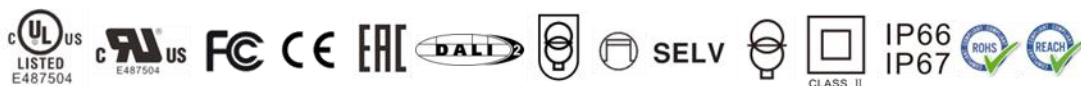


Product Datasheet



The global certified TLD-320-C is a dual stage extremely wide input smart LED driver with **independent multi-channel** outputs. 10kV surge protection level, 100khour long life and 7-year warranty provide high confidence to luminaire users. All around protections including digital OTP with auto-recovery secure 24hour non-stop operation for luminaires.

☒ Stadium ☒ Flood ☒ Harbor



■ Features	2
■ Model List	2
■ Technical Data	3
■ Safety/EMC Compliance	4
■ Dimming	5
■ Programming	6
■ Lifetime vs. Case Temperature	7
■ Power Factor vs. Load	7
■ THD vs. Load	8
■ Efficiency vs. Load	8
■ Inrush Current	9
■ Dielectric Strength	10
■ Tc Point	10
■ Packaging Information	10
■ Mechanical Design	11
■ Output Operation Range	13
■ Revision History	14

320W, 200-480Vac Input, RGB Triple Output LED Driver

■ Features

- Absolute Supply Voltage: 180-528Vac
- Great Surge Immunity 10kV
- 93% Efficiency Max.
- Low Inrush Current
- 100,000Hour Life @ Tc=75°C
- 7 Year Warranty @ Tc<=75°C
- Output Current Programmability
- Live Broadcasting Level Low Ripple
- DMX/RDM/DALI2.0 Dimmable
- Fast Dynamic Response
- DALI Part 150, 250 Support
- DALI Type 6 (SimplySnap Compatible)
- Global Certified Model Available
- IP67/IP66 Rated Waterproof
- 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	Certification
TLD-320-C810-XYZ-NNNNS3	180-528Vac	P1: 107W P2: 107W P3: 107W	24-54Vdc	2A	2.7A	FCC/CE
TLD-320-C300-XYZ-NNNNS3	180-528Vac	P1: 107W P2: 107W P3: 107W	64-153Vdc	0.7A	1A	FCC/CE

XY=	Dimming Method	Programmable	Vaux	Dim-off
AN	DALI2.0/DT6	Cable	24V 150mA	√
MN	DMX512 + RDM	Cable	-	√

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	4 pin UL cable without Ground	5 pin UL cable with ground	4 pin VDE cable without ground	5 pin VDE cable with ground	4 pin VDE cable without ground
Certified Input Voltage Range	UL Listed Class P 200-480Vac	UL Listed Class P 200-480Vac	Class I 200-480Vac	Class I 200-480Vac	Class II 200-480Vac

320W, 200-480Vac Input, RGB Triple Output LED Driver

■ Technical Data

Input Voltage	180~528Vac
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	1.3Amax@277Vac & Full-Load, 0.8Amax@480Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	0.75MIU max @480Vac 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%lo for programmable model
Ripple Current	lpk-pk: low frequency (<=3kHz) 2%lo max, high frequency (>3kHz) 15%lo max
TLA (Temporal Light Artifacts)	PstLM<0.02, SVM<0.05
Percent Flicker	1% max. Broadcasting level, GB/T-38539-2020
Setup Time	1.2s max
Overshoot	10% lo 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 $T_c \geq 105 \pm 10^\circ\text{C}$; Auto Recovery When $T_c \leq 70 \pm 10^\circ\text{C}$
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°C case temperature (MIL-HDBK-217F)
Lifetime	$\geq 100,000$ hours, 75°C case temperature, refer to life vs. T_c curve
Case Temperature	90°C max, marked in the T_c point of label
Dimension	284x 90 x 41.5 by mm (body), 311 x 90 x 41.5 by mm (endcaps included)
Net Weight	2000g
Packing	See Package Information Section in the datasheet

Notes: Unless specified, all the test results are measured in 25°C 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

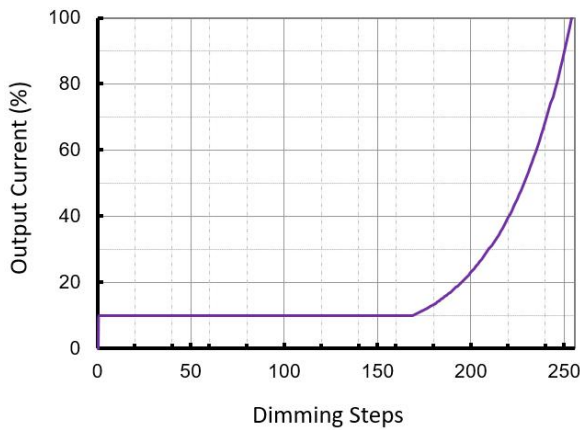
320W, 200-480Vac Input, RGB Triple Output LED Driver

■ Dimming

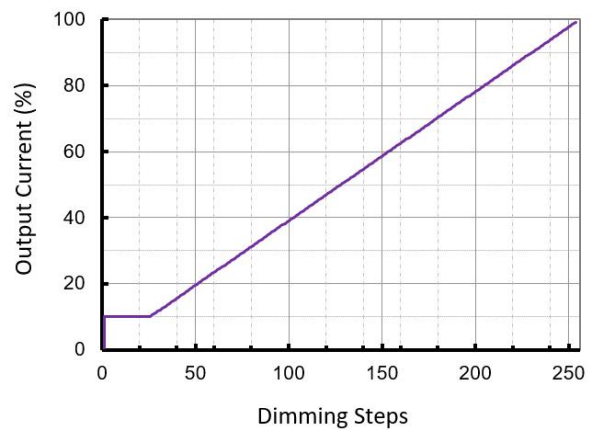
DALI Interface Standard	IEC62386, part 101,102,207,150,250		
DA1,DA2 High Level	9.5	16	22.5
DA1,DA2 Low Level	-6.5	0	6.5
DA1,DA2 Current	0		2mA
Default Memory Bank 1 CCT Value (Address 0x22 Definition)	CH1: Red, 0x01, CH2: Green, 0x02, CH3: Blue, 0x03 (SimplySnap Compatible)		
DMX+ & DMX- Voltage	-6V		6V
DMX to Ground Resistance	25Mohm		
Logic 0/1 (DMX+ to DMX-) Threshold		0.2V	
Communication Baud Rate		250kbps	
Fast Dimming On-Off Transition		50ms	
Fast Dimming 10-100% Io Transition		30ms	
Flashing Speed	-	-	44fps

- DALI and DMX dimming curves

DALI Dimming Curve



DMX/RDM Dimming Curve

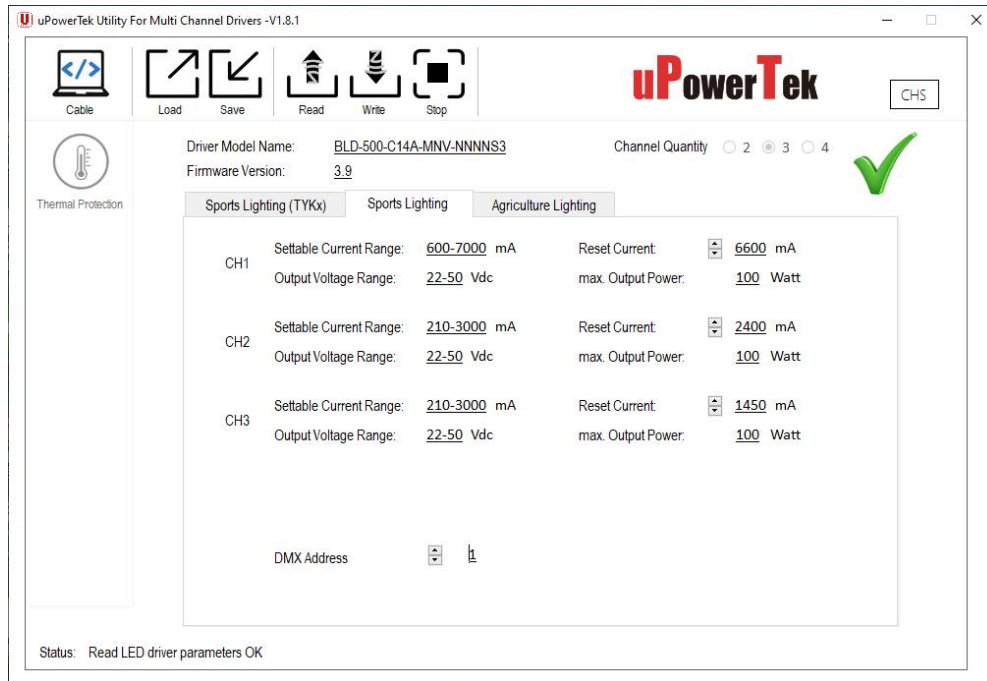


Note: Both DALI and DMX dimming curves can be customized to be linear or logarithmic as default.

■ Programming

- Programmable Functions

uPowerTek LED drivers offer a range of configurable functions to meet specific lighting requirements. The Output Current, Dimming Mode and DMX addressing can be set as basic programming functions. .

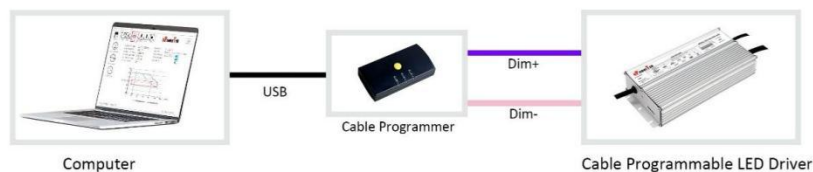


uPowreTek Programming Software Interface

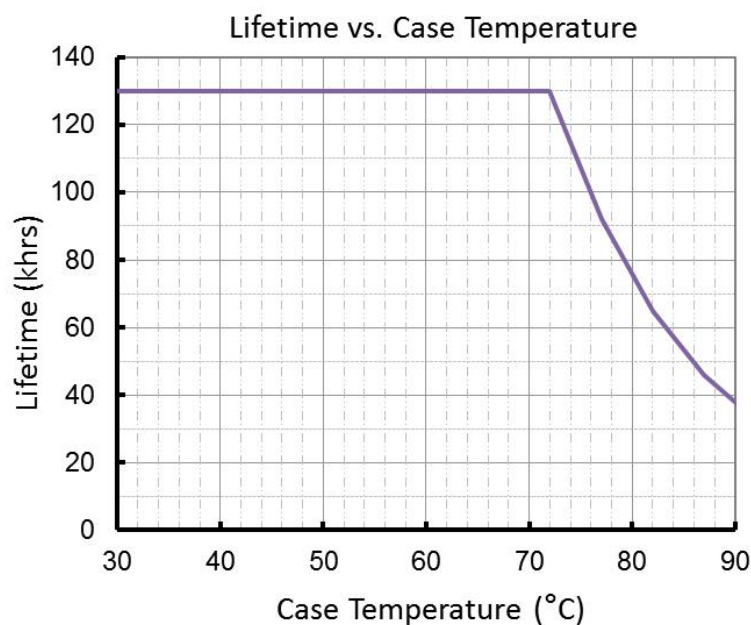
- Connection Guide

This guide provides simple connection diagrams to help users understand the programming system. For more detailed operating instructions, including step-by-step procedures and additional configurations, please visit our website. You can download the comprehensive user manual and necessary software from the following link:

<https://www.upowertek.com/download-2/>.

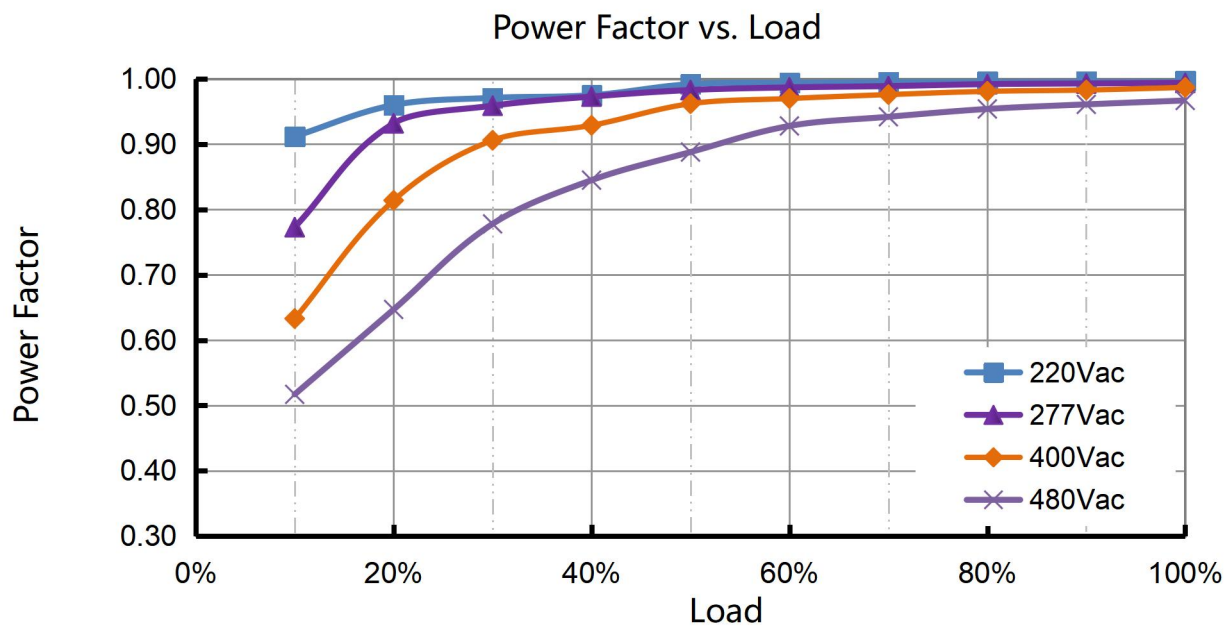


■ Lifetime vs. Case Temperature

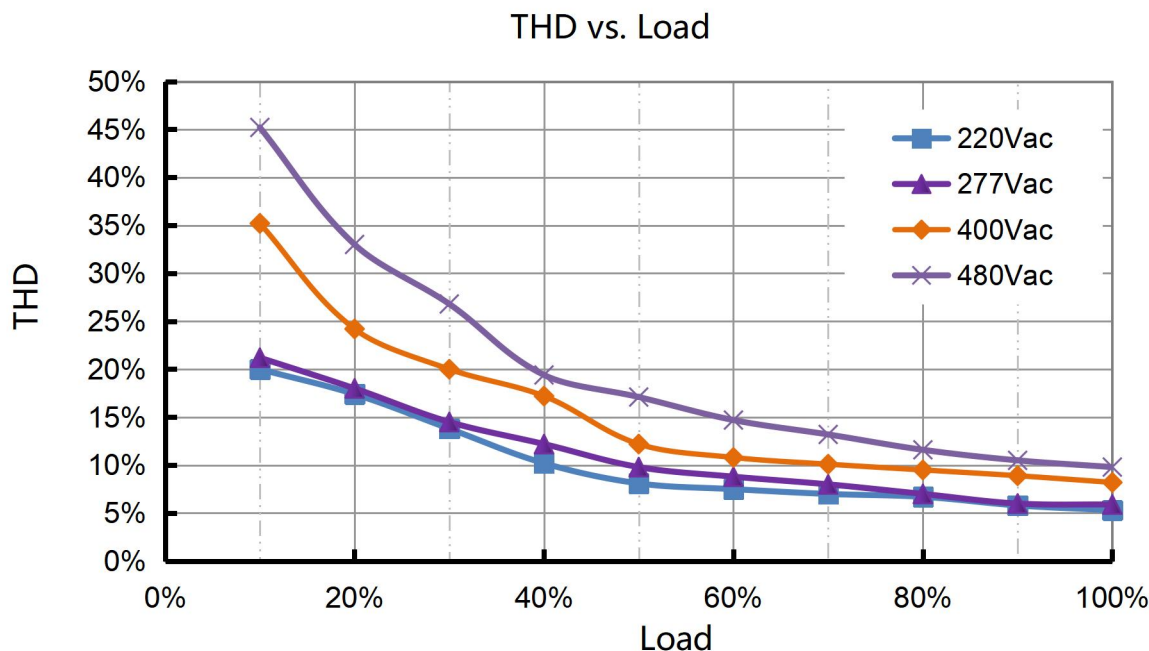


(End of Life: Maximum Failure Rate=10%)

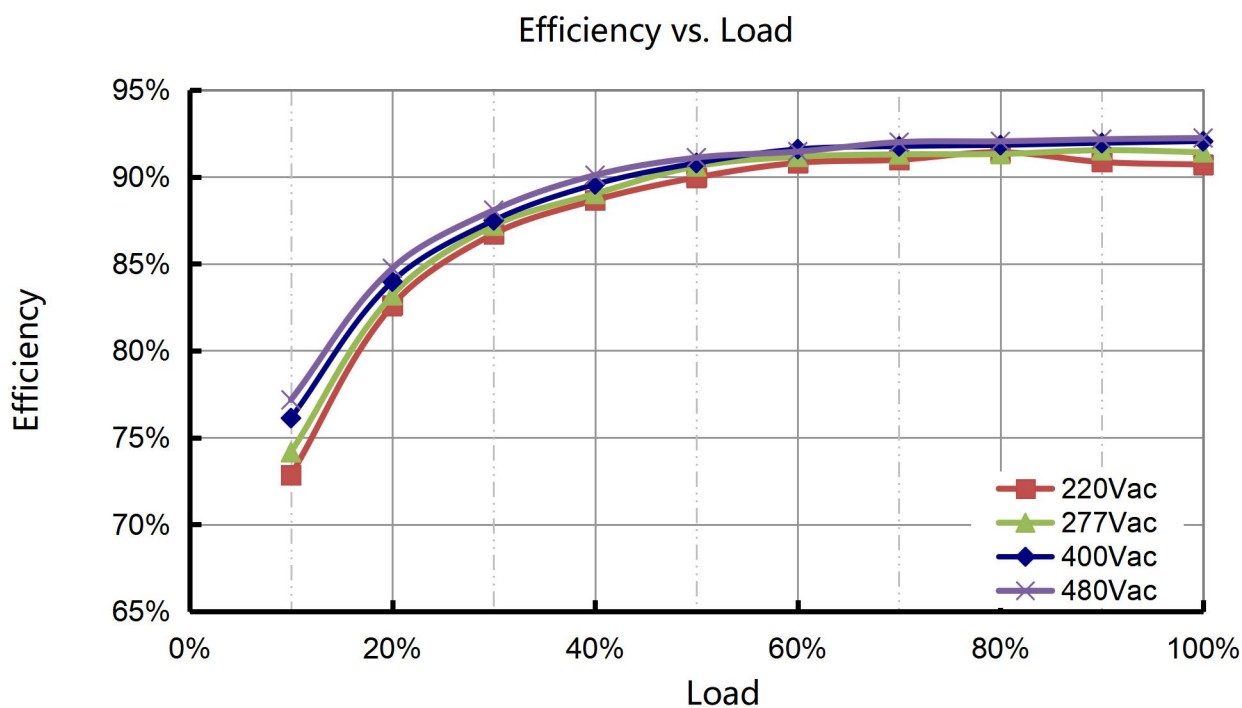
■ Power Factor vs. Load



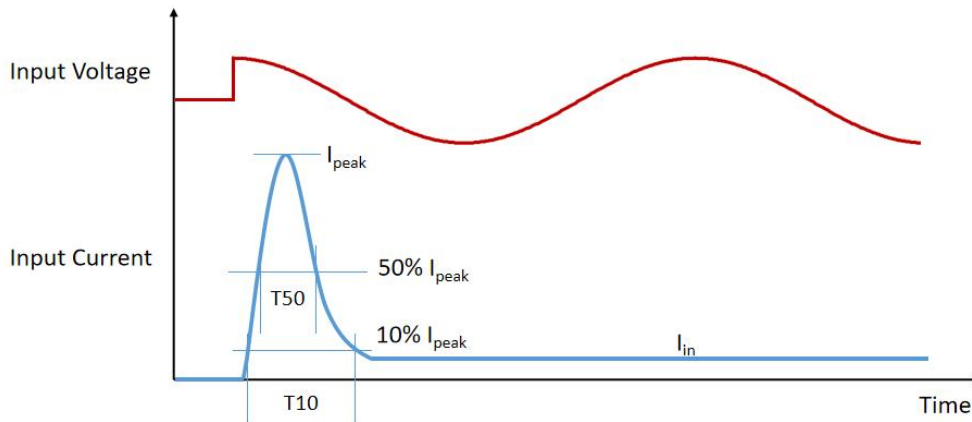
■ THD vs. Load



■ Efficiency vs. Load



Inrush Current

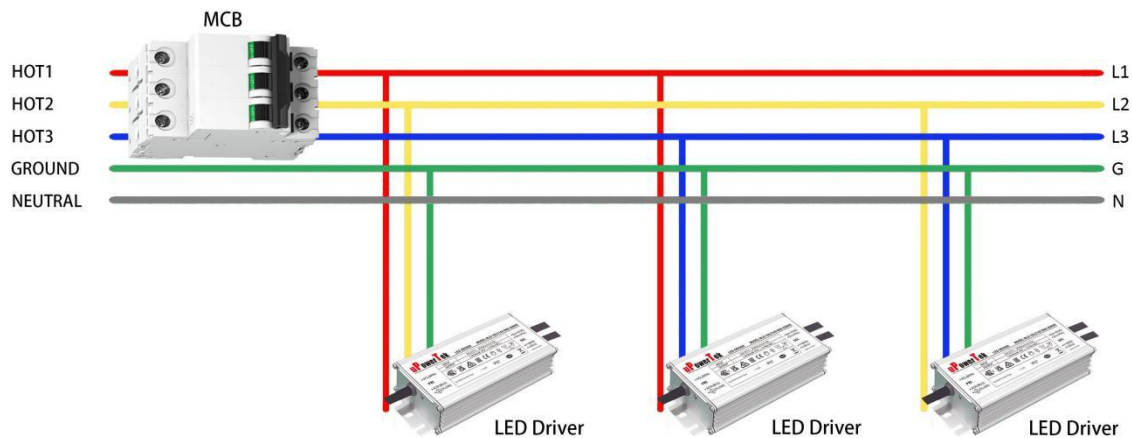


Input Voltage	I_{peak}	10% -10% T10 Duration	50% -50% T50 Duration
220Vac	64A	824 μ s	400 μ s
277Vac	87.6A	804 μ s	390 μ s
400Vac	101.2A	680 μ s	320 μ s
480Vac	121.2A	660 μ s	300 μ s

- MCB Suggestion

Type	B10	B16	B25	B32	C10	C16	C25	C32	D10	D16	D25	D32
220Vac	3	4	7	9	3	5	8	11	4	6	10	12
277Vac	2	3	5	7	3	6	9	12	5	8	12	16
400Vac	3(x3)	4(x3)	7(x3)	9(x3)	3(x3)	5(x3)	8(x3)	11(x3)	4(x3)	6(x3)	10(x3)	12(x3)
480Vac	2(x3)	3(x3)	5(x3)	7(x3)	3(x3)	6(x3)	9(x3)	12(x3)	5(x3)	8(x3)	12(x3)	16(x3)

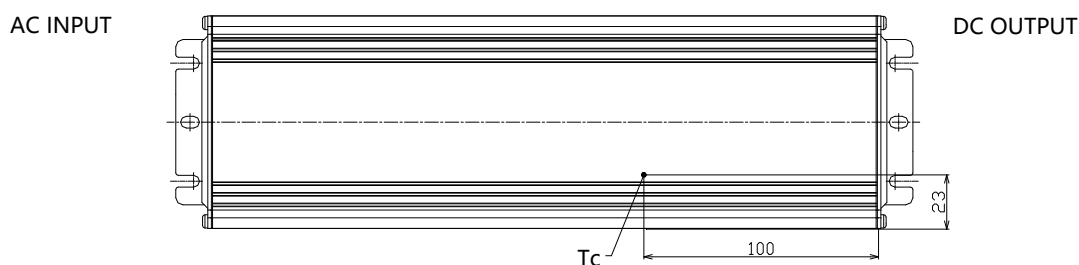
Three phase wiring suggestion.



■ Dielectric Strength

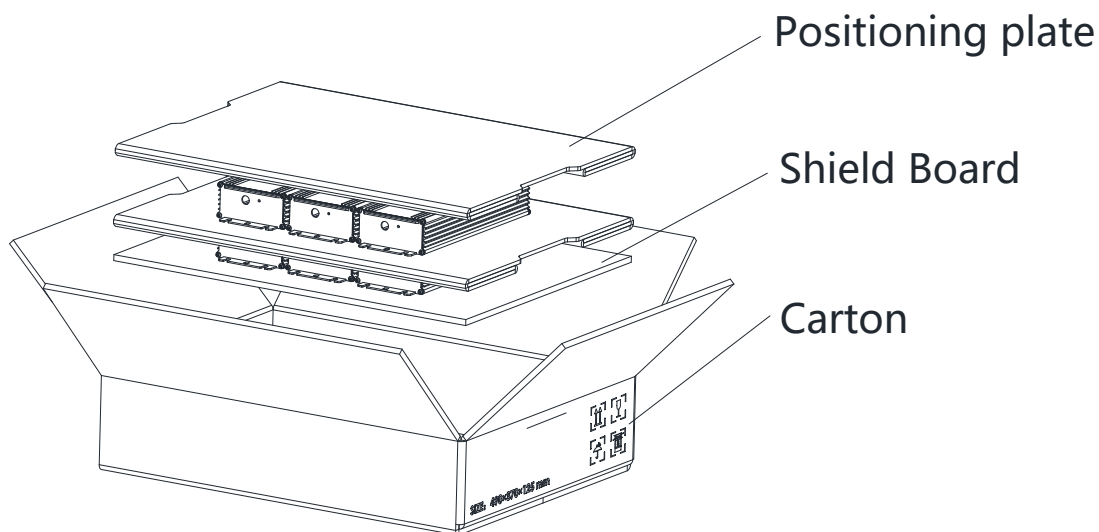
Unit: Vac	Input	Output	Dimming	Case
Input	-	3920	3920	1960
Output	3920	-	1960	1960
Dimming	3920	1960	-	1960
Case	1960	1960	1960	-

■ Tc Point



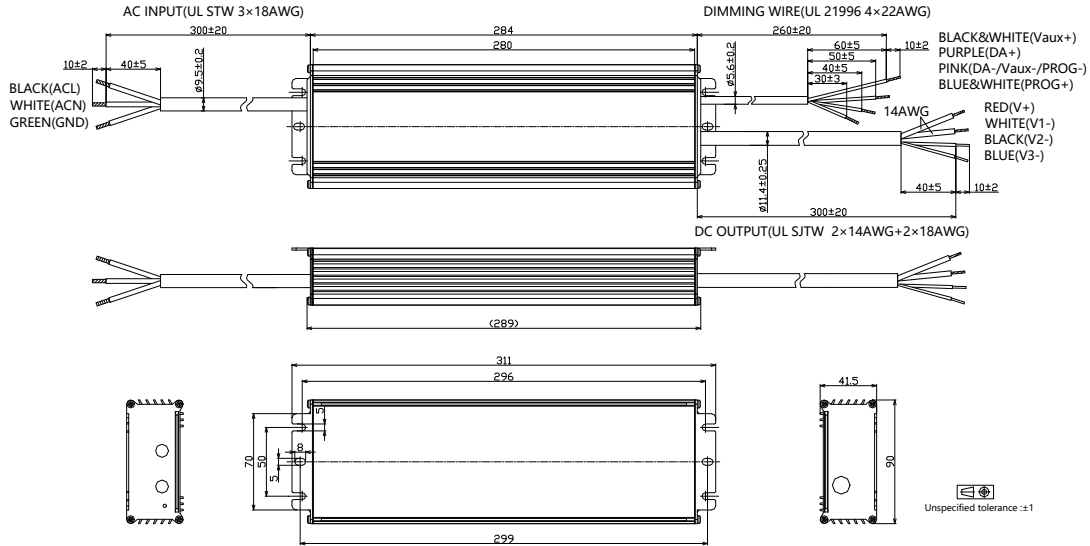
■ Packaging Information

Typical Carton Dimension(L×W×H)	490×370×125 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	6pcs/carton
Net Weight	12.0 kg/carton
Gross Weight	12.9 kg/carton

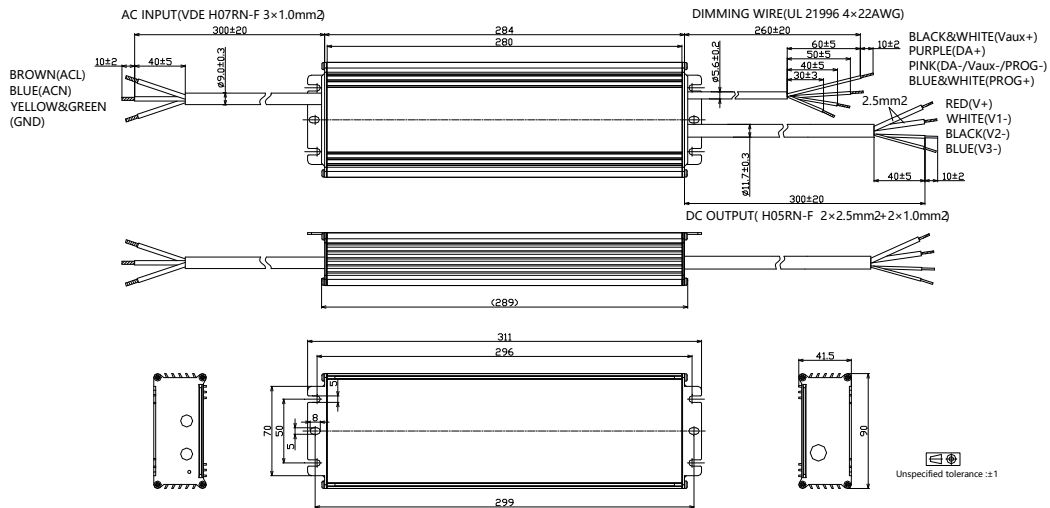


Mechanical Design

- TLD-320-CXXX-ANU-NNNNS3

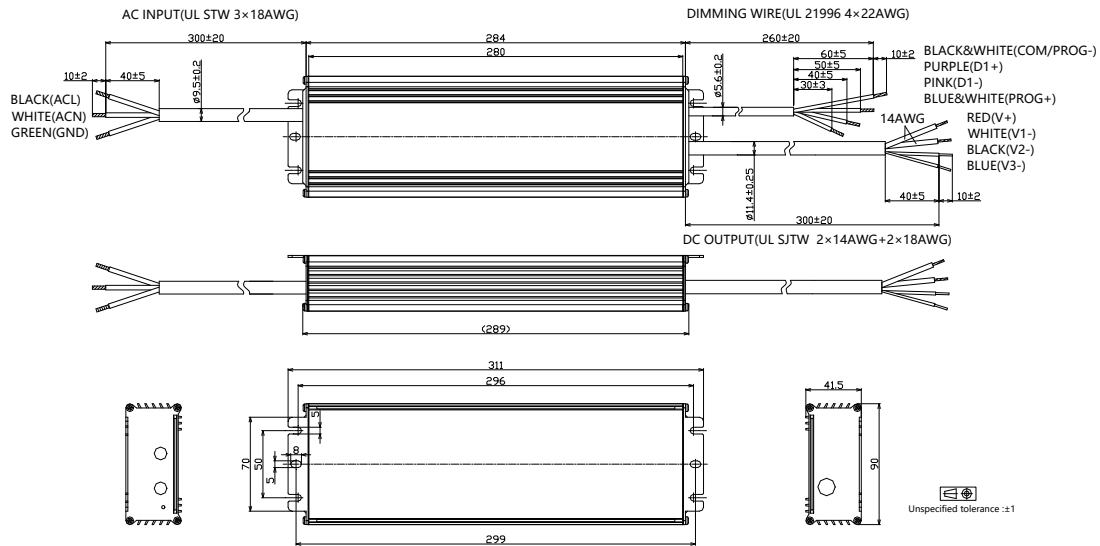


- TLD-320-CXXX-ANS-NNNNS3

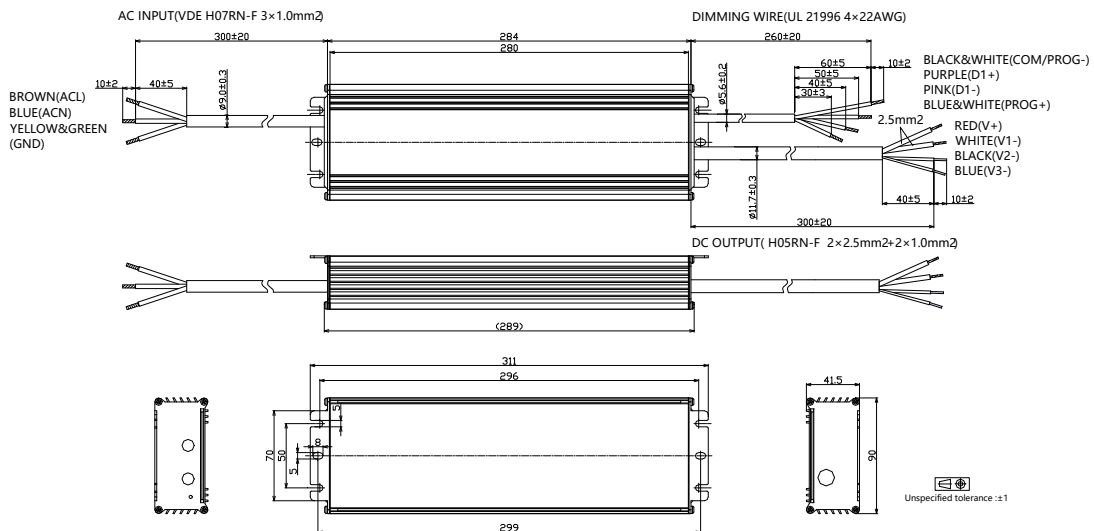


320W, 200-480Vac Input, RGB Triple Output LED Driver

- TLD-320-CXXX -MNU-NNNS3



- TLD-320-CXXX -MNS-NNNS3



320W, 200-480Vac Input, RGB Triple Output LED Driver

■ 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)
C300	1000	320/107	64	107	100
	950	320/107	68	113	95
	900	320/107	71	119	90
	850	320/107	76	126	85
	800	320/107	80	134	80
	750	320/107	86	143	75
	700	320/107	92	153	70
	650	297/99	92	153	70
	600	276/92	92	153	70
	550	242/84	92	153	70
	...	...	...	...	...
	70	32/11	92	153	70

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
C810	2700	320/107	24	40	270
	2600	320/107	25	41	260
	2500	320/107	26	43	250
	2400	320/107	27	45	240
	2300	320/107	28	47	230
	2200	320/107	29	49	220
	2100	320/107	31	51	210
	2000	320/107	32	54	200
	1900	306/102	32	54	200
	1800	288/96	32	54	200
	1700	273/91	32	54	200
	...	...	...	...	...
	200	32/11	32	54	200

■ Revision History

Revision	Date	Contents
0.1	2024-8-9	Initial
0.3	2024-11-16	1. DALI memory bank 1 definition for RGB(W) application