Product Datasheet

The global certified BLD-060-C series is a high cost performance LED driver. 10kV surge protection level, 80khour long life and 5-year warranty provide high confidence to luminaire designers and users. All around protections including digital OTP, SCP and OVP/OCP with auto-recovery secure 24hour non-stop operation for luminaires.

☑ Street ☑ Tunnel ☑ Bay ☑ Shoe box ☑ Architectural

■ Features

- Supply Voltage: 90~305Vac or 127-250Vdc, 380Vac for 2 hours
- Great Surge Immunity 10kV
- 80,000Hour Life @ Tc=75℃
- 5 Year Warranty
- Airset™ NFC Programmability
- Isolated 0-10V/PWM/Time Dimmable
- Class II Model Available
- UL Class P, Class 2
- 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	Full Power Settable Current Min	Full Power Settable Current Max
BLD-060-C105-XYZ	90 ~ 305 Vac	60 W	Refer to Output Operation Range Section	700mA	1050mA
BLD-060-C140-XYZ	90 ~ 305 Vac	60 W		1050mA	1400mA
BLD-060-C210-XYZ	90 ~ 305 Vac	60 W		1400mA	2100mA

XYZ Suffix	Dimming Method	Programmable	12Vaux	Dim-off
NNZ-B00000	-	-	-	-
DNZ-B00000	0-10V/PWM/Time	Cable	-	-
TRZ-B00000	Time	NFC	-	-
DRZ-B00000	0-10V/PWM/Time	NFC	-	-

Z=	U	V	S	S-BGLB00	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

■ Technical Data

Input Voltage	90～305Vac or 127V-250Vdc, 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	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	±5%Io
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℃
Operating Temperature	Case Temperature Tc=-40℃~+90℃； 10%RH～100%RH
Storage Temperature	-40℃～+85℃； 5%RH～100%RH
MTBF	≥300,000 hours, 75℃ case temperature (MIL-HDBK-217F)
Lifetime	≥80,000 hours, 75℃ case temperature, refer to life vs. Tc curve
Case Temperature	90℃ max, marked in the Tc point of label
Dimensions	3.86x2.66x1.32 by inch (body), 4.92x2.66x1.32 by inch (endcaps included) 98.0x68.0x33.5 by mm (body), 125.0x68.0x33.5 by mm (endcaps included)
Net Weight	480g
Packing	See Package Information Section in the datasheet

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

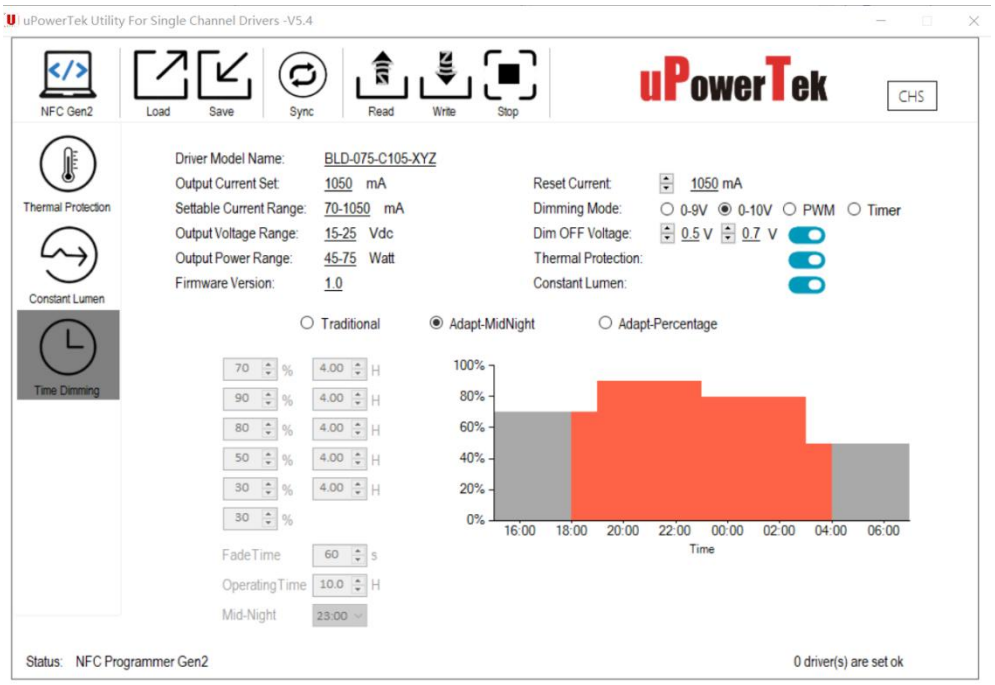
■ Safety/EMC Compliance

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

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

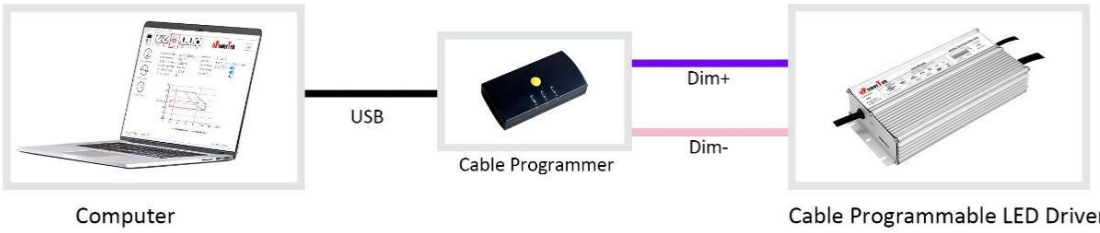
NFC Programmer V2

FEIG NFC Programmer

Android or iPhone

- **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

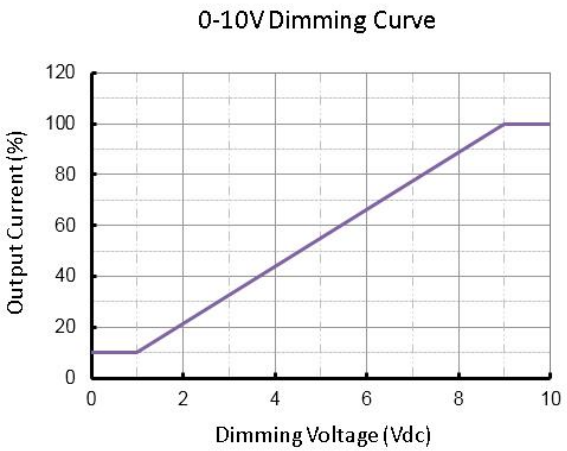
Wireless Programming

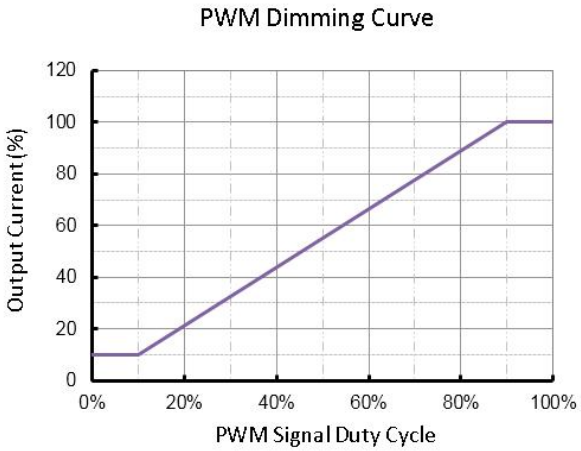
Cellphone Programming

■ Dimming

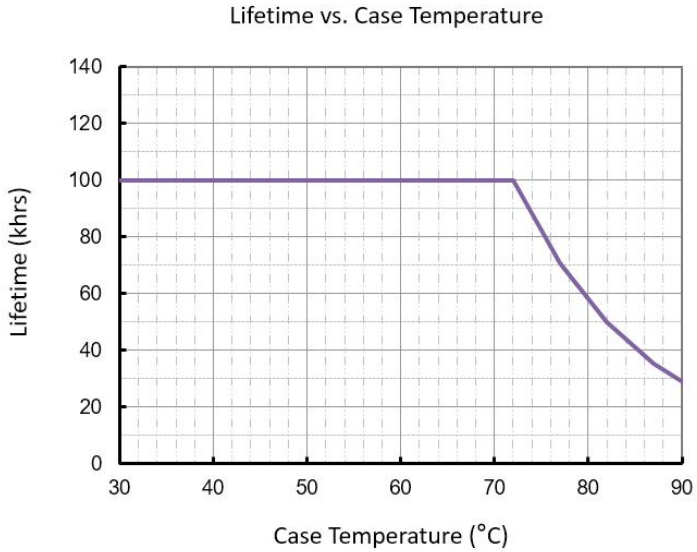
Parameter	Min.	Typ.	Max.
Vdim Sourcing Current	100uA	150uA	200uA
Vdim Allowed Input Voltage	-20 V		20 V
0-10V Dimming Range	10% (Vdim=1V)	Linear	100% (Vdim=9~10V)
PWM Dimming Range	10% (Duty=10%)	Linear	100% (Duty=90-100%)
Default Dim off Threshold	0.4V or 4%	0.5V or 5%	0.6V or 6%
Default Dim off Threshold	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
External PWM Controller Current Sinking Capability	300uA		

- **Dimming Curve**

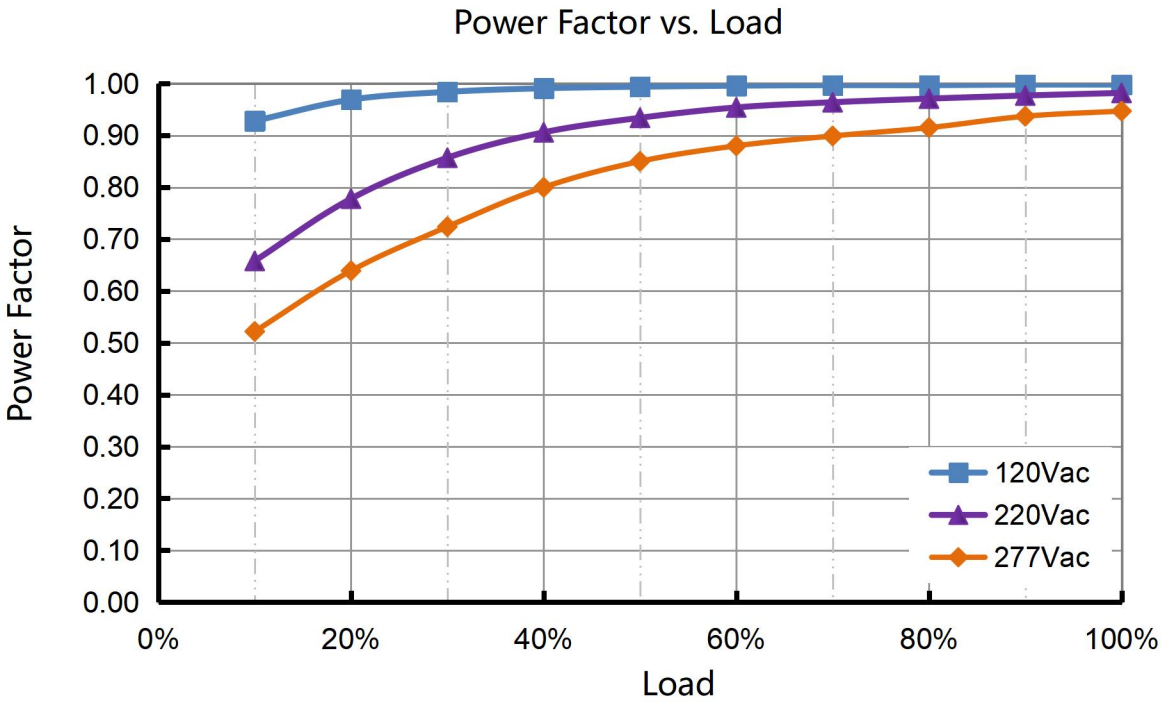




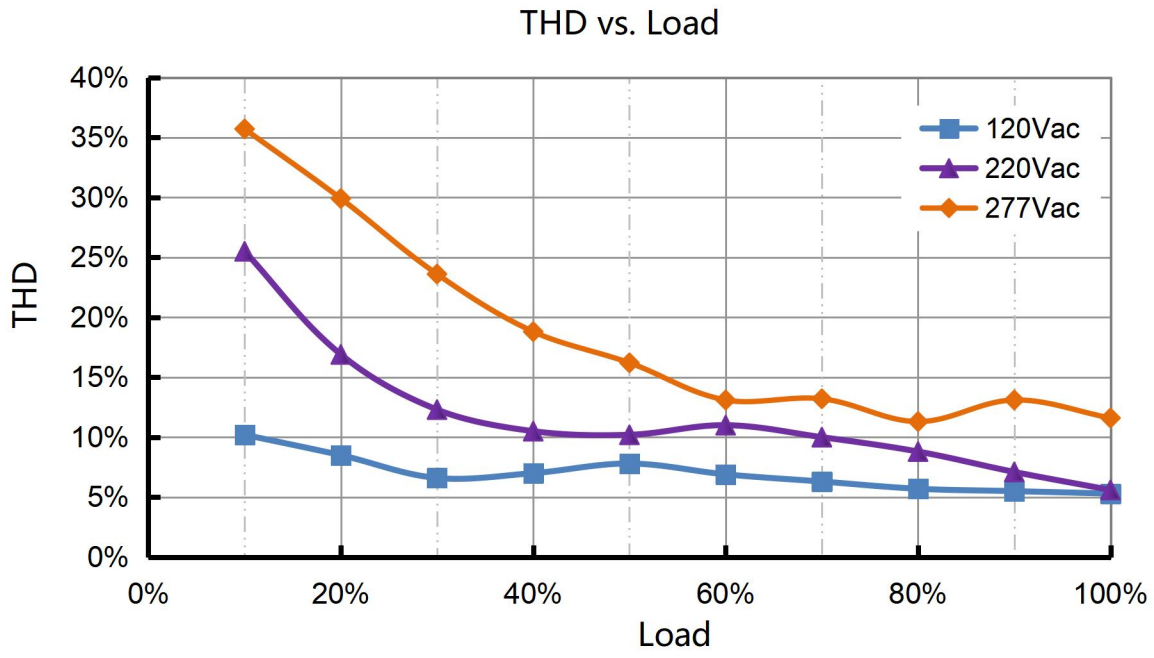
■ Lifetime vs. Case Temperature



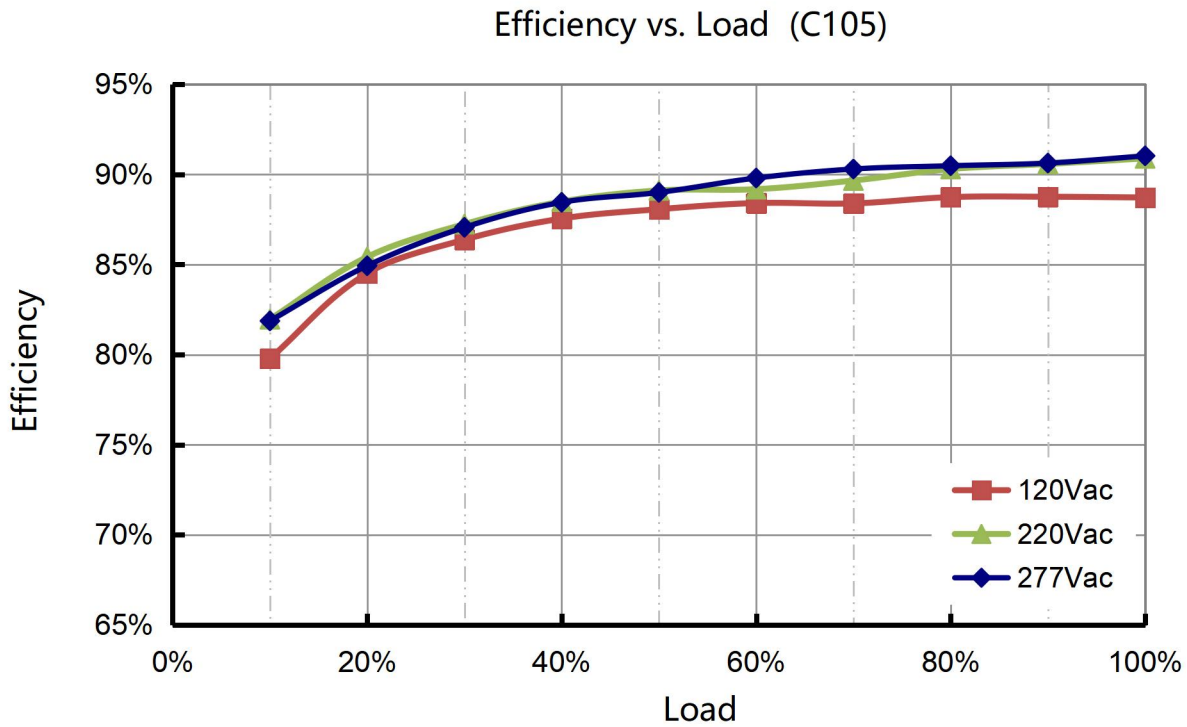
■ Power Factor vs. Load

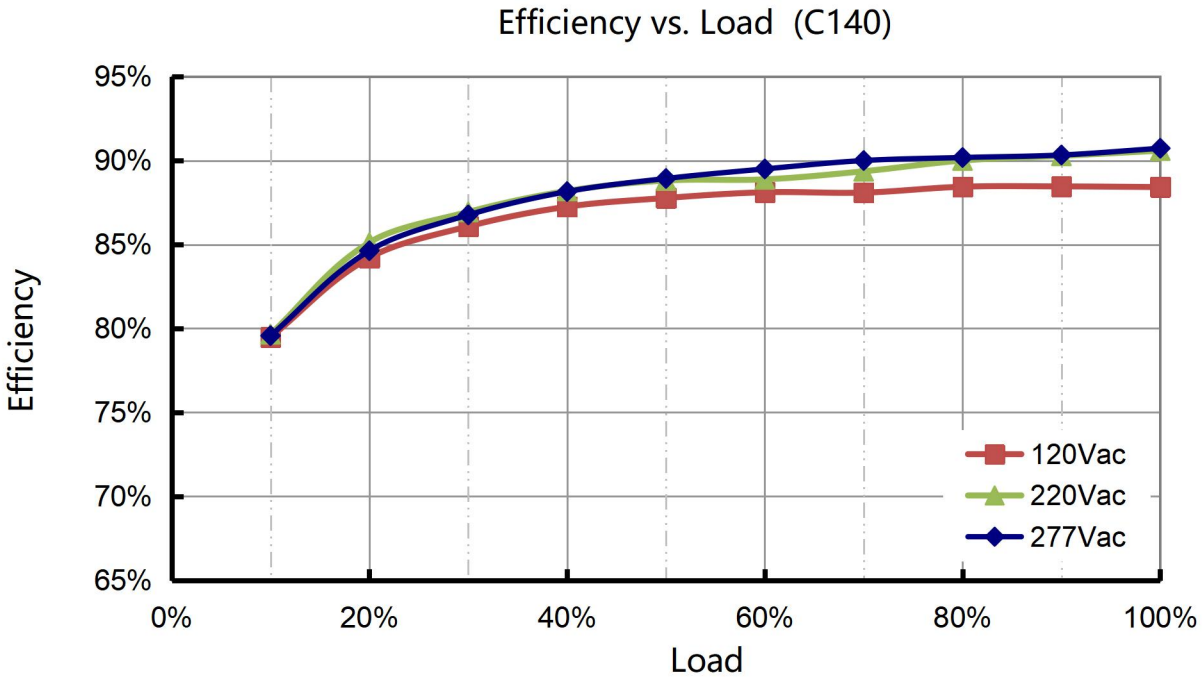


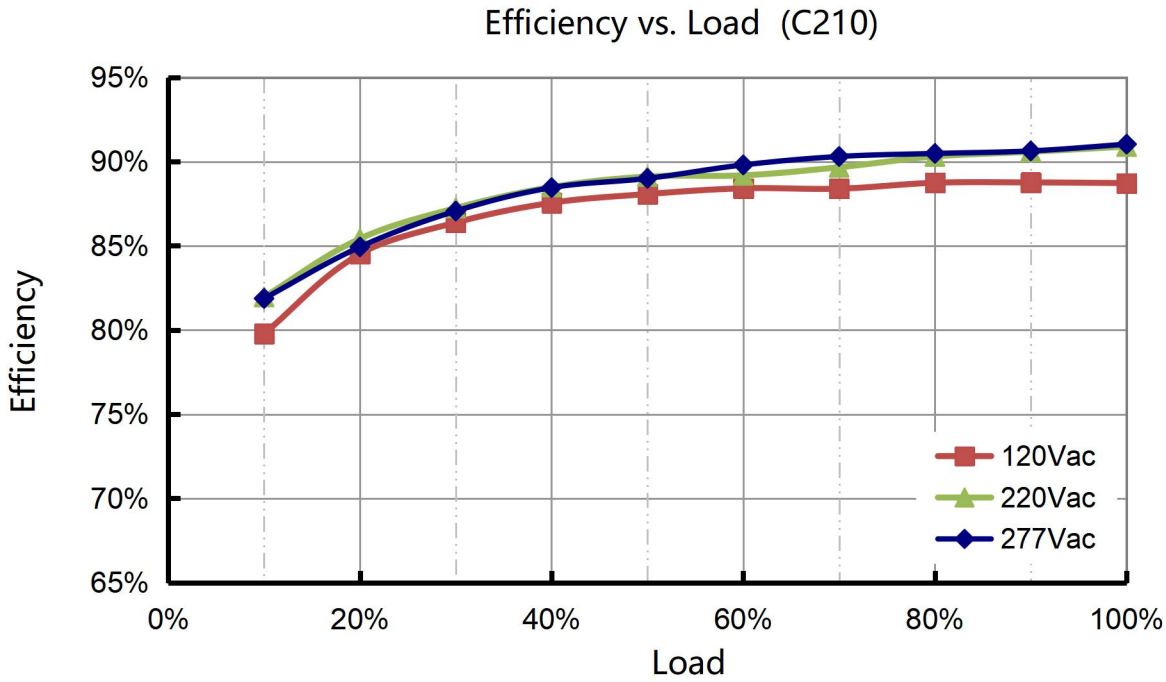
■ THD vs. Load



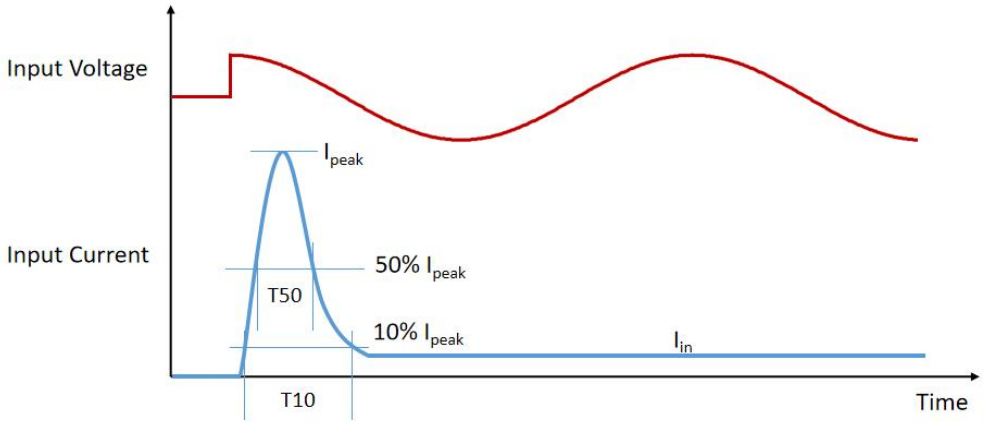
■ Efficiency vs. Load







■ Inrush Current



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

- MCB Suggestion

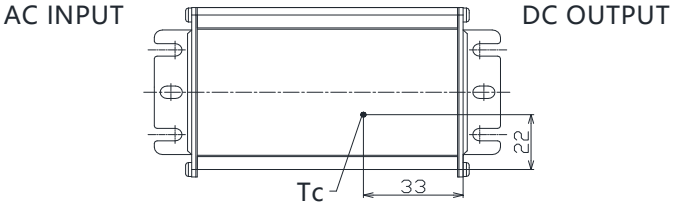
Type	B10	B16	B25	B32	C10	C16	C25	C32	D10	D16	D25	D32
Driver Quantity	3	6	9	12	6	10	15	20	12	20	31	40

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

■ Dielectric Strength

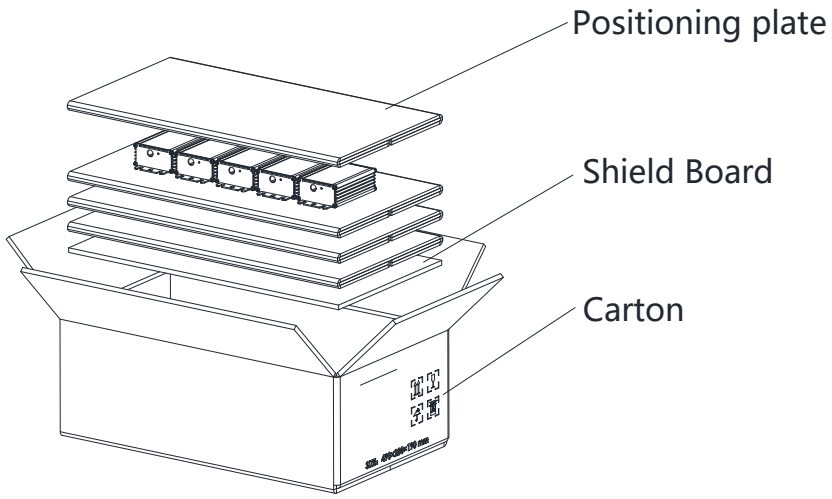
Unit: Vac	Input	Output	Dimming	Case
Input	-	3750	3750	1554
Output	3750	-	1554	1554
Dimming	3750	1554	-	1554
Case	1554	1554	1554	-

■ Tc Point



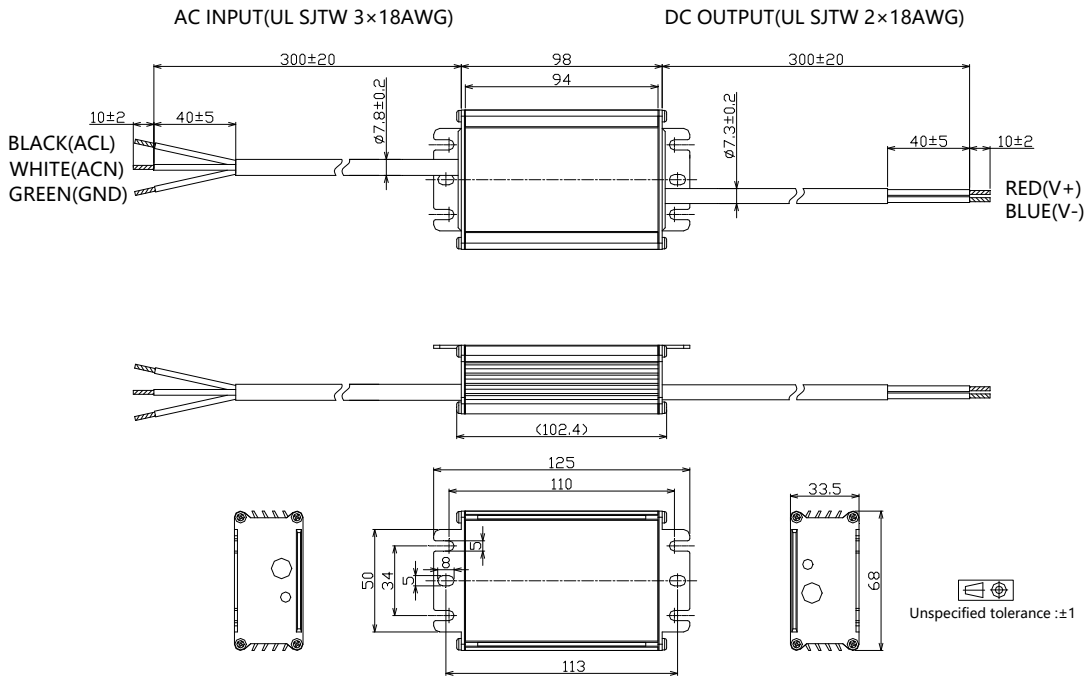
■ Packaging Information

Typical Carton Dimension(L×W×H)	490×280×190 mm
Positioning plate	4pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	20pcs/carton
Net Weight	9.0 kg/carton
Gross Weight	10.4 kg/carton

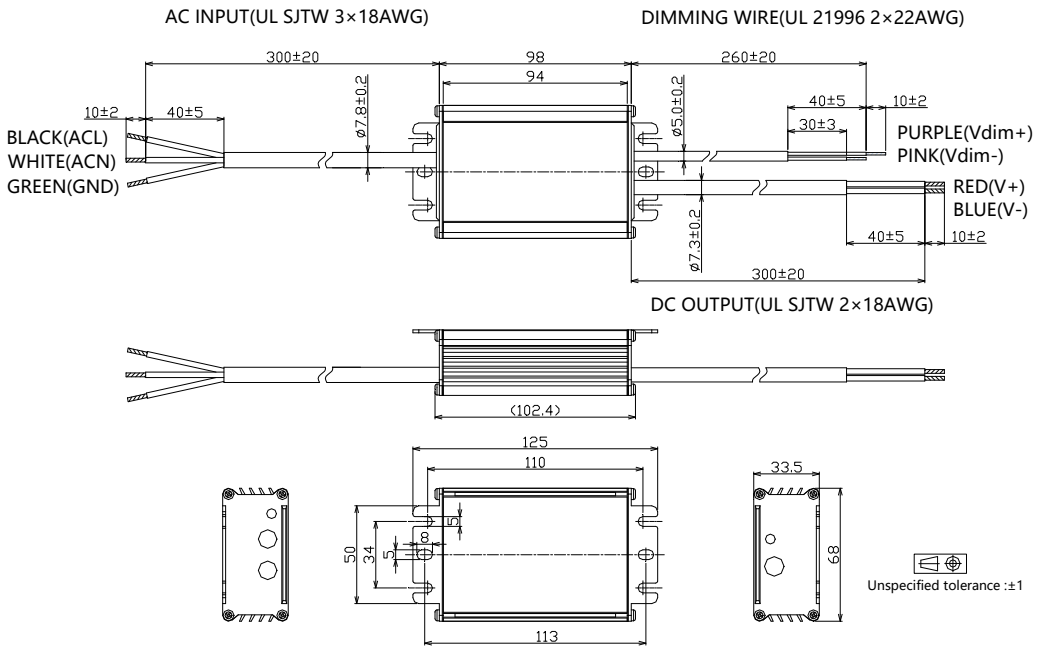


■ Mechanical Design

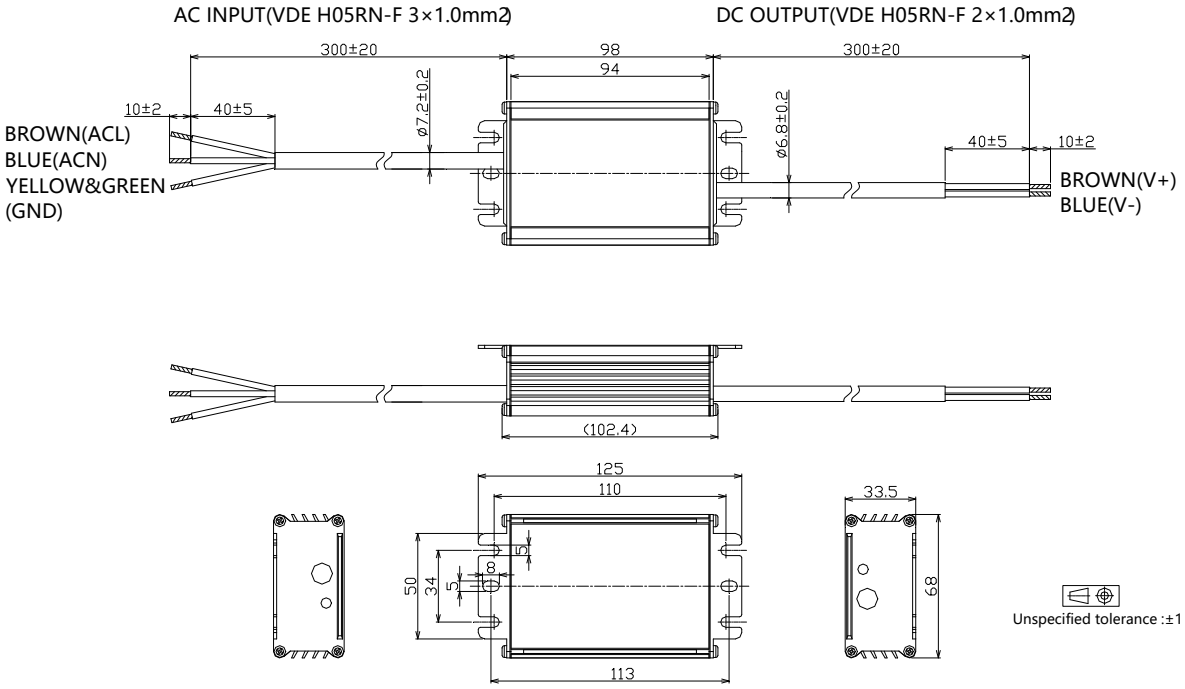
- **BLD-060-Cxxx-NN/TRU (UL Cable)**



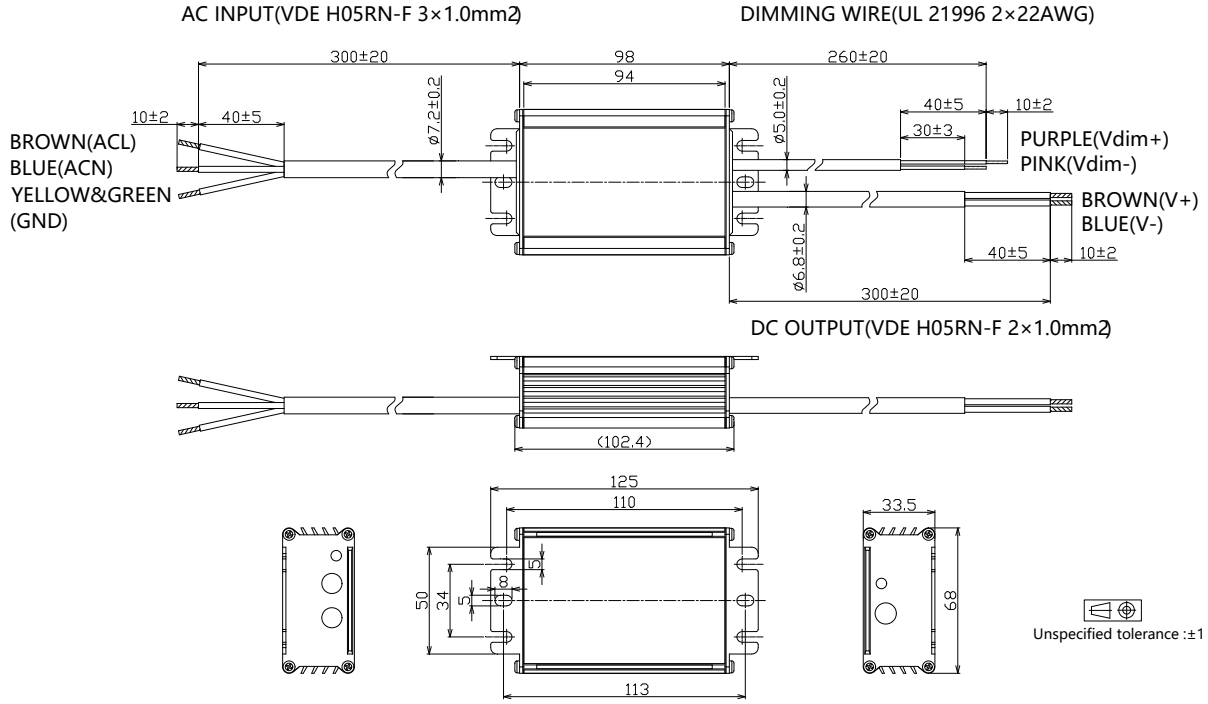
- **BLD-060-Cxxx-DN/DRU -B (UL Cable)**



- **BLD-060-Cxxx-NN/TRS (VDE Cable)**



- **BLD-060-Cxxx-DN/DRS (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	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

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

■ Revision History

Revision	Date	Contents
B	2022-03-22	1. Index page added 2. Reduced dimming interface sourcing current 3. Inrush current data added 4. Tc point position indication added 5. Dielectric strength level added 6. Packaging information added 7. Mechanical design change with dimming cable color 8. Revision history added
C	2022-09-22	1. Cable programming function added -DNz models 2. PWM and time dimming added to -DNz models
D	2023-07-14	1. Update cable selection table in Model List Section 2. Input DC voltage range updated
E	2024-07-25	1. Power factor, THD, efficiency curves updated by 10-100% load range **2.** MCB usage and driver quantity section added 3. Inrush current data updated