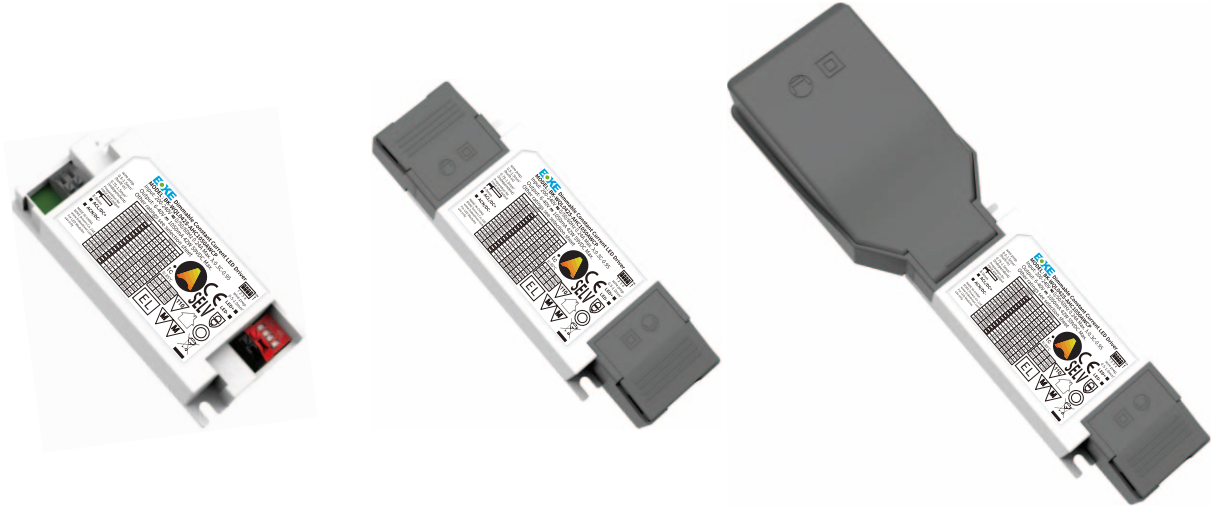


Constant current independent driver
WQL(S) Series suffix WCP(Casambi Wireless)



Features

- Integrated Casambi wireless module for the Casambi wireless ecosystem
- Support Casambi Wireless Long Range(LR) mode network
- Multi-level current output can be realized by DIP-switch
- Supports quick construction of Casambi networks with up to 250 devices
- Casambi wireless mesh networking, stable work
- Using HPC patented technology, at any dimming level, the brightness of the lights is the same
- Soft dimming and flicker-free at any brightness
- Support for over-the-air firmware updates with Casambi APP
- High PF, high efficiency, low THD
- Optional Junction box: support up to 2.5mm² cable and loop-through function
- Screw-free and pressing type strain relief, supports thicker cables and is easier to install
- Independent input and output strain relief, stronger wiring
- SELV and Class II design, suitable for use outside or inside of the luminaires
- Compliance with CE,EL and other certifications
- 5.5-year guarantee

Functions

- Support central emergency application
- Support self-contained emergency application
- Casambi Wireless control system
- Protective features
(short-circuit,no-load,overload,over temperature protection)

Suitable for lights

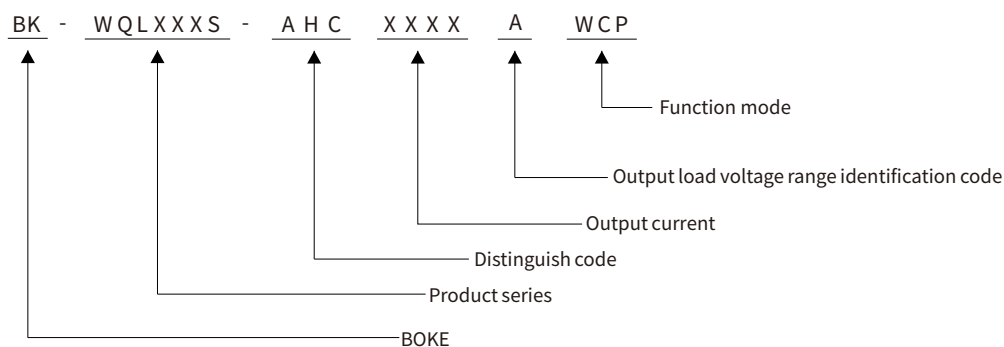
- Suitable for lights with independent drivers such as downlights, spotlights, panel lights, etc
- It is necessary to evaluate the chamber temperature of the light when it is used in the built-in

Typical applications

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



Model coding rules of WQL(S) series



Function list

Model	Suffix	DIP switch	EL (DC input)	Wireless dimming	Advanced functions			Device Configuration
				Casambi Wireless	AOC	EL (configurable)	CLO	NFC interfaces
BK-WQL042S-AHC	WCP	√	√	√				
	WCN		√	√	√	√	√	√

*The description in this specification is only applicable to the products with the suffix WCP and the model are WQL042S-AHC.

Series and model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-WQL042S-AHC1050AWCP	200-240VAC/DC	42W MAX.	6-54VDC	0.3-1.05A	L97.5*W44*H23.4mm(Built-in) L137.5*W44*H23.4mm(Independent)
BK-WQL042S-AHC1050AWCN	200-240VAC/DC	42W MAX.	6-54VDC	0.1-1.05A	L97.5*W44*H23.4mm(Built-in) L137.5*W44*H23.4mm(Independent)

*The description in this specification is only applicable to the products with the suffix WCP and the model are WQL042S-AHC.

Technical data

Product model	BK-WQL042S-AHC1050AWCP
Output parameters	
Regulation method	Constant Current
Rated output current range	0.3-1.05A, see the DIP-switch for details
Rated output voltage range	6-54VDC, see the DIP-switch for details
Rated output power	42W Max, see the DIP-switch for details
Output current adjustment	DIP S.W(16 levels)
Output current ripple(typ.)	±5%(100Hz)
Output current accuracy	±5%
Linear regulation	±5%
Load regulation	±5%
No load output voltage	59VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.324%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.072, SVM = 0.011, (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	<0.24A (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.)	9%, see the electrical values below for details
Efficiency(typ.)	90.5%, see the electrical values below for details
In-rush current(typ.)	2.02A peak, 70us duration (50% Ipeak), see the description below for details
Start/Switchover/Turn off	<0.7s(AC start), <0.7s(DC start), <0.3s(AC/DC switchover), <0.5s(Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption	Full load(Pin):46.4W, No load(Pno): N/A, On stand-by(Psb) : <0.5W, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-O/P(LED):3750V AC
Mains surge capability	L-N:2KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion:B)
Leakage current(typ.)	0.67mA
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70%RH
Wireless features	
Control system	Casambi Ready
Bluetooth version	Bluetooth 5.3
Transmission power	+8 dBm Max.
Reception sensitivity	-96 dBm
Frequency range	2.402 – 2.480 GHz
Dimming output	
Dimming range	0.1%-100%(Minimum current:1mA)
Dimming drive mode	AM(amplitude modulation)
Emergency support	
Central emergency system	Supported
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-50/55/60°C, see the operating temperature for details
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, EL
Safety	EN 61347-1, EN 61347-2-13, EN 62493
EMC	EN IEC 55015, EN 61547, EN IEC 61000-3-2, EN 61000-3-3, ETSI EN 301 489-1, ETSI EN 301 489-17, ETSI EN 301 489-3
EL	Compatible IEC 61347-2-13 Annex J, compatible with EN 60598-2-22 and EN 50172
RF	EN 62479, EN 50663, ETSI EN 300 328, ETSI EN 300 330

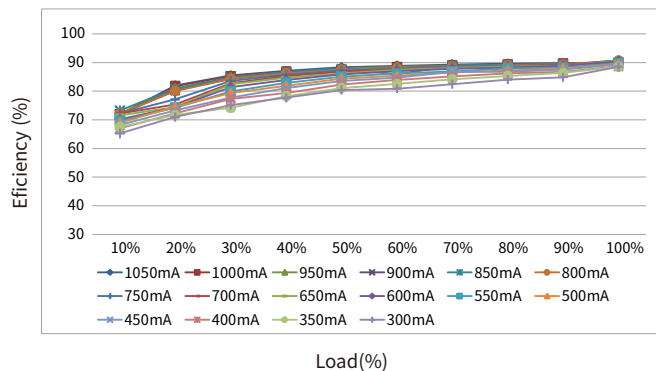
Remarks

1. By default, all parameter are measured at 230VAC input, 50Hz, 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.

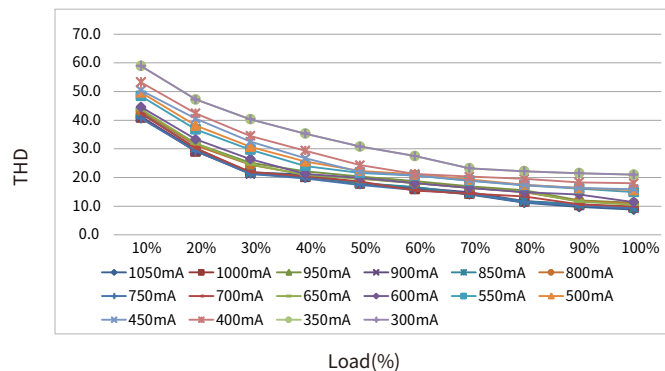
Electrical values

BK-WQL042S-AHC

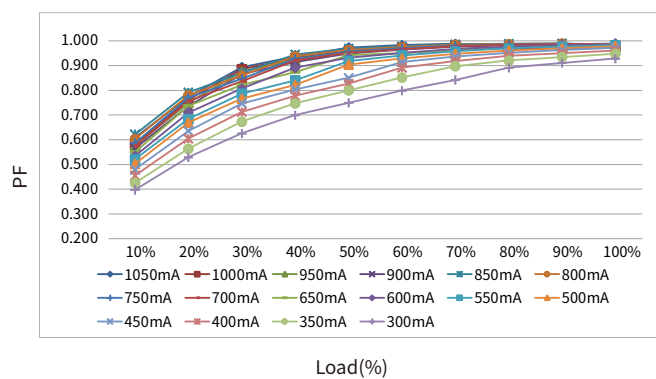
Efficiency vs load



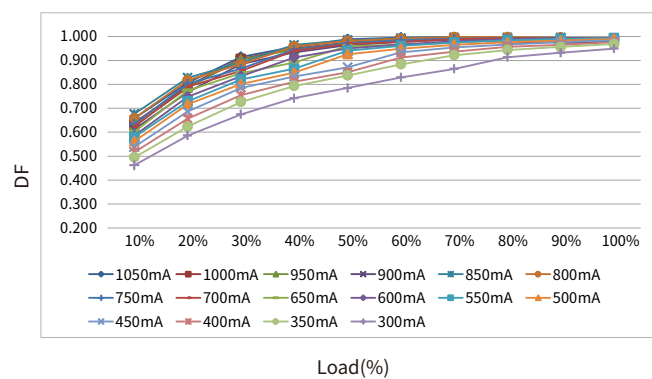
THD vs. Load



Power factor vs. Load

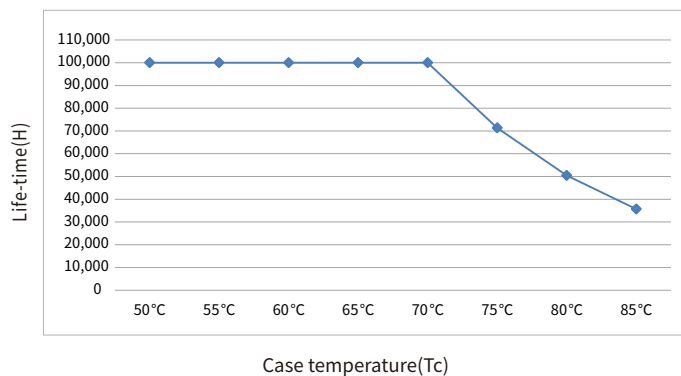


Displacement factor vs. Load



Expected life-time

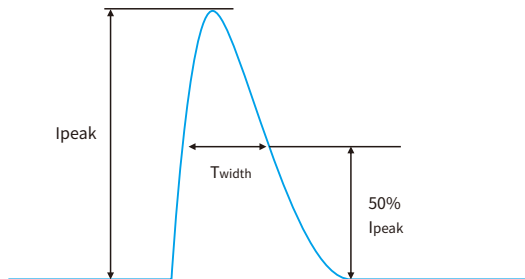
Life-time vs. case temperature



- 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/pcs														
				B10	B13	B16	B20	B25	C10	C13	C16	C20	C25	D10	D13	D16	D20	D25
BK-WQL042S-AHC	2.02A	70us	AC 230V,Full load, Cold start,Ta≤30°C, MCB is not installed side by side	38	50	62	77	96	38	50	62	77	96	38	50	62	77	96



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.

Output overload protection

- The LED driver turns off the output if the output voltage range is exceeded.
- The output will be activated again after restart the LED driver.

Output over temperature

- When the operating temperature exceeds the set over temperature protection value of the internal circuit of the power supply, the power supply enters protection states such as output derating, output hiccup or output shutdown. After the external temperature is normal, restart and resume operation.

Driver restart method

- There are two ways to restart the driver:
- Through the AC input: disconnect the AC of the driver and power it again.

Insulation between circuits

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

Label

BK-WQL042S-AHC1050AWCP

BOKE Dimmable Constant Current LED Driver
MODEL: BK-WQL042S-AHC1050AWCP
 Input: 200-240V ≈ 0.5/50/60Hz 0.24A Max. λ: 0.3C-0.95
 Output: 6-40V ≈ 1050mA 42W 59VDC Max.
 Other ratings see selection sheet

wire prep. 0.5-1.5mm² (built-in)
 0.75-1.5mm² (independent)
 Preparation for input and output
 8-9mm
 ■ ACL/DC+
 ■ ACN/DC-
 MADE IN CHINA
 BOKE Drivers Co., Ltd.
 www.bokedriver.com
 For LED Modules use only.

Output Switch

Output (V)	Output (mA)	Output (W)	Switch
16.20	300	4.86	ON
18.90	350	6.57	ON
21.60	400	8.64	ON
24.30	450	10.91	ON
27.00	500	13.50	ON
29.70	550	16.25	ON
32.40	600	19.44	ON
35.10	650	22.71	ON
37.80	700	26.46	ON
40.50	750	30.38	ON
43.20	800	34.56	ON
45.90	850	39.01	ON
48.60	900	43.74	ON
51.30	950	48.74	ON
54.00	1000	54.00	ON
56.70	1050	59.54	ON
59.40	1100	65.34	ON
62.10	1150	71.42	ON
64.80	1200	77.76	ON
67.50	1250	84.38	ON
70.20	1300	91.26	ON
72.90	1350	98.41	ON
75.60	1400	105.84	ON
78.30	1450	113.55	ON
81.00	1500	121.50	ON
83.70	1550	129.69	ON
86.40	1600	138.12	ON
89.10	1650	146.80	ON
91.80	1700	155.72	ON
94.50	1750	164.89	ON
97.20	1800	174.24	ON
100.00	1850	183.75	ON
102.70	1900	193.41	ON
105.40	1950	203.22	ON
108.10	2000	213.16	ON
110.80	2050	223.34	ON
113.50	2100	233.70	ON
116.20	2150	244.23	ON
118.90	2200	254.94	ON
121.60	2250	265.80	ON
124.30	2300	276.81	ON
127.00	2350	287.98	ON
129.70	2400	299.28	ON
132.40	2450	310.81	ON
135.10	2500	322.47	ON
137.80	2550	334.26	ON
140.50	2600	346.17	ON
143.20	2650	358.30	ON
145.90	2700	370.56	ON
148.60	2750	382.94	ON
151.30	2800	395.44	ON
154.00	2850	408.06	ON
156.70	2900	420.80	ON
159.40	2950	433.66	ON
162.10	3000	446.64	ON
164.80	3050	459.74	ON
167.50	3100	472.96	ON
170.20	3150	486.29	ON
172.90	3200	499.74	ON
175.60	3250	513.30	ON
178.30	3300	526.98	ON
181.00	3350	540.77	ON
183.70	3400	554.68	ON
186.40	3450	568.70	ON
189.10	3500	582.84	ON
191.80	3550	597.09	ON
194.50	3600	611.46	ON
197.20	3650	625.94	ON
200.00	3700	640.54	ON
202.70	3750	655.25	ON
205.40	3800	670.08	ON
208.10	3850	685.02	ON
210.80	3900	699.98	ON
213.50	3950	715.06	ON
216.20	4000	730.26	ON
218.90	4050	745.58	ON
221.60	4100	760.92	ON
224.30	4150	776.38	ON
227.00	4200	791.96	ON
229.70	4250	807.66	ON
232.40	4300	823.48	ON
235.10	4350	839.42	ON
237.80	4400	855.48	ON
240.50	4450	871.66	ON
243.20	4500	887.96	ON
245.90	4550	904.38	ON
248.60	4600	920.92	ON
251.30	4650	937.58	ON
254.00	4700	954.36	ON
256.70	4750	971.26	ON
259.40	4800	988.28	ON
262.10	4850	1005.42	ON
264.80	4900	1022.68	ON
267.50	4950	1040.06	ON
270.20	5000	1057.56	ON
272.90	5050	1075.18	ON
275.60	5100	1092.92	ON
278.30	5150	1110.78	ON
281.00	5200	1128.76	ON
283.70	5250	1146.86	ON
286.40	5300	1165.08	ON
289.10	5350	1183.42	ON
291.80	5400	1201.88	ON
294.50	5450	1220.46	ON
297.20	5500	1239.16	ON
299.90	5550	1257.98	ON
302.60	5600	1276.92	ON
305.30	5650	1295.98	ON
308.00	5700	1315.16	ON
310.70	5750	1334.46	ON
313.40	5800	1353.88	ON
316.10	5850	1373.42	ON
318.80	5900	1393.08	ON
321.50	5950	1412.86	ON
324.20	6000	1432.76	ON
326.90	6050	1452.78	ON
329.60	6100	1472.92	ON
332.30	6150	1493.18	ON
335.00	6200	1513.56	ON
337.70	6250	1534.06	ON
340.40	6300	1554.68	ON
343.10	6350	1575.42	ON
345.80	6400	1596.28	ON
348.50	6450	1617.26	ON
351.20	6500	1638.36	ON
353.90	6550	1659.58	ON
356.60	6600	1680.92	ON
359.30	6650	1702.38	ON
362.00	6700	1723.96	ON
364.70	6750	1745.66	ON
367.40	6800	1767.48	ON
370.10	6850	1789.42	ON
372.80	6900	1811.48	ON
375.50	6950	1833.66	ON
378.20	7000	1855.96	ON
380.90	7050	1878.38	ON
383.60	7100	1900.92	ON
386.30	7150	1923.58	ON
389.00	7200	1946.36	ON
391.70	7250	1969.26	ON
394.40	7300	1992.28	ON
397.10	7350	2015.42	ON
399.80	7400	2038.68	ON
402.50	7450	2062.06	ON
405.20	7500	2085.56	ON
407.90	7550	2109.18	ON
410.60	7600	2132.92	ON
413.30	7650	2156.78	ON
416.00	7700	2180.76	ON
418.70	7750	2204.86	ON
421.40	7800	2229.08	ON
424.10	7850	2253.42	ON
426.80	7900	2277.88	ON
429.50	7950	2302.46	ON
432.20	8000	2327.16	ON
434.90	8050	2351.98	ON
437.60	8100	2376.92	ON
440.30	8150	2401.98	ON
443.00	8200	2427.16	ON
445.70	8250	2452.46	ON
448.40	8300	2477.88	ON
451.10	8350	2503.42	ON
453.80	8400	2529.08	ON
456.50	8450	2554.86	ON
459.20	8500	2580.76	ON
461.90	8550	2606.78	ON
464.60	8600	2632.92	ON
467.30	8650	2659.18	ON
470.00	8700	2685.56	ON
472.70	8750	2712.06	ON
475.40	8800	2738.68	ON
478.10	8850	2765.42	ON
480.80	8900	2792.28	ON
483.50	8950	2819.26	ON
486.20	9000	2846.36	ON
488.90	9050	2873.58	ON
491.60	9100	2900.92	ON
494.30	9150	2928.38	ON
497.00	9200	2955.96	ON
499.70	9250	2983.66	ON
502.40	9300	3011.48	ON
505.10	9350	3039.42	ON
507.80	9400	3067.48	ON
510.50	9450	3095.66	ON
513.20	9500	3123.96	ON
515.90	9550	3152.38	ON
518.60	9600	3180.92	ON
521.30	9650	3209.58	ON
524.00	9700	3238.36	ON
526.70	9750	3267.26	ON
529.40	9800	3296.28	ON
532.10	9850	3325.42	ON
534.80	9900	3354.68	ON
537.50	9950	3384.06	ON
540.20	10000	3413.56	ON

DIP-switch & output current

BK-WQL042S-AHC1050AWCP

Output			1	2	3	4
Prated(W)	Irated(mA)	Voltage(Vdc)				
16.20	300	6-54	--	--	--	--
18.90	350	6-54	--	--	--	ON
21.60	400	6-54	--	--	ON	--
24.30	450	6-54	--	--	ON	ON
27.00	500	6-54	--	ON	--	--
29.70	550	6-54	--	ON	--	ON
32.40	600	6-54	--	ON	ON	--
35.10	650	6-54	--	ON	ON	ON
37.80	700	6-54	ON	--	--	--
40.50	750	6-54	ON	--	--	ON
41.60	800	6-52	ON	--	ON	--
41.65	850	6-49	ON	--	ON	ON
41.40	900	6-46	ON	ON	--	--
41.80	950	6-44	ON	ON	--	ON
42.00	1000	6-42	ON	ON	ON	--
42.00	1050 ★	6-40	ON	ON	ON	ON

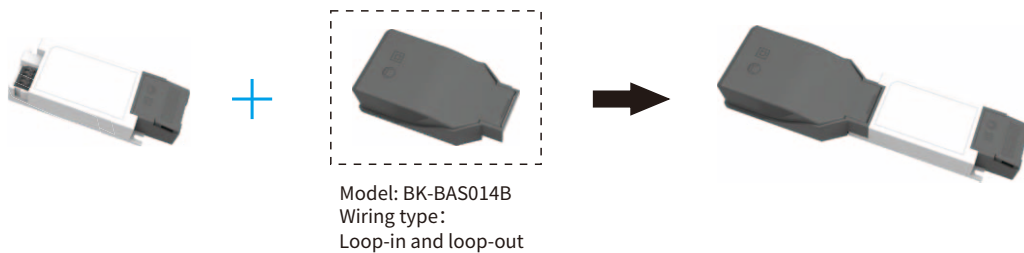
Remarks:

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

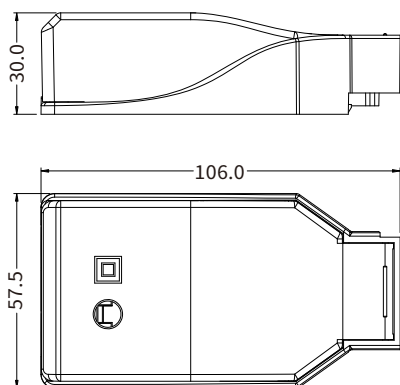
Operating temperature & output current

Tc	Ta	Po(W)	Io(mA)
85°C	45°C	≤42	≤1050
	50°C	≤36	≤950
	60°C	≤30	≤700

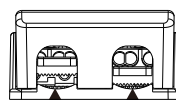
Optional accessories (See the parts specification for details)



size(mm)



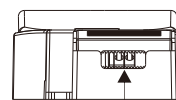
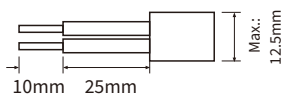
Cable diameter limit



$\phi 2-\phi 12.5\text{mm}$

The allowable diameter of the input cable sheath is 2-12.5mm

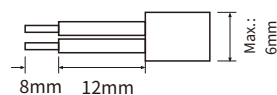
Input wire:
 $0.75-2.5\text{mm}^2$



$\phi 2-\phi 6\text{mm}$

The allowable diameter of the output cable sheath is 2-6mm

Output wire
 $0.5-1.0\text{mm}^2$

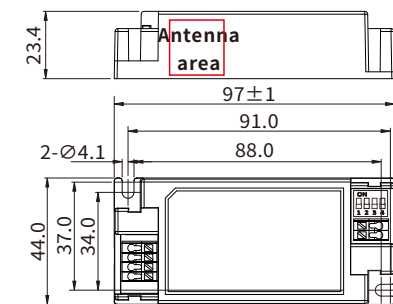


Attention: This accessory needs to be purchased separately.

Mechanical Specification

Unit:mm

BK-WQL042S(built-in)

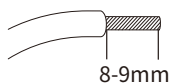


INPUT

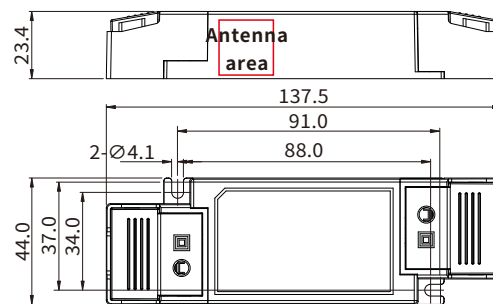
numbering	function	colour
1	ACL/DC+	grey
2	ACN/DC-	grey

Input wire

0.5-1.5mm²(Built-in)
0.75-1.5mm²(Independent)



BK-WQL042S(independent)

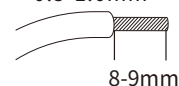


OUTPUT

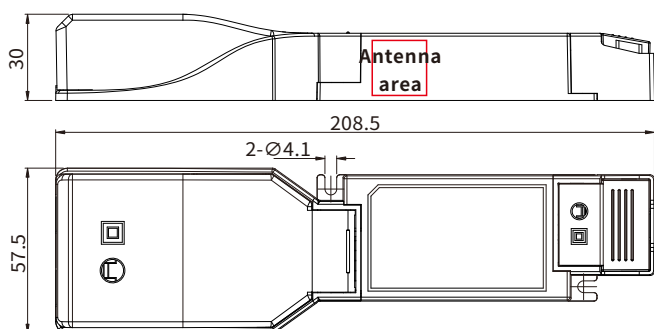
numbering	function	colour
1	LED+	red
2	LED-	black

Output wire

0.5-1.0mm²



BK-WQL042S(optional accessory)



INPUT

Numbering	function	colour
1	ACN	white
	ACN	white
2	E	white
	E	white
3	ACL	white
	ACL	white

Input wire

0.75-2.5mm²

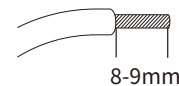


OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black

Output wire

0.5-1.0mm²



Adaptive Casambi network specification

- The driver supports use in both Evolution networks and Classic networks(recommend to use Evolution networks).
- Evolution networks support up to 250 nodes, while Classic networks support up to 127 nodes.
- Supports Casambi wireless Long Range (LR) mode network,supports LR device have longer coverage in all network modes.

Installation note

Hot plug-in

- When the function is not enabled, hot plug-in is not supported due to residual output voltage of > 0 V.
- If a LED load is connected the device has to be restarted.
- Restart can be achieved by re-powering the driver through the control interface.

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).
- Incorrect wiring can damage LED modules.

Replace LED module

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

Installation requirements

- The driver should preferably be installed in an environment without metal obstacles or without materials that severely weaken RF signals.
- Please do not place the driver in an environment completely surrounded by metal parts, as radio signals cannot pass through metal.
- The distance between driver should not exceed 40 meters; if there are partitions in between, the distance may be shortened, as shown in Figure 1.
- If there are many wireless communication devices (such as WiFi, or other Bluetooth devices) around the driver, the connection distance between two nodes will be greatly affected.
- Do not route cables near the antenna area of the driver (such as high-voltage input lines, LED power lines) to avoid signal interference.
- The driver should be kept at a certain distance from the ground; the recommended spacing should be $\geq 100\text{cm}$ to avoid signal interference, as shown in Figure 2.
- The driver should be kept at a certain distance from large metal objects; the recommended spacing should be $\geq 15\text{cm}$ to avoid signal interference, as shown in Figure 3.
- The driver should be kept at a certain distance from beams, walls, etc.; the recommended spacing should be $>15\text{cm}$ to avoid signal interference, as shown in Figure 4.
- The communication signal range of the driver depends on the surrounding environment, such as light fixtures, building structures, furniture, or people. Communication testing should be conducted during installation.

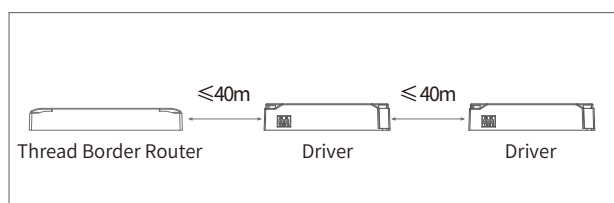


Figure 1

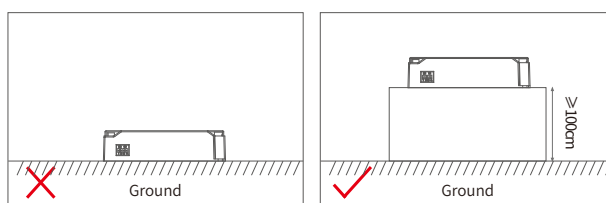


Figure 2

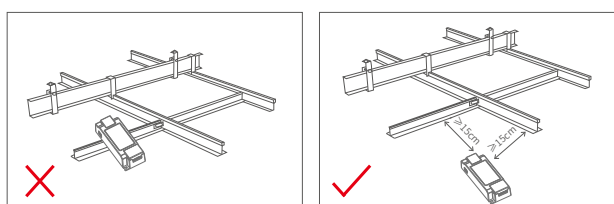


Figure 3

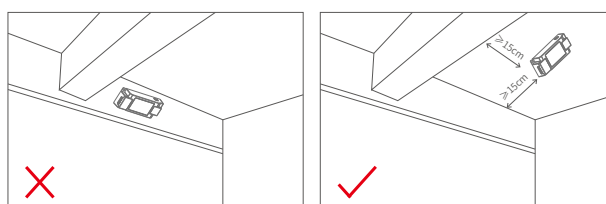


Figure 4

- The driver should be installed in a dry, acid-free, oil-free, fat-free environment.
- The ambient temperature of the driver should not exceed the value of T_a at any time.
- The driver should be lower than the temperature of T_a .
- The installation environment of the driver must comply with its supported IP protection level.
- The driver should be kept at a certain distance from the heating body (such as the luminaire radiator), and the recommended interval distance should be $\geq 7\text{cm}$, as shown in Figure 5.
- A certain distance should be maintained between the driver, and the recommended distance should be $\geq 15\text{cm}$ to avoid affecting the heat dissipation and service life of the product, as shown in Figure 6.

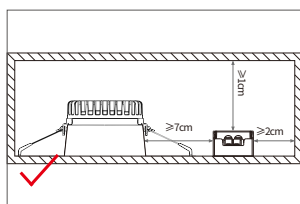


Figure 5

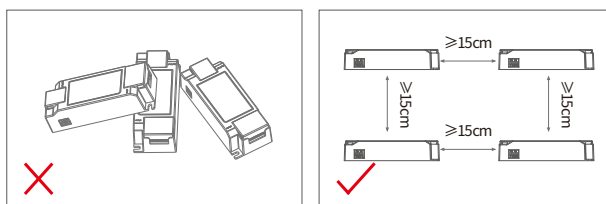
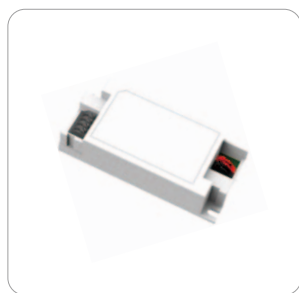


Figure 6

Packaging



Product



Packaging



20pcs×2boxes=40pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
WQL042S(built-in)	L97.5*W44*H23.4mm	100g	L210*W122*H94mm	L265*W230*H115mm	40pcs	4.00KG	5.12KG



Product



Packaging



20pcs×2boxes=40pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
WQL042S(independent)	L137.5*W44*H23.4mm	118g	L288*W161*H94mm	L340*W305*H115mm	40pcs	4.72KG	5.85KG

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.