Product Datasheet

The global certified BLD-060-C is a dual stage D4i/DALI2 LED driver. 10kV surge protection level, 100khour long life and 7-year warranty provide high confidence to luminaire users. It supports high accuracy energy report and all D4i related requirement. NFC programming makes driver setting easier for users. All around protections including digital OTP with auto-recovery secure 24hour non-stop operation for luminaires.

☑ Street ☑ Flood ☑ Tunnel ☑ Shoe box ☑ Architectural

- Features 2
- Model List 2
- Technical Data 3
- Safety/EMC Compliance 4
- Dimming 4
- Programming 5
- Lifetime vs. Case Temperature 7
- Power Factor vs. Load 7
- THD vs. Load 8
- Efficiency vs. Load 8
- Inrush Current 10
- Dielectric Strength 10
- Tc Point 11
- Packaging Information 11
- Mechanical Design 12
- Output Operation Range 14
- Revision History 16

July 25, 2024, all rights reserved.

Features

- Supply Voltage: 90~305Vac or 127-420Vdc, 186-250Vdc with EL Mark
- Great Surge Immunity 10kV
- -60C Ambient Startup Option
- D4i/DALI2.0 Comply with IEC62386-101,102,150,207,250,251,252,253
- Integrated 16Vdc Bus Power Supply
- ±1% Energy Report Accuracy
- Dim Off with 0.5W Standby Power
- 24V 3W (10W Transient Peak) Aux-Power
- 100,000Hour Life @ Tc=75℃
- 7 Year Warranty @ Tc<=75℃
- Airset™ NFC Programmability
- EL Mark with Programmable EOFx
- Dim Off with 0.5W Standby Power
- UL Class P, ENEC/CB/CCC SELV Output
- Class II Model Available
- 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-060-C105-ARZ	90~305Vac or 127-420Vdc	60 W	34-86Vdc	700mA	1050mA
BLD-060-C140-ARZ		60 W	26-57Vdc	1050mA	1400mA
BLD-060-C210-ARZ		60 W	17-43Vdc	1400mA	2100mA

Note: 1. Add suffix –D00000 to indicate the D4i model without 24Vaux.

2. Add suffix –DAX000 to indicate the D4i model with 24Vaux.

3. See the **Output Operation Range Section** for programmable model detail

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

July 25, 2024, all rights reserved.

Technical Data

Input Voltage	90~305Vac or 127-420Vdc
Input Frequency	47～63Hz
Power Factor	>0.9@70-100%load, refer to PF vs. Load curve
THD	<15%@60-100%load, refer to THD vs. Load curve
Input Current	0.58Amax@120Vac & Full-Load, 0.31Amax@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-recovery
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 Tc≧105±10℃; Auto Recovery When Tc≦70±10℃
Auxiliary Power (Vaux)	24V+/-5%, 3W (10W Transient Peak)
Operating Temperature	Case Temperature Tc=-40℃~+90℃； 10%RH～100%RH
Storage Temperature	-40℃～+85℃； 5%RH～100%RH
MTBF	≥320,000 hours, 50℃ 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
Dimension	5.20x2.66x1.52 by inch (body), 6.22x2.66x1.52 by inch (endcaps included)
	132.0x68.0x38.5 by mm (body), 158.0x68.0x38.5 by mm (endcaps included)
Net Weight	600g
Packing	See Package Information Section in the datasheet

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

July 25, 2024, All rights reserved.

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

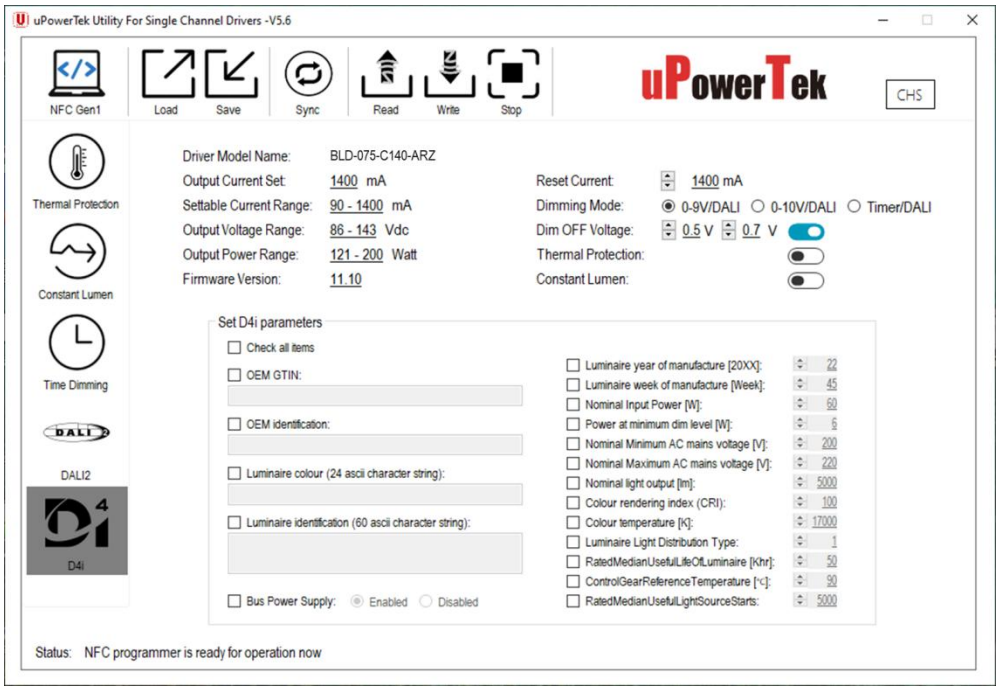
DALI Interface Standard	IEC62386-101,102,150,207,250,251,252,253		
Dimming Range	10%	Logarithmic (default)	100%
DA1,DA2 High Level	9.5V	16V	22.5V
DA1,DA2 Low Level	-6.5V	0	6.5V
DA1,DA2 Current	0		2mA
Bus Power Supply Voltage	12Vdc	16Vdc	20Vdc
Bus Power Supply Current	52mA	-	60mA
Auxiliary Power Voltage	21.6V	24V	26.4V
Auxiliary Power	3W	-	4W
Auxiliary Power Endurance @6W	3.8ms/6ms	-	4.5ms/6ms
Auxiliary Power Endurance @10W	1.8ms/6ms	-	2.2ms/6ms
Bus Power Supply Current	52mA	-	60mA
Fast Dimming On-Off Transition		300ms	
Fast Dimming 10-100% Io Transition		70ms	

July 25, 2024, All rights reserved.

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 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.

NFC Programmer V1

NFC Programmer V2

FEIG NFC Programmer

Android or iPhone

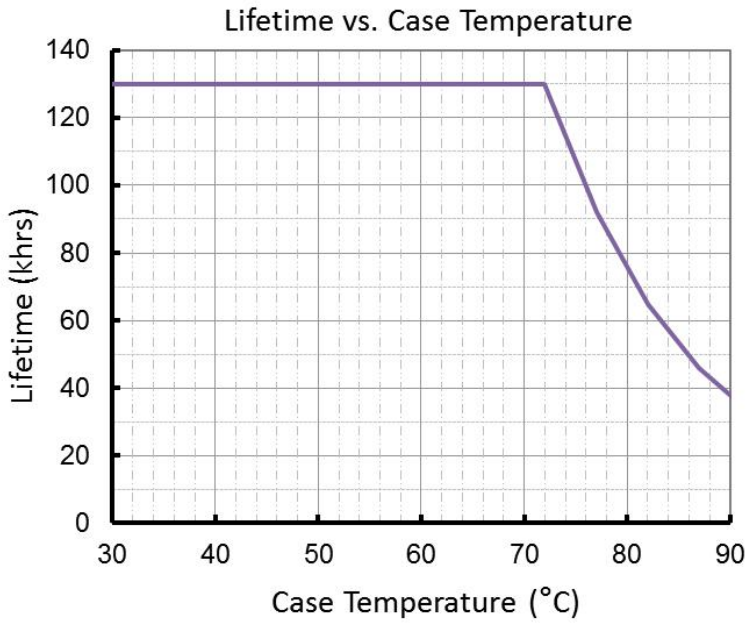
- **Connection Guide**

  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/.

Wireless Programming

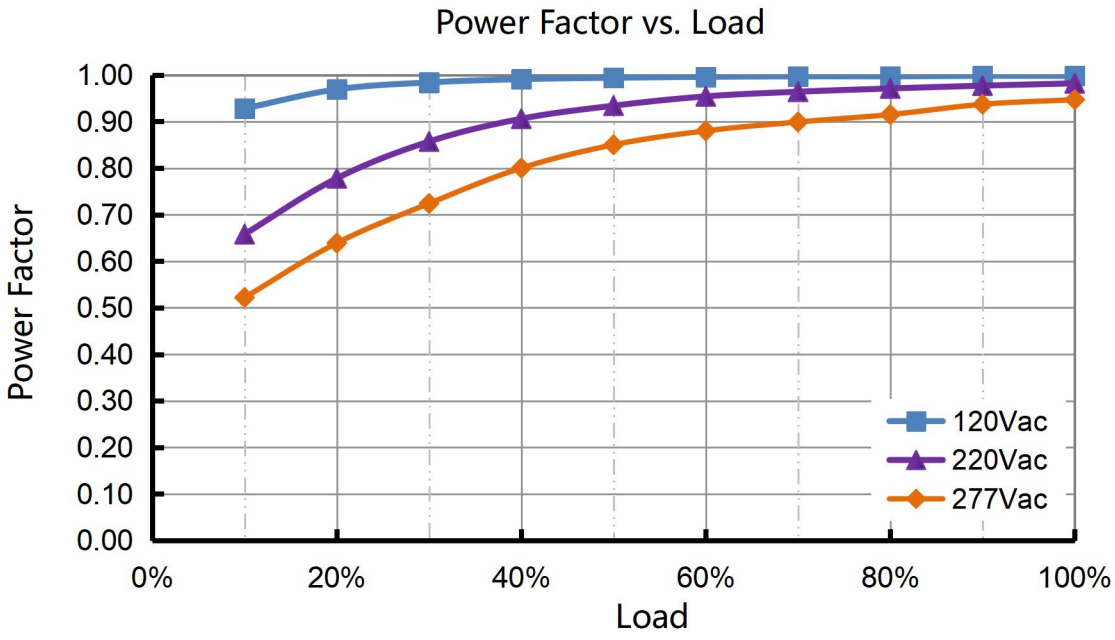
Cellphone Programming

Lifetime vs. Case Temperature



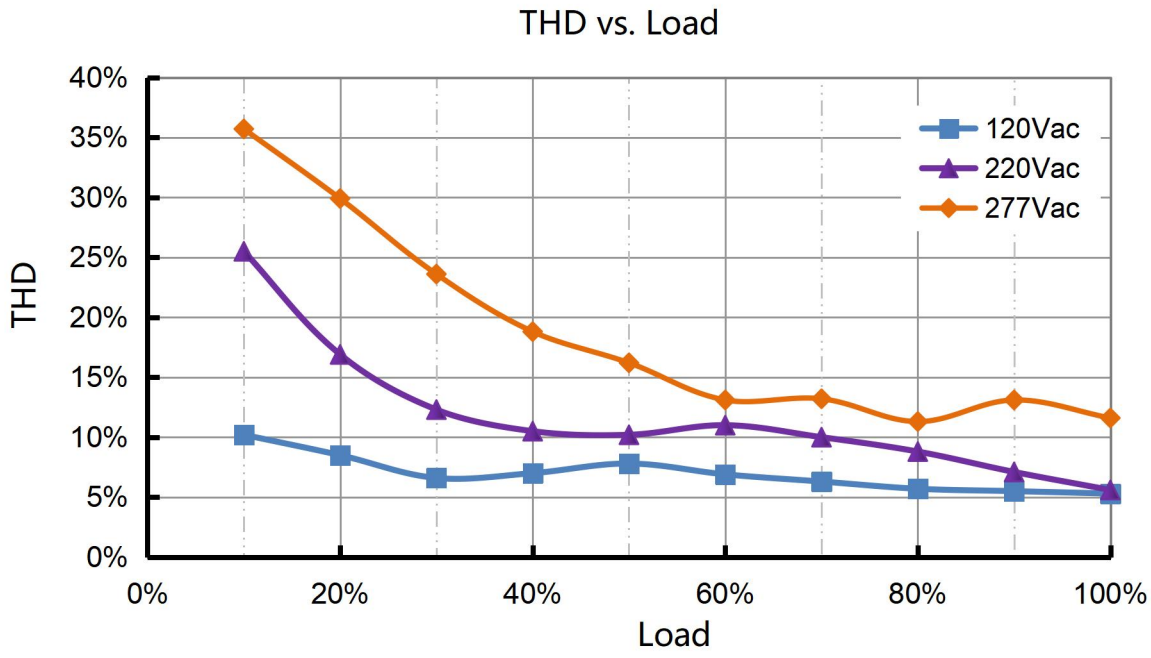
(End of Life: Maximum Failure Rate=10%)

Power Factor vs. Load

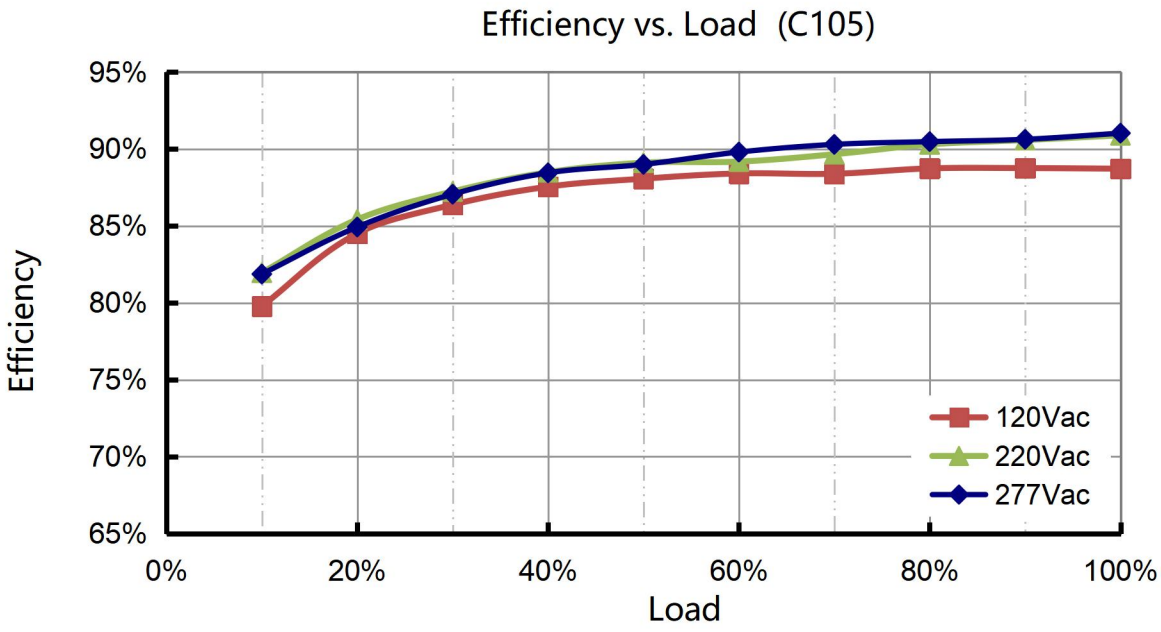


July 25, 2024, All rights reserved.

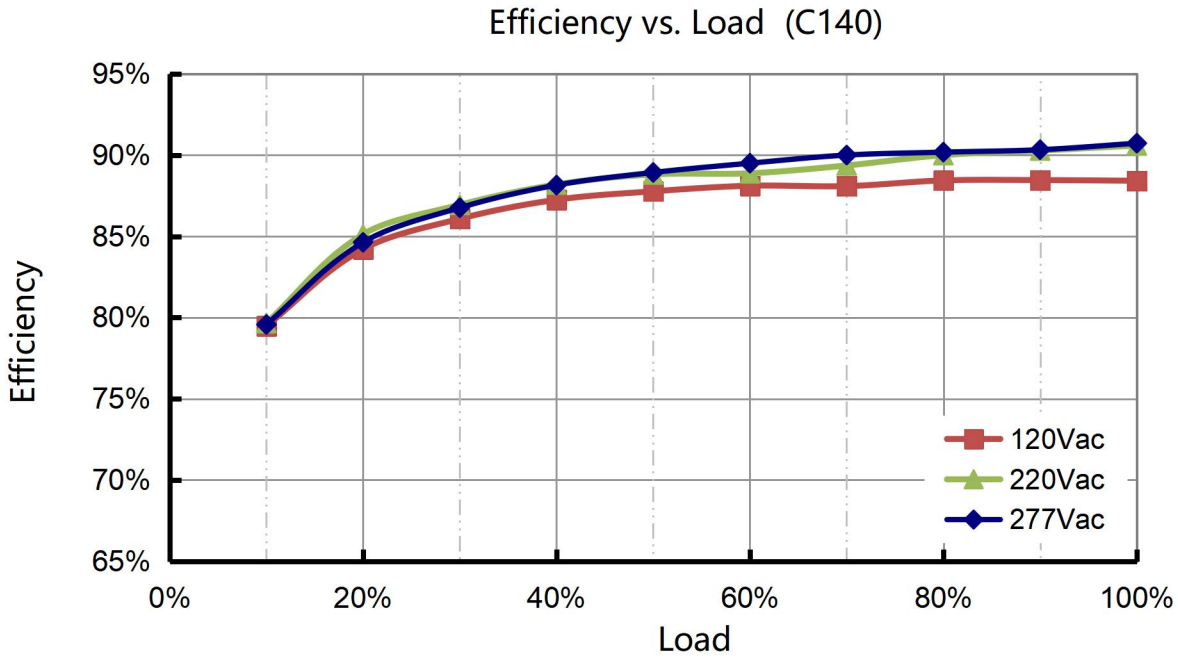
■ THD vs. Load

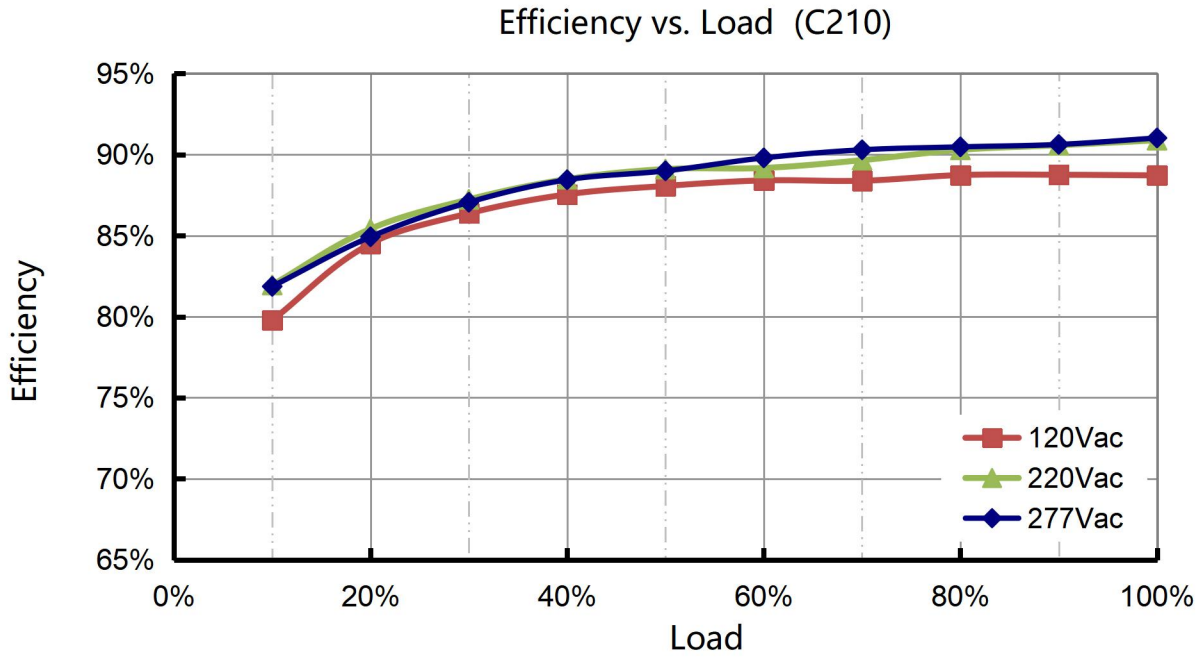


■ Efficiency vs. Load



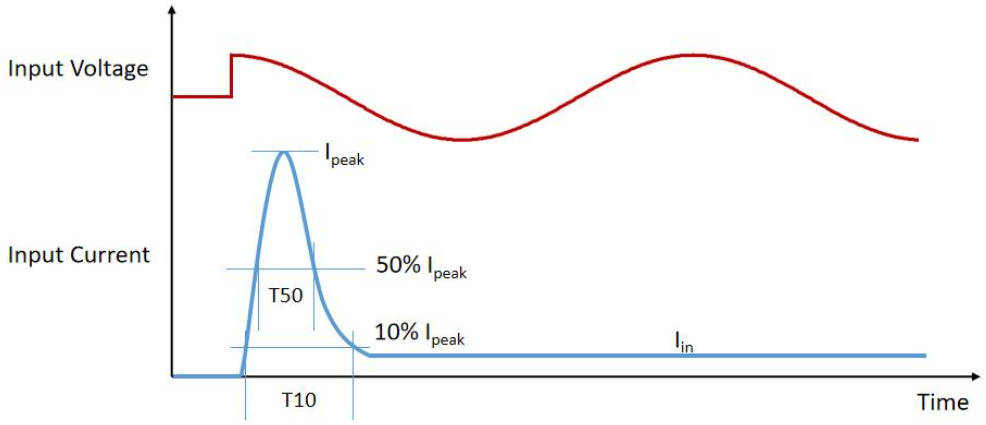
July 25, 2024, All rights reserved.





July 25, 2024, All rights reserved.

Inrush Current



Input Voltage	I_{peak}	10% -10% T10 Duration	50% -50% T50 Duration
120Vac	37A	464µs	180µs
220Vac	66A	412µs	170µs
277Vac	90A	424µs	172µs

- **MCB Suggestion**

Type	B10	B16	B25	B32	C10	C16	C25	C32	D10	D16	D25	D32
Driver Quantity	7	11	18	23	12	19	30	38	24	38	60	77

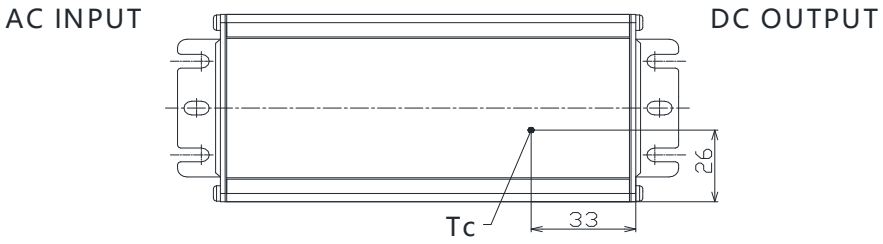
Note: Calculated with MCB S200 series manufactured by ABB at 220Vac Input condition

Dielectric Strength

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

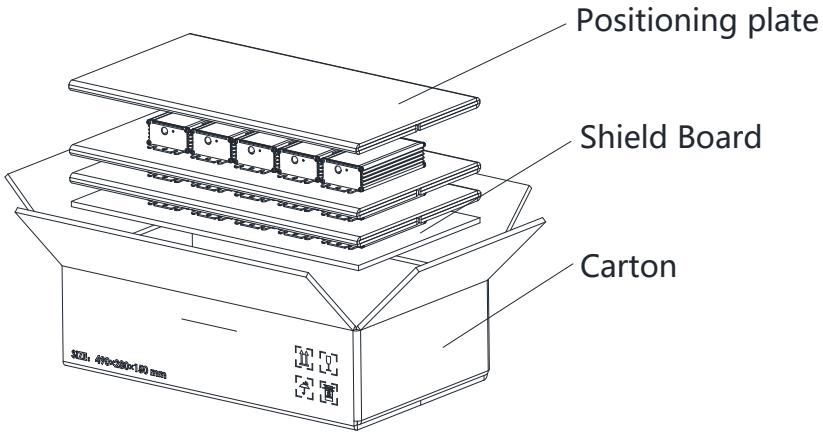
July 25, 2024, All rights reserved.

Tc Point



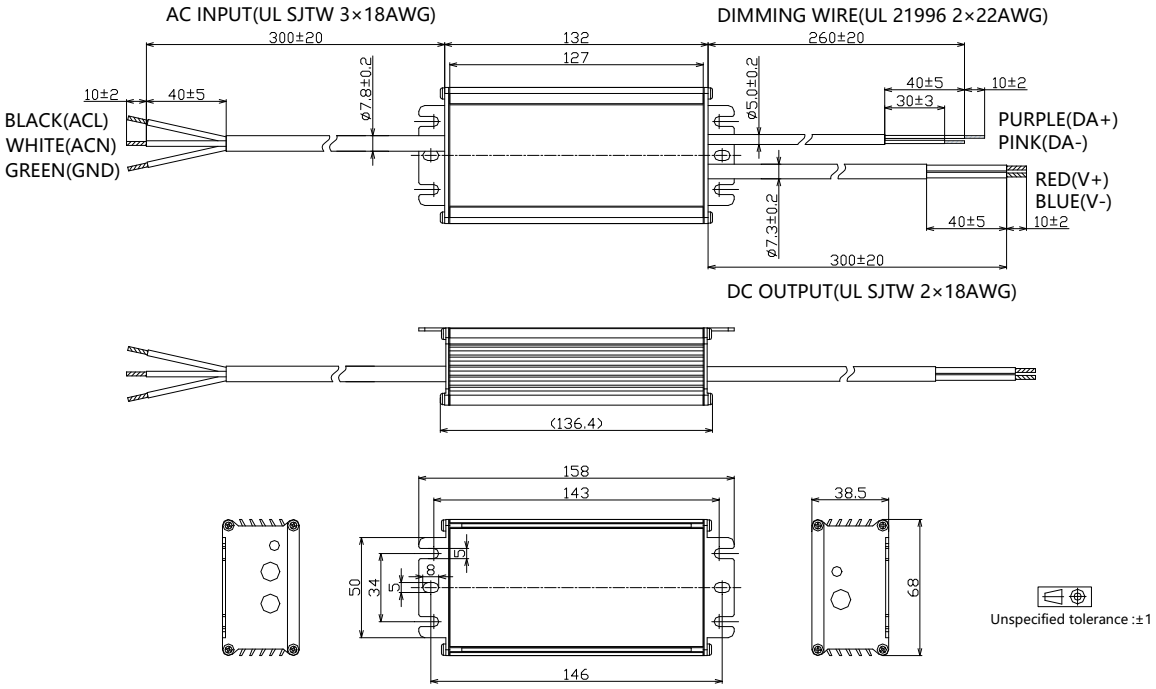
Packaging Information

Typical Carton Dimension(L×W×H)	490×280×150 mm
Positioning plate	3pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	15pcs/carton
Net Weight	9.0 kg/carton
Gross Weight	10.1 kg/carton

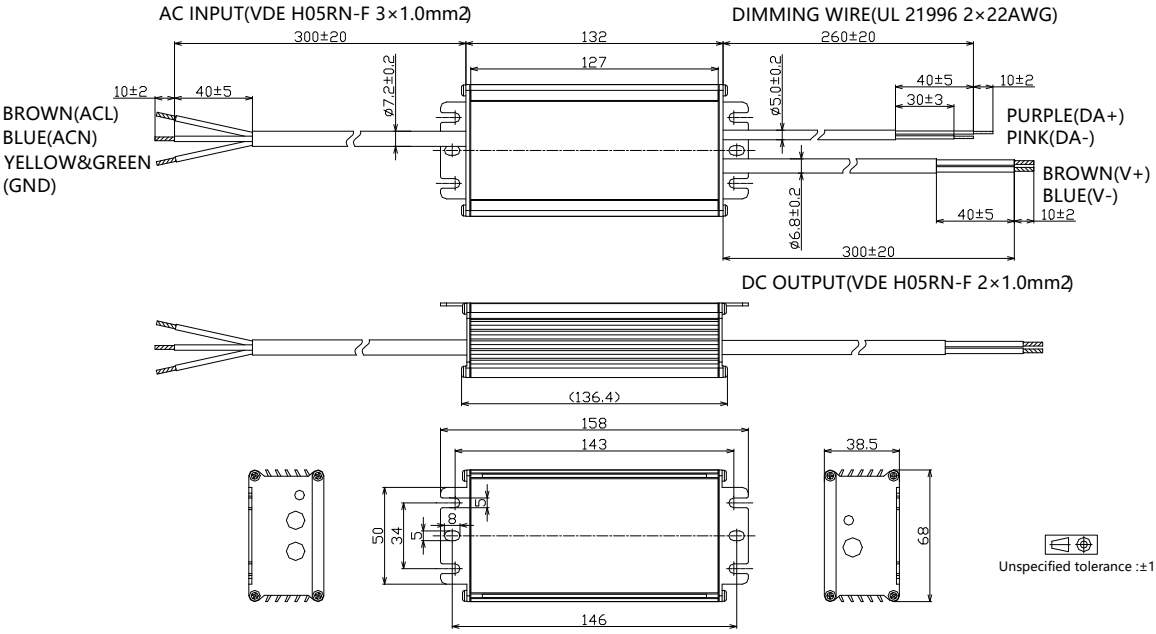


■ Mechanical Design

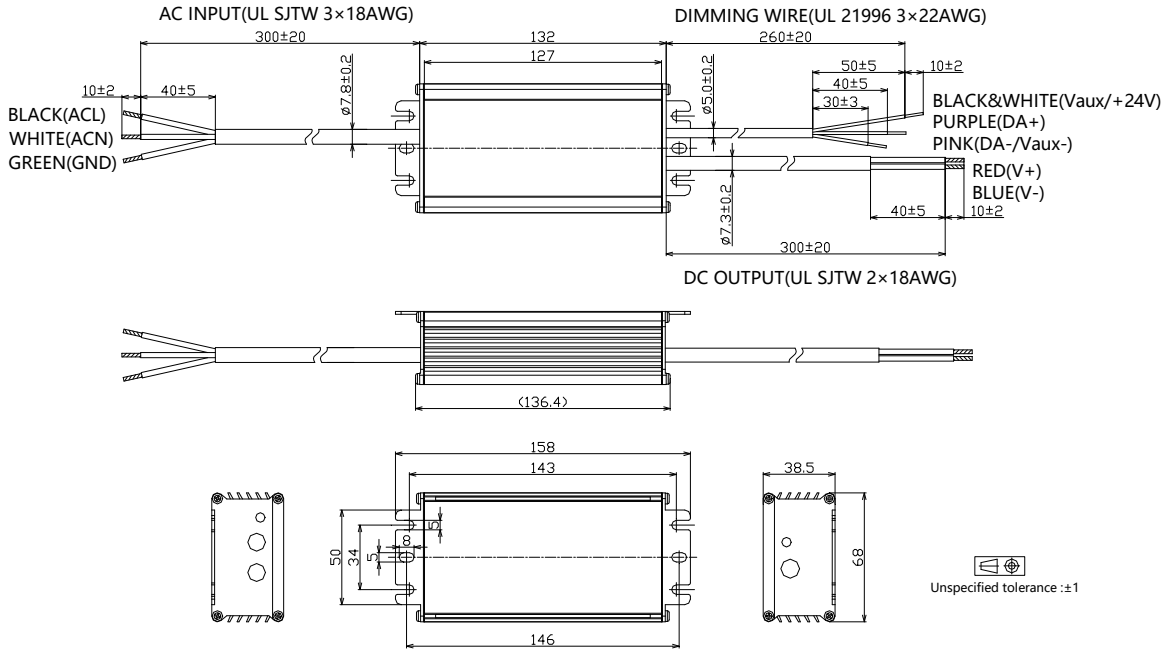
- **BLD-060-Cxxx-ARU (UL Cable without Vaux)**



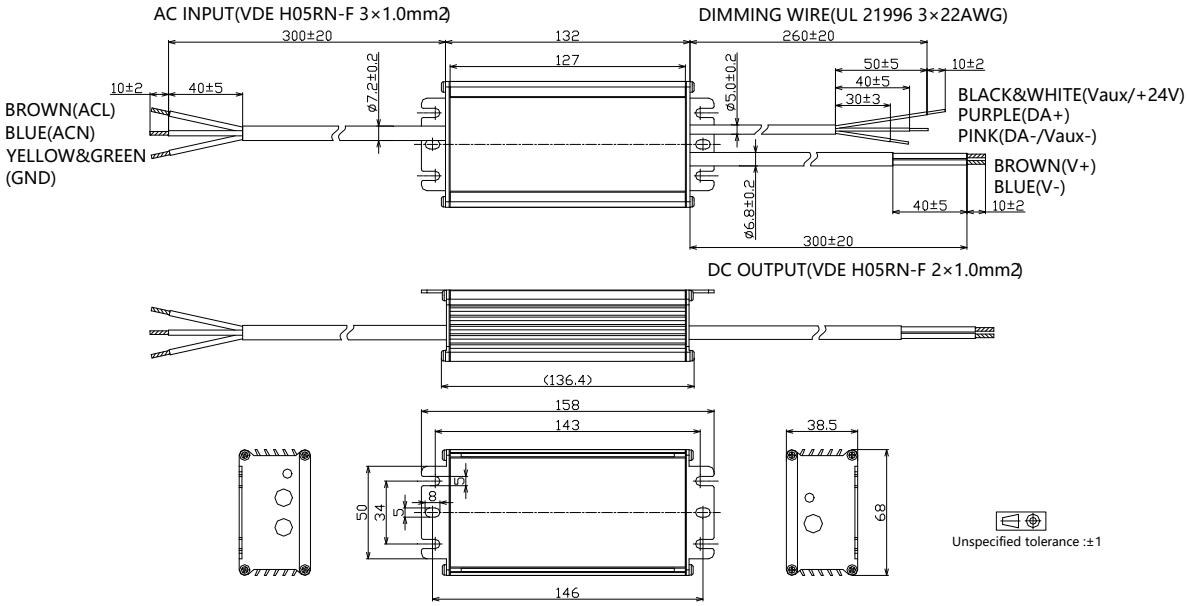
- **BLD-060-Cxxx-ARS (VDE Cable without Vaux)**



- **BLD-060-Cxxx-ARU (UL Cable with Vaux)**



- **BLD-060-Cxxx-ARS (VDE Cable with Vaux)**



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	60	34	57	105
	1000	60	36	60	100
	950	60	38	63	95
	900	60	40	67	90
	850	60	42	71	85
	800	60	45	75	80
	750	60	48	80	75
	700	60	51	86	70
	650	56	51	86	70
	600	51	51	86	70
	550	47	51	86	70
	500	43	51	86	70
	…	…	…	…	…
	70	6	51	86	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	60	26	43	140
	1300	60	28	46	130
	1200	60	30	50	120
	1100	60	33	55	110
	1050	60	34	57	105
	1000	57	34	57	105
	950	54	34	57	105
	900	51	34	57	105
	850	49	34	57	105
	800	46	34	57	105
	750	43	34	57	105
	700	40	34	57	105
	…	…	…	…	…
	105	6	34	57	105

July 25, 2024, All rights reserved.

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C210	2100	60	17	29	210
	2000	60	18	30	200
	1900	60	19	32	190
	1800	60	20	33	180
	1700	60	21	35	170
	1600	60	23	38	160
	1500	60	24	40	150
	1400	60	26	43	140
	1300	56	26	43	140
	1200	51	26	43	140
	1100	47	26	43	140
	1000	43	26	43	140
	…	…	…	…	…
	140	6	26	43	140

July 25, 2024, All rights reserved.

Revision History

Revision	Date	Contents
A	2022-04-22	1. Initial Release
B	2023-07-14	1. Update cable selection table in Model List Section
C	2023-10-08	1. EL mark with programmable EOFx added
D	2024-07-25	1. Fast dimming description added 2. Power factor, THD, efficiency curves updated by 10-100% load range 3. MCB usage and driver quantity section added 4. Inrush current data updated

July 25, 2024, All rights reserved.