320W, 100-277Vac Input Smart Constant Voltage LED Driver

Product Datasheet



The global certified BLD-320-V series is a dual stage high efficiency smart LED driver. NFC programmable output voltage, minimum level and high frequency PWM output provides great user experience. 100khour long life and 7-year warranty provide high confidence to luminaire users. It supports not only traditional dimming control, but also DALI2.0 and other protocols. All around protections including digital OTP, SCP and OCP with auto-recovery secure 24hour non-stop operation for luminaires.

☑ Strip ☑ Light box ☑ Signage ☑ Bath ☑ Swimming

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Features

- Supply Voltage: 90-305Vac, 380Vac for 2 hours
- Great Surge Immunity 10kV
- Programmable Output Voltage
- Programmable PWM Frequency, Minimum Dimming Level, Startup and Fade-out (Dimmable models only)
- Customizable with Features (Energy Report, Input Voltage Monitoring)
- 100,000Hour Life @ Tc=75℃
- 7 Year Warranty @ Tc<=75℃
- 0-10V/PWM/DALI2.0/Push (Switch) /DMX (RDM) Dimmable
- 0.5% Minimum Dimming Output
- Dim Off with 0.5W Standby
- Class II Model Available
- UL Class P, ENEC/CB/CCC SELV Output
- Safety according to UL8750, EN 61347-1, 61347-2-13, 62384

Model List

Model Number	Input Voltage Range	Output Power	Output Voltage	Output Programming Range	Output Current Min	Output Current Max
BLD-320-V024-XYZ	90 ~ 305 Vac	320 W	24V	-5%~10%	0	13.3A
BLD-320-V036-XYZ	90 ~ 305 Vac	320 W	36V	-5%~10%	0	8.9A
BLD-320-V048-XYZ	90 ~ 305 Vac	320 W	48V	-5%~10%	0	6.7A

XY=	Dimming Method	Programmable	Vaux	Dim-off Power
NR	-	NFC	-	-
DR	0-10V Default or PWM by Programming		-	<0.5W
ER			24V	
AR	DALI2.0 + Push Dim		-	
ARZ-DAX000	D4i		24V	
MR-A00000	DMX and RDM		-	

Z=	U	V	S	S-GLB000	W	D
Input Cable	3 pin UL cable with ground	3 pin UL cable with ground	3 pin VDE cable with ground	3 pin Global 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	2 pin Global cable without ground	3 pin VDE cable with ground	2 pin VDE cable without ground
Certified Input Voltage Range	UL Listed Class P FCC 120-277Vac	UL Listed Class P FCC 120-277Vac	ENEC CB RCM Class I 220-277Vac	UL Recognized 120-277Vac ENEC CB RCM Class I 220-277Vac	Class I 120-277Vac	ENEC CB Class II 220-277Vac

Note: Dimmable Drivers Do NOT Support Switching DCDC Regulator as Load

■ Technical Data

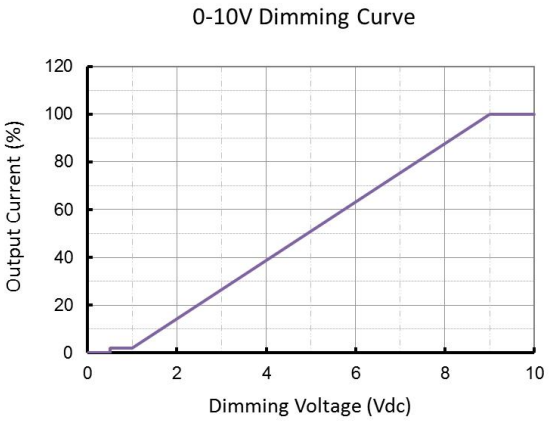
Input Voltage	90～305Vac, 380Vac for 2 hours
Input Frequency	47～63Hz
Power Factor	>0.9@60-100%load, refer to PF vs. Load curve
THD	<15%@60-100%load, refer to THD vs. Load curve
Input Current	2.9Amax@120Vac & Full-Load, 1.5Amax@220Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	0.75MIU max @277Vac 60Hz, UL8750 0.7mA max @240Vac 50/60Hz, IEC60598-1
Input Under Voltage	Shut down and auto-restart
Input Over Voltage	*Optional: Shutdown @320Vac
Surge Protection	Line to line 6kV, line to ground 4kV, IEC 61000-4-5
Voltage Accuracy	±3%Vo
Voltage Ripple	Vp-p:5%Vo max
Setup Time	1.2s max.
Output Overshoot	10% Vo, max.
Output Over Current	120% Io, typ.
Short Circuit	Auto recovery. The output recovers when short is removed.
Over Temperature	Turn off the output when Tc≧105±10℃; Auto Recovery When Tc≦70±10℃
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
Dimensions	8.85x2.66x1.52 by inch (body), 9.88x2.66x1.52 by inch (endcaps included)
	225.0x68.0x38.5 by mm (body), 251.0x68.0x38.5 by mm (endcaps included)
Net Weight	1120g
Packing	See Package Information Section in the datasheet

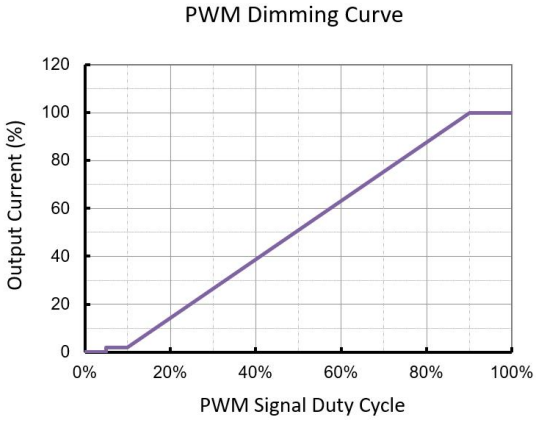
Notes: Unless specified, all the test results are measured in 25℃ room temperature.

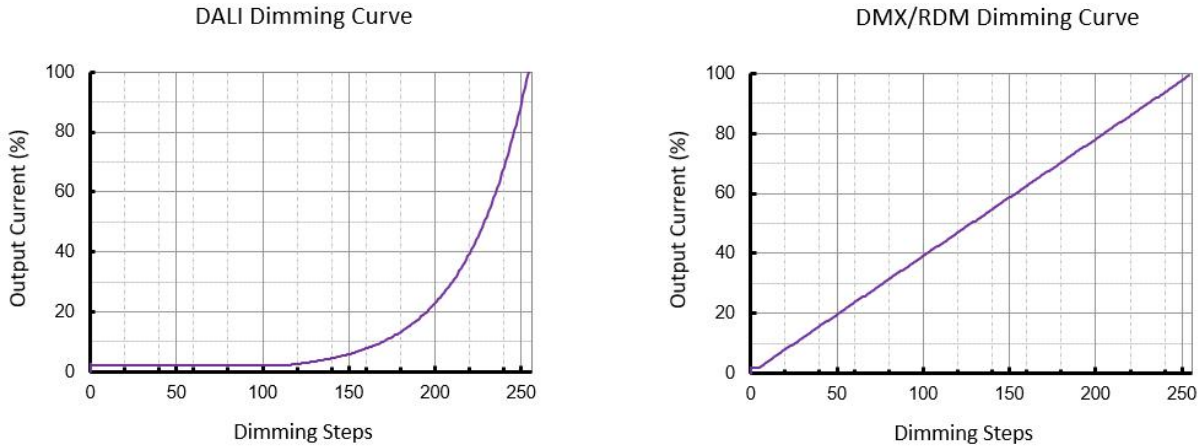
■ Dimming

Parameter	Min.	Typ.	Max.
Vdim Sourcing Current	100uA	150uA	200uA
Vdim Allowed Input Voltage	-20 V		20 V
0-10V Dimming Range	0.5% Default (Programmable)	Linear	100% (Vdim=9~10V)
PWM Dimming Range	0.5% Default (Programmable)	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	IEC62386-101,102,207,150,250,251,252,253		
DALI Dimming Range	0.5% Default (programmable)	Logarithmic as default (programmable to linear)	100%
DA1,DA2 High Level	9.5	16	22.5
DA1,DA2 Low Level	-6.5	0	6.5
DA1,DA2 Current	0		2mA
DMX Dimming Range	0.5% Default (Programmable)	Linear (default)	100%
DMX+ & DMX- Voltage	-6V		6V
DMX to Ground Resistance	25Mohm		
Logic 0/1 (DMX+ to DMX-) Threshold		0.2V	
Communication Baud Rate		250kbps	

- **Default Dimming Curves**

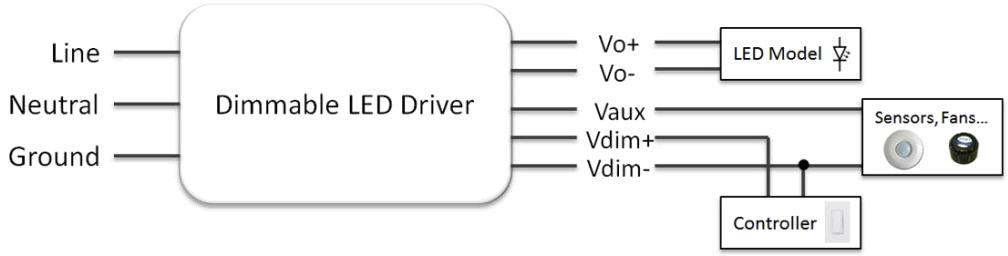






Note: Both DALI and DMX dimming curves can be customized to be linear or logarithmic as default.

- Dimming Wiring

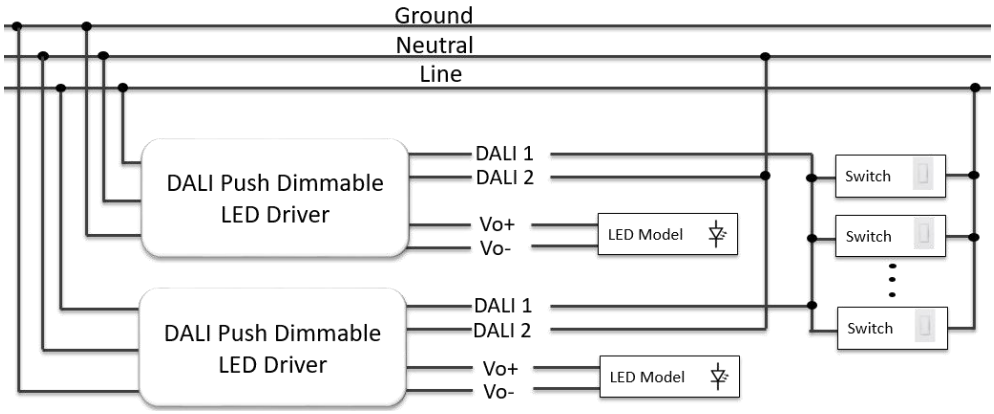


- Push (Switch) Dim

A short press (50-600 ms) switches the device on or off

A long press (> 600 ms) fades the connected operating device alternately up and down (between 2 and 100%). Up and down slew rate is 20%Io/second.

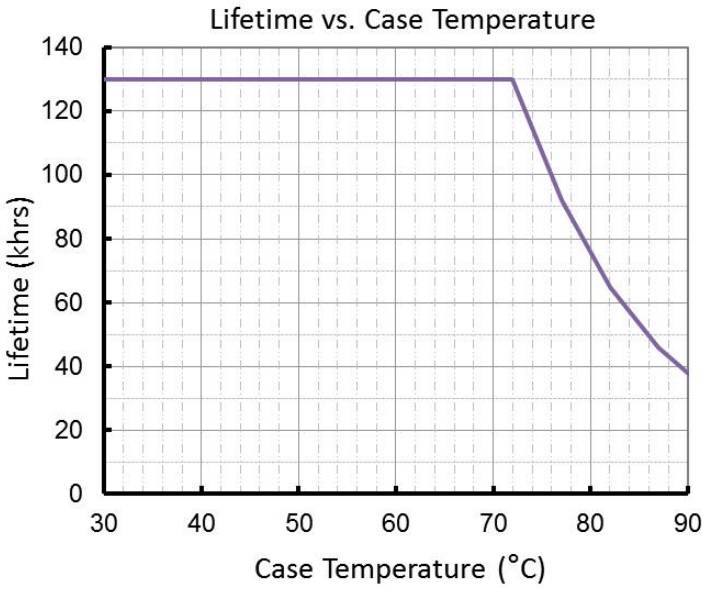
Long push for 15s to synchronize.



Safety/EMC Compliance

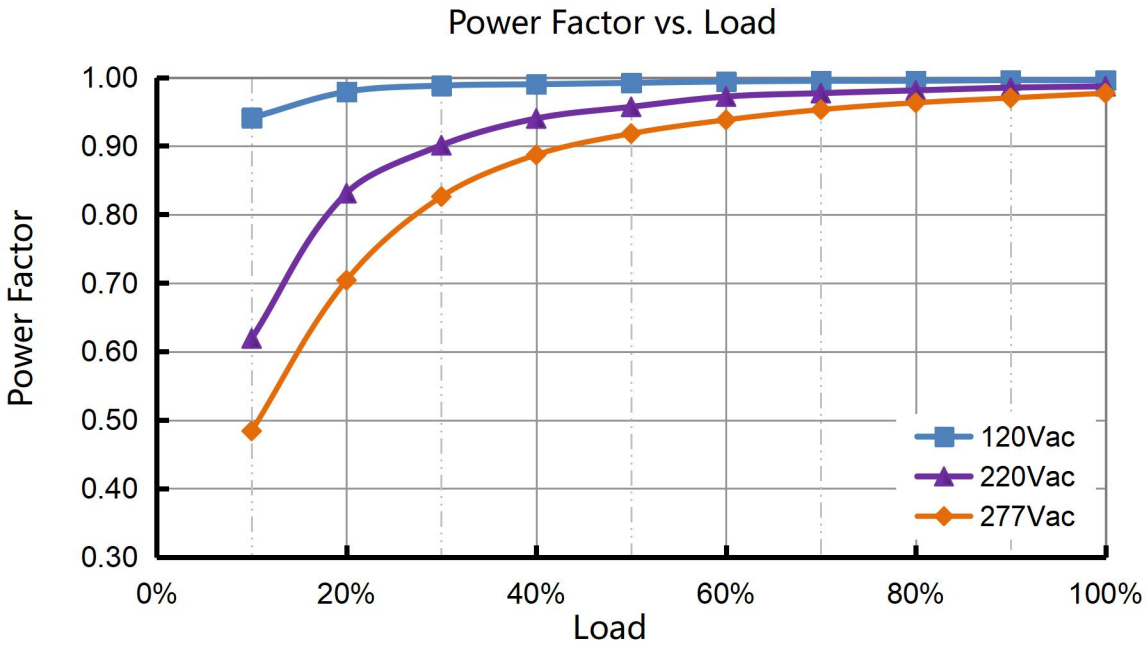
Safety Standards	Description
UL8750	Light emitting diode(LED) equipment for use in lighting products
UL1012	Power units other than class 2
IEC 61347-1	Lamp control gear Part 1: general and safety requirements
IEC 61347-2-13	Lamp control gear Part 2-13: particular requirement for d.c. or a.c. supplied 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

Lifetime vs. Case Temperature

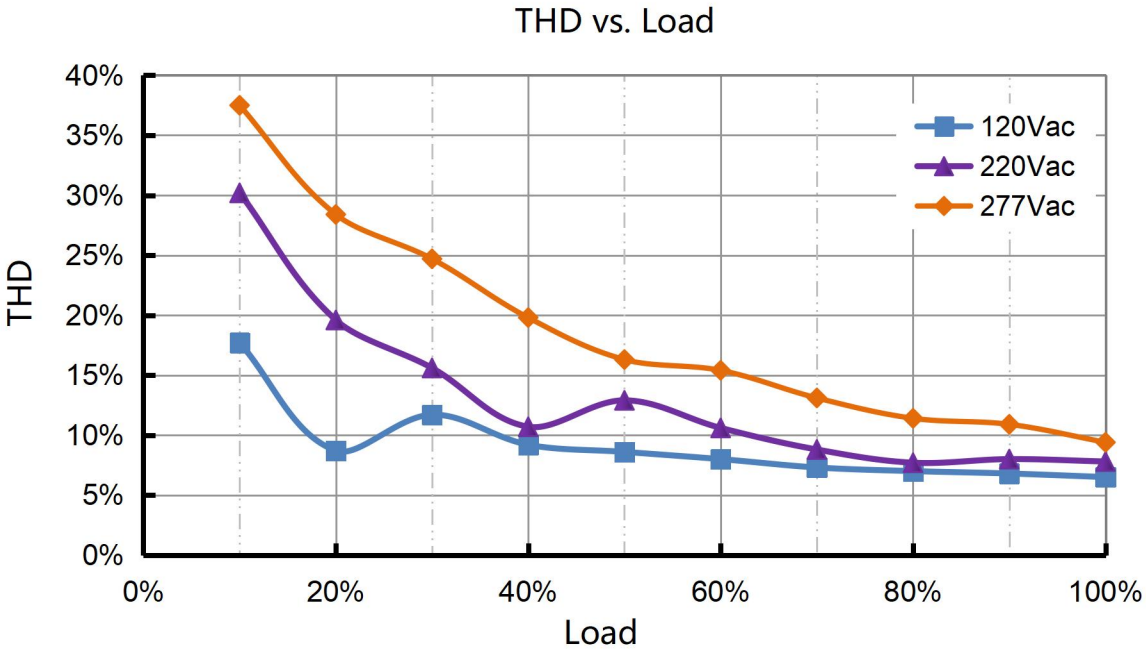


(End of Life: Maximum Failure Rate=10%)

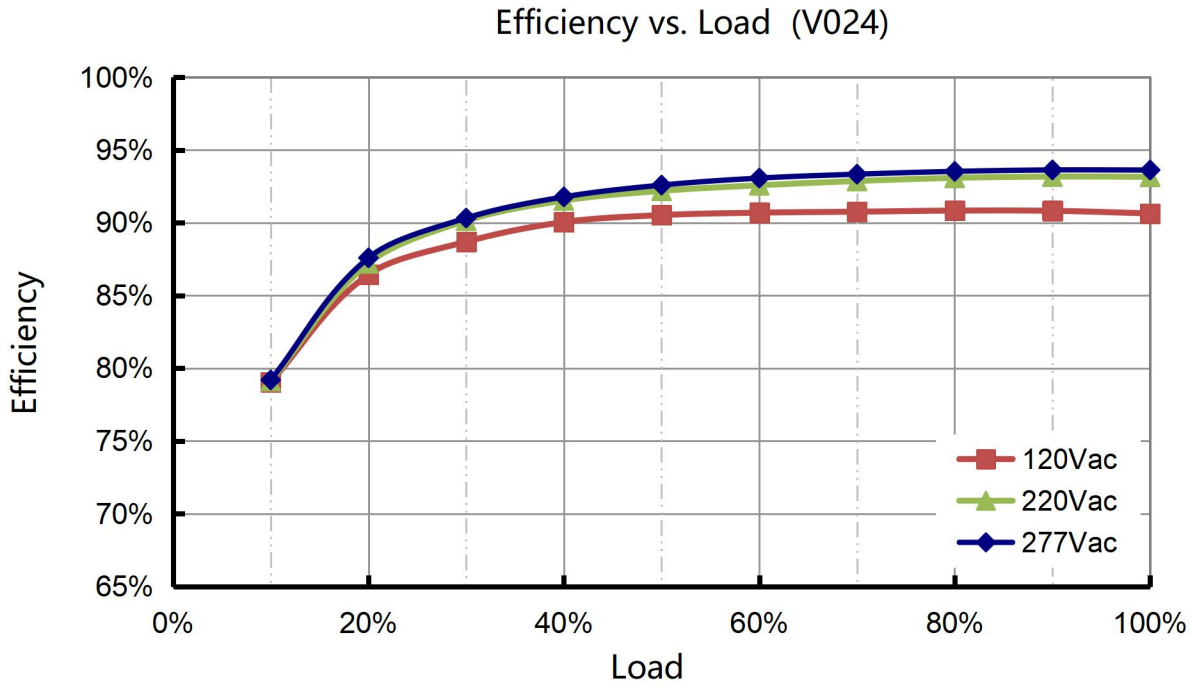
■ Power Factor vs. Load

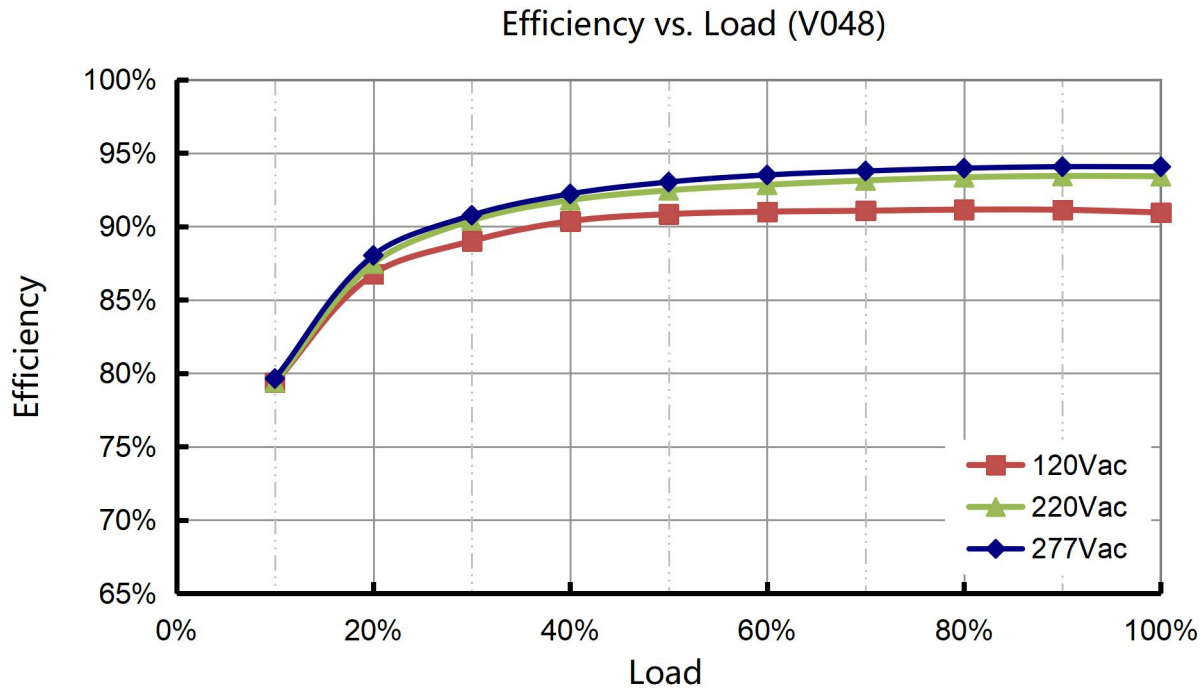


■ THD vs. Load

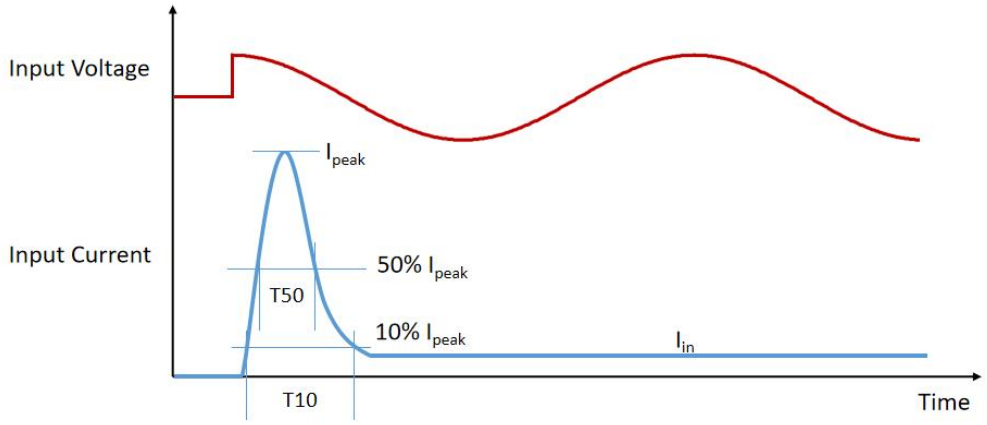


■ Efficiency vs. Load





■ Inrush Current



Input Voltage	I_{peak}	10% -10% T10 Duration	50% -50% T50 Duration
120Vac	16.6A	4.28mS	1.4ms
220Vac	31.2A	3.88mS	1.3ms
277Vac	39.8A	3.80mS	1.3ms

- MCB Suggestion

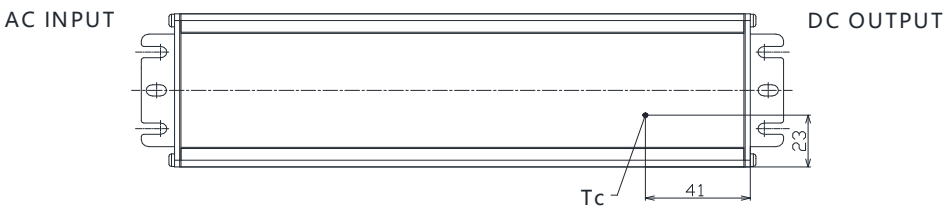
Type	B10	B16	B25	B32	C10	C16	C25	C32	D10	D16	D25	D32
Driver Quantity	1	2	4	5	2	4	7	9	5	8	12	16

Note: Calculated with MCB S200 series manufactured by ABB at 230Vac Input condition

■ Dielectric Strength

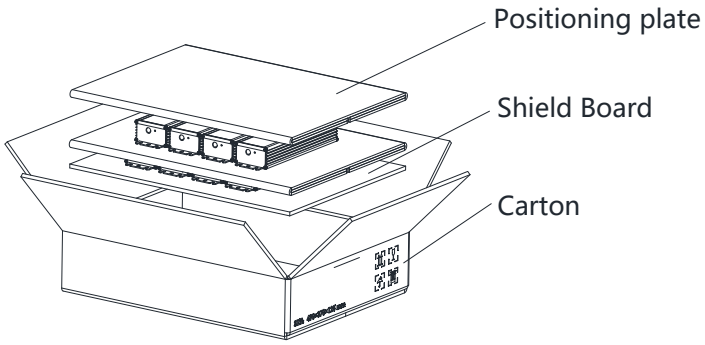
Unit: Vac	Input	Output	Dimming	Case
Input	-	3750	3750	1554
Output	3750	-	-	1554
Dimming	3750	-	-	1554
Case	1554	1554	1554	-

■ Tc Point



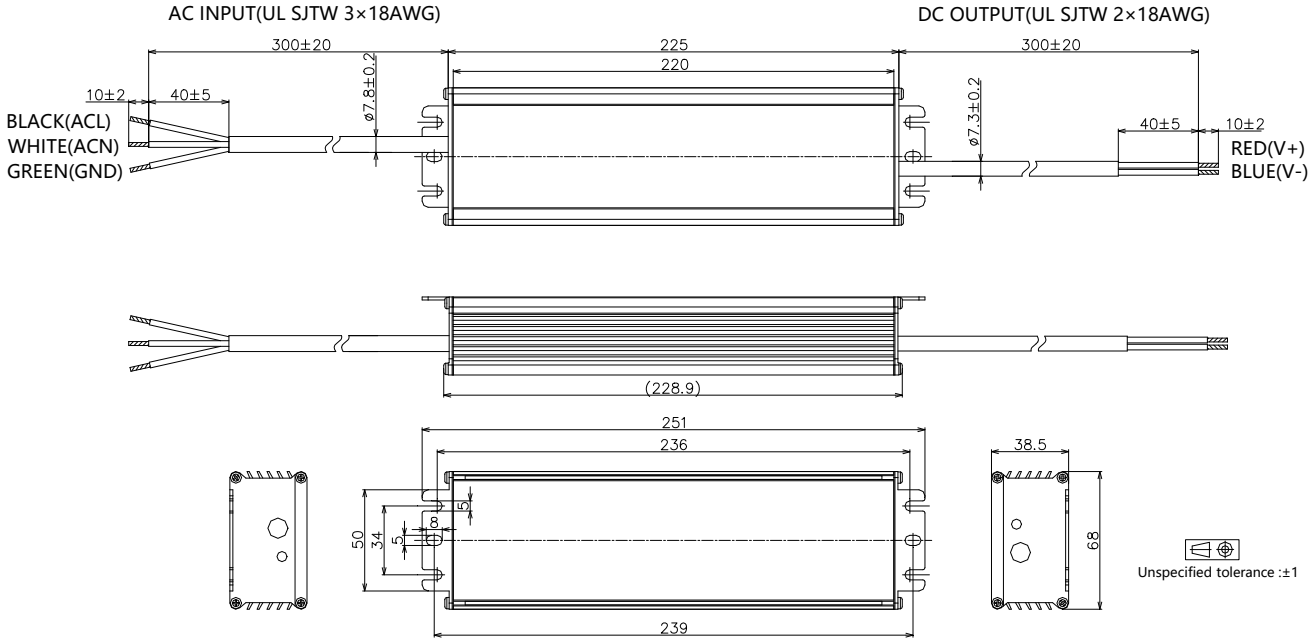
■ Packaging Information

Typical Carton Dimension(L×W×H)	490×370×125 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	8pcs/carton
Net Weight	9.0kg/carton
Gross Weight	10.0 kg/carton

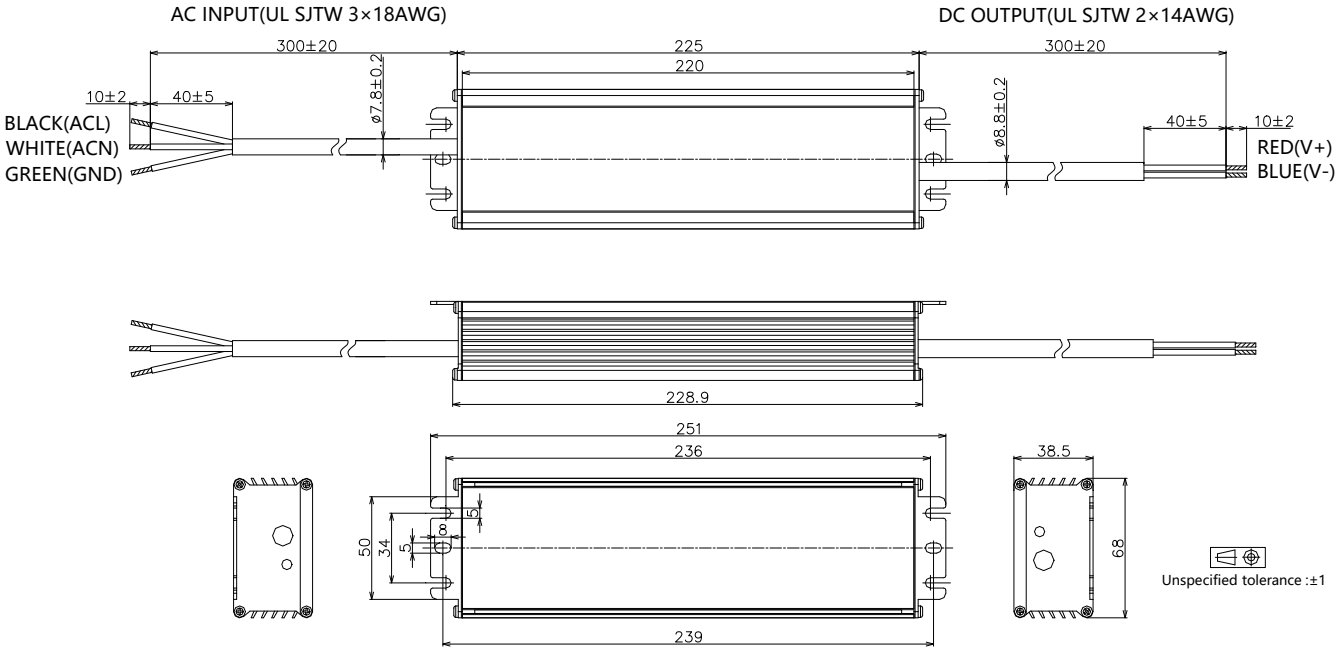


■ Mechanical Design

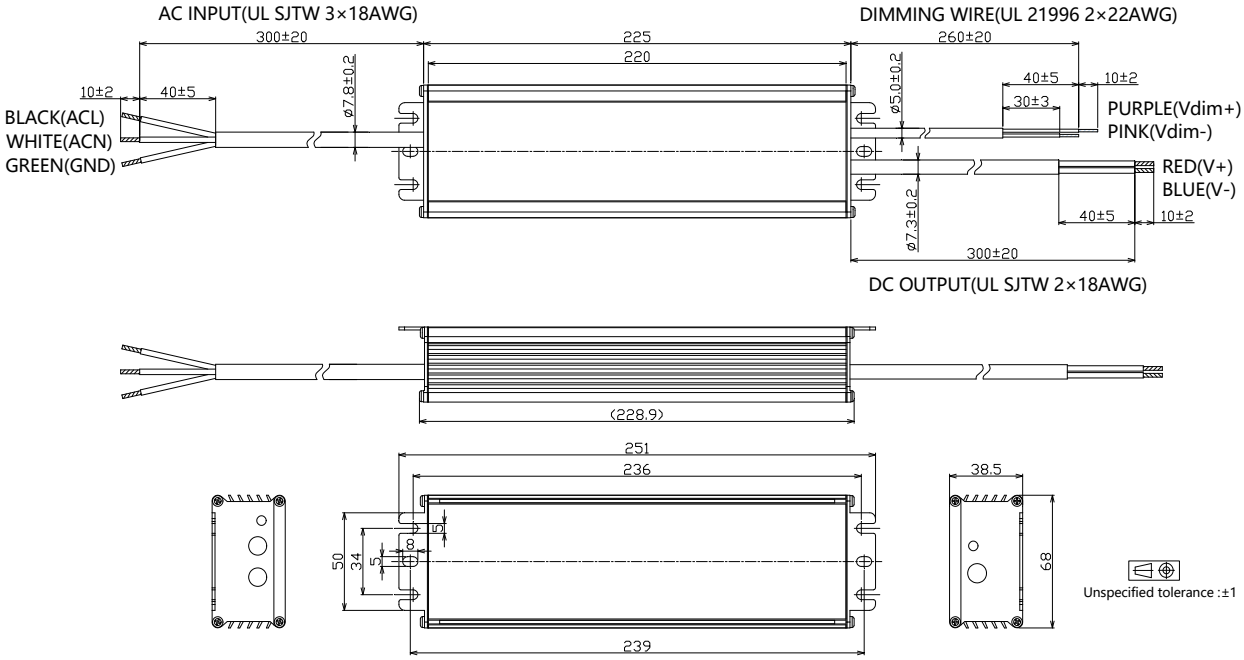
- **BLD-320-Vxxx-NRU (UL Cable) 36V/48V model**



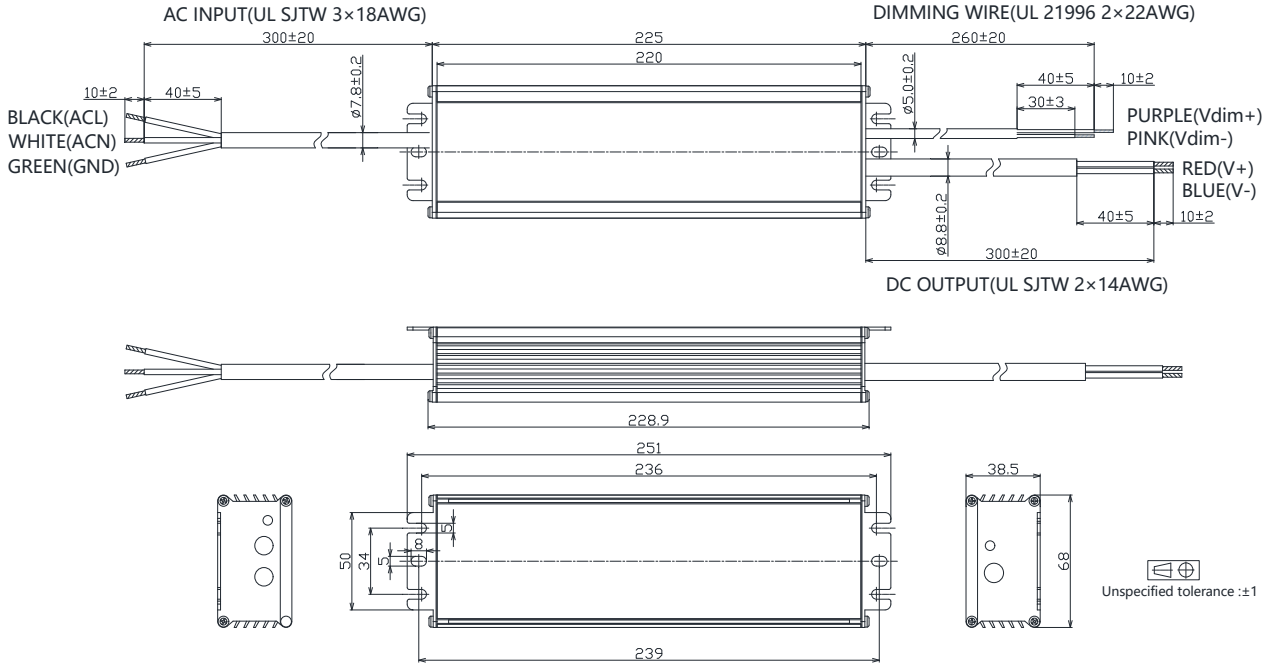
- **BLD-320-Vxxx-NRU (UL Cable) 24V model**



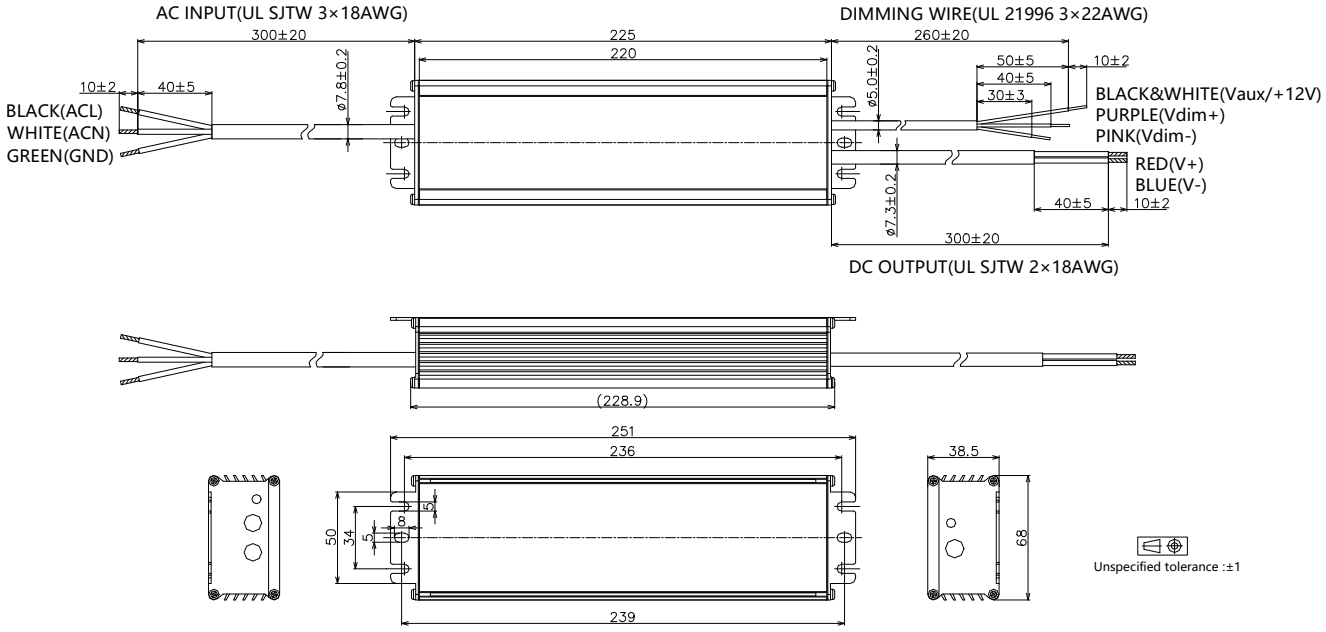
- **BLD-320-Vxxx-DRU (UL Cable) 36V/48V model**



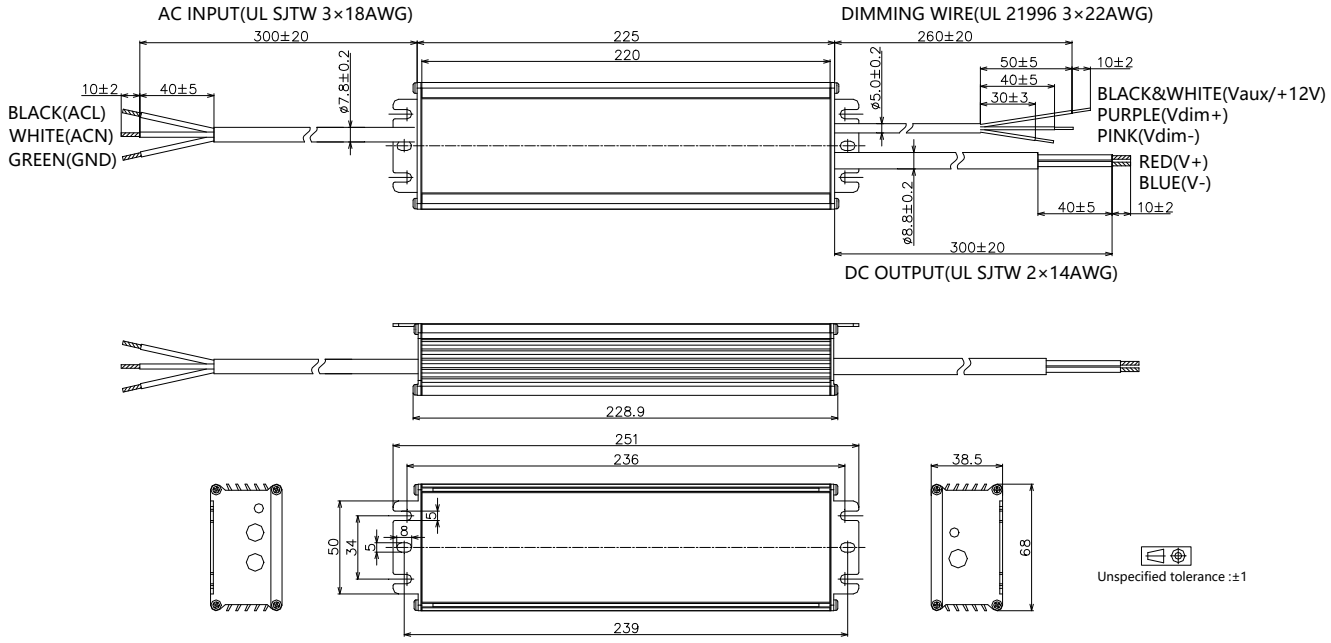
- **BLD-320-Vxxx-DRU (UL Cable) 24V model**



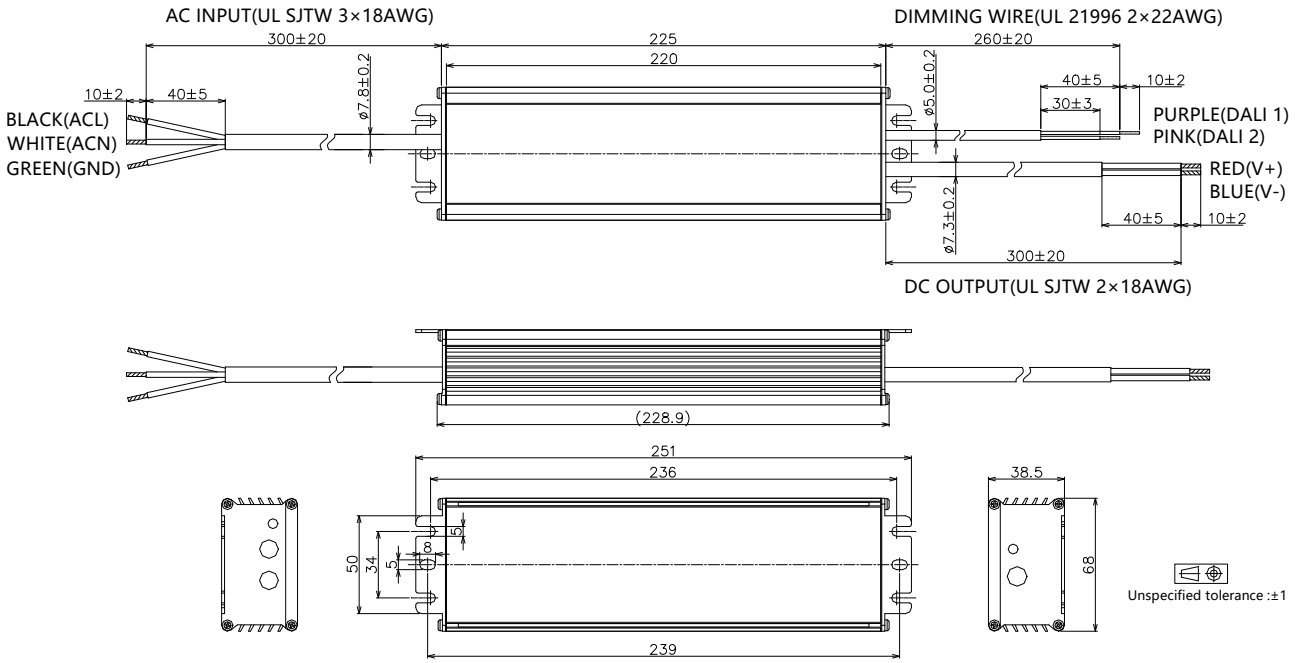
- **BLD-320-Vxxx-ERU (UL Cable) 36V/48V model**



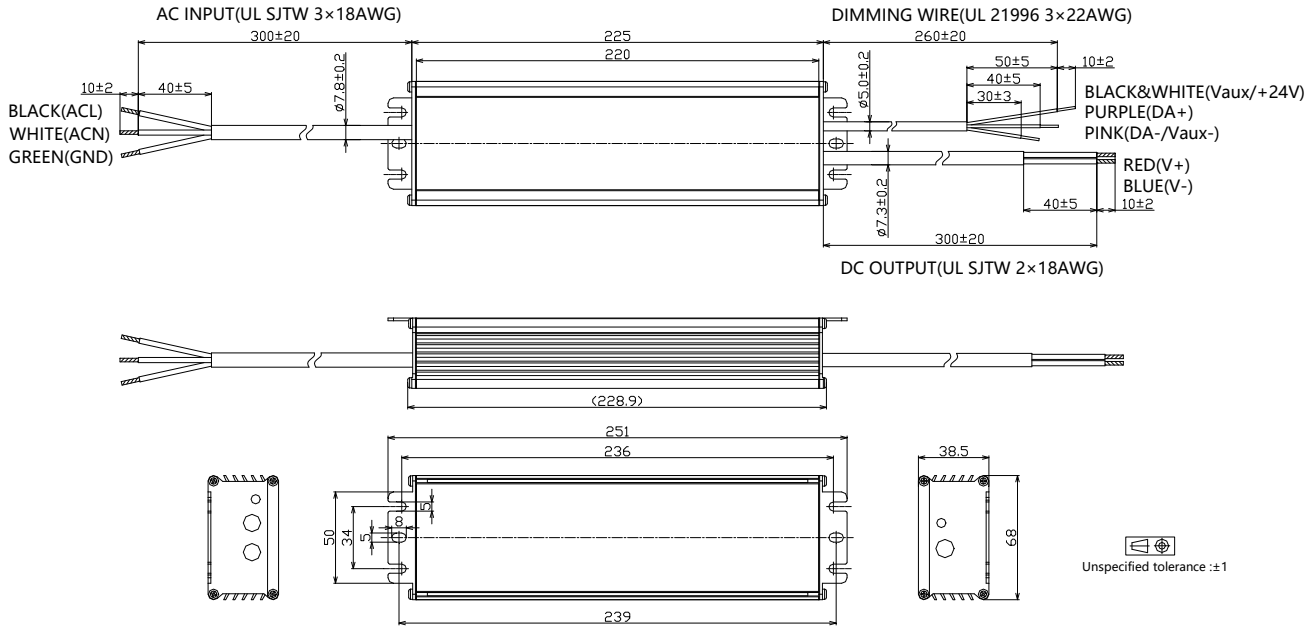
- **BLD-320-Vxxx-ERU (UL Cable) 24V model**



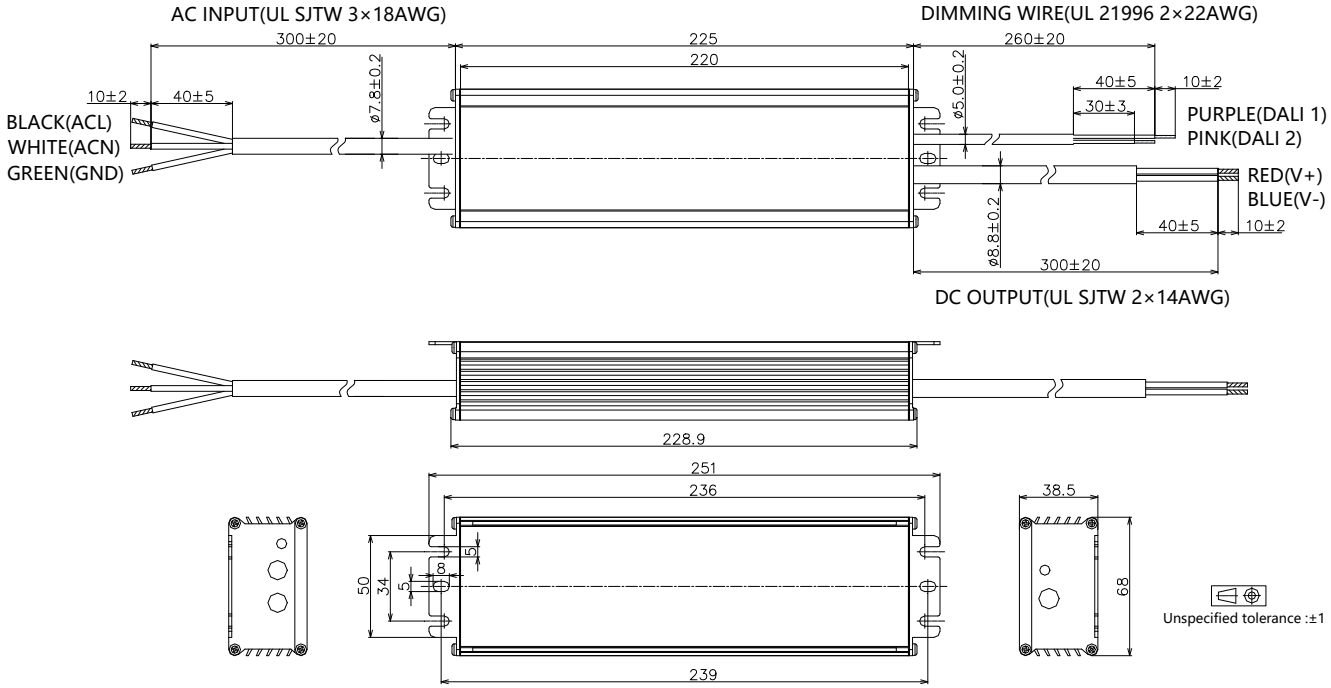
- **BLD-320-Vxxx-ARU (UL Cable) 36V/48V model**



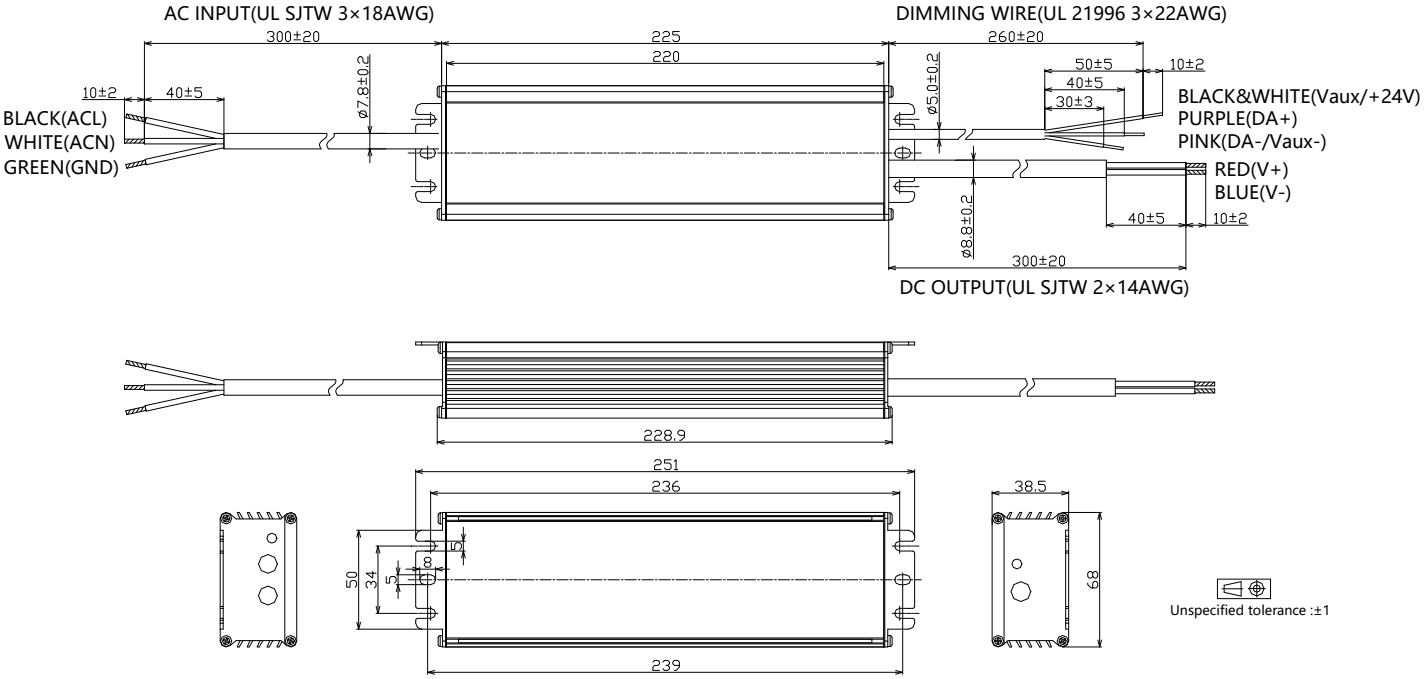
- **BLD-320-Vxxx-ARU-DAX000 (UL Cable) 36V/48V model**



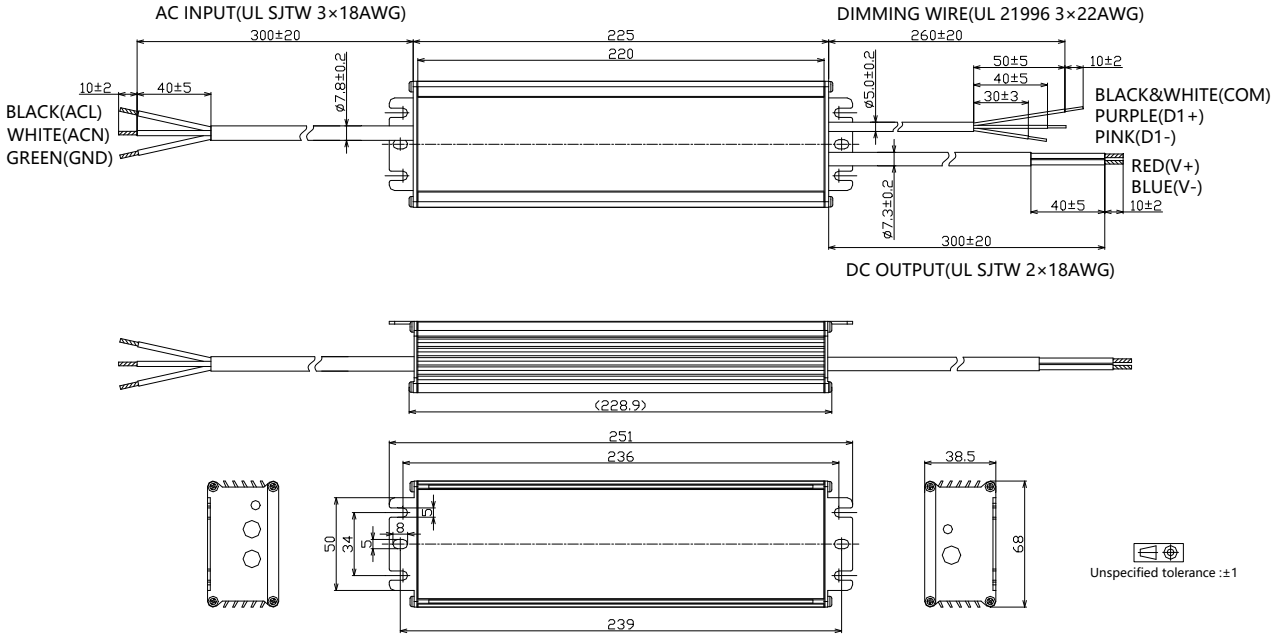
- **BLD-320-Vxxx-ARU (UL Cable) 24V model**



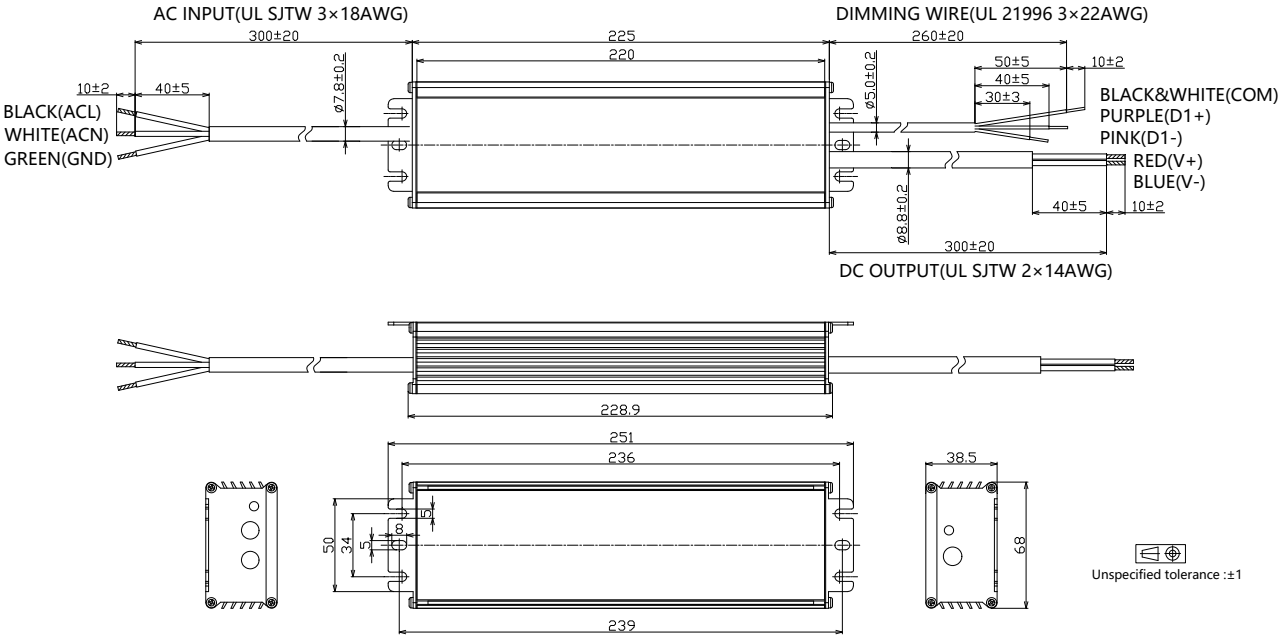
- **BLD-320-Vxxx-ARU-DAX000 (UL Cable) 24V model**



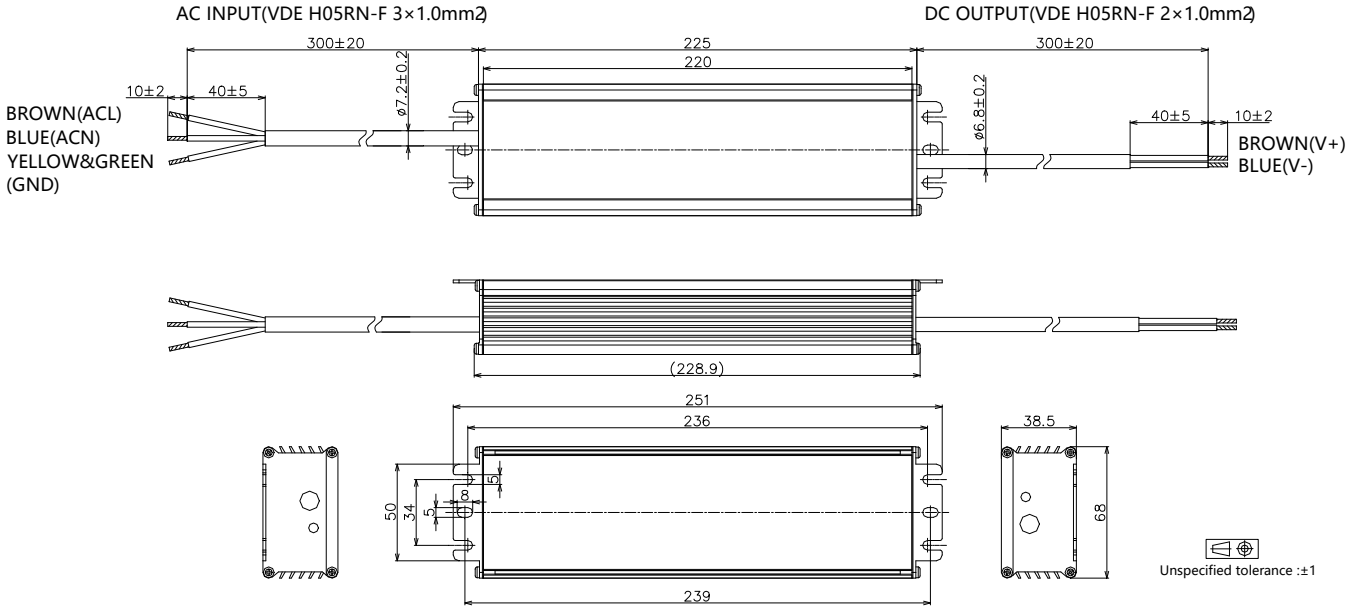
- **BLD-320-Vxxx-MRU (UL Cable) 36V/48V model**



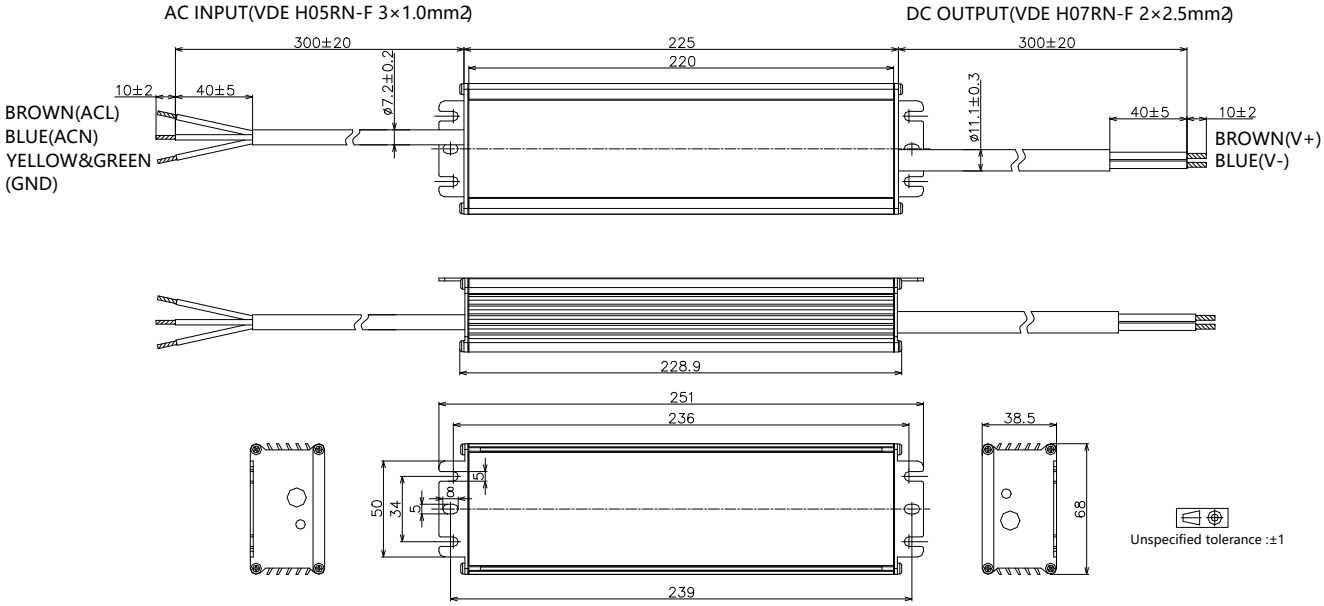
- **BLD-320-Vxxx-MRU (UL Cable)24V model**



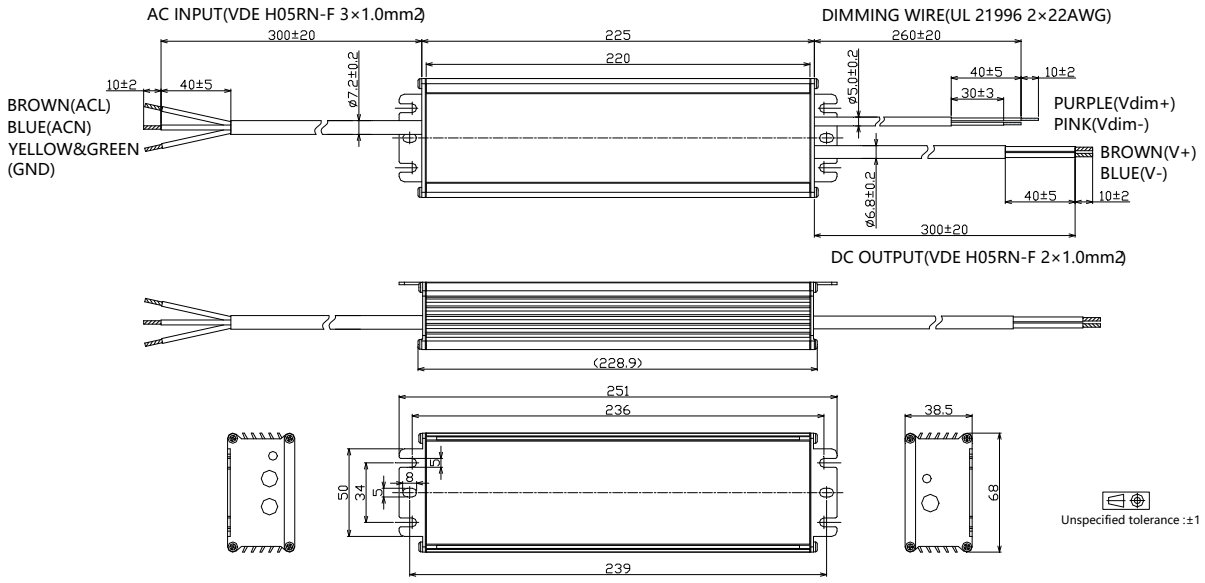
- **BLD-320-Vxxx-NRS (VDE Cable) 36V/48V model**



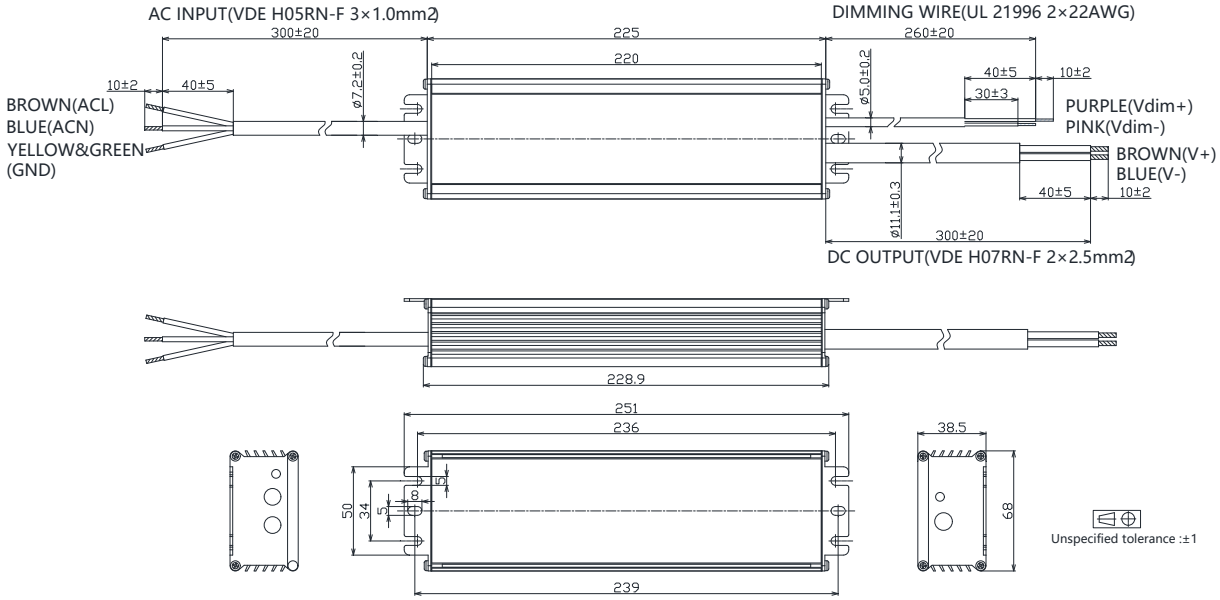
- **BLD-320-Vxxx-NRS (VDE Cable) 24V model**



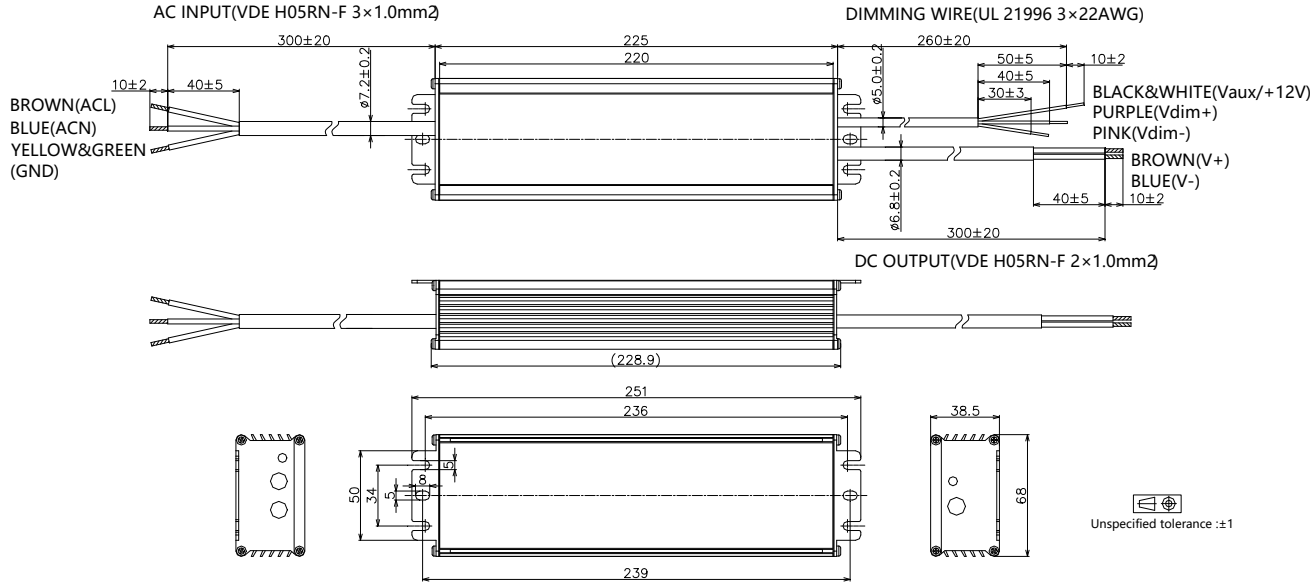
- **BLD-320-Vxxx-DRS (VDE Cable) 36V/48V**



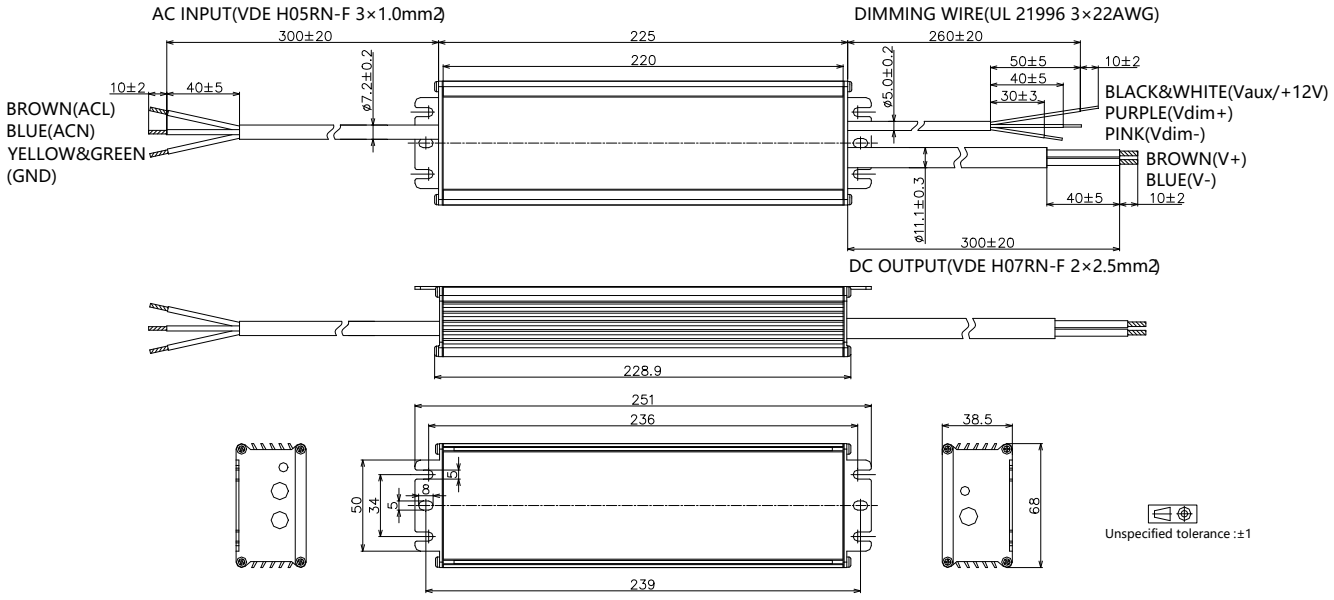
- **BLD-320-Vxxx-DRS (VDE Cable) 24V model**



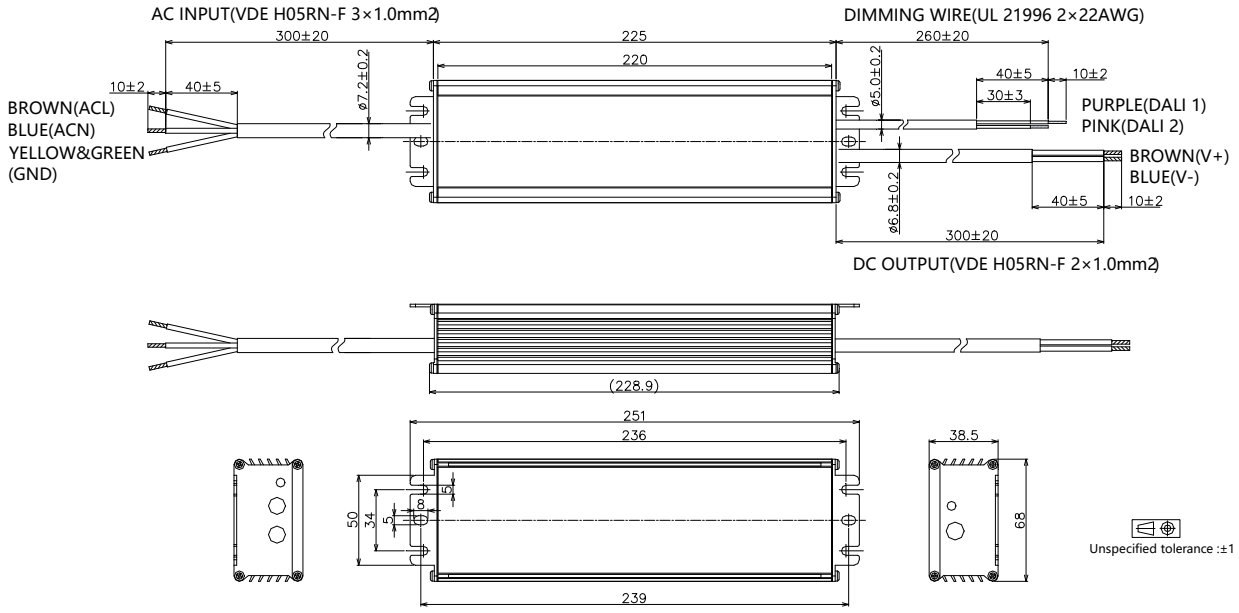
- **BLD-320-Vxxx-ERS (VDE Cable) 36V/48V**



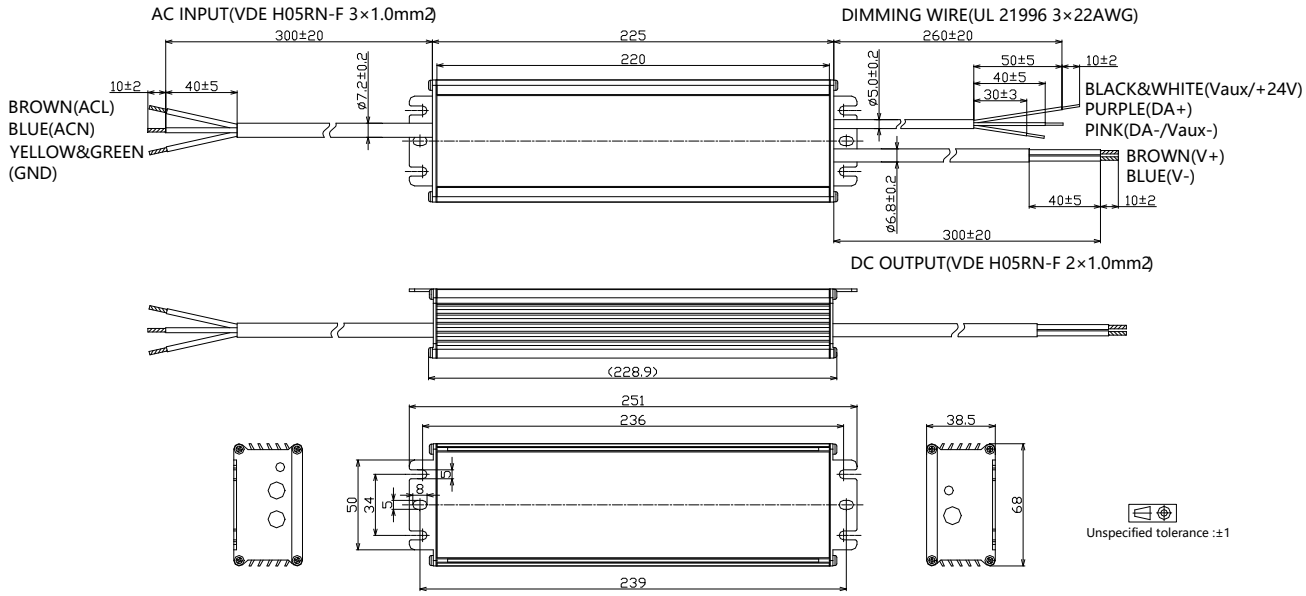
- **BLD-320-Vxxx-ERS (VDE Cable) 24V model**



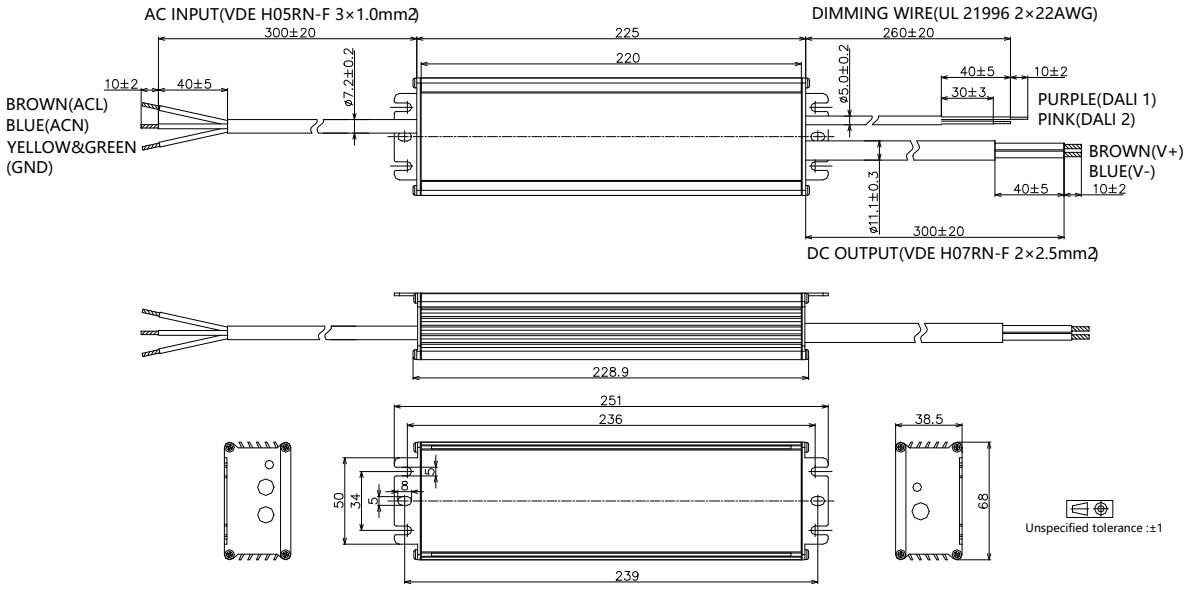
- **BLD-320-Vxxx-ARS (VDE Cable) 36V/48V model**



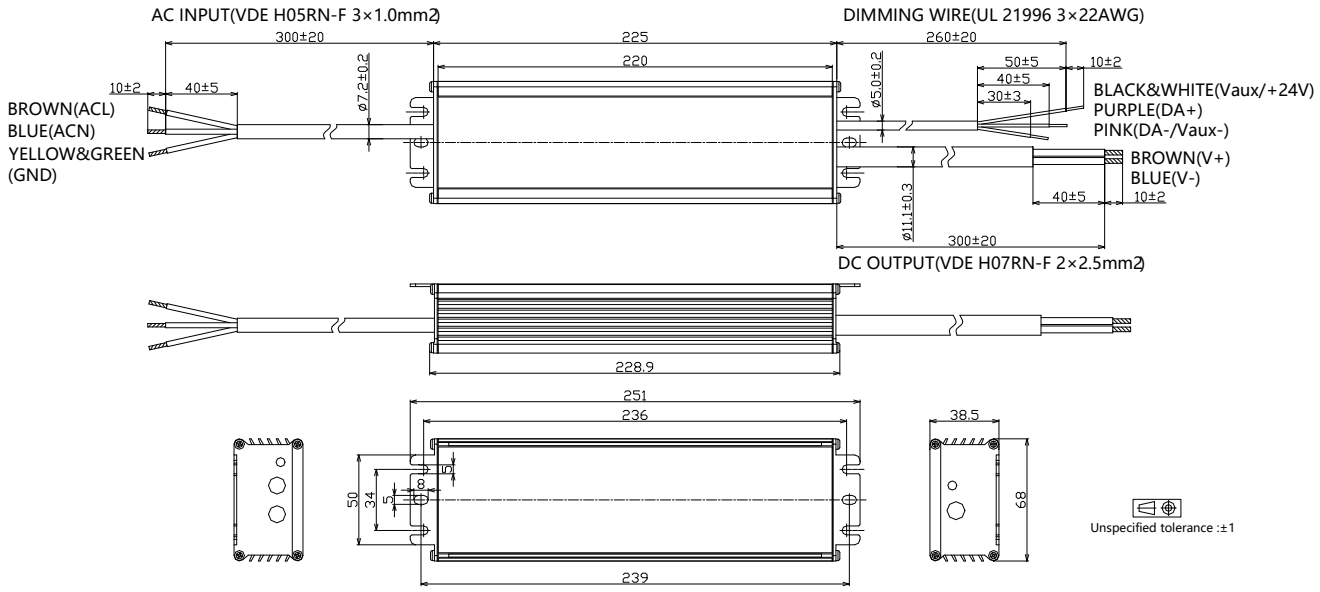
- **BLD-320-Vxxx-ARS -DAX000 (VDE Cable) 36V/48V model**



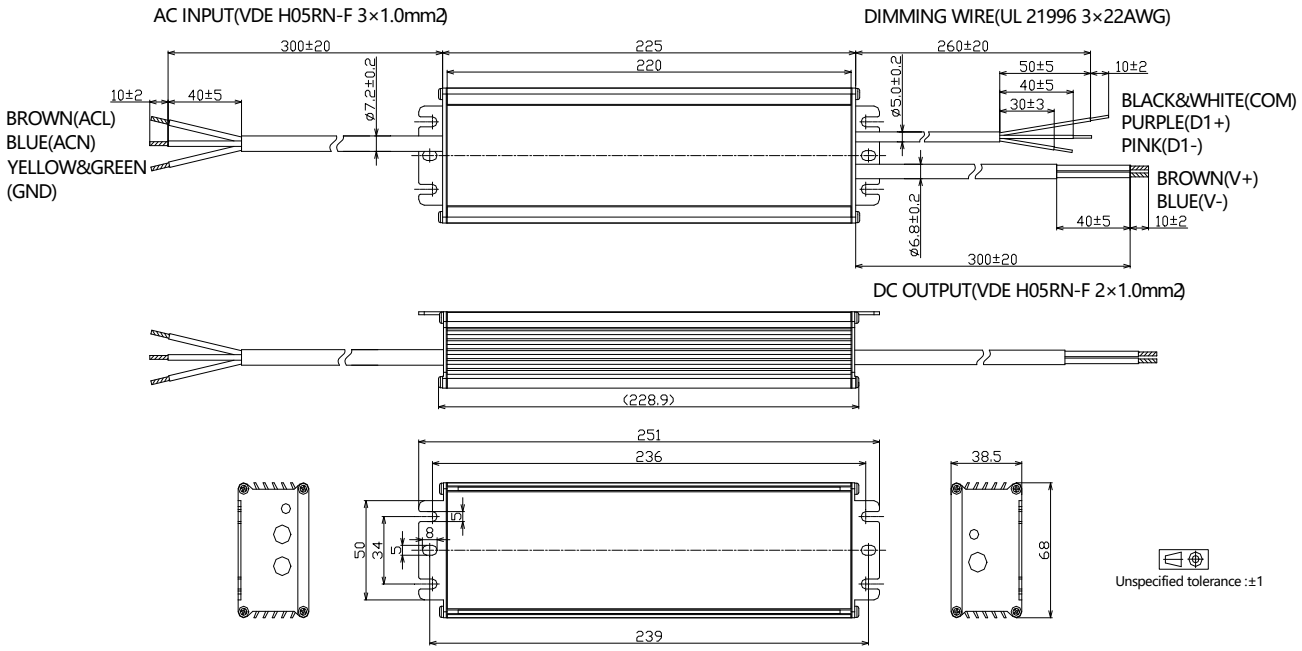
- **BLD-320-Vxxx-ARS (VDE Cable) 24V model**



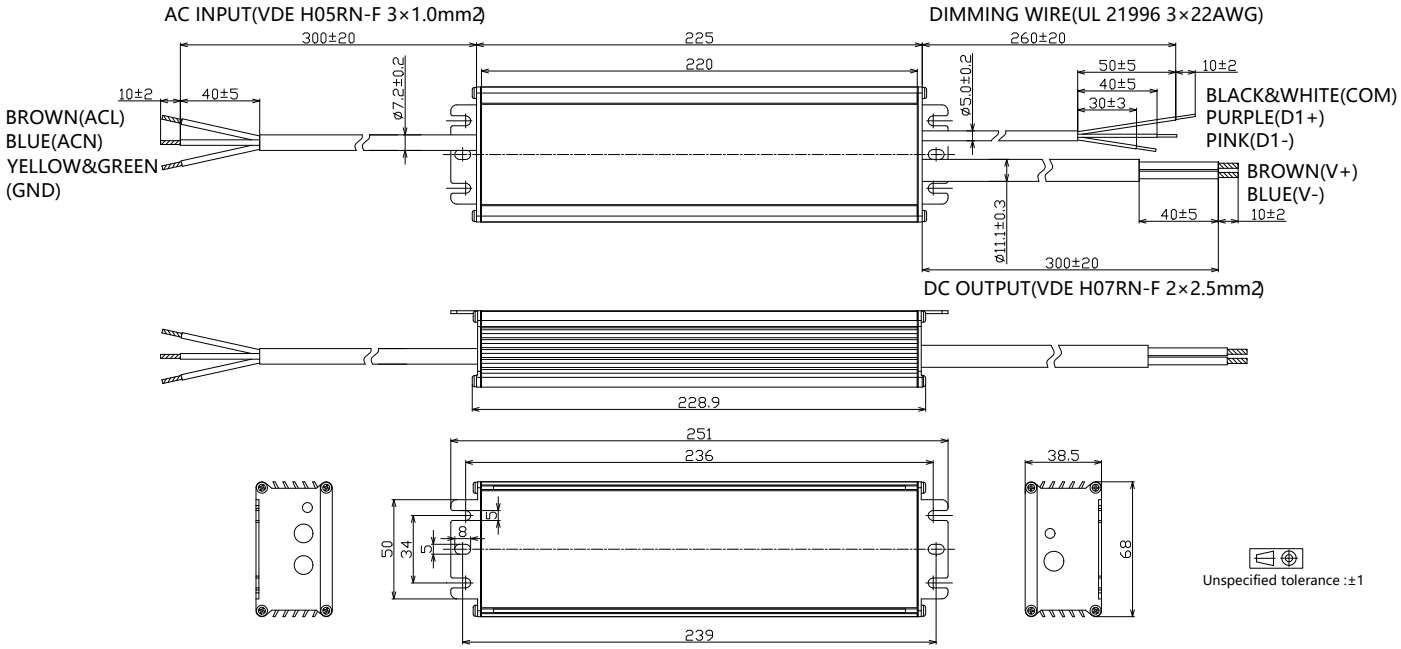
- **BLD-320-Vxxx-ARS -DAX000 (VDE Cable) 24V model**



- **BLD-320-Vxxx-MRS(VDE Cable) 36V/48V model**



- **BLD-320-Vxxx-MRS(VDE Cable)24V model**



■ Revision History

Revision	Date	Contents
A	2024-12-13	1. Initial Release