

Non-isolated Constant current linear dimmable driver
PYN Series suffix MV(0-10V/10V PWM dimming+12V auxiliary power)



The dimming interface is non isolated, cannot be connected to a dimmer for use. It is only suitable for dimming sensors, and one sensor is paired with one driver



Features

- Input and output non-isolated
- Non-selv 12V power output
- Support 0-10V/10V PWM dimming+12V auxiliary power
- Provide 12V 100mA auxiliary power supply to power control module or sensor
- Auxiliary 12V supports fast power-down feature
- 4-level current output can be realized by DIP-switch
- Soft dimming and flicker-free at any brightness
- High PF, high efficiency, low THD
- Suitable for built-in use of Class I lamps
- 5.5-year guarantee

Typical applications

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

Interfaces

- 0-10V 2in1(0-10V/10V PWM)
- VCC Auxiliary power(12V,100mA)

Functions

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

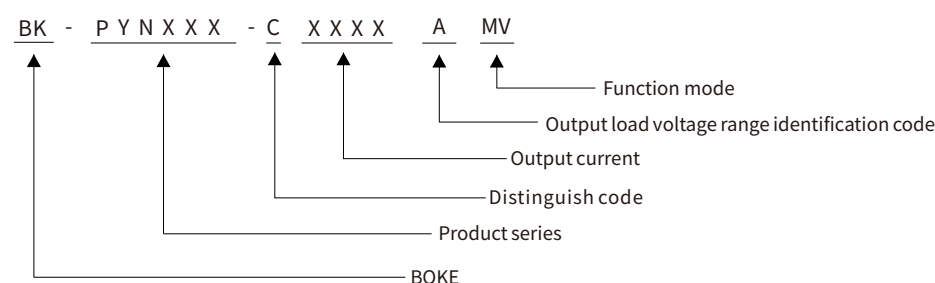
Suitable for lights

- Suitable for linear luminaries,tri-proof lights,working lights and other linear or ultra-thin lights etc.

Notice

- When using PWM to turn off the LED, the LED may be **slightly light**, It can be solved in the following two ways:
 1. Some resistors are connected in parallel to the LED string .
 2. Disconnect the input live wire (L wire) of the driver through the switch.
- Because the output no-load voltage is high, pay attention to the following applications
 1. It is prohibited to plug and unplug LED loads under powered conditions
 2. If a color temperature adjustment switch is connected, it is prohibited to switch the color temperature by sliding the switch when the power is on
 3. The dimming port is non-isolated and applies only to the control module or sensor

Model coding rules of PYN series



Function list

Model	Suffix	Wired dimming		Aux power
		0-10V/10V PWM	3.3V/5V/10V PWM	12V/0.1A
BK-PYN022-C	MV	√		√
BK-PYN042-C				
BK-PYN060-C	YV		√	√

*The description in this specification is only applicable to the products with the suffix MV and the model are PYN022-C,PYN042-C and PYN060-C.

Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-PYN022-C0350AMV	200-240VAC/DC	22.05W MAX.	39-110VDC	0.2-0.35A	L158*W30*H21mm
BK-PYN022-C0350AYV	200-240VAC/DC	22.05W MAX.	39-110VDC	0.2-0.35A	L158*W30*H21mm
BK-PYN042-C0350AMV	200-240VAC/DC	42W MAX.	54-140VDC	0.2-0.35A	L158*W30*H21mm
BK-PYN042-C0350AYV	200-240VAC/DC	42W MAX.	54-140VDC	0.2-0.35A	L158*W30*H21mm
BK-PYN060-C0350AMV	200-240VAC/DC	60.2W MAX.	100-200VDC	0.2-0.35A	L195*W30*H21mm
BK-PYN060-C0350AYV	200-240VAC/DC	60.2W MAX.	100-200VDC	0.2-0.35A	L195*W30*H21mm

*The description in this specification is only applicable to the products with the suffix MV and the model are PYN022-C,PYN042-C and PYN060-C.

Technical data

Product model	BK-PYN022-C0350AMV
Output parameters	
Regulation method	Constant Current
Rated output current range	0.2-0.35A, see the DIP-switch for details
Rated output voltage range	39-110VDC, see the DIP-switch for details
Rated output power	22.05W Max, see the DIP-switch for details
Output current adjustment	DIP S.W(4 levels)
Output current ripple(typ.)	± 7%(51.1kHz)
Output current accuracy	± 5%
Linear regulation	± 5%
Load regulation	± 5%
No load output voltage	250VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=1.355%(100Hz), Flicker index(IEEE 1789)=0.003(100Hz), Pst LM = 0.026, SVM = 0.01, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC 200-240VDC
Input voltage range	180-264VAC 180-264VDC
Input voltage shock	<380 V AC
Input current	<0.13A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF: 0.96, DF: 0.97, see the electrical values below for details
Input THD(typ.)	8%, see the electrical values below for details
Efficiency(typ.)	89.5%, see the electrical values below for details
In-rush current(typ.)	8.425A 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	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin): 24.6W, No load(Pno): N/A, On stand-by(Psb): N/A, Network stand-by(Pnet): N/A
Safety	
Withstand voltage	I/P-FG: 1750VAC
Mains surge capability	L-N: 2KV, L-FG/N-FG: 2KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion: B)
Isolation resistance	I/P-FG: 100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
0-10V 3in1 dimming port	Voltage range: 0-15V, interface current consumption: <0.6mA
Auxiliary power supply	12V ± 10% 100mA
Dimming range	5-100%(minimum current: 17.5mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta = -20-60°C
Case temperature	Tc = 80°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, 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, 50Hz, full load and 25°C of ambient temperature.

Technical data

Product model	BK-PYN042-C0350AMV
Output parameters	
Regulation method	Constant Current
Rated output current range	0.2-0.35A,see the DIP-switch for details
Rated output voltage range	54-140VDC,see the DIP-switch for details
Rated output power	42W Max,see the DIP-switch for details
Output current adjustment	DIP S.W(4 levels)
Output current ripple(typ.)	±5%(78.1kHz)
Output current accuracy	±5%
Linear regulation	±5%
Load regulation	±5%
No load output voltage	250VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.371%(100Hz), Flicker index(IEEE 1789)=0.002(100Hz), Pst LM = 0.025, 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 180-264VDC
Input votage shock	<380 V AC
Input current	<0.24A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF: 0.96,DF:0.96 , see the electrical values below for details
Input THD(typ.)	10% , see the electrical values below for details
Efficiency(typ.)	92.5% , see the electrical values below for details
In-rush current(typ.)	13.85A peak ,226us 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	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin):45.4W, No load(Pno):N/A, On stand-by(Psb) : N/A, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-FG:1750VAC
Mains surge capability	L-N:2KV,L-FG/N-FG:2KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion:B)
Isolation resistance	I/P-FG:100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
0-10V 3in1 dimming port	Voltage range: 0-15V, interface current consumption: <0.6mA
Auxiliary power supply	12V ± 10% 100mA
Dimming range	5-100%(minimum current:17.5mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-60°C
Case temperature	Tc=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, 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, 50Hz, full load and 25°C of ambient temperature.

Technical data

Product model	BK-PYN060-C0350AMV
Output parameters	
Regulation method	Constant Current
Rated output current range	0.2-0.35A, see the DIP-switch for details
Rated output voltage range	100-200VDC, see the DIP-switch for details
Rated output power	60.2W Max, see the DIP-switch for details
Output current adjustment	DIP S.W.(4 levels)
Output current ripple(typ.)	±2%(87.7kHz)
Output current accuracy	±5%
Linear regulation	±5%
Load regulation	±5%
No load output voltage	300VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.197%(100Hz), Flicker index(IEEE 1789)=0.002(100Hz), Pst LM = 0.056, 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 180-264VDC
Input voltage shock	<380 V AC
Input current	<0.34A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF: 0.97, DF:0.98 , see the electrical values below for details
Input THD(typ.)	7% , see the electrical values below for details
Efficiency(typ.)	93.5% , see the electrical values below for details
In-rush current(typ.)	18.487A peak ,228us 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	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin):64.4W, No load(Pno):N/A, On stand-by(Psb) : N/A, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-FG:1750VAC
Mains surge capability	L-N:2KV, L-FG/N-FG:2KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion:B)
Isolation resistance	I/P-FG:100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
0-10V 3in1 dimming port	Voltage range: 0-15V, interface current consumption: <0.6mA
Auxiliary power supply	12V ± 10% 100mA
Dimming range	5-100%(minimum current:17.5mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-60°C
Case temperature	Tc=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, 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

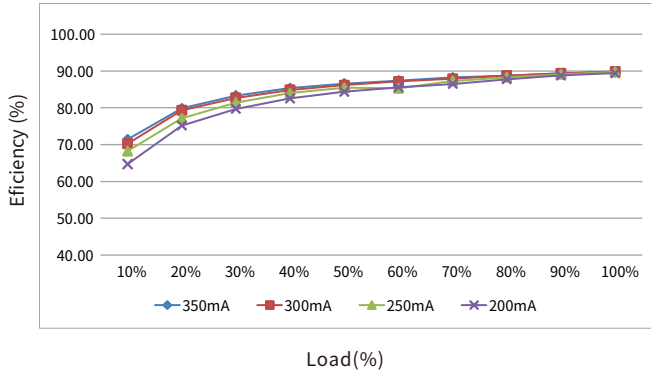
Remarks

1.By default, all parameter are measured at 230VAC input, 50Hz, full load and 25°C of ambient temperature.

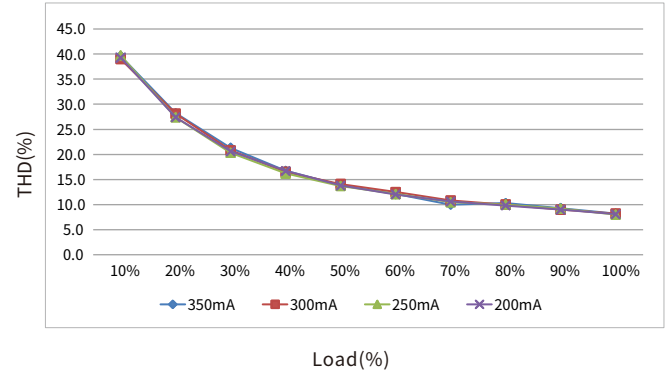
Electrical values

BK-PYN022-C

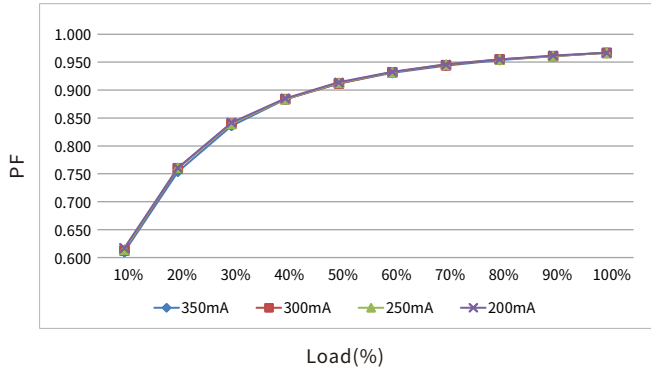
Efficiency vs Load



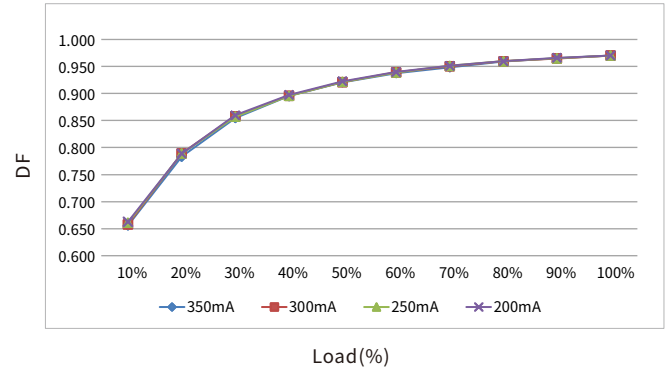
THD vs. Load



Power factor vs. Load

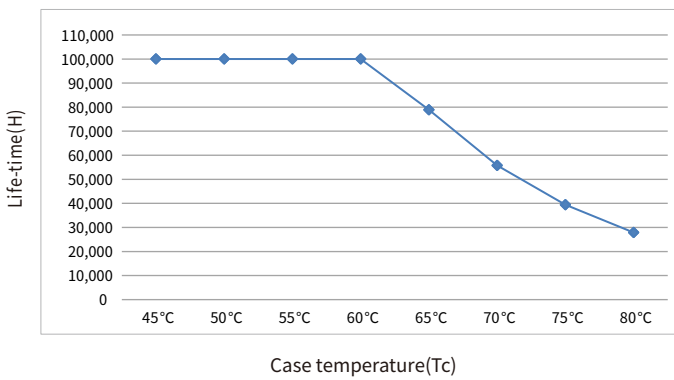


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature



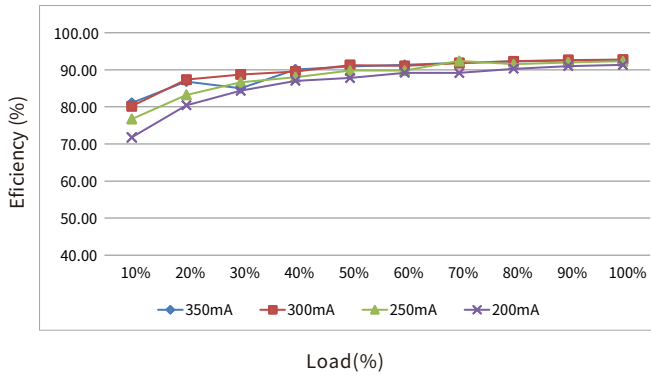
-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- The relation of t_c to t_a temperature depends also on the luminaire design.

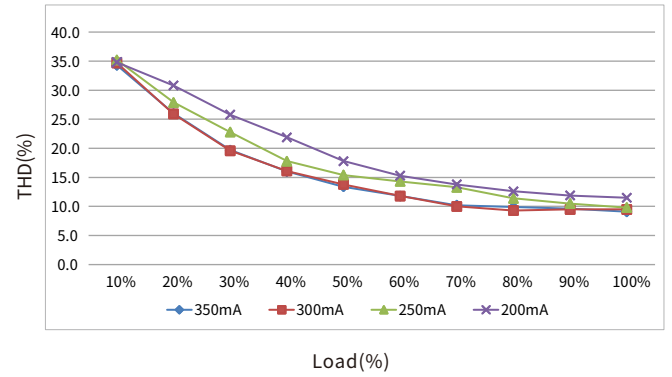
Electrical values

BK-PYN042-C

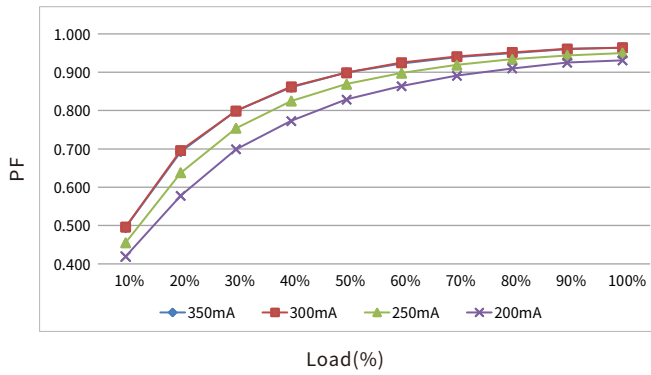
Efficiency vs Load



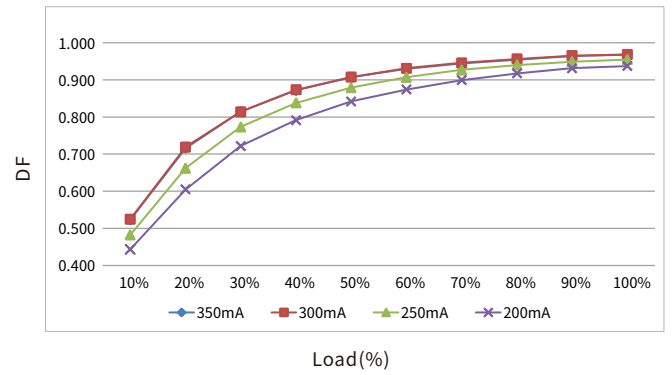
THD vs. Load



Power factor vs. Load

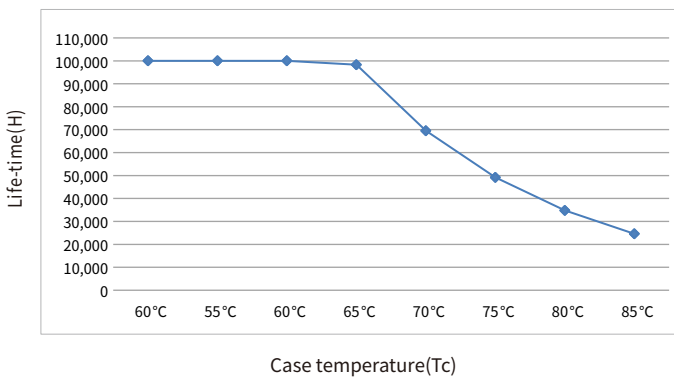


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature



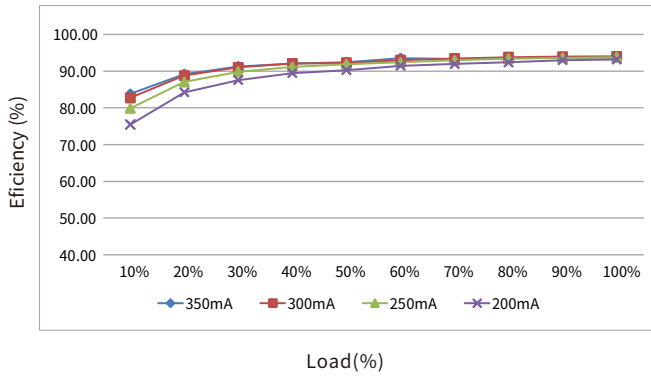
-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- The relation of t_c to t_a temperature depends also on the luminaire design.

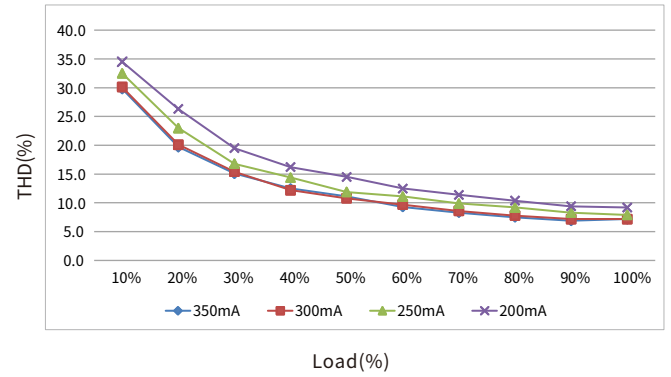
Electrical values

BK-PYN060-C

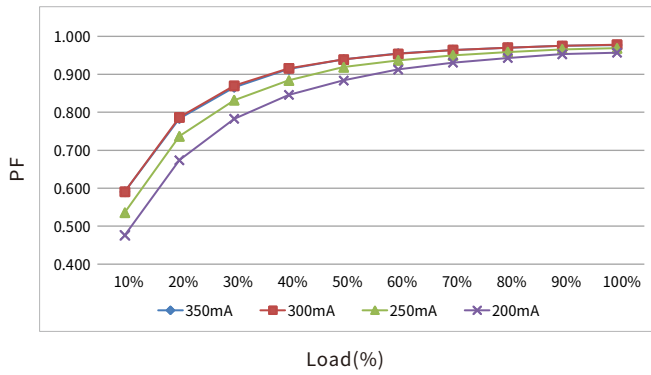
Efficiency vs Load



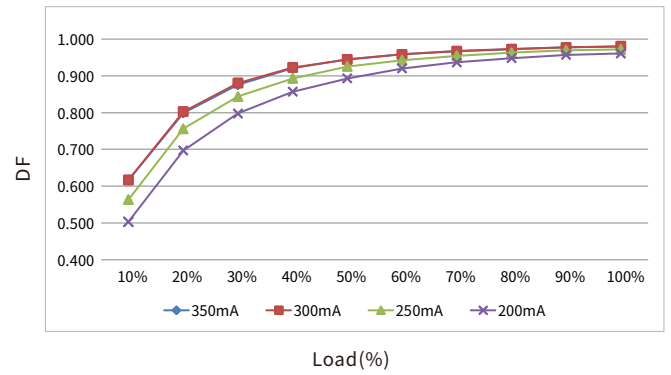
THD vs. Load



Power factor vs. Load

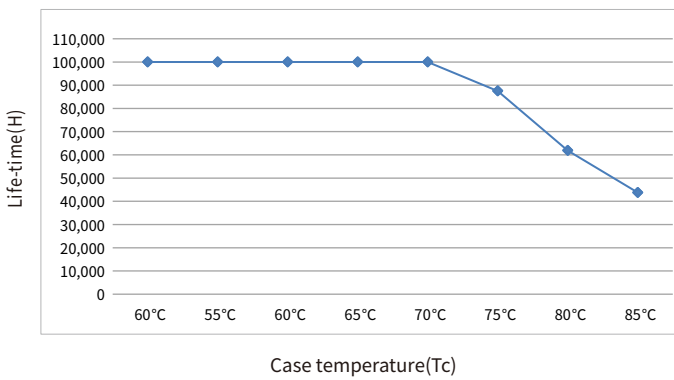


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature

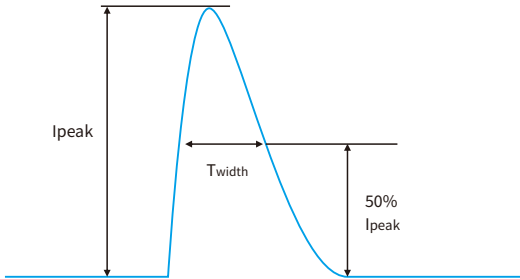


-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- The relation of t_c to t_a 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-PYN022-C	8.425A	212us	AC 230V, Full load, Cold start, Ta ≤ 30°C, MCB is not installed side by side	45	58	72	90	112	75	97	120	150	187	80	104	127	159	199
BK-PYN042-C	13.85A	226us		26	33	41	51	64	38	50	62	77	96	38	50	62	77	96
BK-PYN060-C	18.487A	228us		19	25	30	38	47	28	36	44	55	69	28	36	44	55	69



Remarks

- The number of drivers 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 drivers 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 drivers 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	VCC	0-10V
Input	-	-	Basic	-	-
Output	-	-	Basic	-	-
Case	Basic	Basic	-	Basic	Basic

Label

BK-PYN022-C0350AMV

INPUT

○ ACL/DC+ Non-isolated Constant Current LED Driver(LED控制装置)

○ ACN/DC- MODEL: BK-PYN022-C0350AMV

INPUT: 200-240V ≈ 0.50/60Hz 0.13A Max. λ: 0.8C-0.95

○ NC OUTPUT: 39-63V ≈ 350mA 22.05W Max.

Other ratings see below sheet

For LED Modules use only

BOKE Drivers Co., Ltd.

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OUTPUT

LED+ ○

LED- ○

GND ○

VCC ○

DIM ○

Switching selection sheet

Output	Switch	1	2	3
22.00 200	39-110	—	—	—
22.00 250	39-88	—	ON	—
21.00 300	39-73	ON	—	ON
22.00 350	39-63	ON	ON	ON

VCC: 12V 1.2W MAX.

wire prep. 0.5-1.0mm

8-9mm

Before use, always check dipswitch settings!

BK-PYN042-C0350AMV

INPUT

○ ACL/DC+ Non-isolated Constant Current LED Driver(LED控制装置)

○ ACN/DC- MODEL: BK-PYN042-C0350AMV

INPUT: 200-240V ≈ 0.50/60Hz 0.24A Max. λ: 0.7C-0.95

○ NC OUTPUT: 54-120V ≈ 350mA 42W Max.

Other ratings see below sheet

For LED Modules use only

BOKE Drivers Co., Ltd.

www.bokedriver.com

MADE IN CHINA

OUTPUT

LED+ ○

LED- ○

GND ○

VCC ○

DIM ○

Switching selection sheet

Output	Switch	1	2	3
28.00 200	54-140	—	—	—
35.00 250	54-140	—	ON	—
42.00 300	54-140	ON	—	ON
42.00 350	54-120	ON	ON	ON

VCC: 12V 1.2W MAX.

wire prep. 0.5-1.5mm

8-9mm

Before use, always check dipswitch settings!

BK-PYN060-C0350AMV

INPUT

○ ACL/DC+ Non-isolated Constant Current LED Driver(LED控制装置)

○ ACN/DC- MODEL: BK-PYN060-C0350AMV

INPUT: 200-240V ≈ 0.50/60Hz 0.34A Max. λ: 0.8C-0.95

○ NC OUTPUT: 100-172V ≈ 350mA 60.2W Max.

Other ratings see below sheet

For LED Modules use only

BOKE Drivers Co., Ltd.

www.bokedriver.com

MADE IN CHINA

OUTPUT

LED+ ○

LED- ○

GND ○

VCC ○

DIM ○

Switching selection sheet

Output	Switch	1	2	3
40.00 200	100-200	—	—	—
50.00 250	100-200	—	ON	—
60.00 300	100-200	ON	—	ON
60.20 350	100-172	ON	ON	ON

VCC: 12V 1.2W MAX.

wire prep. 0.5-1.5mm

8-9mm

Before use, always check dipswitch settings!

DIP-switch & output current

BK-PYN022-C0350AMV

Output			1	2	3
Prated(W)	Irated(mA)	Voltage(Vdc)			
22.00	200	39-110	--	--	--
22.00	250	39-88	--	ON	--
21.90	300	39-73	ON	--	ON
22.05	350 ★	39-63	ON	ON	ON

BK-PYN060-C0350AMV

Output			1	2	3
Prated(W)	Irated(mA)	Voltage(Vdc)			
40.00	200	100-200	--	--	--
50.00	250	100-200	--	ON	--
60.00	300	100-200	ON	--	ON
60.20	350 ★	100-172	ON	ON	ON

BK-PYN042-C0350AMV

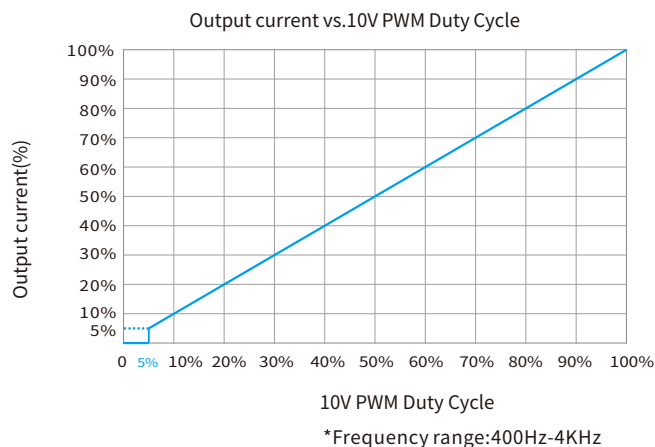
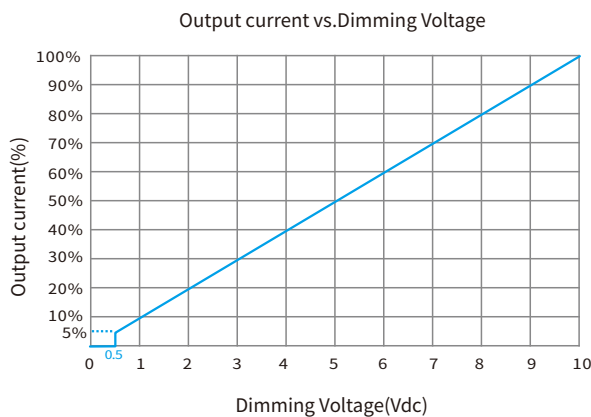
Output			1	2	3
Prated(W)	Irated(mA)	Voltage(Vdc)			
28.00	200	54-140	--	--	--
35.00	250	54-140	--	ON	--
42.00	300	54-140	ON	--	ON
42.00	350 ★	54-120	ON	ON	ON

Remarks:

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

0-10V/10V PWM dimming application

Dimming curve



0-10V/10V PWM+12V application

Wiring diagram



Remarks

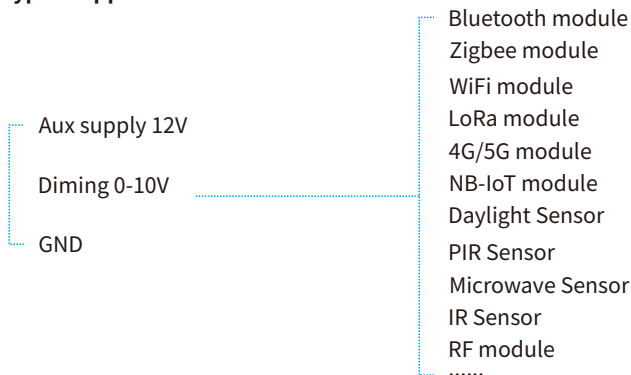
VCC: +12VDC $\pm 5\%$, 100mA MAX.

DIM/GND:

0-10V signal: 0.5V below are closed, 0.5V is the darkest, 10V is the brightest,
0-10V is the dimming range.

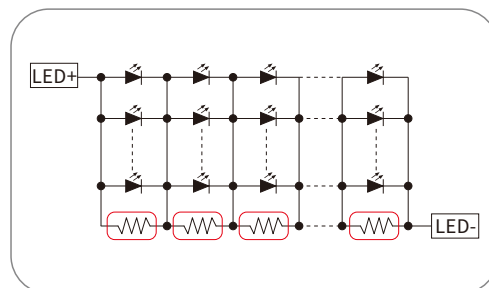
10V PWM signal: 5% duty cycle and below are closed, 5% is the darkest, 100% is the brightest.

Typical applications



Notice

- When using PWM to turn off the LED, the LED may be slightly light, It can be solved in the following two ways:
 1. When the PWM dimming signal is 0%, the LED driver has no output, but there exists junction capacitance between the aluminum substrate's copper foil and the grounding wire, which will make the LEDs glow slightly. Thus, it is necessary to respectively attach a resistor to every node of LED beads in parallel, and the resistance should match for the parameters of aluminum substrate and LEDs. (reference resistance: 3-5K Ω /size: 1206) The parallel connection is shown on the right:
 2. Disconnect the input live wire (L wire) of the driver through the switch.
- Because the output no-load voltage is high, pay attention to the following applications
 1. It is prohibited to plug and unplug LED loads under powered conditions.
 2. If a color temperature adjustment switch is connected, it is prohibited to switch the color temperature by sliding the switch when the power is on.
 3. The dimming port is non-isolated and applies only to the control module or sensor.

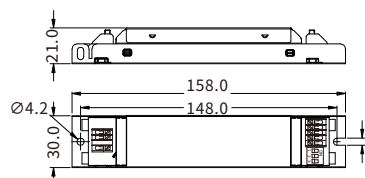


Mechanical Specification

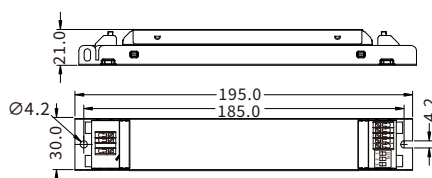
Size

Unit:mm

PYN022-C/PYN042-C



PYN060-C

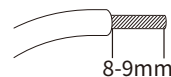


INPUT

Numbering	function	colour
1	ACL/DC+	orange
2	ACN/DC-	orange
3	NC	grey
4	FG	grey

Input wire

0.75-1.5mm²



OUTPUT

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

Output wire

0.5-1.0mm²



Installation note

Hot plug-in

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

Wiring guidelines

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

Installation requirements

- The driver should be installed in a dry, acid-free, oil-free, fat-free environment.
- The installation ambient temperature of the driver shall not exceed the value of Ta at any time.
- The temperature of the mounting surface of the driver should be lower than the temperature of Ta.
- The driver should keep a certain distance from the heating stuff (such as the lamp radiator).
- If the driver is used externally (it needs to be used with the plug fitting), 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.

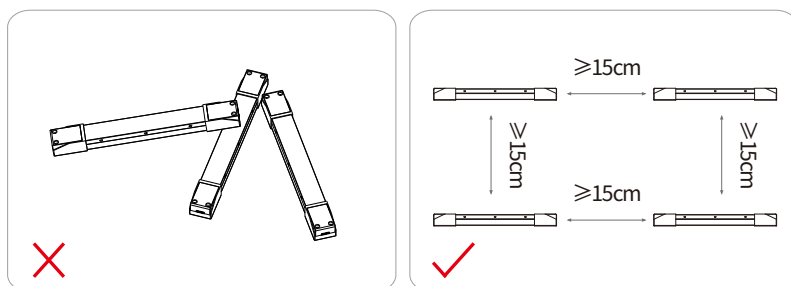


Figure 1

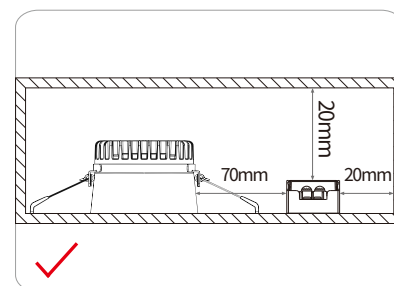
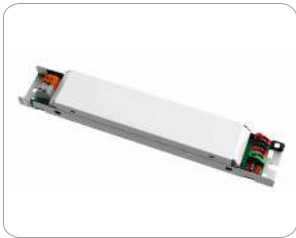


Figure 2

Packaging



Product



Packaging



20pcs*4boxes=80pcs/CTN
20pcs*2boxes=40pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
PYN022-C	L158*W30*H21mm	93g	L175*W214*H78mm	L335*W230*H195mm	80pcs	7.44KG	8.85KG
PYN042-C	L158*W30*H21mm	100g	L175*W214*H78mm	L335*W230*H195mm	80pcs	8.00KG	9.35KG
PYN060-C	L195*W30*H21mm	120g	L210*W215*H78mm	L235*W225*H175mm	40pcs	4.80KG	6.15KG

Additional information

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