

Product Datasheet



The global certified BLD-240-C is a dual stage high efficiency smart LED driver for HOT environment usage. 10kV 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 smart protocols. All around protections including digital OTP (internal and external by NTC) with auto-recovery secure 24hour non-stop operation for luminaires.

Steel Plant Special Hot Area



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240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

■ Features

- Supply Voltage: 90-305Vac
- Great Surge Immunity 10kV
- Tamax=80°C (Customizable to 85°C)
- 40,000Hour Life @ Tc=90°C
- 5 Year Warranty
- +/-2% Output Current Accuracy
- Isolated 0-10V/PWM/Time/DALI2.0/DMX/RDM Dimmable
- Dim Off with 0.5W Standby Power
- 12V 300mA Auxiliary Power
- Class II Model Available
- UL Class P, Class 2
- 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 |
|------------------|---------------------|--------------|----------------|---------------------------------|---------------------------------|
| BLD-240-C105-XYZ | 90 ~ 305 Vac | 250 W | 143-238Vdc | 1050mA | 1050mA |
| BLD-240-C140-XYZ | 90 ~ 305 Vac | 250 W | 107-179Vdc | 1400mA | 1400mA |
| BLD-240-C210-XYZ | 90 ~ 305 Vac | 250 W | 71-114Vdc | 2100mA | 2100mA |

| XY= | Dimming Method | Programmable | 12Vaux | Dim-off |
|-----|------------------|--------------|--------|--|
| NN | - | - | - | - |
| DN | 0-10V/PWM/Time | Cable | - | No Dim-off as default status, programmed to have Dim-off |
| EN | 0-10V/PWM/Time | Cable | 300mA | √ |
| TR | Time/Set Current | NFC Wireless | - | - |
| DR | 0-10V/PWM/Time | 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 | - | √ |
| MR | DMX512 + RDM | NFC Wireless | - | √ |

| 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 with 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 |

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver
■ Technical Data

| | |
|------------------------|--|
| Input Voltage | 90~305Vac |
| 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 | 2.2Amax@120Vac & Full-Load, 1.1Amax@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 |
| 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 | 8.82x3.54x1.63 by inch (body), 9.88x3.54x1.63 by inch (endcaps included) 224 x 90 x 41.5 by mm (body), 251 x 90 x 41.5 by mm (endcaps included) |
| Net Weight | 1600g |
| Packing | See Package Information Section in the datasheet |

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

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

■ Safety/EMC Compliance

| Safety Standards | Description |
|-----------------------|---|
| UL8750 | Light emitting diode(LED) equipment for use in lighting products |
| UL1012/1310 | Power units other than class 2 / Class 2 power units |
| 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 |
| IEC 55015/FCC Part 15 | Conducted emission test & radiated emission test; ANSI C63.4:2009 Class B |
| IEC 61000-3-2 | Harmonic current emissions; Class C |
| IEC 61000-3-3 | Voltage fluctuations & flicker |
| 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 |

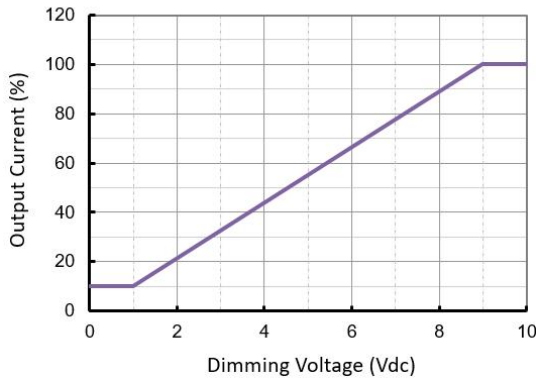
■ Dimming

| 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%) |
| Default Dim off Threshold | 0.4V or 4% | 0.5V or 5% | 0.6V or 6% |
| Default Dim off Threshold | 0.6V or 6% | 0.7V or 7% | 0.8V or 8% |
| PWM High | 3.8V | | 9V |
| PWM Low | 0V | | 0.6V |
| PWM Frequency | 300Hz | | 2kHz |
| 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 | |

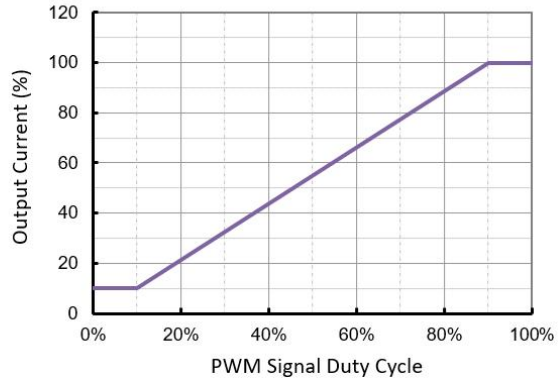
240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

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

0-10V Dimming Curve

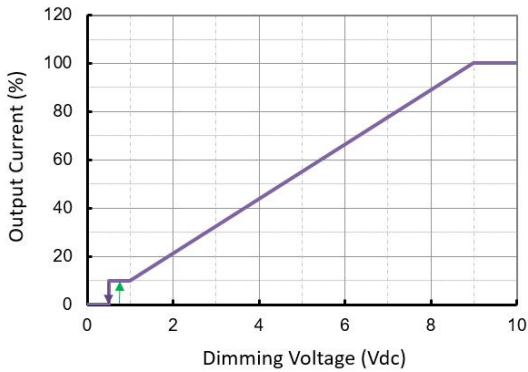


PWM Dimming Curve

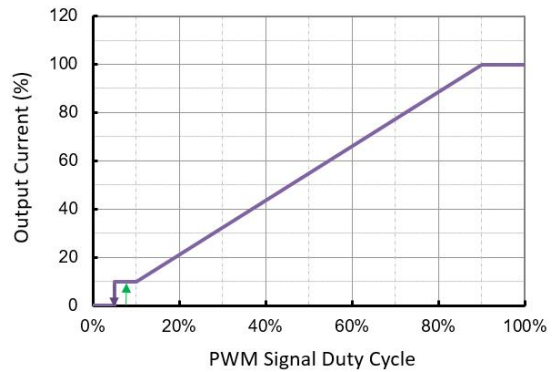


- b. **0-10V dimming with dim-off**

0-10V Dimming Curve with Dim Off

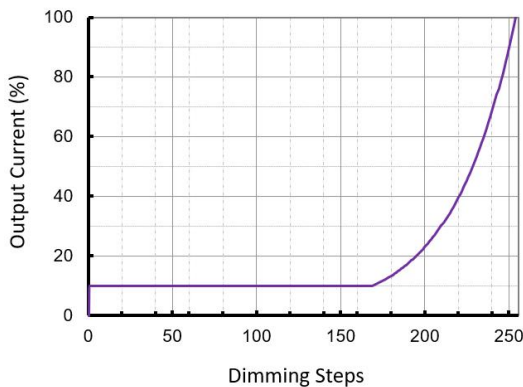


PWM Dimming Curve

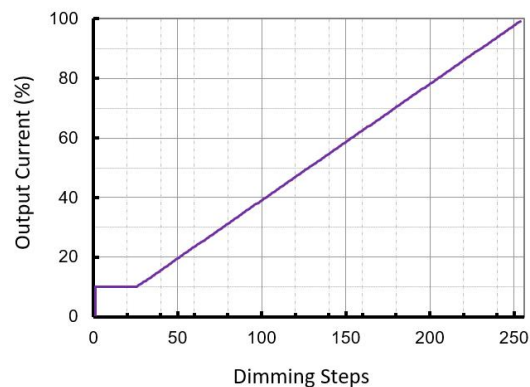


- c. **DALI and DMX dimming curves**

DALI Dimming Curve



DMX/RDM Dimming Curve



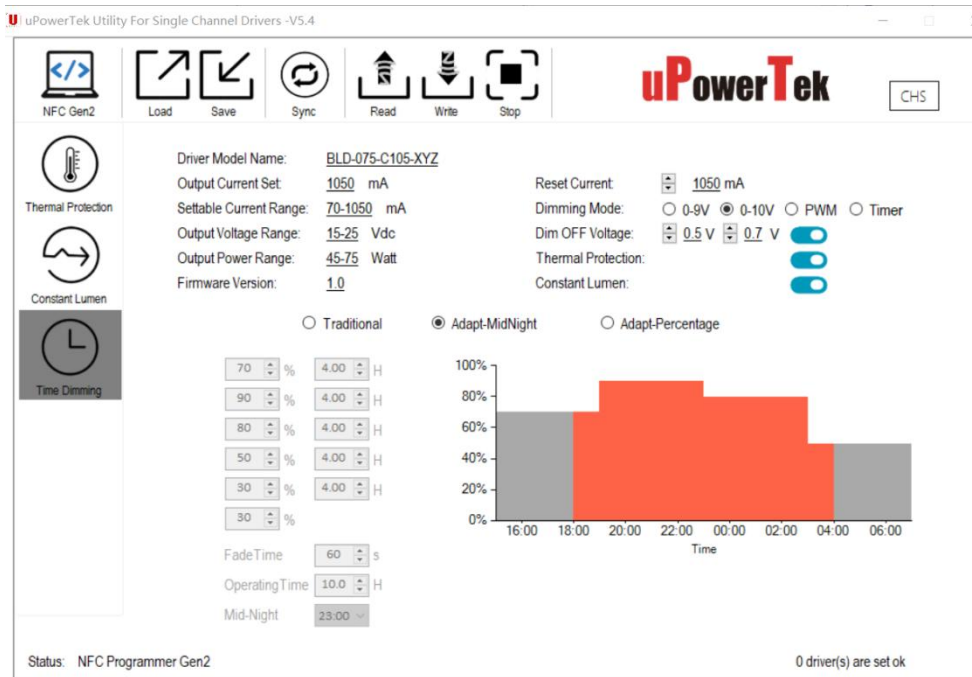
Note: Both DALI and DMX dimming curves can be customized to be linear or logarithmic as default.

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

■ Programming

- Programmable Functions

uPowerTek LED drivers offer a range of configurable functions to meet specific lighting requirements. The Output Current, Dimming Mode, Dim Off/On Voltage Threshold, and Timer Dimming can be set as basic programming functions. Constant Lumen Output (CLO) can also be customized to ensure consistent light performance. Additionally, depending on the different product model numbers, users can benefit from programming Thermal Protection by external NTC (with extra cable), DALI/D4i Features, and DMX addressing.



uPowreTek Programming Software Interface

- Required Equipment

To program uPowerTek LED drivers, users will need specific equipment based on their preferred method. For wired programming, the uPowerTek Cable Programmer is essential. For NFC wireless programming, users can use a smartphone with either IOS or Android, the uPowerTek NFC Programmer, or the FEIG NFC Programmers. These tools ensure a seamless and efficient setup process, realizing precise customization of the LED driver settings.



Cable Programmer



NFC Programmer V1



NFC Programmer V2



FEIG NFC Programmer



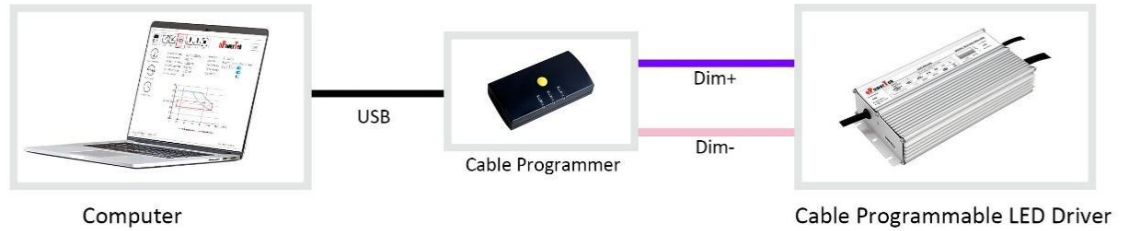
Android or iPhone

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

- 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/>.



Wired Programming

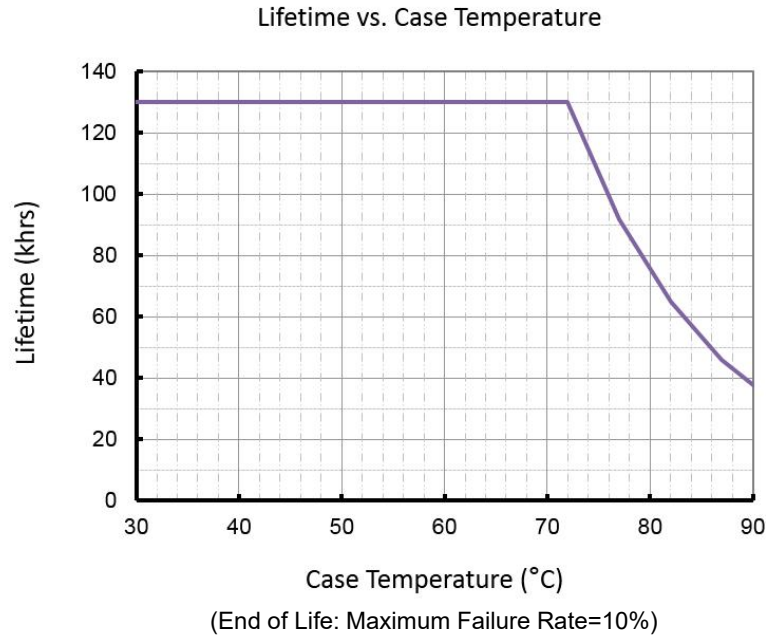


Wireless Programming

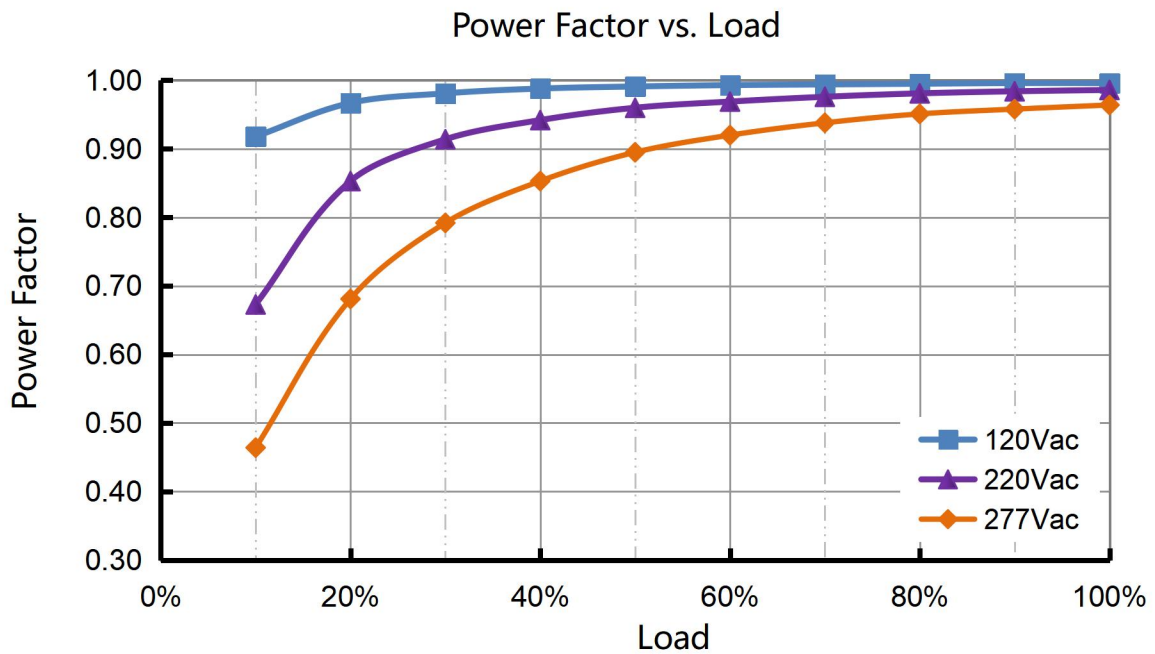


Cellphone Programming

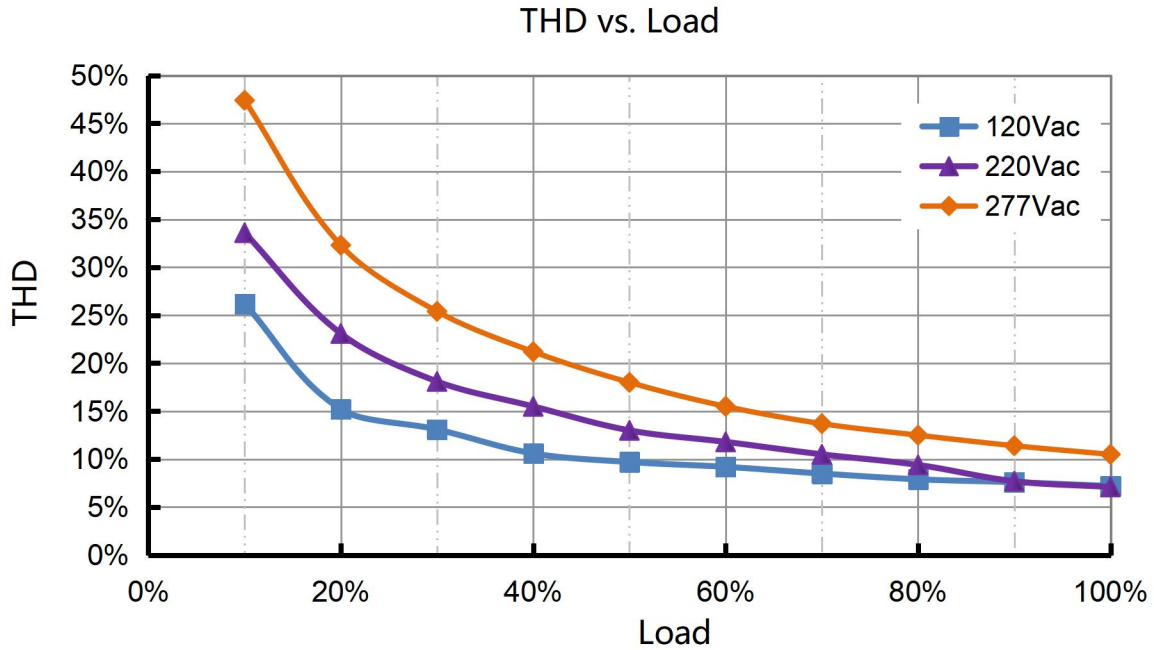
■ Lifetime vs. Case Temperature



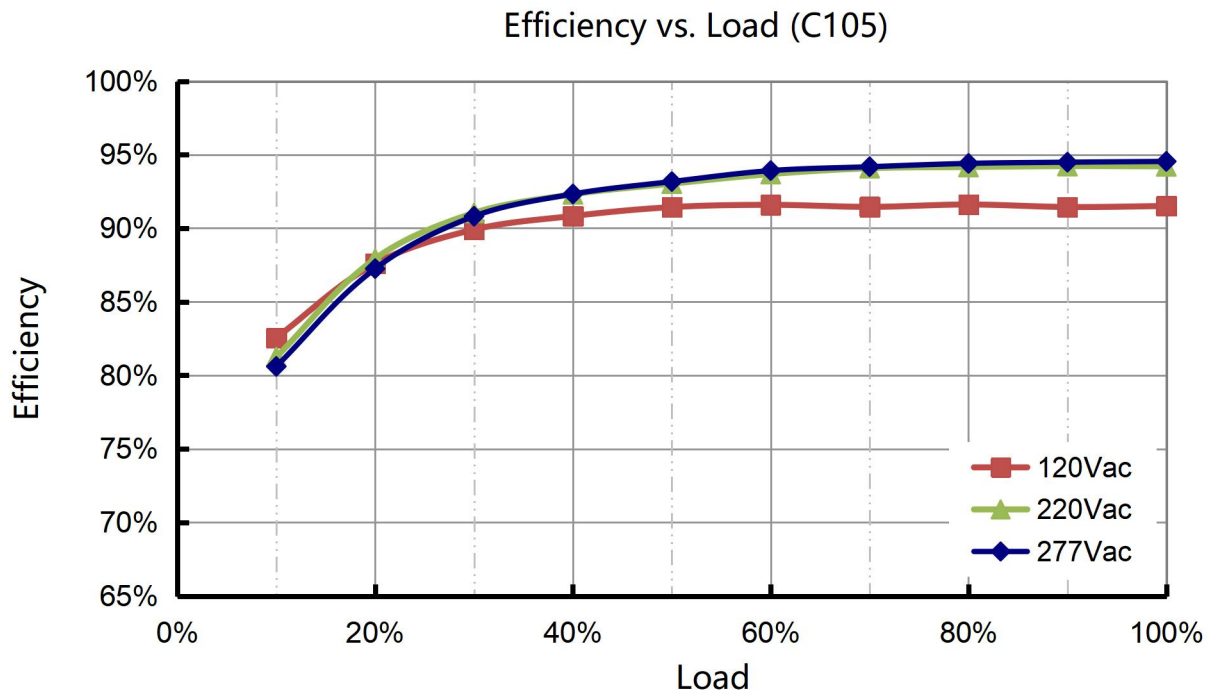
■ Power Factor vs. Load



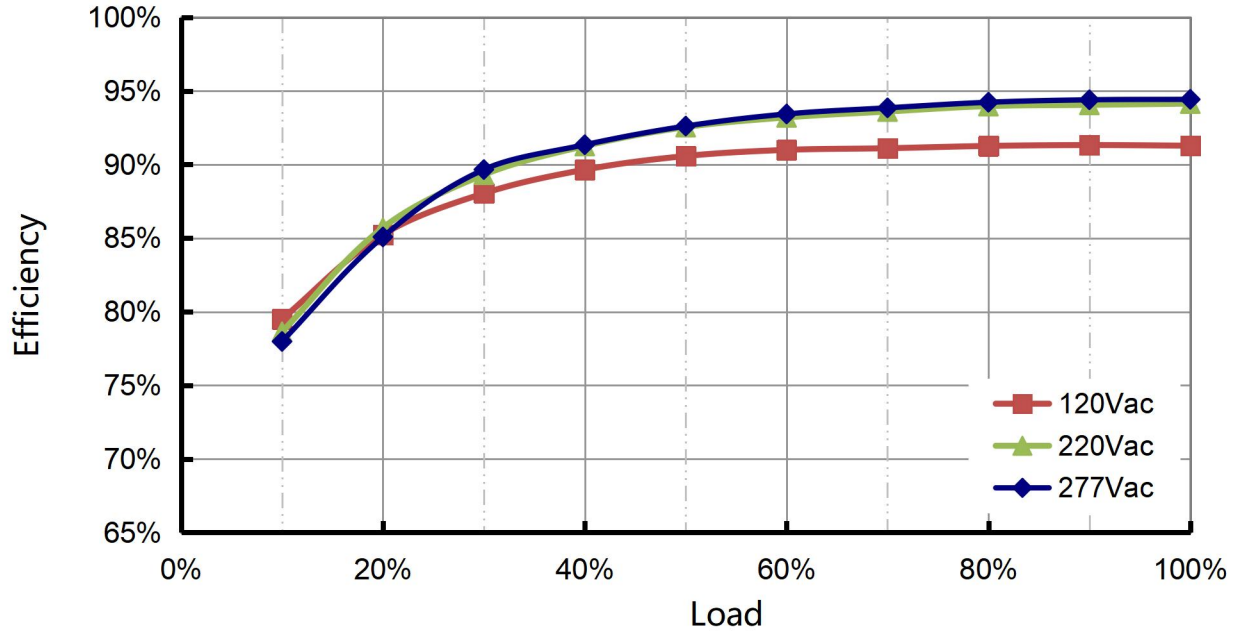
■ THD vs. Load



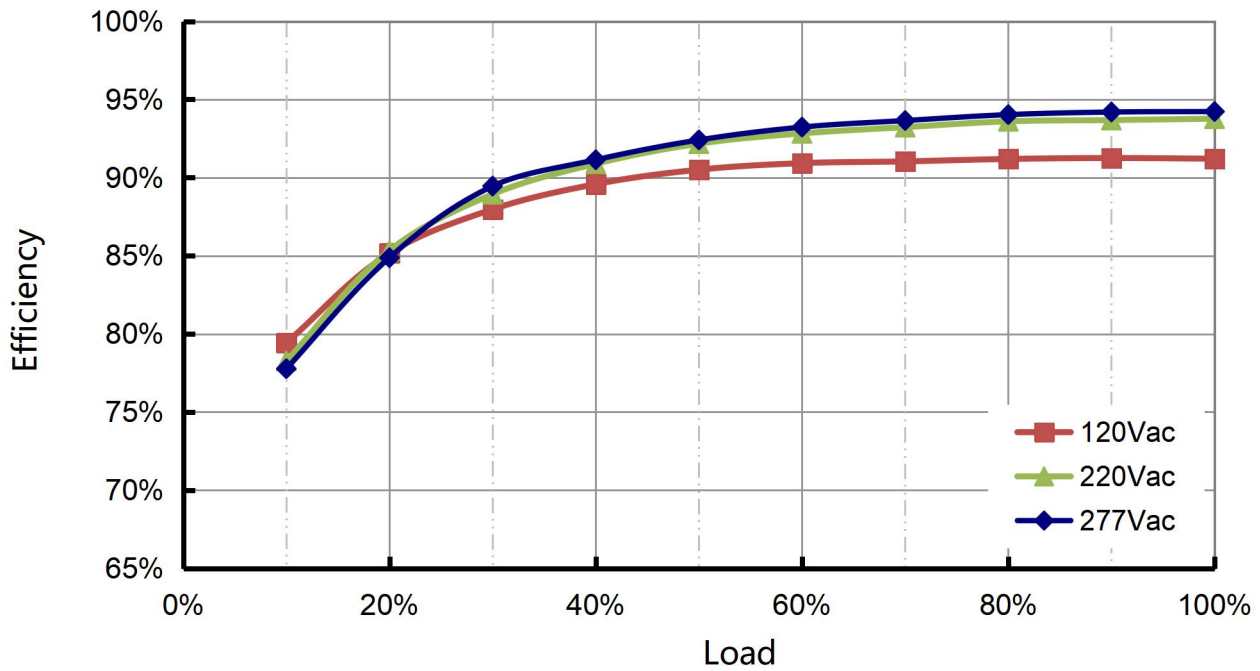
■ Efficiency vs. Load



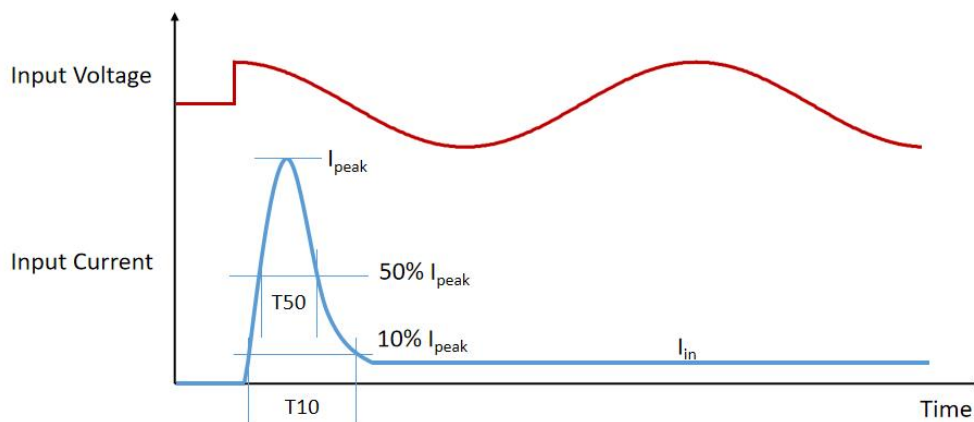
Efficiency vs. Load (C140)



Efficiency vs. Load (C210)



Inrush Current



| Input Voltage | I_{peak} | 10% -10% T10 Duration | 50% -50% T50 Duration |
|---------------|------------|-----------------------|-----------------------|
| 120Vac | 33.4A | 1.28ms | 0.55ms |
| 220Vac | 66.0A | 1.14ms | 0.5ms |
| 277Vac | 80.8A | 1.12ms | 0.5ms |

- MCB Suggestion

| Type | B10 | B16 | B25 | B32 | C10 | C16 | C25 | C32 | D10 | D16 | D25 | D32 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Driver Quantity | 2 | 3 | 5 | 7 | 3 | 6 | 9 | 12 | 6 | 10 | 16 | 21 |

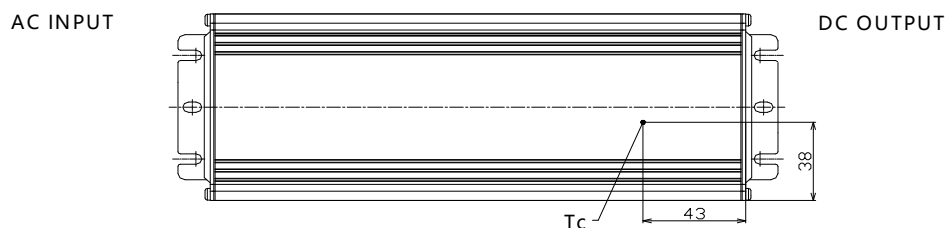
Note: Calculated with MCB S200 series manufactured by ABB at 230Vac Input condition

Dielectric Strength

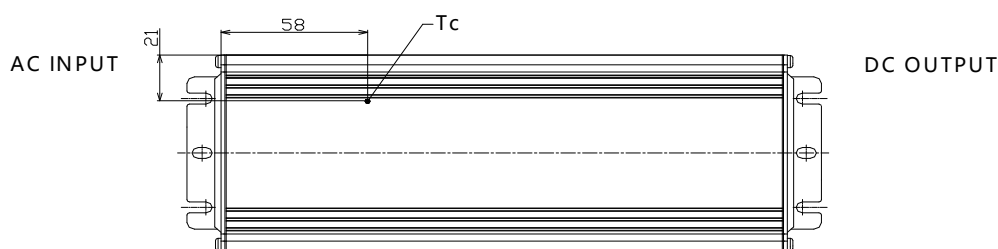
| Unit: Vac | Input | Output | Dimming | Case |
|-----------|-------|--------|---------|------|
| Input | - | 3750 | 3750 | 1554 |
| Output | 3750 | - | 1554 | 1554 |
| Dimming | 3750 | 1554 | - | 1554 |
| Case | 1554 | 1554 | 1554 | - |

■ Tc Point

SELV (Output Voltage ≤ 120V)



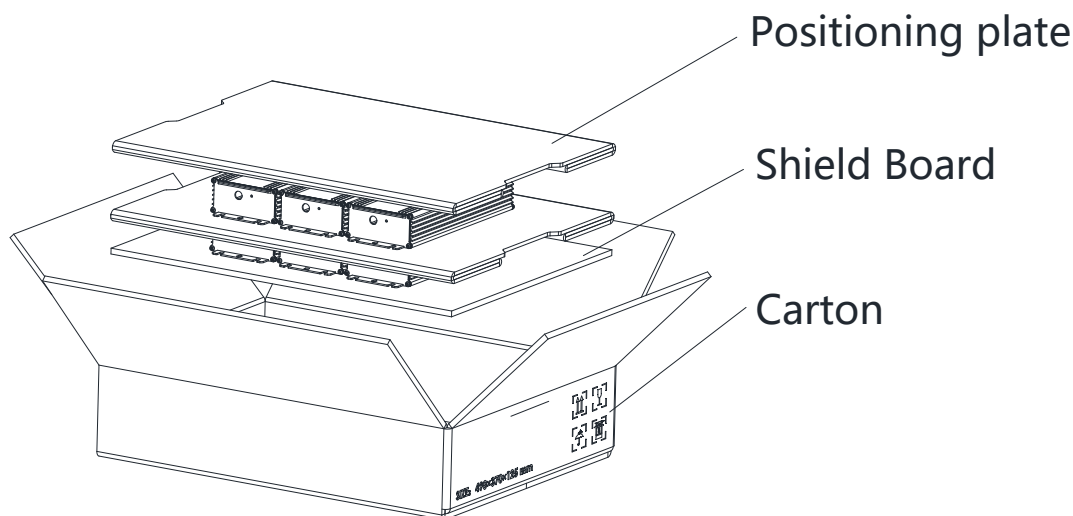
NON SELV (Output Voltage > 120V)



■ Packaging Information

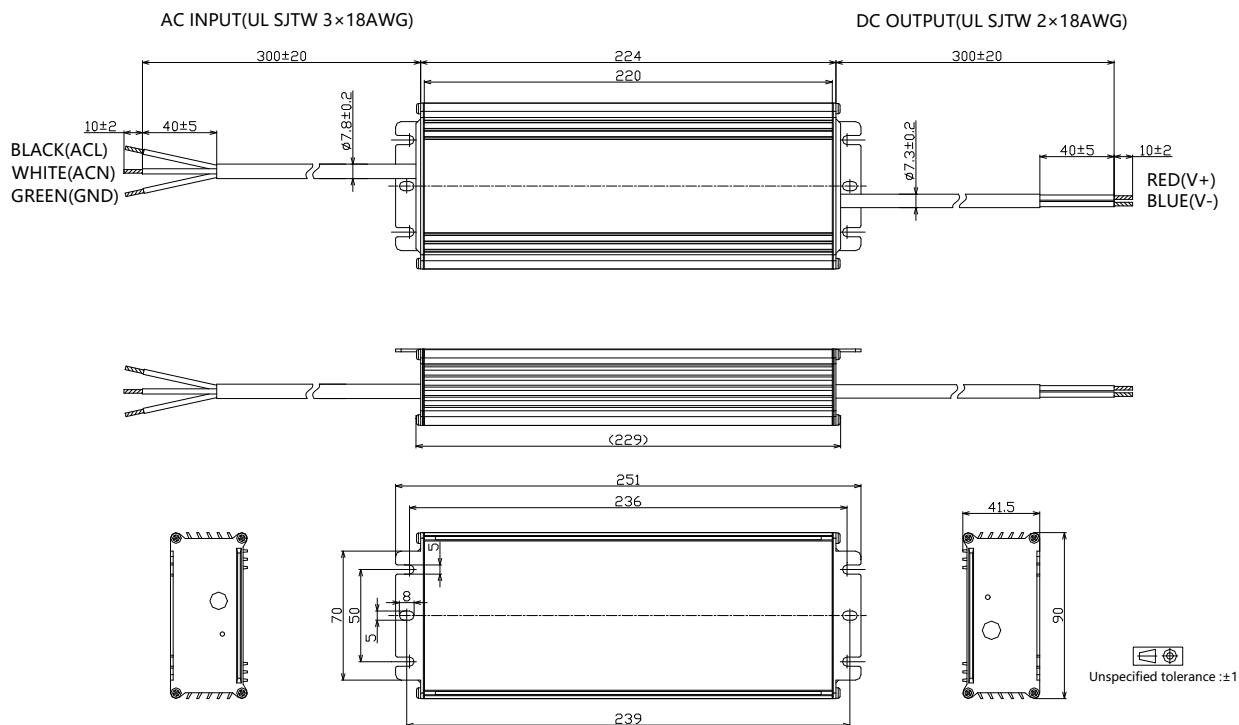
| | |
|---------------------------------|----------------|
| Typical Carton Dimension(L×W×H) | 490×370×125 mm |
| Positioning plate | 2pcs/carton |
| Shield Board | 1pcs/carton |
| LED Drivers/LED | 6pcs/carton |
| Net Weight | 10.1 kg/carton |
| Gross Weight | 11.1 kg/carton |

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver



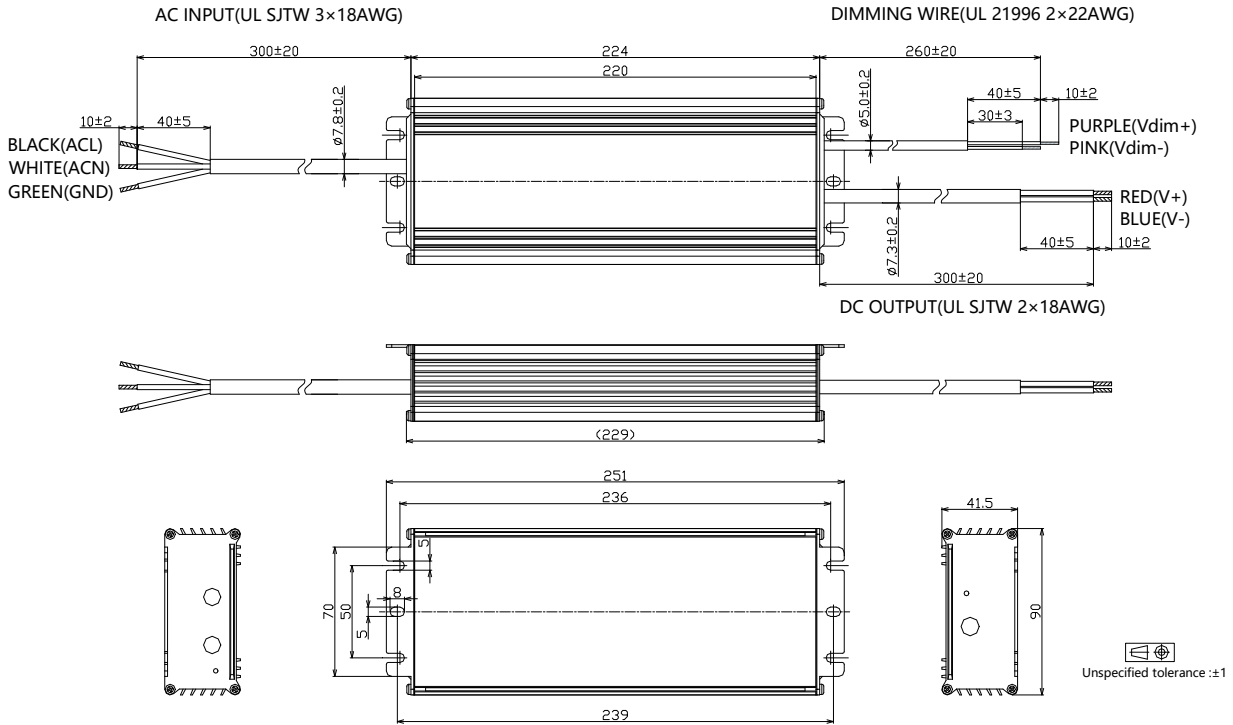
Mechanical Design

BLD-240-Cxxx-NNU (UL Cable)

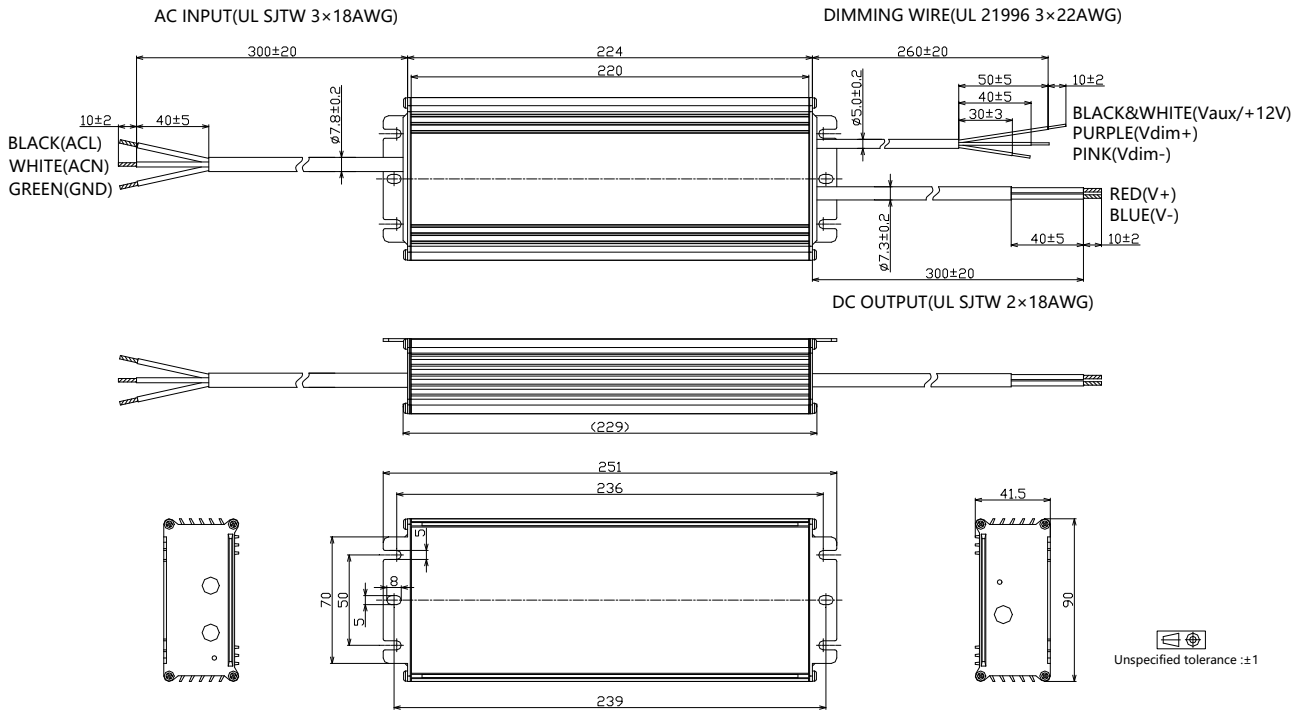


240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

- BLD-240-Cxxx-DNU (UL Cable)

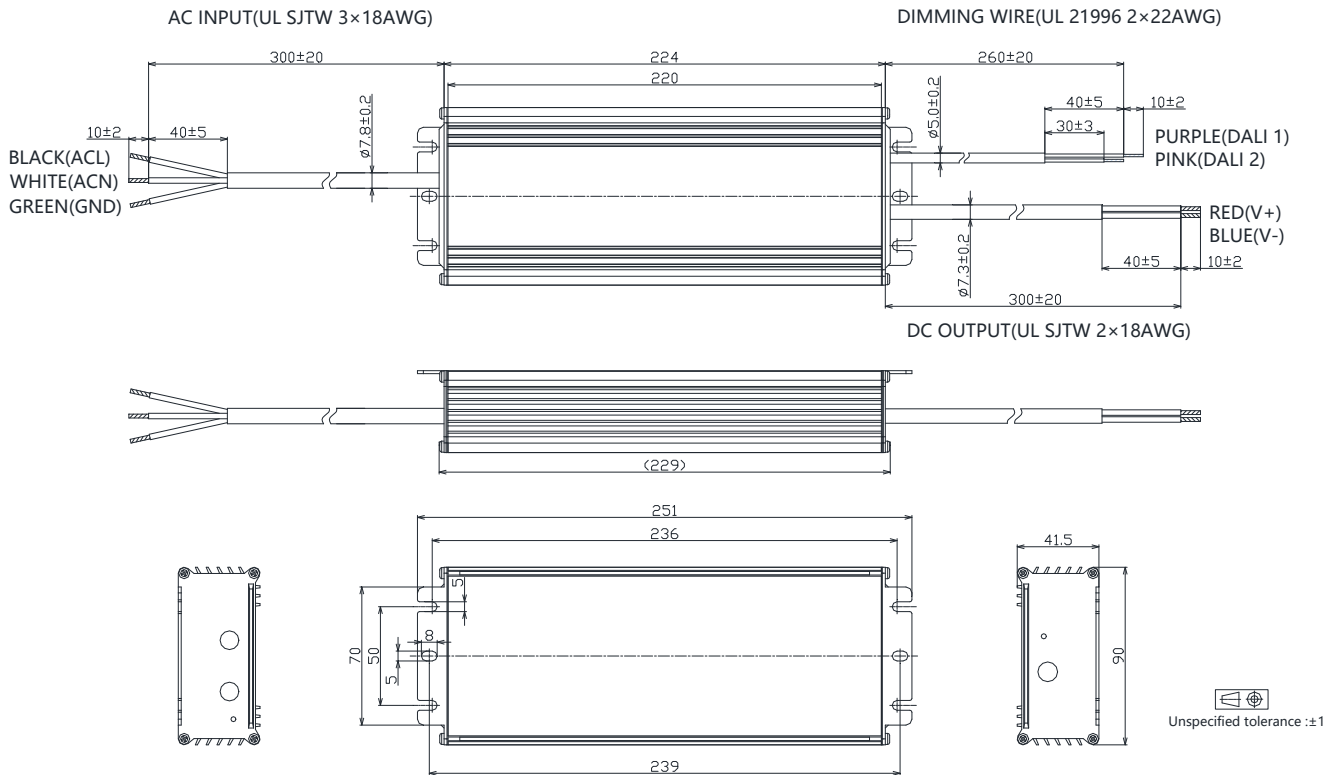


- BLD-240-Cxxx-ENU (UL Cable)

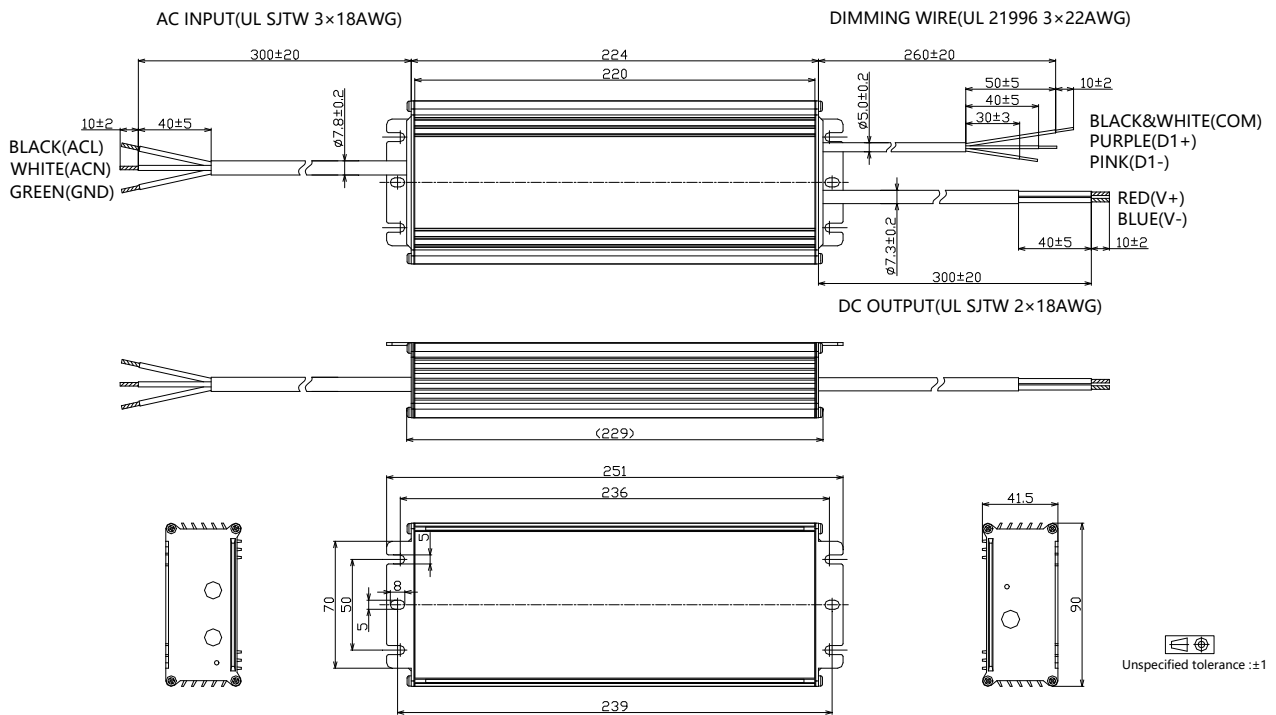


- BLD-240-Cxxx-ANU (UL Cable)

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

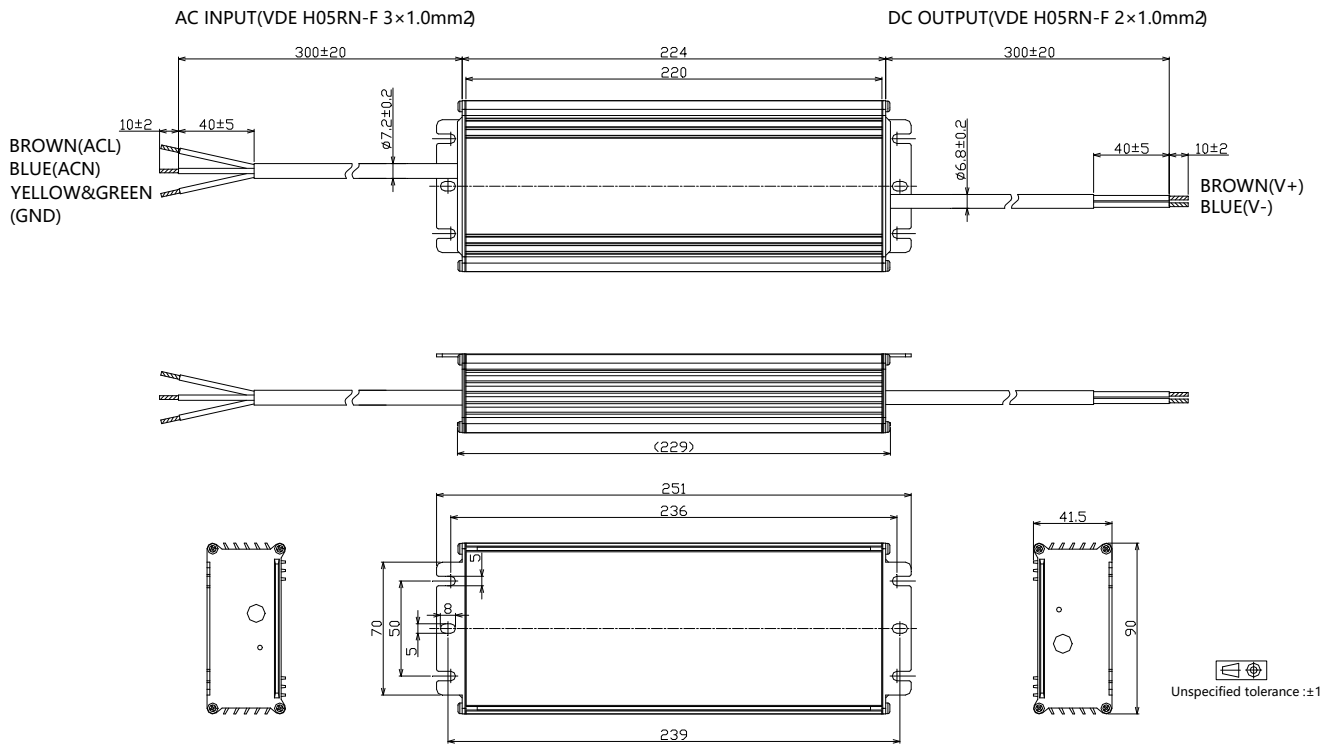


- BLD-240-Cxxx-MNU (UL Cable)

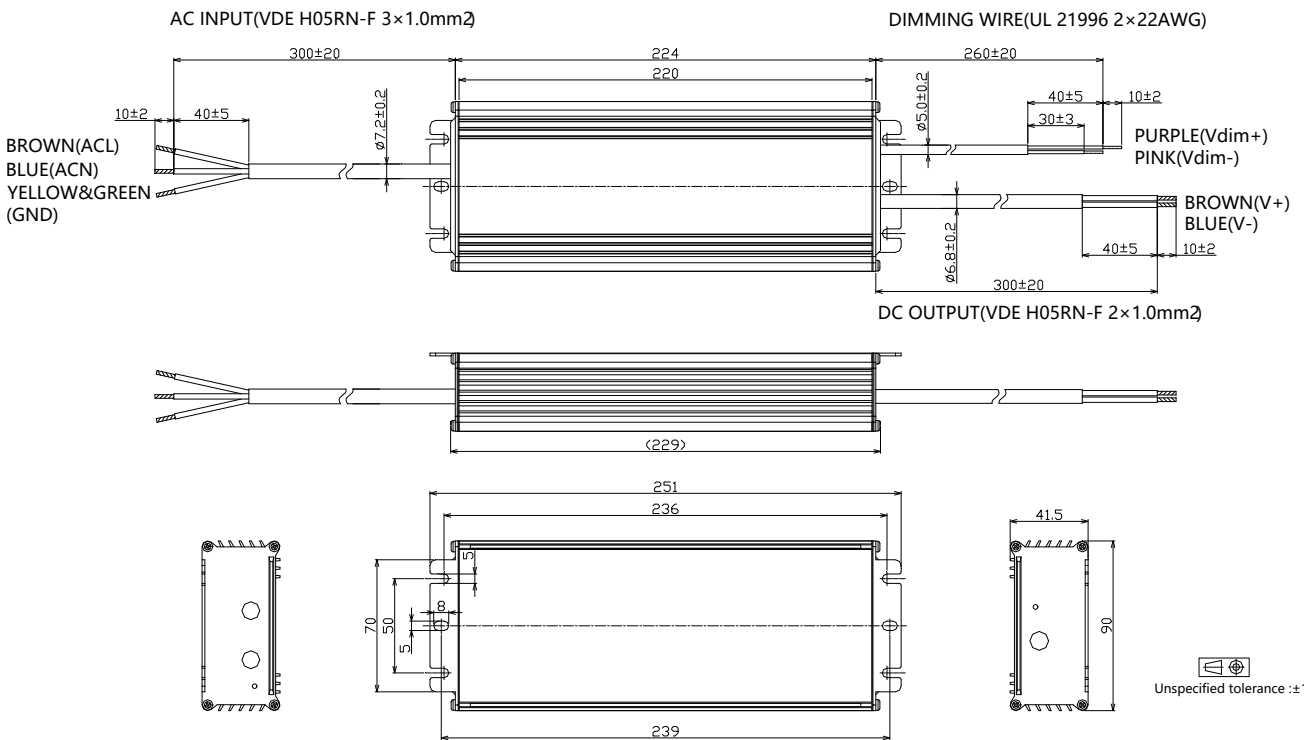


- BLD-240-Cxxx-NNS (VDE Cable)

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

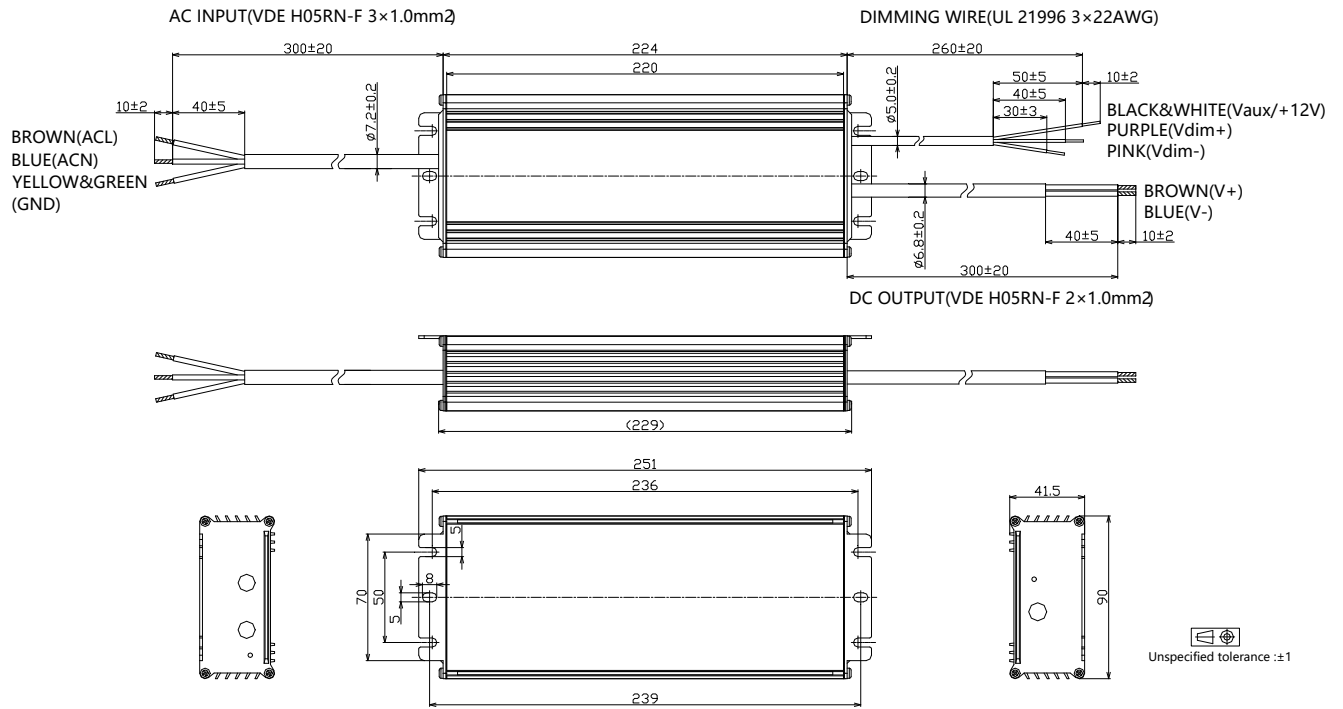


- BLD-240-Cxxx-DNS (VDE Cable)



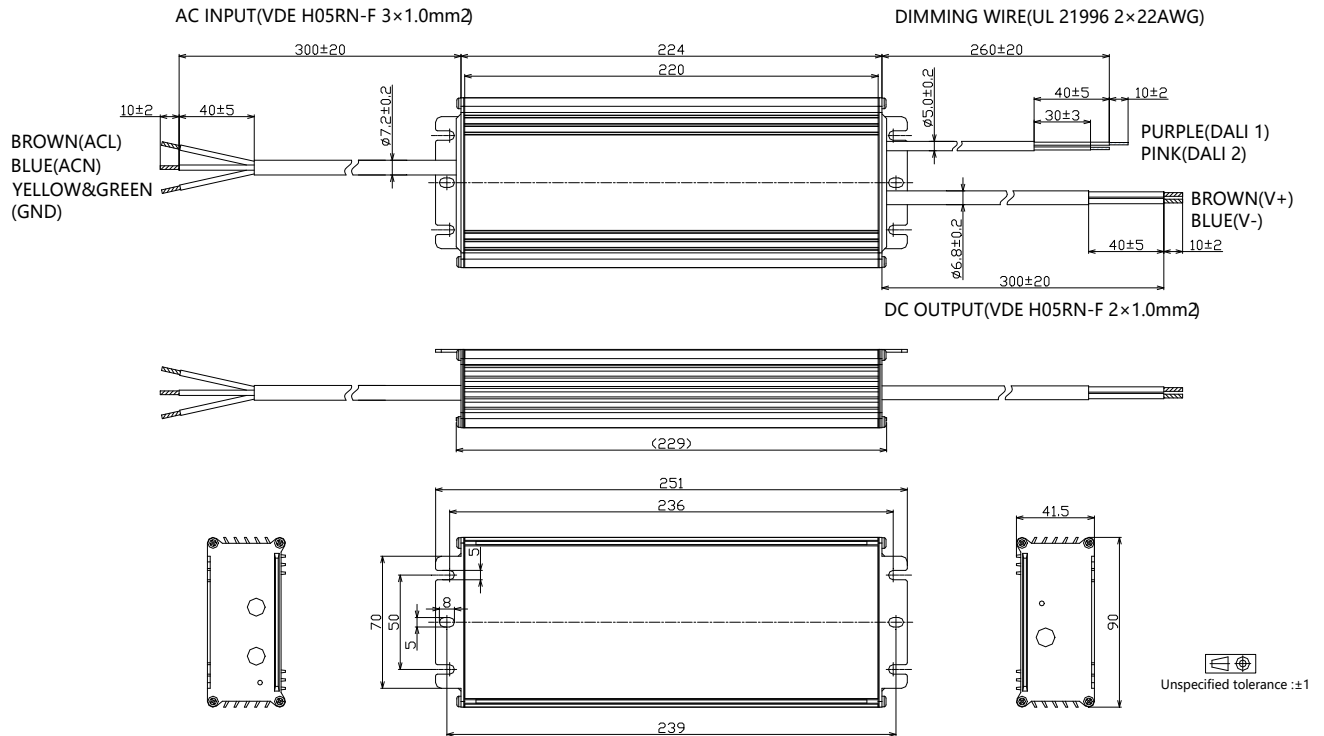
- BLD-240-Cxxx-ENS (VDE Cable)

240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

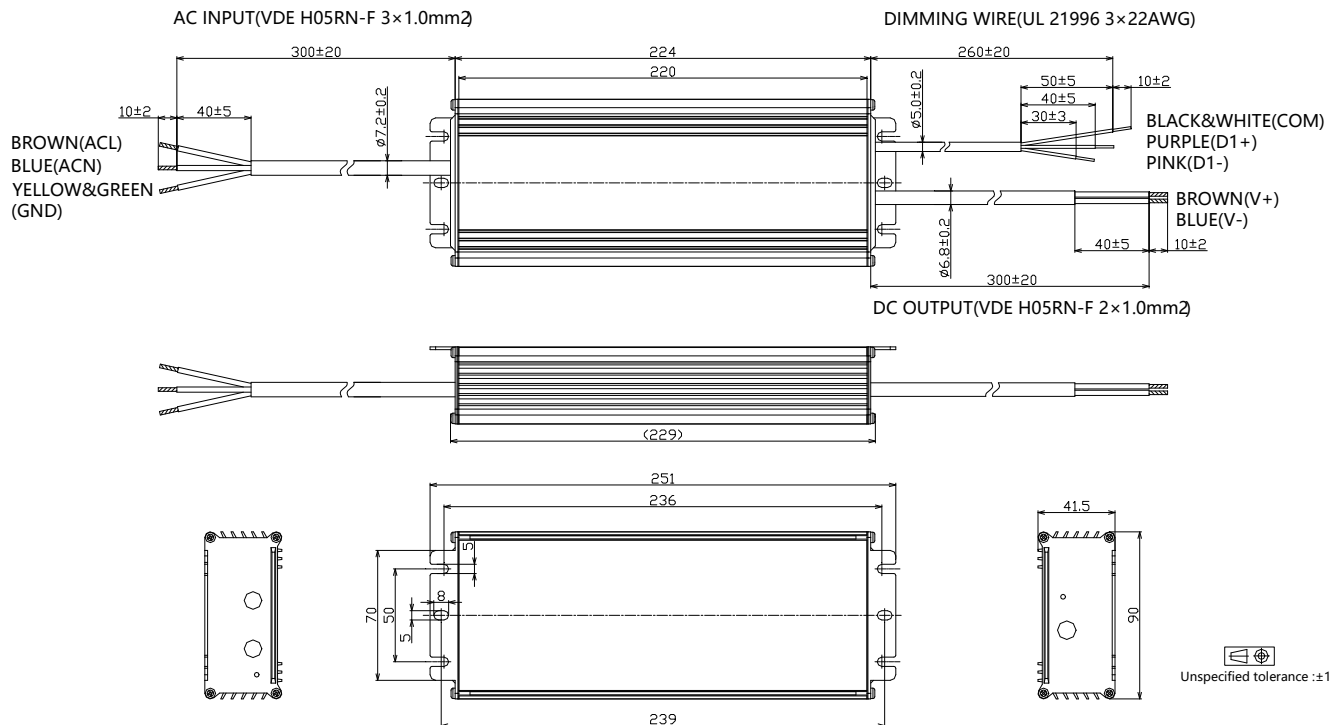


240W, 120-277Vac Input, Ultra High Temperature Long Life LED Driver

- BLD-240-Cxxx-ANS (VDE Cable)



- BLD-240-Cxxx-MNS (VDE Cable)



■ Revision History

| Revision | Date | Contents |
|----------|------------|---|
| A | 2019-04-13 | First Release |
| B | 2022-12-14 | DMX RDM model updated |
| C | 2023-07-14 | Update cable selection table in Model List Section |
| D | 2023-09-15 | Update model selection table with -DN,-EN,DR models |
| E | 2023-07-25 | <ol style="list-style-type: none">1. Fast dimming description added2. Power factor, THD, efficiency curves updated by 10-100% load range3. MCB usage and driver quantity section added4. Inrush current data updated |