

Product Datasheet



The global certified BLD-060-C is a dual stage high efficiency 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 smart 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.

- Street
- Flood
- Tunnel
- Shoe box
- Architectural



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60W, Isolated Dimming, NFC Programmable LED Driver

■ Features

- Supply Voltage: 90-305Vac or 127-420Vdc, 380Vac for 2 hours
- Great Surge Immunity 10kV
- -60DegC Cold Ambient Startup (Optional)
- 100,000Hour Life @ Tc=75°C & 7 Year Warranty @ Tc<=75°C
- +/-2% Output Current Accuracy (Programmable Model)
- Airset™ NFC Programmability
- Isolated 0-10V/PWM/Time/DALI2.0 Dimmable
- Dim Off with 0.5W Standby Power (Model Depending)
- 12V 300mA Auxiliary Power to Power Controllers and Fans
- 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	Certification
BLD-060-C105-XYZ-nnnnnn	90 ~ 305 Vac	60 W	34-86Vdc	700mA	1050mA	UL/FCC/CB/
BLD-060-C140-XYZ-nnnnnn	90 ~ 305 Vac	60 W	26-57Vdc	1050mA	1400mA	ENEC/RCM/
BLD-060-C210-XYZ-nnnnnn	90 ~ 305 Vac	60 W	17-43Vdc	1400mA	2100mA	EAC/CCC/PSE

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	-	√
MR	DMX512 or RDM	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

nnnnnn = D00000, NVD000, D4i, DAX000, NVDAX0 D4i and Aux power 24V,

AC0000, NVC000 -60°C Cold Startup, A00000, NV0000 others

■ Technical Data

Input Voltage	90~305Vac or 127V-420Vdc, 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	1mA max @277Vac 60Hz, UL8750, 0.75mAmax @220Vac 50Hz, IEC61347-1
Input Under Voltage	Shut down and auto-recovery
Input Over Voltage	*Optional: Shutdown @320Vac
Surge Protection	Line to line 6kV, line to ground 10kV, IEC 61000-4-5
Current Accuracy	±2%lo for programmable model, ±5%lo for non-programmable model
Ripple Current	Ip-p:5%lo 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	$-40^\circ\text{C} \sim +85^\circ\text{C}$; 5%RH~100%RH
MTBF	$\geq 320,000$ hours, 50°C case temperature (MIL-HDBK-217F)
Lifetime	$\geq 100,000$ hours, 75°C case temperature, refer to life vs. T_c curve
Case Temperature	90°C max, marked in the T_c point of label
Dimension	5.16x2.66x1.32 by inch (body), 6.22x2.66x1.32 by inch (endcaps included) 131.0x68.0x33.5 by mm (body), 158.0x68.0x33.5 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°C room temperature.

* marked items are optional and contact with sales people to get the functions.

**Net weight is approximate. Articles of this model may have different weights.

■ Safety/EMC Compliance

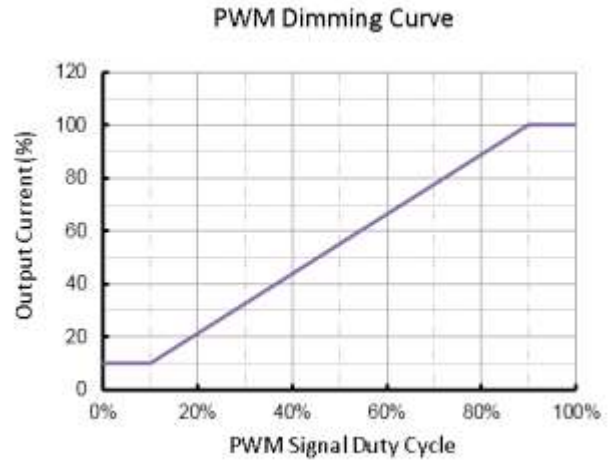
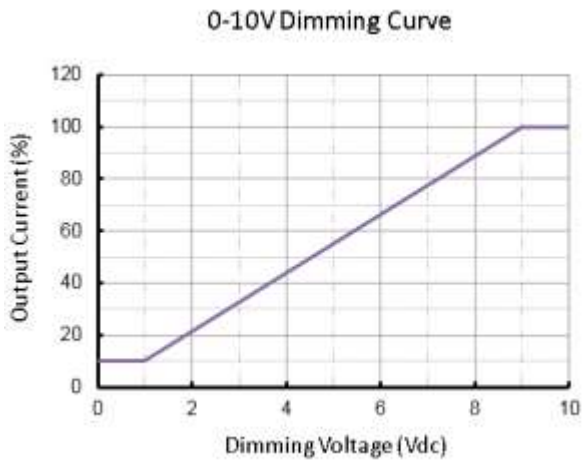
Safety Standard	Description
UL8750	Light emitting diode(LED) equipment for use in lighting products
UL1012/1310	Power units other than class 2 / Class 2 power units
IEC 61347-1	Lamp control gear Part 1: general and safety requirements
IEC 61347-2-13	Lamp control gear Part 2-13: particular requirement for d.c. or a.c. supplied electronic control gear for LED modules
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

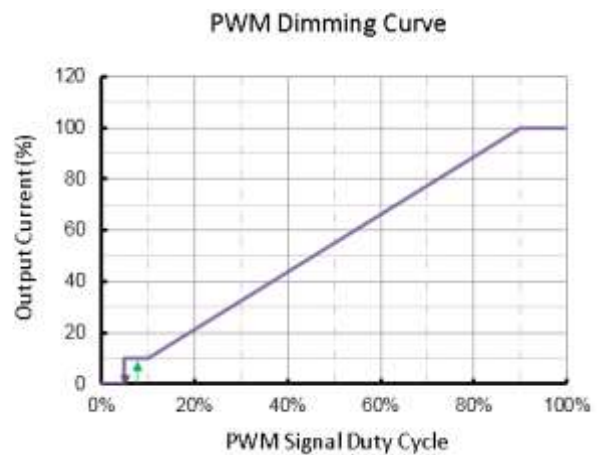
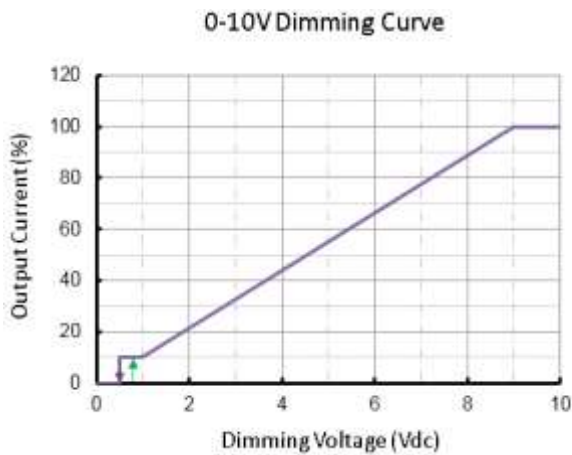
Parameter	Min.	Typ.	Max.
Vdim Sourcing Current	100uA	150uA	200uA
Vdim Allowed Input Voltage	-20 V		20 V
0-10V Dimming Range	10% (Vdim=1V)	Linear	100% (Vdim=9~10V)
PWM Dimming Range	10% (Duty=10%)	Linear	100% (Duty=90-100%)
Dim off threshold	0.4V or 4%	0.5V or 5%	0.6V or 6%
Dim on threshold	0.6V or 6%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

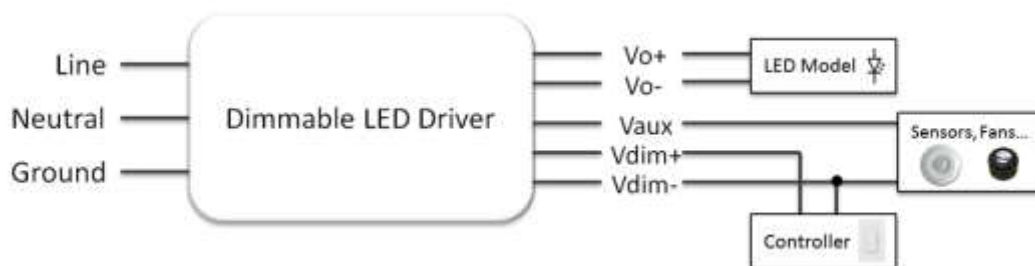
a. Without dim-off



b. With dim-off



- Dimming Wiring

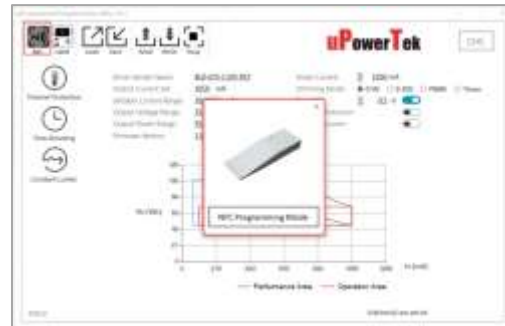
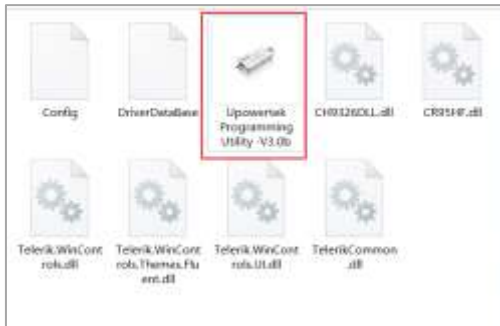


■ Programming

- 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.



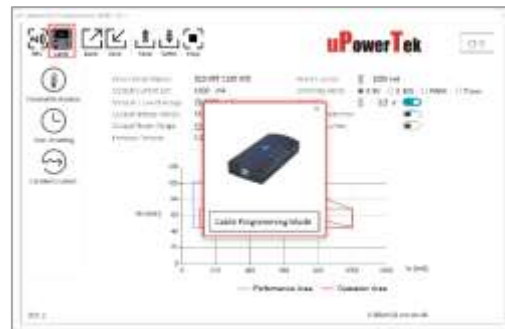
uPowerTek
Airset

60W, Isolated Dimming, NFC Programmable LED Driver

- 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)

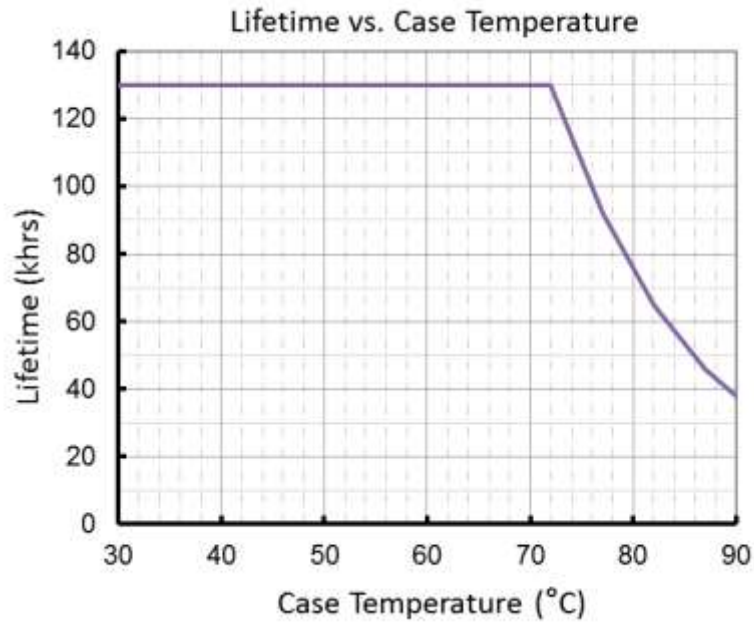


- Click "Cable" button if it's not cable programming mode.
- Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

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

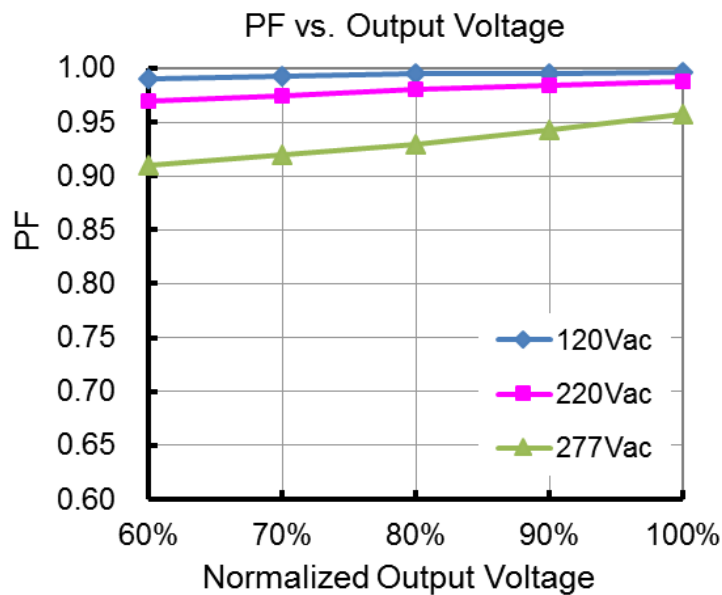
- Output Lumen Compensation
- Luminaire Thermal Protection by External NTC (with extra cable)
- Dimming Curve Customization (dim off threshold, minimum dimming level, maximum dimming voltage etc.)
- Adjustable Startup Time
- Time Dimming (adaptive mid-night, percentage, etc.)
- Customized Control Protocol

■ Lifetime vs. Case Temperature

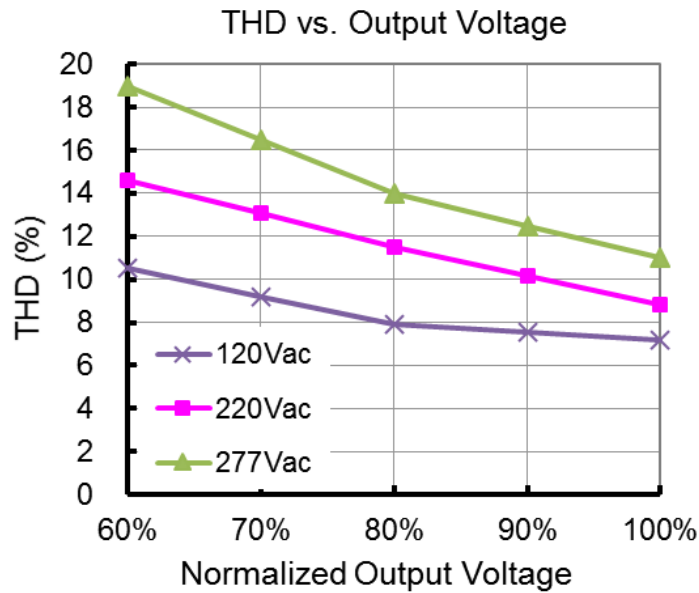


(End of Life: Maximum Failure Rate=10%)

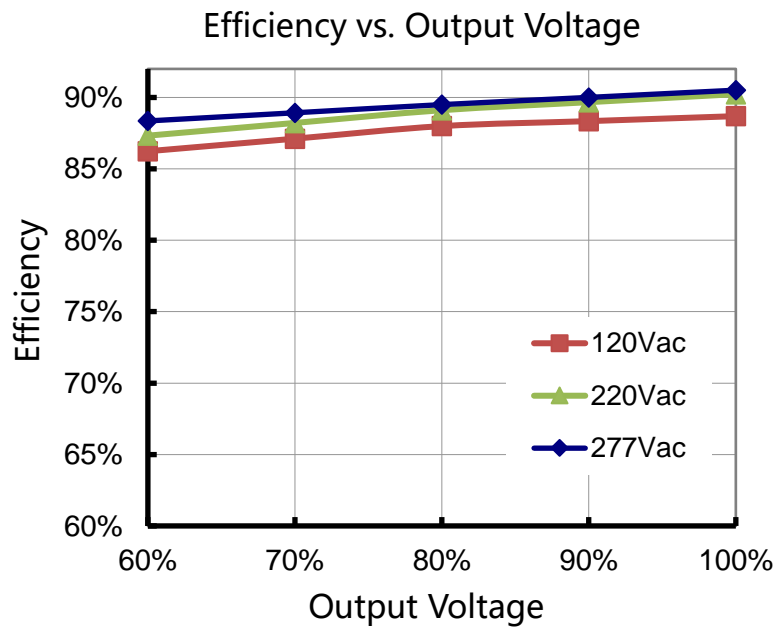
■ Power Factor vs. Load



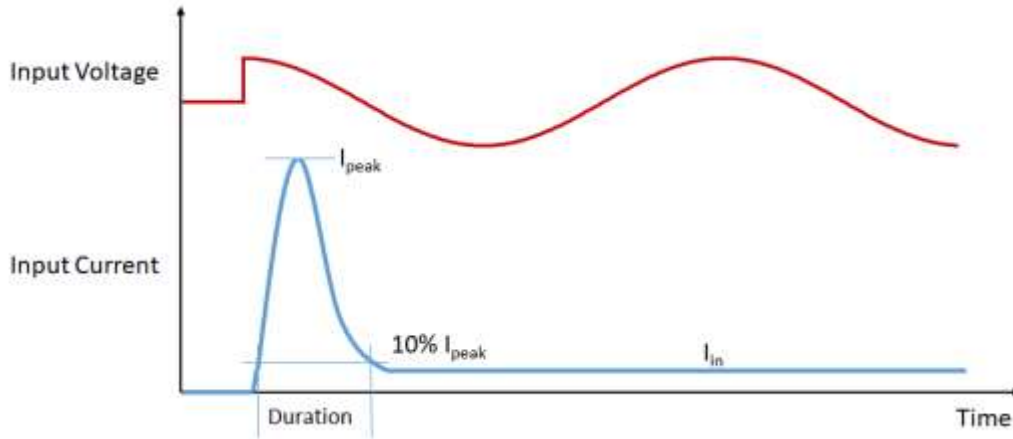
■ THD vs. Load



■ Efficiency vs. Load (1.05A Model)



Inrush Current



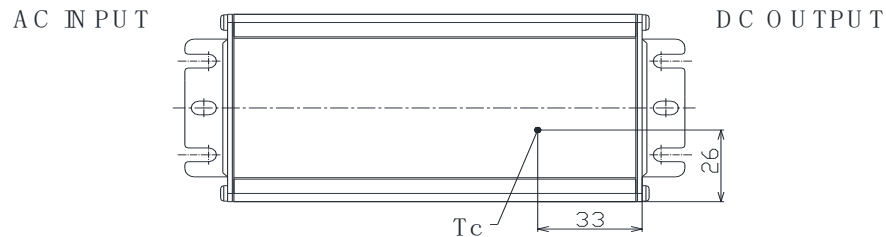
Input Voltage	I_{peak}	Duration
120Vac	37A	820us
220Vac	66A	820us
277Vac	90A	760us

Please contact with us for MCB calculation and waveforms.

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

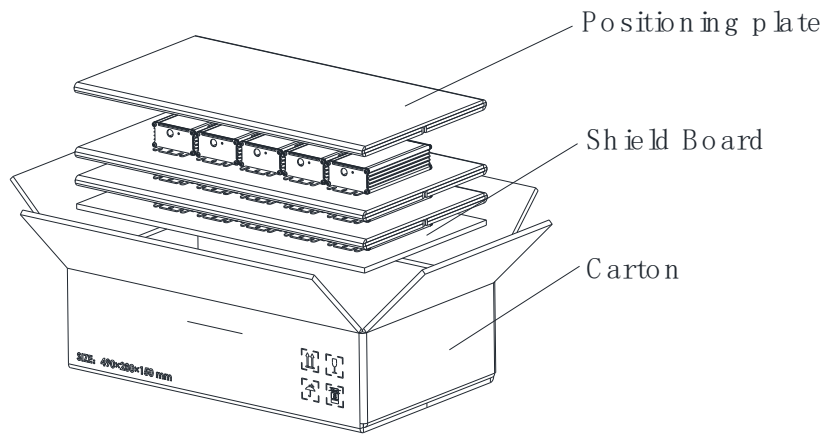


Packaging Information

Typical Carton Dimension(L×W×H)	490×280×150 mm
March 22, 2022, All rights reserved.	Website: www.upowertek.com

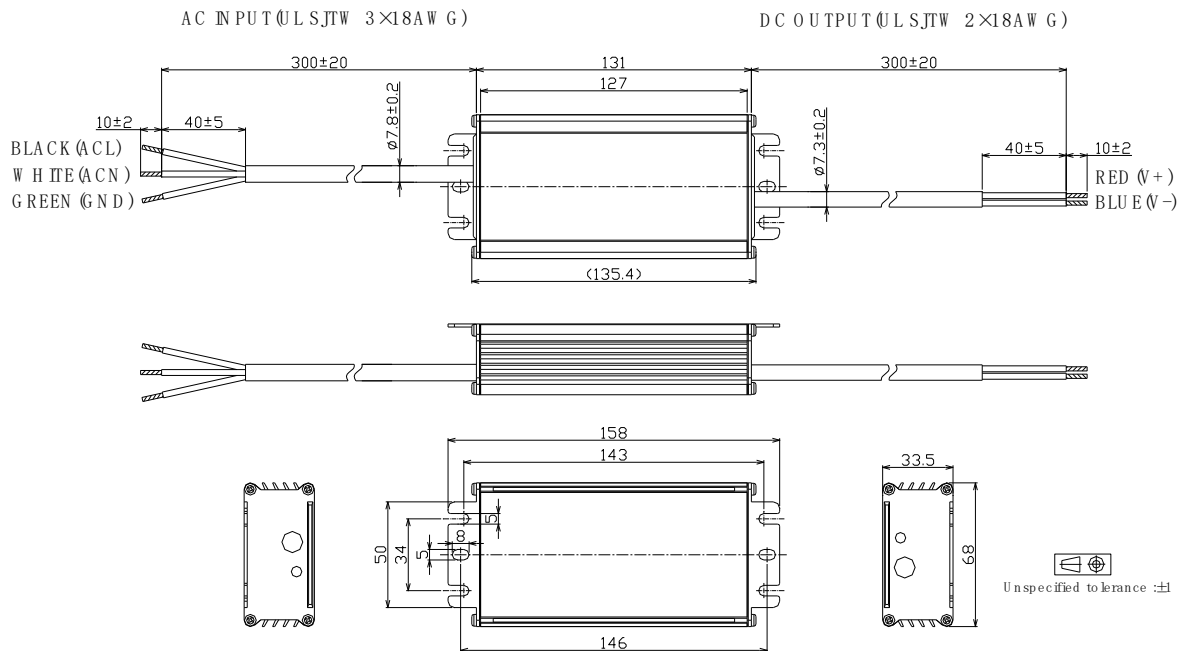
60W, Isolated Dimming, NFC Programmable LED Driver

Positioning plate	3pcs/carton
Shield Board	1pcs/carton
LED Drivers	15pcs/carton

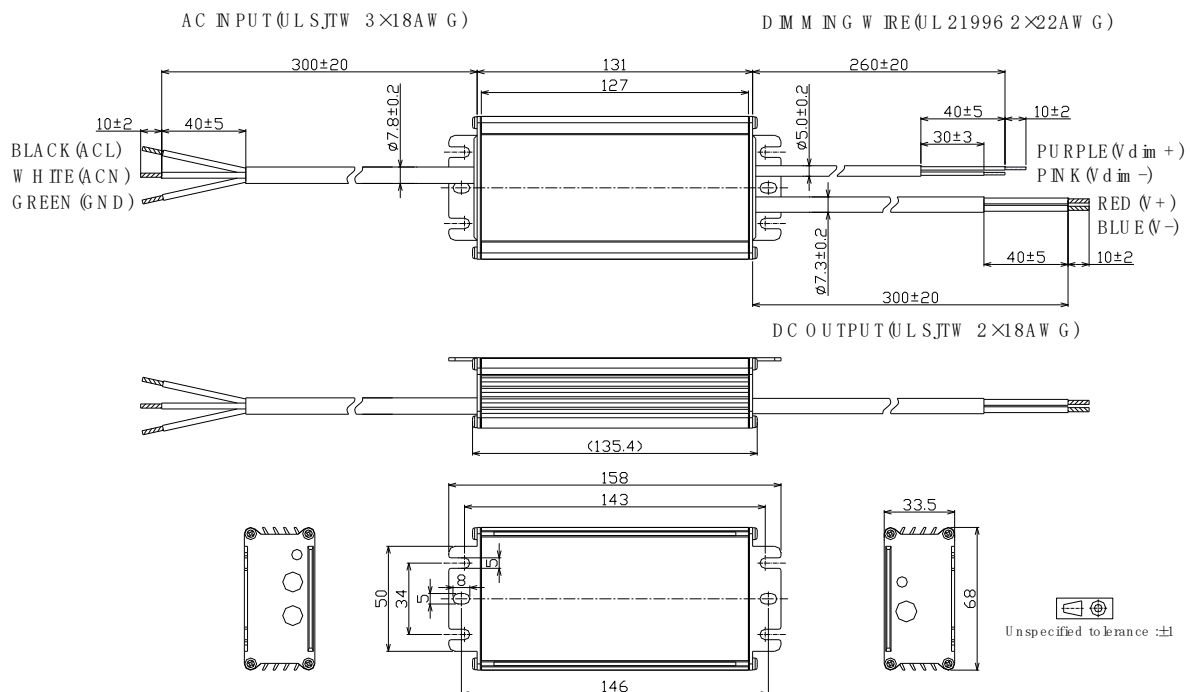


Mechanical Design

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

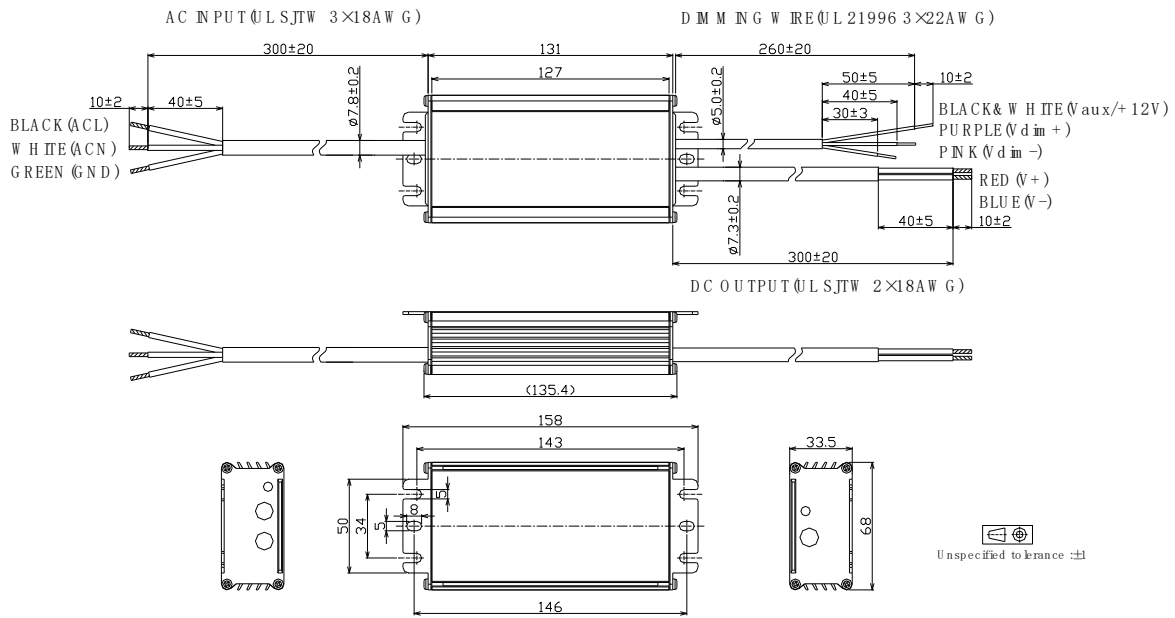


BLD-060-Cxxx-DN/DRU (UL Cable)

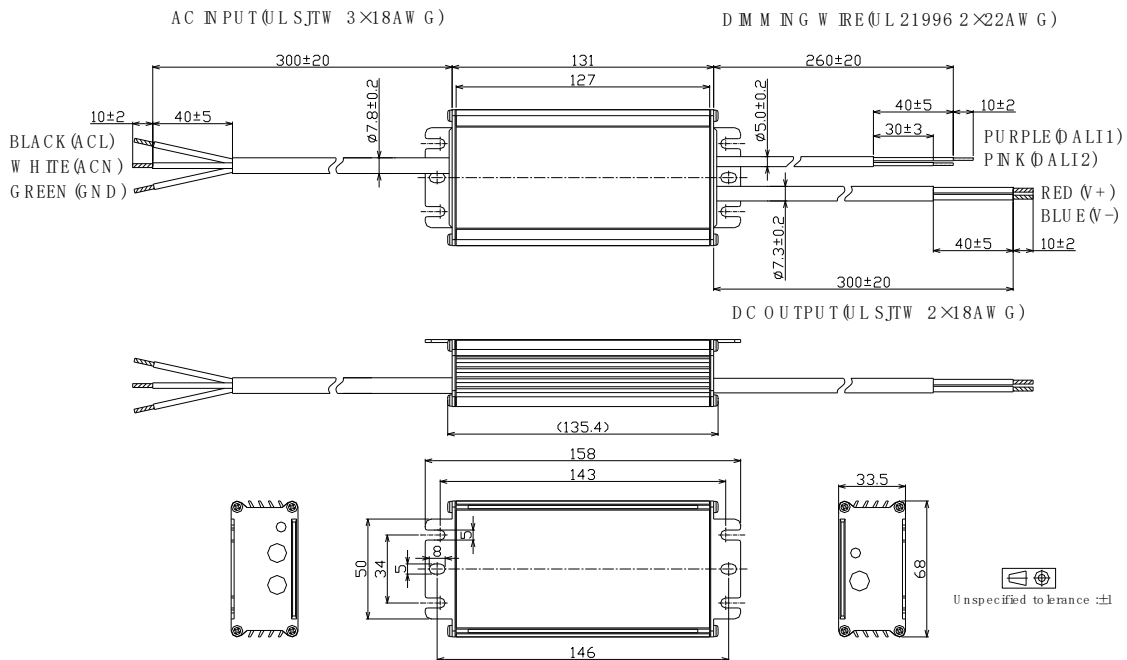


60W, Isolated Dimming, NFC Programmable LED Driver

- BLD-060-Cxxx-EN/ERU (UL Cable)

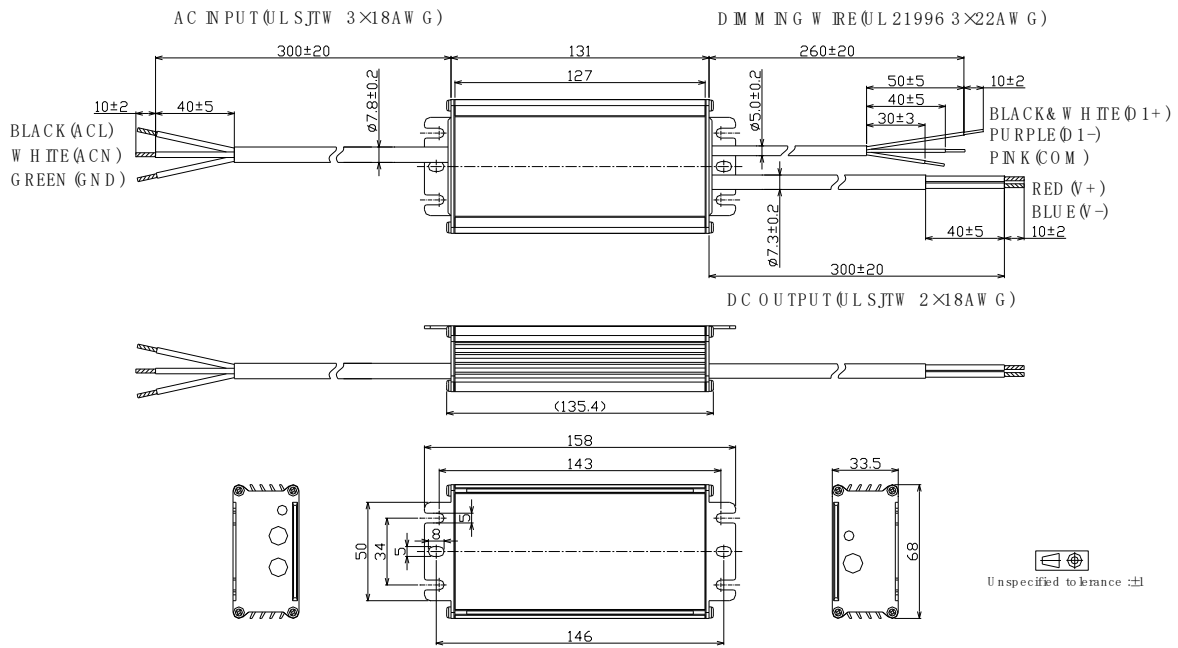


- BLD-060-Cxxx-ARU (UL Cable)

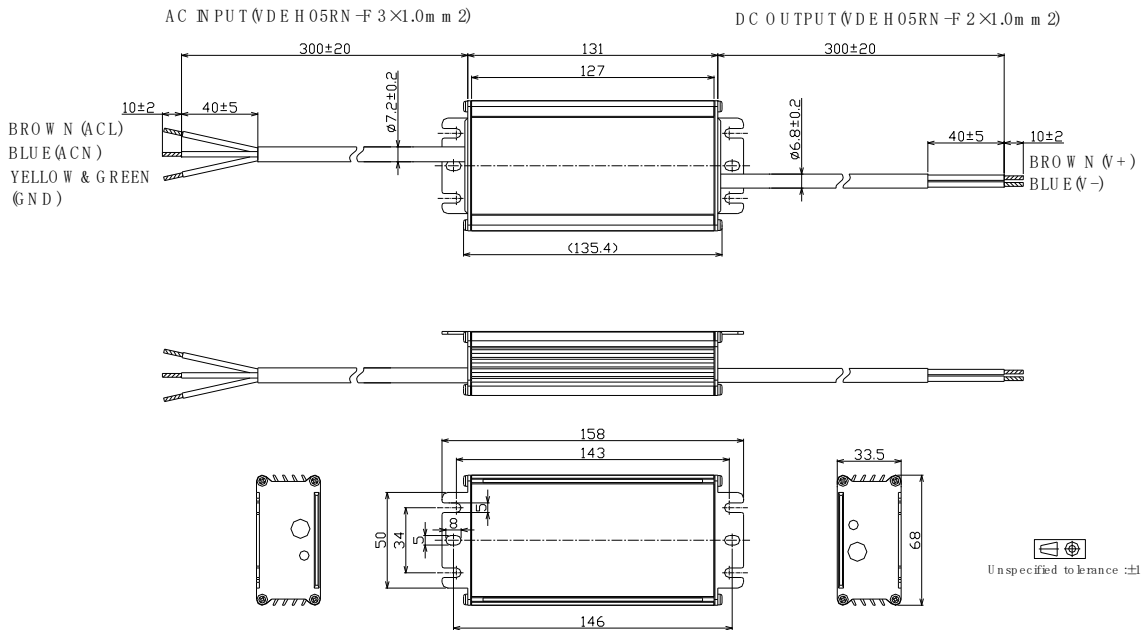


60W, Isolated Dimming, NFC Programmable LED Driver

- BLD-060-Cxxx-MRU (UL Cable)

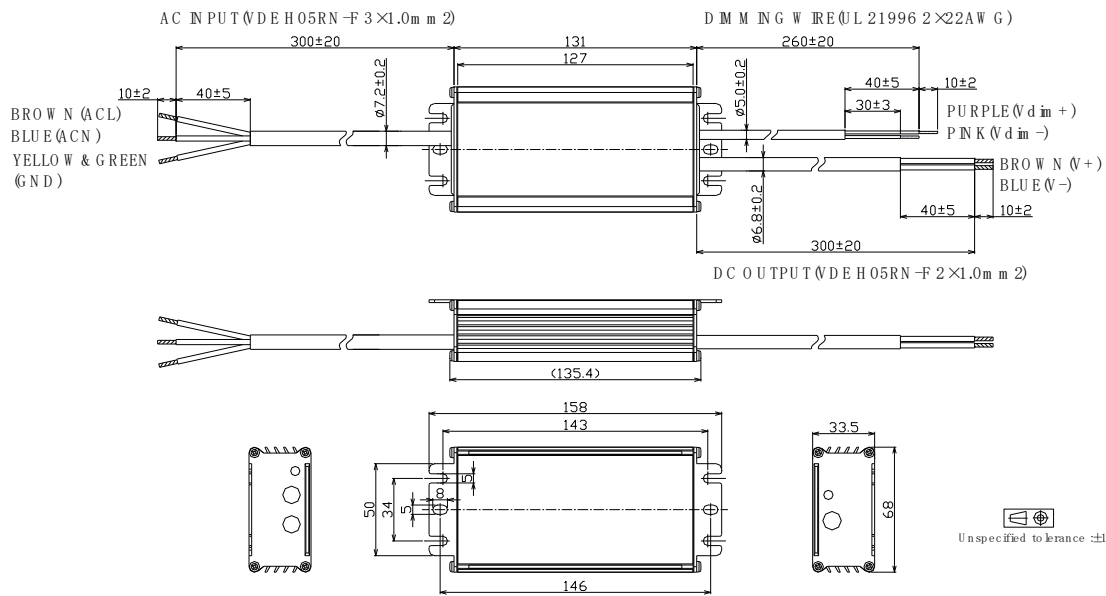


- BLD-060-Cxxx-NN/TRS (VDE Cable)

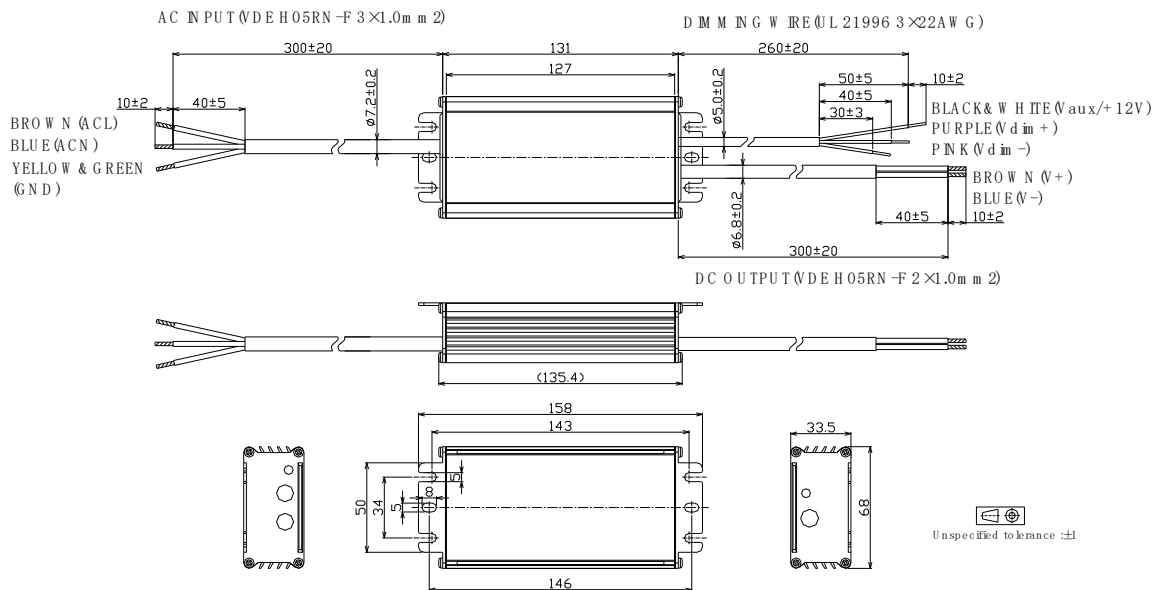


60W, Isolated Dimming, NFC Programmable LED Driver

- BLD-060-Cxxx-DN/DRS (VDE Cable)

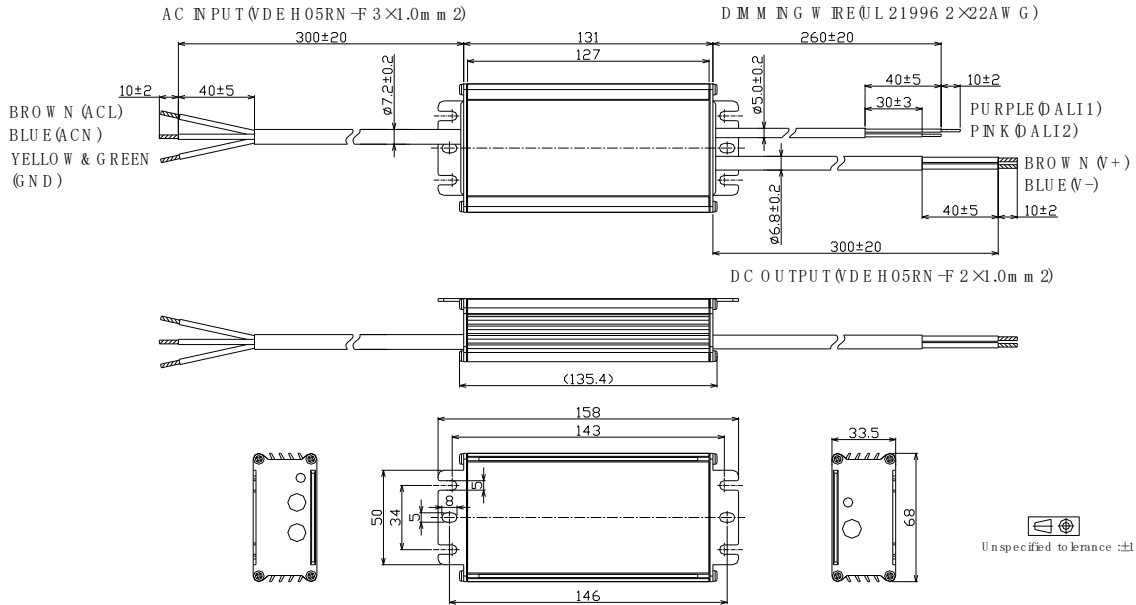


- BLD-060-Cxxx-EN/ERS (VDE Cable)

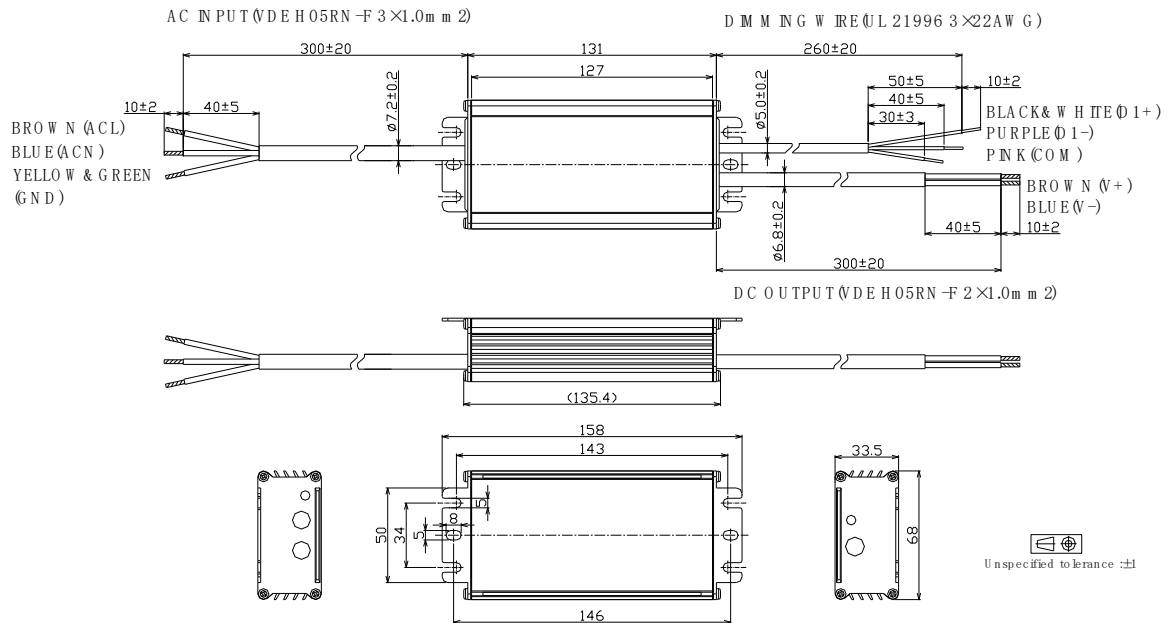


60W, Isolated Dimming, NFC Programmable LED Driver

- BLD-060-Cxxx-ARS (VDE Cable)



- BLD-060-Cxxx-MRS (VDE Cable)



60W, Isolated Dimming, NFC Programmable LED Driver
■ 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

60W, Isolated Dimming, NFC Programmable 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	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
D	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