TECHNICAL DATASHEET

LED Driver

LNA ARENA SPORT 1.8kW Single Channel Series



IP 66
IK 08

Model Number: LNA-1K8A45AB□□B

Unit Weight: ~3.1kg

Dimensions (L × W × H):352x152x62 mm

LNA Single Channel Arena Sport

Highlights & Features

- Single channel programmable maximum 1800W
- Input voltage range：180~528Vac
- Ultra-high efficiency up to 98%
- Programmable output current 1.5~4.5A
- Wide output voltage 150-550Vdc
- 0-10V/PWM/resistor, DALI-2 & D4i and RDM/DMX 2 in 1 control interfaces
- Very low output current ripple (typ 1%) suitable for HDTV broadcasting
- Wide dimming range：0.1%-100%
- After-glow effect free
- Constant Lumen Output (CLO)
- Smart Timer Dimming (STD)
- Strobe effects up to 33pfs (DMX version)
- High-accuracy integrated power metering
- Input surge protection: DM 10kV / CM 15kV
- Max remote distance 300 meters
- Suitable for DRY / DAMP / WET locations
- Wireless programming (NFC)

Product Description

LNA-1K8A45AB□□B series is a non-isolated, wide input, wide output single channel constant current programmable LED power supply that meets IP66 and IK08 protection levels. It has strong salt spray resistance, excellent EMI performance, low residual voltage from lightning strikes at the output end, and intelligent dimming control strategy. This series of products is particularly suitable for sports venue lighting applications, as well as high-power LED driver applications both indoors and outdoors, including stage lights, pole lights, and plant lighting. The product series includes 0-10V/PWM/Resistors, DALI-2&D4i and RDM/DMX communication interfaces combination, more convenient for customers to use flexibly. This series of LED power supplies has high overall efficiency and adopts Delta's unique patented heat dissipation solution, which has excellent heat dissipation capability, ensuring that the product has good reliability and service life. The maximum remote control and power supply distance of the product can reach 300 meters, providing a high degree of flexibility in installation, operation, and maintenance. In addition, the comprehensive protection function design (input under voltage/over voltage protection, output open circuit/short circuit/overpower protection, power supply and lamp temperature protection) provides strong guarantees for the safe and reliable operation of the product.

Product information

Model Number	Control Interface	Input Voltage / Output Power	Programmable Output Current	Output Voltage Range	Full Load Output Range
LNA-1K8A45ABFCB	0-10V/PWM/ Resistor	1.80kW: Nominal 277/347/380/400/415/480Vac Range: 249~528Vac 1.50kW: Nominal 220/230/240Vac, Range: 198~264Vac 1.35kW: Nominal 200/208Vac, Range: 180~229Vac	1.5~4.5A	150~550Vdc	1.80kW :400~550Vdc 1.50kW :333~550Vdc 1.35kW :300~550Vdc
LNA-1K8A45ABHGB	DALI-2 & D4i RDM/DMX				

Model Numbering

LN	A	-	1K8	A	45	A	B	□	□	B	□□
LED Driver	Arena sport	/	Output power 1K8:1800W	Output channel A: Single	Maximum output current 45:4500mA	Constant current	Input voltage: 180-528Vac	Programmable by Delta tool or wireless NFC	Dimming function C: 0-10V/ PWM/ Resistor G: DALI-2 & D4i and RDM/DMX	Die-casting	Model series: 0~9，A~Z or blank

All parameters are specified at 25°C ambient for all products unless otherwise indicated.

Specification

Input Ratings / Characteristics

Specification	Min.	Typ.	Max.	Conditions
Nominal Input Voltage	200Vac	-	480Vac	
Input Voltage Range	180Vac	-	528Vac	Driver can survive in a loose neutral condition in a 347/600Vac grid for at least 24hours
Nominal Input Frequency	-	50/60Hz	-	
Input Frequency Range	47Hz	-	63Hz	
Nominal Input Current	-	7.90	-	200Vac, Pout=1500W
	-	7.20	-	220Vac, Pout=1500W
	-	6.80	-	277Vac, Pout=1800W
	-	5.50	-	347Vac, Pout=1800W
	-	4.70	-	400Vac, Pout=1800W
	-	4.00	-	480Vac, Pout=1800W
Efficiency [1]	-	97.00%	-	220Vac, Io=3A @ Pout=1500W, refer to Appendix 4
	-	98.05%	-	400Vac, Io=3.27A @ Pout=1800W,refer to Appendix 4
Standby Power Consumption	-	0.45W	0.50W	230Vac/50Hz, Dim OFF, in compliance with Erp (EU) 2019/2020
	-	-	0.80W	277Vac/60Hz, Dim OFF, in compliance with ANSI C82.18-2022
	-	-	1.00W	347Vac/60Hz, Dim OFF, in compliance with ANSI C82.18-2022
	-	-	1.20W	400Vac/50Hz, Dim OFF
	-	-	1.40W	480Vac/50Hz, Dim OFF, in compliance with ANSI C82.18-2022
Power Factor	0.95	0.99	-	220Vac/50Hz, Pout=1500W
	0.95	0.99	-	400Vac/50Hz, Pout=1800W
Total Harmonic Distortion (THD)	-	5.0%	10.0%	220Vac/50Hz, Pout=1500W
	-	8.5%	15.0%	400Vac/50Hz, Pout=1800W
Inrush Current	-	-	14.0A	220Vac, 50%Ipeak to 50% Ipeak: <5 ms，
	-	-	16.0A	277Vac, 10%Ipeak to 10% Ipeak: <10 ms compliant with NEMA410-2015
	-	-	19.0A	347Vac, 10%Ipeak to 10% Ipeak: <10 ms compliant with NEMA410-2015
	-	-	21.0A	400Vac, 50%Ipeak to 50% Ipeak: <5ms
	-	-	25.0A	480Vac, 10%Ipeak to 10% Ipeak: <10ms compliant with NEMA410-2015
Power metering accuracy (DALI/DMX model only)	-	-	±2.0%	200Vac~480Vac, 100% load, absolute accuracy is around 30W across entire range

1. 100% Load and tested after 30 minutes warming up.

Output Ratings / Characteristics

Specification	Min.	Typ.	Max.	Conditions
Output Channels	-	1	-	
Total Output Power	-	-	1800W	
Default Output Current	-	3.15A	-	
Programmable Output Current Range	1.5A	-	4.5A	Output current range refer to Appendix 1

Specification	Min.	Typ.	Max.	Conditions
Dimming current range	0.1%Io_max 0.5%Io_max	-	Io_set	Io_max is the maximum output current (4.5A), and Io_set is the programmed output current. The minimum output current is proportional to Io_max, the ratio for DALI and DMX model is 0.1%, and 5% is for 0-10V/PWM/Resistor model.
Output Voltage Range	150V	-	550V	All operating conditions shall not exceed this voltage range.
Max. No Load Output Voltage	-	-	600V	RMS
Output Current Tolerance	-	-	±3%	Range from 1.5A to 4.5A
Line regulation	-	-	±2%	Range from 1.5A to 4.5A
Load regulation	-	-	±3%	Range from 1.5A to 4.5A
Output Current Ripple	-	1%	2%	ripple = (pk-pk)/avg, at low frequency(<8kHz),100% Load
	-	5%	20%	ripple = (pk-pk)/avg, at high frequency(>8kHz),100% Load
Short Term Flicker Indicator (PstLM)	-	-	1.0	Within output power window range, compliant per NEMA 77-2017
Stroboscopic Visibility Measure (SVM)	-	-	1.6	
Strobe Effects [2]	-	-	33 fps	Supports continuous sequence as fast as 30ms-ON and 30ms-OFF (fps means frame per second), for DMX model only.
Output Remote Distance	-	-	300m	Please refer to **Installation User Manual** for more details.
Turn on Delay Time	-	0.7s	1s	Clause 9.13 of IEC 62386-102:2014, 10%~100% load.
	1.25s	-	-	No controller or incorrect connection to the controller, compliant with clause 3.5 of ANSI E1.37-1:2012, for DMX model only.

2. In Strobe mode, the OFF period should be within 5s in general, otherwise please refer to "LNA/EUCO Series Programming Tool User Manual" for more details to make a requisite configuration.

Auxiliary Power Supply Ratings / Characteristics

Specification	Min.	Typ.	Max.	Conditions
Integrated 12V Auxiliary Power Supply **(0-10V/PWM/resistor model)**				
Output voltage	10.8V	12V	13.2V	Output current 0-250mA
Output current capability	0	-	250mA	Short circuit protection with auto-recovery
Integrated 24V Auxiliary Power Supply **(DALI-2 & D4i model)**				
Output voltage	21.6V	24.0V	26.4V	Pload: 0.1W~6.0W.
High frequency output voltage ripple	-	-	1.0 V_{pp}	21.6V~26.4V, frequency > 10kHz
No load output voltage	-	-	30.0V	Pload < 0.1W
Average output power capability	-	3.0W	-	Output current range: 4.0mA~125mA, P_{load}: 0.1W~3W
Peak output power capability	-	6.0W	-	The maximum duration of peak current 250mA within a 6.0ms cycle is 2.2ms, and the average value should not exceed 125mA
Turn on delay	-	-	0.6s	From AC power on to auxiliary power reaching 21.6V, the input power can be applied at any phase angle
Integrated DALI bus power supply **(DALI-2&D4i dimming model)**				
DALI bus power supply voltage	12V	16V	20.5V	CC load 0~50mA, DALI bus power is disabled by pre-configured, it can be activated by DALI controller or Delta programming tool.
Over current protection	50mA	-	62.5mA	Auto recovery and no damage caused. The output current is limited to 50-62.5mA when output is short-circuited.

Dimming control

LNA-1K8A45ABFCB supports 0-10V, PWM and Resistor dimming.

Specification	Min.	Typ.	Max.	Conditions
0-10V dimming model				
Dim ON Threshold	0.6V	0.7	0.8V	Make the dimming terminal open will dim to maximum level
Dim OFF Threshold	0.4V	0.5	0.6V	Make the dimming terminal short-circuit will dim OFF the light
Voltage Hysteresis	-	0.2	-	
Dimming Range	5%I_{o_set}	-	100%I_{o_set}	
Minimum Dimming Level	0.9V	1V	1.1V	Minimum dimming level is 5% of Io_set
Maximum Dimming Level	8.9V	9V	9.1V	Maximum dimming level is 100% of Io_set
Absolute Maximum Voltage	-	10V	15V	The polarity of the control signal shall not be reversed.
Dynamic Scene Capabilities	-	-	100ms	
PWM dimming function				
PWM_in High Level	3V	-	10V	
PWM_in Low Level	-0.3V	-	0.6V	
PWM_in Frequency Range	200Hz	-	3kHz	
PWM_in Duty Range	1%	-	99%	
PWM_in Dim-OFF (Positive Logic)	-	5%	-	Positive logic is a default configuration, and it can be re-configured to Negative Logic via DELTA GUI and tool.
PWM_in Dim-ON (Positive Logic)	-	7%	-	
PWM_in Dim-OFF (Negative Logic)	-	95%	-	
PWM_in Dim-ON (Negative Logic)	-	93%	-	
Duty Hysteresis	-	2%	-	
Linear dimming curve	0.4%I_{o_set}		100%I_{o_set}	
Resistor dimming function				
Source current	-	200μA	-	The recommended dimming resistor is lower than 50kohm.

LNA-1K8A45ABHGB provides an integration of DALI and DMX/RDM dimming, and the default control mode is DALI[3].

Specification	Min.	Typ.	Max.	Conditions
DALI-2 & D4i dimming model				
Logarithmic dimming curve	0.1%I_{o_set}	-	100%I_{o_set}	4.5~4500mA, logarithmic dimming curve is default for DALI mode, please refer to Appendix 2 for all dimming curves
Linear dimming curve	0.4%I_{o_set}	-	100%I_{o_set}	
RDM/DMX dimming mode [4]				
Logarithmic dimming curve	0.1%I_{o_set}	-	100%I_{o_set}	4.5~4500mA, linear dimming curve is default for RDM/DMX mode, please refer to Appendix 2 for all dimming curves
Linear dimming curve	0.4%I_{o_set}	-	100%I_{o_set}	

3. Note: DMX mode switching requires DALI Power to be disabled first (if on). Either of the two methods below may then be applied:
   a) Connect a DMX controller and send 20 consecutive valid DMX commands. Typically, DMX controllers transmit commands continuously upon connection; 20 commands usually require only 2–3 seconds.
   b) Connect an RDM controller and send any valid RDM command. Any valid DALI command will switch control back to DALI mode.
4. For DMX-RDM, a higher dimming resolution can be set to 10bit via GUI, which means 1024 steps for output, more details please refer to "**LNA/EUCO Series Programming Tool User Manual**".

Control interface standards

Specification	Standard
DALI control interface standard	DALI-2 & D4i IEC 62386-101 Ed 2.0 IEC 62386-102 Ed 2.0 IEC 62386-207 Ed 2.0 IEC 62386 part 150: Integrated 24Vdc auxiliary power supply IEC 62386 part 250: Integrated bus power supply for sensor and radios IEC 62386 part 251: Memory bank 1 extension（luminaire data） IEC 62386 part 252: Energy report IEC 62386 part 253: Diagnostics and maintenance
RDM/DMX control interface standard	DMX & RDM ANSI E1.11 DMX512A ANSI E1.20 RDM – Remote Device Management ANSI E1.37-1 Additional message sets for dimmer

Additional dimming function

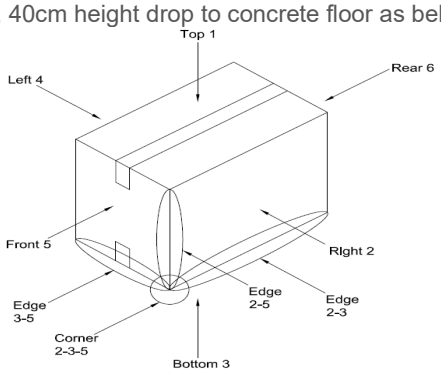
Specification	Description
Smart Timer Dimming (STD)	3 different configurable autonomous dimming profiles (fixed timer, midnight centric timer, and ratio rescale timer) over the night are available for users to select and set in GUI. This function is not activated by default. For more details, please refer to “**LNA/EUCO Series Programming Tool User Manual**”.
Constant Lumen Output (CLO)	CLO can make the brightness consistent by compensating the ageing of the light source over the lifetime. It’s available in GUI to set starting dimming level (for example 90%) and end of life of the product (for example 50,000hrs), so that the driver by counting its functioning hours can do a linear interpolation in between starting dimming level at t=0hrs, and go to 100% at t=end of life. This function is not activated by default. For more details, please refer to “**LNA/EUCO Series Programming Tool User Manual**”.

Mechanical Characteristics

Specification		Conditions / Notes
Housing		Aluminum alloy case, dark gray
Dimensions（L x W x H）		352 x 152 x 62 mm
Unit Weight		~3.1 kg / ~6.8 lb /109.3 oz.
Cooling System		Natural Convection
Input		L1/L, L2/N, PE
Output		PE, V+, V-, NTC,
Control	DALI interface	DA+/D1+, DA-/D1-, +24V, GND, DA+/D1+, DA-/D1- (" GND" is the ground of "+24V")
	RDM/DMX interface	DA+/D1+, DA-/D1-, COM, COM, DA+/D1+, DA-/D1-
	0~10V/PWM/Resistor interface	DIM+, DIM-, +12V, GND, DIM+, DIM- ("GND" is the ground of "+12V")

Environment & Package

Specification		Conditions / Notes
Ambient Temperature	Operating	-40°C ~ +50°C，Power derating shall be implemented when the internal temperature of the driver is lower than -35 °C, and automatic recovery will occur as the temperature warms up
	Storage	-40°C ~ +85°C
Maximum Case Temperature		+85°C

Specification		Conditions / Notes
Lifetime Case Temperature		+80°C
Relative Humidity	Operating	10% to 95% RH (Non-Condensing)
	Storage	5% to 95% RH (Non-Condensing)
Ingress Protection classification		IP66（EN 60529)
Impact Protection classification		IK08 (EN 62262)
Drop Test (Non-operating state)		According to ASTM D-775, 40cm height drop to concrete floor as below drawing, total 10 times. 
Vibration (Non-Operating)		IEC 60068-2-6, Random: 5 Hz to 10 Hz (1G); 30 min per axis for all X, Y, Z direction
Packing		3 pcs per carton

Protections

Specification		Min.	Typ.	Max.	Conditions / Notes
Input Under Voltage Protection (IUVP)	Protection	165Vac	170 Vac	175 Vac	Shuts down and then restarts to normal status when the fault condition is cleared.
	Recovery	175 Vac	180 Vac	185 Vac	
Input Over Voltage Protection (IOVP)	Protection	540 Vac	545 Vac	550 Vac	
	Recovery	530 Vac	535 Vac	540 Vac	
Open Load / Output Over Voltage Protection	Protection	-	-	600Vrms	Hiccup mode. The output voltage shall not exceed 600Vrms under no load, open load or other over voltage conditions.
Output Short Circuit Protection		YES			Hiccup mode. Restarts automatically after fault condition is removed.
Internal Over Temperature Protection		YES			The temperature protection function inside the power supply reduces the output current smoothly and returns to normal after over temperature condition is removed.
External Over Temperature Protection		YES			Luminaire OTP, output power derating curve, please refer to Appendix 8 for more details. Default NTC parameter setting: TDK 10Kohm B=3380.

Electro-Magnetic Compatibility (EMC)

Specification	Standards
EMC-Emission Characteristics	
Radiated Emission	EN55015, GB/T17743, FCC 47CFR Part 15 Subpart B, Class B, ANSI C63.4, ICES-005
Conducted Emission	EN55015, GB/T17743, FCC 47CFR Part 15 Subpart B, Class B, ANSI C63.4, ICES-005

Specification	Standards	
Harmonic Current Emission	IEC 61000-3-2, GB 17625.1	
Voltage Fluctuation & Flicker	IEC 61000-3-3	
EMC-Immunity Characteristics		
Electrostatic Discharge (ESD)	IEC 61000-4-2, IEC/EN 61547	
Radio Frequency Electro -magnetic Fields	IEC 61000-4-3, IEC/EN 61547	
Power frequency magnetic fields	IEC 61000-4-8, IEC/EN 61547	
Surge immunity (AC mains)[3]	IEC 61000-4-4, IEC/EN 61547	
Surge immunity (Output)	EN61000-4-6, IEC/EN 61547	Conducted Disturbance
Surge immunity (AC mains)[3]	IEC 61000-4-5, IEC/EN 61547	- CM: 15kV (L1/L to PE, L2/N to PE) - DM: 10kV (L1/L to L2/N)
Surge immunity (Output)	IEC 61000-4-5, IEC/EN 61547	- CM: 4kV (V+ to PE, V- to PE) - DM: 1kV (V+ to V-)
Surge immunity (DALI mode)	IEC 61000-4-5, IEC/EN 61547	- CM: 4kV (24V to PE, DA+ to PE, DA- to PE) - DM: 2kV (DA+ to DA-, 24V to DA-, 24V to DA+)
Surge immunity (DMX mode)	IEC 61000-4-5, IEC/EN 61547	- CM: 4kV (D1+ to PE, D1- to PE, COM to PE) - DM: 2kV (D1+ to D1-, D1+ to COM, D1- to COM)
Surge immunity (0-10V/ PWM/ Resistor mode)	IEC 61000-4-5, IEC/EN 61547	- CM: 4kV (12V to PE, DIM+ to PE, DIM- to PE) - DM: 2kV (DIM+ to DIM-, 12V to DIM-, 12V to DIM+)
Surge immunity (NTC)	IEC 61000-4-5, IEC/EN 61547	- CM: 3kV (NTC to PE) - DM: 1kV (NTC to V+)
Voltage Dip & Short Interruptions	EN 61000-4-11, IEC/EN 61547	

5. Level B, the maximum peak pulse of residual common mode voltage from output+/- to PE is 3KV maximum.

Reliability

Specification	Note
Life time	50,000 hours applicable for 277Vac to 480Vac(50/60Hz)@ 1800W and 220 to 240Vac(50Hz)@ 1500W, Ta=45℃(Tcase=80℃), 100,000 hours applicable @ 100% of load, Tcase≤70℃, For more detailed information, please refer to Appendix 3 "Life and Shell Temperature Curve".
MTBF	475khrs. at Ta=+45°C Telcordia SR-332
Warranty	5 years, please refer to Appendix 10 "Warranty Policy" for more detailed information.

Safety & Other Approvals

Safety Category		Standards
ENEC	MARK	EN 61347-1:2015, EN 61347-1:2015/A1:2021 EN 61347-2-13:2014, EN 61347-2-13:2014/A1:2017, EN IEC 62384:2020
CB	REPORT	IEC 61347-1:2015, IEC 61347-1:2015/AMD1:2017 IEC 61347-2-13:2014, IEC 61347-2-13:2014/AMD1:2016
UKCA	MARK	BS EN 61347-2-13: 2014+A1:2017
CE	MARK	CE Declaration of Conformity.
UL	MARK	UL 8750, Edition 2, Issue Date 2015-09-15, Revision Date 2024-07-02 CSA C22.2 No. 250.13, Edition 5, Issue Date 2022-05
RCM	MARK	AS/NZS 61347.1: 2016+A1, AS 61347.2.13: 2018
CCC	MARK	GB 19510.1, GB 19510.14
BIS	Compliance	IS 15885(Part 2/Sec 13)

Safety Category		Standards
KC	Compliance	K 61347-1, K 61347-2-13
PSE	Compliance	J 61347-1, J 61347-2-13
RoHS		RoHS 2.0 Directive(EU) 2015/863
REACH		In compliance
Isolation		Class I, please refer to Isolation Specification for more details.

Isolation Specification

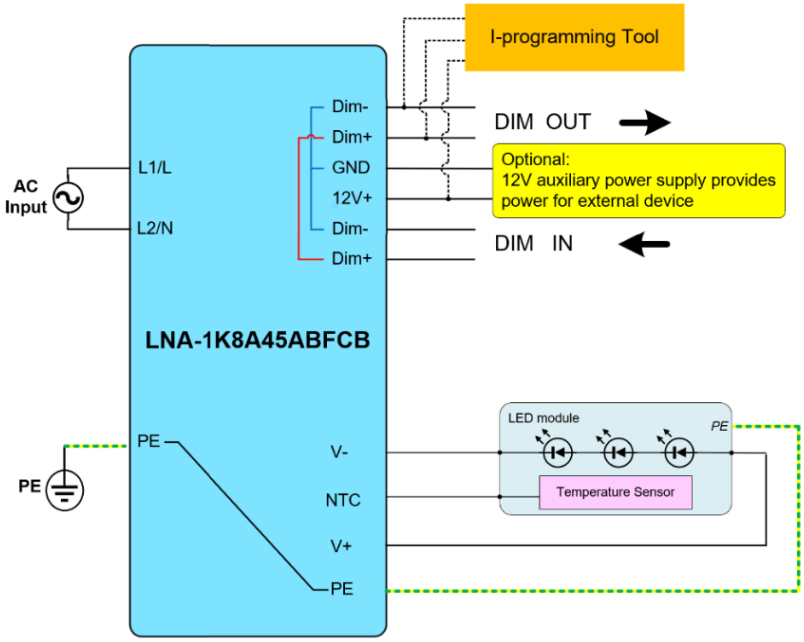
Isolation Coordination Table				
	Input – mains	Output – LEDs	Control signals	PE – case
Input – mains	/	Non-isolation	Reinforced	Basic
Output – LEDs	Non-isolation	/	Reinforced	Basic
Control signals	Reinforced	Reinforced	/	Basic
PE – case	Basic	Basic	Basic	/

Miniature Circuit Breaker Configuration

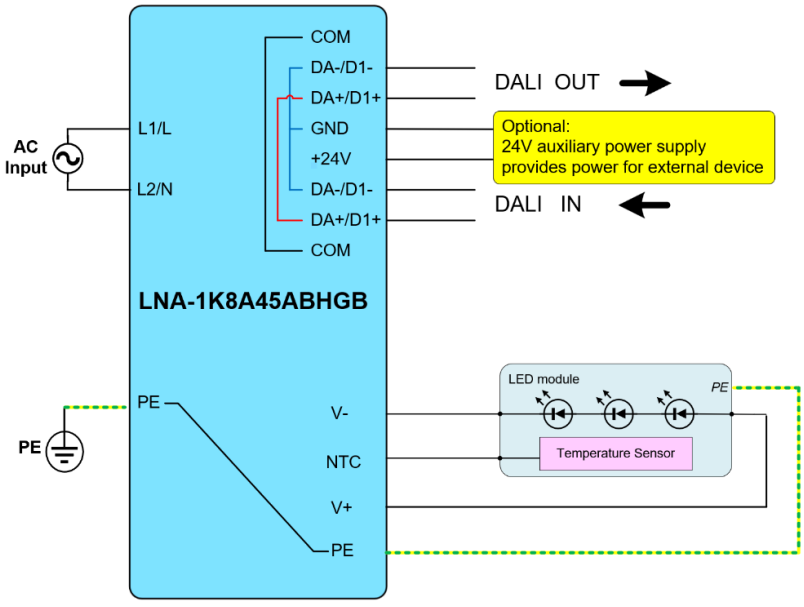
The maximum number of LED drivers connectable to a single MCB is recommended in the following table for maximum 1500W at 200/220Vac and 1800W at 277/347/400/480Vac. Due to the differences in application conditions and different kinds of miniature circuit breakers available on the market, this table is just for reference.

Input Voltage	Connection	MCB Type	10A	16A	20A	25A	32A	40A	63A
200 Vac	L~N	B/C	1	1	2	3	3	4	6
220 Vac	L~N	B/C	1	1	2	3	3	4	7
277 Vac	L~N	B/C	1	1	2	3	4	5	7
347 Vac	L~N	B/C	1	2	3	3	4	5	9
400 Vac	L1~L2 + L2~L3 + L3~L1	B/C	1+1+1	1+1+1	2+2+2	2+2+2	3+3+3	4+4+4	6+6+6
480 Vac	L1~L2 + L2~L3 + L3~L1	B/C	1+1+1	2+2+2	2+2+2	3+3+3	4+4+4	5+5+5	7+7+7

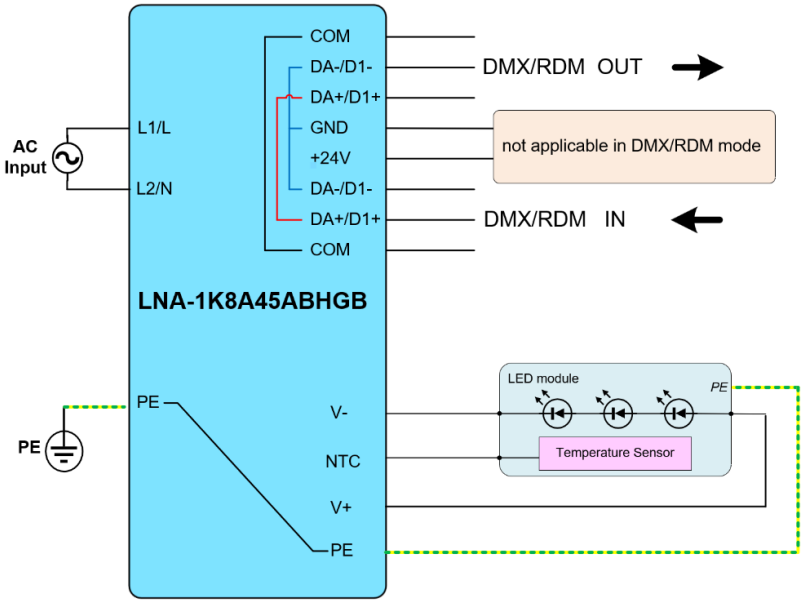
Electrical Connection



(a) 0-10V/PWM/Resistor Mode



(b) DALI Mode



(c) DMX/RDM Mode

Note:
a) Simply connect the controller to the appropriate terminal to meet control requirements without the need for additional configuration;
b) The maximum allowable voltage on the DALI and DMX control interface terminal should not exceed 60Vrms, and the maximum voltage on the 0-10V/PWM/Resistor control interface terminal should not exceed 15Vrms, and the polarity of the control signal shall not be reversed, otherwise damage may occur and reliability may be compromised.

Programming Configuration

1. LNA series programming & firmware update

The common setting functions and requirements are shown in the following table, and the specific configurations are described respectively in Sections 1.1 and 1.2, more details please refer to the **LNA/EUCO Series Programming Tool User Manual**.

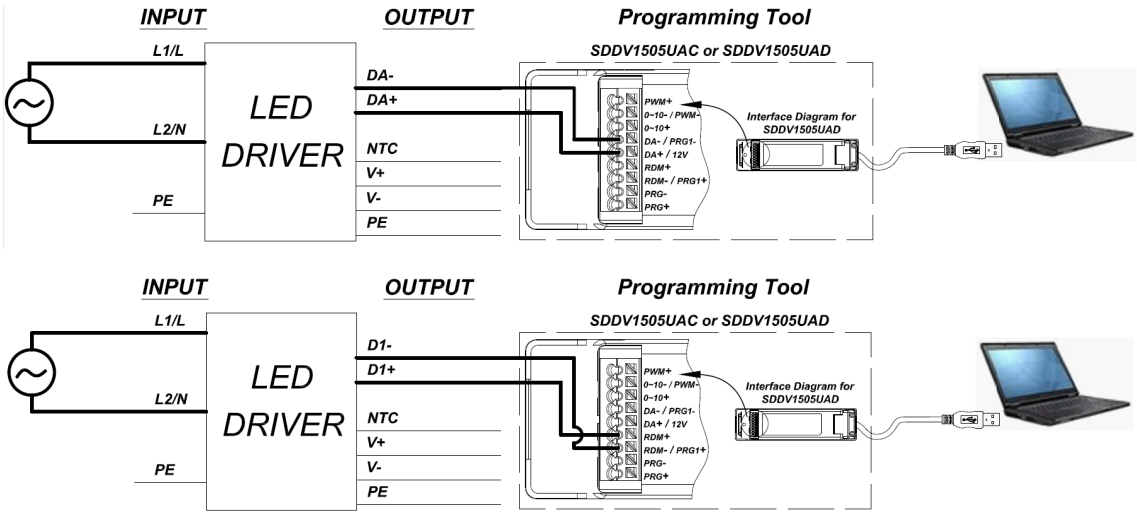
Item	Description	DALI-2 & D4i	RDM/DMX	0-10V/PWM/Resistor	
Setup	Tool Connection	DA+, DA-	D1+, D1-	DIM+, DIM-,12V+	DIM+, DIM-
	AC Power Supply	■	■	X	■
	Load Connection	○	○	○	○
Tool	Delta Programming Tool	■ SDDV1505UAB ■ SDDV1505UAC ■ SDDV1505UAD		■ SDDV1505UAD	■ SDDV1505UAD
Configurable Parameters and Functions	Current programming, Luminaire OTP, Smart Timer Dimming etc.	√	√	√	X
Firmware Update	Firmware update	√	√	X	√

Note: ■ Required, ○ Optional, √ Available, X Not available or required.

1.1 Programming Setup

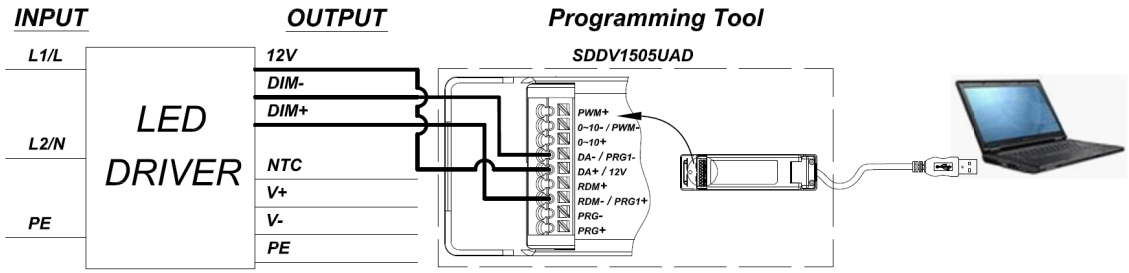
- Wired Programming for DALI&DMX Version (LNA-1K8A45ABHGB)

Programming requires powering up AC input to the driver, but no need to connect to LED modules.



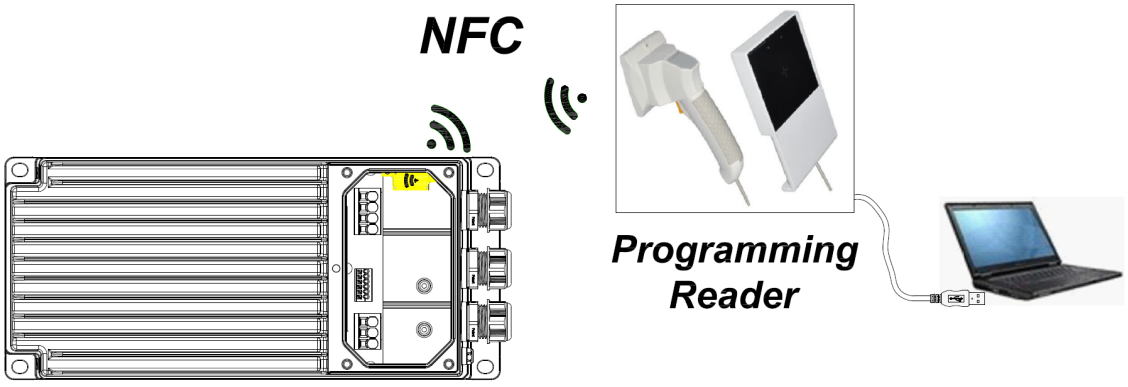
- Wired Programming for 0~10V Version (LNA-1K8A45ABFCB)

Programming requires no connection to the LED Module, and AC input shall not be connected.



- Wireless Programming for both LNA-1K8A45ABFCB and LNA-1K8A45ABHGB

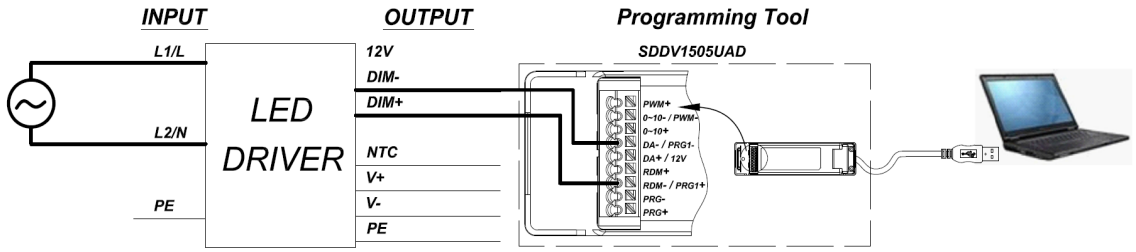
Programming requires neither powering up AC input nor connection to the LED Module.



Recommended NFC readers: FEIG ID PRH101(portable) or FEIG ID CPR30+.

1.2 Firmware Update Setup

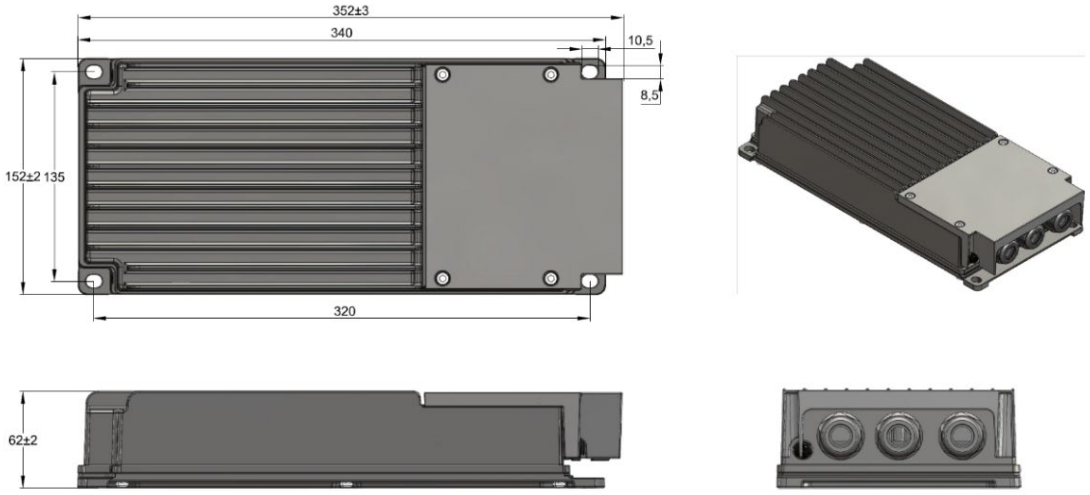
Firmware update requires powering up AC input, but no need to connect to LED Module. For DALI and DMX version (LNA-1K8A45ABHGB), it's same to the programming setup. For 0~10V/PWM/Resistor version (LNA-1K8A45ABFCB), please refer to configuration as below. Please refer to the GUI user's manual for the setup and operation instructions.



2. DALI & RDM Data Management

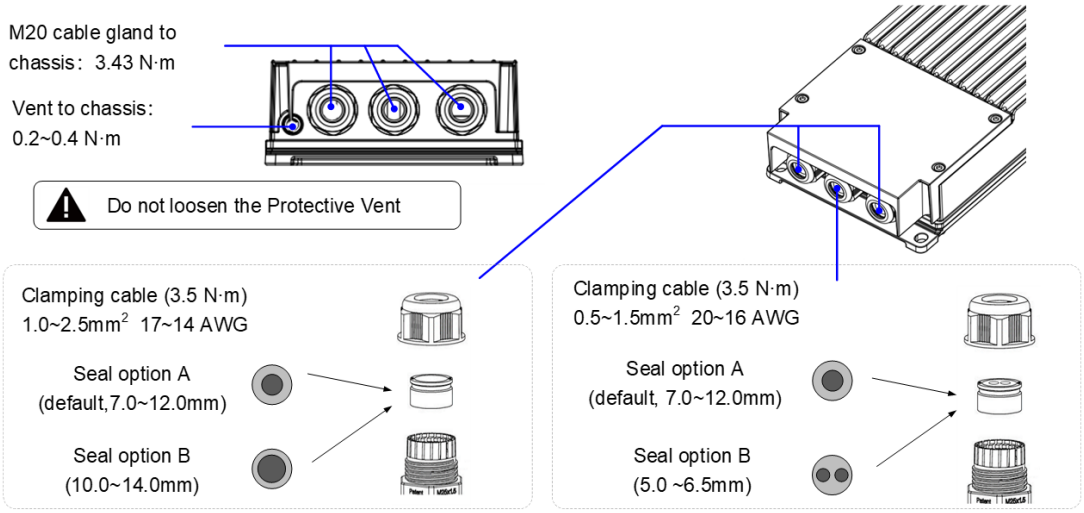
This driver of DALI and DMX version is compatible with D4i and RDM functions, providing a variety of free configuration options and rich monitoring data, such as personalized assignment of addresses, access to output status information. Customers can configure it flexibly according to their own usage requirements. Please refer to the “D4i & RDM Data Management User Manual” for the relevant configuration instructions.

Physical Dimensions



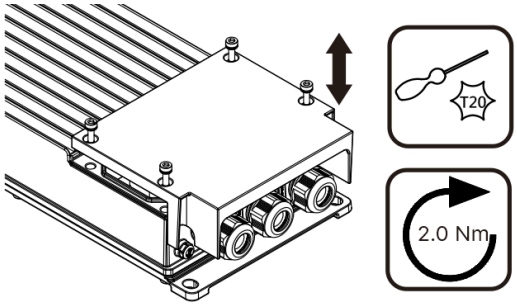
Unit: mm

Cable Gland



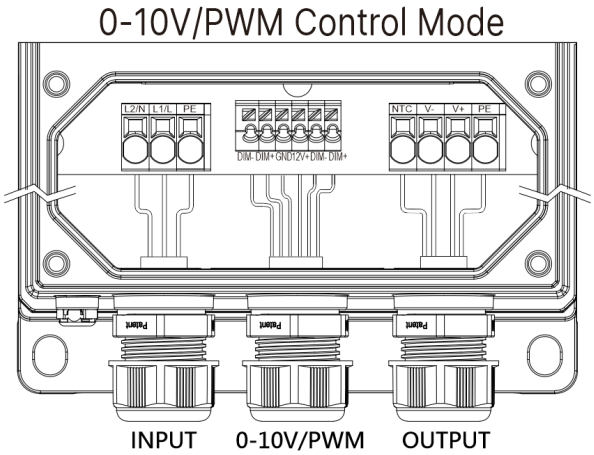
Note: The optional seals are packaged together with the product in a plastic bag, and more details about cable selection and assembly information, please refer to the **Installation User Manual**.

Junction Box

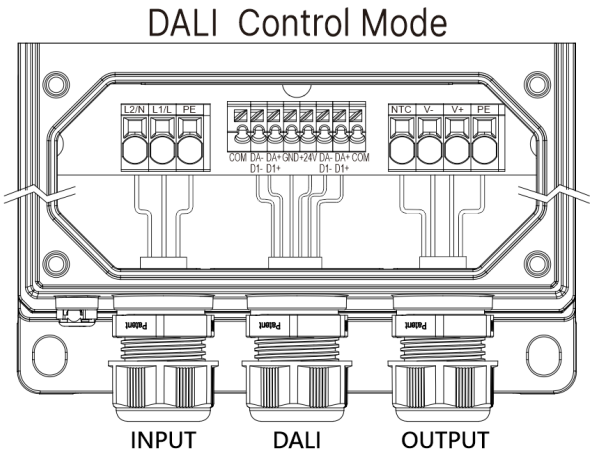


Note: The fastening 4 screws all have the function of anti-falling off.

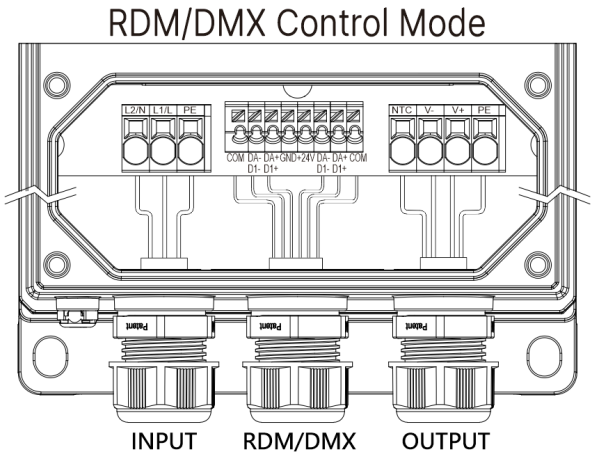
0~10V/PWM Model Connection

Number	Label	Description	Connection
1	L2/N	AC input	
2	L1/L	AC input	
3	PE	Protective earth	
4	DIM-	0~10V/PWM signal -	
5	DIM+	0~10V/PWM signal +	
6	GND	The ground of “+12V”	
7	+12V	Optional: 12V/3W auxiliary power supply provides power for external device	
8	DIM-	0~10V/PWM signal -	
9	DIM+	0~10V/PWM signal +	
10	NTC	Luminaire temperature detection	
11	V-	Output -	
12	V+	Output +	
13	PE	Protective earth for luminaire	

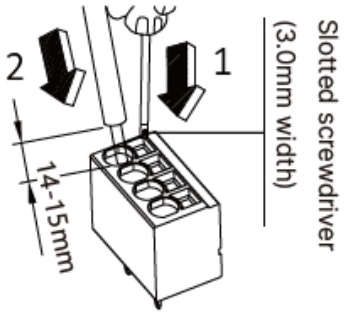
DALI Model Connection

Number	Label	Description	Connection
1	L2/N	AC input	
2	L1/L	AC input	
3	PE	Protective earth	
4	COM	N/A	
5	DA-/D1-	DALI input -	
6	DA+/D1+	DALI input +	
7	GND	The ground of “+24V”	
8	+24V	Optional: +24V/3W auxiliary power supply provides power for external device	
9	DA-/D1-	DALI input -	
10	DA+/D1+	DALI input +	
11	COM	N/A	
12	NTC	Luminaire Temperature Detection	
13	V-	Output -	
14	V+	Output +	
15	PE	Protective earth for luminaire	

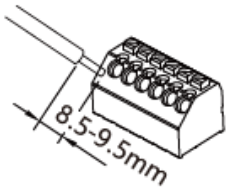
RDM/DMX Model Connection

Number	Label	Description	Connection
1	L2/N	AC input	
2	L1/L	AC input	
3	PE	Protective earth	
4	COM	DMX Common port/Shielding	
5	DA-/D1-	DMX input -	
6	DA+/D1+	DMX input +	
7	GND	NA	
8	+24V	NA	
9	DA-/D1-	DALI input - / DMX input -	
10	DA+/D1+	DALI input + /DMX input +	
11	COM	DMX Common port/Shielding	
12	NTC	Luminaire Temperature Detection	
13	V-	Output -	
14	V+	Output +	
15	PE	Protective earth for luminaire	

Wiring method: Solid-core and stranded wires



Input & output connector:
Cross section: 1.0 - 2.5 mm²
Cross section: 17 - 14 AWG

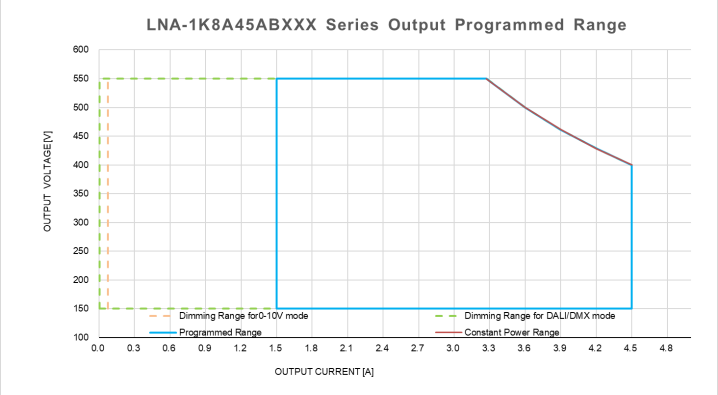


Control connector:
Cross section: 0.5 - 1.5 mm²
Cross section: 20 - 16 AWG

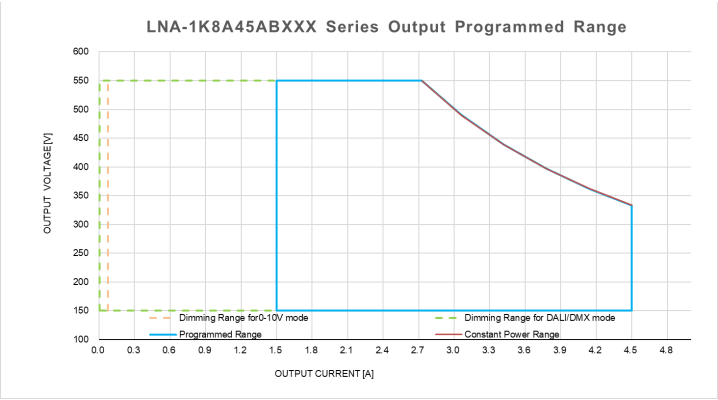
Appendix

1. Output Range

For 249-528Vac:



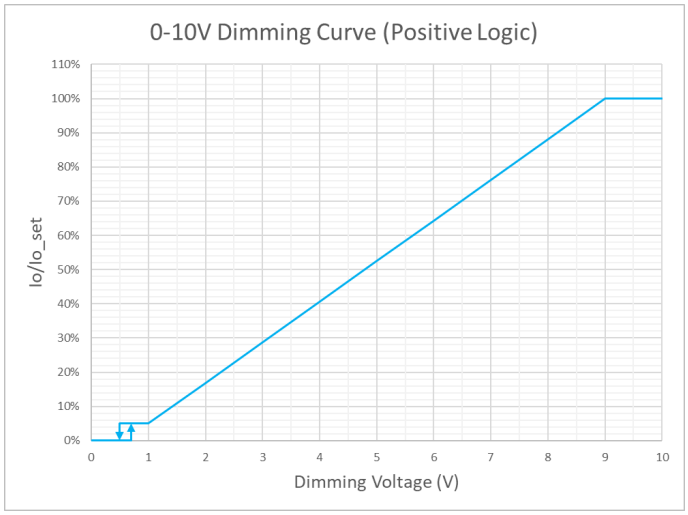
For 198-248Vac:

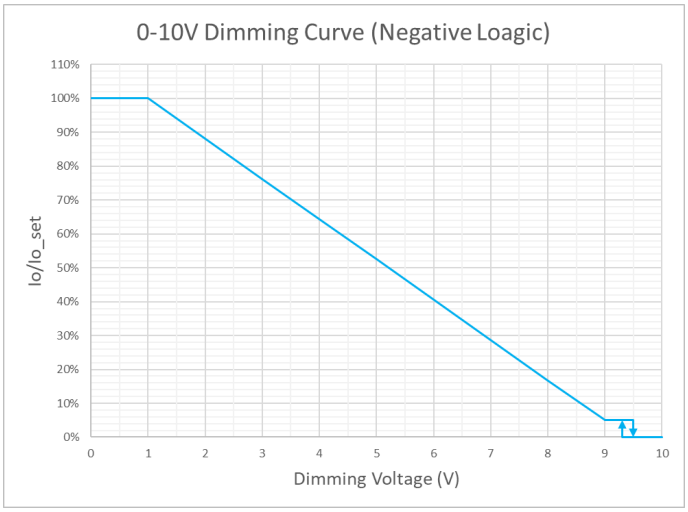


Note: This 1K8 single channel series can be programmed with a wide output current using a computer and programming tools. For more detailed information, please refer to **LNA/EUCO Series Programming Tool User Manual**.

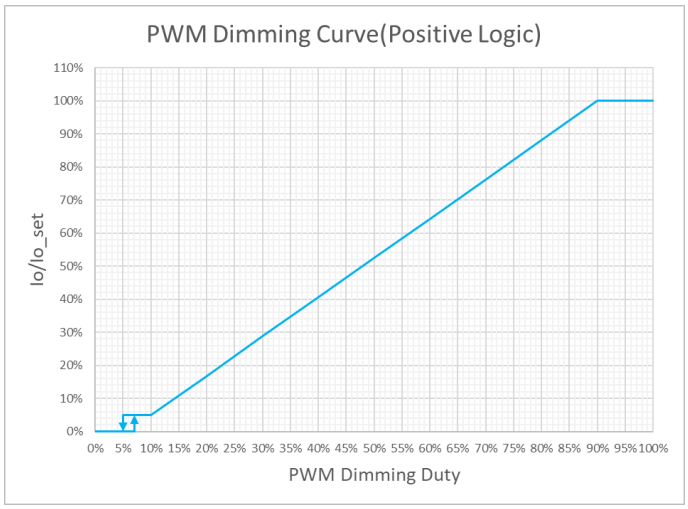
2. Dimming Curve

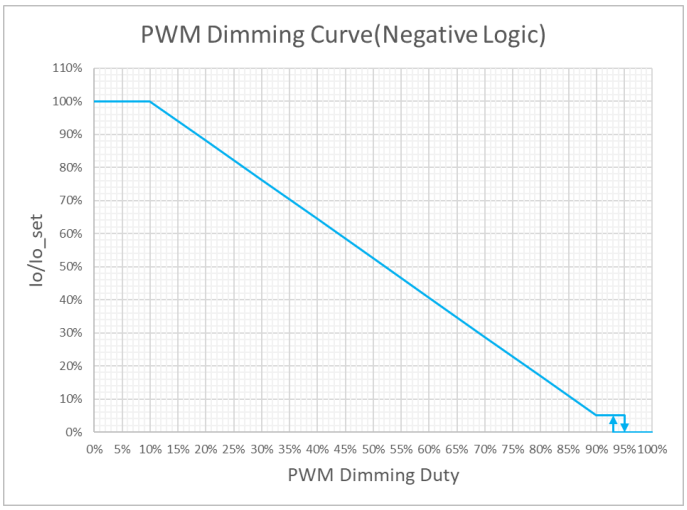
LNA-1K8A45ABFCB:

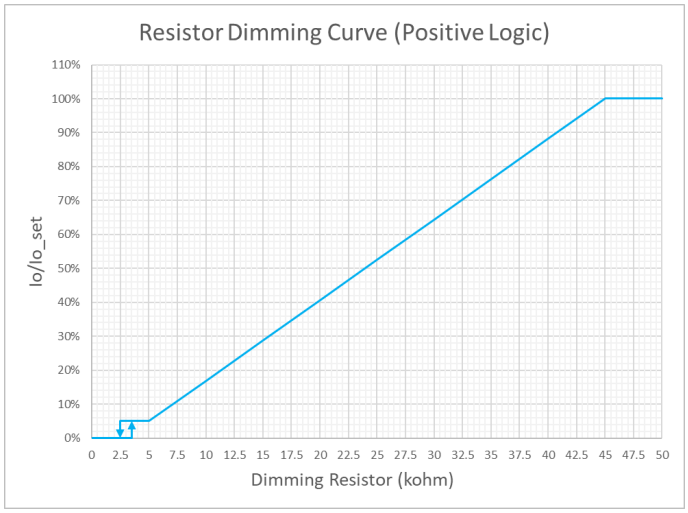


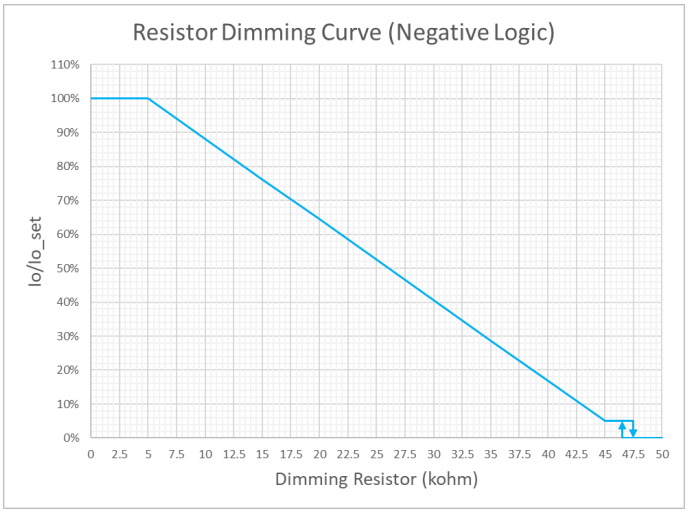


LNA-1K8A45ABFCB:

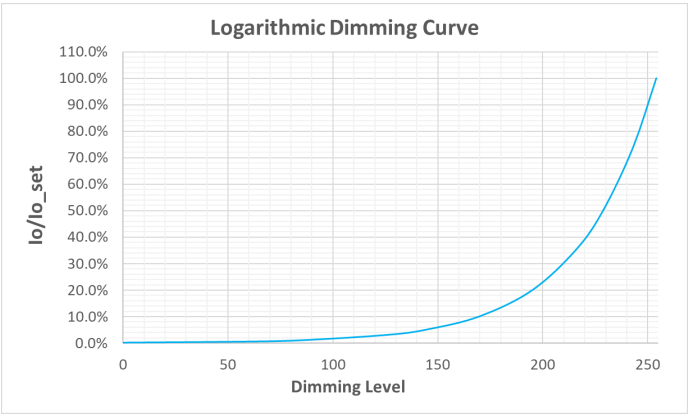


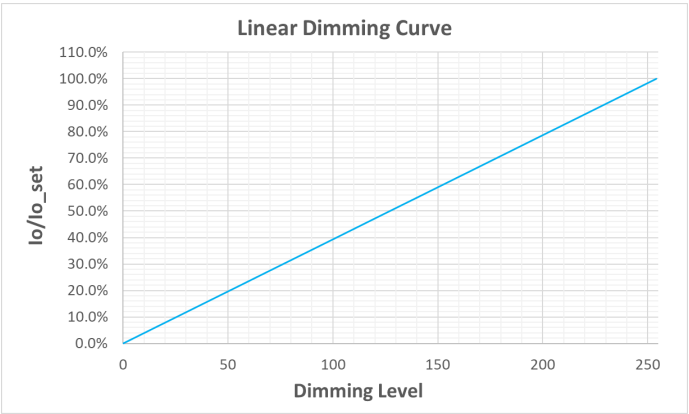




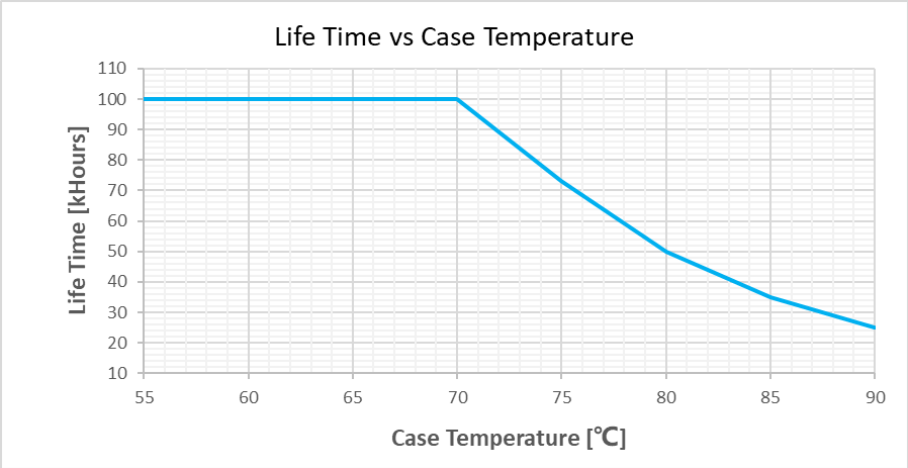


LNA-1K8A45ABHGB:



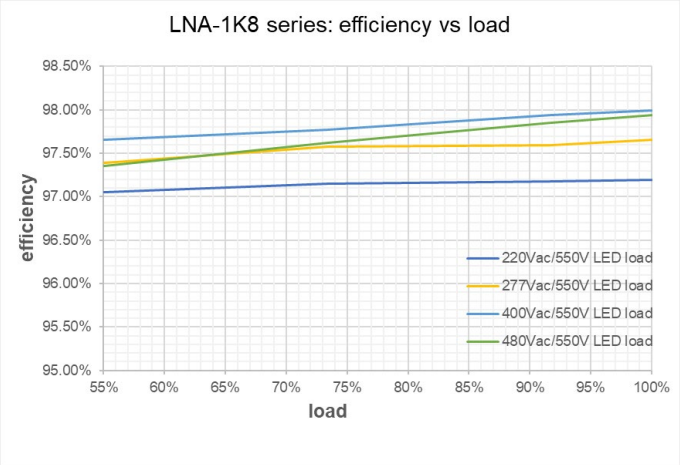


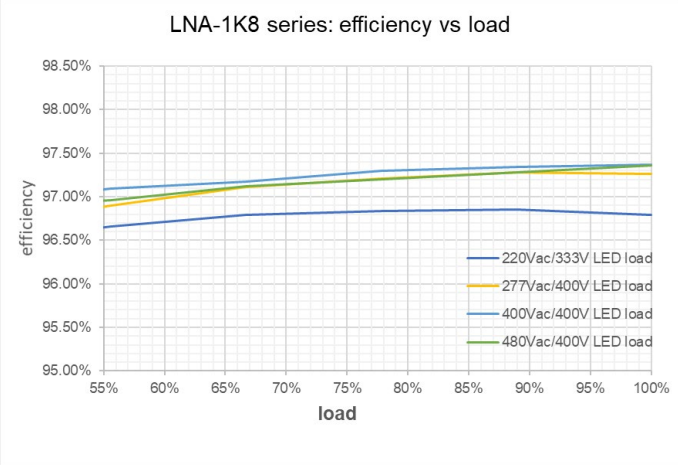
3. Life Time with Case Temperature



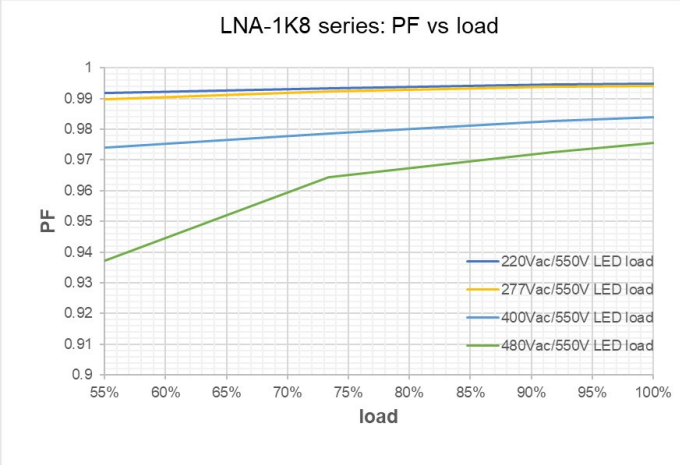
Max. failure percentage: 10%

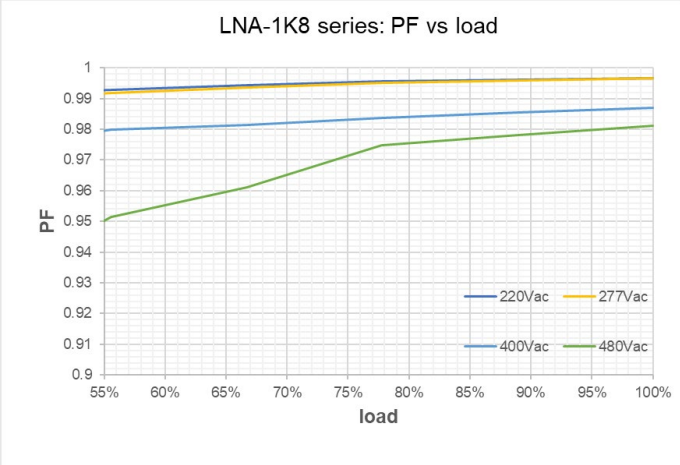
4. Efficiency vs Load



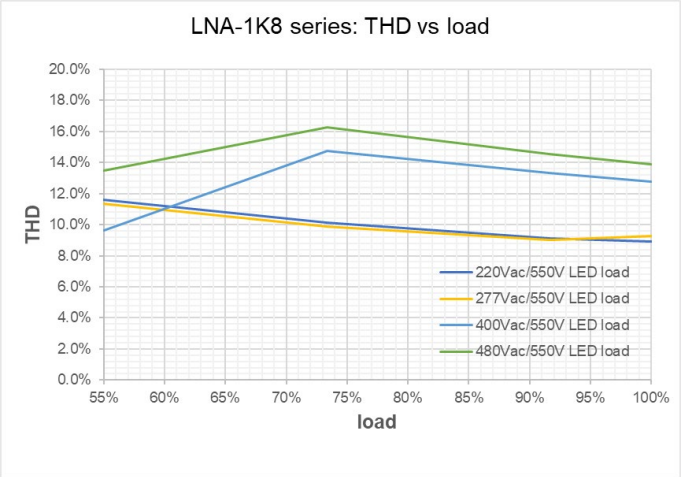


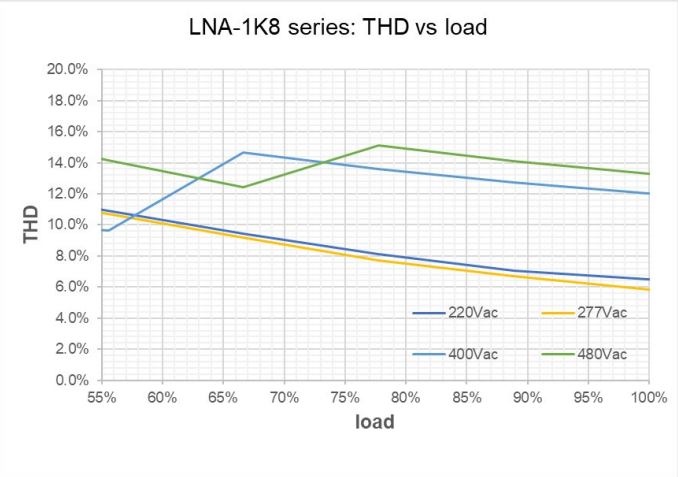
5. PF vs Load





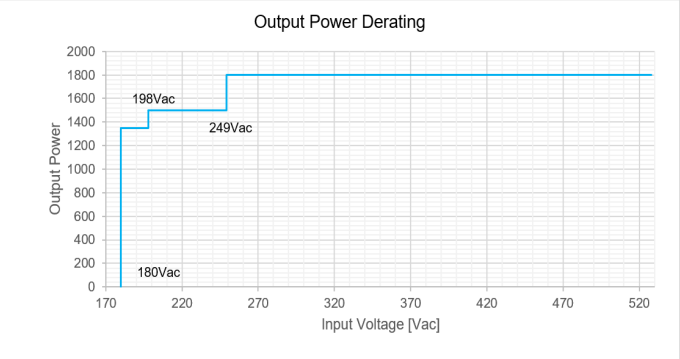
6. THD vs Load





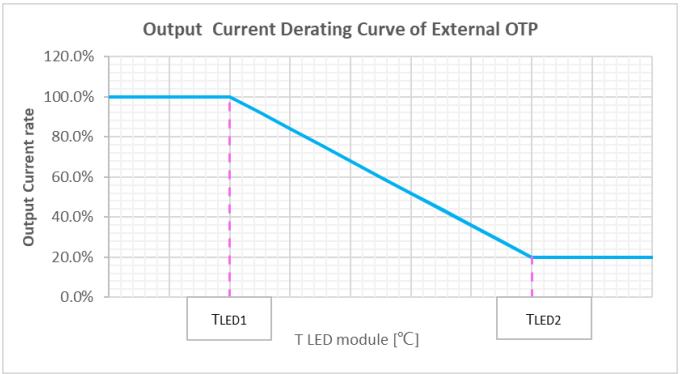
7. Output power derating

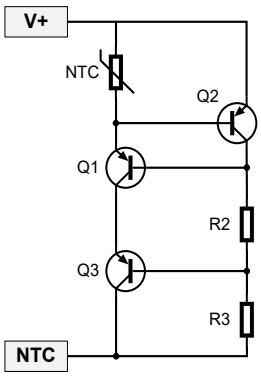
When the input range decreases from 198Vac to 180Vac, the maximum output power will be limited to 1350W by automatically reducing the output current. Switching hysteresis is added during the triggering/recovery process of protection to ensure stable switching state.



8. Programmable External Over Temperature Protection

This protection is an optional feature and user can ignore it without connecting to NTC connector in the junction box. The driver monitors the temperature of the LED module through NTC terminal. The output current will be reduced smoothly and linearly at OTP status and return to normal when the fault condition is removed. The corresponding circuits are illustrated below.





The trigger point of this protection can be set easily according to the actual conditions of the LED fixtures, the user can set the trigger point between 80 ℃ and 110 ℃ by the Delta programming tool, and the default value is 110 ℃. When the temperature exceeds the triggering point, the output current will decrease automatically to bring the temperature of the LED module back to safe value. More details about parameter setting please refer to LNA/EUCO Series Programming Tool User Manual.
An external temperature sensing circuit is required to achieve the NTC terminal function to prevent the LED fixture from overheating. The default setting is for a 10Kohm NTC(B=3380K), and the NTC connection can support remote mounting up to 300m. The circuit with following parameters is the default setting:

Parameter	Part	Manufacturer	Description
NTC	NTCG163JH103JT1	TDK	RES NTC 10Kohm F 3380K +/-1% SMD 0603
R2/R3	RC1206FR-07 1ML	YAGEO	RES SMD 1/4W 1Mohm F 1206
Q1/Q2/Q3	PBHV9050T	NEXPERIA	-500V -150 mA PNP high-voltage low VCEsat transistor
Q1/Q2/Q3	STR2550	ST	TR -500V -0.5A SOT-23-3P 100-300 SMD

The circuit with following parameters is optional, and can be selected by Delta programming tool and GUI:

Parameter	Part	Manufacturer	Description
NTC	TSM1A333F3952RZA	THINKING	RES NTC 33Kohm F 3950K +/-1% SMD 0603 TP
R2/R3	RC1206FR-07 5M1L	YAGEO	RES SMD 1/4W 5.1Mohm F 1206
Q1/Q2/Q3	PBHV9050T	NEXPERIA	-500V -150 mA PNP high-voltage low VCEsat transistor
Q1/Q2/Q3	STR2550	ST	TR -500V -0.5A SOT-23-3P 100-300 SMD

Note:

1) The recommended temperature detection circuit should be on the LED module.
2) NTC should be placed as close to Q2 as possible.
3) Do not make any change to the temperature detection circuit of LED module.
4) The specifications of alternative components should be the same as the recommended sources. Especially, the NTC is a key and thermo-sensitive component, and DO NOT use NTC type with different R (25℃) and/or B value.
5) For Q1/Q2/Q3, either PBHV9050H or STR2550 could be selected in the external OTP circuit.

9. External SPD Requirement for Extra LED Fixture Common Mode Surge Protection

Delta driver has strong capability(10kV) against unexpected surge pulses but considering that end-users may install an external surge protector device (SPD) for greater protection capabilities, therefore Delta recommends that the SPD should be installed on the AC input side, and strongly suggests not to install the SPD on the output side of driver or in front of the LED modules to avoid irreparable damage to the driver.

10. Warranty Policy

If you need further information about our warranty policy, please contact us.

11. Attention

Delta provides all parameters in the data table based on actual test data, but does not guarantee the use of the product in any form. If the information in the directory is inconsistent with the information in the data table, the data table shall prevail (please refer to http://www.DeltaPSU.com for the latest data table information). Delta shall not be liable for any claims or lawsuits arising from incorrect information provided in the data table. Customers should evaluate the usage of the product before placing an order with Delta. Delta reserves the right to make changes to the information described in the data sheet without prior notice.