Product Datasheet

The global certified BLD-200-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 11
- Dielectric Strength 11
- Tc Point 12
- Packaging Information 12
- Mechanical Design 13
- Output Operation Range 15
- Revision History 18

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-200-C105-ARZ	90~305Vac or 127-420Vdc	200W	114-286Vdc	700mA	1050mA
BLD-200-C140-ARZ		200W	86-190Vdc	1050mA	1400mA
BLD-200-C210-ARZ		200W	57-143Vdc	1400mA	2100mA
BLD-200-C420-ARZ		200W	29-71Vdc	2800mA	4200mA
BLD-200-C630-ARZ		200 W	19-45Vdc	4400mA	6300mA

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 details.

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

Technical Data

Input Voltage	90~305Vac or 127-420Vdc
Input Frequency	47～63Hz
Power Factor	>0.95@60-100%load, refer to PF vs. Load curve
THD	<15%@70-100%load, refer to THD vs. Load curve
Input Current	1.8Amax@120Vac & Full-Load, 0.9Amax@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-restart
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℃
Operating Temperature	Case Temperature Tc=-40℃～+90℃； 10%RH～100%RH
Storage Temperature	-40℃～+85℃； 5%RH～100%RH
MTBF	≥280,000 hours, 75℃ 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	175.0x68.0x38.5 by mm (body), 201.0x68.0x38.5 by mm (endcaps included)
Net Weight	1150g
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

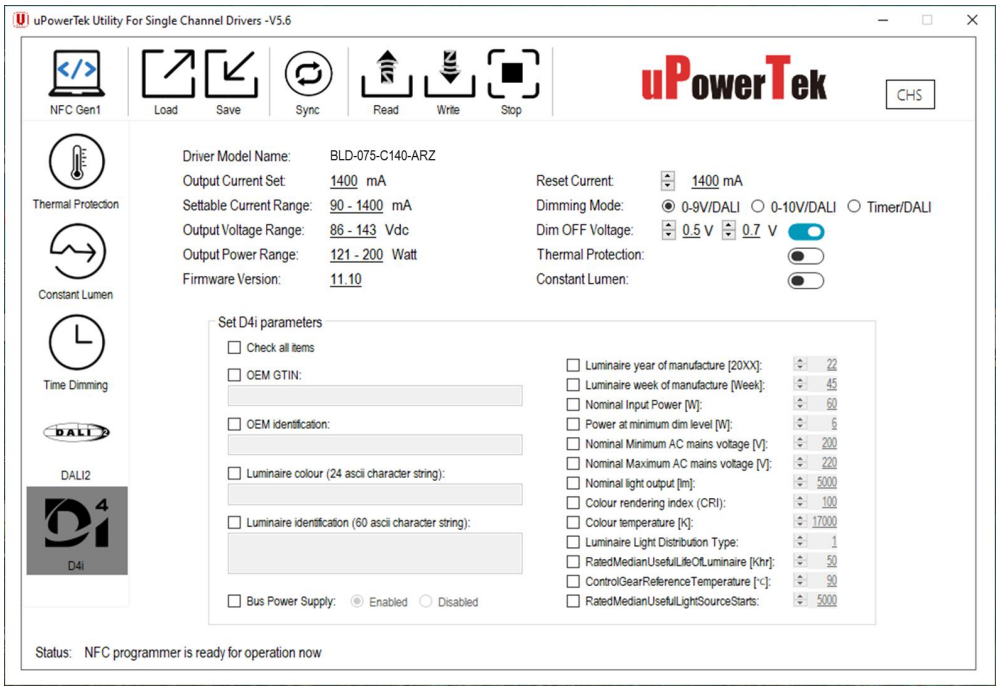
Dimming

Parameter	Min.	Typ.	Max.
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	

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

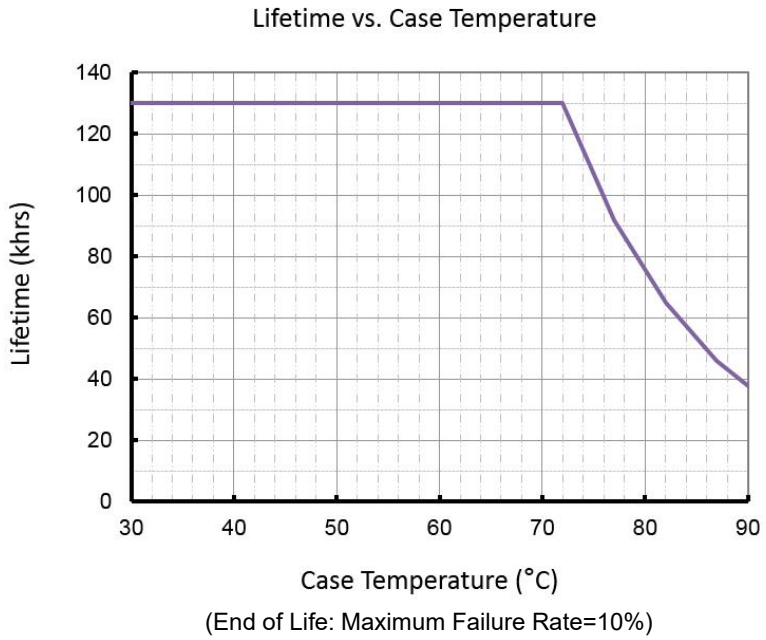
- **Connection Guide**

  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

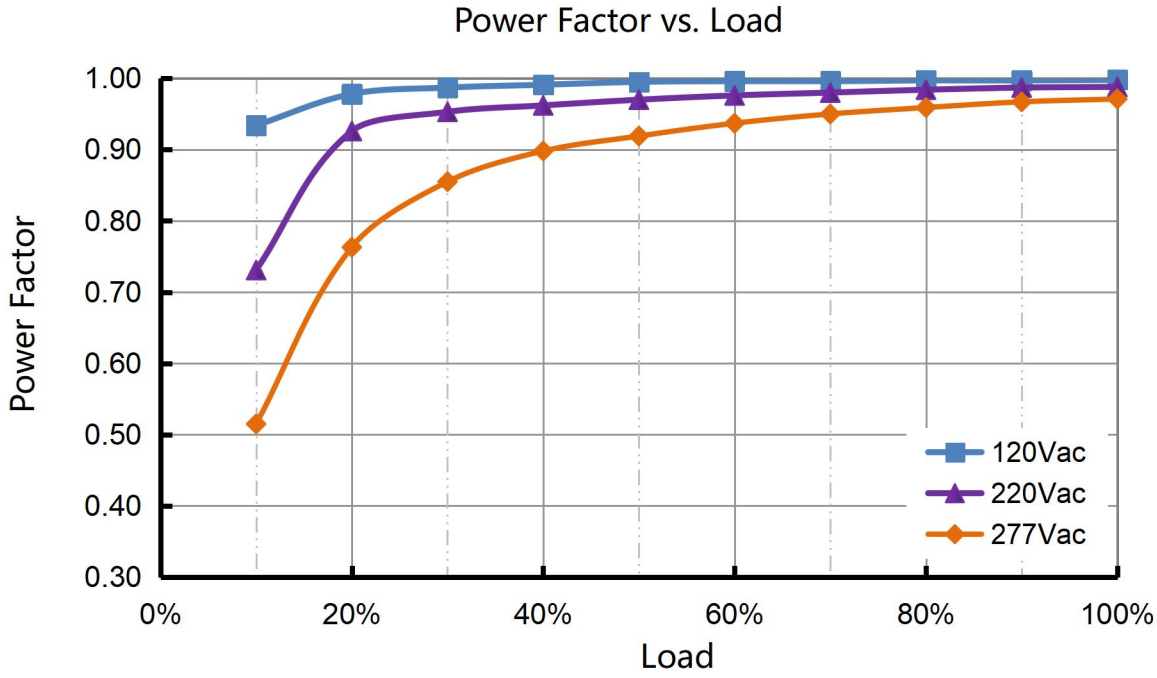
Cellphone Programming

Lifetime vs. Case Temperature

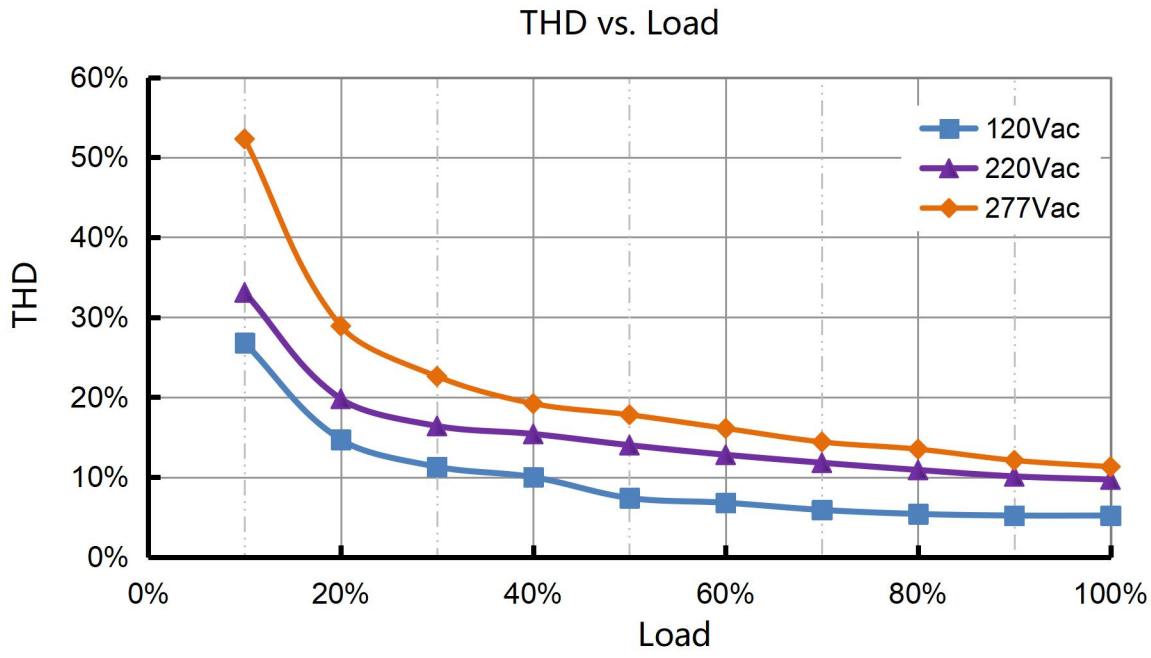


(End of Life: Maximum Failure Rate=10%)

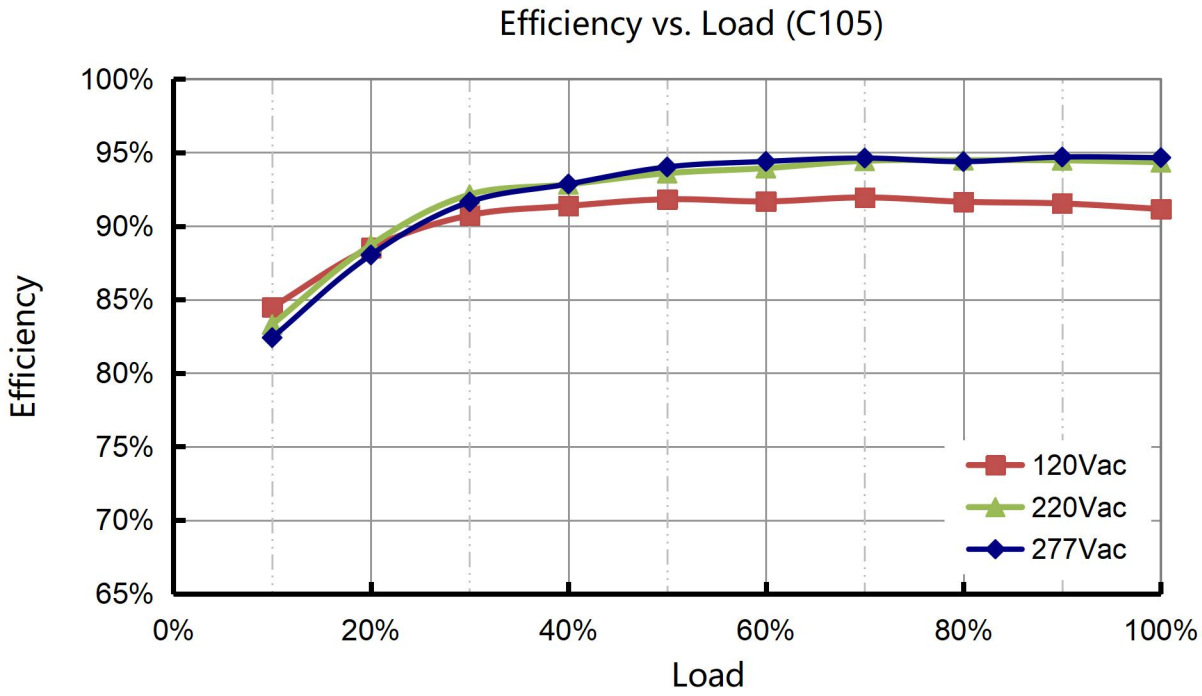
Power Factor vs. Load

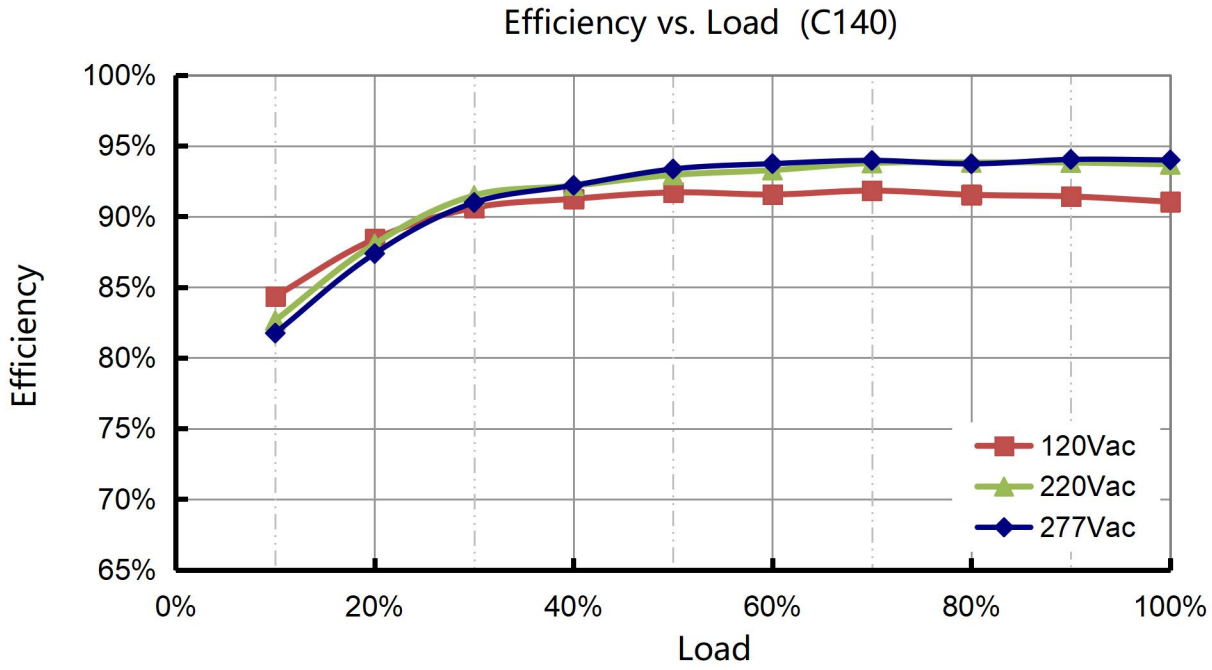


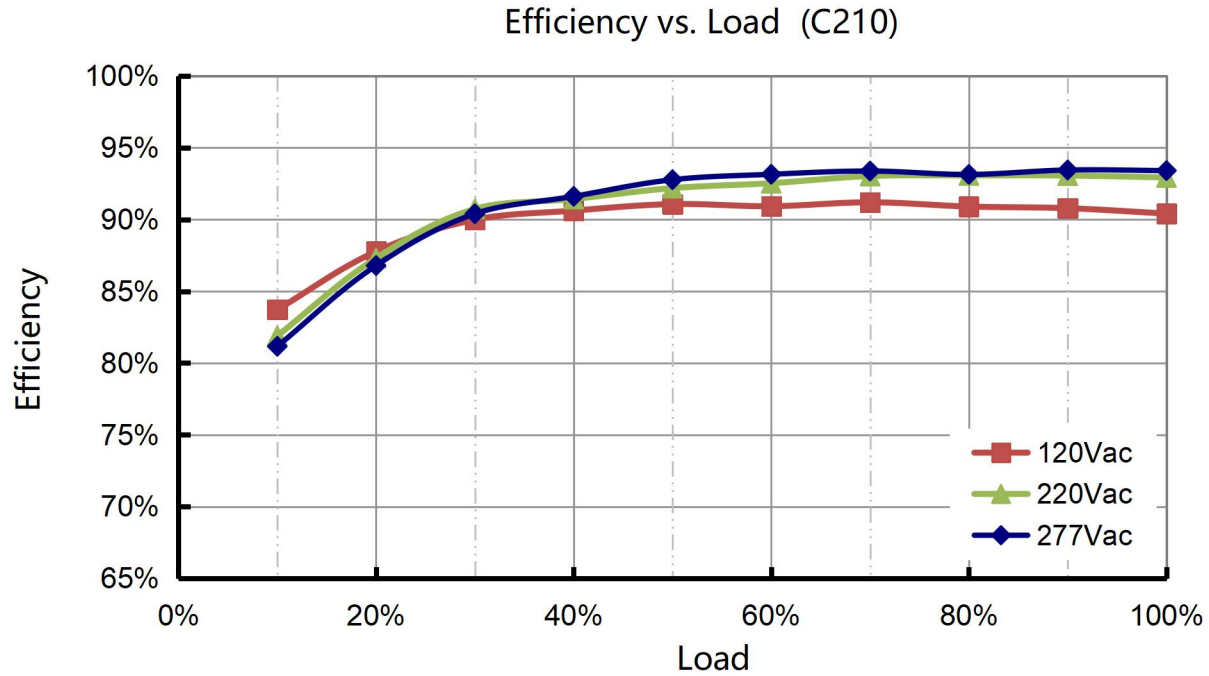
THD vs. Load

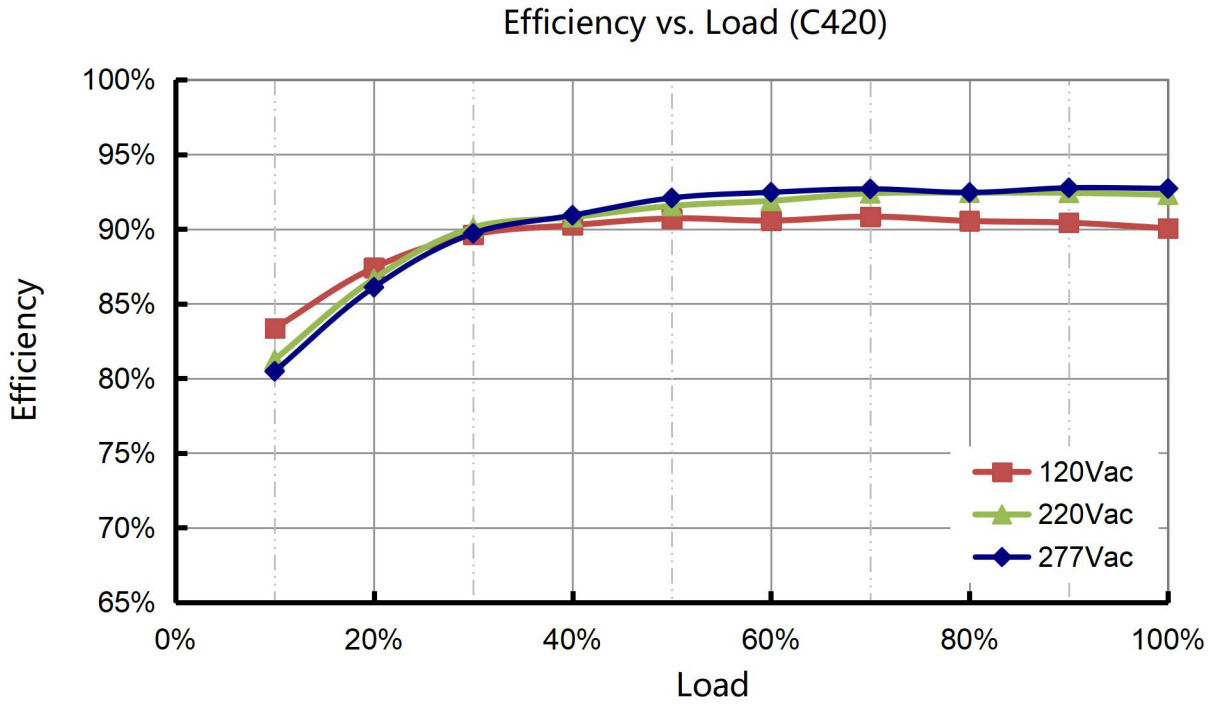


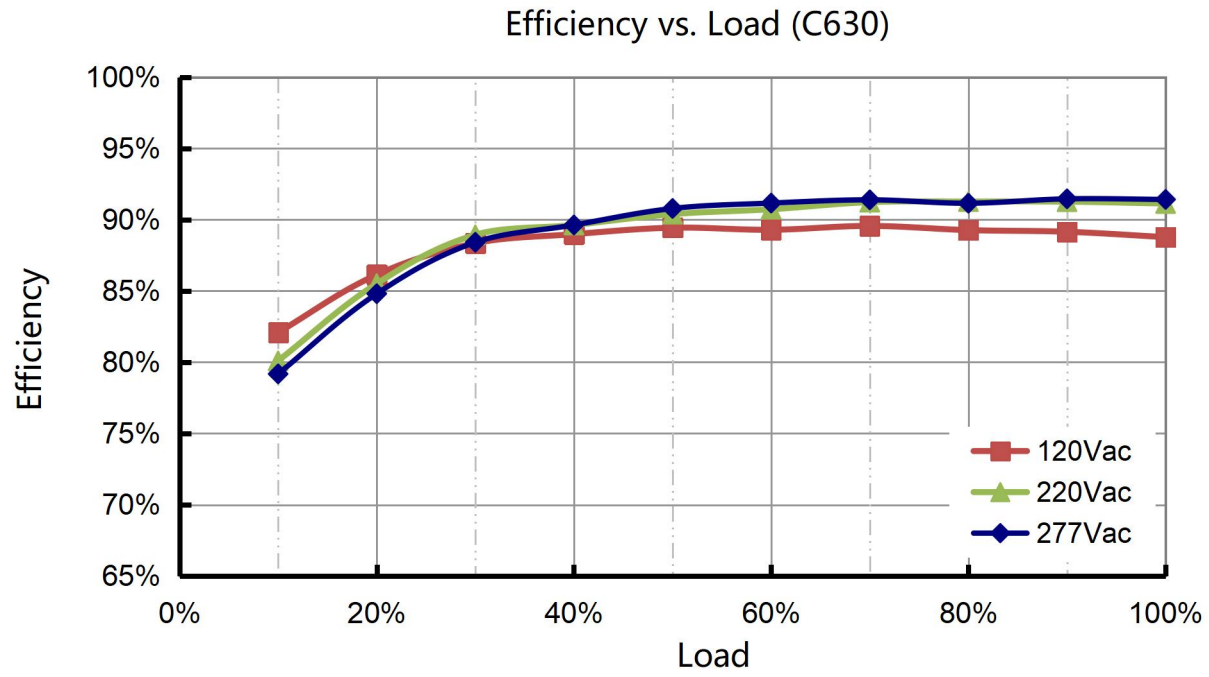
Efficiency vs. Load



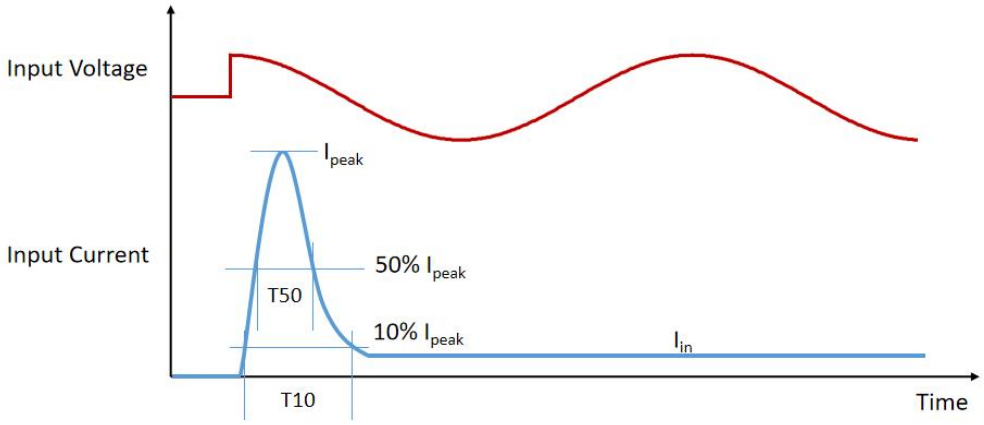





Efficiency vs. Load (C420)
Efficiency
100%
95%
90%
85%
80%
75%
70%
65%
0%
20%
40%
60%
80%
100%
Load
120Vac
220Vac
277Vac


Efficiency vs. Load (C630)
Efficiency
100%
95%
90%
85%
80%
75%
70%
65%
0%
20%
40%
60%
80%
100%
Load
120Vac
220Vac
277Vac

Inrush Current



Input Voltage	I_{peak}	10% -10% T10 Duration	50% -50% T50 Duration
120Vac	33.0A	920μs	410μs
220Vac	63.2A	760μs	300μs
277Vac	82.8A	700μs	276μs

- MCB Suggestion

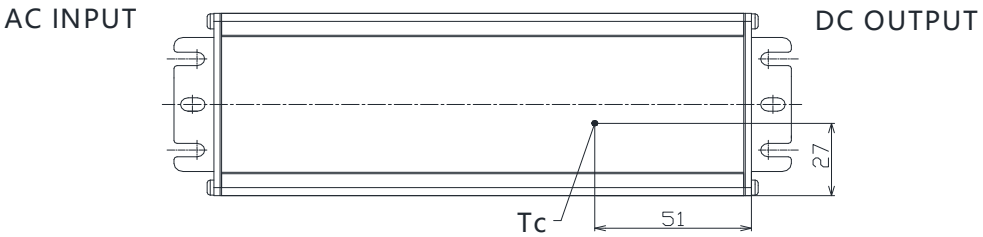
Type	B10	B16	B25	B32	C10	C16	C25	C32	D10	D16	D25	D32
Driver Quantity	6	9	15	19	7	11	17	22	8	12	20	25

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

Dielectric Strength

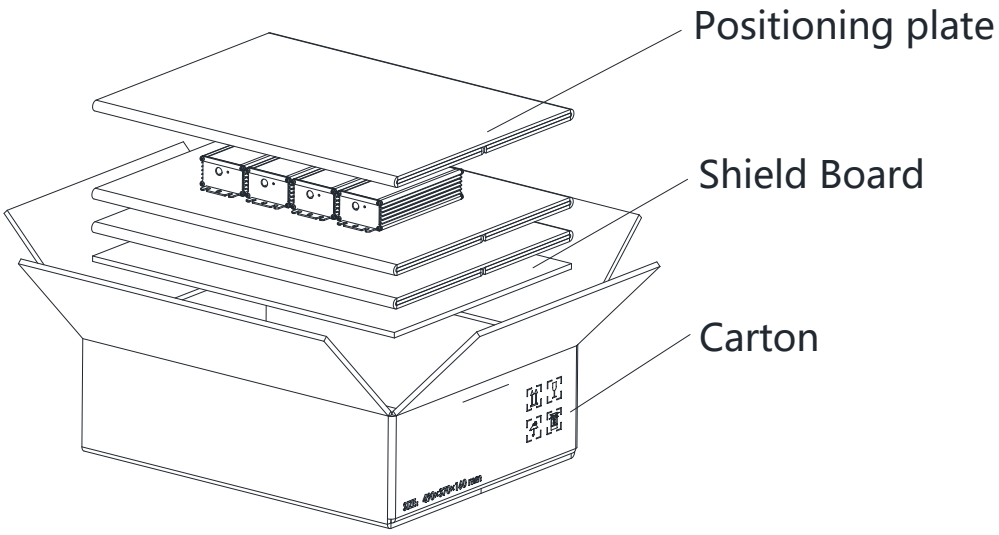
Unit: Vac	Input	Output	Dimming	Case
Input	-	3750	3750	1554
Output	3750	-	1554	1554
Dimming	3750	1554	-	1554
Case	1554	1554	1554	-

Tc Point



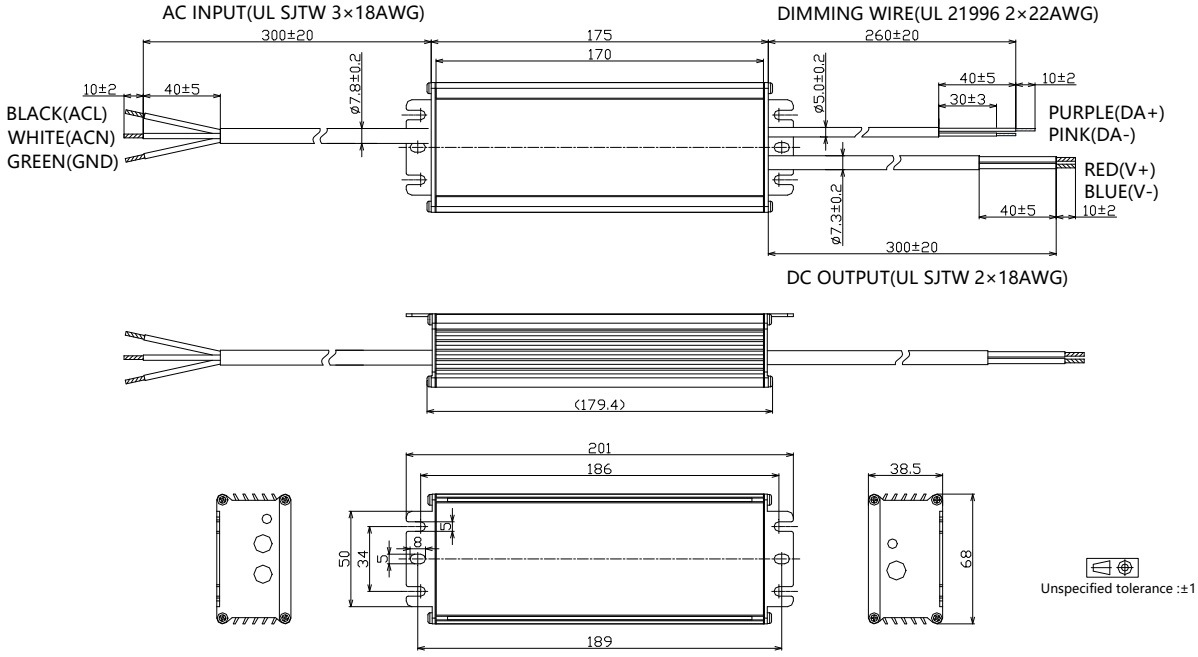
Packaging Information

Typical Carton Dimension(L×W×H)	490×370×160 mm
Positioning plate	3pcs/carton
Shield Board	1pcs/carton
LED Drivers/LED	12pcs/carton
Net Weight	10.8 kg/carton
Gross Weight	12.1 kg/carton

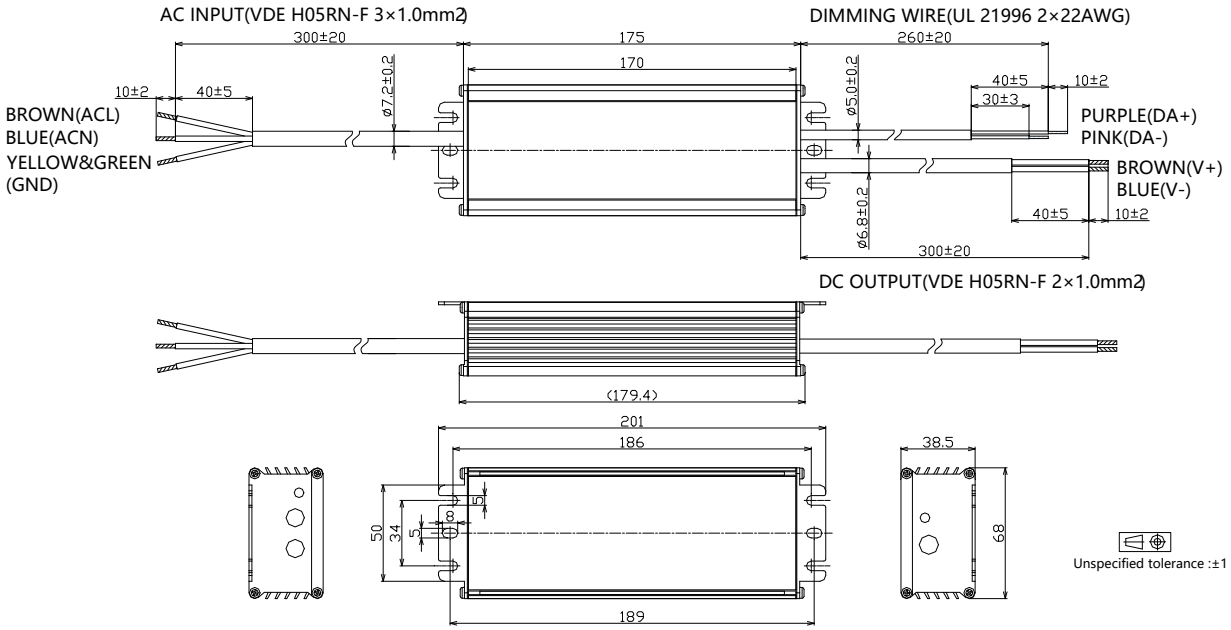


■ Mechanical Design

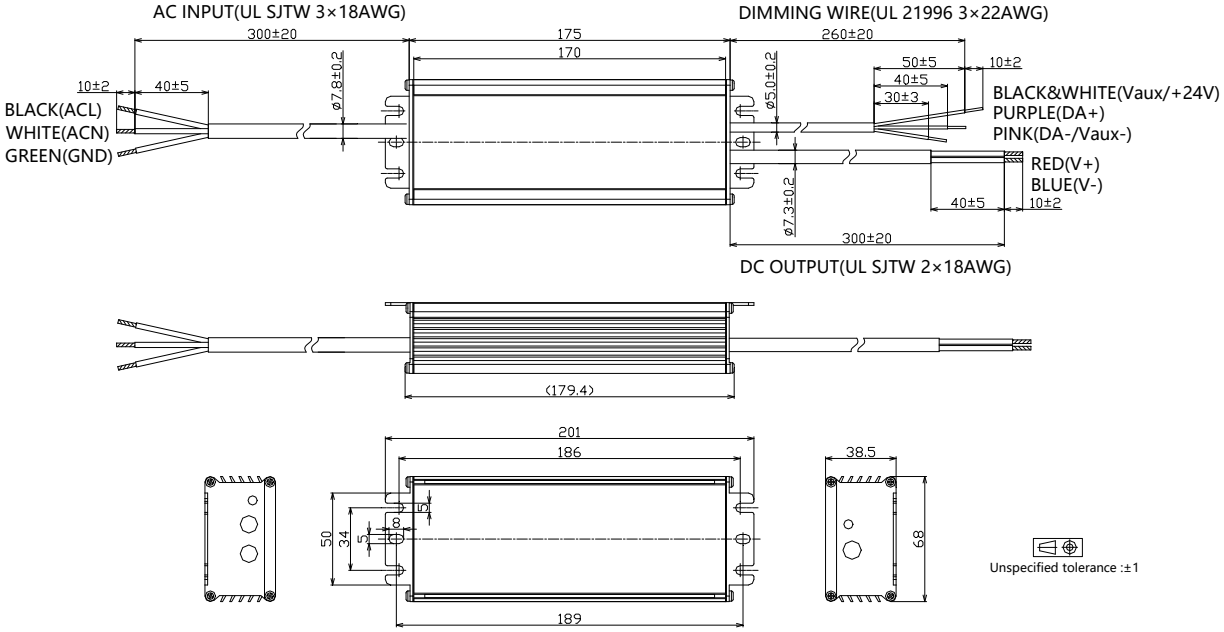
- **BLD-200-Cxxx-ARU-D00000 ((UL Cable without Vaux)**



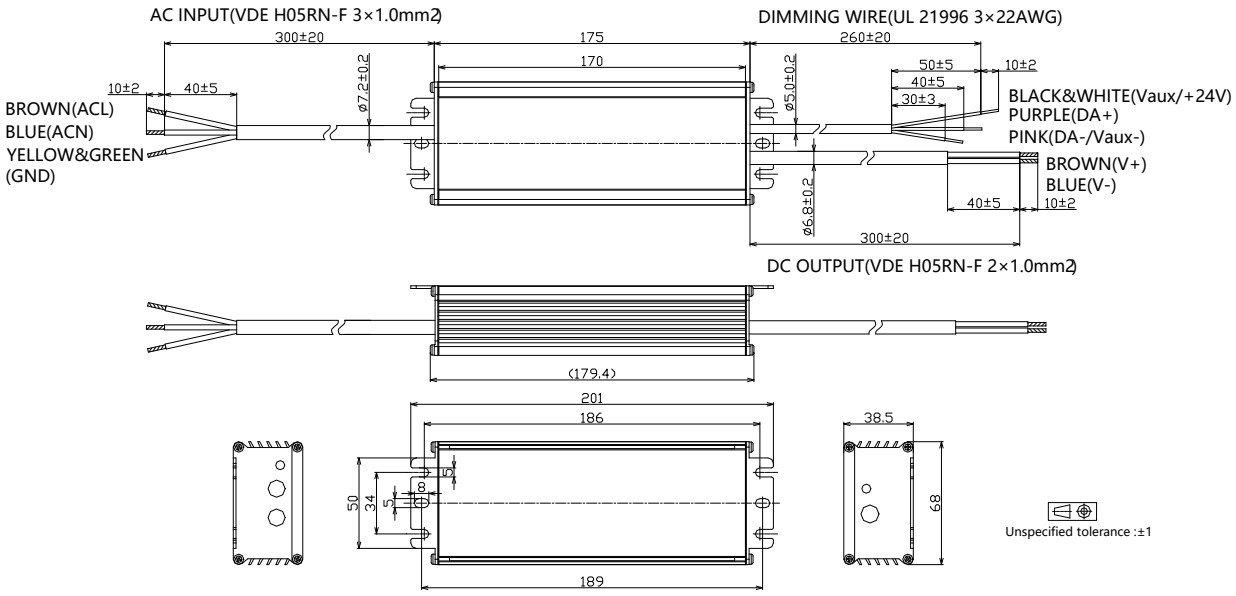
- **BLD-200-Cxxx-ARS-D00000 (VDE Cable without Vaux)**



- **BLD-200-Cxxx-ARU-DAX000 (UL Cable with Vaux)**



- **BLD-200-Cxxx-ARS-DAX000 (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	200	114	190	105
	1000	200	120	200	100
	950	200	126	211	95
	900	200	133	222	90
	850	200	141	235	85
	800	200	150	250	80
	750	200	160	267	75
	700	200	171	286	70
	650	186	171	286	70
	600	171	171	286	70
	550	157	171	286	70
	500	143	171	286	70
	…	…	…	…	…
	70	20	171	286	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	200	86	143	140
	1300	200	92	154	130
	1200	200	100	167	120
	1100	200	109	182	110
	1050	200	114	190	105
	1000	190	114	190	105
	950	181	114	190	105
	900	171	114	190	105
	850	162	114	190	105
	800	152	114	190	105
	750	143	114	190	105
	700	133	114	190	105
	…	…	…	…	…
	105	20	114	190	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	200	57	95	210
	2000	200	60	100	200
	1900	200	63	105	190
	1800	200	67	111	180
	1700	200	71	118	170
	1600	200	75	125	160
	1500	200	80	133	150
	1400	200	86	143	140
	1300	186	86	143	140
	1200	171	86	143	140
	1100	157	86	143	140
	1000	143	86	143	140
	…	…	…	…	…
	140	20	86	143	140

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C420	4200	200	29	48	420
	4100	200	29	49	410
	4000	200	30	50	400
	3900	200	31	51	390
	3800	200	32	53	380
	3700	200	32	54	370
	3600	200	33	56	360
	3500	200	34	57	350
	3400	200	35	59	340
	3300	200	36	61	330
	3200	200	38	63	320
	3100	200	39	65	310
	3000	200	40	67	300
	2900	200	41	69	290
	2800	200	43	71	280
	2700	193	43	71	280
	2600	186	43	71	280
	…	…	…	…	…
	280	20	43	71	280

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C630	6300	200	19	32	630
	6100	200	20	33	610
	5900	200	20	34	590
	5700	200	21	35	570
	5500	200	22	36	550
	5300	200	23	38	530
	5100	200	24	39	510
	4900	200	24	41	490
	4700	200	26	43	470
	4500	200	27	44	450
	4400	200	27	45	440
	4300	195	27	45	440
	4200	191	27	45	440
	4100	186	27	45	440
	4000	182	27	45	440
	3900	177	27	45	440
	3800	173	27	45	440
	…	…	…	…	…
	440	20	27	45	440

Revision History

Revision	Date	Contents
A	2023-06-01	1. First release
B	2023-7-14	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