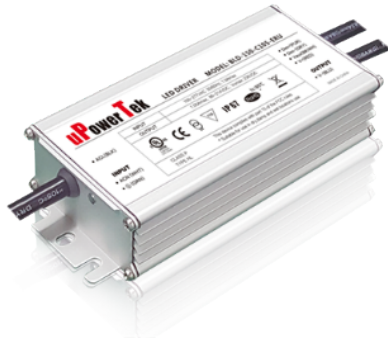


Product Datasheet



The global certified TLD-200-C is a dual stage extremely wide input smart LED driver. 10kV surge protection level, 100khour long life and 7-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.

- Road
- High-bay
- Horticultural
- Stadium
- Flood



- Features2
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200W, 200-480Vac Input, Isolated Dimming LED Driver

■ Features

- Supply Voltage: 180-528Vac or 250-740Vdc
- Great Surge Immunity 10kV
- -60°C Cold Ambient Startup (Optional)
- 100,000Hour Life @ Tc=75°C
- 7 Year Warranty @ Tc<=75°C
- Airset™ NFC Programmability
- +/-2% Output Current Accuracy
- Isolated 0-10V/PWM/Time/DALI2.0 (Optional) Dimmable
- Dim Off with 1.5W Standby Power
- 12V 300mA Auxiliary Power to Power Controllers and Fans (Optional)
- 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
TLD-200-C140-XYZ	180-528Vac	200 W	86-190Vdc	1050mA	1400mA	UL/FCC/ENEC/CCC /CB/RCM/ EAC/CE
TLD-200-C210-XYZ	180-528Vac	200 W	57-143Vdc	1400mA	2100mA	
TLD-200-C420-XYZ	180-528Vac	200 W	29-71Vdc	2800mA	4200mA	
TLD-200-C630-XYZ	180-528Vac	200 W	19-45Vdc	4400mA	6300mA	
XY=	Dimming Method	Programmable	12Vaux	Dim-off		
NN	-	-	-	-		
DN	0-10V	Cable	-	No Dim-off as default status, programmed to have Dim-off		
EN	0-10V	Cable	300mA	√		
TR	Time/Set Current	NFC Wireless	-	-		
DR	0-10V	NFC Wireless	-	No Dim-off as default status, programmed to have Dim-off		
ER	0-10V/PWM/Time	NFC Wireless	300mA	√		
AR	DALI2.0	NFC Wireless	-	√		

Z = **U**, UL cable with ground wire (green) **S**, VDE cable/Class I **D**, VDE cable/Class II

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

200W, 200-480Vac Input, Isolated Dimming LED Driver
■ Technical Data

Input Voltage	180-528Vac or 250-740Vdc
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	0.90Amax@277Vac & Full-Load, 0.45Amax@480Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	1mA max @480Vac 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 $T_c \geq 105 \pm 10^\circ\text{C}$; 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°C~+85°C; 5%RH~100%RH
MTBF	≥280,000 hours, 75°C case temperature (MIL-HDBK-217F)
Lifetime	≥100,000 hours, 75°C case temperature, refer to life vs. Tc curve
Case Temperature	90°C max, marked in the Tc point of label
Dimensions	8.85x2.68x1.31 by inch (body), 9.88x2.68x1.31 by inch (endcaps included) 225 x 68 x 33.5 by mm (body), 251 x 68 x 33.5 by mm (endcaps included)
Net Weight	1100g
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

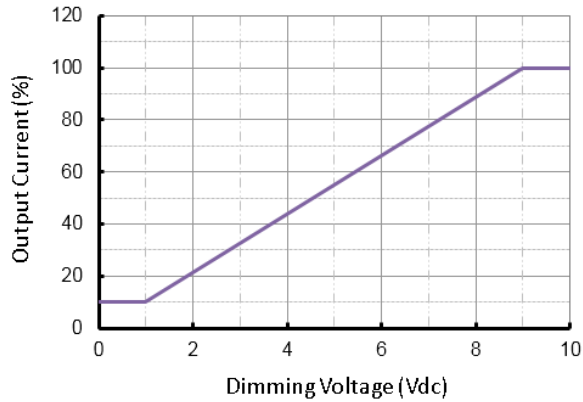
■ Dimming

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

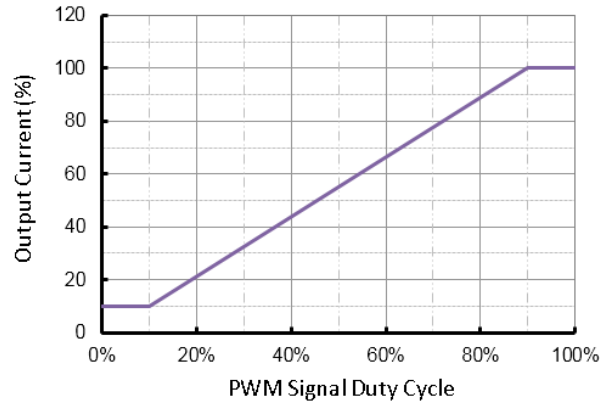
- Dimming Curve

a. Without dim-off

0-10V Dimming Curve

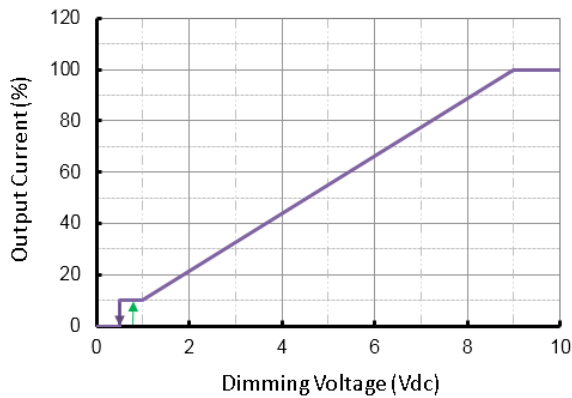


PWM Dimming Curve

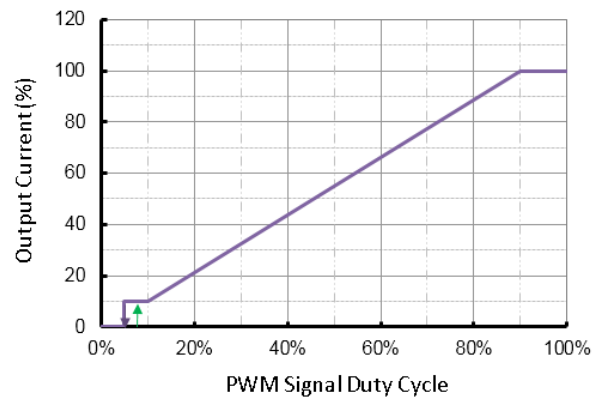


b. With dim-off

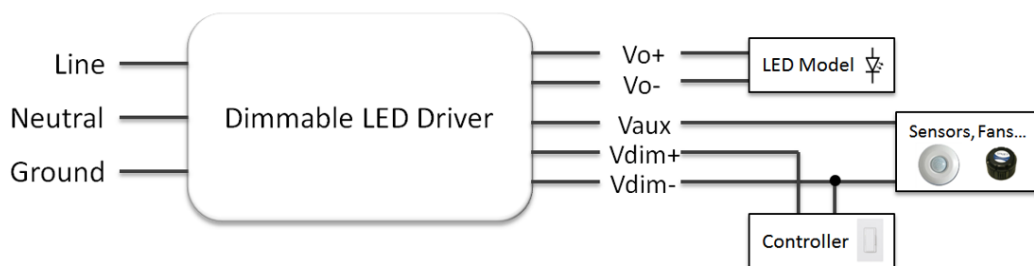
0-10V Dimming Curve



PWM Dimming Curve



- Dimming Wiring

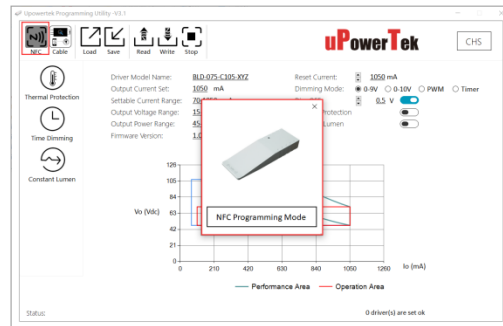
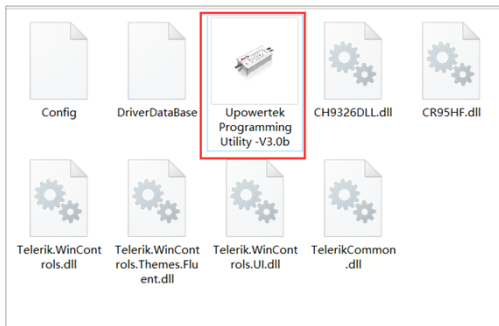


■ Programming

- NFC Programming by PC/Laptop

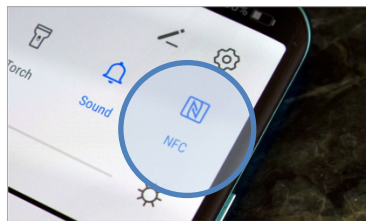


- Download PC Software at <https://www.upowertek.com/download-2/>
- Click Upowertek Programming Utility.exe
- The GUI start and notify you the programming mode (cable programming or NFC programming)
- Click "NFC" button if it's not NFC programming mode.



- NFC Programming by Smartphone

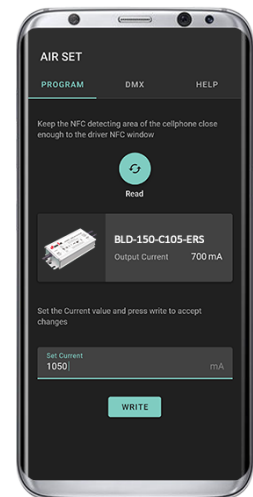
- Download Android APP at <https://www.upowertek.com/download-2/>
- Only available on Android cellphone (iPhone is not supported)
- The cellphone should have NFC function and make sure it is enabled.



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



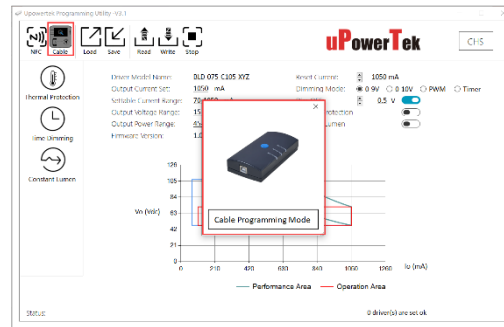
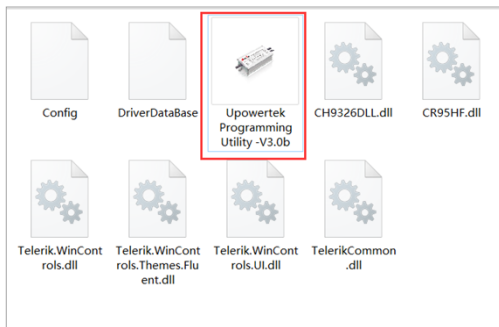
uPowerTek
Airset



- Cable Programming



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



- Click "Cable" button if it's not cable programming mode.
- Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

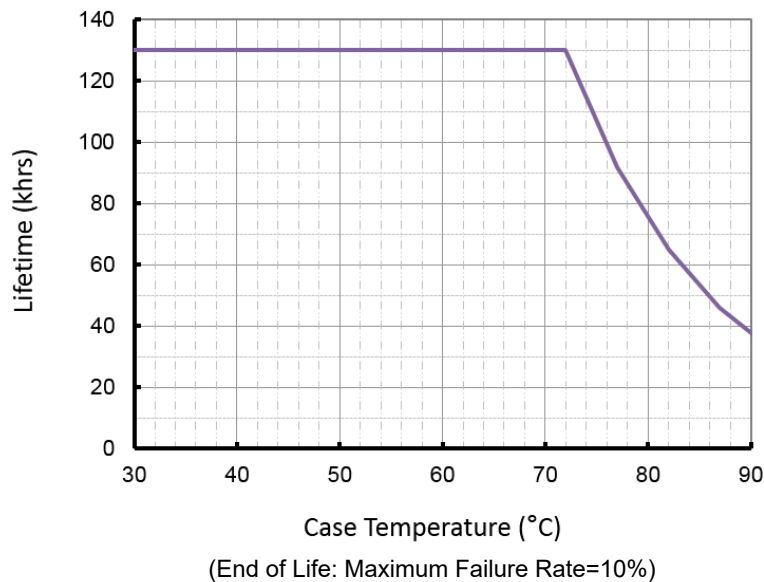
- Please contact with us for product user manual and more information such as:

- 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

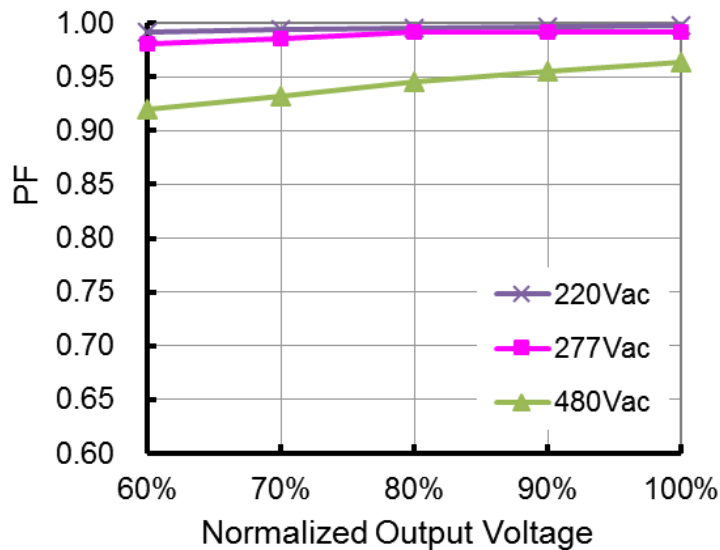
200W, 200-480Vac Input, Isolated Dimming LED Driver

Lifetime vs. Case Temperature

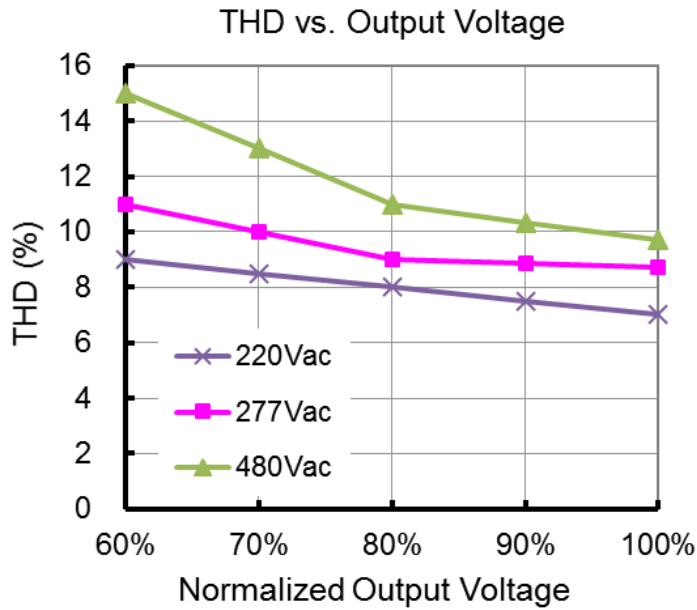


■ Power Factor vs. Load

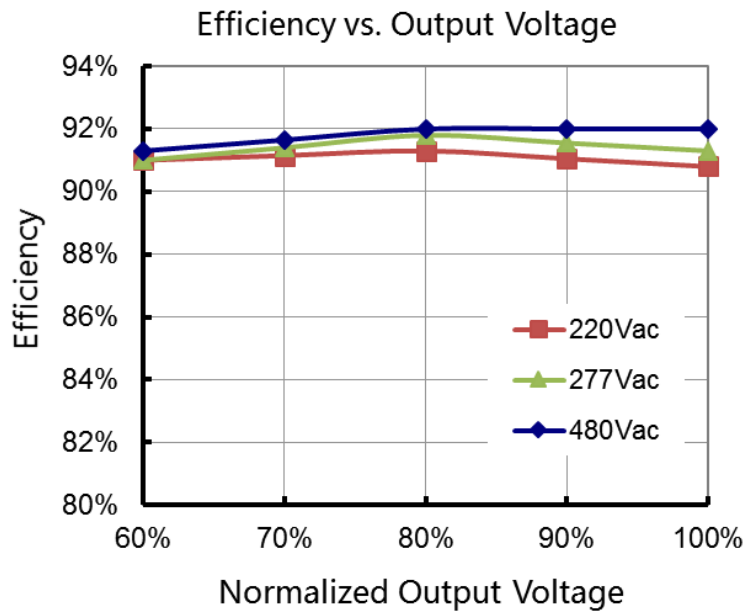
PF vs. Output Voltage



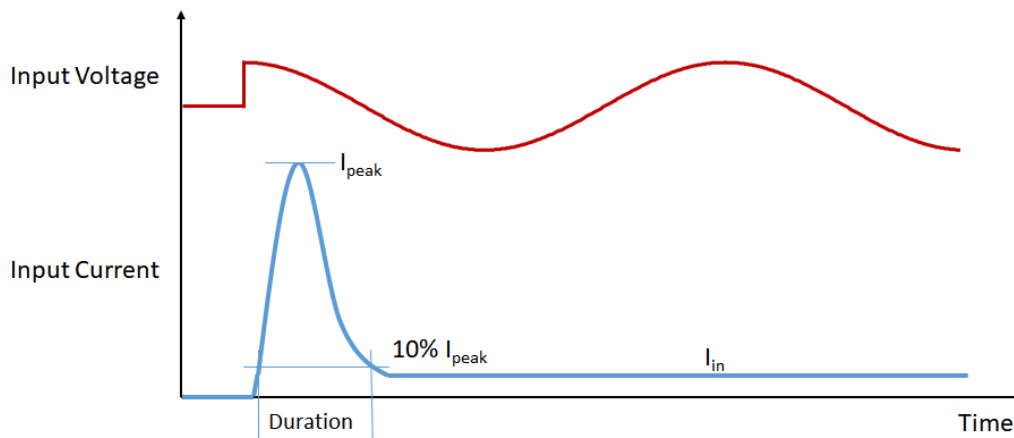
■ THD vs. Load



■ Efficiency vs. Load (2.1A Model)



Inrush Current



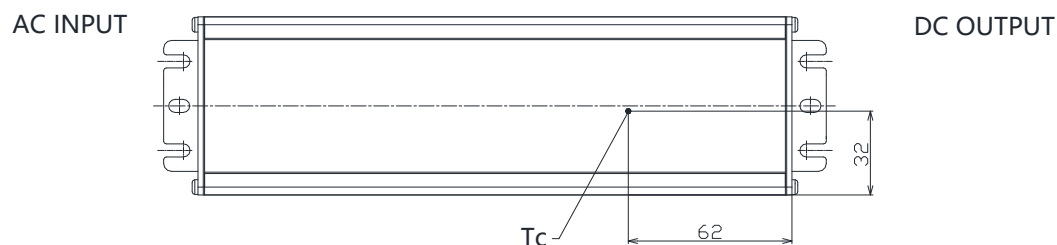
Input Voltage	I_{peak}	Duration
277Vac	82.8A	492us
380Vac	100.4A	376us
480Vac	120.4A	356us

Please contact with us for MCB calculation and waveforms.

Dielectric Strength

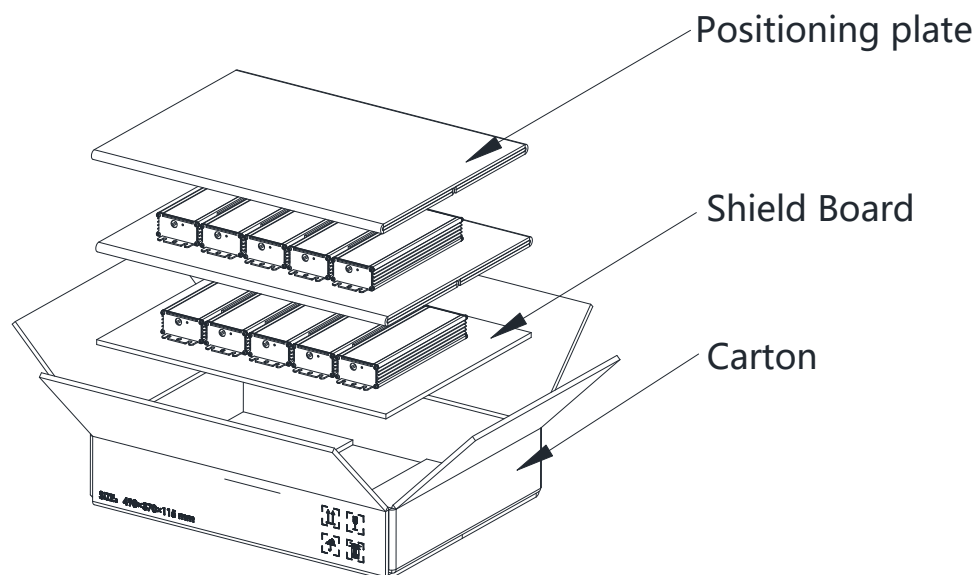
Unit: Vac	Input	Output	Dimming	Case
Input	-	3920	3920	1960
Output	3920	-	1960	1960
Dimming	3920	1960	-	1960
Case	1960	1960	1960	-

Tc Point



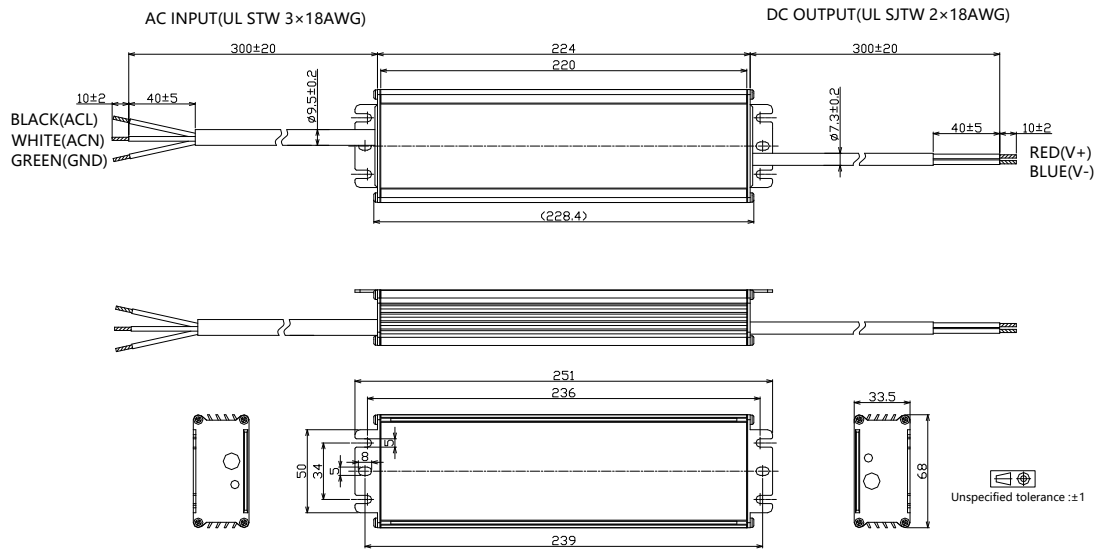
■ Packaging Information

Typical Carton Dimension(L×W×H)	490×370×115 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers	10pcs/carton

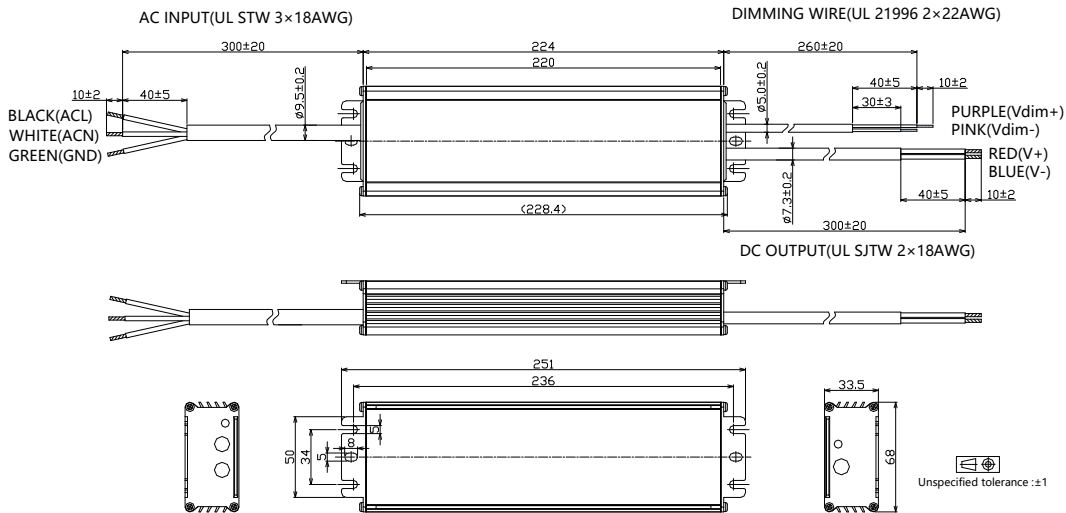


■ Mechanical Design

- TLD-200-Cxxx-NN/TRU (UL Cable)

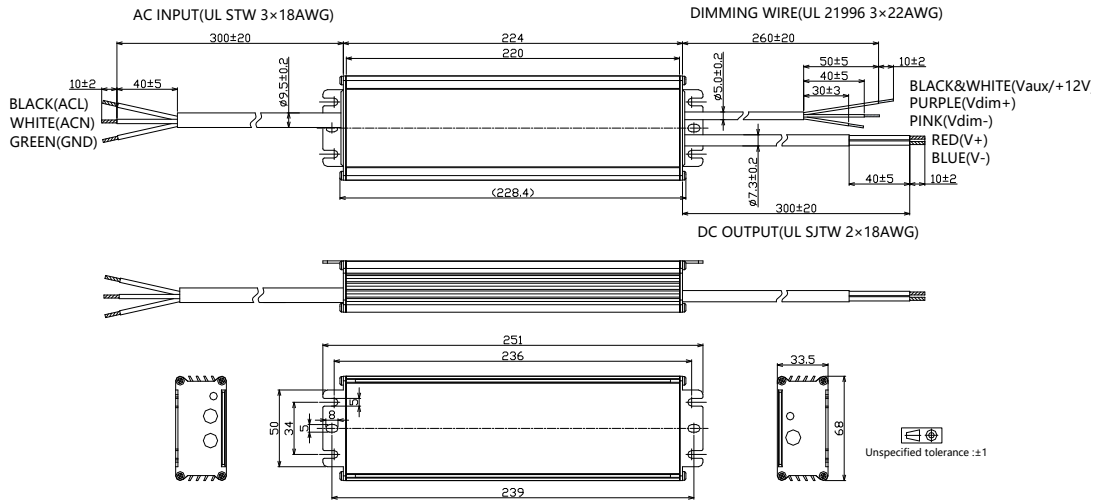


- TLD-200-Cxxx-DN/DRU (UL Cable)

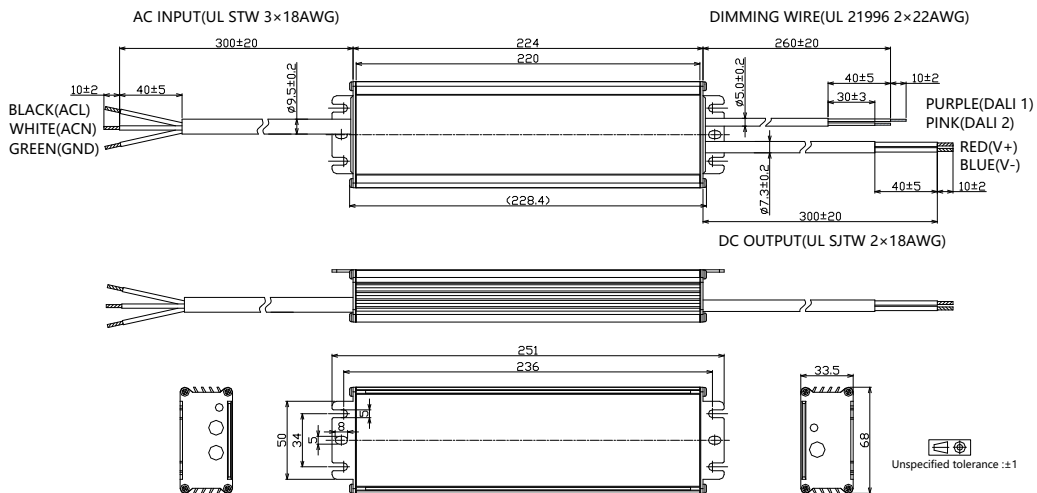


200W, 200-480Vac Input, Isolated Dimming LED Driver

- TLD-200-Cxxx-ER/ENU (UL Cable)

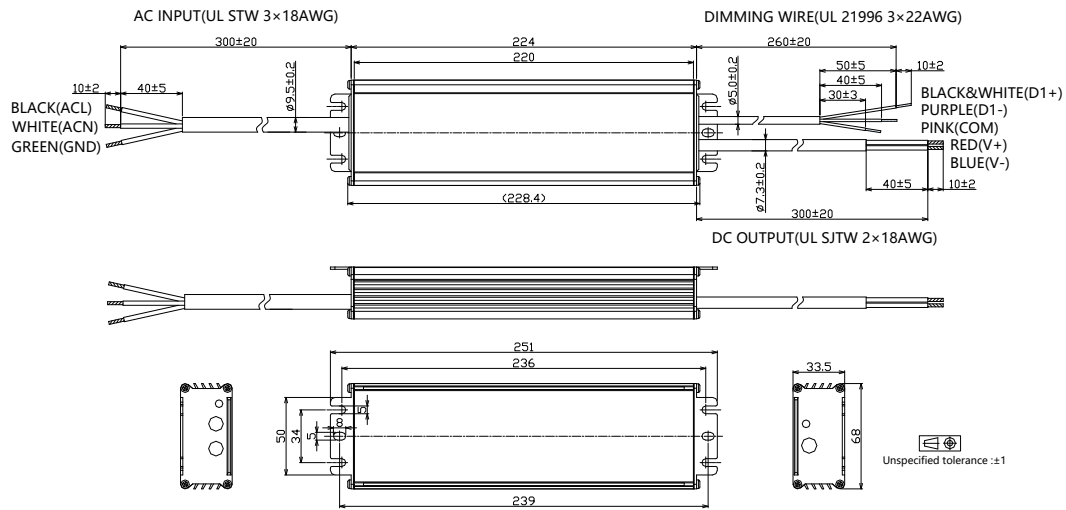


- TLD-200-Cxxx-ARU (UL Cable)

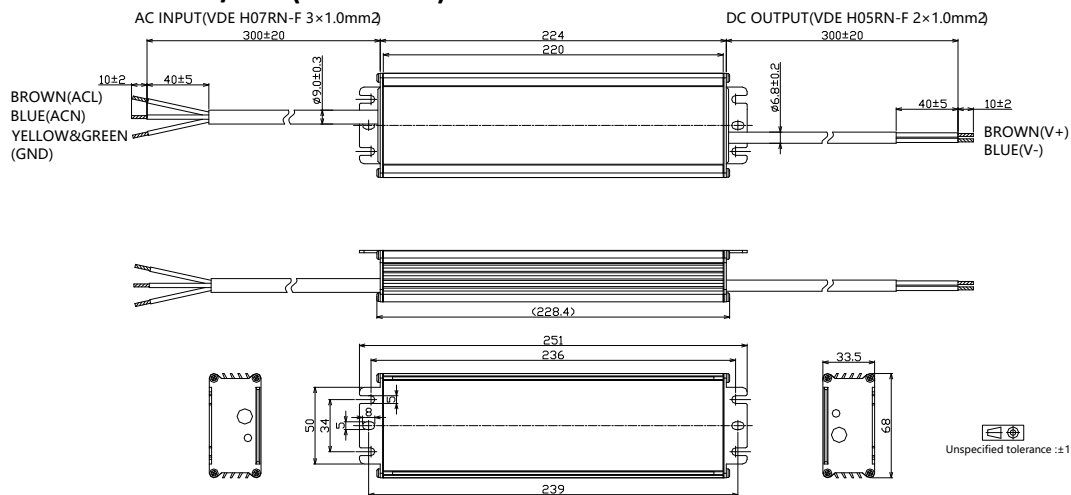


200W, 200-480Vac Input, Isolated Dimming LED Driver

- TLD-200-Cxxx-MRU (UL Cable)

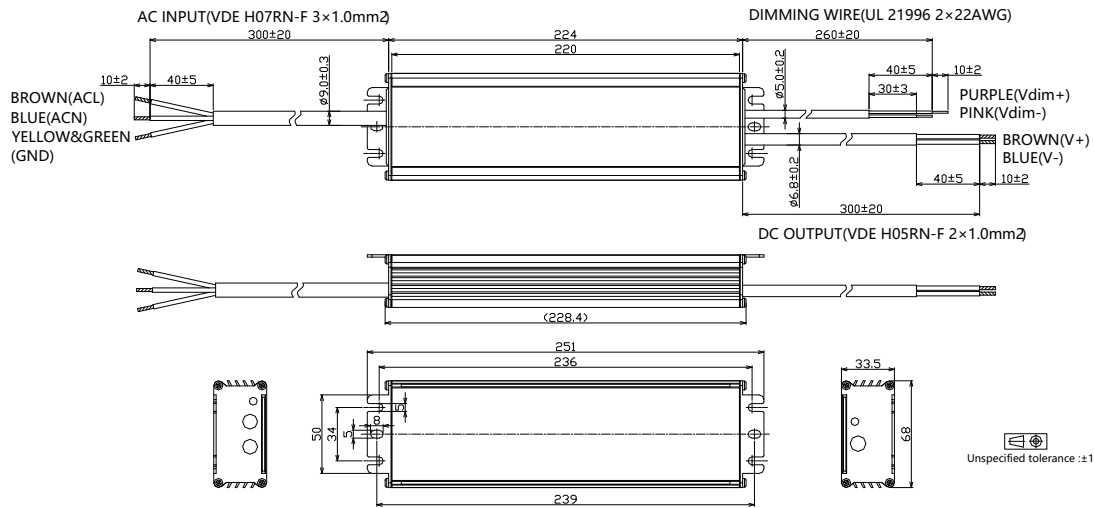


- TLD-200-Cxxx-NN/TRS (VDE Cable)

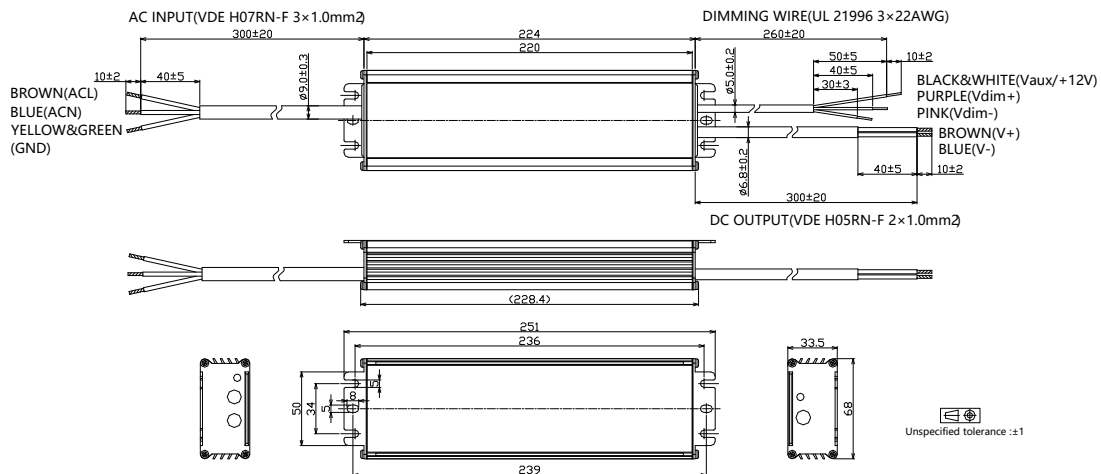


200W, 200-480Vac Input, Isolated Dimming LED Driver

- TLD-200-Cxxx-DN/DRS (VDE Cable)

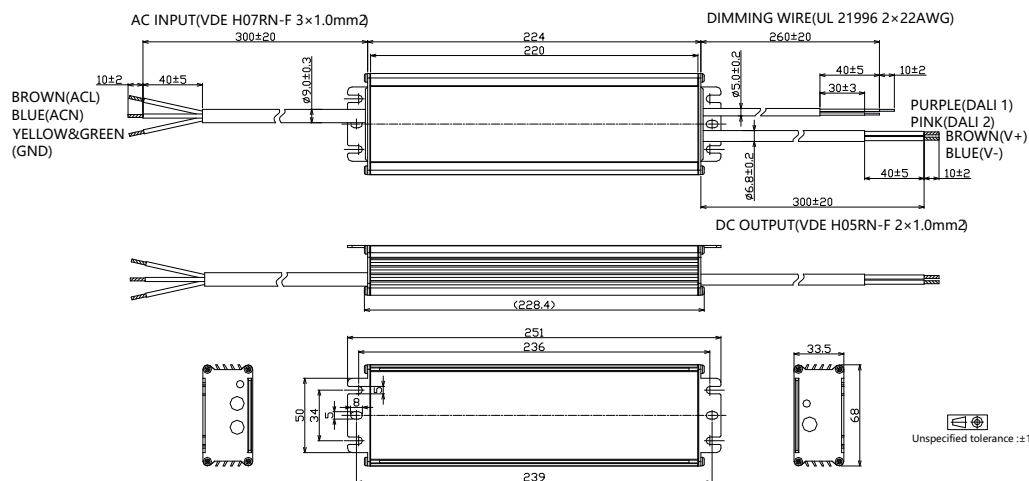


- TLD-200-Cxxx-EN/ERS (VDE Cable)

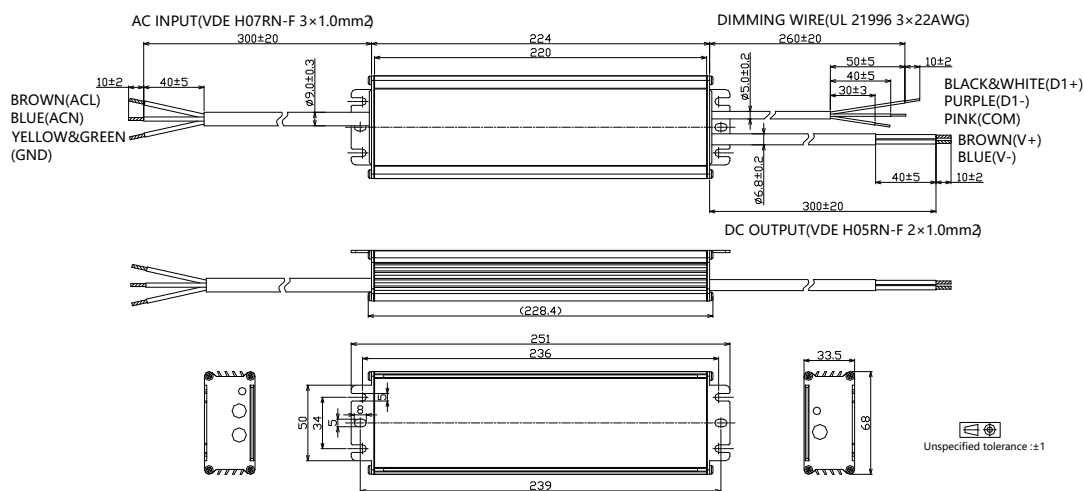


200W, 200-480Vac Input, Isolated Dimming LED Driver

- TLD-200-Cxxx-ARS (VDE Cable)



- TLD-200-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)
-C105	1050	200	114	190	105
	1000	200	120	200	100
	950	200	126	211	95
	900	200	133	222	90
	850	200	141	235	85
	800	200	150	250	80
	750	200	160	267	75
	700	200	171	286	70
	650	186	171	286	70
	600	171	171	286	70
	550	157	171	286	70
	500	143	171	286	70

	70	20	171	286	70

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C140	1400	200	86	143	140
	1300	200	92	154	130
	1200	200	100	167	120
	1100	200	109	182	110
	1050	200	114	190	105
	1000	190	114	190	105
	950	181	114	190	105
	900	171	114	190	105
	850	162	114	190	105
	800	152	114	190	105
	750	143	114	190	105
	700	133	114	190	105

	105	20	114	190	105

200W, 200-480Vac Input, Isolated Dimming LED Driver

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C210	2100	200	57	95	210
	2000	200	60	100	200
	1900	200	63	105	190
	1800	200	67	111	180
	1700	200	71	118	170
	1600	200	75	125	160
	1500	200	80	133	150
	1400	200	86	143	140
	1300	186	86	143	140
	1200	171	86	143	140
	1100	157	86	143	140
	1000	143	86	143	140

	140	20	86	143	140

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C420	4200	200	29	48	420
	4100	200	29	49	410
	4000	200	30	50	400
	3900	200	31	51	390
	3800	200	32	53	380
	3700	200	32	54	370
	3600	200	33	56	360
	3500	200	34	57	350
	3400	200	35	59	340
	3300	200	36	61	330
	3200	200	38	63	320
	3100	200	39	65	310
	3000	200	40	67	300
	2900	200	41	69	290
	2800	200	43	71	280
	2700	193	43	71	280
	2600	186	43	71	280

	280	20	43	71	280

200W, 200-480Vac Input, Isolated Dimming LED Driver

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C630	6300	200	19	32	630
	6100	200	20	33	610
	5900	200	20	34	590
	5700	200	21	35	570
	5500	200	22	36	550
	5300	200	23	38	530
	5100	200	24	39	510
	4900	200	24	41	490
	4700	200	26	43	470
	4500	200	27	44	450
	4400	200	27	45	440
	4300	195	27	45	440
	4200	191	27	45	440
	4100	186	27	45	440
	4000	182	27	45	440
	3900	177	27	45	440
	3800	173	27	45	440

	440	20	27	45	440

■ Revision History

Revision	Date	Contents
C	2022-03-22	<ol style="list-style-type: none">1. Index page added2. Reduced dimming interface sourcing current3. DALI 2.0 compatibility added4. Programming instruction added5. Inrush current data added6. Tc point position indication added7. Dielectric strength level added8. Packaging information added9. Mechanical design change with dimming cable color10. Revision history added