

■ **Features**

- Absolute Supply Voltage: 180-528Vac or 250-740Vdc
- Horticultural Customizable Configuration
- Constant Current Design
- Great Surge Immunity 10kV
- 95% Efficiency Max.
- Low Inrush Current
- 100,000Hour Life @ Tc=75°C
- 7 Year Warranty @ Tc<=75°C
- NFC Programmability and Isolated Dimming
- +/-2% Output Current Accuracy (Programmable Model)
- 0-10V/PWM/Time/DALI /DMX (Optional) Dimmable
- Dim Off with 0.5W Standby Power
- 12V 300mA Auxiliary Power to Power Controllers and Fans
- UL Class P, ENEC/CB/CCC SELV Output
- Safety according to EN 61347-1, 61347-2-3, 61347-2-13, 623847
- 5+ year warranty
- Near Field Communication Programmability

RoHS
Compliant



■ **Application**

- Bay lights, Pole lights, Stadium lights, Horticultural lighting

■ **Model List** (See appendix for more details about the operation range)

Model Number	Input Voltage Range	Output Power	Output Voltage	Output Current Min	Output Current Max	Efficiency	Certification
LHA600-C140-XYZ	180-528Vac	600W	30-55Vdc	1100mA	1400mA	>95%	UL/FCC
LHA600-C860-XYZ	180-528Vac	600W	42-100Vdc	6000mA	8600mA	>95%	UL/FCC
LHA600-C600-XYZ	180-528Vac	600W	60-143Vdc	4200mA	6000mA	>95%	UL/FCC
LHA600-C420-XYZ	180-528Vac	600W	86-214Vdc	2800mA	4200mA	>95%	UL/FCC

Ordering Options	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

Technical Sales / Customer Service: +1-818-338-7788 • Email: sales@autec.com
 31328 Via Colinas Suite 102 • Westlake Village, CA 91362 USA • www.autec.com

August 27, 2021

					status, programmed to have Dim-off
	ER	0-10V/PWM/Time	NFC Wireless	300mA	√
	AN	DALI	NFC Wireless	-	√
	MX	DMX	√	-	√
Cable Options	Z=	K=UL cable with ground wire (green), S=VDE cable/Class I, D=VDE cable/Class II			
External Thermal Protection NTC Option	-THR	LHA600-C1100-XYZ-THR			

*If ordering DMX, Customer must specify DMX512 or RDM

DMX Notes: Works with DMX-512 Presently. DMX Dimming range 10-100% (1% DMX command will be treated as 10% Dimming). Recommended number of LED drivers per DMX channel is ~32, and ~40 meter (132 ft) drop length. You may need a DMX signal amplifier for quantities above 32 drivers per channel, with a maximum allowed of 150 drivers per single channel.

■ Technical Data

Input Voltage	180-528Vac or 250-740Vdc, 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	2.5Amax@277Vac & Full-Load, 1.4Amax@480Vac & Full-Load
Inrush Current	15A peak, 3.2ms duration, <0.25A2s@277Vac, Cold Start 20A peak, 3.3ms duration, <0.5A2s@480Vac, Cold Start
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 6kV, line to ground 10kV, IEC 61000-4-5
Current Accuracy	±5%lo for non programmable models, ±2%lo for programmable models
Ripple Current	lp-p:5%lo max
Setup Time	1.2s max
Overshoot	10% lo 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	9.33x4.92x1.93 by inch (body), 10.3x4.92x1.93 by inch (endcaps included) 237 x 125 x 49 by mm (body), 262 x 125 x 49 by mm (endcaps included)

Technical Sales / Customer Service: +1-818-338-7788 • Email: sales@autec.com
31328 Via Colinas Suite 102 • Westlake Village, CA 91362 USA • www.autec.com

August 27, 2021

Net Weight	2600g
Packing	8pcs/Carton/22.8kg, 490 x 370 x 250 by mm

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

Disclaimer:

Autec Power Systems' (Autec) LED Drivers are Hi-Pot tested during the manufacturing process. Autec assumes no responsibility for secondary Hi-Pot testing at customer location or designated production line(s). Should customer require further Hi-Pot testing, at their own production line, following assembly of the LED Driver into the customer's assembled fixture, Autec requests advance notice. This request must be communicated to Autec in a timely manner and is recommended to be requested at time of issuing each purchase order.

■ 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	200uA	300uA	450uA
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%

Technical Sales / Customer Service: +1-818-338-7788 • Email: sales@autec.com
 31328 Via Colinas Suite 102 • Westlake Village, CA 91362 USA • www.autec.com

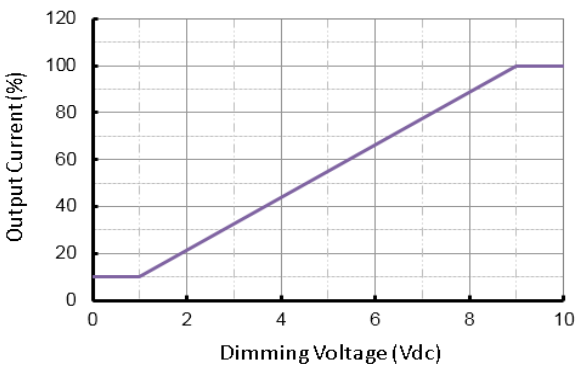
August 27, 2021

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	-
DA1,DA2 High Level	9.5	16	22.5
DA1,DA2 Low Level	-6.5	0	6.5
DA1,DA2 Current	0	-	2mA

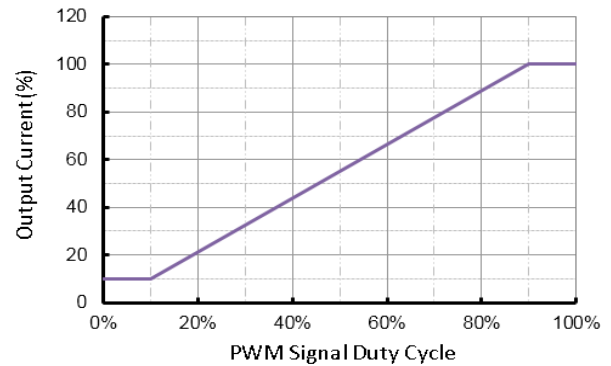
Dimming Curve

a. Without dim-off

0-10V Dimming Curve

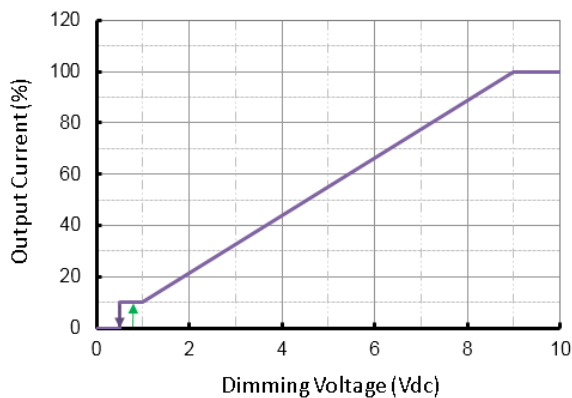


PWM Dimming Curve

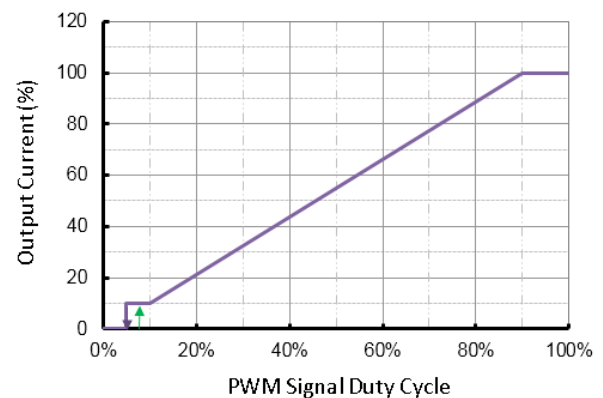


b. With dim-off

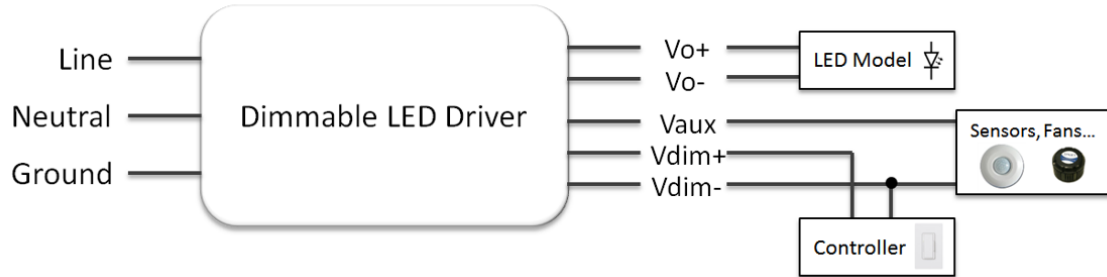
0-10V Dimming Curve



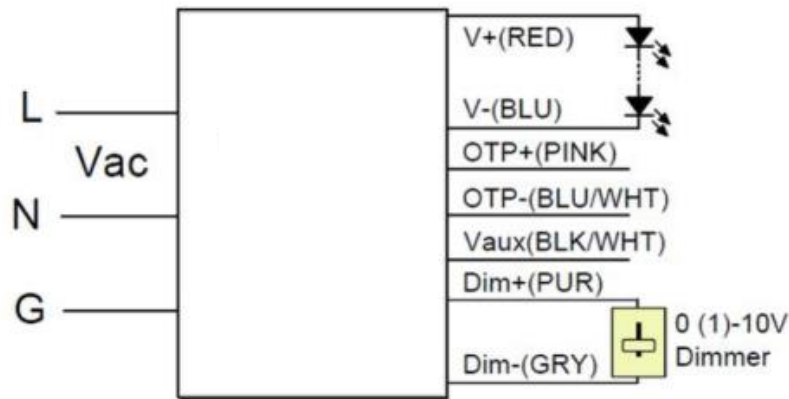
PWM Dimming Curve



- Dimming Wiring



■ Wiring Diagram/Optional External Thermal Protection



■ External Thermal Protection Table (optional)

Parameter	Min.	Typ.	Max.	Notes	
External Thermal Protection NTC	R1	-	7.81 kOhm	-	When R_NTC falls below R1, External Thermal Protection is triggered, reducing output current until R2 is reached.
	R2	-	4.16 kOhm	-	When R_NTC is less than R2, output current is reduced to the programmed "Protection Current Floor."
	Protection Current Floor	10%loset	60%loset	100%loset	10%loset>lomin (default setting is 60%)
		lomin	60%loset	100%loset	10%loset≤lomin (default setting is 60%)

■ Near Field Communication Programmability

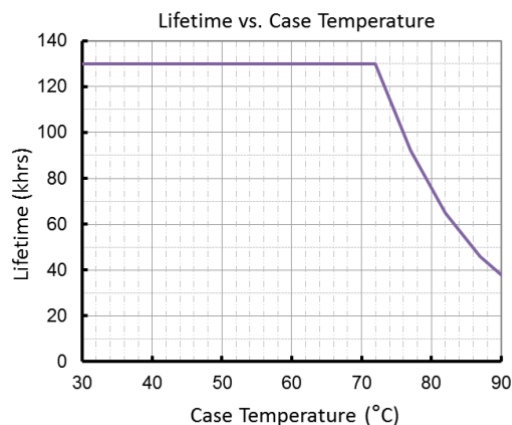


Programming Module
REF. Part# UPRG-NFC

NOTES:

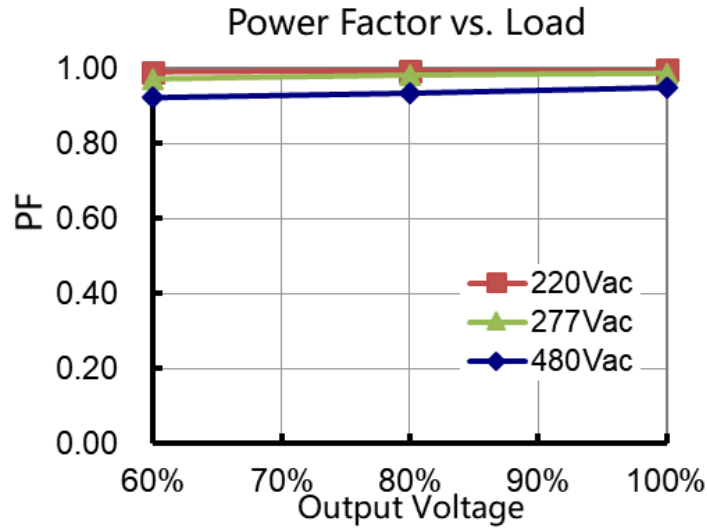
1. The Near Field Communication programming module is used to program the output current, voltage, dimming, and timer settings.
2. The programming function is a non-contact process, which is safer and more efficient compared to traditional programming methods.
3. During programming the LED Driver does not require any external power source.
4. REF. Ordering part number UPRG-NFC (includes programming module, USB cable, and *software).
5. Contact Autec Sales for User Guide and programming software for complete programming instructions.

■ Lifetime vs. Case Temperature

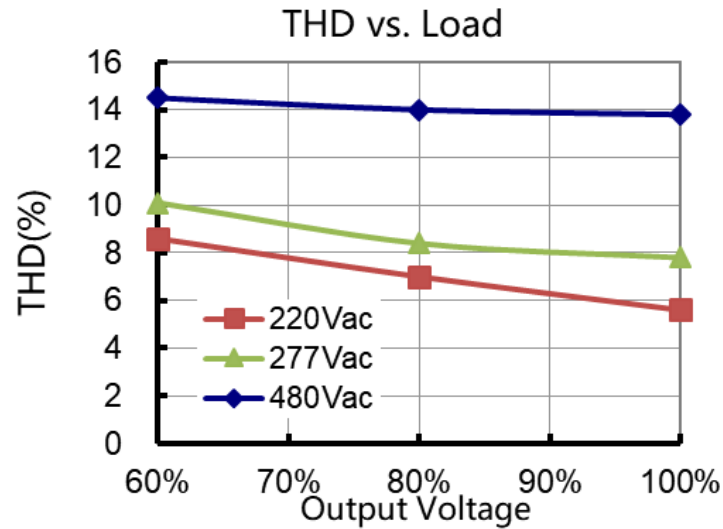


(End of Life: Maximum Failure Rate=10%)

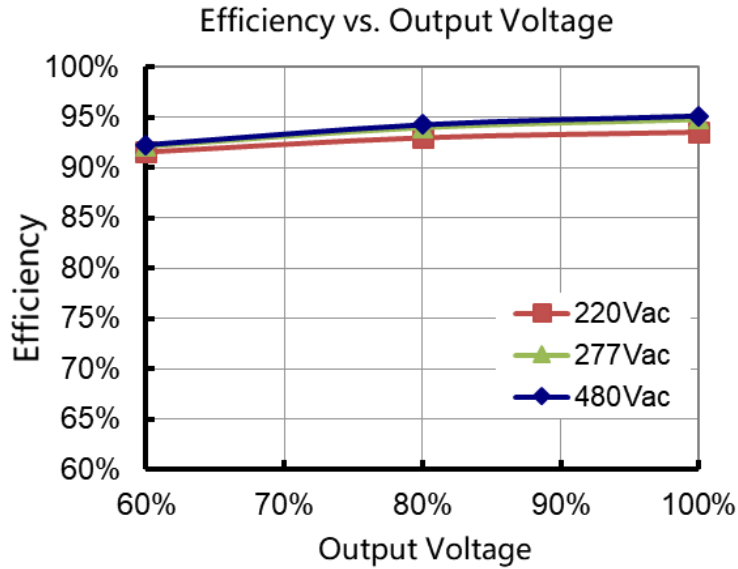
■ Power Factor vs. Load



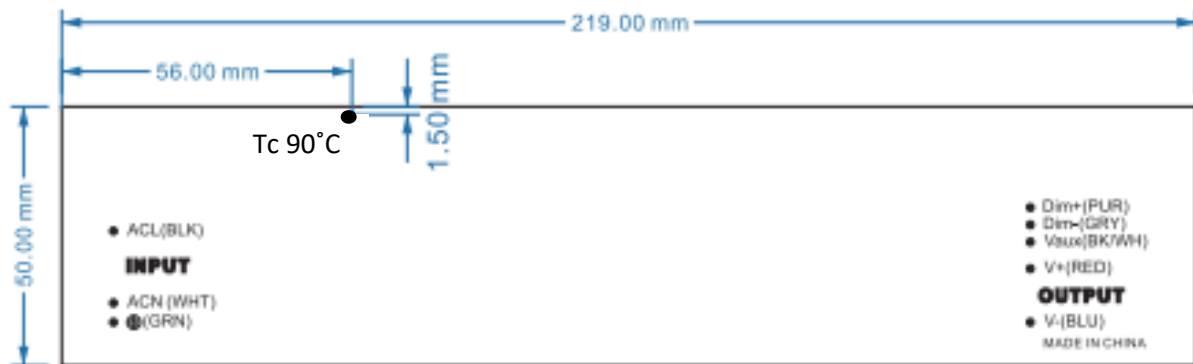
■ THD vs. Load



■ Efficiency vs. Load

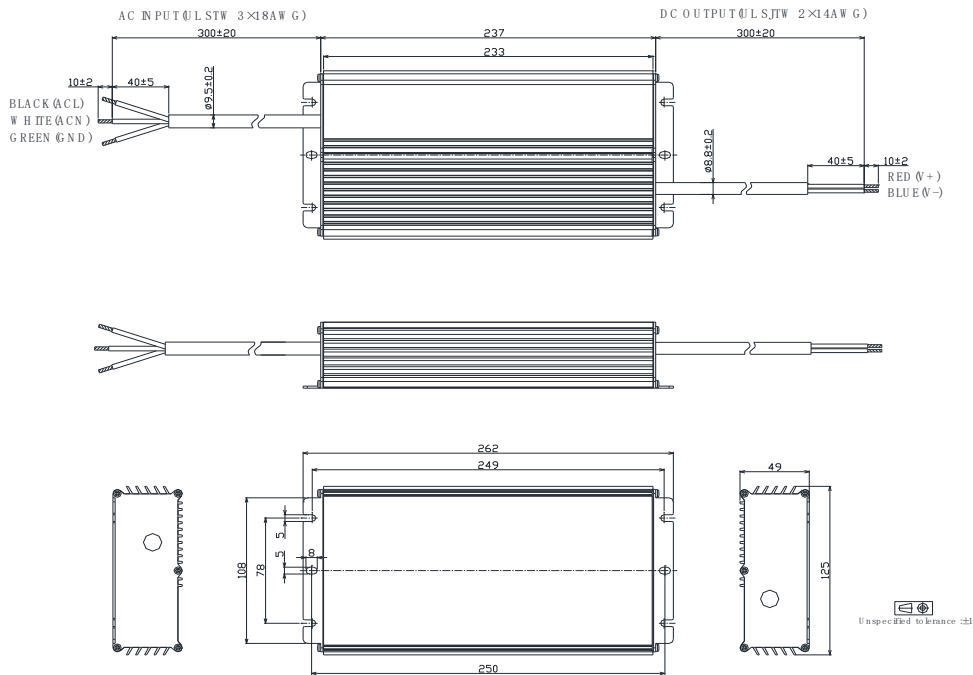


■ Tc Location (LED Driver Label)

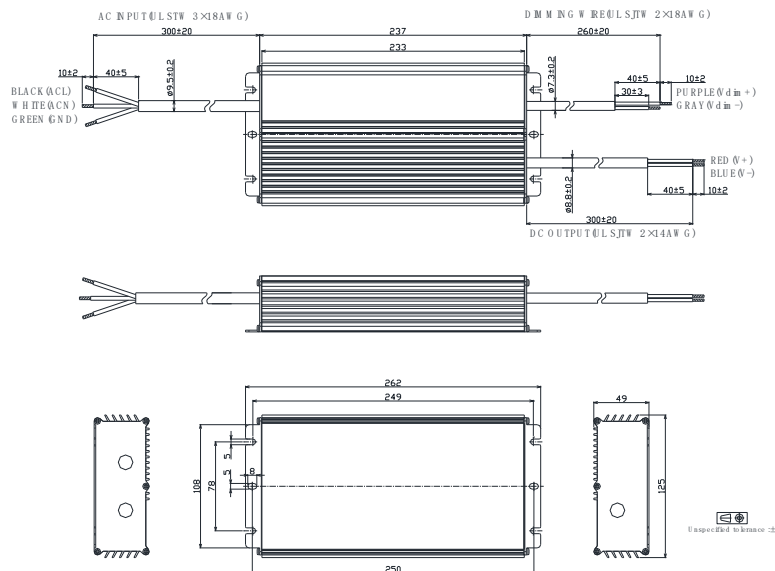


■ Mechanical Design

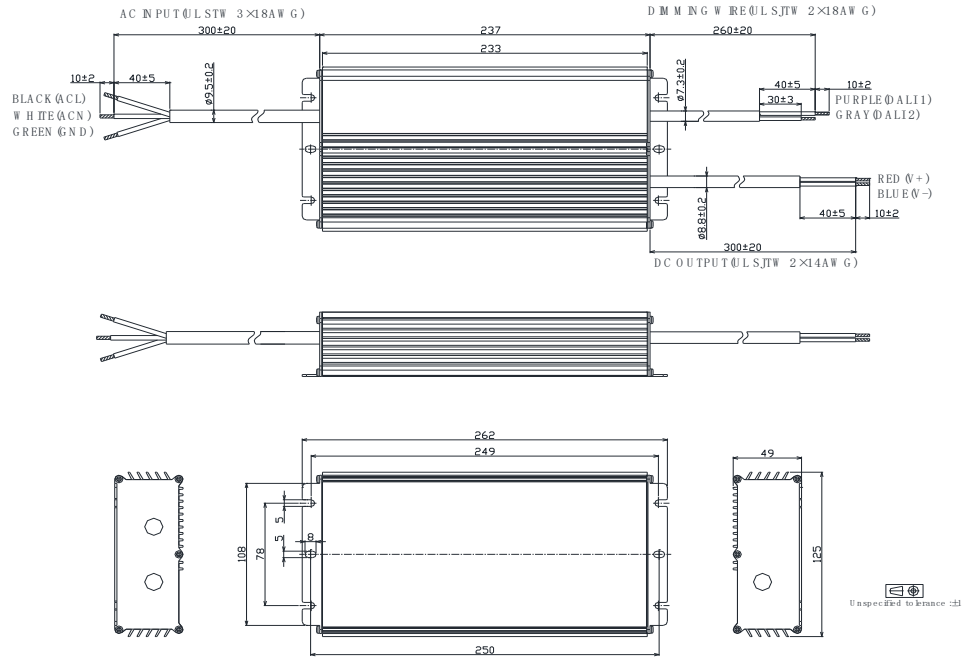
- LHA600-Cxxx-NN/TRK (UL Cable)



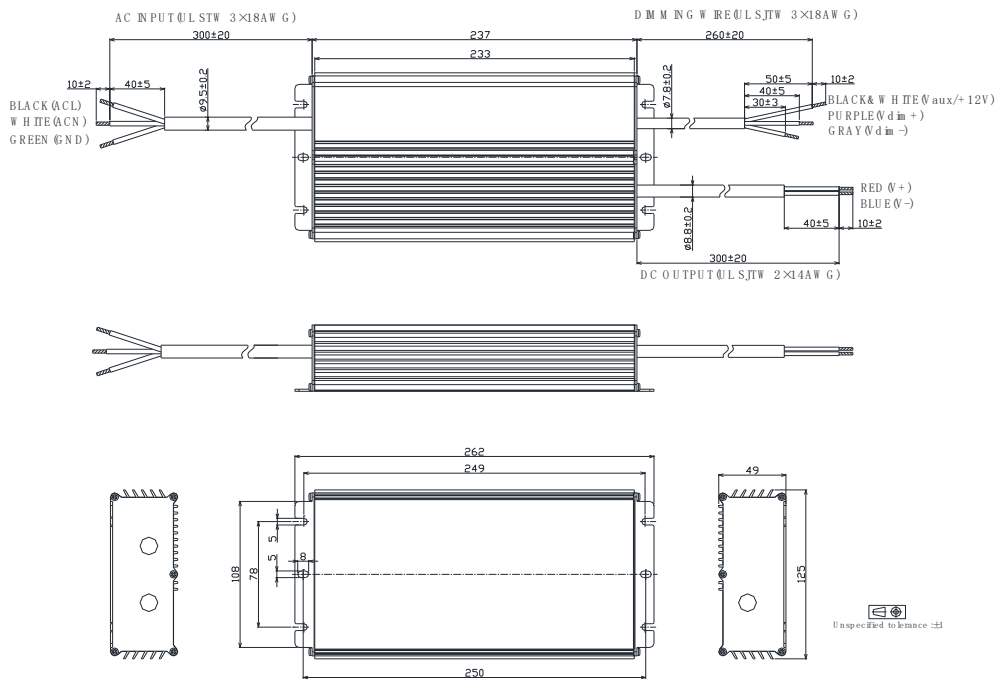
- LHA600-Cxxx-DNK/DRK (UL Cable)



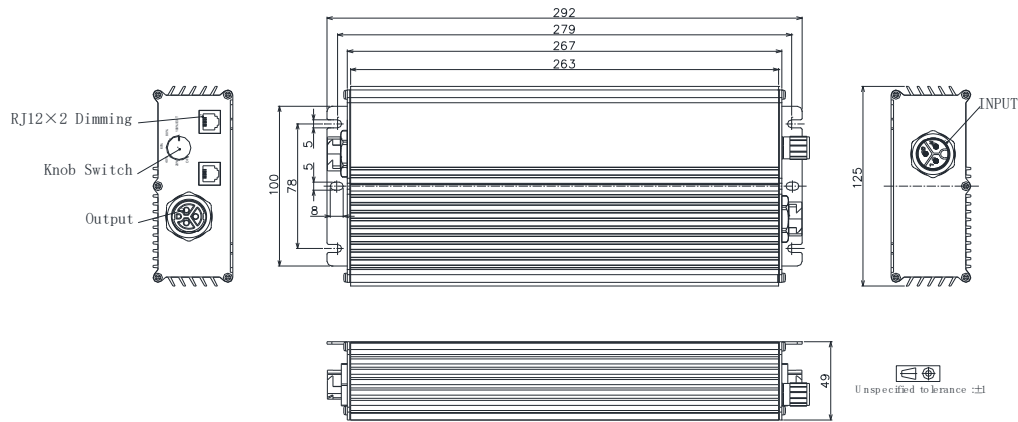
- LHA600-Cxxx-ANK/ARK (UL Cable)



- LHA600-Cxxx-ENK/ERK (UL Cable)



- Customized Functional End Cap Version

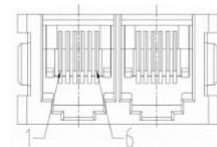


- Add suffix –abcd00 to the end of part number to indicate different configuration.

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 N: Same cable as standard version
Dimming	c	F: M12 Waterproof Connector R: RJ12 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

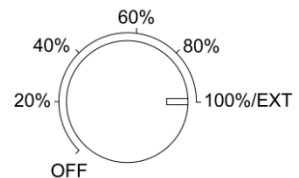
- RJ12 Pin Description

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



- Knob Description:

Position	Description
P1 =100%/EXT	If there is no external control, 100% output. If there is external control, output is controlled by external signal.
P2 =Off,20%,40%60%80%	External signal invalid.



■ Appendix – Operation Range

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C140	14000	600	30	44	1400
	13000	600	30	47	1300
	12500	600	30	49	1250
	12000	600	31	51	1200
	11500	600	32	53	1150
	11000	600	33	55	1100
	10500	578	33	55	1100
	10000	550	33	55	1100

	1100	61	33	55	1100

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C860	8600	600	42	70	860
	8500	600	42	71	850
	8400	600	43	71	840
	8200	600	44	73	820
	8000	600	45	75	800
	7800	600	46	77	780
	7600	600	47	79	760
	7400	600	49	81	740
	7200	600	50	83	720
	7000	600	51	86	700
	6800	600	53	88	680
	6600	600	55	91	660
	6400	600	56	94	640
	6200	600	58	97	620
	6000	600	60	100	600
	5800	580	60	100	600
	5600	560	60	100	600

	600	60	60	100	600

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C600	6000	600	60	100	600
	5800	600	62	103	580
	5600	600	64	107	560
	5400	600	67	111	540
	5200	600	69	115	520
	5000	600	72	120	500
	4800	600	75	125	480
	4600	600	78	130	460
	4400	600	82	136	440
	4200	600	86	143	420
	4000	571	86	143	420
	3800	543	86	143	420
	3600	514	86	143	420
	3400	486	86	143	420
	3200	457	86	143	420
	3000	429	86	143	420

	420	60	86	143	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	600	86	143	420
	4100	600	88	146	410
	4000	600	90	150	400
	3900	600	92	154	390
	3800	600	95	158	380
	3700	600	97	162	370
	3600	600	100	167	360
	3500	600	103	171	350
	3300	600	109	182	330
	3100	600	116	194	310
	3000	600	120	200	300
	2900	600	124	207	290
	2800	600	129	214	280
	2700	579	129	214	280
	2600	557	129	214	280

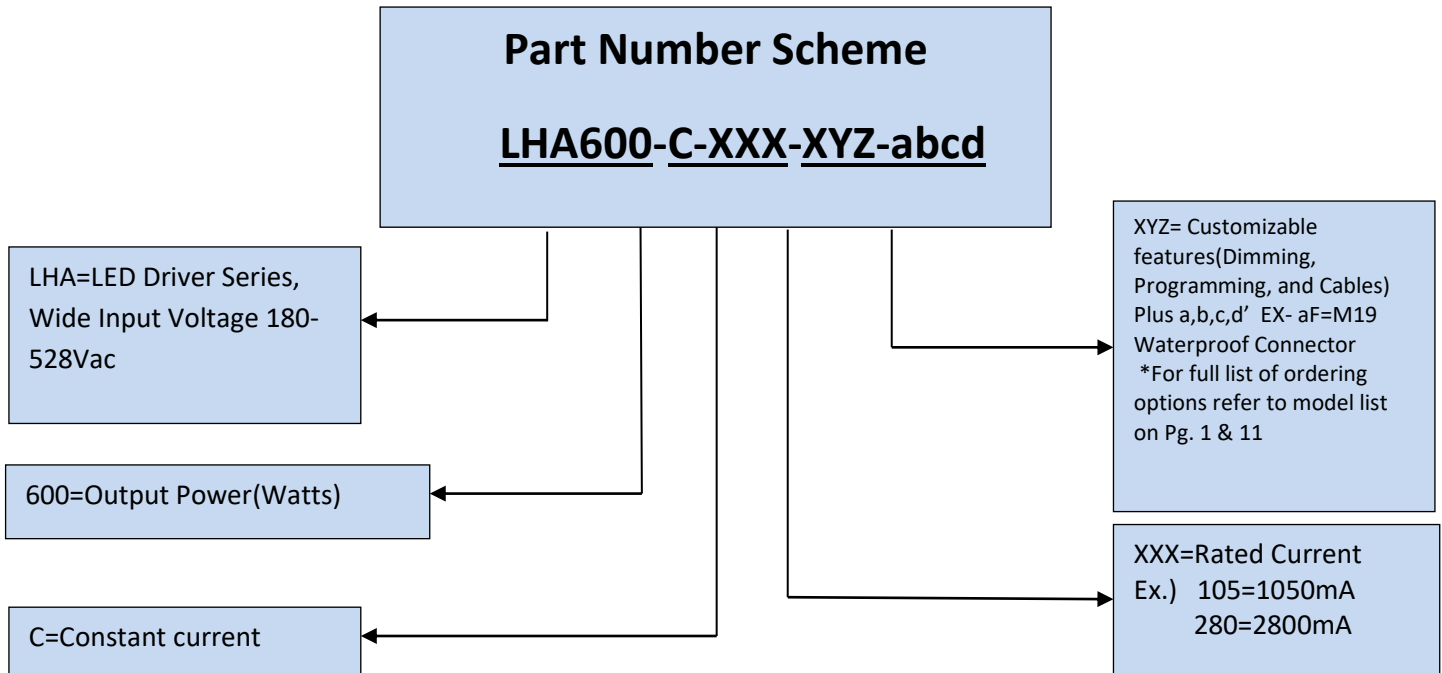
	280	60	129	214	280

Technical Sales / Customer Service: +1-818-338-7788 • Email: sales@autec.com

31328 Via Colinas Suite 102 • Westlake Village, CA 91362 USA • www.autec.com

August 27, 2021

Contact Autec Sales for non-UL Mechanical Diagrams



Part Number Scheme
LHA600-C-XXXX-XYZ-abcd-THR

LHA=LED Driver Series,
Wide Input Voltage 180-
528Vac

600=Output Power(Watts)

C=Constant current

XXXX=Rated Current
Ex.) 1100=11000mA

-THR= External Thermal
Protection

XYZ= Customizable
features(Dimming,
Programming, and Cables)
Plus a,b,c,d' EX- aF=M19
Waterproof Connector
*For full list of ordering
options refer to model list
on Pg. 1 & 11

*Product images are for illustrative purposes only and may vary from actual design.

*Specifications are subject to change without notice. Autec is not responsible for issues arising from errors or omissions.