



Product Datasheet

The global certified BLD-710-C is an extremely high efficiency smart LED driver for grow lights. 100khour long life and 7-year warranty provide high confidence to luminaire users. NFC and cable programming are both available for users. All around protections including digital OTP (internal and external by NTC) with auto-recovery secure non-stop operation for luminaires. Customized active daisy chain, master mode and button design greatly ease the design for horticultural usage.



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Features

- Absolute Supply Voltage: 100-305Vac or 127-420Vdc, 380Vac for 2 hours
- Horticultural Customized Endcap
- 95% Efficiency Max.
- Low Inrush Current
- Programmable Hot Swap
- Active Daisy Chain and Master Mode
- 100,000Hour Life @ Tc=75°C
- 7 Year Warranty @ Tc<=75°C
- Airset™ NFC Programmability
- +/-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 to Power Controllers and Fans (Optional)
- UL Class P, 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-710-C16A-XYZ	100-305Vac	710 W	30-56Vdc	12.5A	16A	UL/FCC/CB/ENEC/RCM/EAC/CCC/UKCA
BLD-710-C860-XYZ	100-305Vac	710 W	49-117Vdc	6A	8.6A	
BLD-710-C600-XYZ	100-305Vac	710 W	70-167Vdc	4.2A	6A	
BLD-710-C420-XYZ	100-305Vac	710 W	100-250Vdc	2.8A	4.2A	
BLD-710-C280-XYZ	100-305Vac	710 W	150-333Vdc	2.1 A	2.8A	
BLD-710-C210-XYZ	100-305Vac	710 W	200-412Vdc	1.7A	2.1A	

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

■ Technical Data

Input Voltage	100-305Vac or 127-420Vdc, 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	6.1Amax@120Vac & Full-Load, 2.9Amax@277Vac & Full-Load
Inrush Current	See Inrush Current Section in the datasheet
Leakage Current	1mA max @277Vac 60Hz, UL8750, 0.75mA max @220Vac 50Hz, IEC61347-1
Input Under Voltage	Shut down and auto-restart
Surge Protection	Line to line 4kV, line to ground 4kV, 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	110% 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°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
Dimensions (Standard)	13.22x3.54x1.63 by inch (body), 14.29x3.54x1.63 by inch (endcaps included) 336x 90 x 41.5 by mm (body), 363 x 90 x 41.5 by mm (endcaps included)
Net Weight	2600g
Packing	See Package Information Section in the datasheet

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

■ 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

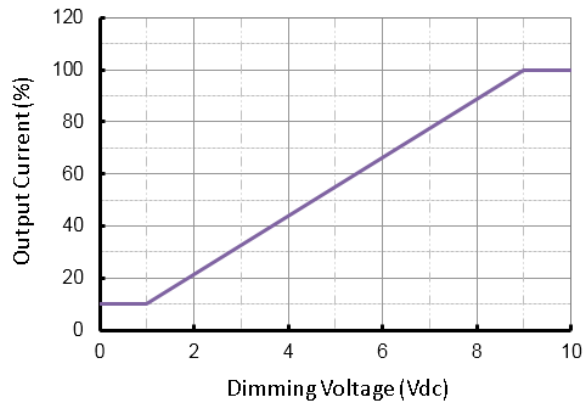
■ Dimming

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

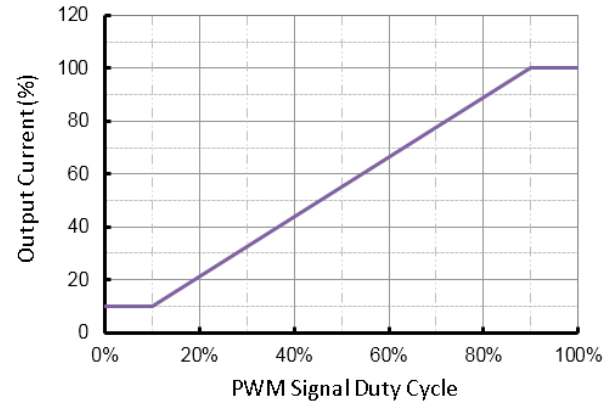
- Dimming Curve

a. Without dim-off

0-10V Dimming Curve

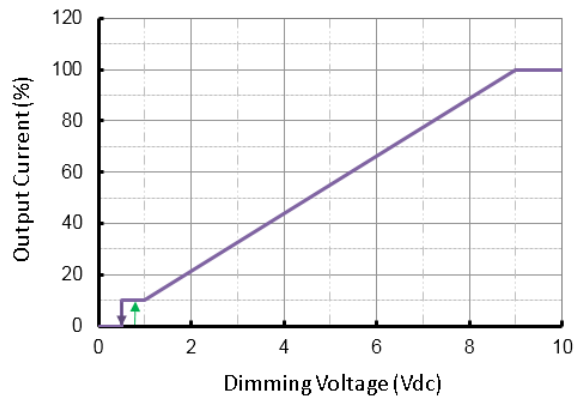


PWM Dimming Curve

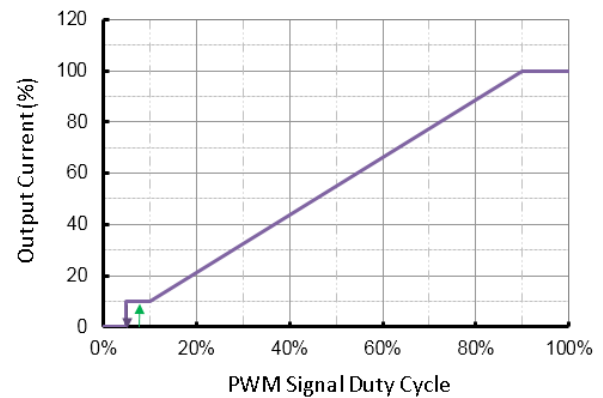


b. With dim-off

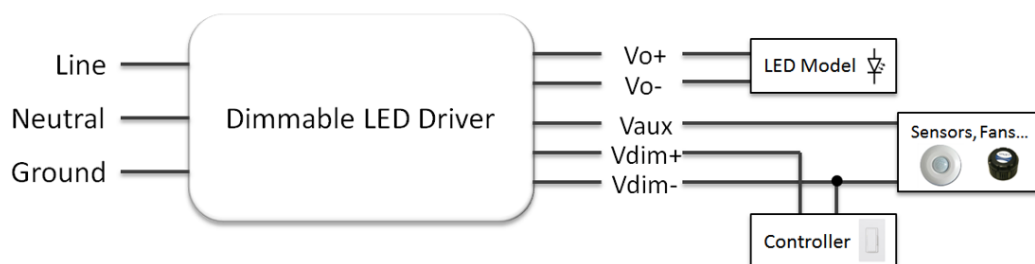
0-10V Dimming Curve



PWM Dimming Curve



- Dimming Wiring

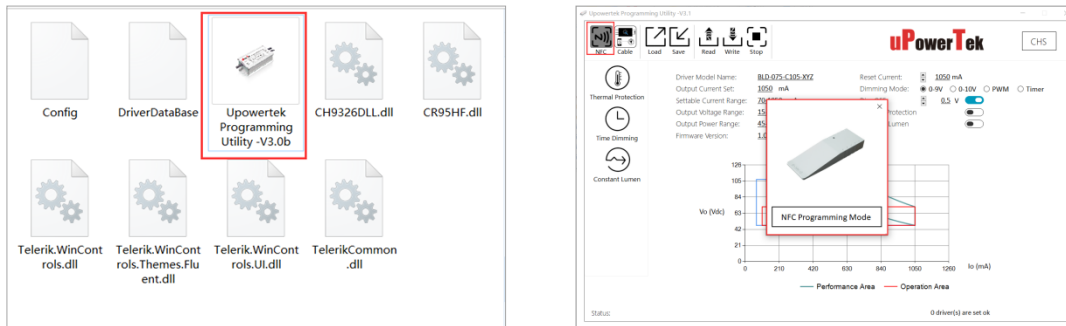


■ Programming

- NFC Programming by PC/Laptop



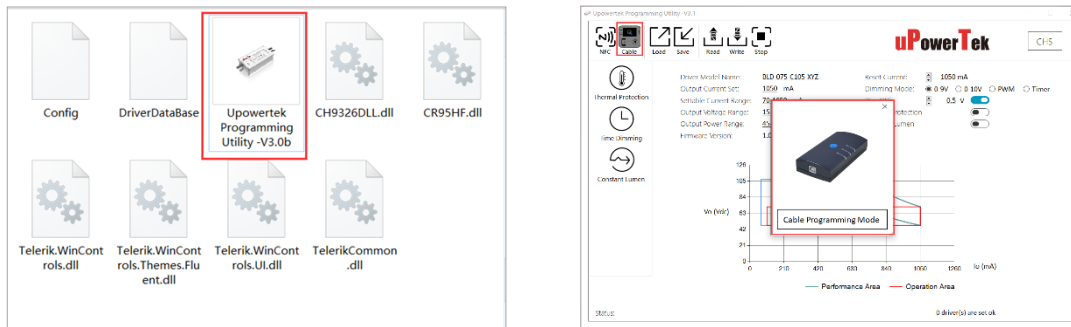
- Download PC Software at <https://www.upowertek.com/download-2/>
- Click Upowertek Programming Utility.exe
- The GUI start and notify you the programming mode (cable programming or NFC programming)
- Click "NFC" button if it's not NFC programming mode.



- 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)

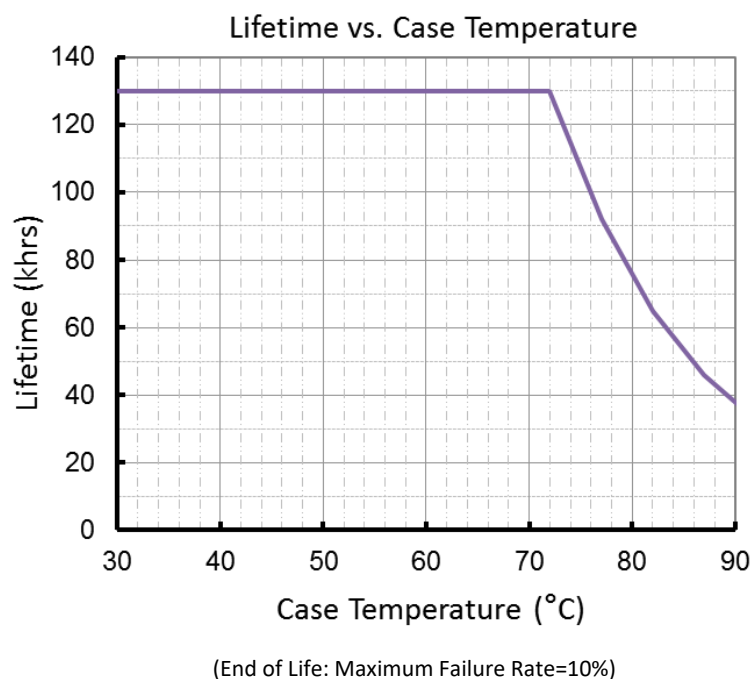


- Click "Cable" button if it's not cable programming mode.
- Connect the Vdim+ and Vdim- wires to the right ones (the same color) of the programmer.

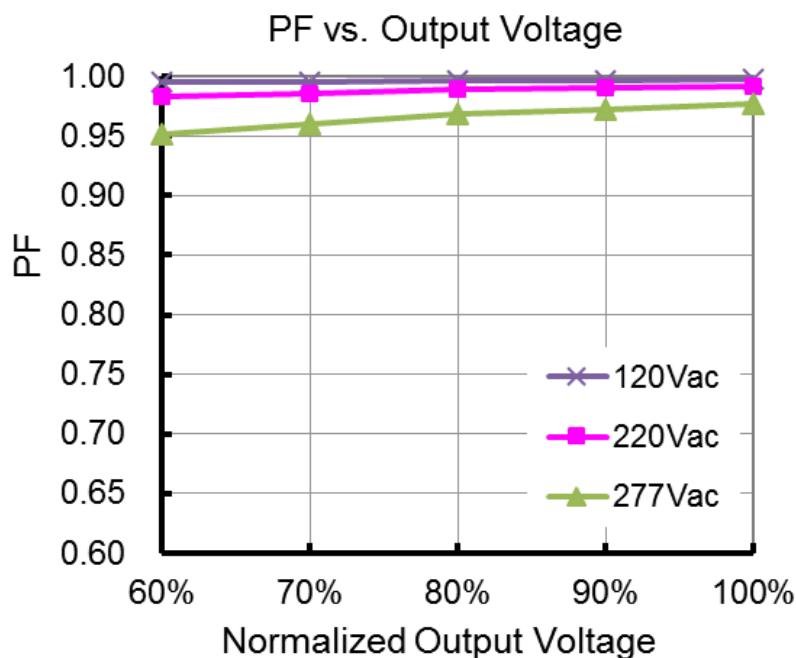
- Please contact with us for product user manual and more information such as:

- 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

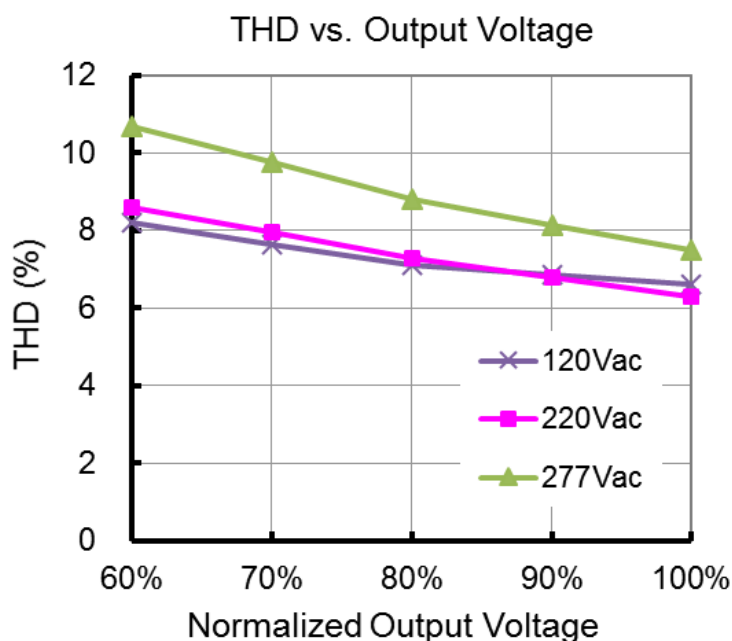
■ Lifetime vs. Case Temperature



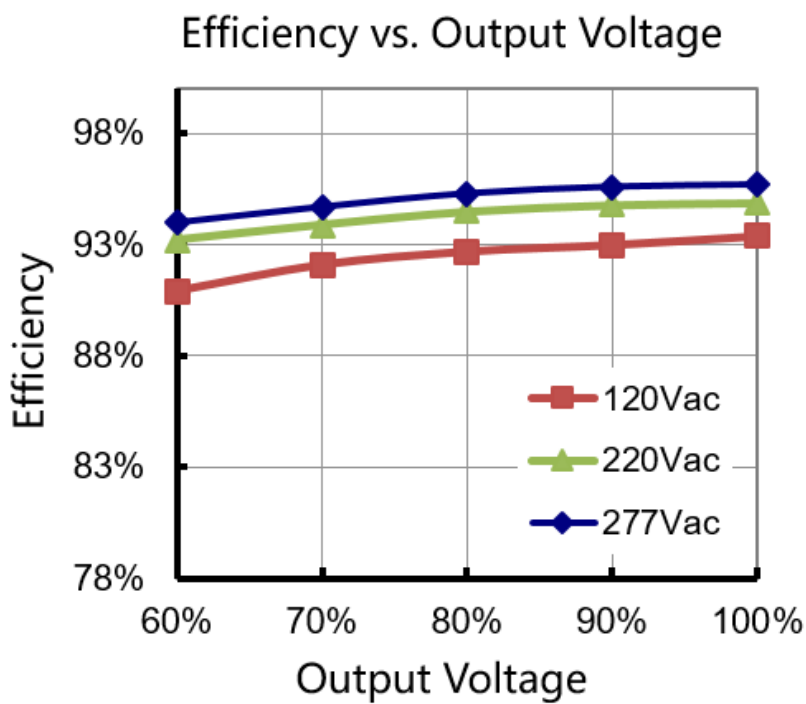
■ Power Factor vs. Load



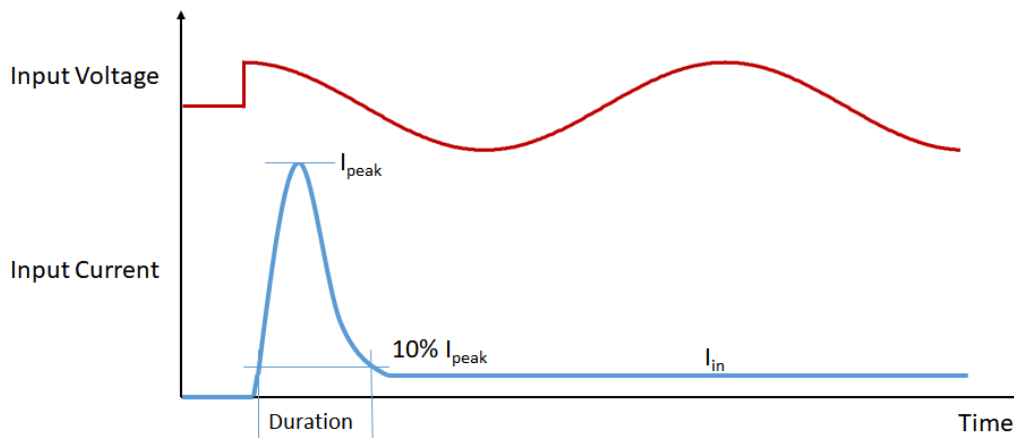
■ THD vs. Load



■ Efficiency vs. Load (16A Model)



Inrush Current



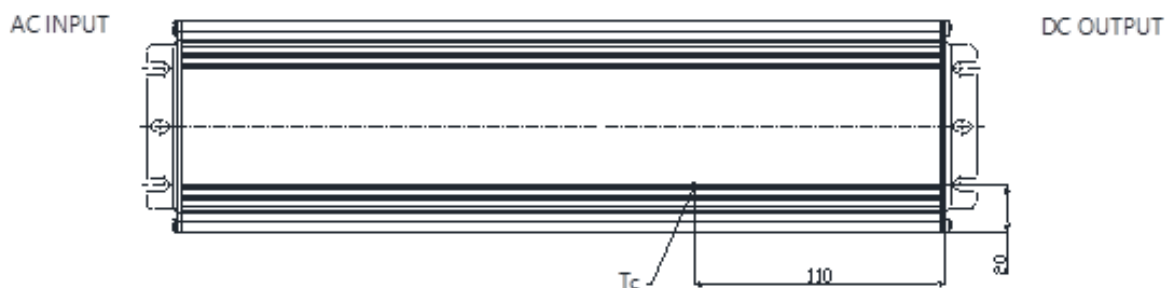
Input Voltage	I_{peak}	Duration
120Vac	3A	60mS
220Vac	5A	70mS
277Vac	8A	70mS

Please contact with us for MCB calculation and waveforms.

Dielectric Strength

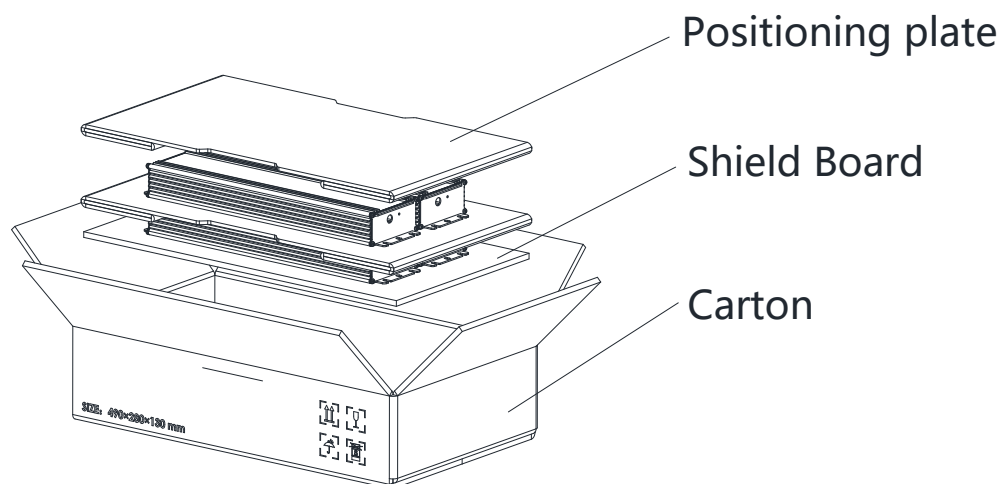
Unit: Vac	Input	Output	Dimming	Case
Input	-	3750	3750	1554
Output	3750	-	1554	1554
Dimming	3750	1554	-	1554
Case	1554	1554	1554	-

Tc Point



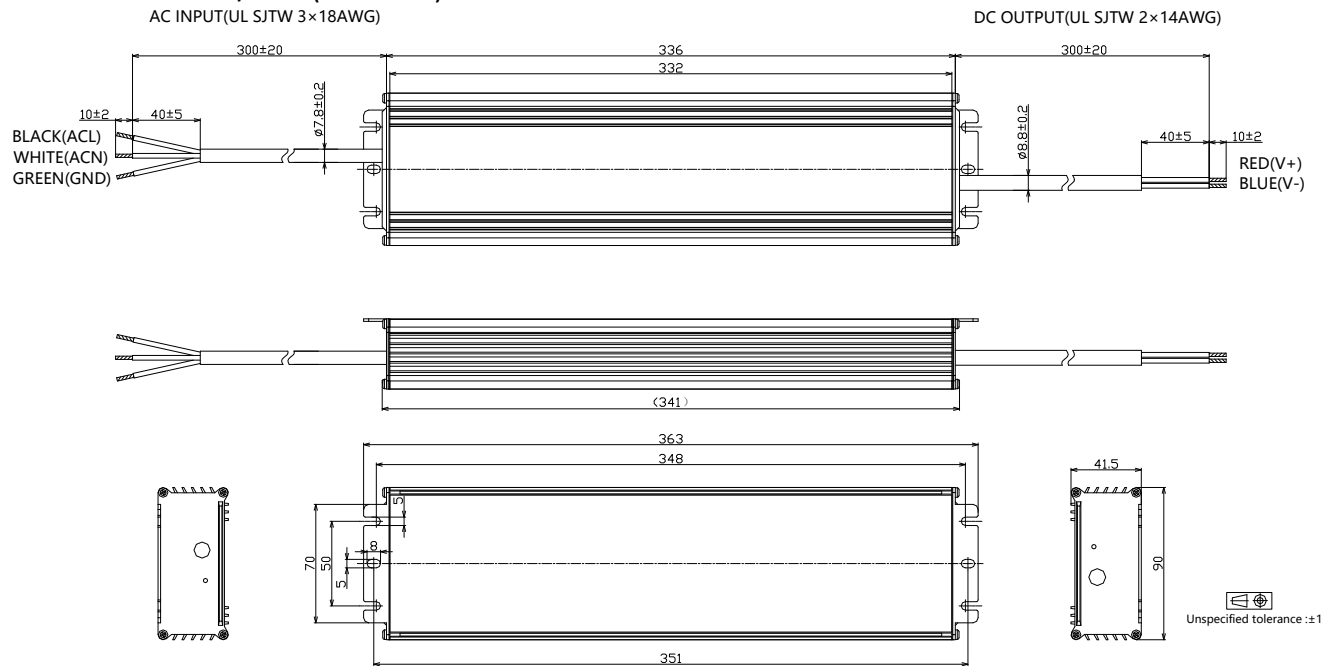
■ Packaging Information

Typical Carton Dimension(L×W×H)	490×280×130 mm
Positioning plate	2pcs/carton
Shield Board	1pcs/carton
LED Drivers	4pcs/carton

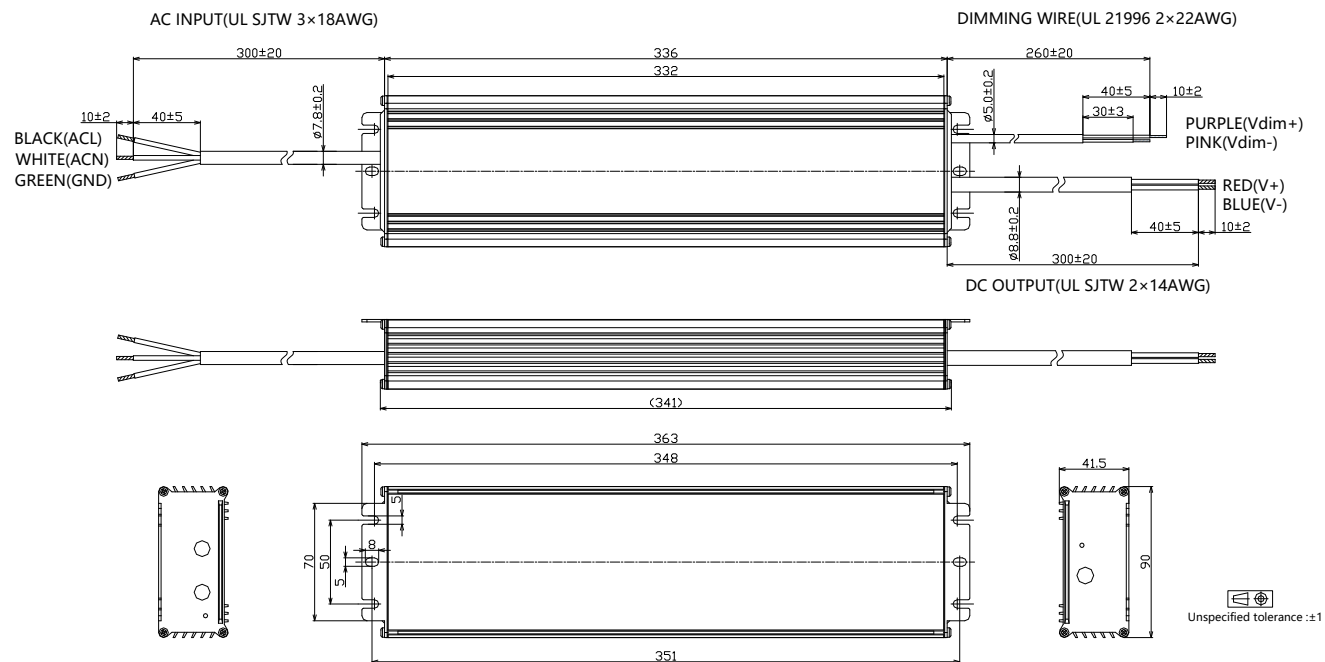


Mechanical Design

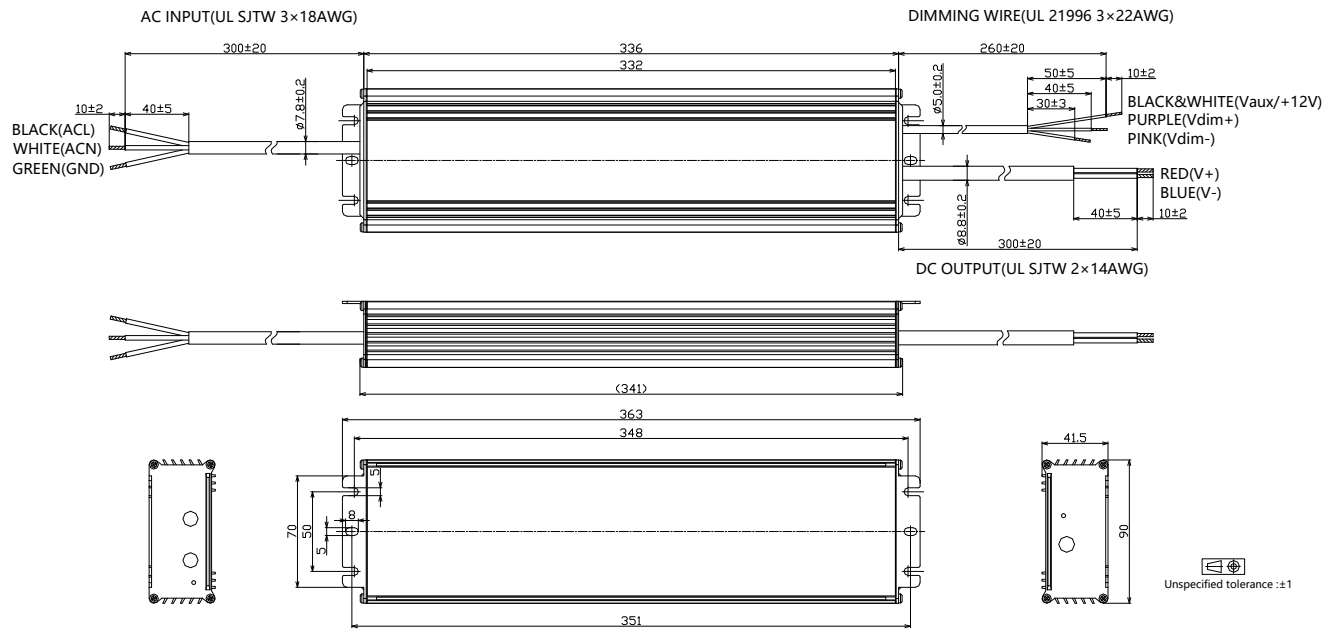
- BLD-710-Cxxx-NN/TRU (UL Cable)



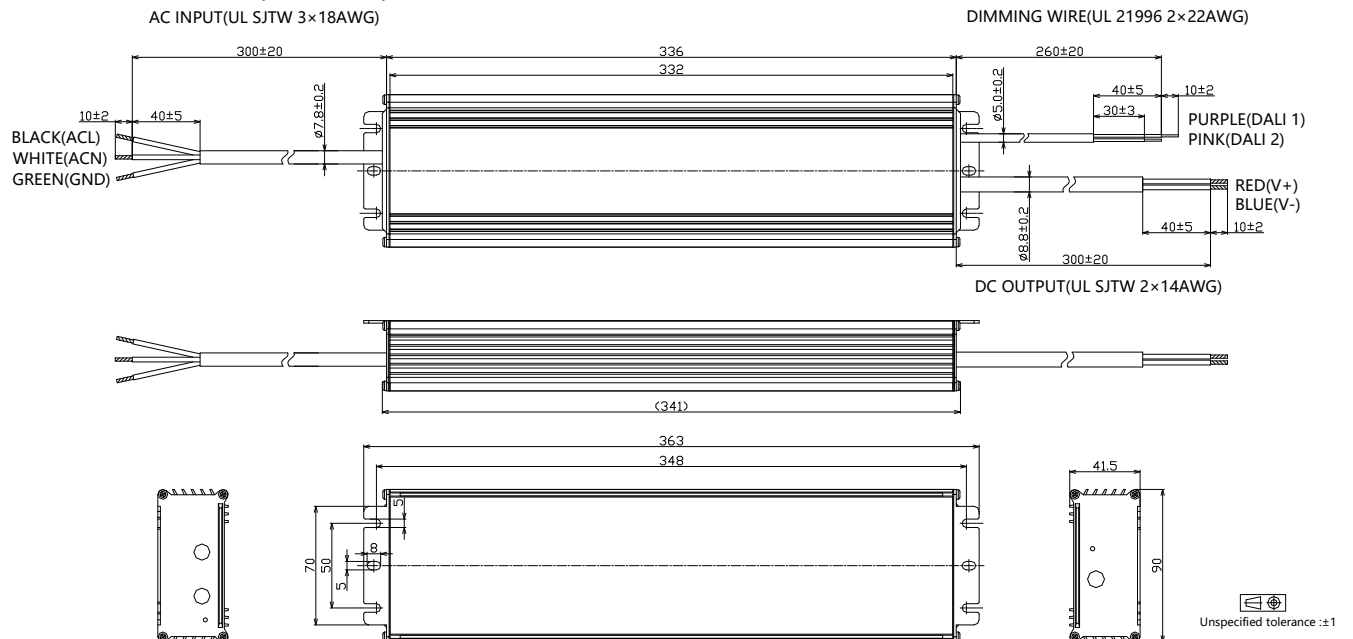
- BLD-710-Cxxx-DN/DRU (UL Cable)



- BLD-710-Cxxx-ERU (UL Cable)

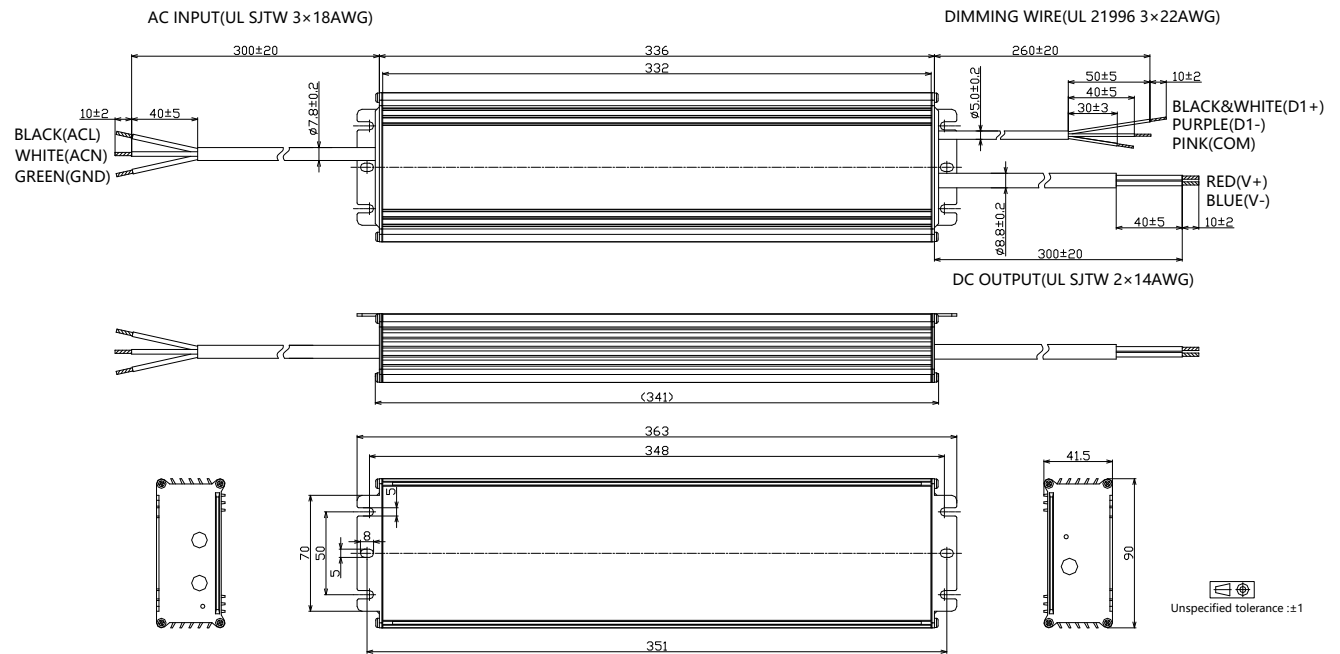


- BLD-710-Cxxx-ARU (UL Cable)

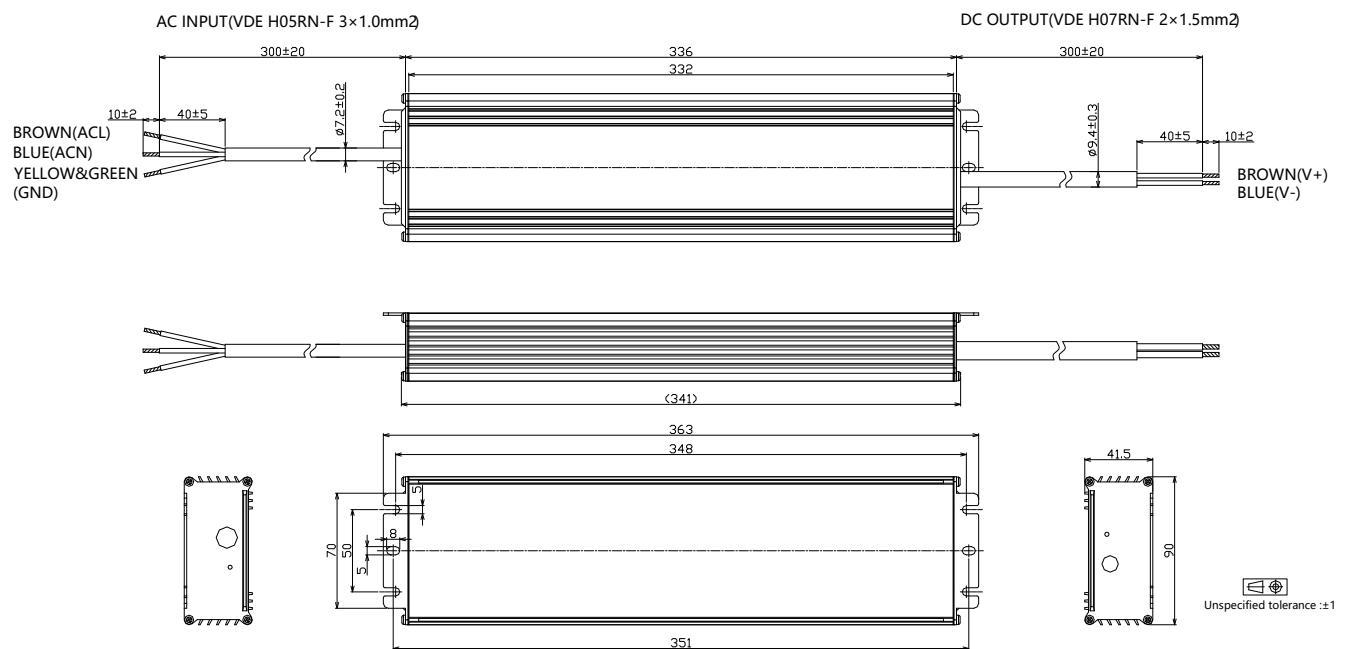


710W, 120-277Vac Input, Long Life High Quality Driver

- BLD-710-Cxxx-MRU (UL Cable)

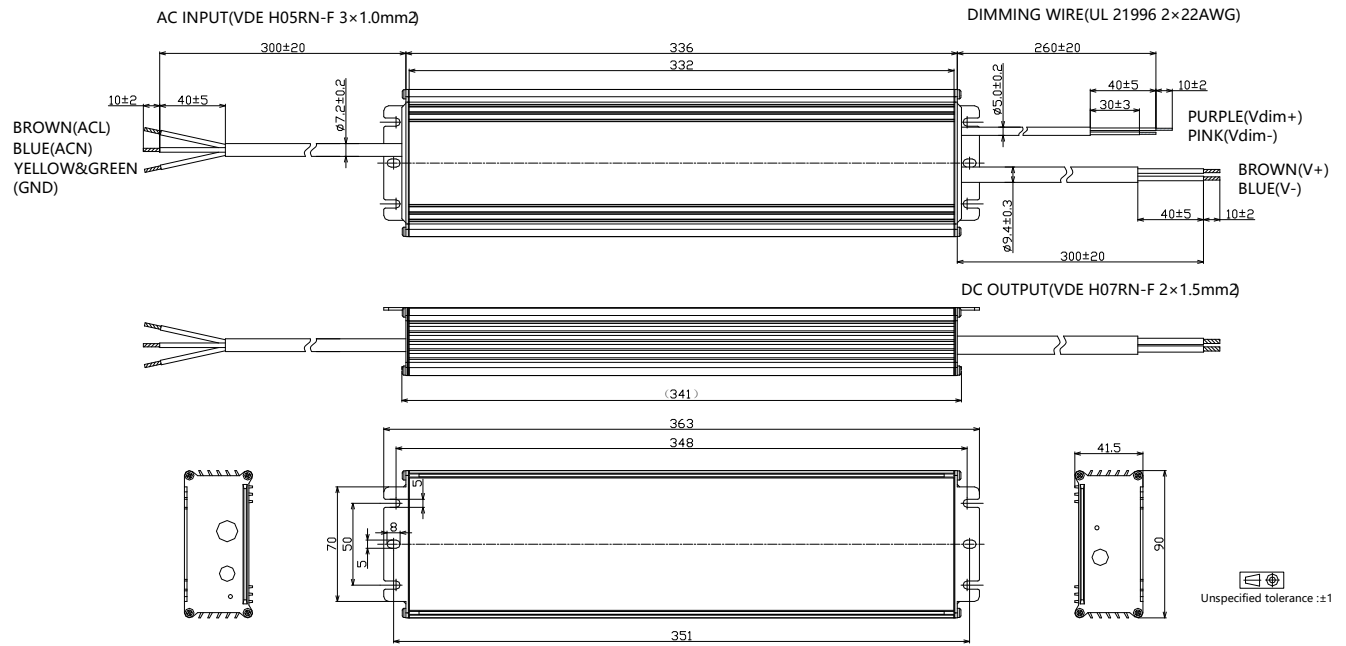


- BLD-710-Cxxx-NN/TRS (VDE CABLE, MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)

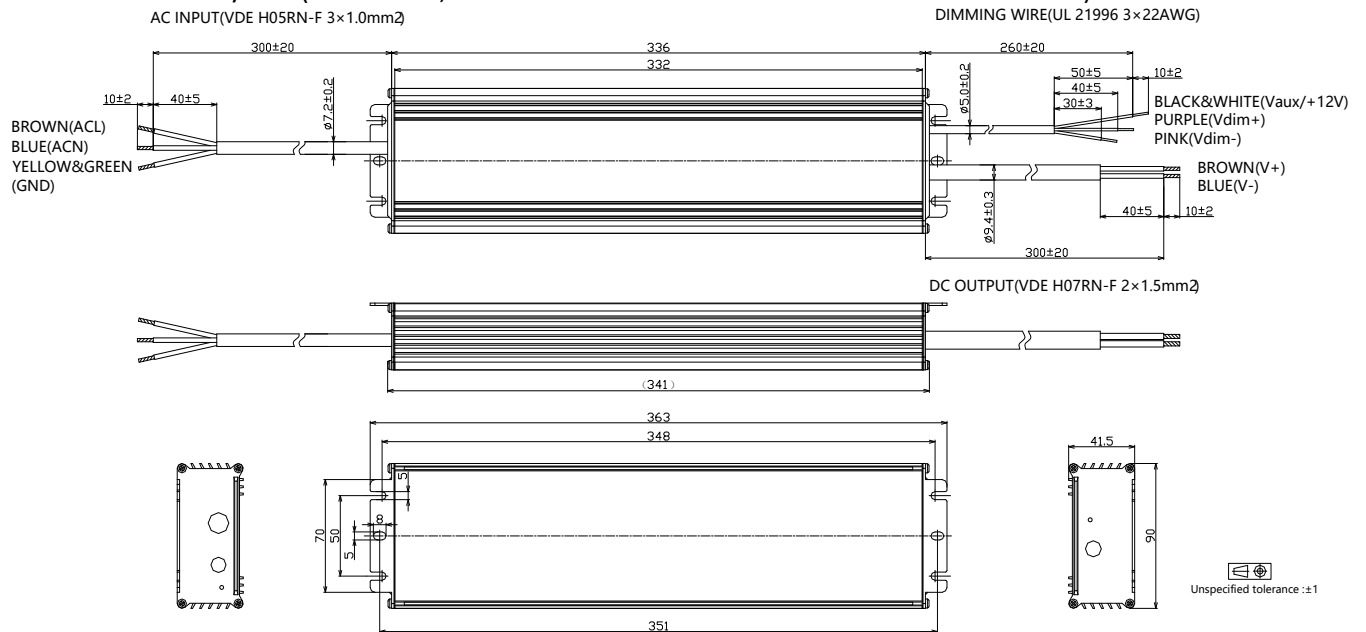


710W, 120-277Vac Input, Long Life High Quality Driver

- BLD-710-Cxxx-DN/DRS (VDE CABLE, MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)

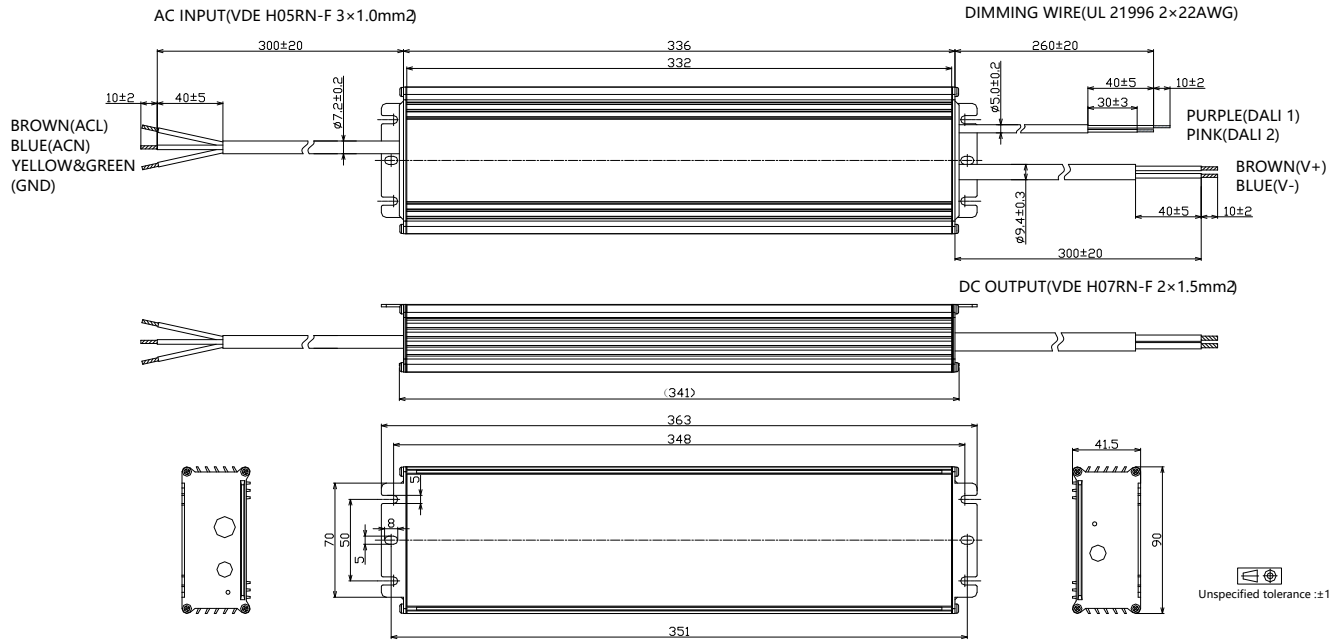


- BLD-710-Cxxx-EN/ERS (VDE CABLE, MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)

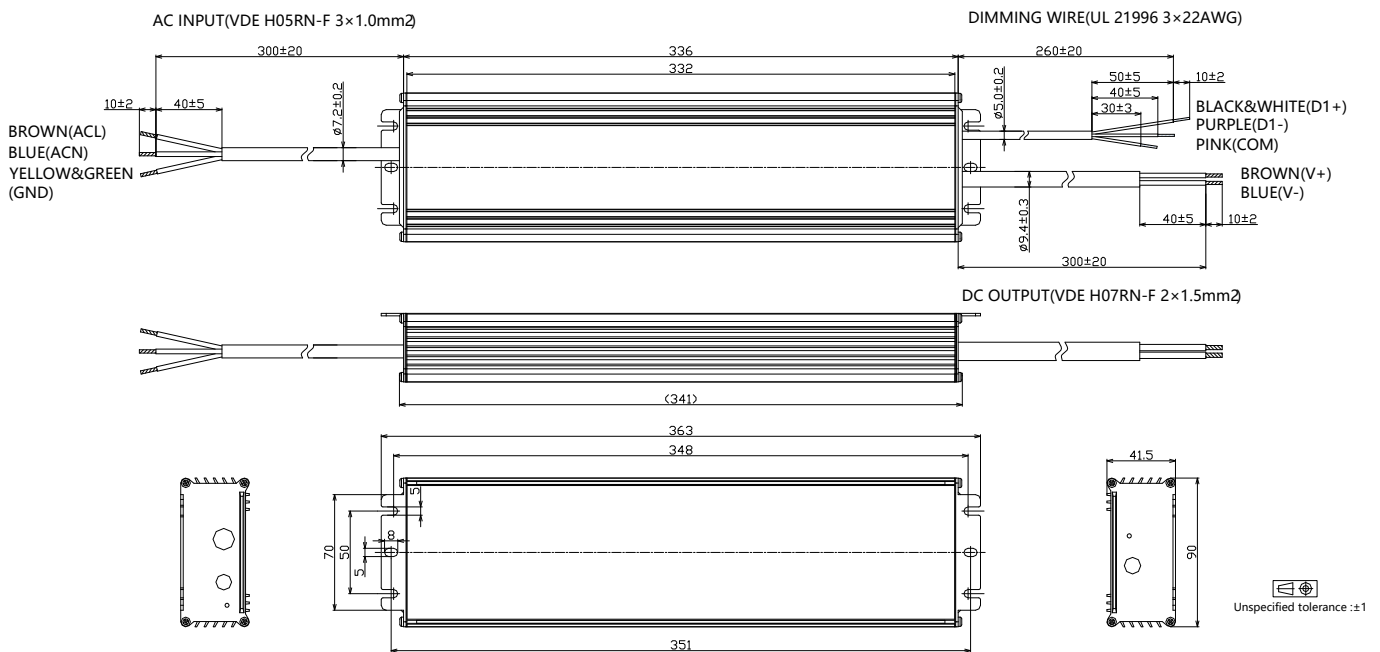


710W, 120-277Vac Input, Long Life High Quality Driver

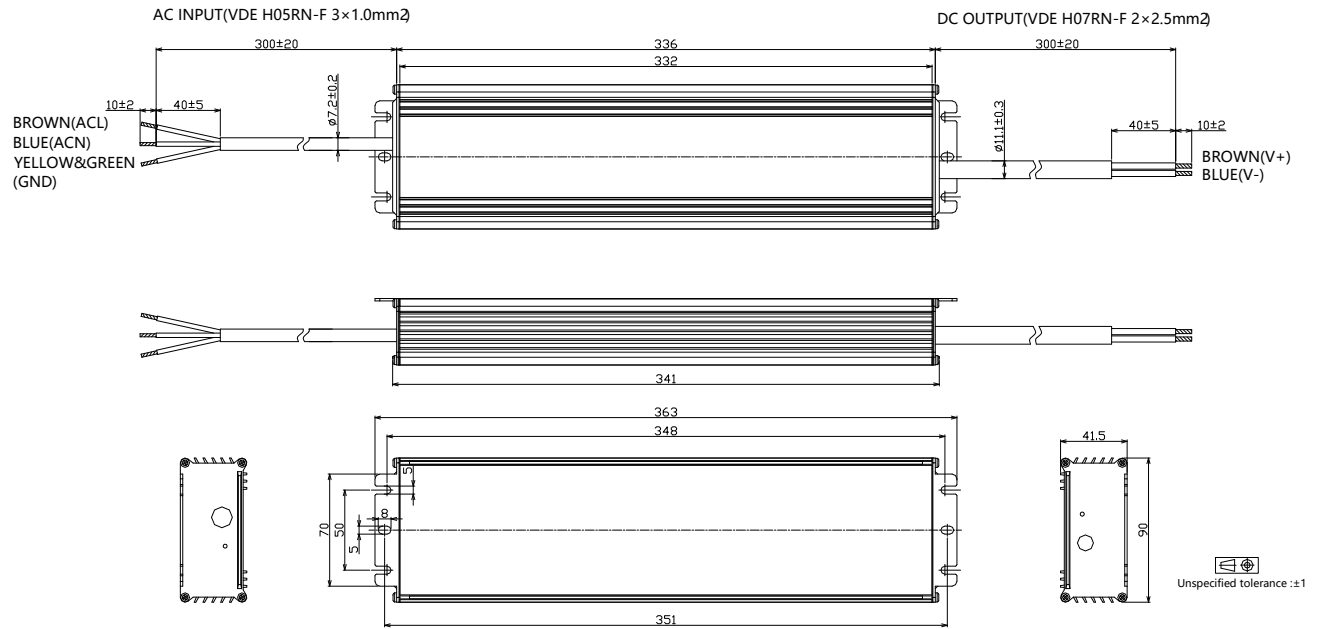
- BLD-710-Cxxx-ARS (VDE CABLE, MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



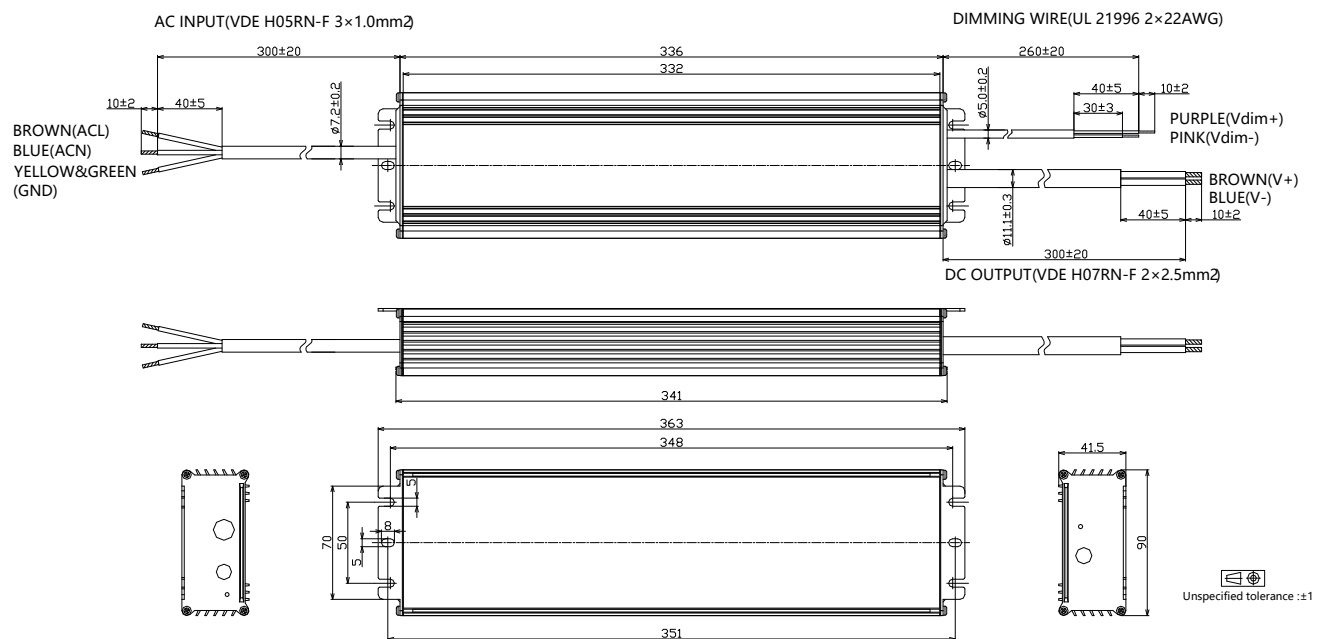
- BLD-710-Cxxx-MRS (VDE CABLE, MODELS WITH HIGHER THAN 60V OUTPUT VOLTAGE)



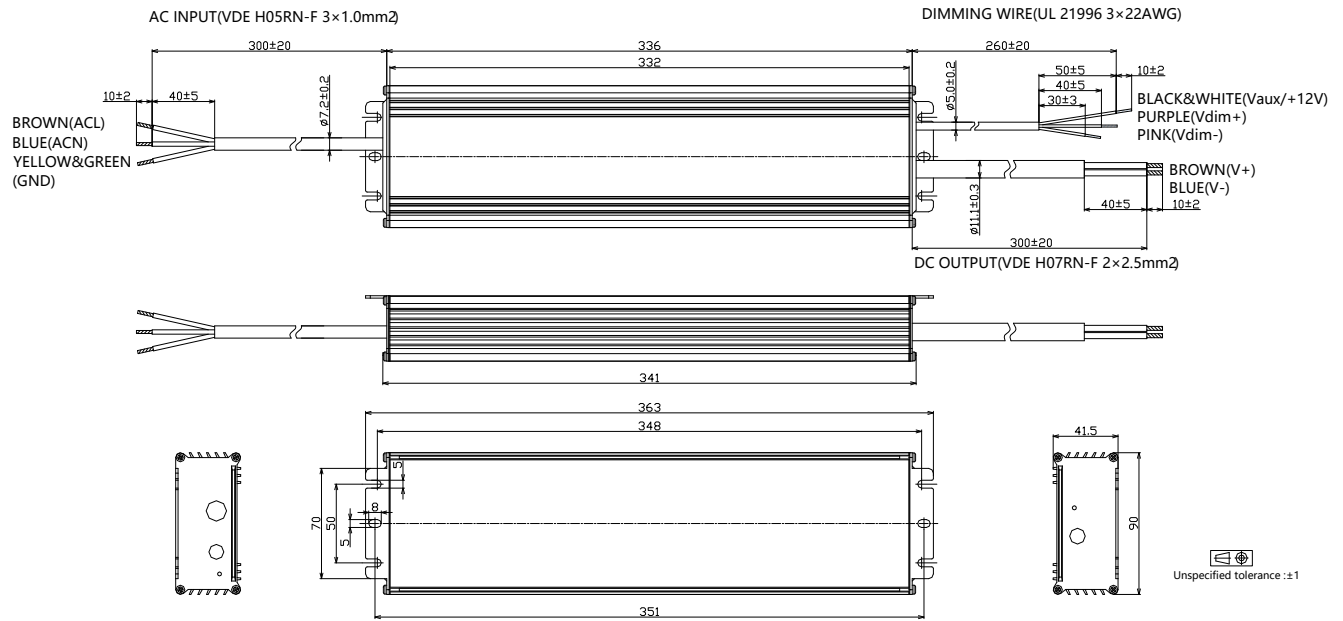
- BLD-710-Cxxx-NN/TRS (VDE CABLE, MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



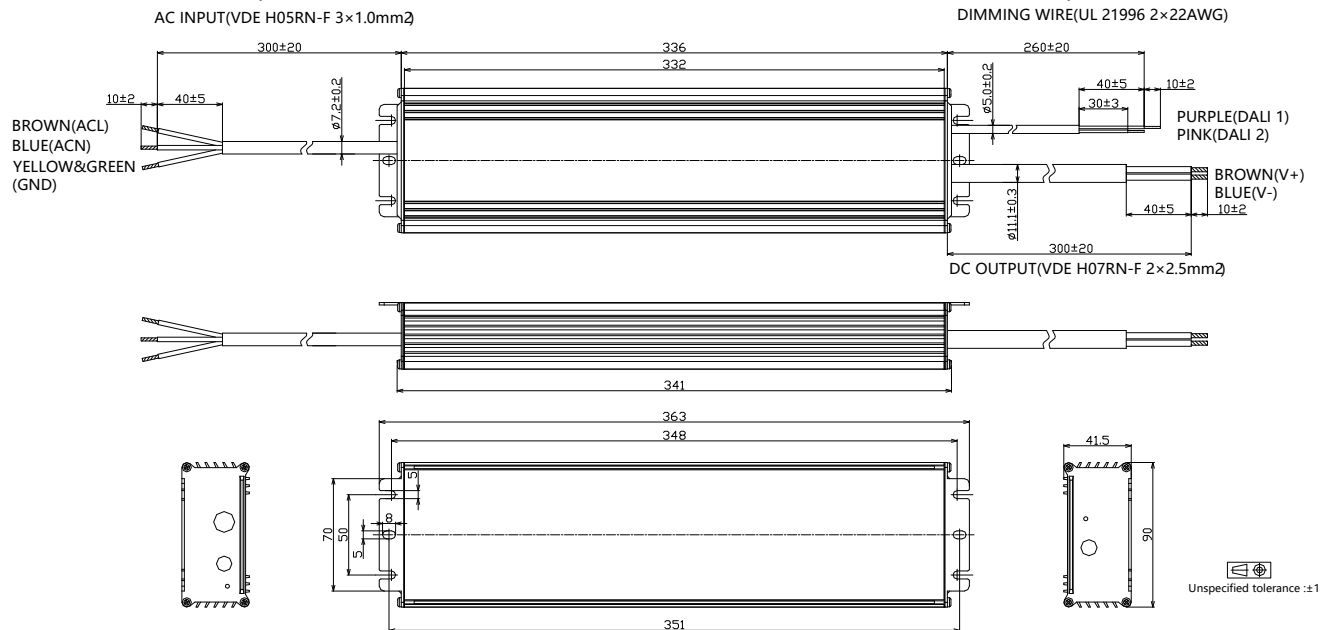
- BLD-710-Cxxx-DN/DRS (VDE CABLE, MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



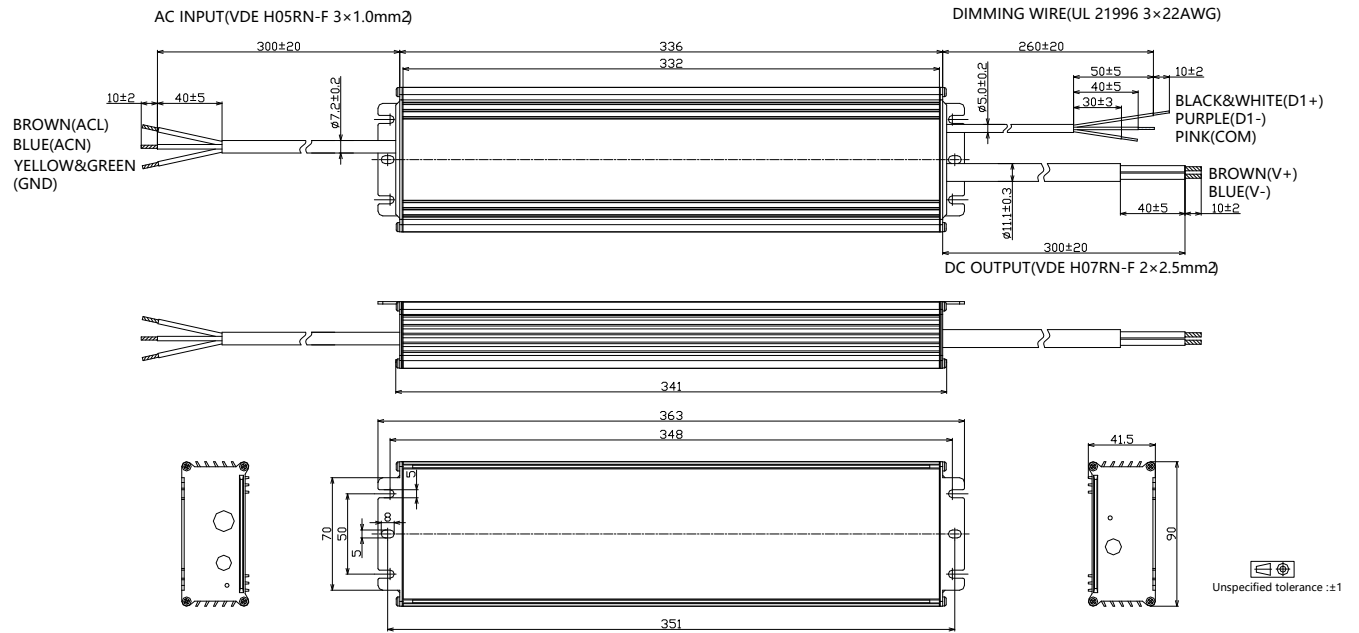
- BLD-710-Cxxx-EN/ERS (VDE CABLE, MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



- BLD-710-Cxxx-ARS (VDE CABLE, MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)

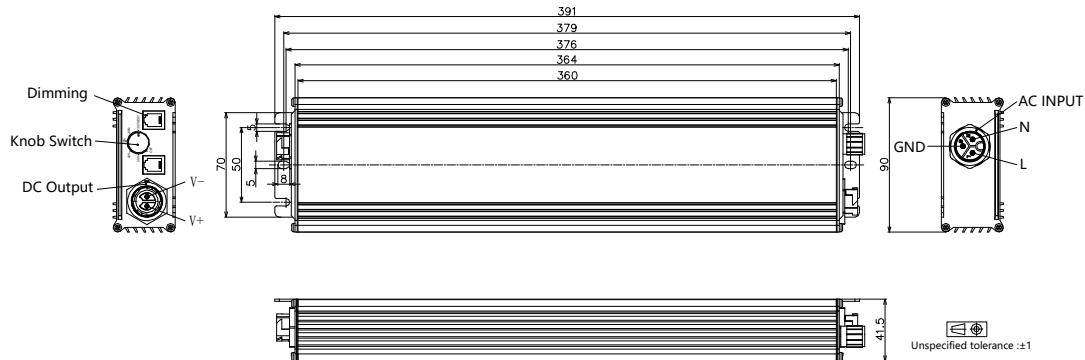


- BLD-710-Cxxx-MRS (VDE CABLE, MODELS WITH LESS THAN 60V OUTPUT VOLTAGE)



710W, 120-277Vac Input, Long Life High Quality Driver

- Customized Functional End Cap Version

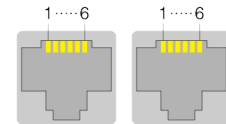


- Add suffix #abcd00 to the end of part number to indicate different configuration. Please refer to product application note AN06 or contact with us for more like **active daisy chain, master mode and button dimming** etc.

Item	Value Definition	Description
Input	a	F: M19 waterproof connector P: C14 plug N: Same cable as standard version
Output	b	F: M19 waterproof connector, 2 pin N: Same cable as standard version
Dimming	c	F: M12 waterproof connector R: RJxx (xx=25,14,12,11) connector x 2 S: 3.5mm multi-media plug N: Same cable as standard version
Knob	d	K: Knob with steps B: Knob without steps N: No knob

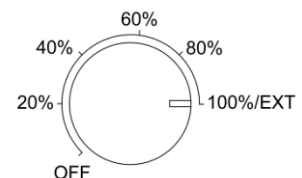
- RJ25 Pin Description (can be customized according to control system)

Pin	Description
1,6	12V Aux-power
2,5	Dim+
3,4	Dim-/RTN



- Knob Description

Position	Description
100%/EXT	If there is no external control, 100% output. If there is external control, output is controlled by external signal.
Off,20%,40%,60%,80%	External signal invalid.



■ 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)
-C16A	16000	710	30	44	1600
	15000	710	30	47	1500
	14500	710	30	49	1450
	14000	710	30	51	1400
	13500	710	32	53	1350
	13000	710	33	55	1300
	12500	710	34	56	1250
	12000	672	34	56	1250
	...	...	...	...	...
	1250	71	34	56	1250

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C860	8600	710	49	82	860
	8500	710	50	84	850
	8400	710	51	85	840
	8200	710	52	87	820
	8000	710	53	89	800
	7800	710	54	91	780
	7600	710	56	93	760
	7400	710	57	96	740
	7200	710	60	98	720
	7000	710	61	101	700
	6800	710	63	104	680
	6600	710	65	108	660
	6400	710	67	111	640
	6200	710	69	115	620
	6000	710	71	118	600
	5800	686	71	118	600
	...	...	...	...	...
	600	71	71	118	600

710W, 120-277Vac Input, Long Life High Quality Driver

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C600	6000	710	71	118	600
	5800	710	73	122	580
	5600	710	76	126	560
	5400	710	79	132	540
	5200	710	81	137	520
	5000	710	86	142	500
	4800	710	89	148	480
	4600	710	93	155	460
	4400	710	97	162	440
	4200	710	101	169	420
	4000	677	101	169	420
	3800	642	101	169	420
	...	...	...	...	...
	420	71	101	169	420

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C420	4200	710	100	167	420
	4100	710	102	171	410
	4000	710	105	175	400
	3900	710	108	179	390
	3800	710	111	184	380
	3700	710	114	189	370
	3600	710	117	194	360
	3500	710	120	200	350
	3400	710	124	206	340
	3300	710	127	212	330
	3200	710	131	219	320
	3100	710	135	226	310
	3000	710	140	233	300
	2900	710	145	241	290
	2800	710	150	250	280
	2700	675	150	250	280
	2600	650	150	250	280
	...	...	...	...	...
	280	70	150	250	280

710W, 120-277Vac Input, Long Life High Quality 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	710	150	250	280
	2700	710	156	259	270
	2600	710	162	269	260
	2500	710	168	280	250
	2400	710	175	292	240
	2300	710	183	304	230
	2200	710	191	318	220
	2100	710	200	333	210
	2000	667	200	333	210
	1900	633	200	333	210
	1800	600	200	333	210
	1700	567	200	333	210
	...	...	...	...	...
	210	70	200	333	210

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C210	2100	710	200	333	210
	2000	710	210	350	200
	1900	710	221	368	190
	1800	710	233	389	180
	1700	710	247	412	170
	1600	659	247	412	170
	1500	618	247	412	170
	1400	576	247	412	170
	1300	535	247	412	170
	1200	494	247	412	170
	1100	453	247	412	170
	1000	412	247	412	170
	...	...	...	...	...
	170	70	247	412	170

■ Revision History

Revision	Date	Contents
F	2022-03-22	1. Index page added 2. Reduced dimming interface sourcing current 3. DALI 2.0 compatibility added 4. Programming instruction added 5. Inrush current data added 6. Tc point position indication added 7. Dielectric strength level added 8. Packaging information added 9. Mechanical design change with dimming cable color 10. Revision history added
H	2022-05-27	1. Model C420 operation range updated. 2. Model C280, C210 added.