | |
| Environmental protection | RoHS | | |
| Certifications and standards | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | |
| 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 | N/A | | |
| 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-PQL018-0400 | BK-PQL018-0450 | |
|---|---|---|---|
| Output parameters | | | |
| Regulation method | Constant Current | Constant Current | |
| Rated output current | 0.3-0.4A | 0.4-0.45A | |
| Rated output voltage | 28-42V | 28-40V | |
| Rated output power | 16.8W Max | 18W Max | |
| Output current adjustment | N/A | N/A | |
| Output current ripple LF | ±1% | ±1% | |
| Output current accuracy | ±20mA@230VAC | ±25mA@230VAC | |
| Linear regulation | ±5% | ±5% | |
| Load regulation | ±5% | ±5% | |
| No load output voltage | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.818% (100 Hz), Pst LM = 0.135, SVM = 0.023,(The above parameters are obtained from testing the panel lights) | | |
| Input parameters | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | |
| Rated input voltage | 180-264VAC 180-264VDC | | |
| Input votage shock | <380V AC, 1 h | | |
| Input current | <0.15A (AC input) | | |
| Input frequency | 47-63Hz | | |
| Input power factor | >0.95 (230V AC & Full load) | | |
| Input THD | <10% (230V AC & Full load) | | |
| Efficiency(typical) | 85% (230V AC & Full load) | | |
| In-rush current | 7.86A peak ,190us 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(Pmax):18W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | |
| Safety | | | |
| Withstand voltage | I/P-O/P:3750V AC | | |
| Mains surge capability | L-N:2KV | | |
| Leakage current | <0.7mA (230V AC & Full load) | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | |
| Control interface | | | |
| DALI dimming port | N/A | | |
| PUSH dimming port | N/A | | |
| 1-10V 2in1 dimming port | N/A | | |
| Auxiliary power supply | N/A | | |
| Dimming range | N/A | | |
| Dimming drive mode | N/A | | |
| Emergency support | | | |
| Central emergency system | Supported(Support DC input) | | |
| Self-contained emergency | Supported | | |
| Environment & Life time | | | |
| Operating temperature | Ta=-20-50°C | | |
| Case temperature | Tc=90°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, Full load) | | |
| Environmental protection | RoHS | | |
| Certifications and standards | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | |
| 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 | N/A | | |
| 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-PQL022-0500 | BK-PQL022-0550 | BK-PQL022-0600 | |
|---|---|---|---|---|
| Output parameters | | | | |
| Regulation method | Constant Current | Constant Current | Constant Current | |
| Rated output current | 0.4-0.5A | 0.5-0.55A | 0.55-0.6A | |
| Rated output voltage | 28-42V | 28-40V | 28-38V | |
| Rated output power | 21W Max | 22W Max | 22. 8W Max | |
| Output current adjustment | N/A | N/A | N/A | |
| Output current ripple LF | ±1% | ±1% | ±1% | |
| Output current accuracy | ±25mA@230VAC | ±30mA@230VAC | ±30mA@230VAC | |
| Linear regulation | ±5% | ±5% | ±5% | |
| Load regulation | ±5% | ±5% | ±5% | |
| No load output voltage | 50V | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.774% (100 Hz), Pst LM = 0.207, SVM = 0.019,(The above parameters are obtained from testing the panel lights) | | | |
| Input parameters | | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | | |
| Rated input voltage | 180-264VAC 180-264VDC | | | |
| Input votage shock | <380V AC, 1 h | | | |
| Input current | <0.2A (AC input) | | | |
| Input frequency | 47-63Hz | | | |
| Input power factor | >0.95 (230V AC & Full load) | | | |
| Input THD | <10% (230V AC & Full load) | | | |
| Efficiency(typical) | 85% (230V AC & Full load) | | | |
| In-rush current | 6.63A peak ,200us 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(Pmax):22.8W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | | |
| Safety | | | | |
| Withstand voltage | I/P-O/P:3750V AC | | | |
| Mains surge capability | L-N:2KV | | | |
| Leakage current | <0.7mA (230V AC & Full load) | | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | | |
| Control interface | | | | |
| DALI dimming port | N/A | | | |
| PUSH dimming port | N/A | | | |
| 1-10V 2in1 dimming port | N/A | | | |
| Auxiliary power supply | N/A | | | |
| Dimming range | N/A | | | |
| Dimming drive mode | N/A | | | |
| Emergency support | | | | |
| Central emergency system | Supported(Support DC input) | | | |
| Self-contained emergency | Supported | | | |
| Environment & Life time | | | | |
| Operating temperature | Ta=-20-50°C | | | |
| Case temperature | Tc=90°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, Full load) | | | |
| Environmental protection | RoHS | | | |
| Certifications and standards | | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | | |
| 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 | N/A | | | |
| 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-PQL040-0950 | BK-PQL040-1000 | |
|---|---|---|---|
| Output parameters | | | |
| Regulation method | Constant Current | Constant Current | |
| Rated output current | 0.55-0.95A | 0.95-1A | |
| Rated output voltage | 28-42V | 28-40V | |
| Rated output power | 39.9W Max | 40W Max | |
| Output current adjustment | N/A | N/A | |
| Output current ripple LF | ±1% | ±1% | |
| Output current accuracy | ±5% | ±5% | |
| Linear regulation | ±5% | ±5% | |
| Load regulation | ±5% | ±5% | |
| No load output voltage | 52V | 52V | |
| Flicker-free(typical) | Modulation depth =0.228% (100 Hz), Pst LM = 0.015, SVM = 0.005,(The above parameters are obtained from testing the panel lights) | | |
| Input parameters | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | |
| Rated input voltage | 180-264VAC 180-264VDC | | |
| Input votage shock | <380V AC, 1 h | | |
| Input current | <0.3A (AC input) | | |
| Input frequency | 47-63Hz | | |
| Input power factor | >0.95 (230V AC & Full load) | | |
| Input THD | <10% (230V AC & Full load) | | |
| Efficiency(typical) | 89% (230V AC & Full load) | | |
| In-rush current | 14A peak ,280us 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(Pmax):40W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | |
| Safety | | | |
| Withstand voltage | I/P-O/P:3750V AC | | |
| Mains surge capability | L-N:2KV | | |
| Leakage current | <0.7mA (230V AC & Full load) | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | |
| Control interface | | | |
| DALI dimming port | N/A | | |
| PUSH dimming port | N/A | | |
| 1-10V 2in1 dimming port | N/A | | |
| Auxiliary power supply | N/A | | |
| Dimming range | N/A | | |
| Dimming drive mode | N/A | | |
| Emergency support | | | |
| Central emergency system | Supported(Support 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, 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, Full load) | | |
| Environmental protection | RoHS | | |
| Certifications and standards | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | |
| 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 | N/A | | |
| 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-PQL042-1000 | BK-PQL042-1050 | BK-PQL042-1100 | |
|---|---|---|---|---|
| Output parameters | | | | |
| Regulation method | Constant Current | Constant Current | Constant Current | |
| Rated output current | 0.6-1A | 1-1.05A | 1. 05-1.1A | |
| Rated output voltage | 28-42V | 28-40V | 28-38V | |
| Rated output power | 42W Max | 42W Max | 41.8W Max | |
| Output current adjustment | N/A | N/A | N/A | |
| 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 | 50V | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.423% (100 Hz), Pst LM = 0.019, SVM = 0.009,(The above parameters are obtained from testing the panel lights) | | | |
| Input parameters | | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | | |
| Rated input voltage | 180-264VAC 180-264VDC | | | |
| Input votage shock | <380V AC, 1 h | | | |
| Input current | <0.35A (AC input) | | | |
| Input frequency | 47-63Hz | | | |
| Input power factor | >0.95 (230V AC & Full load) | | | |
| Input THD | <10% (230V AC & Full load) | | | |
| Efficiency(typical) | 89% (230V AC & Full load) | | | |
| In-rush current | 14.5A peak ,290us 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(Pmax):42W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | | |
| Safety | | | | |
| Withstand voltage | I/P-O/P:3750V AC | | | |
| Mains surge capability | L-N:2KV | | | |
| Leakage current | <0.7mA (230V AC & Full load) | | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | | |
| Control interface | | | | |
| DALI dimming port | N/A | | | |
| PUSH dimming port | N/A | | | |
| 1-10V 2in1 dimming port | N/A | | | |
| Auxiliary power supply | N/A | | | |
| Dimming range | N/A | | | |
| Dimming drive mode | N/A | | | |
| Emergency support | | | | |
| Central emergency system | Supported(Support DC input) | | | |
| Self-contained emergency | Supported | | | |
| Environment & Life time | | | | |
| Operating temperature | Ta=-20-45°C | | | |
| Case temperature | Tc=85°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, Full load) | | | |
| Environmental protection | RoHS | | | |
| Certifications and standards | | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | | |
| 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 | N/A | | | |
| 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-PQL050-1200 | BK-PQL050-1250 | |
|---|---|---|---|
| Output parameters | | | |
| Regulation method | Constant Current | Constant Current | |
| Rated output current | 1-1.2A | 1.2-1.25A | |
| Rated output voltage | 28-42V | 28-40V | |
| Rated output power | 50.4W Max | 50W Max | |
| Output current adjustment | N/A | N/A | |
| Output current ripple LF | ±1% | ±1% | |
| Output current accuracy | ±5% | ±5% | |
| Linear regulation | ±5% | ±5% | |
| Load regulation | ±5% | ±5% | |
| No load output voltage | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.244% (100 Hz), Pst LM = 0.022, SVM = 0.007,(The above parameters are obtained from testing the panel lights) | | |
| Input parameters | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | |
| Rated input voltage | 180-264VAC 180-264VDC | | |
| Input votage shock | <380V AC, 1 h | | |
| Input current | <0.4A (AC input) | | |
| Input frequency | 47-63Hz | | |
| Input power factor | >0.95 (230V AC & Full load) | | |
| Input THD | <10% (230V AC & Full load) | | |
| Efficiency(typical) | 89% (230V AC & Full load) | | |
| In-rush current | 15.6A peak ,310us 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(Pmax):50.4W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | |
| Safety | | | |
| Withstand voltage | I/P-O/P:3750V AC | | |
| Mains surge capability | L-N:2KV | | |
| Leakage current | <0.7mA (230V AC & Full load) | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | |
| Control interface | | | |
| DALI dimming port | N/A | | |
| PUSH dimming port | N/A | | |
| 1-10V 2in1 dimming port | N/A | | |
| Auxiliary power supply | N/A | | |
| Dimming range | N/A | | |
| Dimming drive mode | N/A | | |
| Emergency support | | | |
| Central emergency system | Supported(Support DC input) | | |
| Self-contained emergency | Supported | | |
| Environment & Life time | | | |
| Operating temperature | Ta=-20-45°C | | |
| Case temperature | Tc=85°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, Full load) | | |
| Environmental protection | RoHS | | |
| Certifications and standards | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | |
| 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 | N/A | | |
| 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-PQL060-1400 | BK-PQL060-1500 | BK-PQL060-1600 | |
|---|---|---|---|---|
| Output parameters | | | | |
| Regulation method | Constant Current | Constant Current | Constant Current | |
| Rated output current | 1.25-1.4A | 1.4-1.5A | 1.5-1.6A | |
| Rated output voltage | 28-42V | 28-40V | 28-36V | |
| Rated output power | 58.8W Max | 60W Max | 57.6W Max | |
| Output current adjustment | N/A | N/A | N/A | |
| 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 | 50V | 50V | 50V | |
| Flicker-free(typical) | Modulation depth =0.510% (100 Hz), Pst LM = 0.004, SVM = 0.020,(The above parameters are obtained from testing the panel lights) | | | |
| Input parameters | | | | |
| Rated input voltage | 200-240VAC 200-240VDC | | | |
| Rated input voltage | 180-264VAC 180-264VDC | | | |
| Input votage shock | <380V AC, 1 h | | | |
| Input current | <0.45A (AC input) | | | |
| Input frequency | 47-63Hz | | | |
| Input power factor | >0.95 (230V AC & Full load) | | | |
| Input THD | <10% (230V AC & Full load) | | | |
| Efficiency(typical) | 89% (230V AC & Full load) | | | |
| In-rush current | 8.7A peak ,202us 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(Pmax):60W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A | | | |
| Safety | | | | |
| Withstand voltage | I/P-O/P:3750V AC | | | |
| Mains surge capability | L-N:2KV | | | |
| Leakage current | <0.7mA (230V AC & Full load) | | | |
| Isolation resistance | I/P-O/P:100MΩ/500Vdc/25°C/70% RH | | | |
| Control interface | | | | |
| DALI dimming port | N/A | | | |
| PUSH dimming port | N/A | | | |
| 1-10V 2in1 dimming port | N/A | | | |
| Auxiliary power supply | N/A | | | |
| Dimming range | N/A | | | |
| Dimming drive mode | N/A | | | |
| Emergency support | | | | |
| Central emergency system | Supported(Support 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, 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, Full load) | | | |
| Environmental protection | RoHS | | | |
| Certifications and standards | | | | |
| Certified | ENEC-TUV, RCM, EMC, CE, CCC | | | |
| 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 | N/A | | | |
| RF | N/A | | | |

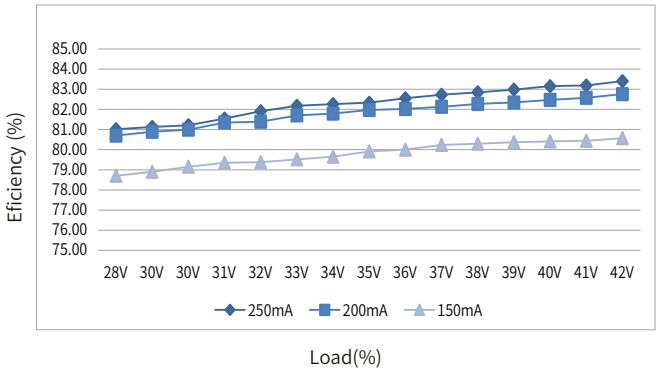
## Remarks

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.

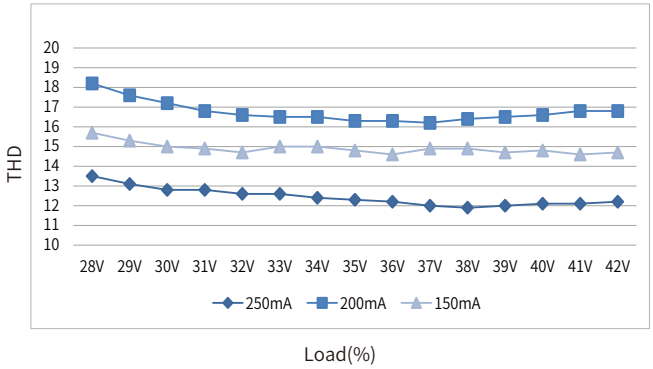
## Electrical values

### BK-PQL009-0250

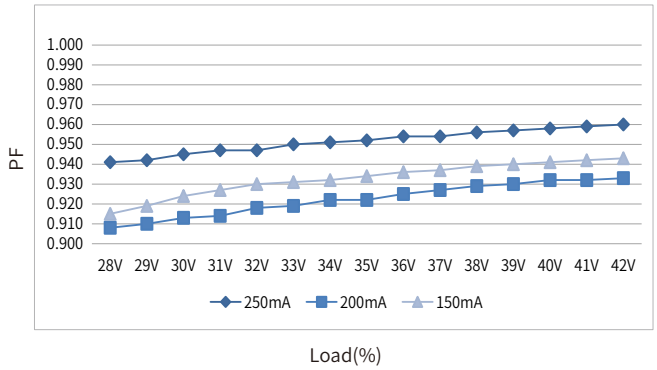
Efficiency vs load




THD vs. Load

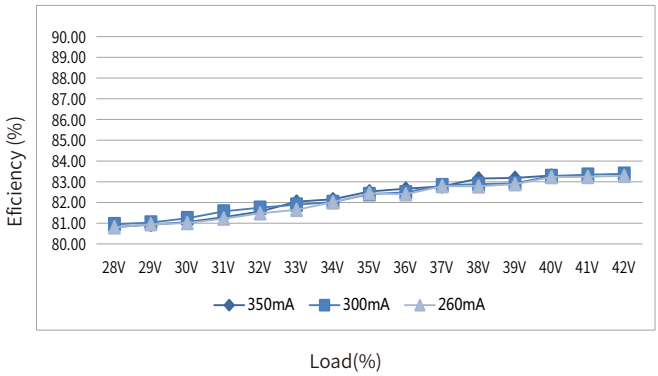



Power factor vs. Load

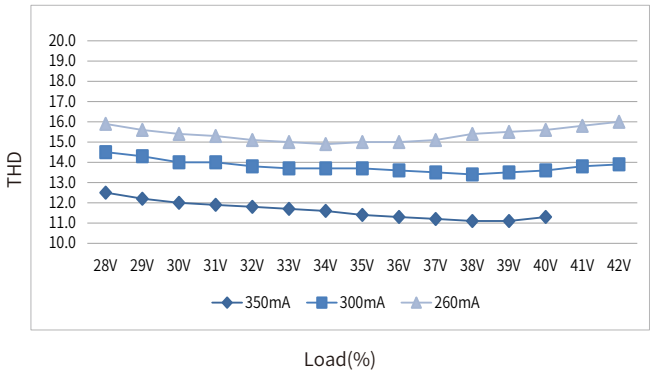



### BK-PQL013-0350

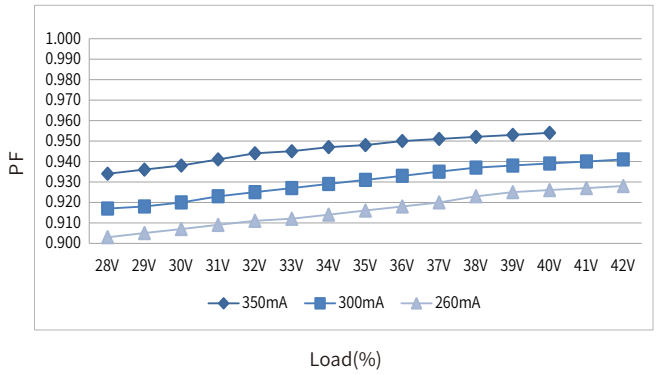
Efficiency vs load




THD vs. Load



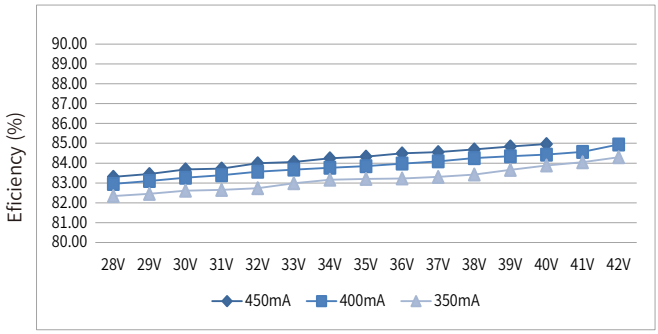

Power factor vs. Load



## Electrical values

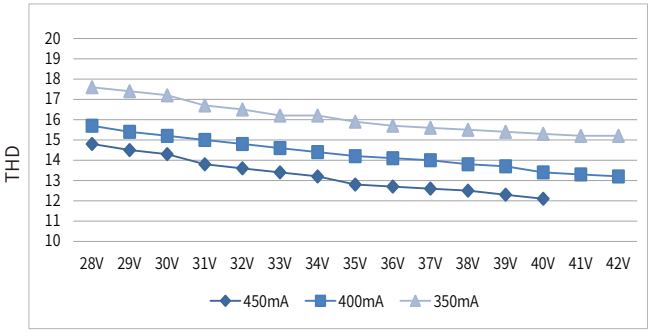
### BK-PQL018-0450

Efficiency vs load



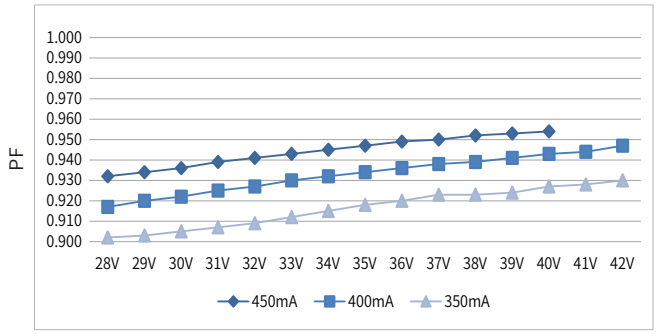

Load(%)

THD vs. Load




Load(%)

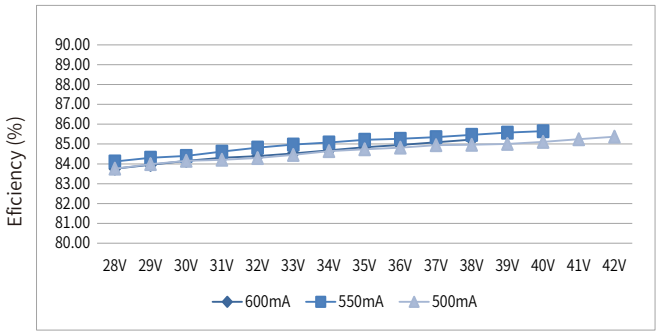
Power factor vs. Load




Load(%)

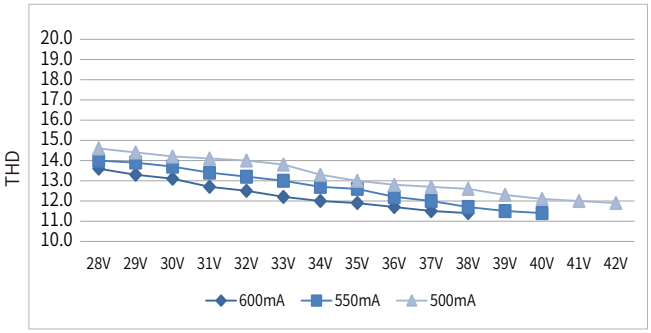
### BK-PQL022-0600

Efficiency vs load



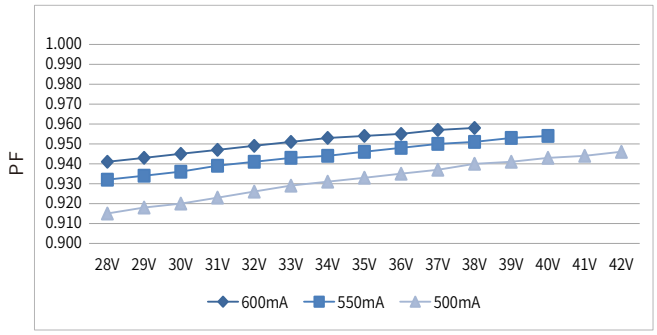

Load(%)

THD vs. Load




Load(%)

Power factor vs. Load

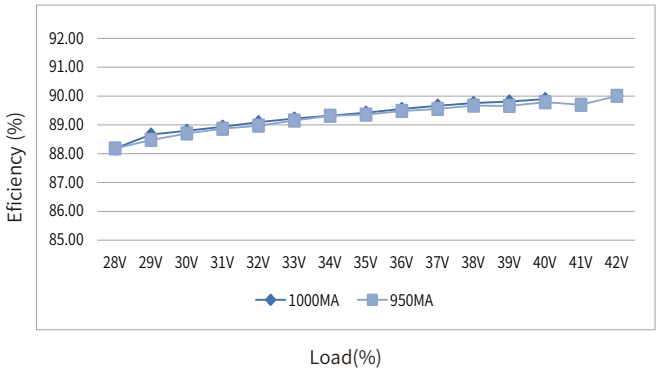



Load(%)

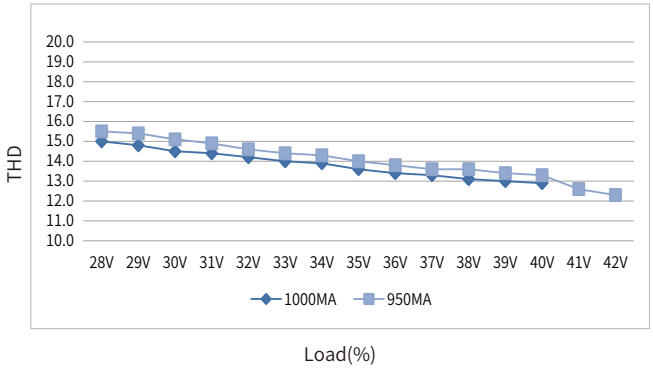
## Electrical values

### BK-PQL040-1000

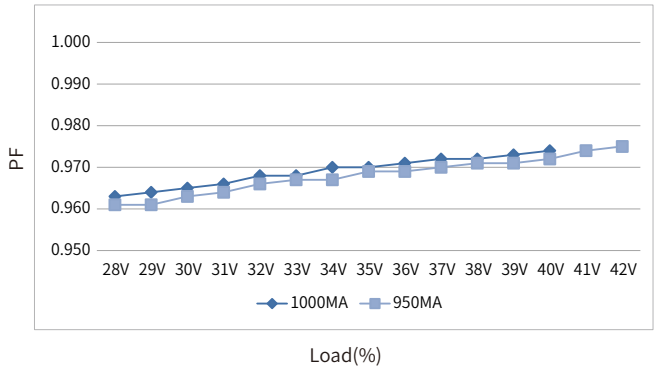
Efficiency vs load




THD vs. Load

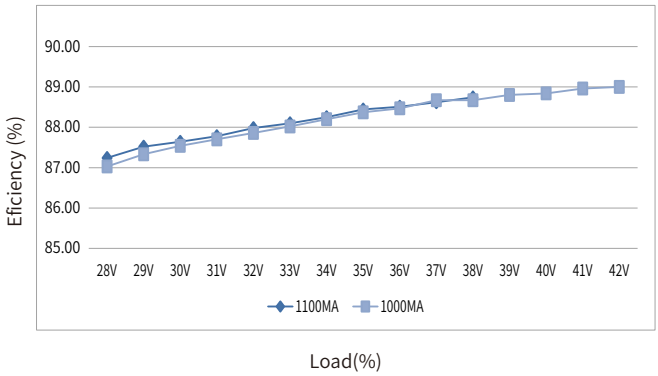



Power factor vs. Load

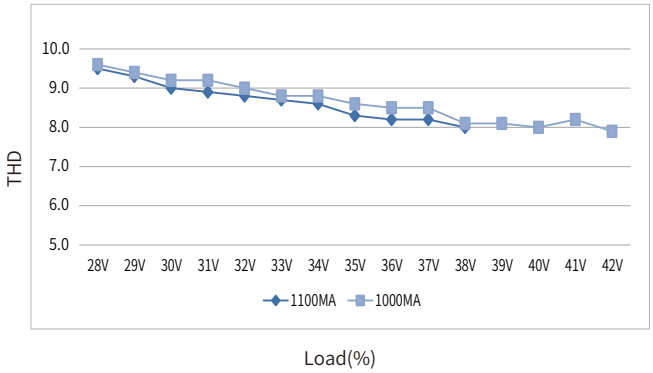



### BK-PQL042-1100

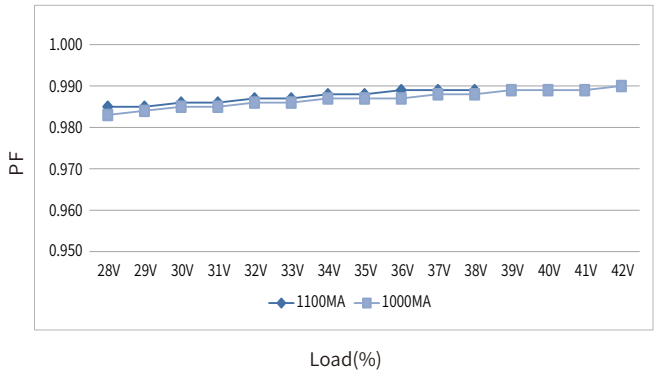
Efficiency vs load




THD vs. Load



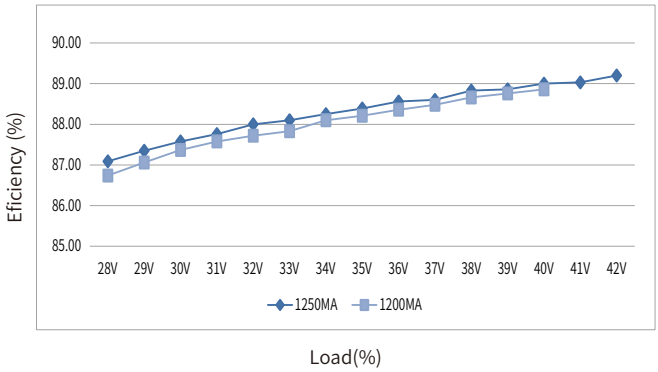

Power factor vs. Load



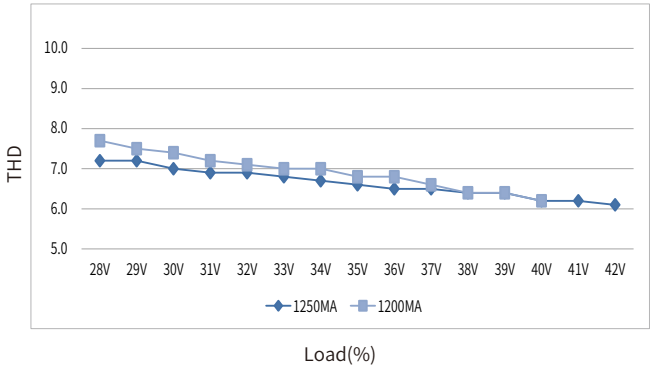
## Electrical values

### BK-PQL050-1250

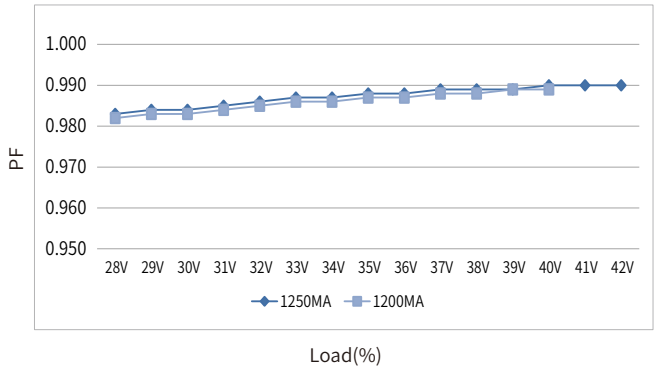
Efficiency vs load




THD vs. Load

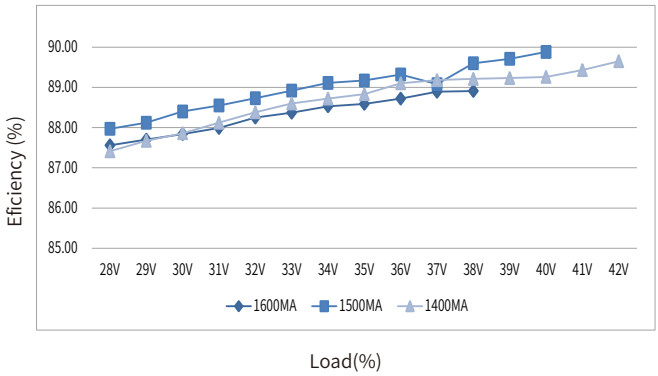



Power factor vs. Load

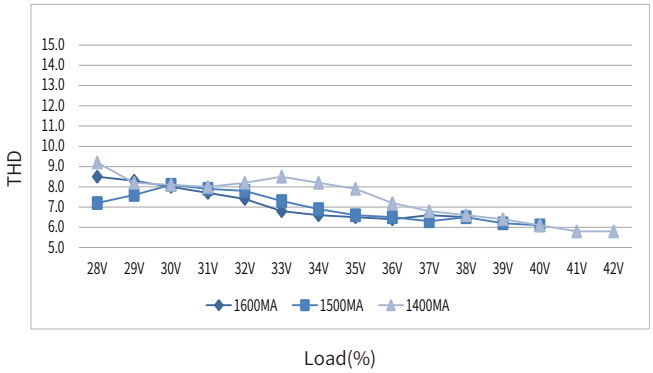



### BK-PQL060-1500

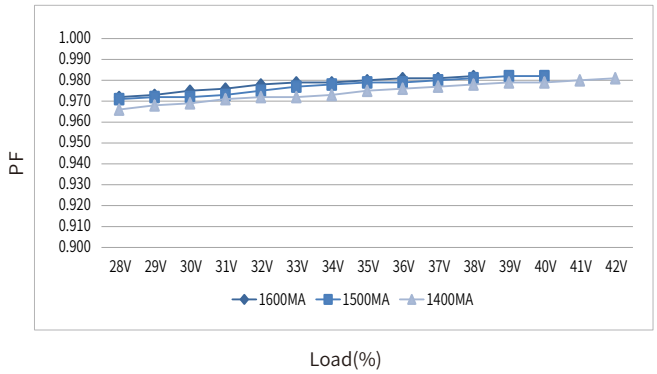
Efficiency vs load




THD vs. Load



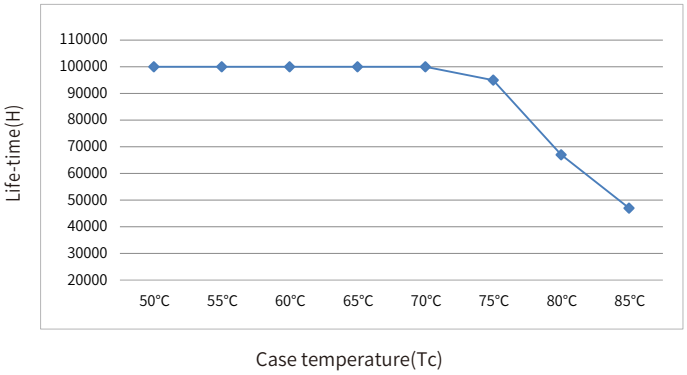

Power factor vs. Load



## Expected life-time

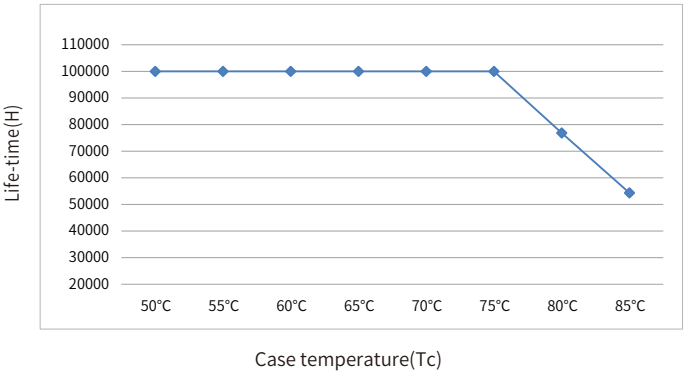
**BK-PQL009-0250**

Life-time vs. case temperature



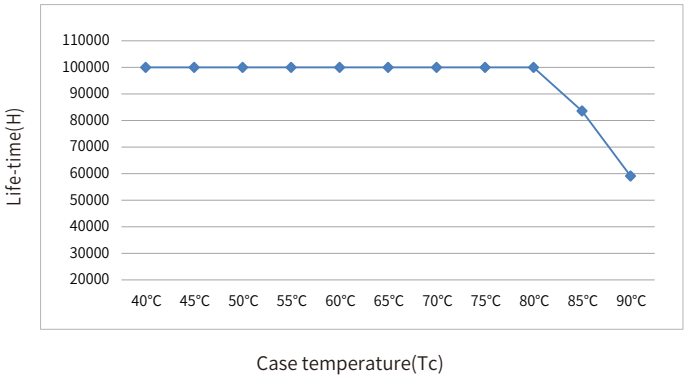

**BK-PQL013-0350**

Life-time vs. case temperature



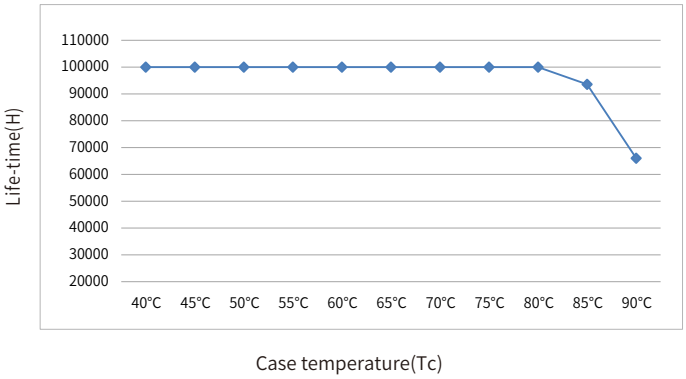

**BK-PQL018-0450**

Life-time vs. case temperature



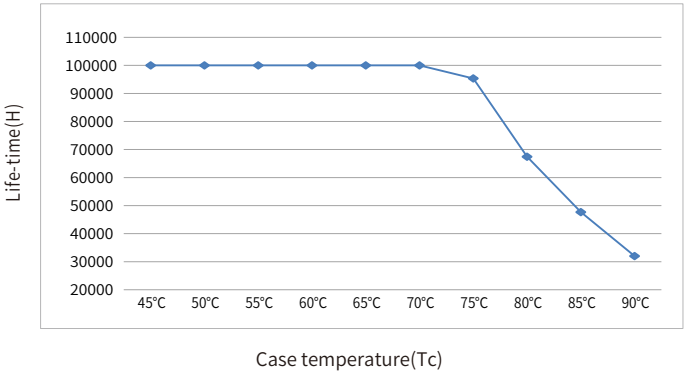

**BK-PQL022-0600**

Life-time vs. case temperature



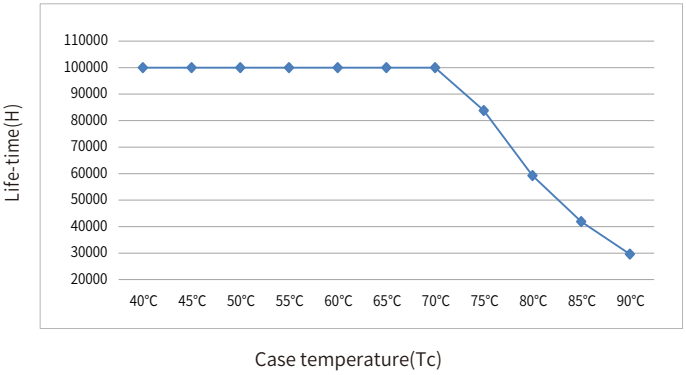

**BK-PQL040-1000**

Life-time vs. case temperature



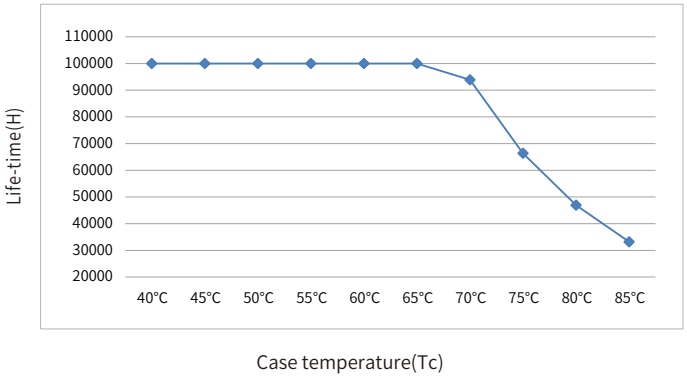

**BK-PQL042-1100**

Life-time vs. case temperature



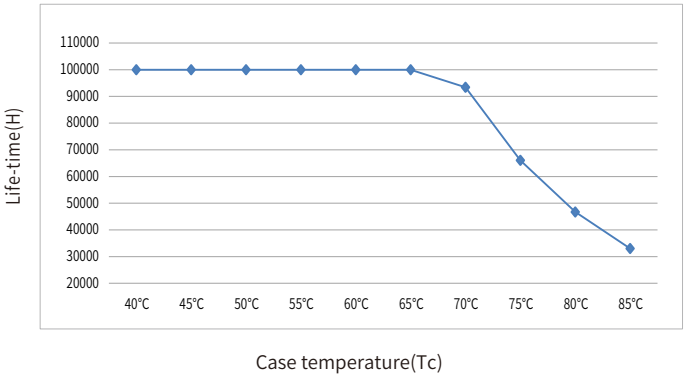

**BK-PQL050-1250**

Life-time vs. case temperature




**BK-PQL060-1500**

Life-time vs. case temperature

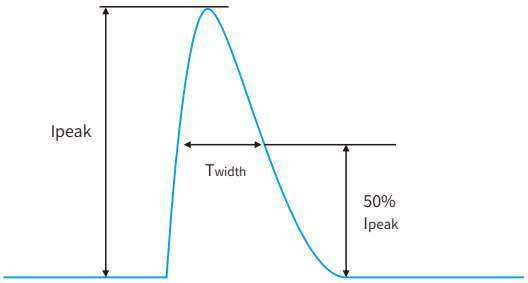



-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- 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-PQL009-0250 | 6.84A | 212us | AC 230V,Full load, Cold start,Ta≤30°C, MCB is not installed side by side | 43 | 55 | 68 | 85 | 107 | 71 | 92 | 114 | 142 | 178 | 123 | 160 | 197 | 246 | 307 |
| BK-PQL013-0350 | 6.78A | 222us | | 42 | 54 | 67 | 84 | 105 | 70 | 91 | 112 | 139 | 174 | 92 | 120 | 148 | 185 | 231 |
| BK-PQL018-0450 | 7.86A | 190us | | 42 | 55 | 68 | 84 | 106 | 70 | 91 | 113 | 141 | 176 | 74 | 96 | 118 | 147 | 184 |
| BK-PQL022-0600 | 6.63A | 200us | | 47 | 61 | 76 | 94 | 118 | 58 | 76 | 93 | 117 | 146 | 58 | 76 | 93 | 117 | 146 |
| BK-PQL040-1000 | 14A | 280us | | 15 | 20 | 24 | 30 | 38 | 25 | 33 | 40 | 50 | 63 | 35 | 45 | 56 | 70 | 87 |
| BK-PQL042-1100 | 14.5A | 290us | | 14 | 18 | 22 | 28 | 34 | 23 | 30 | 37 | 46 | 57 | 33 | 43 | 53 | 66 | 83 |
| BK-PQL050-1250 | 15.6A | 310us | | 12 | 16 | 19 | 24 | 30 | 20 | 26 | 32 | 40 | 50 | 28 | 36 | 45 | 56 | 70 |
| BK-PQL060-1600 | 8.7A | 202us | | 23 | 30 | 37 | 46 | 58 | 23 | 30 | 37 | 46 | 58 | 23 | 30 | 37 | 46 | 58 |




### 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**

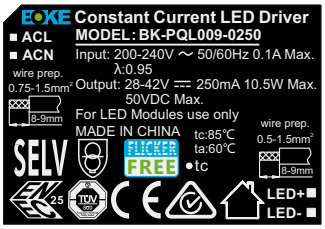
- Output short-circuit will not damage the driver.
- After removing the short-circuit fault point, the drive will automatically restore output.

**Output no-load operation**

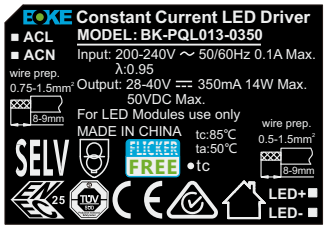
- Output no-load will not damage the driver.
- Please turn off the power supply of the driver first if you need to connect the LED load.

## Label

BK-PQL009

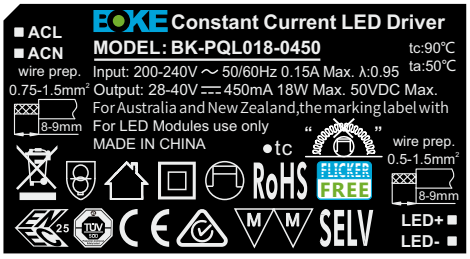



BK-PQL013



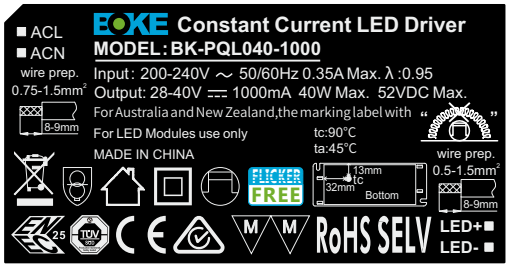

侧标


BK-PQL018




BK-PQL022


BK-PQL040



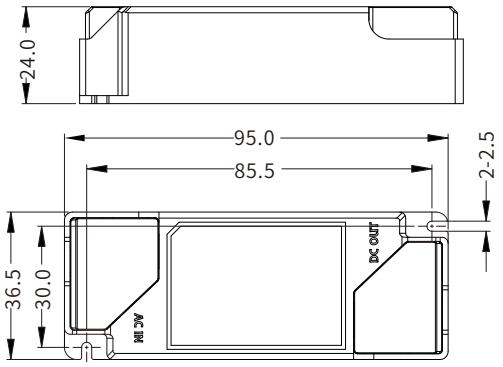

BK-PQL042


BK-PQL050

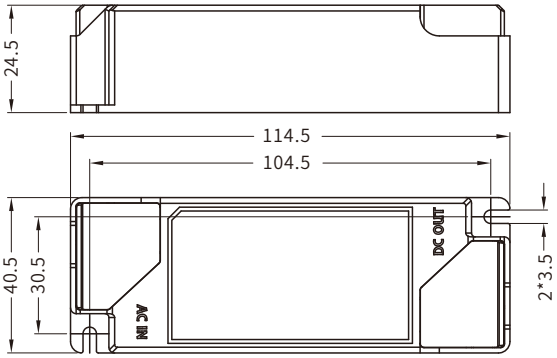

BK-PQL060

## Installation

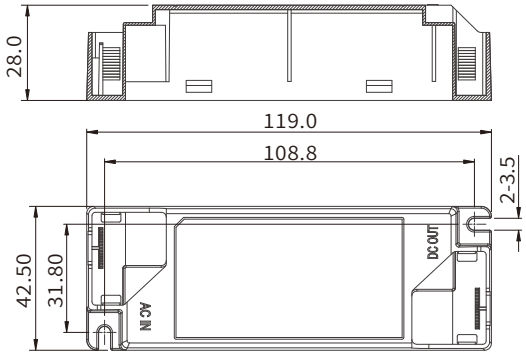
BK-PQL009/BK-PQL013



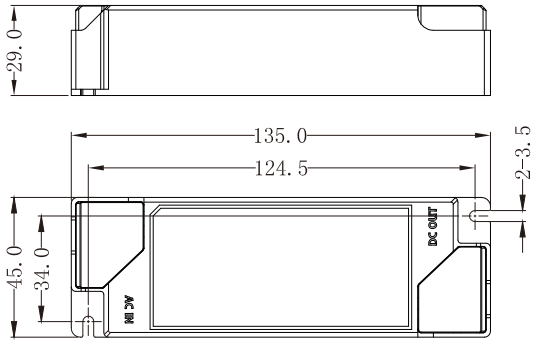

BK-PQL018/BK-PQL022




BK-PQL040

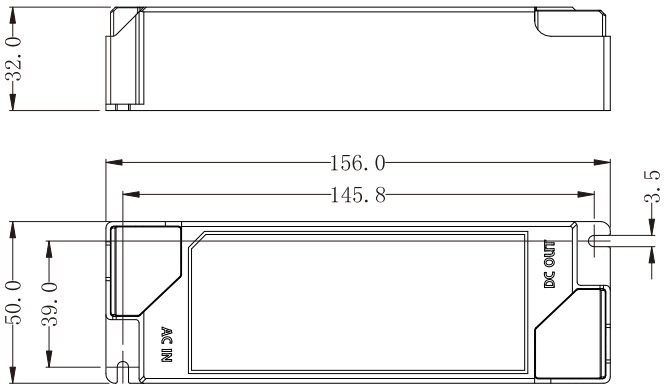



BK-PQL042/PQL050




Unit:mm

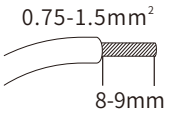
BK-PQL060




INPUT

| Pin Numbering | function | colour |
|---|---|---|
| 1 | ACL | orange |
| 2 | ACN | orange |

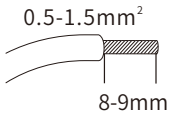
Input wire




OUTPUT

| Pin 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.

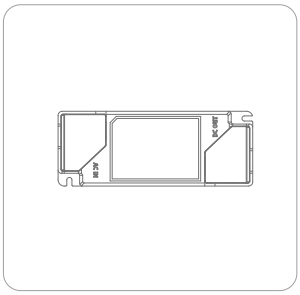
**Mounting screw specifications and torque**

- Max. torque at the clamping screw: 0.5 Nm / M4

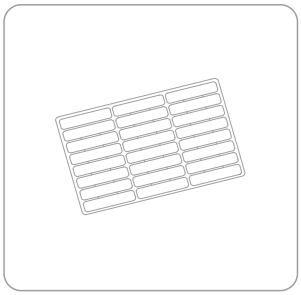
**Replace LED module**

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

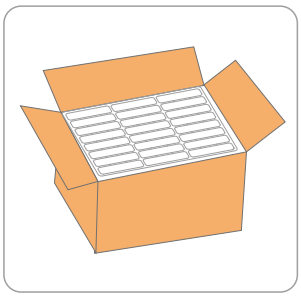
## Packaging



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 |
|---|---|---|---|---|---|---|---|
| PQL009 | L95*W36.5*H24mm | 55g | L430*W340*H25mm | L450*W350*H180mm | 144pcs | 7.92kg | 9.04kg |
| PQL013 | L95*W36.5*H24mm | 55g | L430*W340*H25mm | L450*W350*H180mm | 144pcs | 7.92kg | 9.04kg |
| PQL018 | L114.5*W41*H24.5mm | 75g | L430*W340*H47mm | L450*W350*H180mm | 72pcs | 5.40kg | 6.42kg |
| PQL022 | L114.5*W41*H24.5mm | 75g | L430*W340*H47mm | L450*W350*H180mm | 72pcs | 5.40kg | 6.42kg |
| PQL040 | L119*W42.5*H28mm | 95g | L430*W340*H47mm | L450*W350*H180mm | 72pcs | 6.90kg | 9.00kg |
| PQL042 | L135*W45*H29mm | 118g | L430*W340*H47mm | L450*W350*H180mm | 72pcs | 8.50kg | 10.5kg |
| PQL050 | L135*W45*H29mm | 151g | L430*W340*H47mm | L450*W350*H180mm | 72pcs | 10.9kg | 12.0kg |
| PQL060 | L156*W50*H38mm | 195g | L430*W340*H48mm | L450*W350*H180mm | 54pcs | 10.5kg | 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. If the drive has been turned on, there is no warranty.
3. For more information, please send an email to info@powerboke.com.

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