Product Datasheet

The global certified BLK-810-C is a non-isolated high efficiency smart LED driver. 6kV surge protection level, 100khour long life and 5-year warranty provide high confidence to luminaire users. It supports not only traditional 4-in-1 control, but also DALI2.0 and other protocols. NFC and cable programming are both available for users. All around protections including digital OTP (internal and external by NTC) with auto-recovery secure 24hour non-stop operation for luminaires.

☑ Horticultural ☑ Stadium ☑ Flood ☑ Harbor ☑ UV ☑ Fishing

Features

- Supply Voltage: 100~305Vac, 380Vac for 2 hours
- 97% Efficiency Max.
- **Non-isolated Design**
- **Output Cable with Ground Wire (Optional)**
- Low Inrush Current
- 100,000Hour Life @ Tc=75℃
- 5 Year Warranty @ Tc<=75℃
- Airset™ NFC Programmability
- +/-2% Output Current Accuracy
- Isolated 0-10V/PWM/Time/DALI2.0 Dimmable
- **Glow-free Dim Off**
- 12V 300mA Auxiliary Power to Power Controllers and Fans
- UL Class P, ENEC/CB/CCC SELV Output
- Global Certified Model Available
- Safety according to EN 61347-1, 61347-2-3, 61347-2-13, 62384

Model List

Model Number	Input Voltage Range	Output Power	Output Voltage	Full Power Settable Current Min	Full Power Settable Current Max	Certification
BLK-810-C280-XYZ	100 ~ 305 Vac	810 W	174-360Vdc	2250mA	2800mA	UL/FCC/CB/ENEC/ RCM/EAC

XY=	Dimming Method	Programmable	12Vaux	Dim-off
EN	0-10V/PWM/Time/Resistor	Cable	300mA	√
ER	0-10V/PWM/Time/Resistor	NFC Wireless	300mA	√
AR	DALI2.0	NFC Wireless	-	√
MR	RDM or DMX	NFC Wireless	-	√

Z = **U**, UL cable with input ground wire (green) **V**, UL cable with both input and output ground wire (green)

S, VDE cable/Class I **D**, VDE cable/Class II

Note: See the **Output Operation Range Section** for programmable model details

Technical Data

Input Voltage	108~305Vac, 380Vac for 2 hours
Input Frequency	47～63Hz
Power Factor	>0.95@60-100%load, refer to PF vs. Load curve
THD	<15%@60-100%load, refer to THD vs. Load curve
Input Current	7.1Amax@120Vac & Full-Load, 3.9Amax@220Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	1mA max @277Vac 60Hz, UL8750,0.75mAmax @220Vac 50Hz, IEC61347-1
Input Under Voltage	Shut down and auto-restart
Surge Protection	Line to line 6kV, line to ground 10kV, IEC 61000-4-5
Current Accuracy	±2%Io for programmable model, ±5%Io for non-programmable model
Ripple Current	Ip-p:5%Io max
Setup Time	1.2s max
Overshoot	10% Io max & LED Load
Output Over Voltage	120% Vomax, typ.
Short Circuit	Auto recovery. The output recovers when short is removed.
Over Temperature	Lower the output current when Tc≧105±10℃; Auto Recovery When Tc≦70±10℃
Auxiliary Power (Vaux)	12V+/-5%, 300mA max
Operating Temperature	Case Temperature Tc=-40℃～+90℃； 10%RH～100%RH
Storage Temperature	-40℃～+85℃； 5%RH～100%RH
MTBF	≥280,000 hours, 75℃ case temperature (MIL-HDBK-217F)
Lifetime	≥100,000 hours, 75℃ case temperature, refer to life vs. Tc curve
Case Temperature	90℃ max, marked in the Tc point of label
Dimension	284 x 90 x 41.5 by mm (body), 311 x 90 x 41.5 by mm (endcaps included)
Net Weight	1300g
Packing	See Package Information Section in the datasheet

Notes: Unless specified, all the test results are measured in 25℃ room temperature.

Safety/EMC Compliance

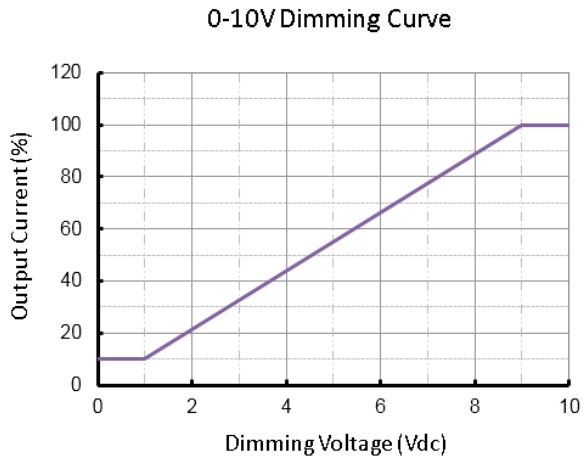
Safety Standard	Description
UL8750	Light emitting diode(LED) equipment for use in lighting products
UL1012	Power units other than class 2
IEC 61347-1	Lamp control gear Part 1: general and safety requirements
IEC 61347-2-13	Lamp control gear Part 2-13: particular requirement for d.c. or a.c. supplied electronic control gear for LED modules
EMI Standards	Description
IEC 55015	Conducted emission test & radiated emission test
IEC 61000-3-2	Harmonic current emissions; Class C
IEC 61000-3-3	Voltage fluctuations & flicker
FCC Part 15	ANSI C63.4:2009 Class B
EMS Standards	Description
IEC 61000-4-2	Electrostatic discharge (ESD): 8 kV air discharge, 4 kV contact discharge
IEC 61000-4-3	Radio frequency electromagnetic field susceptibility test (RS)
IEC 61000-4-4	Electrical fast transient (EFT)
IEC 61000-4-5	Surge immunity test
IEC 61000-4-6	Conducted radio frequency disturbances test (CS)
IEC 61000-4-8	Power frequency magnetic field test
IEC 61000-4-11	Voltage dips
IEC 61547	Electromagnetic immunity requirements applies to lighting equipment

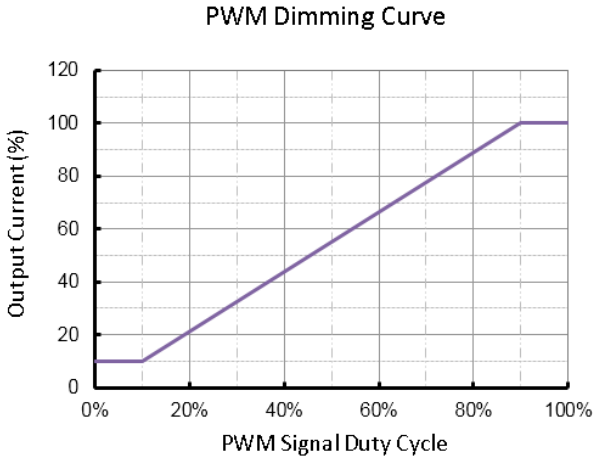
Dimming

Parameter	Min.	Typ.	Max.
Vdim Sourcing Current	100uA	150uA	200uA
Vdim Allowed Input Voltage	-20 V		20 V
0-10V Dimming Range	10% (Vdim=1V)	Linear	100% (Vdim=9~10V)
PWM Dimming Range	10% (Duty=10%)	Linear	100% (Duty=90-100%)
Dim off threshold	0.4V or 4%	0.5V or 5%	0.6V or 6%
Dim on threshold	0.6V or 6%	0.7V or 7%	0.8V or 8%
PWM High	3.8V		10V
PWM Low	0V		0.6V
PWM Frequency	300Hz		2kHz
External PWM Controller Current Sinking Capability	300uA		
DALI Interface Standard	IEC62386, part 101,102,207		
DA1,DA2 High Level	9.5	16	22.5
DA1,DA2 Low Level	-6.5	0	6.5
DA1,DA2 Current	0		2mA

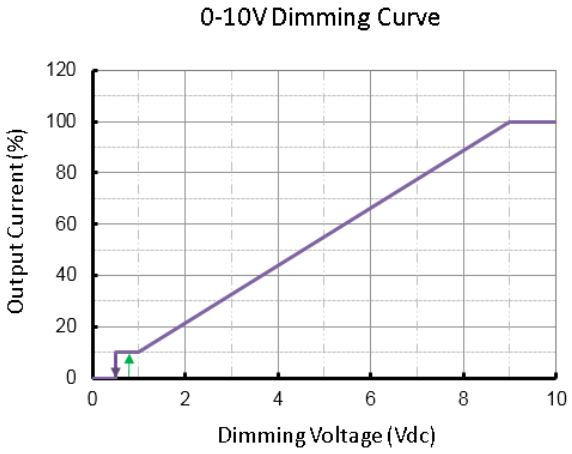
- **Dimming Curve**

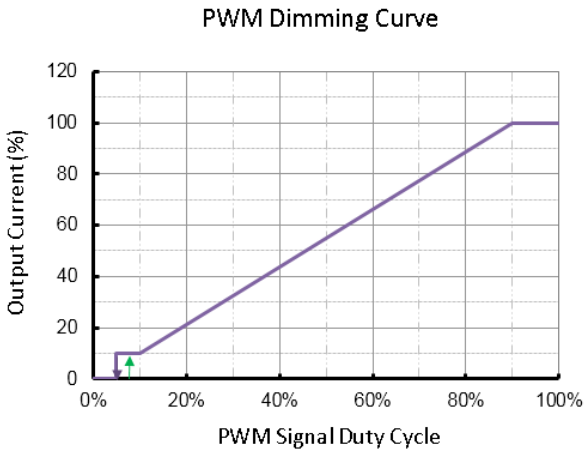
a. Without dim-off



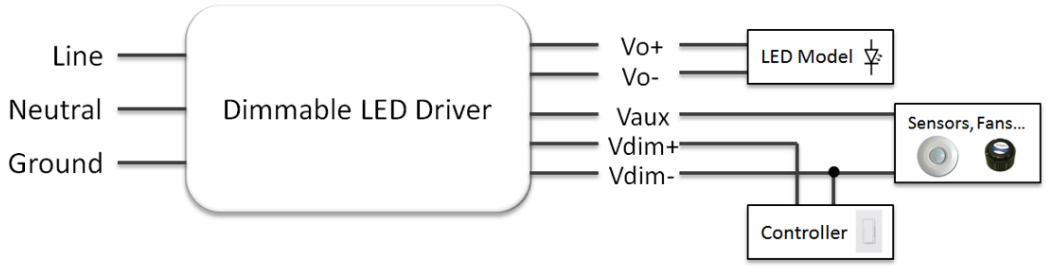


b. With dim-off





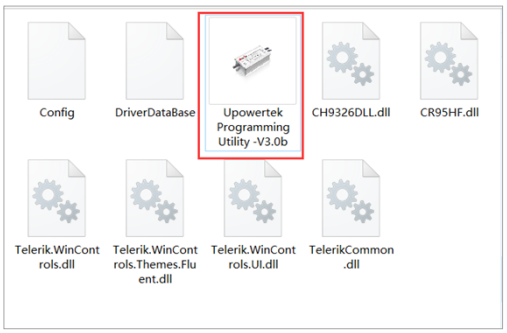
- **Dimming Wiring**

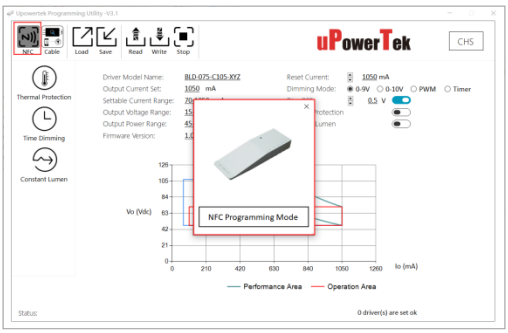


Programming

- **NFC Programming by PC/Laptop**

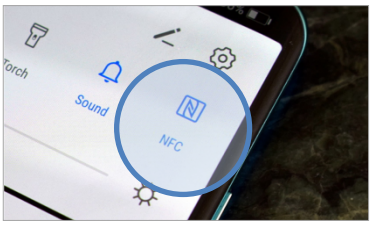
a. Download PC Software at https://www.upowertek.com/download-2/
b. Click Upowertek Programming Utility.exe
c. The GUI start and notify you the programming mode (cable programming or NFC programming)
d. Click “NFC” button if it’s not NFC programming mode.

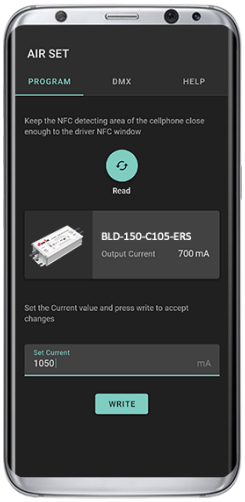




- **NFC Programming by Smartphone**

a. Download Android APP at https://www.upowertek.com/download-2/
b. Only available on Android cellphone (iPhone is not supported)
c. The cellphone should have NFC function and make sure it is enabled.



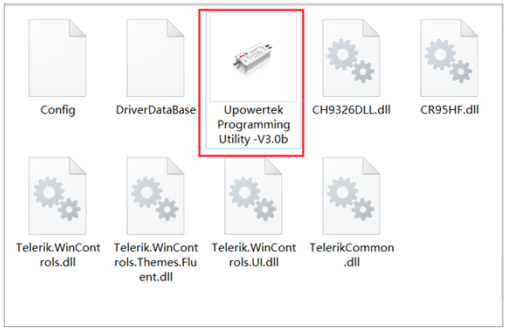


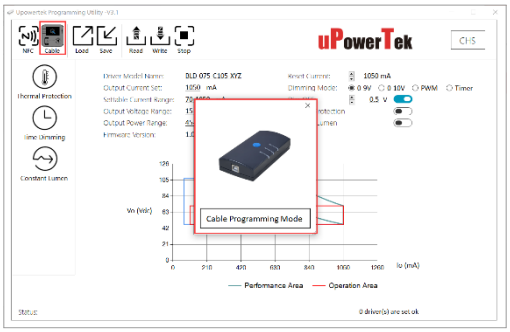
d. Turn on NFC switch of cellphone, then open the APP by icon below.

uPowerTek
Airset

- **Cable Programming**

a. Download PC Software at https://www.upowertek.com/download-2/
b. Click Upowertek Programming Utility.exe
c. The GUI start and notify you the programming mode (cable programming or NFC programming)

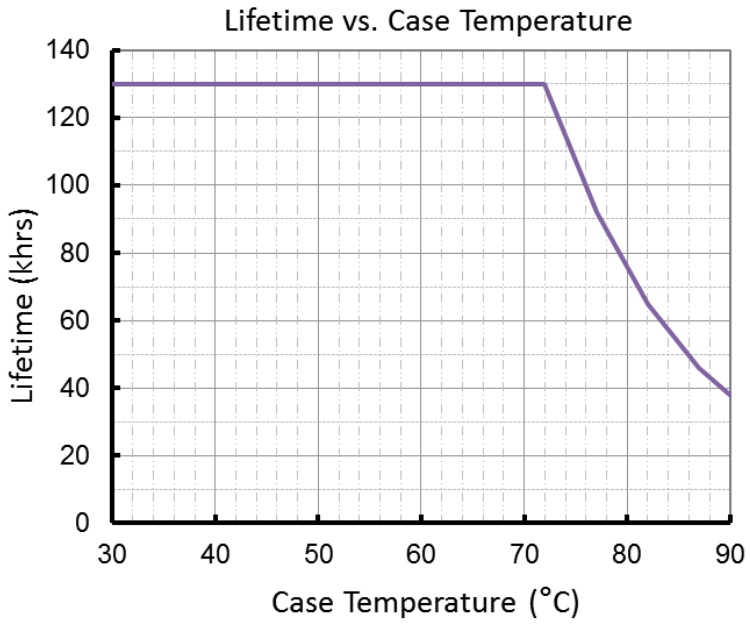




d. Click “Cable” button if it’s not cable programming mode.
e. Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

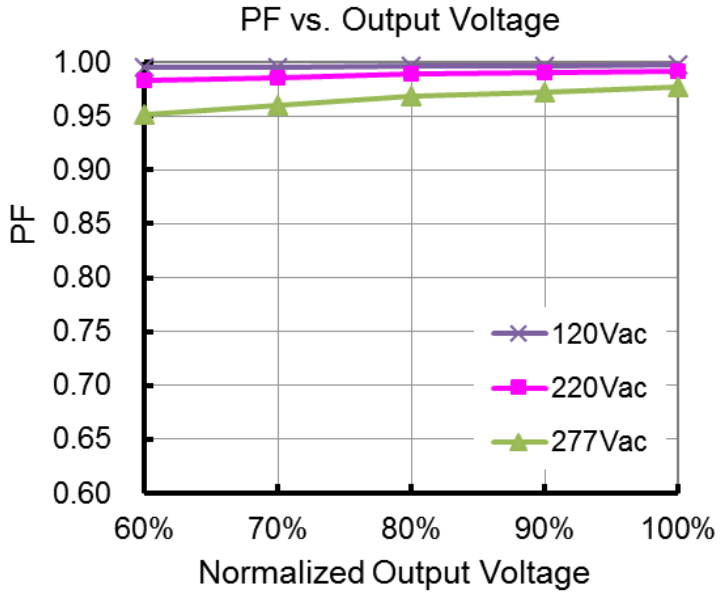
- **Please contact with us for product user manual and more information such as:**
  a. Output Lumen Compensation
  b. Luminaire Thermal Protection by External NTC (with extra cable)
  c. Dimming Curve Customization (dim off threshold, minimum dimming level, maximum dimming voltage etc.)
  d. Adjustable Startup Time
  e. Time Dimming (adaptive mid-night, percentage, etc.)
  f. Customized Control Protocol

Lifetime vs. Case Temperature

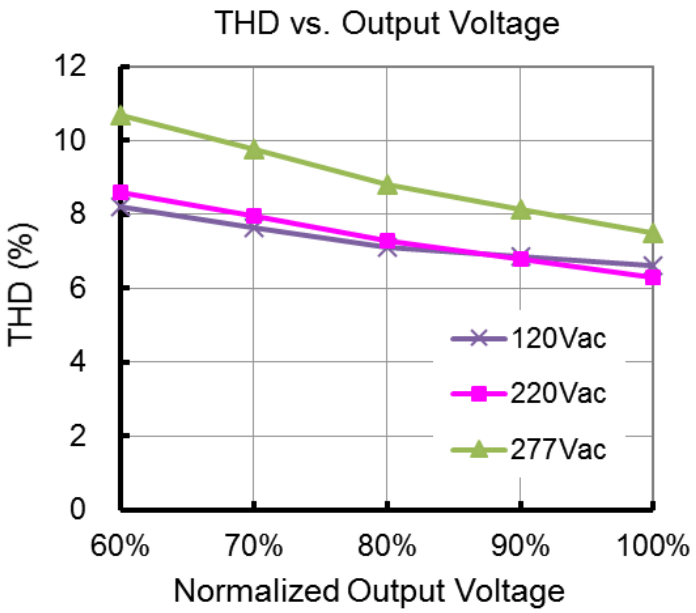


(End of Life: Maximum Failure Rate=10%)

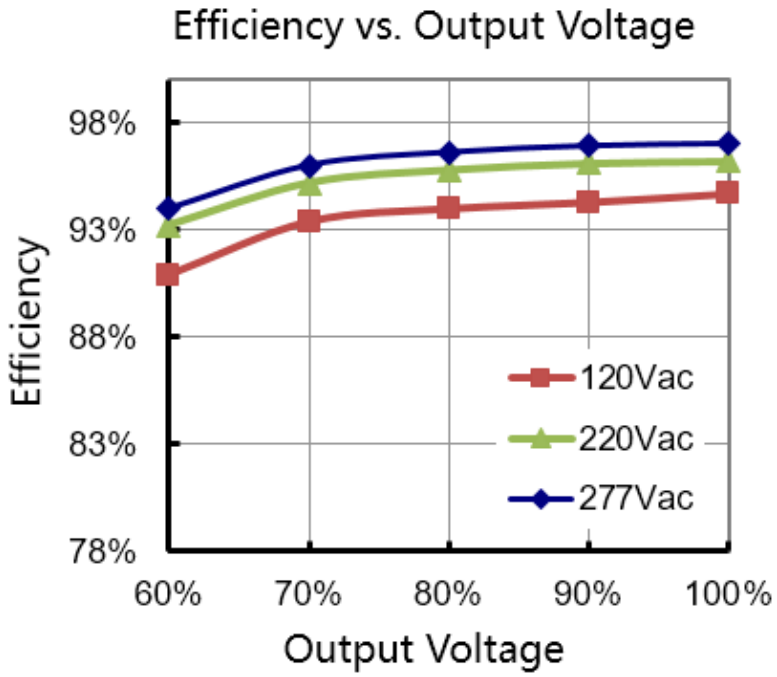
Power Factor vs. Load



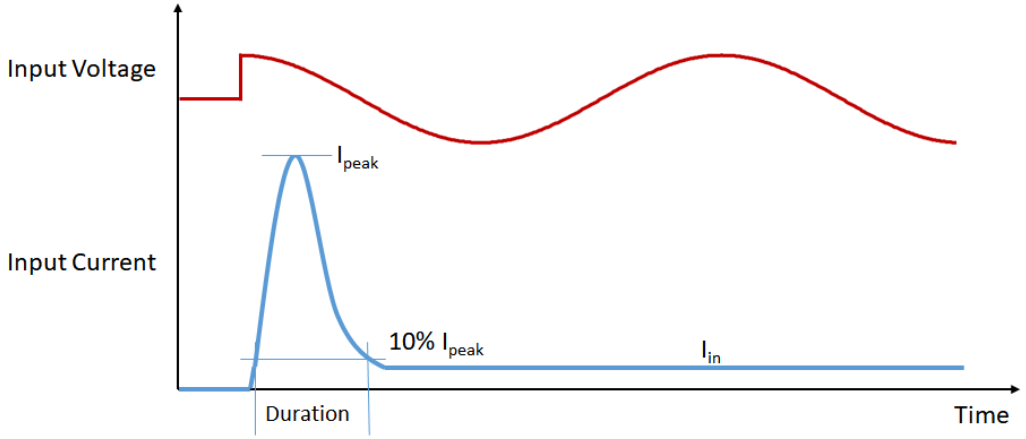
THD vs. Load



Efficiency vs. Load



Inrush Current



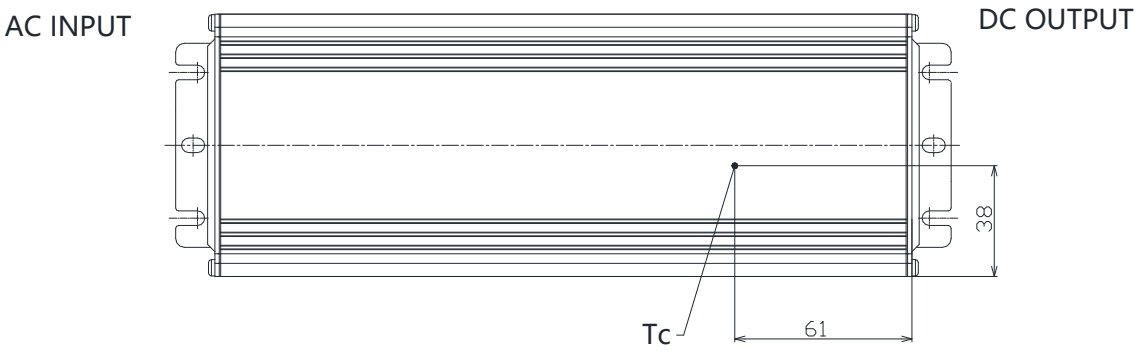
Input Voltage	I_{peak}	Duration
120Vac	3A	60mS
220Vac	5A	70mS
277Vac	8A	70mS

Please contact with us for MCB calculation and waveforms.

Dielectric Strength

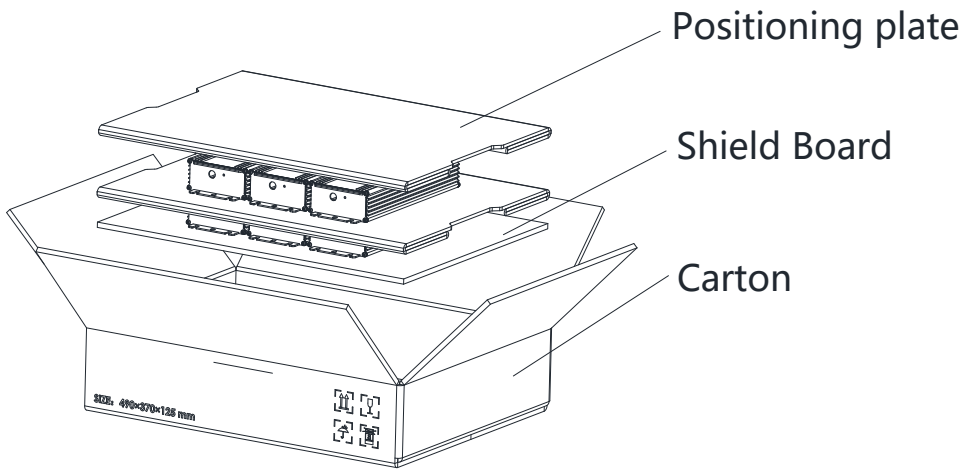
Unit: Vac	Input	Output	Dimming	Case
Input	-	-	3750	1554
Output	-	-	1554	1554
Dimming	3750	1554	-	1554
Case	1554	1554	1554	-

Tc Point



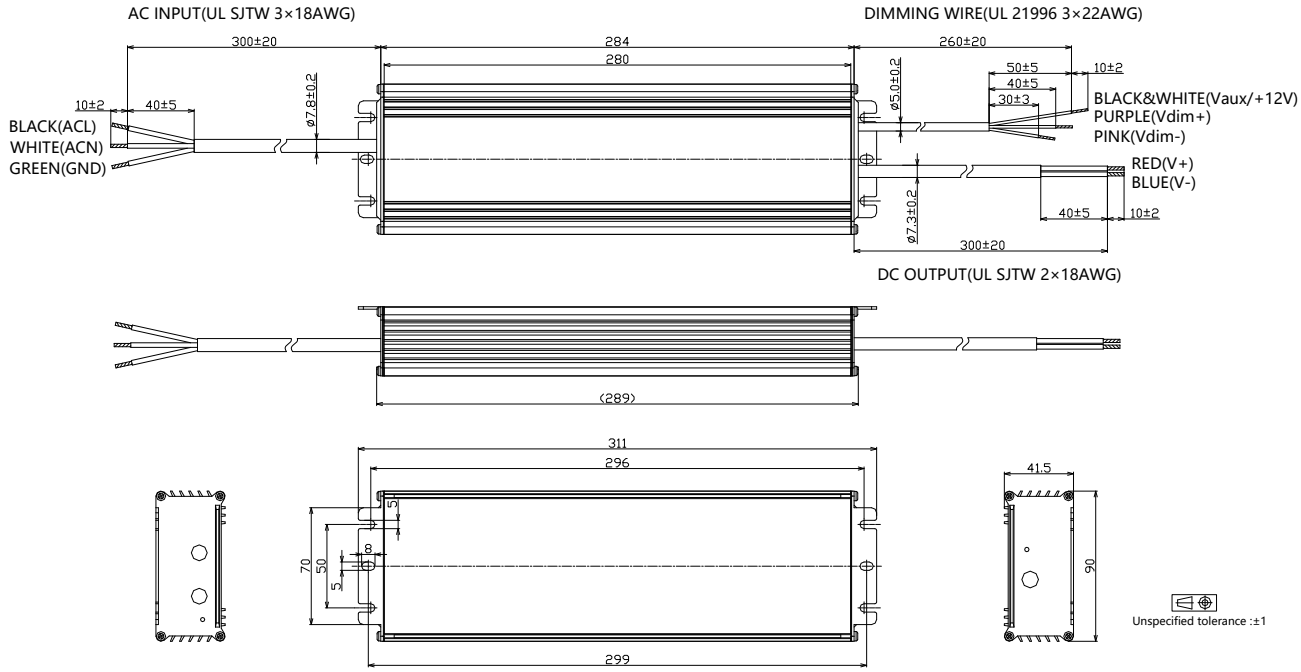
Packaging Information

Typical Carton Dimension(L×W×H)	490×370×125 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers	6pcs/carton

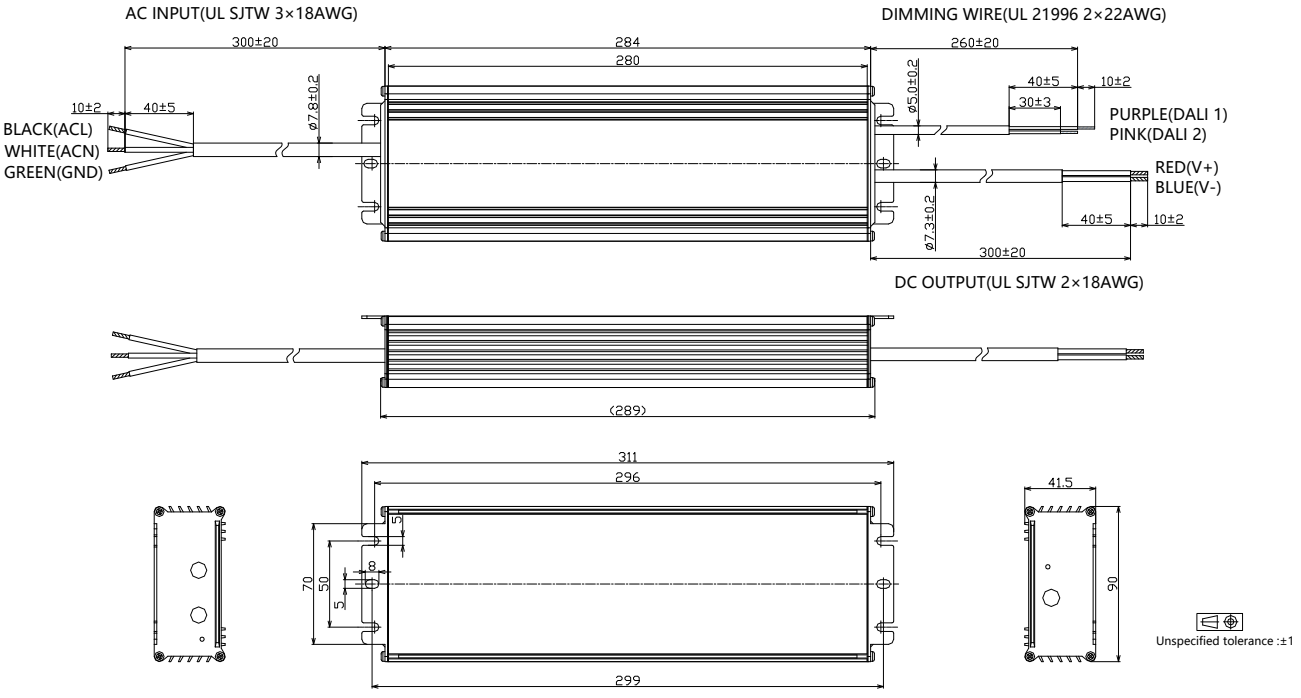


Mechanical Design

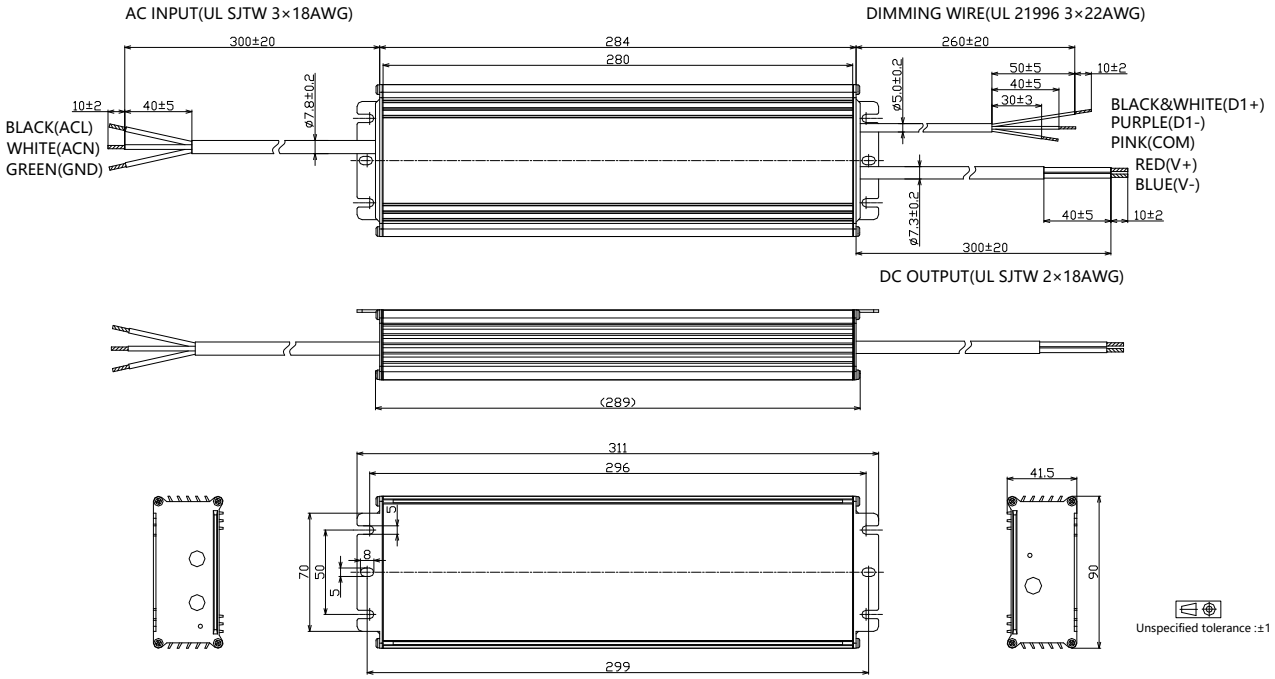
- **BLK-810-Cxxx-ER/ENU (UL Cable)**



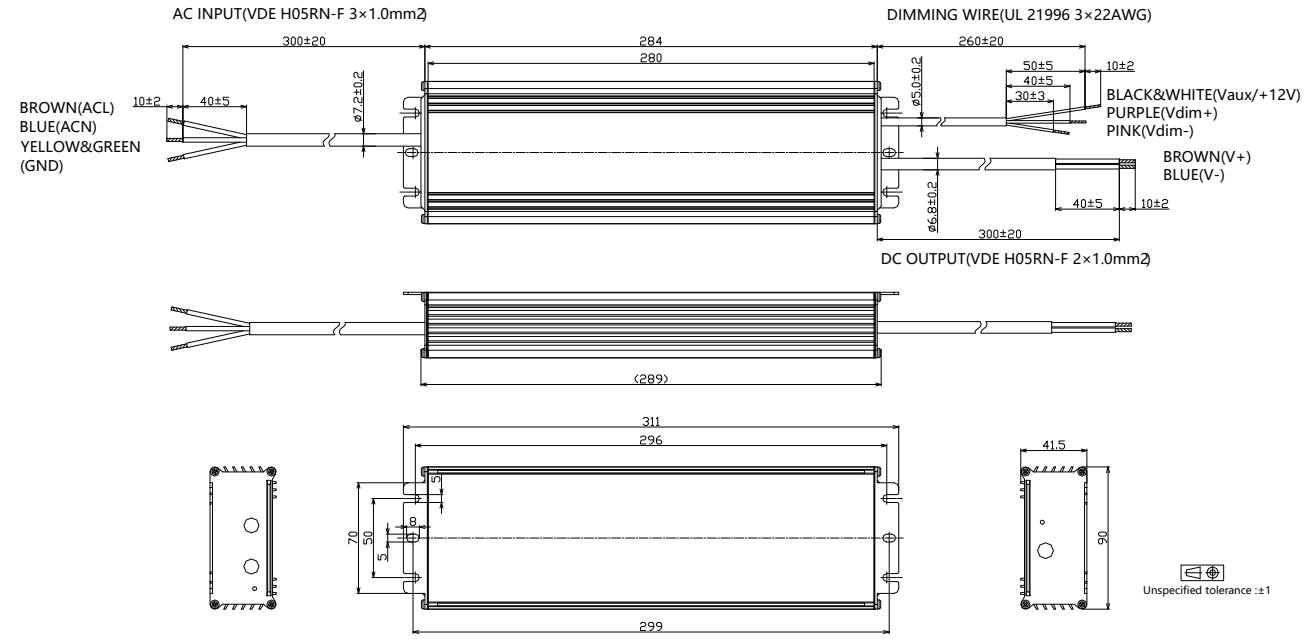
- **BLK-810-Cxxx-ARU (UL Cable)**



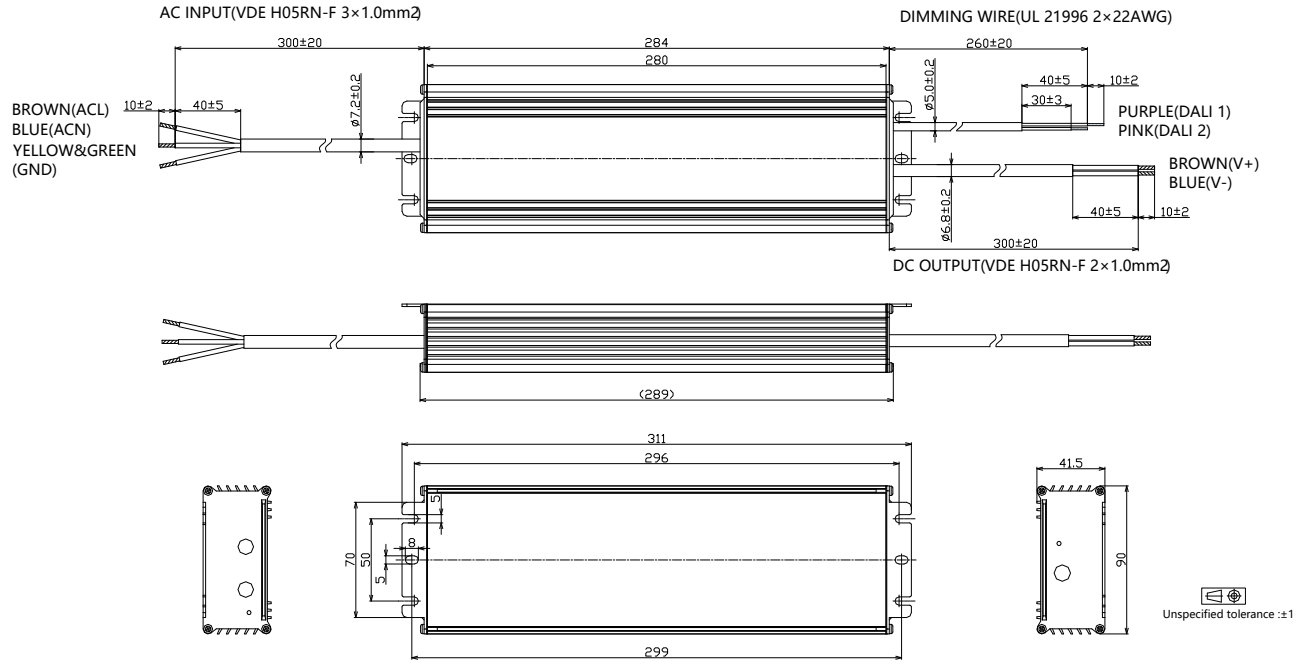
- **BLK-810-Cxxx-MRU (UL Cable)**



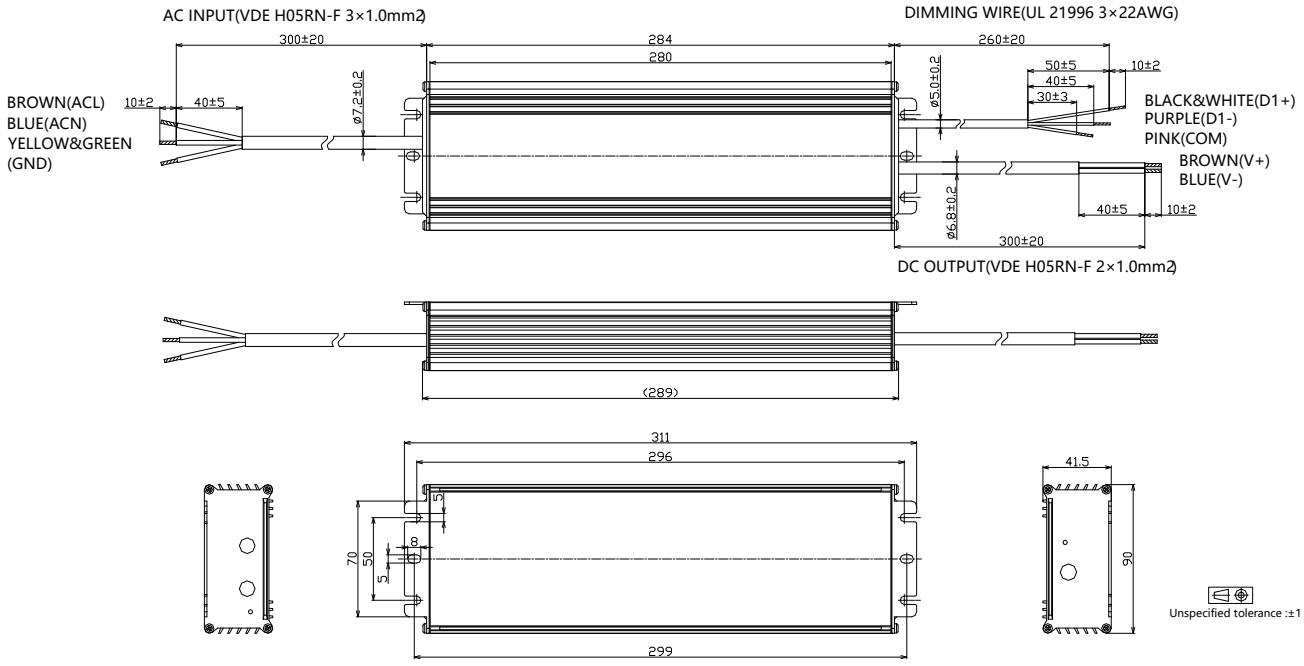
- **BLK-810-Cxxx-EN/ERS (VDE Cable)**



- **BLK-810-Cxxx-ARS (VDE Cable)**



- **BLK-810-Cxxx-MRS (VDE Cable)**



Output Operation Range

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C280	2800	810	174	289	280
	2700	810	180	300	270
	2600	810	187	312	260
	2500	810	194	324	250
	2400	810	203	338	240
	2300	810	211	352	230
	2250	810	216	360	225
	2100	756	216	360	225
	2000	720	216	360	225
	1900	684	216	360	225
	1800	648	216	360	225
	1700	612	216	360	225
	…	…	…	…	…
	225	81	216	360	225

Revision History

Revision	Date	Contents
A	2022-06-30	1. First Release