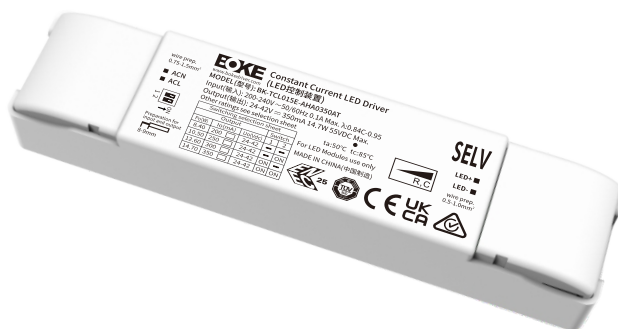


Constant current independent dimmable driver
TCL(E) Series suffix T(Triac)



Features

- Support Triac dimming mode
- Slim shape design
- Soft dimming and flicker-free at any brightness
- Screw-free and pressing type strain relief and easier to install
- SELV and Class II design, suitable for use outside of the luminaires
- Compliance with CE,ENEC,UKCA,RCM,CCC and other certifications
- IP20 protection grade, indoor use
- Nominal life-time up to 100,000 h
- 5.5-year guarantee

Functions

- Protective features
(short-circuit,no-load,overload,
over temperature protection)

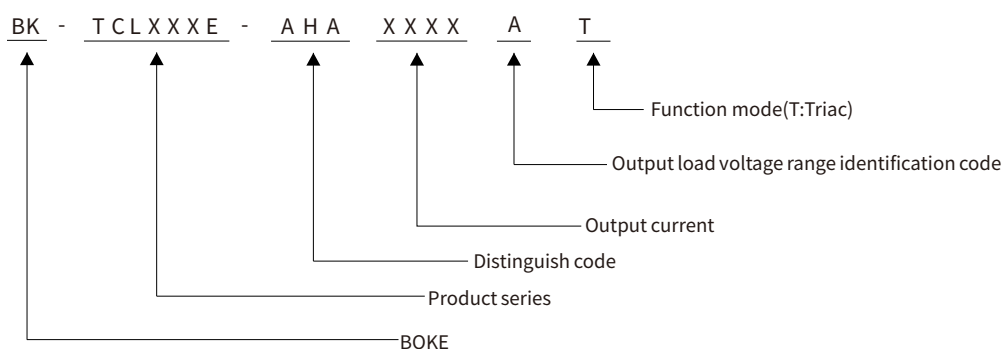
Suitable for lights

- Suitable for downlights or spotlights with
small mounting holes

Typical applications

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

Model coding rules of TCL(E) series



Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-TCL010E-AHA0250AT	200-240VAC	10.5W MAX.	24-42VDC	0.1-0.25A	L123*W23*H20mm
BK-TCL015E-AHA0350AT	200-240VAC	14.7W MAX.	24-42VDC	0.2-0.35A	L129*W29.5*H20mm

Technical data

Product model	BK-TCL010E-AHA0250AT
Output parameters	
Regulation method	Constant Current
Rated output current range	0.1-0.25A, see the DIP-switch for details
Rated output voltage range	24-42VDC, see the DIP-switch for details
Rated output power	10.5W Max, see the DIP-switch for details
Output current adjustment	DIP S.W (4 levels)
Output current ripple (typ.)	±5% (100Hz)
Output current accuracy	±15% @ <200mA, ±5% @ ≥200mA, Max Load
Linear regulation	±5%
Load regulation	±5%
No load output voltage	55VDC
Flicker-free (typ.)	Flickering percent (IEEE 1789) = 0.783% (100Hz), Flicker index (IEEE 1789) = 0.001 (100Hz), Pst LM = 0.037, SVM = 0.027, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC
Input voltage range	198-264VAC
Input voltage shock	<380 V AC
Input current	<0.07A (Rated input voltage)
Input frequency	50/60Hz
Input PF/Input DF (typ.)	PF: 0.96, DF: 0.97, see the electrical values below for details
Input THD (typ.)	17.5%, see the electrical values below for details
Efficiency (typ.)	82%, see the electrical values below for details
In-rush current (typ.)	4.47A peak, 62us duration (50% Ipeak), see the description below for details
Start/Switchover/Turn off	<0.5s (AC start), <0.3s (AC switchover), <0.5s (Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption	Full load (Pin): 12.8W, No load (Pno): N/A, On stand-by (Psb): N/A, Network stand-by (Pnet): N/A
Safety	
Withstand voltage	I/P-O/P (LED): 3750V AC
Mains surge capability	L-N: 1KV (90°/270°, 5 times each with an interval of 60s) (Performance criterion: B)
Leakage current (typ.)	0.53mA
Isolation resistance	I/P-O/P: 100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
3in1 dimming port	N/A
Auxiliary power supply	N/A
Dimming range	5-100% (different dimmers have different ranges)
Dimming drive mode	Triac Phase Dimmable (trailing-edge)
Emergency support	
Central emergency system	N/A
Self-contained emergency	N/A
Environment & Life time	
Operating temperature	Ta = -20-50°C
Case temperature	Tc = 85°C
Operating humidity	5-85% RH, non-condensing
Storage temp./humidity	-40-80°C, 5-85% RH, non-condensing
IP grade	IP20
MTBF	500,000H, MIL-HDBK-217F (25°C)
Life-time	Nominal life-time up to 100,000 h, see the description below for details
Vibration resistant	10~500Hz, 5G 12min./1cycle, period for 72min. each along X,Y,Z axes
Acoustic Noise	<28dB (30cm, Normal operation)
Environmental protection	RoHS
Certifications and standards	
Certification	CE, ENEC, UKCA, RCM, CCC
Safety	GB/T 19510.1, GB/T 19510.213, EN61347-1, EN61347-2-13, EN62384
EMC	GB/T 17743, GB17625.1, EN55015, EN61000-3-2, EN61000-3-3, EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61547
DALI-2	N/A
EL	N/A
RF	N/A

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-TCL015E-AHA0350AT
Output parameters	
Regulation method	Constant Current
Rated output current range	0.2-0.35A, see the DIP-switch for details
Rated output voltage range	24-42VDC, see the DIP-switch for details
Rated output power	14.7W Max, see the DIP-switch for details
Output current adjustment	DIP S.W(4 levels)
Output current ripple(typ.)	±5%(100Hz)
Output current accuracy	±10%@200mA, ±5%@>200mA
Linear regulation	±5%
Load regulation	±5%
No load output voltage	55VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=1.523%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.035, SVM = 0.06, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC
Input voltage range	198-264VAC
Input votage shock	<380 V AC
Input current	<0.1A (Rated input voltage)
Input frequency	50/60Hz
Input PF/Input DF(typ.)	PF: 0.95, DF:0.96 , see the electrical values below for details
Input THD(typ.)	19% , see the electrical values below for details
Efficiency(typ.)	84% , see the electrical values below for details
In-rush current(typ.)	4.55A peak ,14.2us duration(50 % Ipeak), see the description below for details
Start/Switchover/Turn off	<0.5s(AC start), <0.3s(AC switchover), <0.5s(Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption	Full load(Pin):17.5W, No load(Pno):N/A, On stand-by(Psb) : N/A, Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-O/P(LED):3750V AC
Mains surge capability	L-N:1KV(90°/270°, 5 times each with an interval of 60s)(Performance criterion:B)
Leakage current(typ.)	0.6mA
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70%RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
3in1 dimming port	N/A
Auxiliary power supply	N/A
Dimming range	5-100%(different dimmers have different ranges)
Dimming drive mode	Triac Phase Dimmable(trailing-edge)
Emergency support	
Central emergency system	N/A
Self-contained emergency	N/A
Environment & Life time	
Operating temperature	Ta=-20-50°C
Case temperature	Tc=85°C
Operating humidity	5-85% RH, non-condensing
Storage temp./humidity	-40-80°C, 5-85% RH, non-condensing
IP grade	IP20
MTBF	500,000H, MIL-HDBK-217F(25°C)
Life-time	Nominal life-time up to 100,000 h, see the description below for details
Vibration resistant	10~500Hz, 5G 12min./1cycle, period for 72min. each along X,Y,Z axes
Acoustic Noise	<28dB(30cm, Normal operation)
Environmental protection	RoHS
Certifications and standards	
Certification	CE, ENEC, UKCA, RCM, CCC
Safety	GB/T 19510.1, GB/T 19510.213, EN61347-1, EN61347-2-13, EN62384
EMC	GB/T 17743 , GB17625.1, EN55015, EN61000-3-2 , EN61000-3-3, EN61000-4-2,3,4,5,6,8,11, EN61547
DALI-2	N/A
EL	N/A
RF	N/A

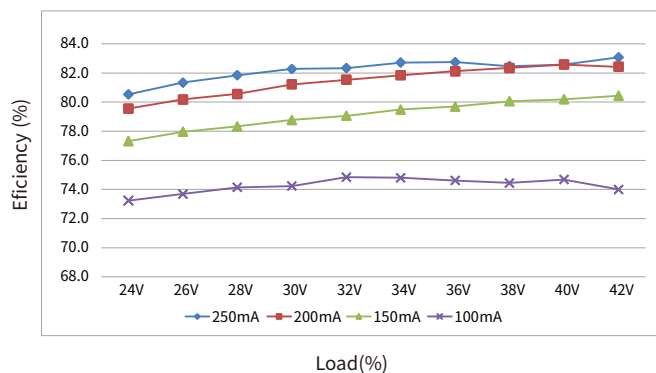
Remarks

- 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.

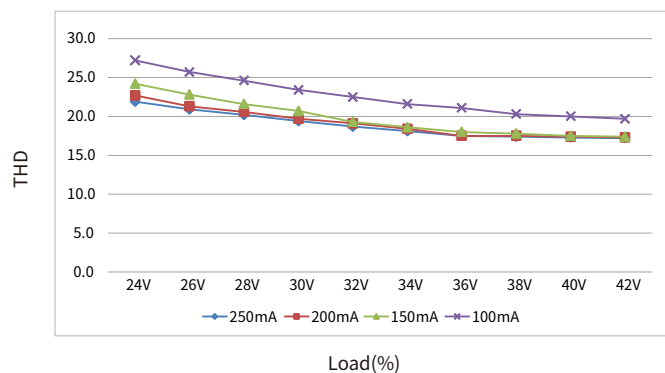
Electrical values

BK-TCL010E-AHA0250AT

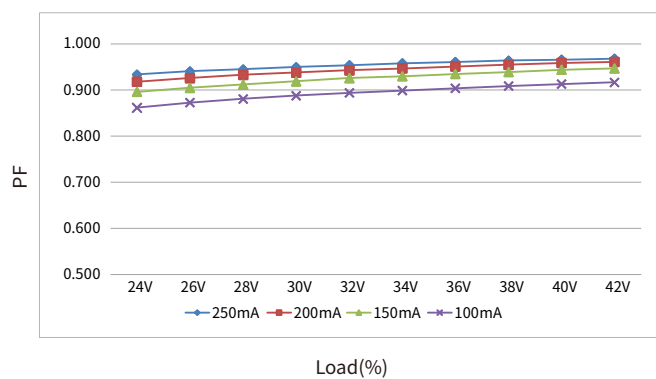
Efficiency vs load



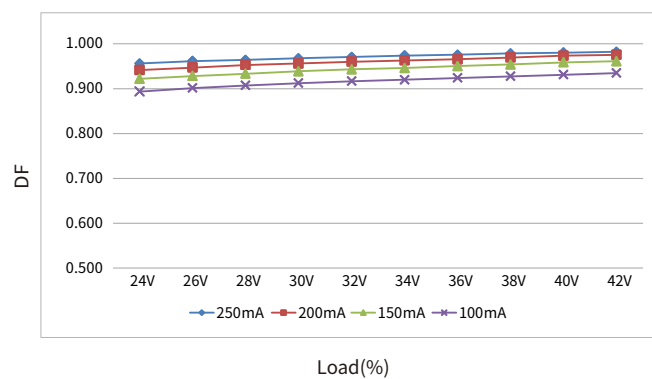
THD vs. Load



Power factor vs. Load

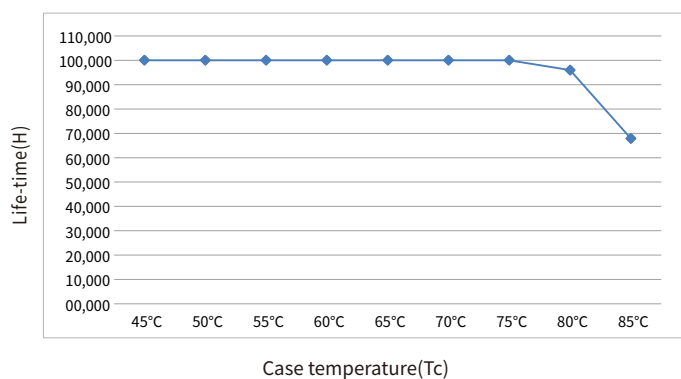


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature



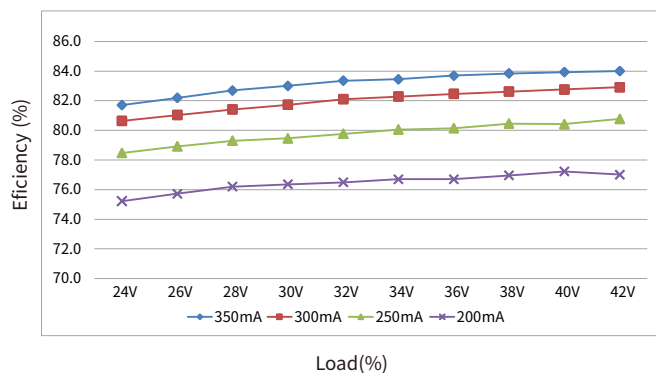
-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

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

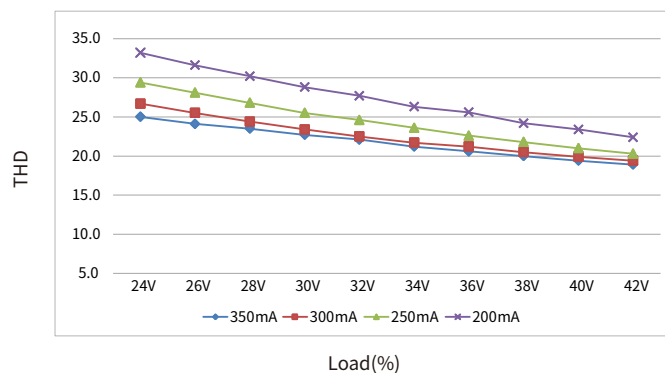
Electrical values

BK-TCL015E-AHA0350AT

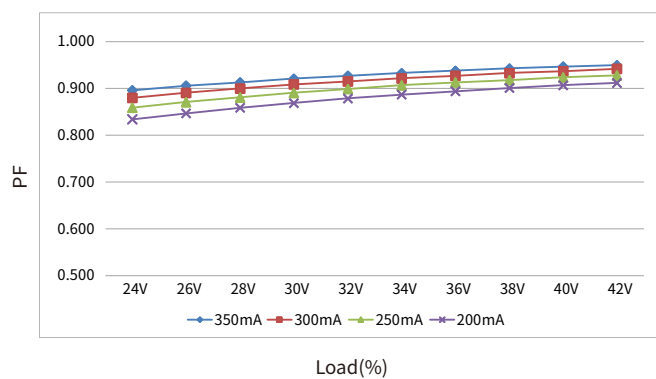
Efficiency vs load



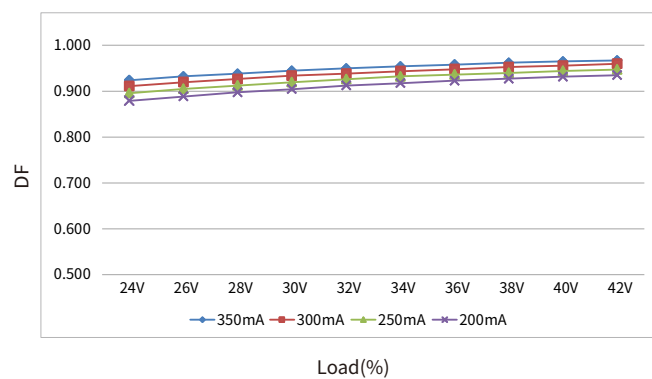
THD vs. Load



Power factor vs. Load

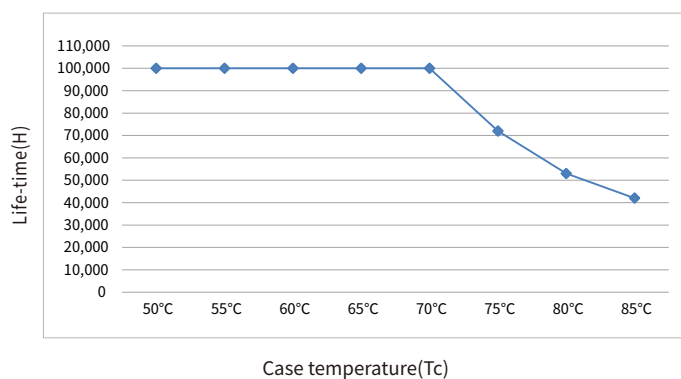


Displacement factor vs. Load



Expected life-time

Life-time vs. case temperature

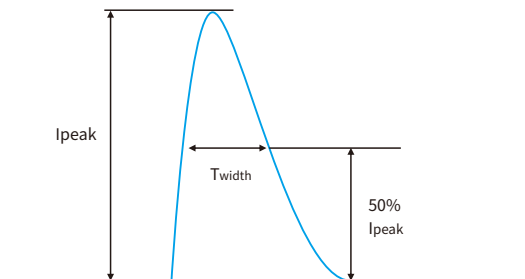


-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

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

Surge

Model	Ipeak	Twidth	Condition	Relative number of MCB/pcs														
				B10	B13	B16	B20	B25	C10	C13	C16	C20	C25	D10	D13	D16	D20	D25
BK-TCL010E-AHA	4.47A	62us	AC 230V, Full load, Cold start, Ta≤30°C,	141	183	225	281	351	141	183	225	281	351	141	183	225	281	351
BK-TCL015E-AHA	4.55A	14.2us	MCB is not installed side by side	102	133	163	204	255	102	133	163	204	255	102	133	163	204	255



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 over temperature protection point inside the power supply IC, the power supply enters protection state such as output derating, output hiccup or output shutdown. After the external temperature is normal, restart and resume operation.

Driver restart method

- 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-TCL010E-AHA0250AT

wire prep. 0.75-1.5mm²

BOKE Constant Current LED Driver (LED控制装置)

MODEL (型号): BK-TCL010E-AHA0250AT

Input (输入): 200-240V ~ 50/60Hz 0.07A Max. tc: 85°C

Output (输出): 24-42V ~ 250mA 10.5W ta: 50°C

Other ratings see selection sheet

Switching selection sheet

Pos	Io (mA)	Vo (Vdc)	Switch
4.2	100	24-42	1 2
6.3	150	24-42	ON
8.4	200	24-42	ON
10.5	250	24-42	ON

For LED Modules use only

MADE IN CHINA (中国制造)

SELV

LED+

LED-

wire prep. 0.5-1.0mm²

R, C



Laser engraving technology

DIP-switch & output current

BK-TCL010E-AHA0250AT

Output			1	2
Prated (w)	Irated (mA)	Voltage (Vdc)		
4.2	100	24-42	--	--
6.3	150	24-42	--	ON
8.4	200	24-42	ON	--
10.5	250	24-42	ON	ON

BK-TCL015E-AHA0350AT

Output			1	2
Prated (w)	Irated (mA)	Voltage (Vdc)		
8.40	200	24-42	--	--
10.50	250	24-42	--	ON
12.60	300	24-42	ON	--
14.70	350	24-42	ON	ON

Remarks:

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

BK-TCL015E-AHA0350AT

wire prep. 0.75-1.5mm²

BOKE Constant Current LED Driver (LED控制装置)

MODEL (型号): BK-TCL015E-AHA0350AT

Input (输入): 200-240V ~ 50/60Hz 0.1A Max. λ: 0.84C-0.95

Output (输出): 24-42V ~ 350mA 14.7W 55VDC Max. tc: 85°C

Other ratings see selection sheet

Switching selection sheet

Pos	Io (mA)	Vo (Vdc)	Switch
8.40	200	24-42	1 2
10.50	250	24-42	ON
12.60	300	24-42	ON
14.70	350	24-42	ON

For LED Modules use only

MADE IN CHINA (中国制造)

SELV

LED+

LED-

wire prep. 0.5-1.0mm²

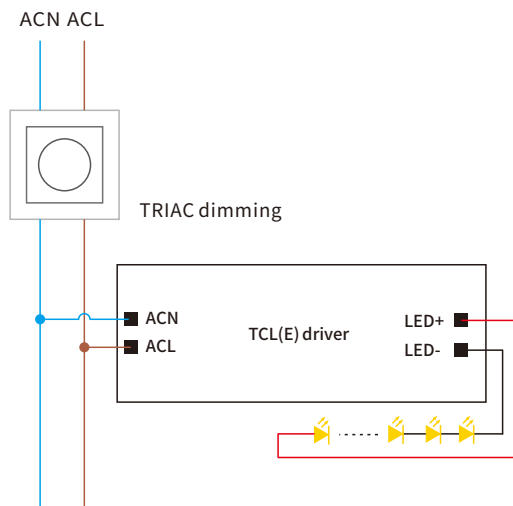
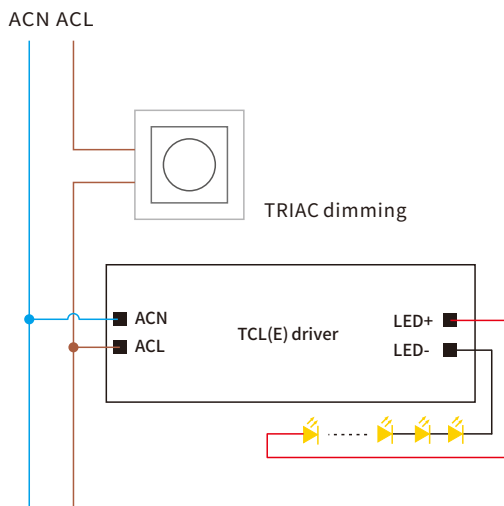
R, C



Laser engraving technology

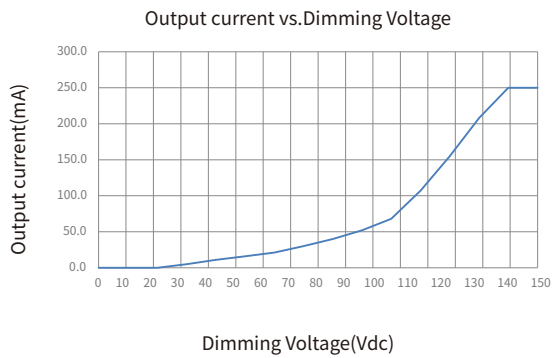
Triac dimming application

Wiring diagram

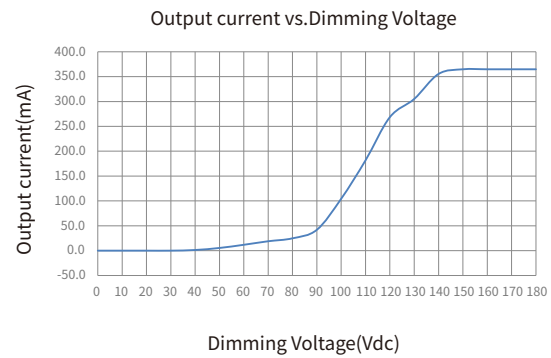


Dimming curve

TCL010E-AHA



TCL015E-AHA



Phase Control dimmer compatible list

No.	Brand	Model	Relative number/pcs	
			TCL010E-AHA	TCL015E-AHA
1	Schneider	CS30323	29	16
2	Dimpale DIMR	0921	32	17
3	DETA	6035	32	17
4	DIGINET	B1918-N	32	17
5	TR	TED-400U	32	17
6	sg	LEDDIM 400	32	17

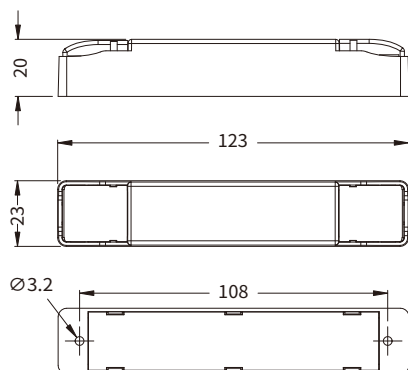
Note

- The above dimmers are the models we tested compatible with our drivers.
- Please test the driver samples with your dimmers about the compatibility, whatever the dimmers you will use is on our list.
Purchase batch order after sample test.
- If the dimmers not included in the above list, any failure and risk caused by the compatible problem, we do not assume responsibility.
- We accept batch order after sample confirm.
- Our drivers only compatible with trailing-edge dimmers, and not compatible with leading-edge dimmers. few of the dimmers may not compatible, it is normal, please confirm with us.
- There will be some noise when use the drivers, it is normal, the noise will be smaller if use trailing edge dimmer.
- From the dimming effect, stability, noise, etc, trailing edge dimmers are recommended.
- Dimmers with rating power according to different load, please choose the right power which the dimmer need to load.
- Dimmers will have minimum maintain power demand, when there is less than or critical to maintain power, could adjust the minimum brightness of the dimmer output (some of the dimmers without minimum brightness adjust function).

Mechanical Specification

Size(Unit:mm)

TCL010E-AHA

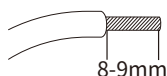


INPUT

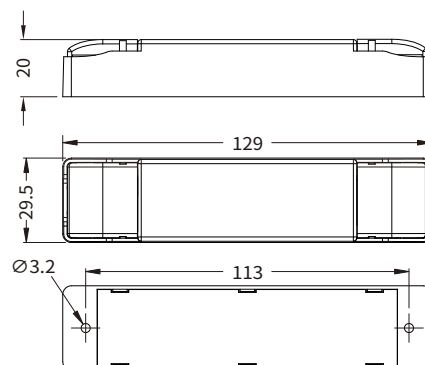
Numbering	function	colour
1	ACN	grey
2	ACL	grey

Input wire

0.75-1.5mm²



TCL015E-AHA

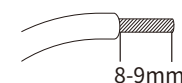


OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black

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.

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 power end cover), the installation of the driver should also meet the following conditions:
 - 1.The driver should be a certain distance between the drives, as shown in Figure 1.
 - 2.The driver keeps a certain distance from surrounding objects, as shown in Figure 2.

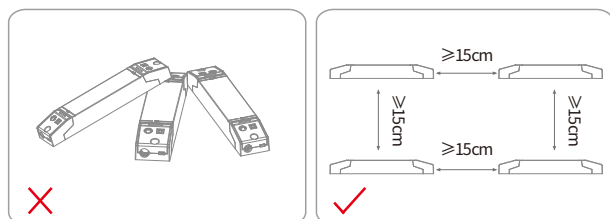


Figure 1

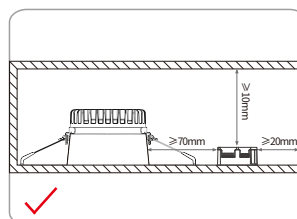


Figure 2

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 2m.
- Incorrect wiring can damage LED modules.

Replace LED module

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

Packaging



Product



Packaging



20pcs×9boxes=180pcs/CTN
20pcs×6boxes=120pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
TCL010E-AHA	L123*W23*H20mm	48g	L220*W127*H53mm	L410*W250*H190mm	180pcs	8.64KG	10.0KG
TCL015E-AHA	L129*W29.5*H20mm	61g	L217*W133*H67mm	L285*W235*H220mm	120pcs	7.32KG	8.66KG

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.