

# 600W, 200-400Vac Input, Non-isolated LED Driver

## Product Datasheet



The global certified SLK-600-C is a non-isolated extremely wide input smart LED driver. 10kV surge protection level, 100khour long life 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. All around protections including digital OTP (internal and external by NTC) with auto-recovery secure 24hour non-stop operation for luminaires.

- Stadium
- Horticultural
- Flood
- Harbor
- UV
- Fishing



- Features ..... 2
- Model List ..... 2
- Technical Data ..... 3
- Safety/EMC Compliance ..... 4
- Dimming ..... 4
- Programming ..... 6
- Lifetime vs. Case Temperature ..... 8
- Power Factor vs. Load ..... 8
- THD vs. Load ..... 9
- Efficiency vs. Load ..... 9
- Inrush Current ..... 10
- Dielectric Strength ..... 10
- Tc Point ..... 10
- Packaging Information ..... 11
- Mechanical Design ..... 12
- Output Operation Range ..... 15

## ■ Features

- Absolute Supply Voltage: 180-440Vac
- 97% Efficiency Max.
- **<1% Low Frequency Ripple**
- **Fast Dimming and On-off**
- **Output Cable with Ground Wire (Optional)**
- Low Inrush Current
- 100,000Hour Life @ Tc=75°C
- Airset™ NFC Programmability
- +/-2% Output Current Accuracy
- Isolated 0-10V/PWM/Time/DALI2.0 Dimmable
- **Glow-free Dim Off**
- 12V 300mA Auxiliary Power
- UL Class P, ENEC/CB/RCM
- Safety according to UL8750, EN 61347-1, 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
SLK-600-C170-XYZ	180~440Vac	600 W	212-500Vdc	1.2A	1.7A
SLK-600-C210-XYZ	180~440Vac	600 W	171-353Vdc	1.7A	2.1A
SLK-600-C240-XYZ	180~440Vac	600 W	150-286Vdc	2.1A	2.4A

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 + DMX	NFC Wireless	-	√

Z=	U	V	S	W	D
Input Cable	3 pin UL cable with ground	3 pin UL cable with ground	3 pin VDE cable with ground	3 pin VDE cable with ground	2 pin VDE cable without ground
Output Cable	2 pin UL cable without ground	3 pin UL cable with ground	2 pin VDE cable without ground	3 pin VDE cable with ground	2 pin VDE cable without ground
Certified with	UL Listed Class P FCC 200-400Vac	UL Listed Class P FCC 200-400Vac	ENEC CB RCM Class I 220-400Vac	ENEC CB RCM Class I 220-400Vac	Class II 220-400Vac

## ■ Technical Data

Input Voltage	180-440Vac
Input Frequency	47~63Hz
Power Factor	>0.9@60-100%load, refer to PF vs. Load curve
THD	<15%@60-100%load, refer to THD vs. Load curve
Input Current	2.4Amax@277Vac & Full-Load 1.7Amax@380Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	0.75MIU max @347Vac 60Hz, UL8750 0.7mA max @400Vac 50/60Hz, IEC60598-1
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
Ripple Current	Ip-k-pk: low frequency (<=120Hz) 1% max, high frequency (>120Hz) 5%Io max
Setup Time	1.5s max
Overshoot	10% Io max & LED Load
Output Over Voltage	110% Vomax, typ.
Short Circuit	Auto recovery. The output recovers when short is removed.
Over Temperature	Lower the output current when $T_c \geq 105 \pm 10^\circ\text{C}$ ; Auto Recovery When $T_c \leq 70 \pm 10^\circ\text{C}$
Auxiliary Power (Vaux)	12V+/-5%, 300mA max
Operating Temperature	Case Temperature $T_c = -40^\circ\text{C} \sim +90^\circ\text{C}$ ; 10%RH~100%RH
Storage Temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$ ; 5%RH~100%RH
MTBF	$\geq 320,000$ hours, $75^\circ\text{C}$ case temperature (MIL-HDBK-217F)
Lifetime	$\geq 100,000$ hours, $75^\circ\text{C}$ case temperature, refer to life vs. $T_c$ curve
Case Temperature	$90^\circ\text{C}$ max, marked in the $T_c$ point of label
Dimension	207x 125 x 41.5 by mm (body), 232 x 125 x 41.5 by mm (endcaps included)
Net Weight	2270g
Packing	See Package Information Section in the datasheet

Notes: Unless specified, all the test results are measured in  $25^\circ\text{C}$  room temperature.

## ■ Safety/EMC Compliance

Safety Standards	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
IEC 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements
EMC 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
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

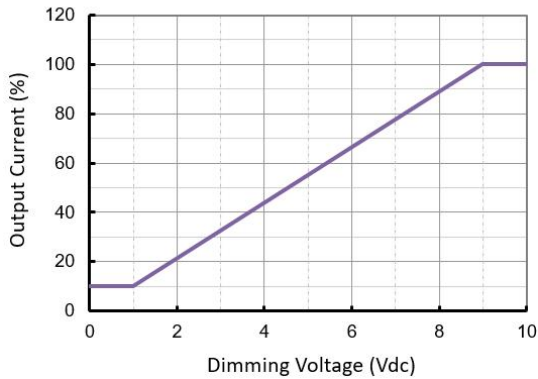
## ■ Dimming

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
PWM Controller 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
DMX+ & DMX- Voltage	-6V		6V
DMX to Ground Resistance	25Mohm		
Logic 0/1 (DMX+ to DMX-) Threshold		0.2V	
Communication Baud Rate		250kbps	

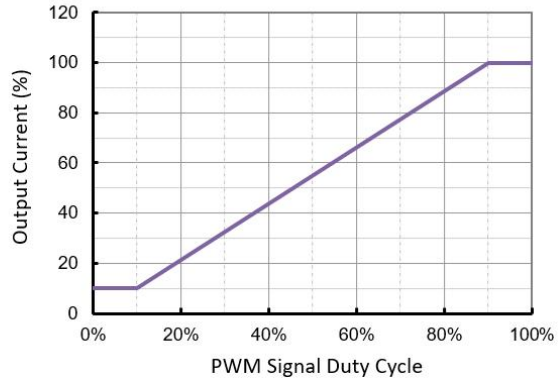
# SLK-600-C

- **Default Dimming Curves**
  - a. **0-10V dimming without dim-off**

0-10V Dimming Curve

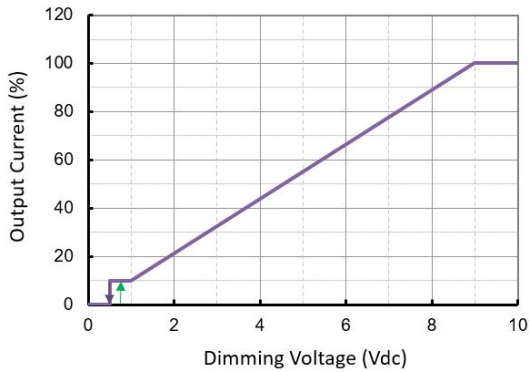


PWM Dimming Curve

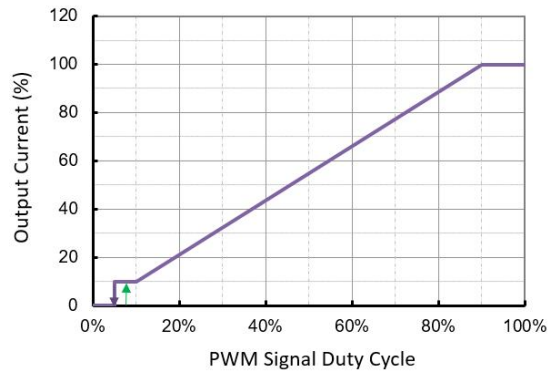


- b. **0-10V dimming with dim-off**

0-10V Dimming Curve with Dim Off

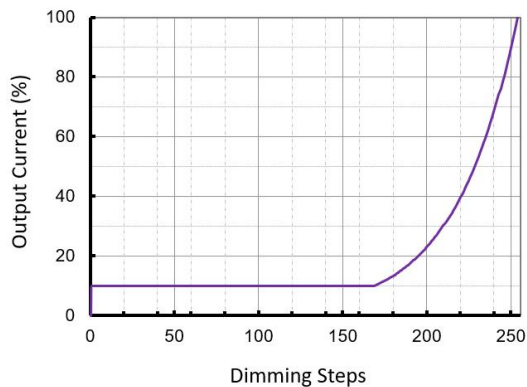


PWM Dimming Curve

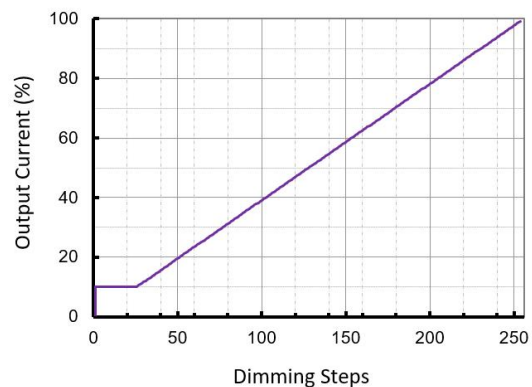


- c. **DALI and DMX dimming curves**

DALI Dimming Curve



DMX/RDM Dimming Curve



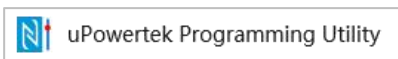
Note: Both DALI and DMX dimming curves can be customized to be linear or logarithmic as default.

## ■ Programming

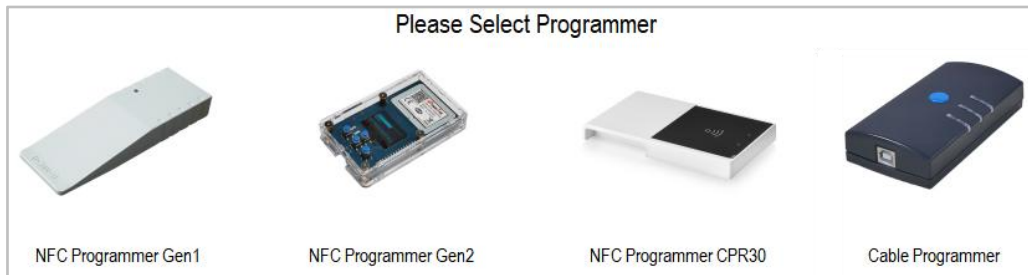
### - NFC Programming by PC/Laptop



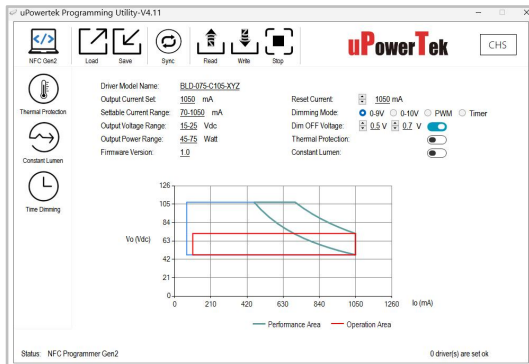
- Download PC software setup program at <https://www.upowertek.com/download-2/>
- Click uPowertek\_Programming\_Utility\_Vx\_Setup.exe to install the software.
- Open the software by windows Start Menu.



- The GUI start and choose the right NFC programmer.



- When the interface below appears, you can start programming.



### - NFC Programming by Smartphone

- Download Android APP at <https://www.upowertek.com/download-2/> or search IOS app “uPowerTek” from Apple’s app store.
- The cellphone should have NFC function and make sure it is enabled. The link below shows how to turn on the NFC from either iPhone or Android phones.  
<https://www.upowertek.com/how-to-use-nfc-on-cellphone/>
- Open the APP by icon below.



## SLK-600-C

### - Cable Programming



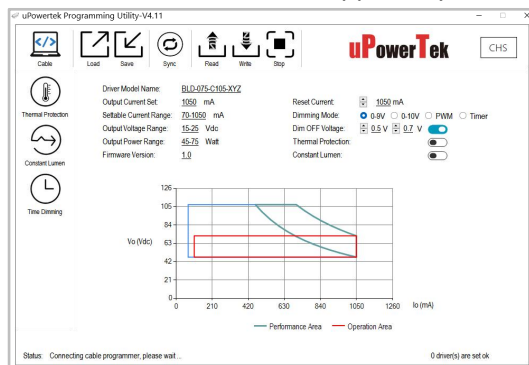
- Download PC software setup program at <https://www.upowertek.com/download-2/>
- Click uPowertek\_Programming\_UTILITY\_Vx\_Setup.exe to install the software.
- Open the software by windows Start Menu.



- The GUI start and choose the last Cable Programmer.



- When the interface below appears, you can start programming.



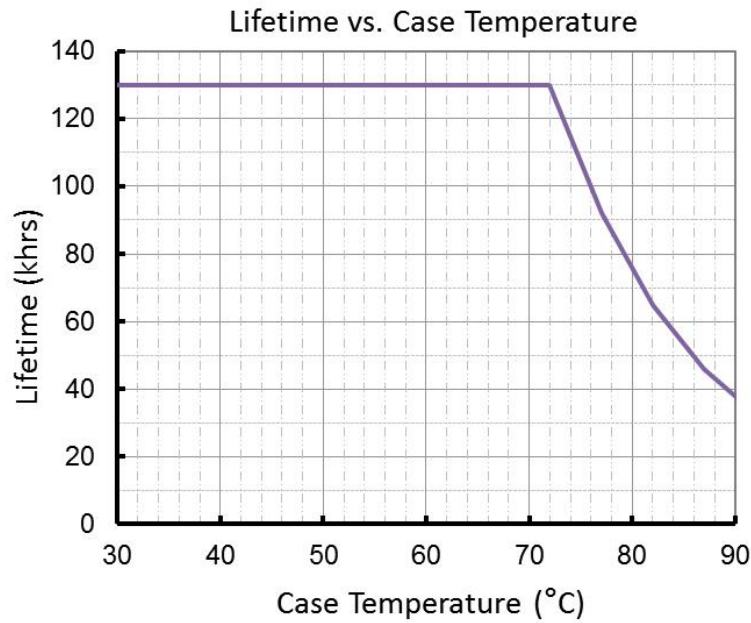
- Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

### - Please contact with us for programming user manual and more information such as:

- Output Lumen Compensation
- Luminaire Thermal Protection by External NTC (with extra cable)
- Dimming Curve Customization (dim off threshold, minimum dimming level, maximum dimming voltage etc.)
- Adjustable Startup Time
- Time Dimming (adaptive mid-night, percentage, etc.)
- Customized Control Protocol

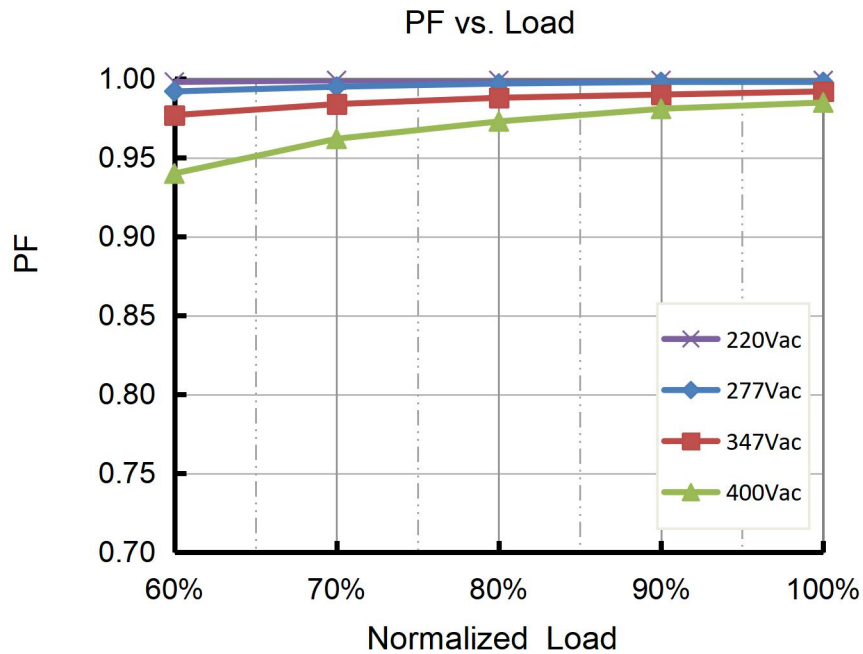


### ■ Lifetime vs. Case Temperature



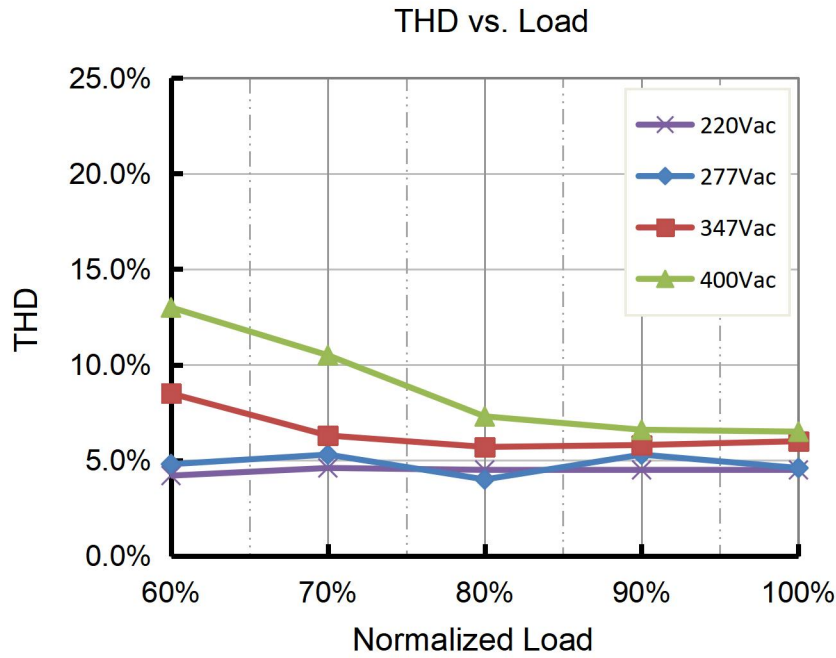
(End of Life: Maximum Failure Rate=10%)

### ■ Power Factor vs. Load

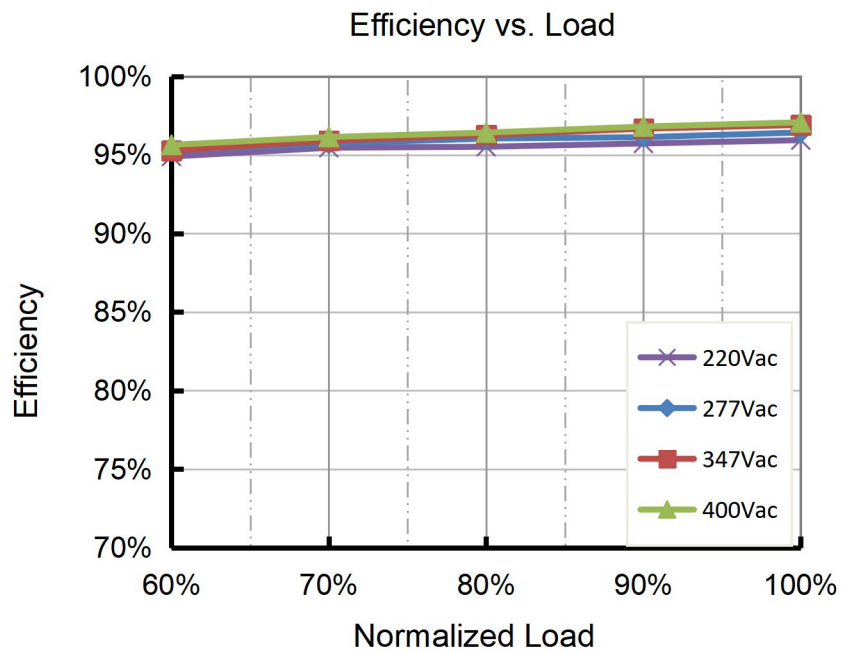




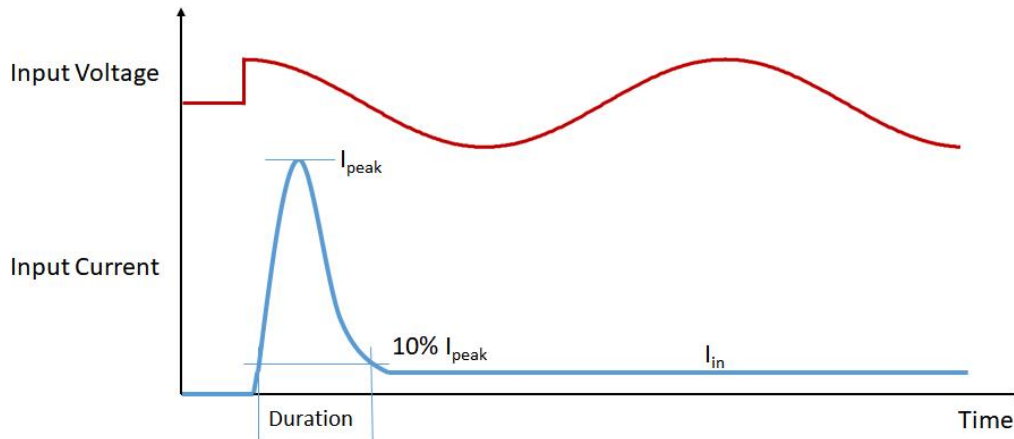
■ THD vs. Load



■ Efficiency vs. Load



### Inrush Current



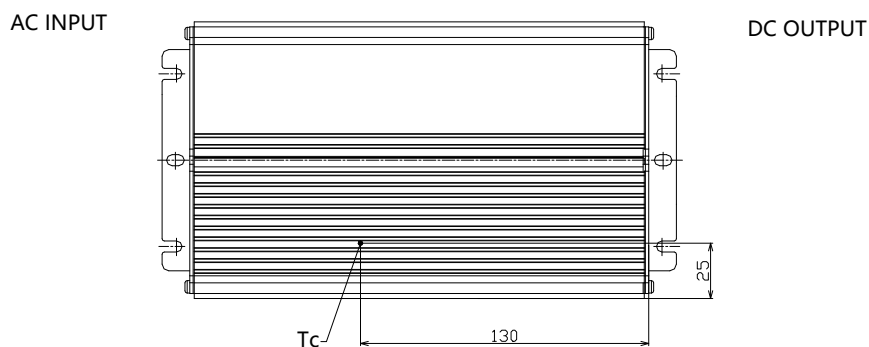
Input Voltage	$I_{peak}$	Duration
277Vac	7.1A	19.3mS
347Vac	10.5A	14.1mS
480Vac	15.3A	16.5mS

Please contact with us for MCB calculation and waveforms.

### Dielectric Strength

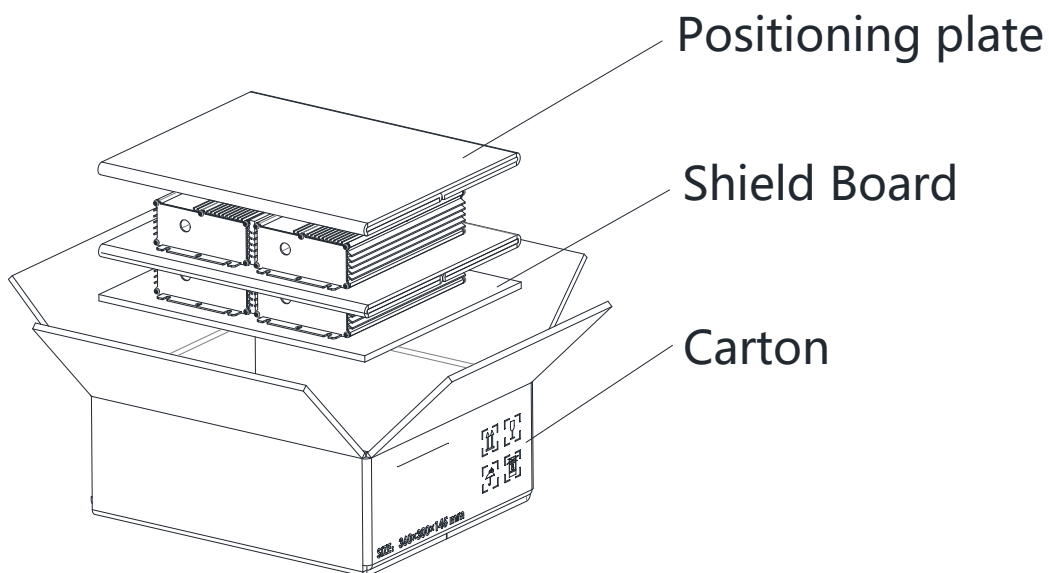
Unit: Vac	Input	Output	Dimming	Case
Input	-	-	3920	1960
Output	-	-	3920	1960
Dimming	3920	3920	-	1960
Case	1960	1960	1960	-

### Tc Point



## ■ Packaging Information

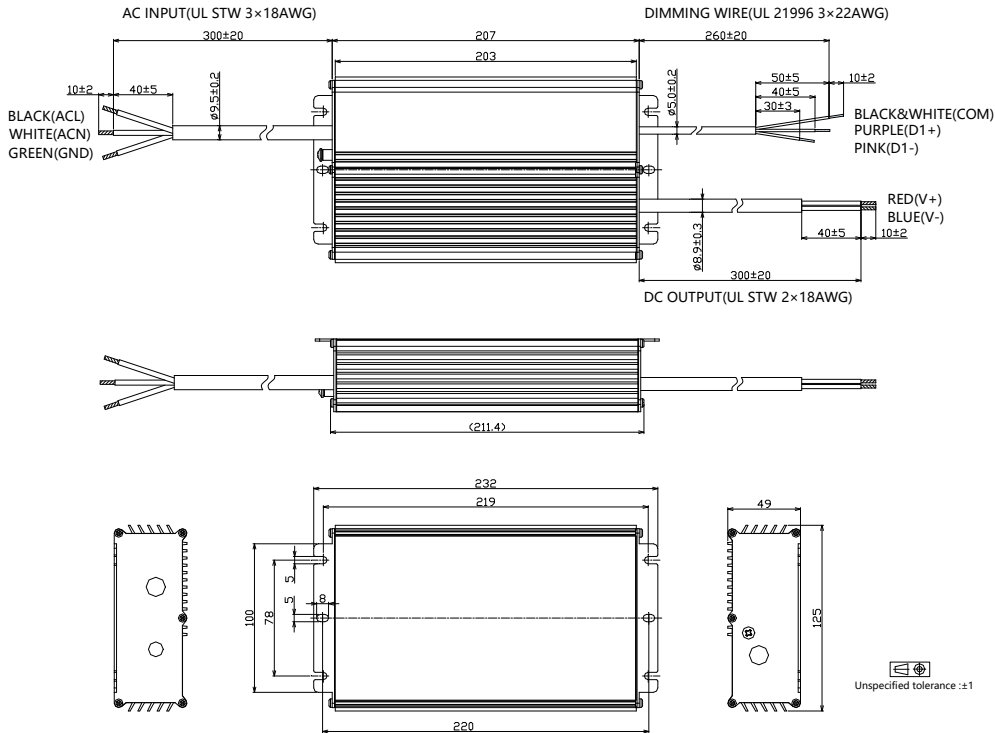
Typical Carton Dimension(L×W×H)	360×300×145 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	4pcs/carton
Net Weight	9.1 kg/carton
Gross Weight	9.7 kg/carton



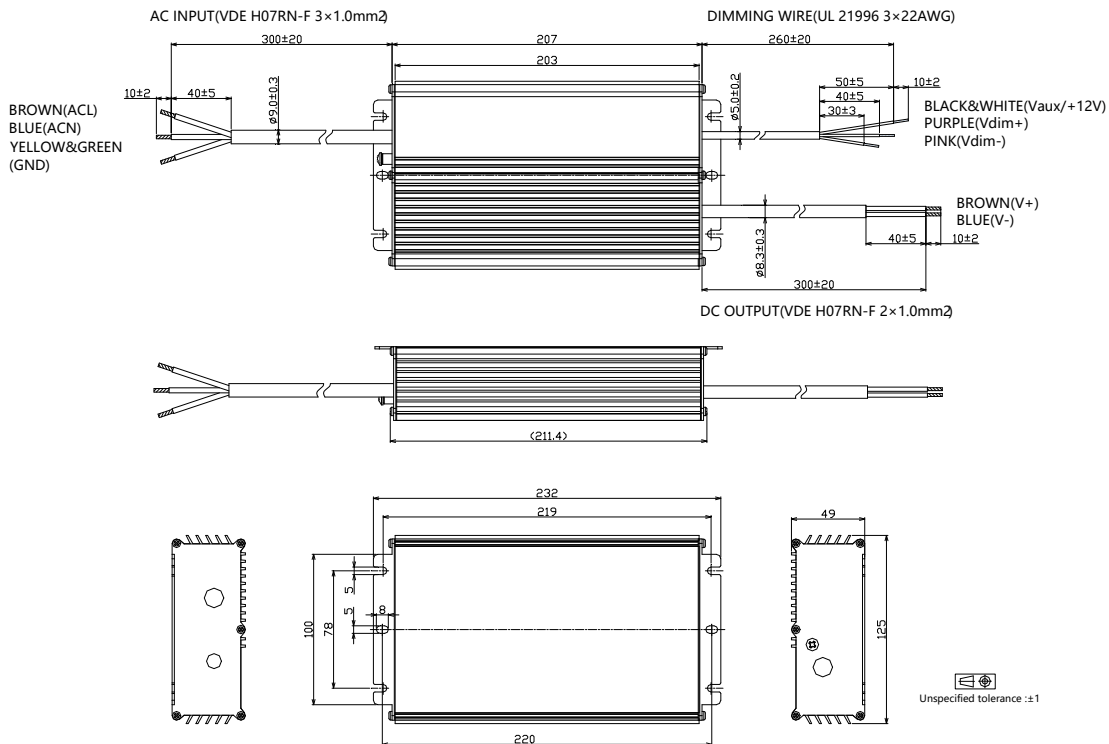


# SLK-600-C

## - SLK-600-Cxxx-MRU (UL Cable)

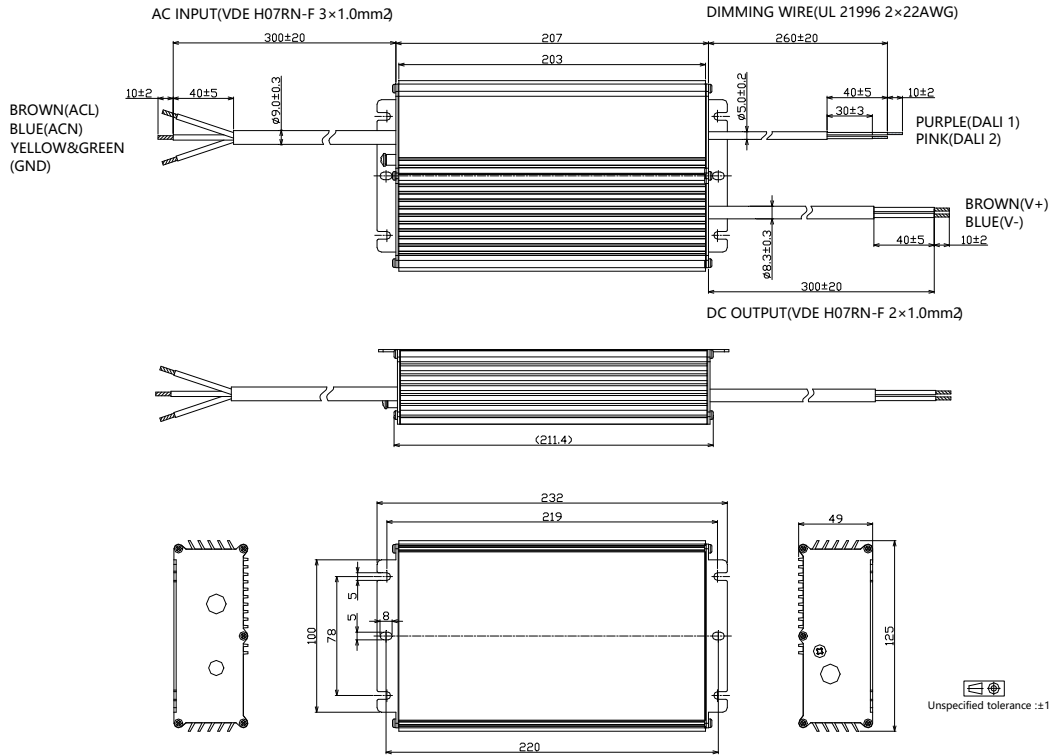


## - SLK-600-Cxxx-EN/ERS (VDE Cable)

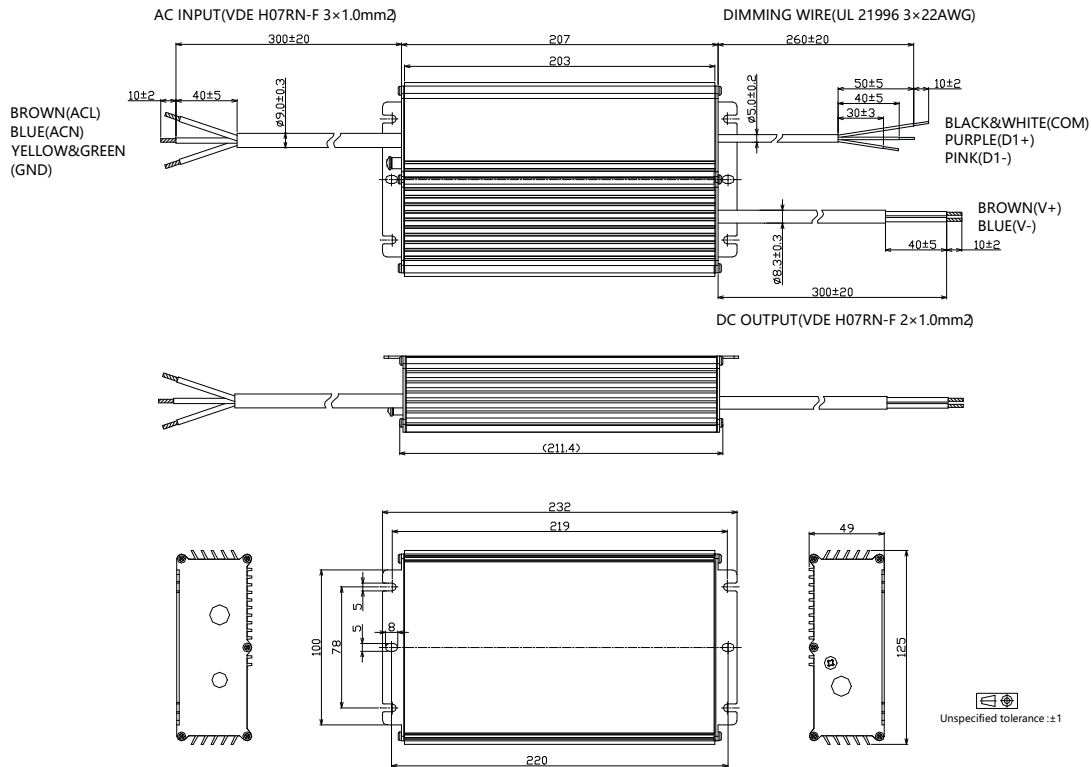


# SLK-600-C

## - SLK-600-Cxxx-ARS (VDE Cable)



## - SLK-600-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)
-C170	1700	600	212	353	170
	1600	600	225	375	160
	1500	600	240	400	150
	1400	600	257	429	140
	1300	600	277	462	130
	1200	600	300	500	120
	1100	550	300	500	120
	1000	500	300	500	120
	900	450	300	500	120
	800	400	300	500	120
	700	350	300	500	120
	600	300	300	500	120

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C210	2100	600	171	286	210
	2000	600	180	300	200
	1900	600	189	316	190
	1800	600	200	333	180
	1700	600	212	353	170
	1600	565	212	353	170
	1500	529	212	353	170
	1400	494	212	353	170
	1300	459	212	353	170
	1200	424	212	353	170
	1100	388	212	353	170
	1000	353	212	353	170



Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C240	2400	600	150	250	240
	2300	600	157	261	230
	2200	600	164	273	220
	2100	600	171	286	210
	2000	571	171	286	210
	1900	543	171	286	210
	1800	514	171	286	210
	1700	486	171	286	210
	1600	457	171	286	210
	1500	429	171	286	210
	1400	400	171	286	210
	1300	371	171	286	210