

## Product Datasheet



The global certified BLD-120-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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### 120W, 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-120-C070-XYZ-nnnnnn	90 ~ 305 Vac	120 W	103-171Vdc	700mA		
BLD-120-C105-XYZ-nnnnnn	90 ~ 305 Vac	120 W	69-171Vdc	700mA	1050mA	
BLD-120-C140-XYZ-nnnnnn	90 ~ 305 Vac	120 W	51-114Vdc	1050mA	1400mA	UL/FCC/CB/ENEC/RCM/EAC/CCC/PSE
BLD-120-C280-XYZ-nnnnnn	90 ~ 305 Vac	120 W	26-57Vdc	2100mA	2800mA	
BLD-120-C380-XYZ-nnnnnn	90 ~ 305 Vac	120 W	19-43Vdc	2800mA	3800mA	

XY=	Dimming Method	Programmable	12Vaux	Dim-off
NN	-	-	-	-
DN	0-10V	Cable	-	<b>No Dim-off as default status, programmed to have Dim-off</b>
EN	0-10V	Cable	300mA	√
TR	Time/Set Current	NFC Wireless	-	-
DR	0-10V	NFC Wireless	-	<b>No Dim-off as default status, programmed to have Dim-off</b>
ER	0-10V/PWM/Time	NFC Wireless	300mA	√
AR	DALI2.0	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, NV DAX0** D4i and Auxiliary power 24V, **AC0000, NVC000** -60°C Cold Ambient Startup, **A00000, NV0000** for 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	1.2 Amax@120Vac & Full-Load, 0.6Amax@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-restart
Input Over Voltage	*Optional: Shutdown @320Vac
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	$-40^\circ\text{C} \sim +85^\circ\text{C}$ ; 5%RH~100%RH
MTBF	$\geq 320,000$ hours, $75^\circ\text{C}$ case temperature (MIL-HDBK-217F)
Lifetime	$\geq 100,000$ hours, $75^\circ\text{C}$ case temperature, refer to life vs. $T_c$ curve
Case Temperature	$90^\circ\text{C}$ max, marked in the $T_c$ point of label
Dimensions	6.38x2.67x1.32 by inch (body), 7.40x2.67x1.32 by inch (endcaps included) 161.0x68.0x33.5 by mm (body), 188.0x68.0x33.5 by mm (endcaps included)
Net Weight	800g**
Packing	See Package Information Section in the datasheet

Notes: Unless specified, all the test results are measured in  $25^\circ\text{C}$  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	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
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

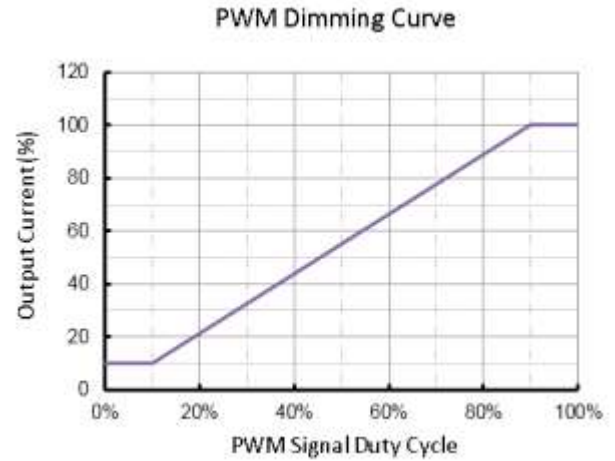
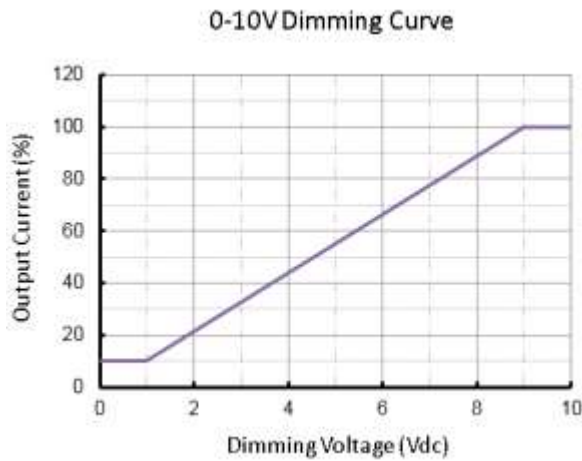
## ■ Dimming

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

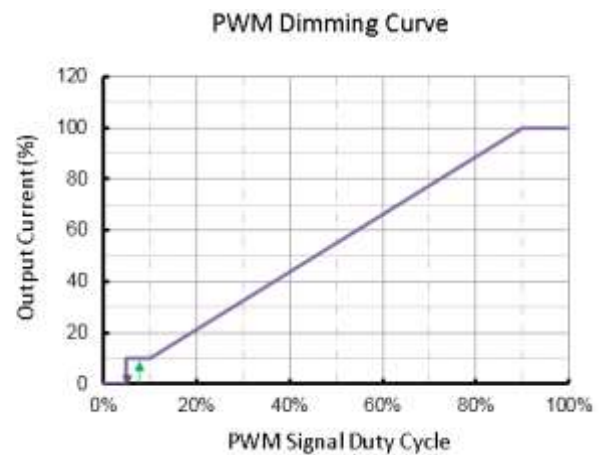
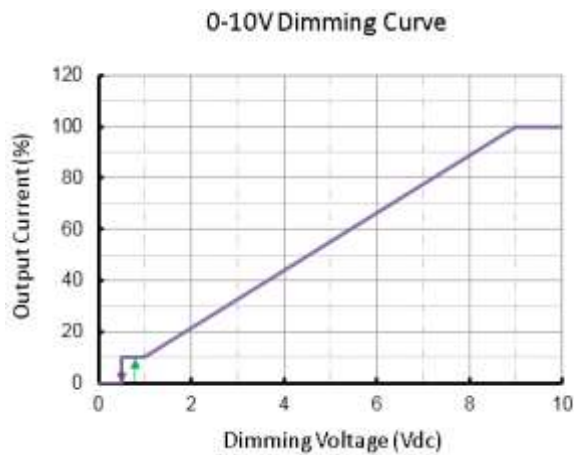
## 120W, Isolated Dimming, NFC Programmable LED Driver

### - Dimming Curve

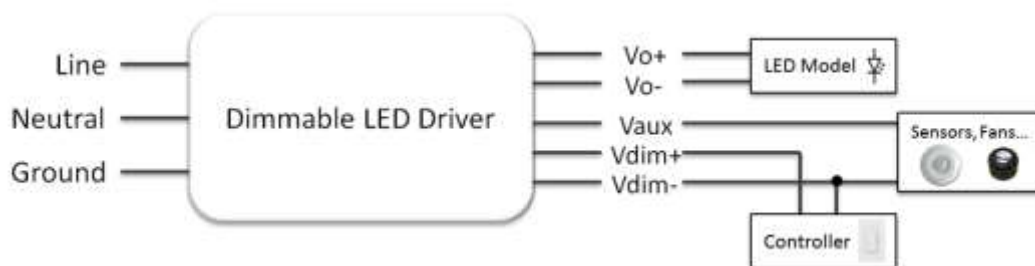
#### a. Without dim-off



#### b. With dim-off



### - Dimming Wiring

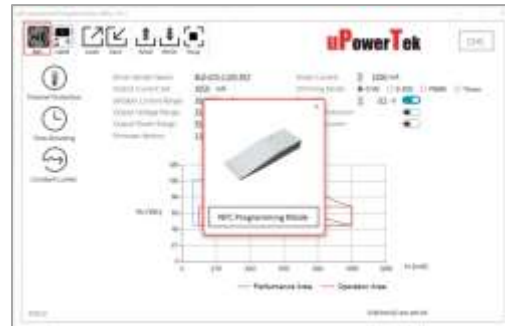


## ■ Programming

### - 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.



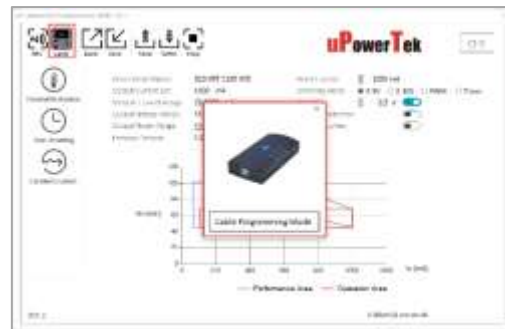
uPowerTek  
Airset

## 120W, 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)

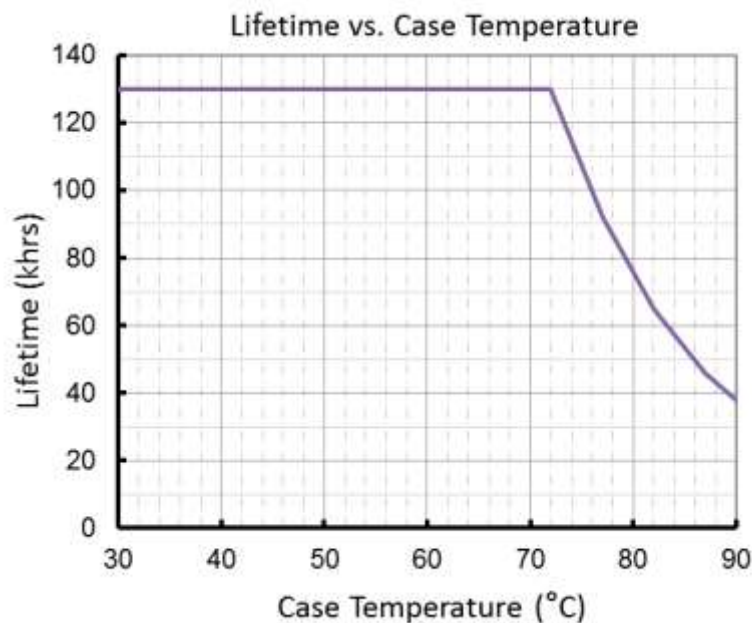


- Click "Cable" button if it's not cable programming mode.
- Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

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

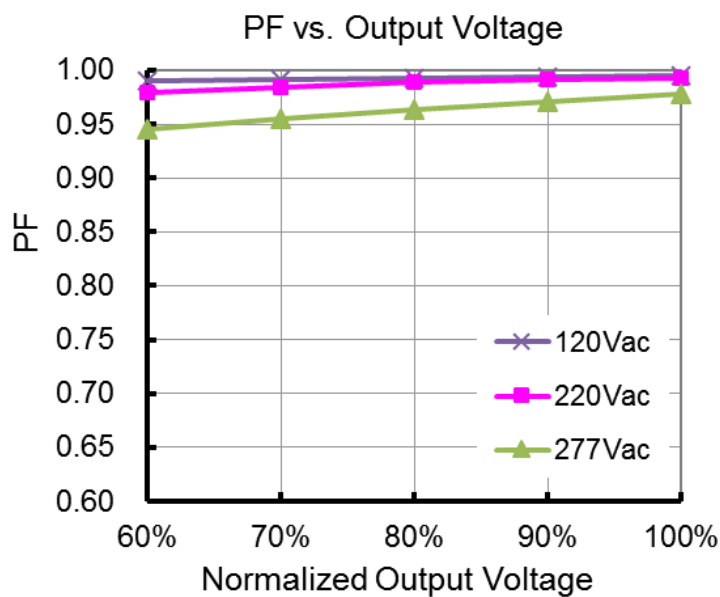
- Output Lumen Compensation
- Luminaire Thermal Protection by External NTC (with extra cable)
- Dimming Curve Customization (dim off threshold, minimum dimming level, maximum dimming voltage etc.)
- Adjustable Startup Time
- Time Dimming (adaptive mid-night, percentage, etc.)
- Customized Control Protocol

#### ■ Lifetime vs. Case Temperature



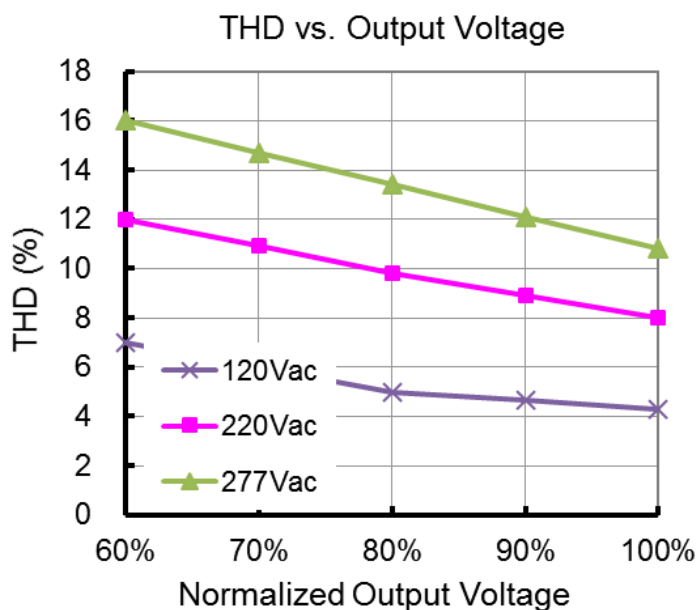
(End of Life: Maximum Failure Rate=10%)

#### ■ Power Factor vs. Load

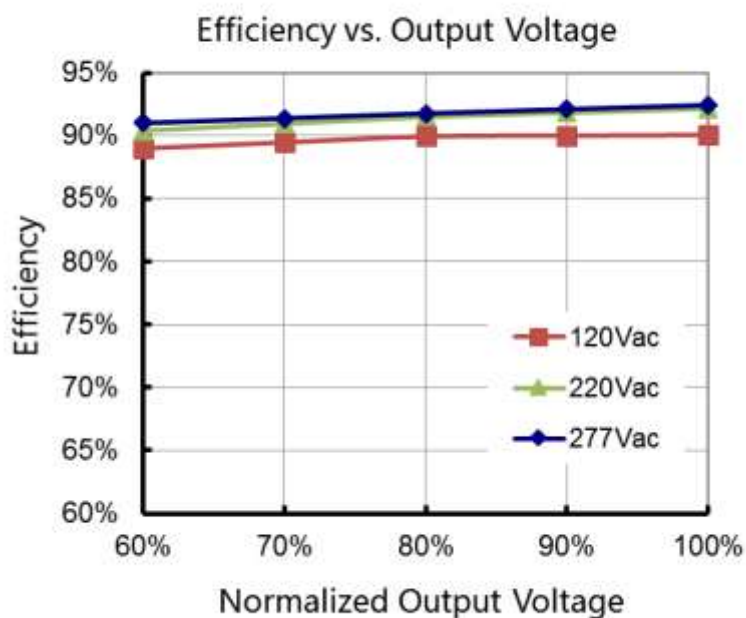




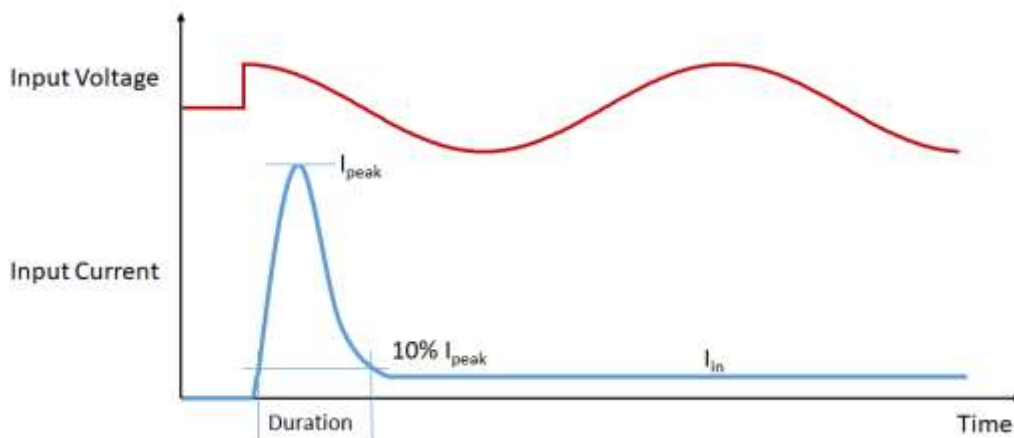
■ THD vs. Load



■ Efficiency vs. Load (1.05A Model)



#### ■ Inrush Current



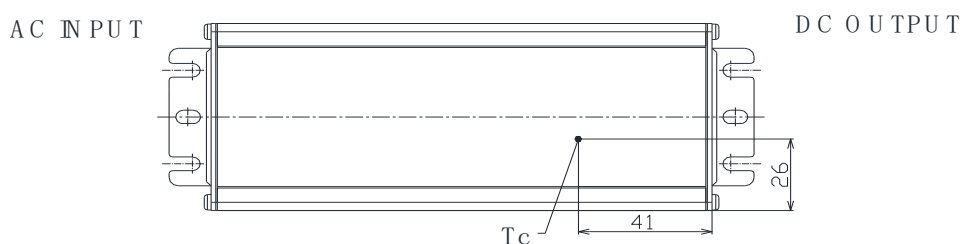
Input Voltage	$I_{peak}$	Duration
120Vac	37.2A	824us
220Vac	66.8A	824us
277Vac	90A	760us

Please contact with us for MCB calculation and waveforms.

#### ■ Dielectric Strength

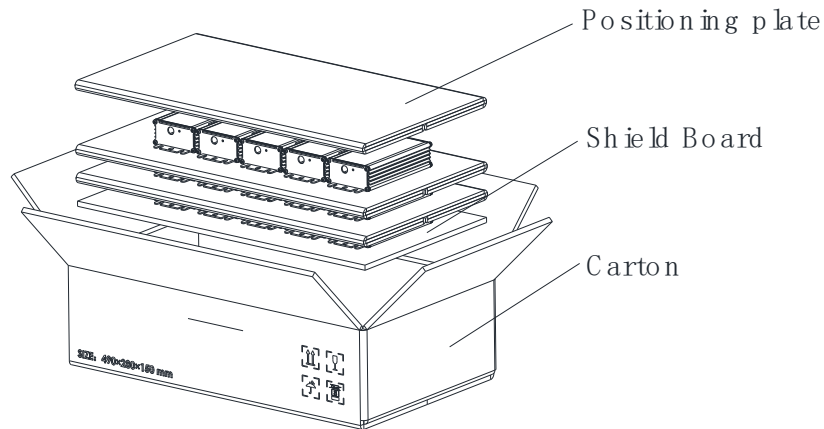
Unit: Vac	Input	Output	Dimming	Case
Input	-	3750	3750	1554
Output	3750	-	1554	1554
Dimming	3750	1554	-	1554
Case	1554	1554	1554	-

#### ■ Tc Point



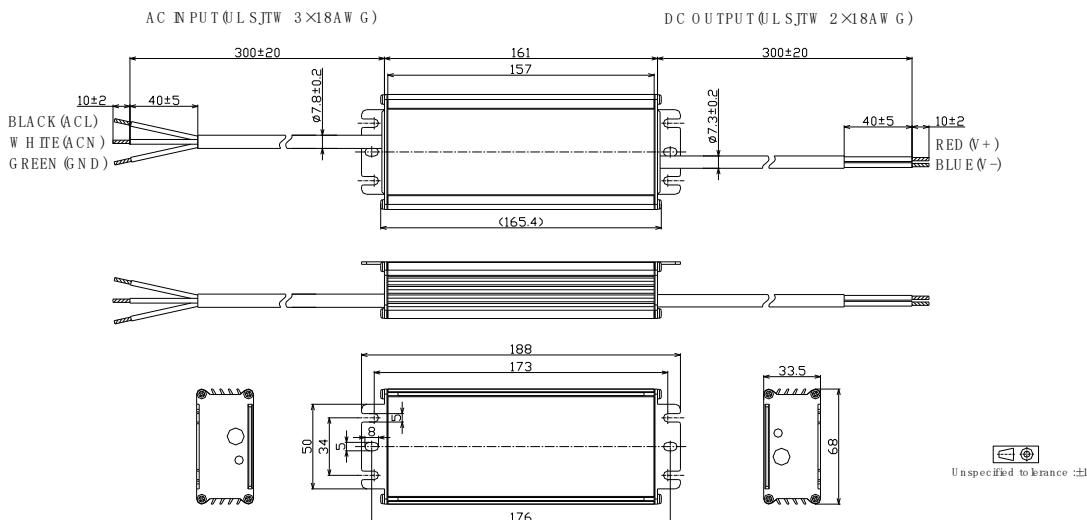
## ■ Packaging Information

Typical Carton Dimension(L×W×H)	490×370×150 mm
Positioning plate	3pcs/carton
Shield Board	1pcs/carton
LED Drivers	15pcs/carton

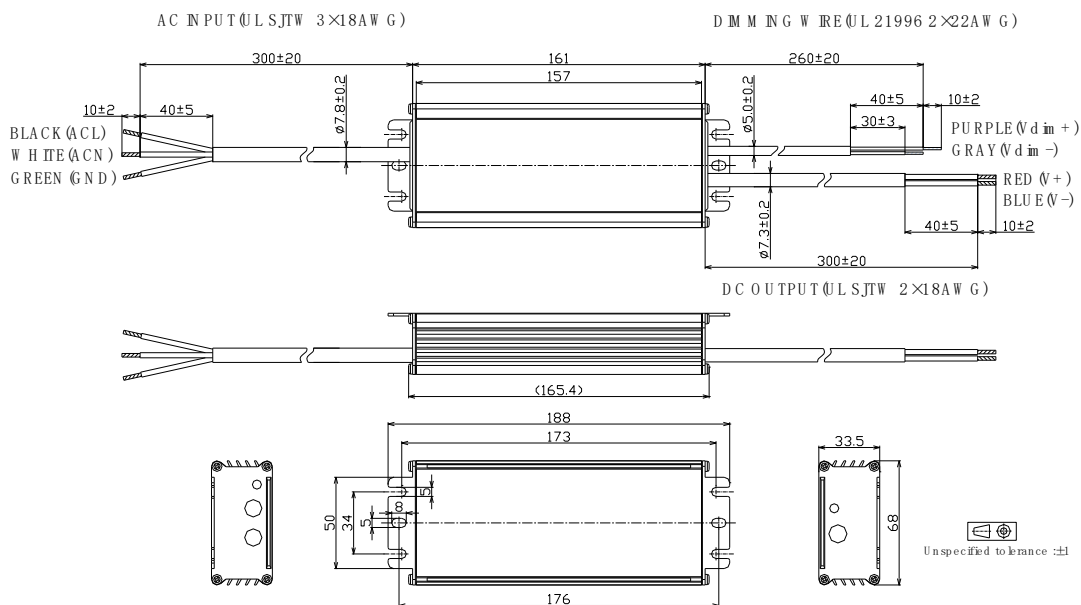


#### Mechanical Design

##### BLD-120-Cxxx-NN/TRU (UL Cable)

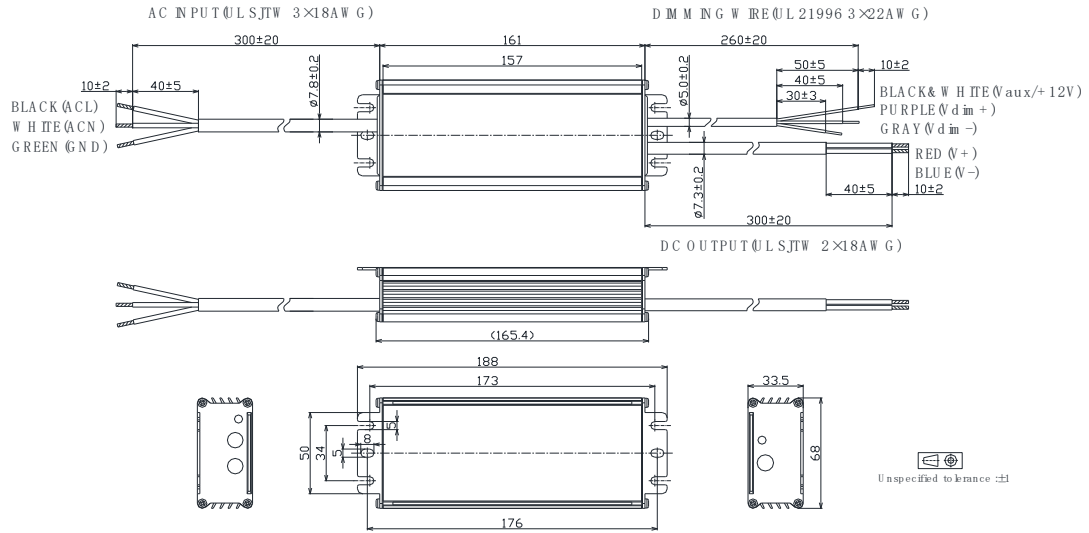


##### BLD-120-Cxxx-DN/DRU (UL Cable)

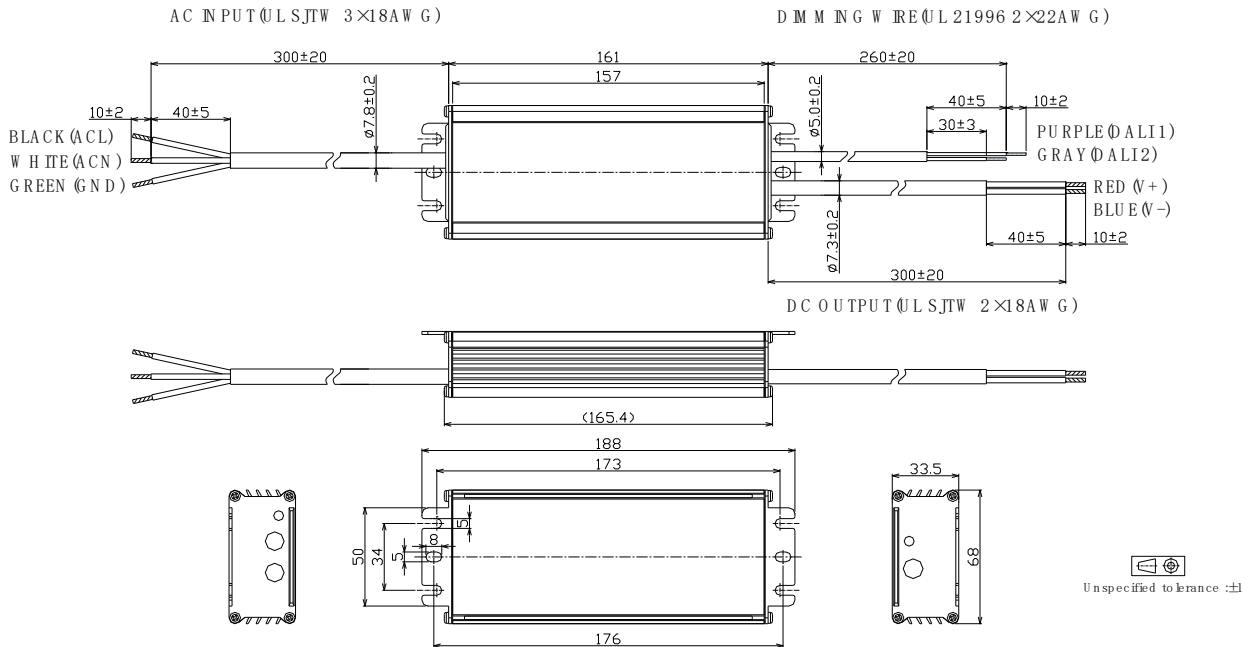


### 120W, Isolated Dimming, NFC Programmable LED Driver

#### - BLD-120-Cxxx-ERU (UL Cable)

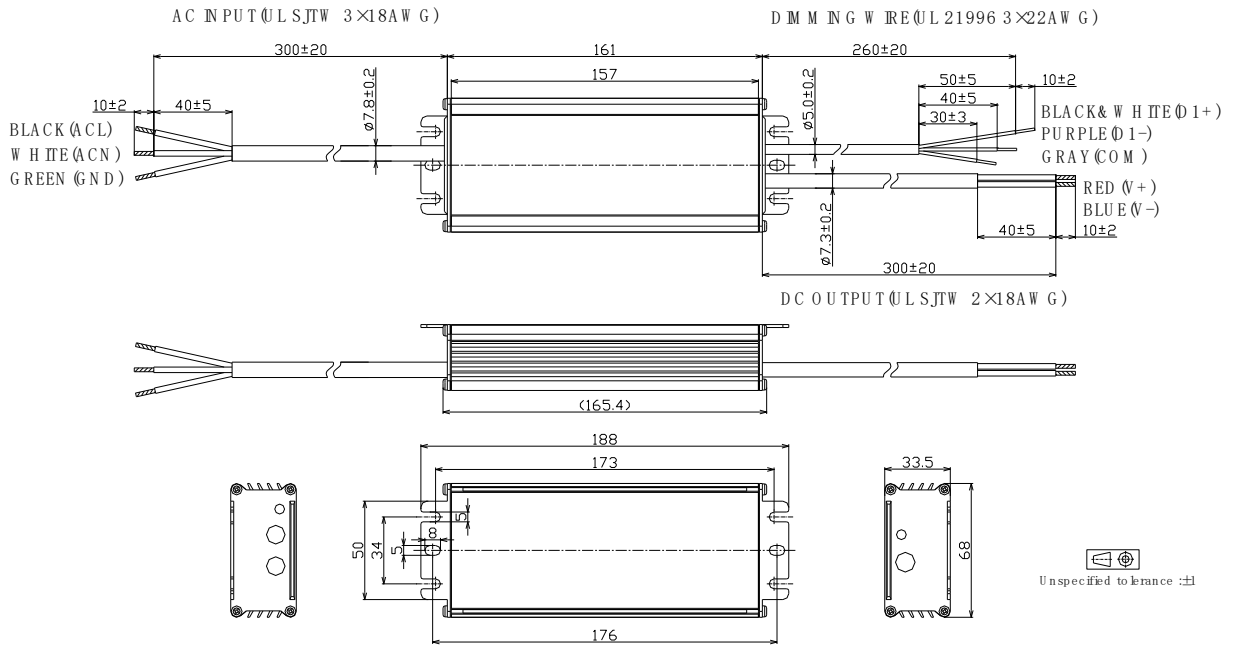


#### - BLD-120-Cxxx-ARU (UL Cable)

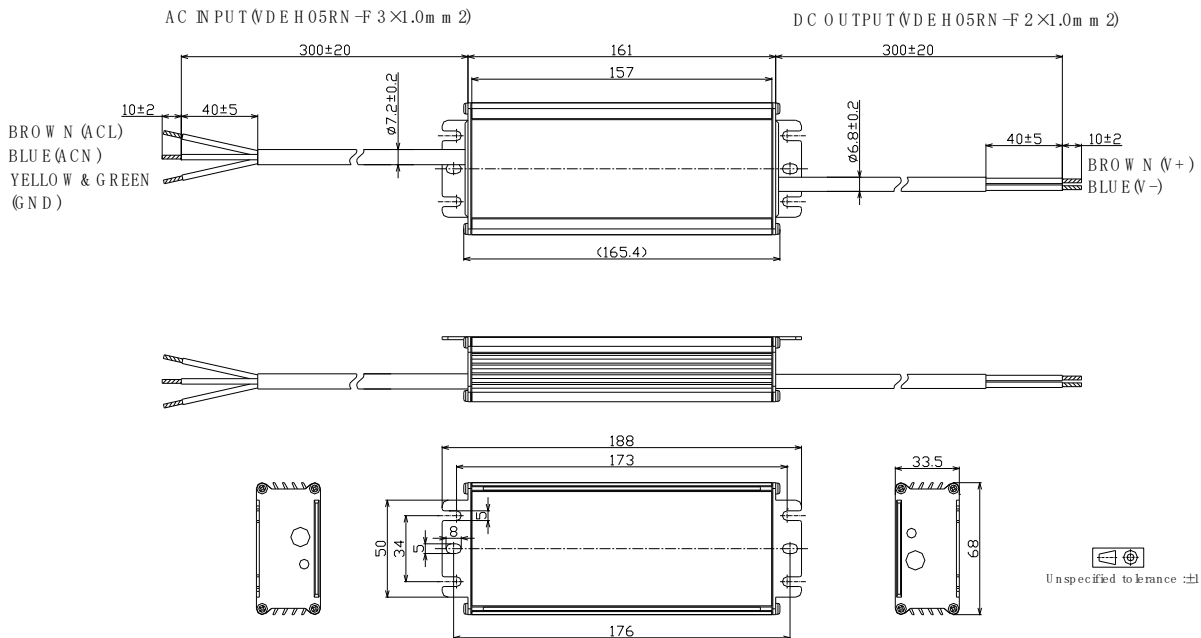


### 120W, Isolated Dimming, NFC Programmable LED Driver

#### - BLD-120-Cxxx-MRU (UL Cable)

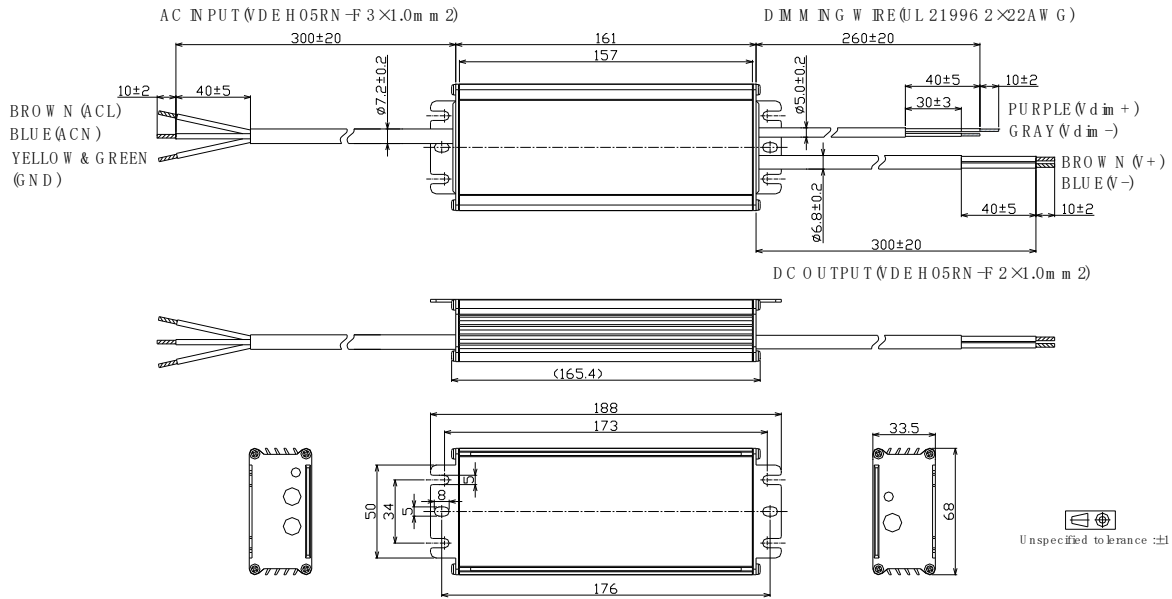


#### - BLD-120-Cxxx-NN/TRS (VDE Cable)

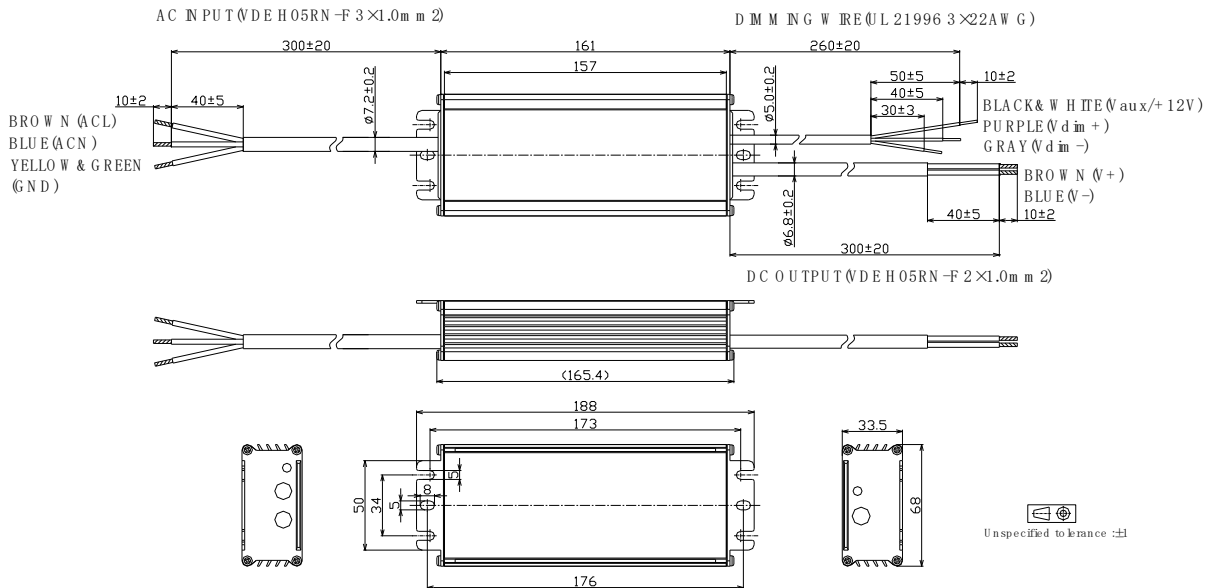


### 120W, Isolated Dimming, NFC Programmable LED Driver

#### - BLD-120-Cxxx-DN/DRS (VDE Cable)



#### - BLD-120-Cxxx-ERS (VDE Cable)







**120W, 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	120	69	114	105
	1000	120	72	120	100
	950	120	76	126	95
	900	120	80	133	90
	850	120	85	141	85
	800	120	90	150	80
	750	120	96	160	75
	700	120	103	171	70
	650	111	103	171	70
	600	103	103	171	70
	550	94	103	171	70
	500	86	103	171	70
	...	...	...	...	...
	70	12	103	171	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	120	51	86	140
	1300	120	55	92	130
	1200	120	60	100	120
	1100	120	65	109	110
	1050	120	69	114	105
	1000	114	69	114	105
	950	109	69	114	105
	900	103	69	114	105
	850	97	69	114	105
	800	91	69	114	105
	750	86	69	114	105
	700	80	69	114	105
	...	...	...	...	...
	105	12	69	114	105

**120W, 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)
-C280	2800	120	26	43	280
	2700	120	27	44	270
	2600	120	28	46	260
	2500	120	29	48	250
	2400	120	30	50	240
	2300	120	31	52	230
	2200	120	33	55	220
	2100	120	34	57	210
	2000	114	34	57	210
	1900	109	34	57	210
	1800	103	34	57	210
	1700	97	34	57	210
	1600	91	34	57	210
	...	...	...	...	...
	210	12	34	57	210

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C380	3800	120	19	32	380
	3700	120	19	32	370
	3600	120	20	33	360
	3500	120	21	34	350
	3400	120	21	35	340
	3300	120	22	36	330
	3200	120	23	38	320
	3100	120	23	39	310
	3000	120	24	40	300
	2900	120	25	41	290
	2800	120	26	43	280
	2700	116	26	43	280
	2600	111	26	43	280
	2500	107	26	43	280
	...	...	...	...	...
	280	12	26	43	280

**■ Revision History**

Revision	Date	Contents
D	2022-03-22	<ol style="list-style-type: none"><li>1. Index page added</li><li>2. Reduced dimming interface sourcing current</li><li>3. DALI 2.0 compatibility added</li><li>4. Programming instruction added</li><li>5. Inrush current data added</li><li>6. Tc point position indication added</li><li>7. Dielectric strength level added</li><li>8. Packaging information added</li><li>9. Mechanical design change with dimming cable color</li><li>10. Revision history added</li></ol>