

■ Features

- Absolute Supply Voltage: 180-528Vac or 250-740Vdc
- Horticultural Customizable Configuration
- Constant Current Design
- Great Surge Immunity 10kV
- 96% 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
LHA700-C1600-XYZ	180-528Vac	700W	30-56Vdc	12500mA	16000mA	>95%	UL/FCC
LHA700-C860-XYZ	180-528Vac	700W	55-113Vdc	6000mA	8600mA	>95%	UL/FCC
LHA700-C600-XYZ	180-528Vac	700W	80-161Vdc	4200mA	6000mA	>95%	UL/FCC
LHA700-C420-XYZ	180-528Vac	700W	114-243Vdc	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	-	-

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	DR	0-10V	NFC Wireless	-	No Dim-off as default 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	LHA700-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	2.9Amax@277Vac & Full-Load, 1.8Amax@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)

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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%

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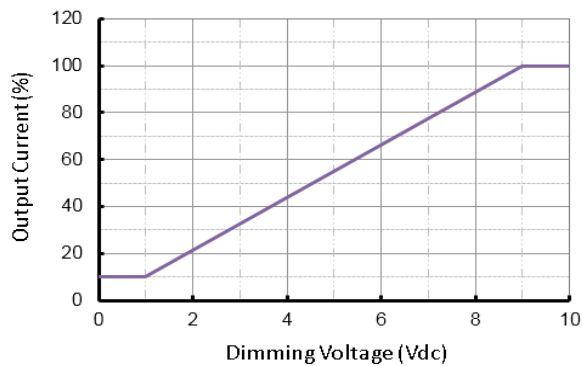
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PWM High	3.8V	-	10V
PWM Low	0V	-	0.6V
PWM Frequency	300Hz	-	2kHz
External PWM Controller Current Sinking Capability	300uA	-	-
DALI Interface Standard	-	IEC62386	-
DA1,DA2 High Level	9.5	16	22.5
DA1,DA2 Low Level	-6.5	0	6.5
DA1,DA2 Current	0	-	2mA

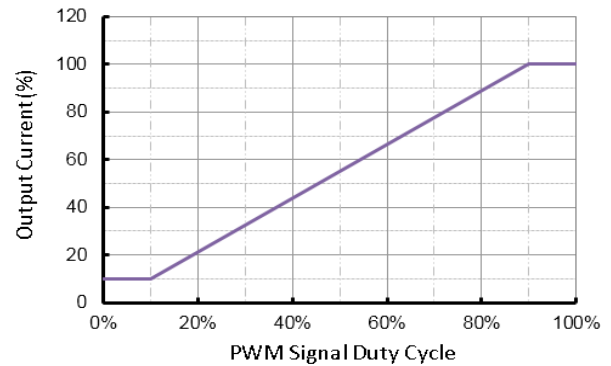
Dimming Curve

a. Without dim-off

0-10V Dimming Curve

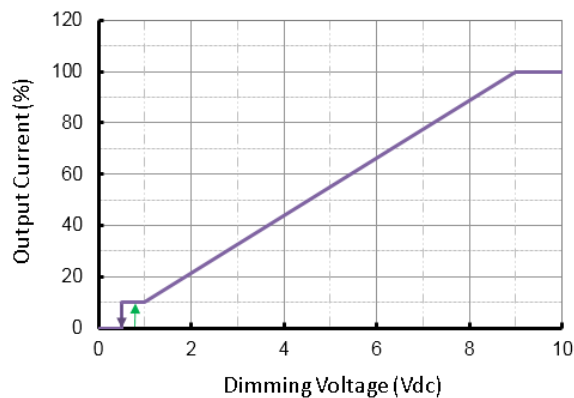


PWM Dimming Curve

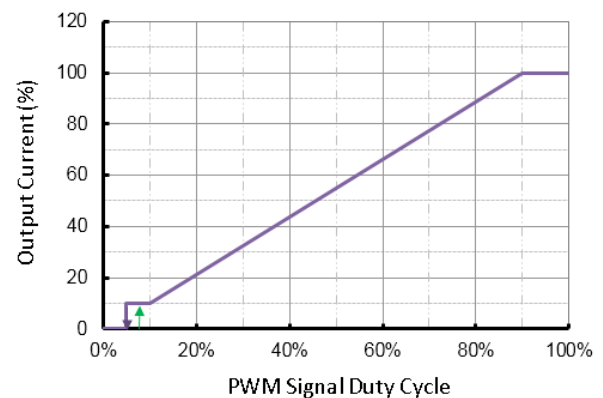


b. With dim-off

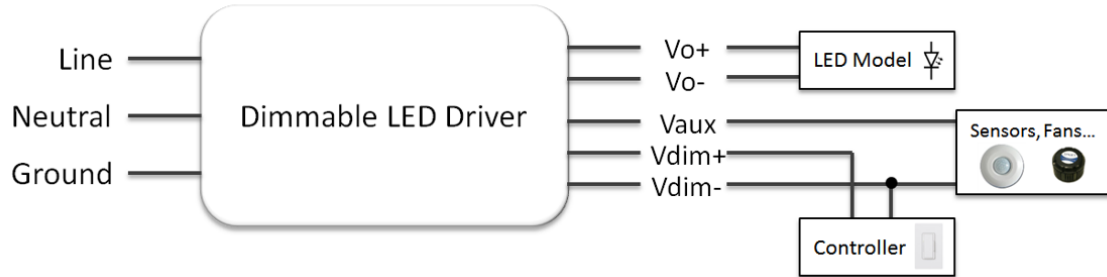
0-10V Dimming Curve



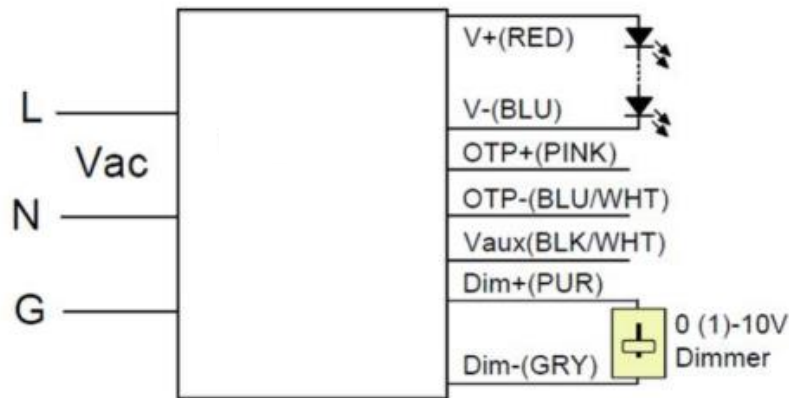
PWM Dimming Curve



- 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

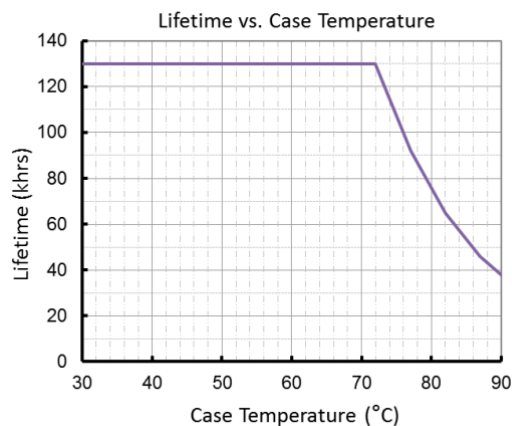


Programming Module
REF. Part# UPRG-NFC

NOTES:

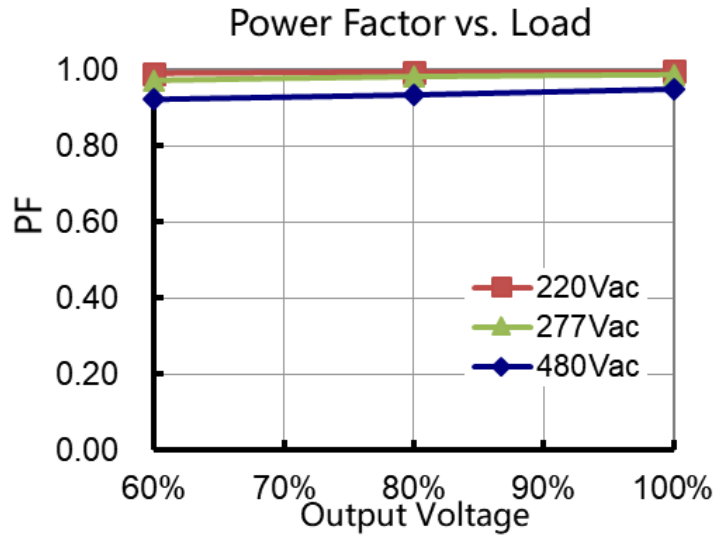
1. The Near Field Communication programming module is used to program the output current, voltage, dimming, and timer settings.
2. The programming function is a non-contact process, which is safer and more efficient compared to traditional programming methods.
3. During programming the LED Driver does 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

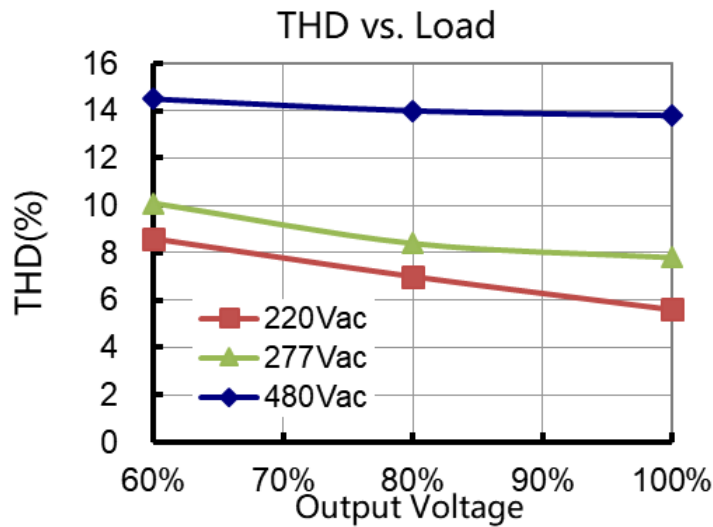


(End of Life: Maximum Failure Rate=10%)

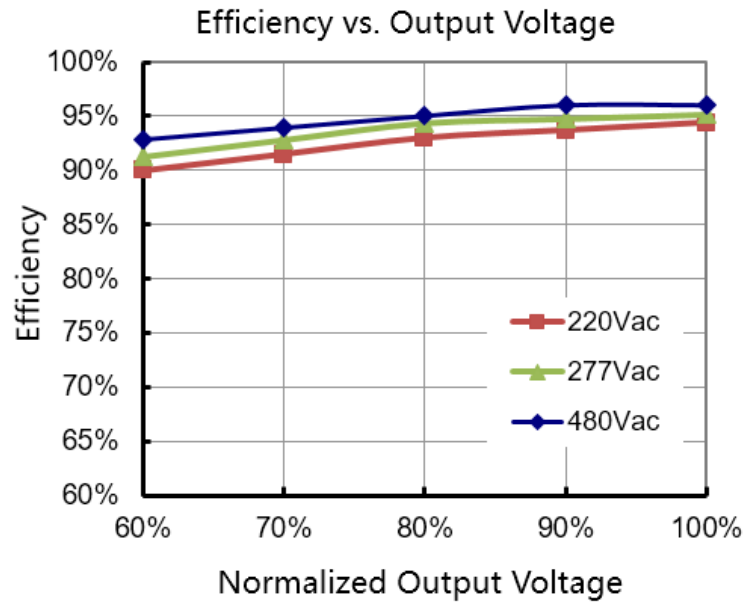
■ Power Factor vs. Load



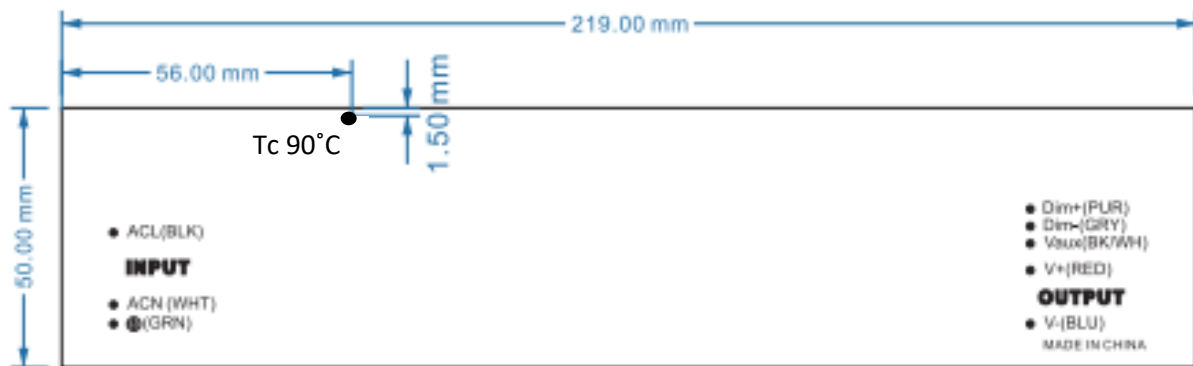
■ THD vs. Load



■ Efficiency vs. Load (4.2A Model)

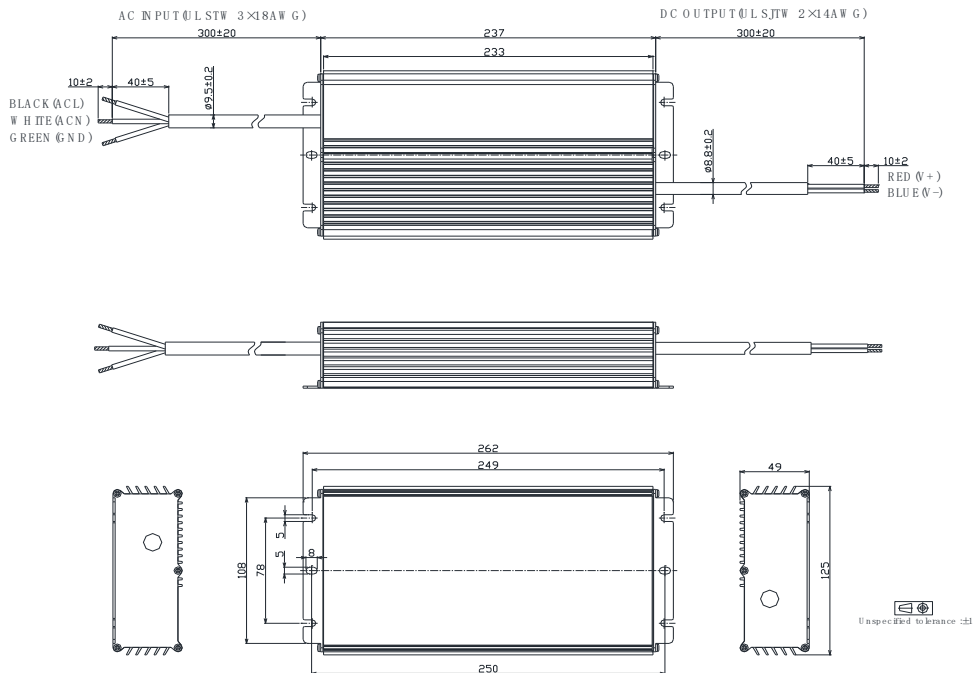


■ Tc Location (LED Driver Label)

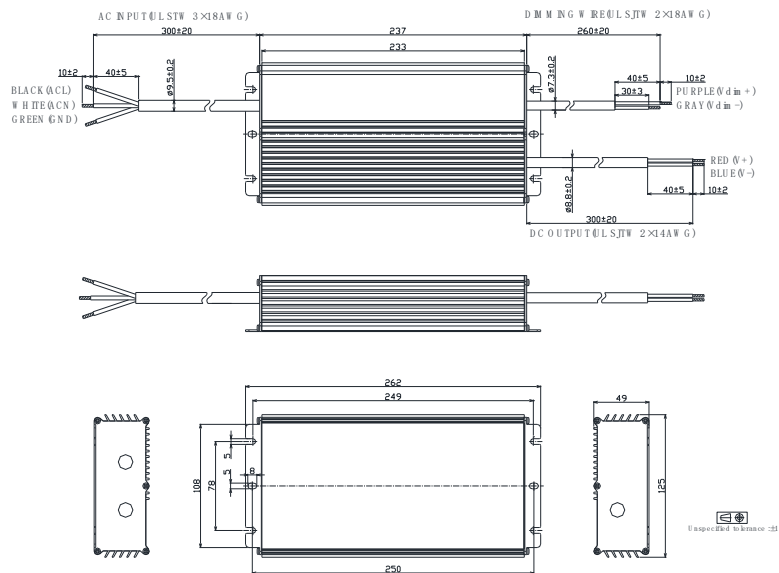


■ Mechanical Design

- LHA700-Cxxx-NN/TRK (UL Cable)



- LHA700-Cxxx-DNK/DRK (UL Cable)

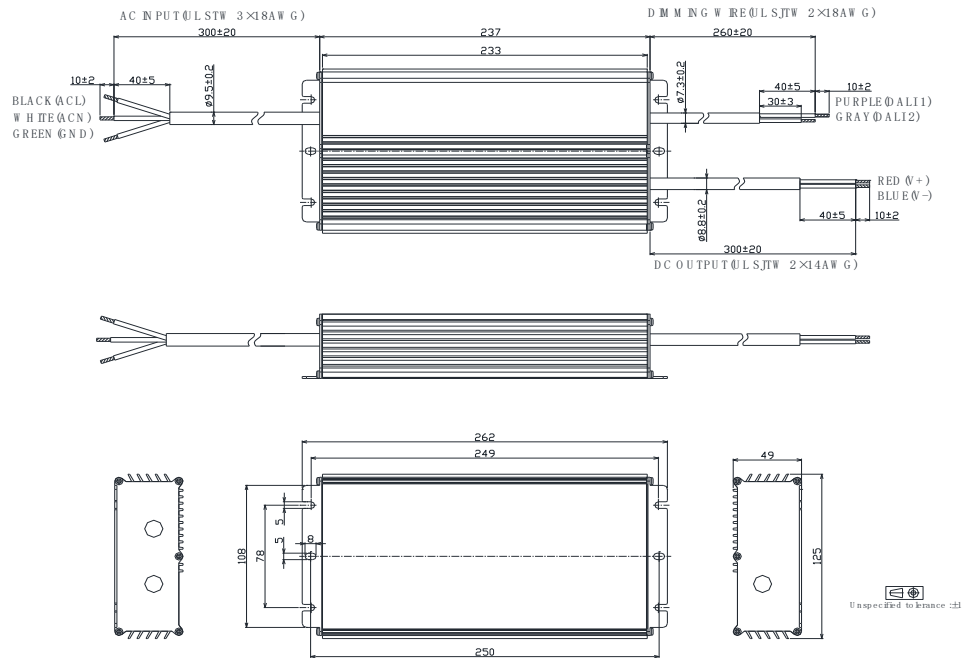


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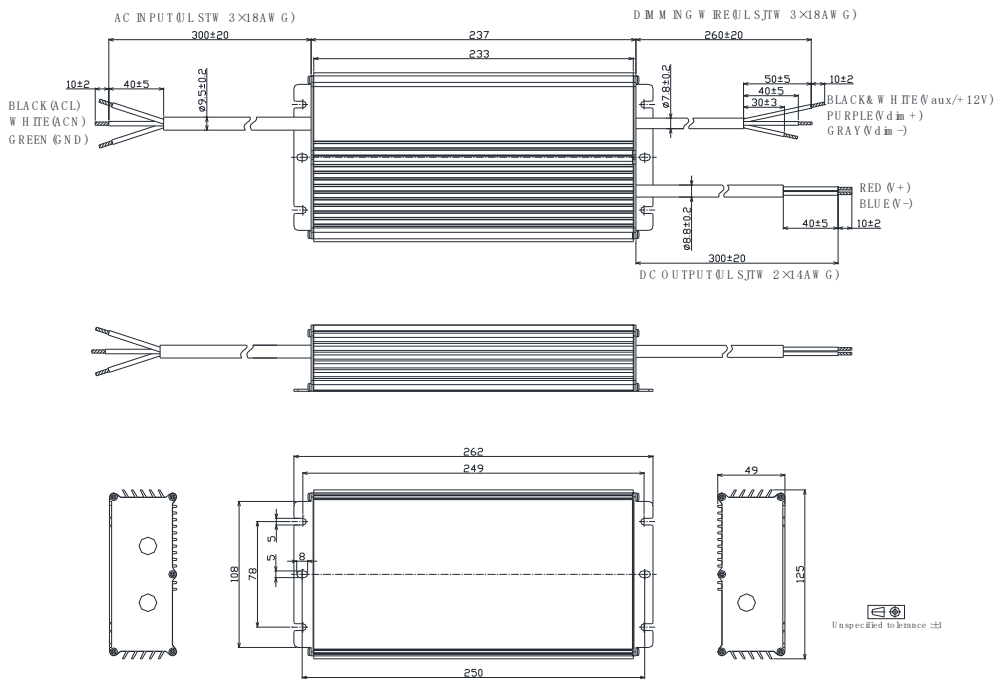
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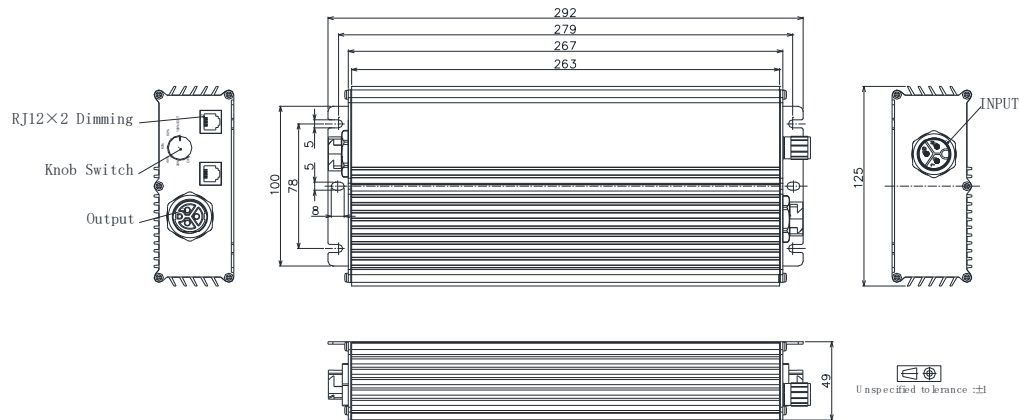
- LHA700-Cxxx-ANK/ARK (UL Cable)



- LHA700-Cxxx-ENK/ERK (UL Cable)



- Customized Functional End Cap Version

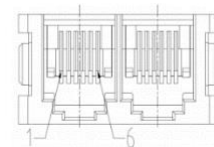


- Add suffix –abcd00 to the end of part number to indicate different configuration.

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)
-C1600	16000	700	30	44	1600
	15000	700	30	47	1500
	14500	700	30	49	1450
	14000	700	30	51	1400
	13500	700	32	53	1350
	13000	700	33	55	1300
	12500	700	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	700	49	81	860
	8500	700	49	82	850
	8400	700	50	83	840
	8200	700	51	85	820
	8000	700	53	88	800
	7800	700	54	90	780
	7600	700	55	92	760
	7400	700	57	95	740
	7200	700	58	97	720
	7000	700	60	100	700
	6800	700	62	103	680
	6600	700	64	106	660
	6400	700	66	109	640
	6200	700	68	113	620
	6000	700	70	117	600
	5800	677	70	117	600
	5600	653	70	117	600

	600	70	70	117	600

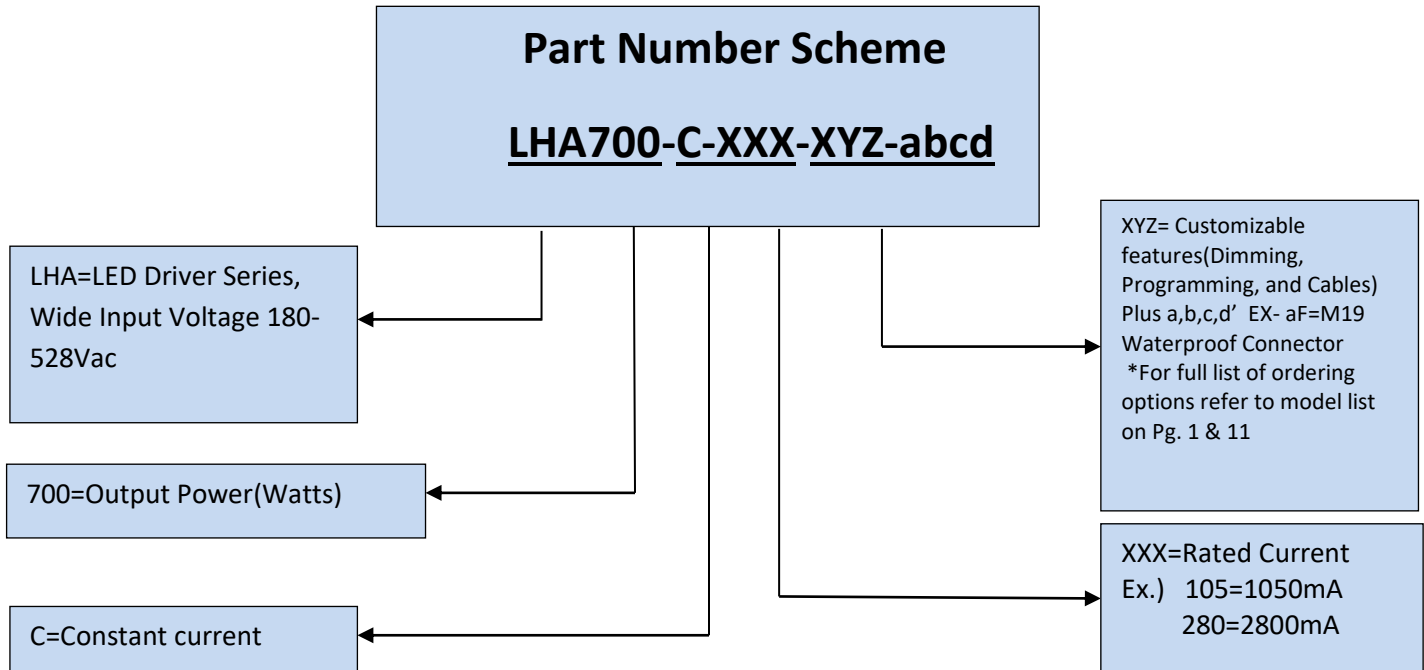
Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C600	6000	700	70	117	600
	5800	700	72	121	580
	5600	700	75	125	560
	5400	700	78	130	540
	5200	700	81	135	520
	5000	700	84	140	500
	4800	700	88	146	480
	4600	700	91	152	460
	4400	700	95	159	440
	4200	700	100	167	420
	4000	667	100	167	420
	3800	633	100	167	420
	3600	600	100	167	420

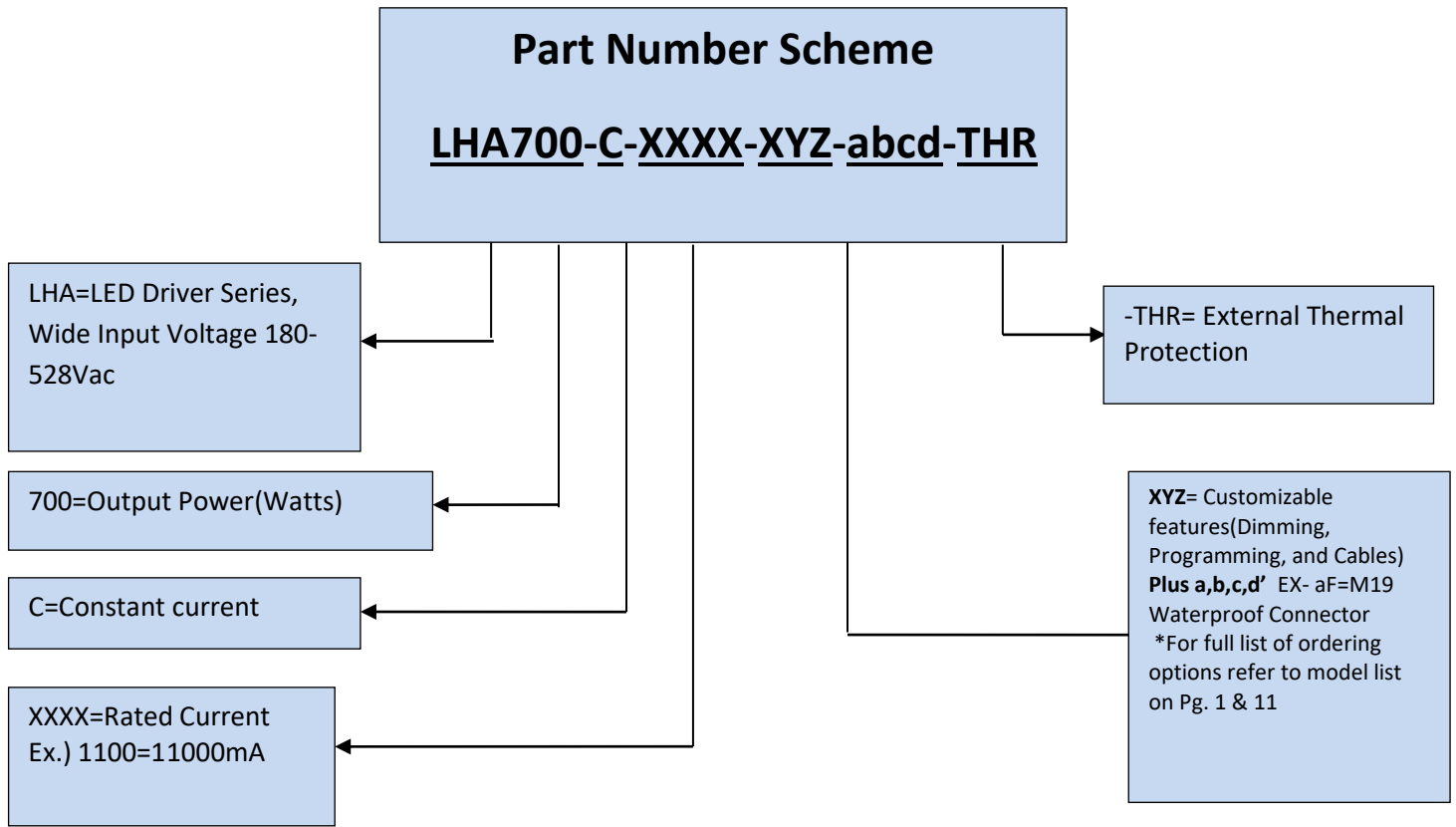
	420	70	100	167	420

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C420	4200	700	100	167	420
	4100	700	102	171	410
	4000	700	105	175	400
	3900	700	108	179	390
	3800	700	111	184	380
	3700	700	114	189	370
	3600	700	117	194	360
	3500	700	120	200	350
	3400	700	124	206	340
	3300	700	127	212	330
	3200	700	131	219	320
	3100	700	135	226	310
	3000	700	140	233	300
	2900	700	145	241	290
	2800	700	150	250	280
	2700	675	150	250	280
	2600	650	150	250	280

	280	70	150	250	280

Contact Autec Sales for non-UL Mechanical Diagrams





*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.

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