

### ■ Features

- Power Rating: 240/250W
- Input Voltage: 180-528Vac
- Constant current design
- Output current settable(700mA-6900mA)
- +/-2% Output Current Accuracy (Programmable Model)
- Near Field Communication Programmability
- High-Efficiency @ 90% and above
- 0-10V/PWM/Timer/DALI/DMX (Optional) Dimmable
- Dim to Off with 1.5W Standby Power
- Optional External Thermal Protection NTC
- UL Class P, Type HL
- OVP, SCP, & OTP
- IP67
- 5+ year warranty
- Surge Immunity 10kV



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

### ■ Application

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

### ■ Model List

Model Number	Input Voltage Range	Output Power	Output Voltage	Output Current Min	Output Current Max	Certification
LHA240-C105-XYZ	180 ~ 528Vac	250W	143-357Vdc	700mA	1050mA	UL/cUL
LHA240-C140-XYZ	180 ~ 528Vac	250W	107-239Vdc	1050mA	1400mA	UL/cUL
LHA240-C210-XYZ	180 ~ 528Vac	250W	71-179Vdc	1400mA	2100mA	UL/cUL
LHA240-C420-XYZ	180 ~ 528Vac	250W	36-89Vdc	2800mA	4200mA	UL/cUL
LHA240-C690-XYZ	180 ~ 528Vac	250W	22-50Vdc	4800mA	6900mA	UL/cUL

Ordering Options	XY=	Dimming Method	Programmable	12Vaux	Dim-off
	NN	-	-	-	-
	EN	0-10V	-	√	√
	TR	Timer	√	-	-
	ER	0-10V/PWM/Timer	√	√	√
	AN	DALI	-	-	√
	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	LHA240-C105-XYZ-THR			

DMX Notes: Works with DMX-512 Presently. DMX Dimming range 10-100% (1% DMX command will be treated as 10% Dimming).

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**■ Technical Data**

Input Voltage	180-528Vac
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	1.1 Amax@277Vac & Full-Load, 0.65Amax@480Vac & Full-Load
Inrush Current	65A peak, 1.2ms duration, <0.25A2s@277Vac, Cold Start 70A peak, 1.3ms duration, <0.5A2s@480Vac, Cold Start
Leakage Current	1mA max @277Vac 60Hz, UL8750,0.75mAmax @240Vac 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
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 $T_c \geq 105 \pm 10^\circ\text{C}$ ; Auto Recovery When $T_c \leq 70 \pm 10^\circ\text{C}$ 105 +/- 10°C (relates to internal component temperature / optional settings are possible, contact Autec sales)
Auxiliary Power (Vaux)	12V+/-5%, 300mA max
Operating Temperature	-40°C~+70°C ; 10%RH~100%RH (See Derating Curve for more details)
Storage Temperature	-40°C~+85°C; 5%RH~100%RH
MTBF	≥280,000 hours, 75°C case temperature (MIL-HDBK-217F)
Lifetime	≥100,000 hours, 75°C case temperature, refer to life vs. Tc curve
Case Temperature	0°C max, marked in the Tc point of label
Dimensions	8.85x2.68x1.51 by inch (body), 9.88x2.68x1.51 by inch (endcaps included) 225x68x38.5by mm (body), 251x68x38.5 by mm (endcaps included)
Net Weight	1600g
Packing	16pcs/Carton/20.2kg, 490x370x210mm

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

\*Marked items are optional. Please contact Autec Sales to specify the required functions.

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**■ Safety/EMC Compliance**

Safety Standards	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 DC. or AC 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

**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.

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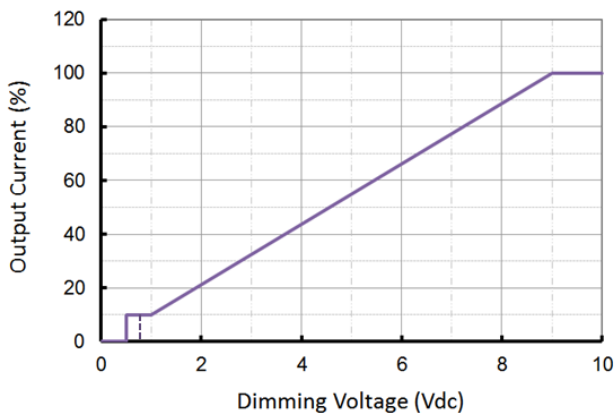
## ■ Dimming

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%
PWM High	3V		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

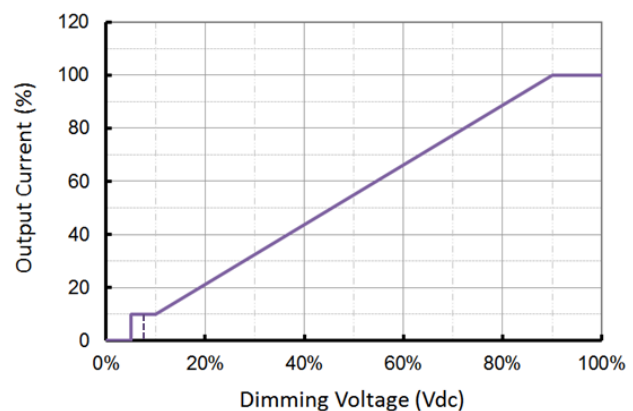
## ■ Dimming Curve

### a. With dim-off (default)

0-10V Dimming Curve



PWM Dimming Curve

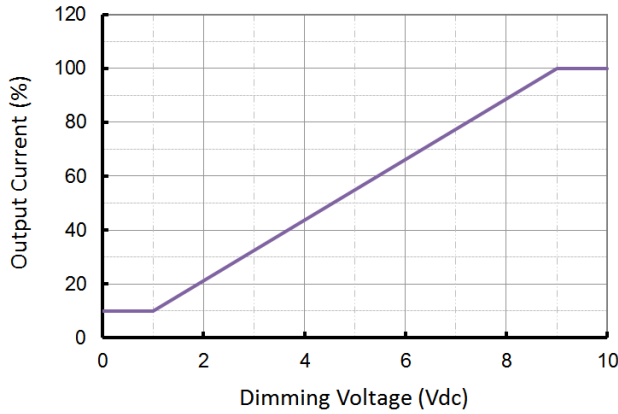


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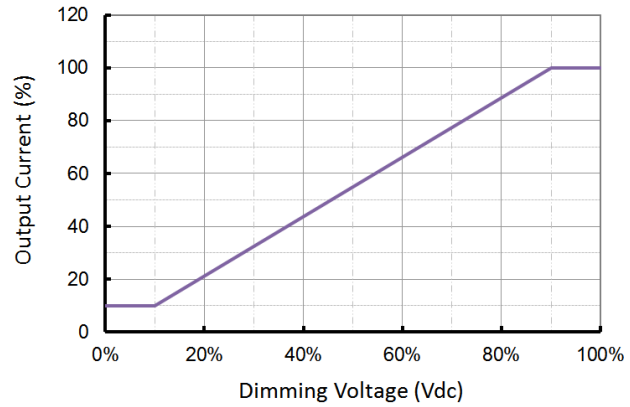
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**b. Without dim-off (contact sales to get this feature)**

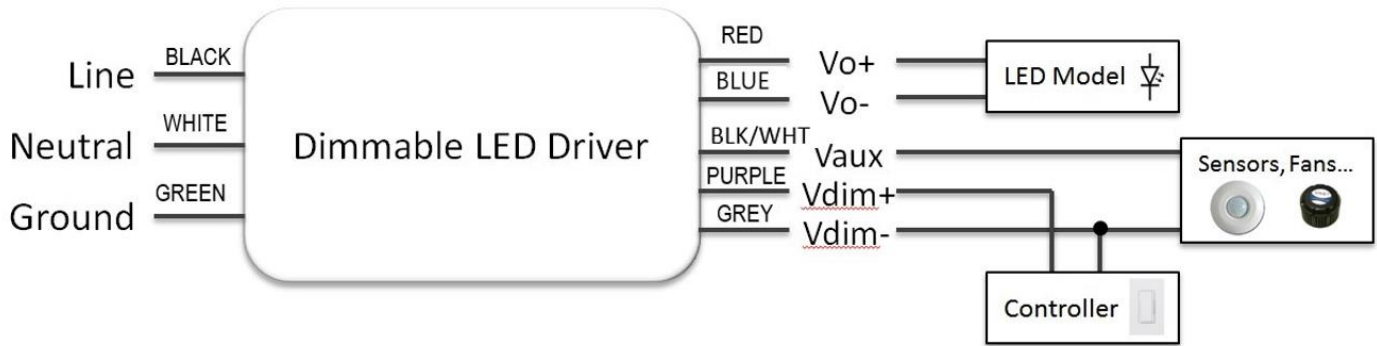
0-10V Dimming Curve



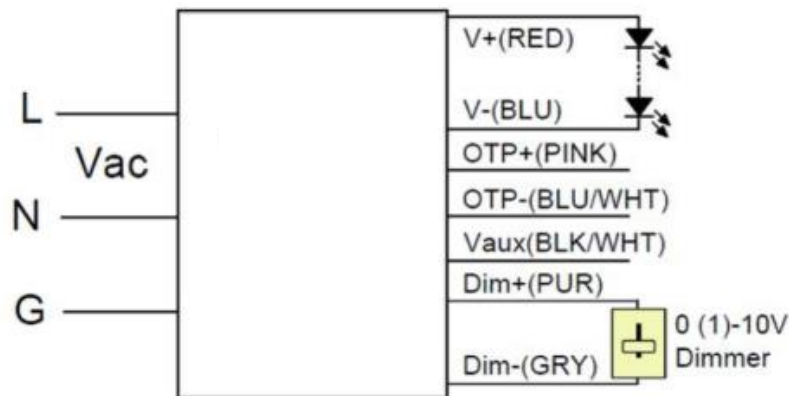
PWM Dimming Curve



**■ Wiring Diagram**



**■ Wiring Diagram/Optional External Thermal Protection**



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### ■ External Thermal Protection Table

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 > I <sub>omin</sub> (default setting is 60%)
I <sub>omin</sub>		60%loset	100%loset	10%loset ≤ I <sub>omin</sub> (default setting is 60%)	

### ■ Near Field Communication Programmability



Programming Module  
REF. Part# UPRG-NFC

#### NOTES:

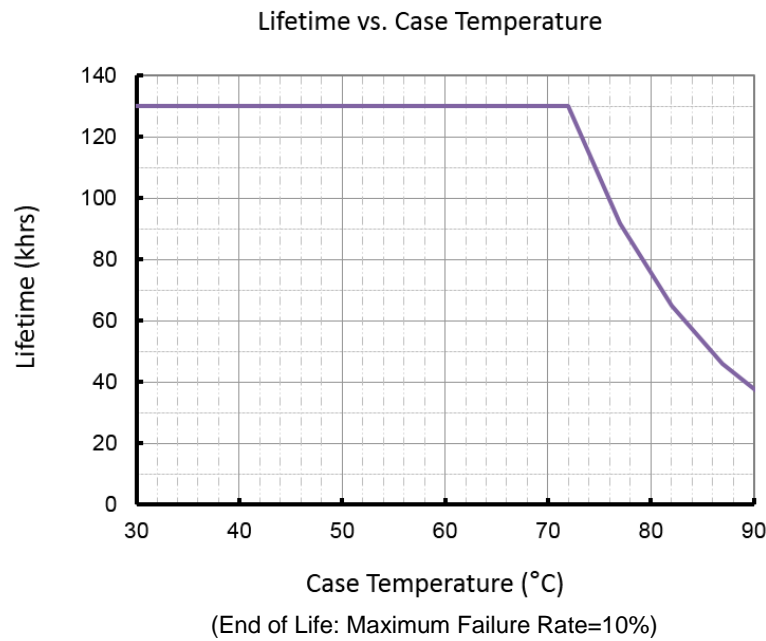
1. The Near Field Communication programming module is used to program the output current, voltage, dimming, and timer settings.
2. The programming function is a non-contact process, which is safer and more efficient compared to traditional programming methods.
3. During programming the LED Driver does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

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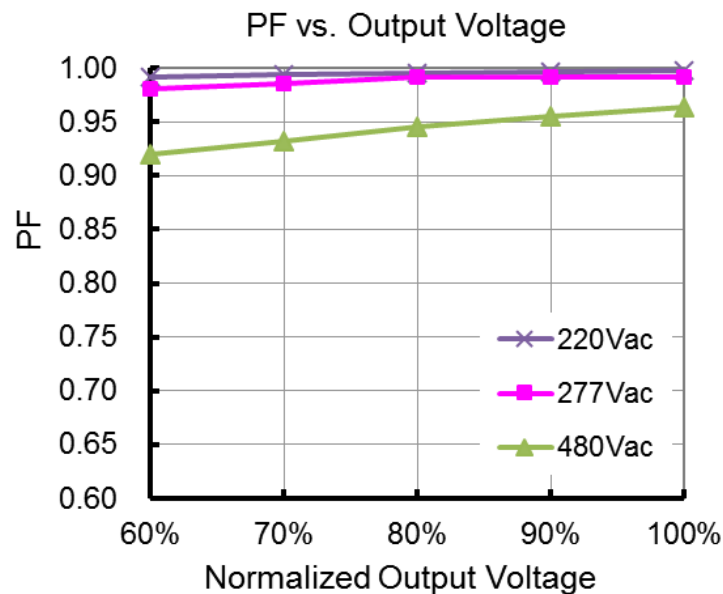
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■ Lifetime vs. Case Temperature



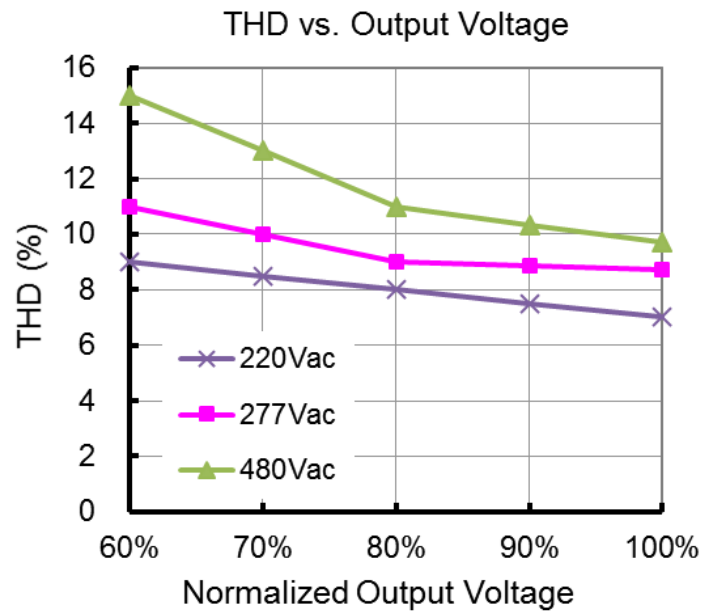
■ Power Factor vs. Load



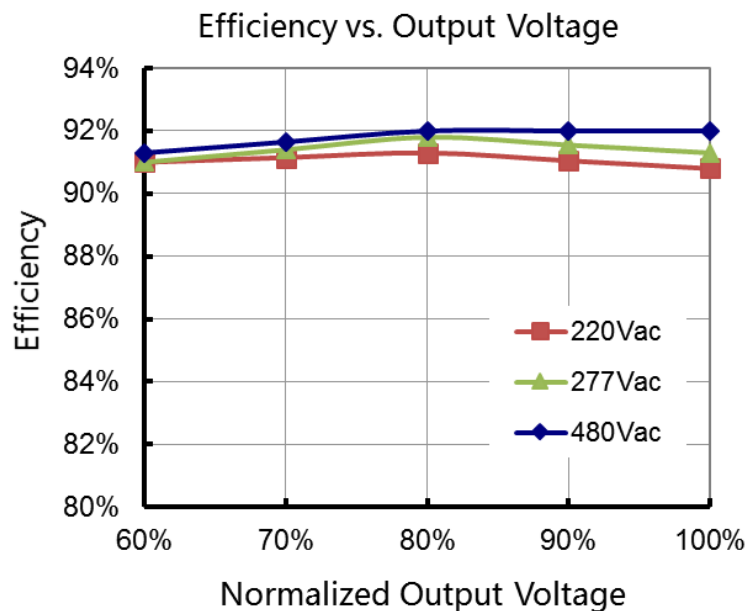
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■ THD vs. Load



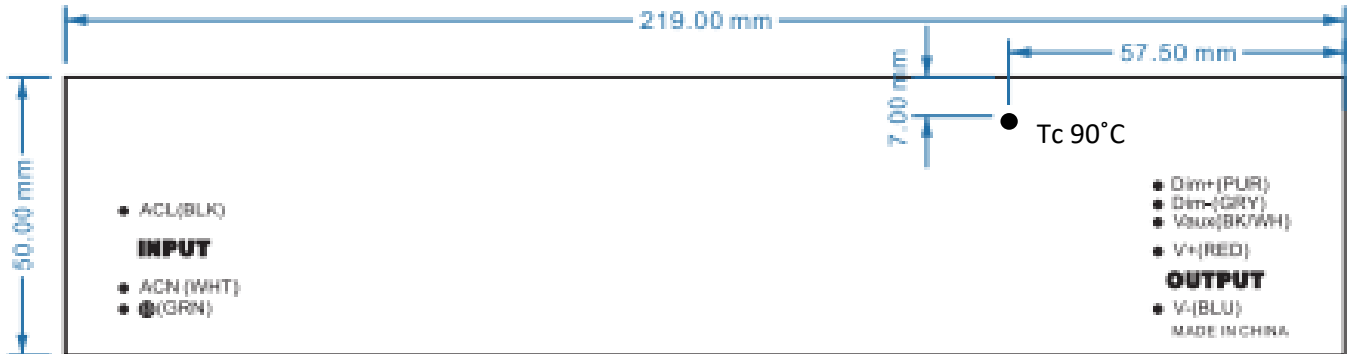
■ Efficiency vs. Load (2.1A Model)



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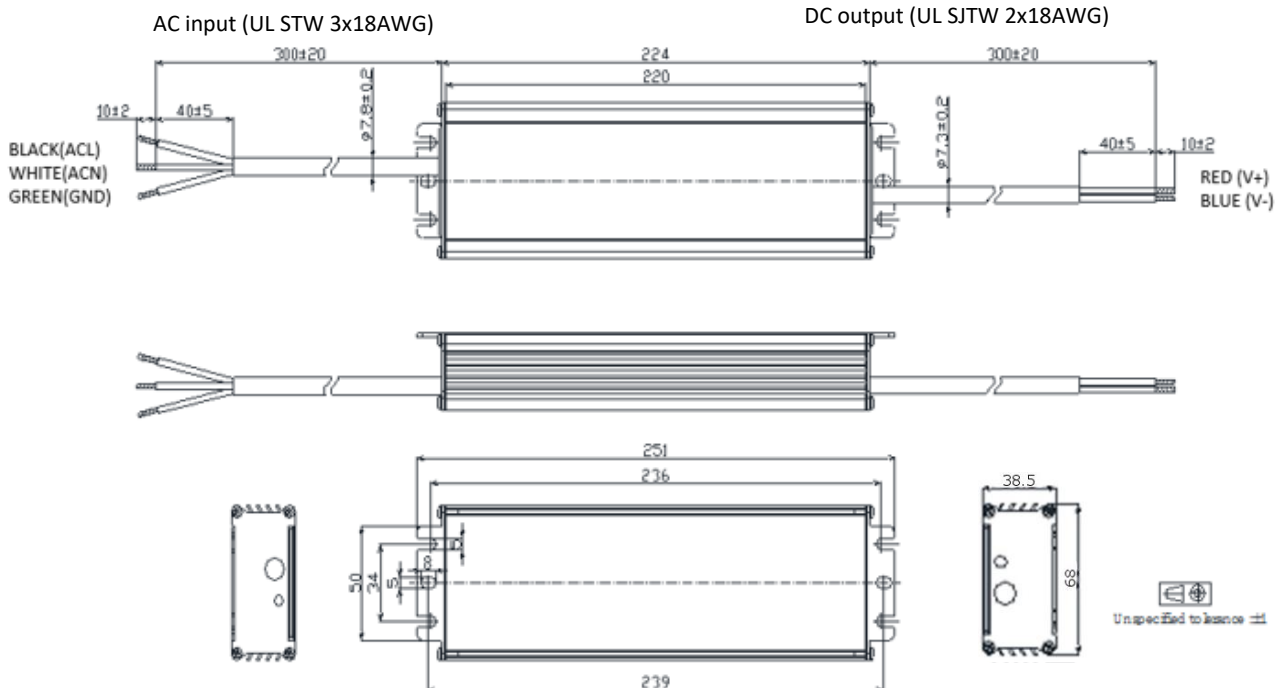


■ **Tc Location(LED Driver Label)**



■ **Mechanical Design**

- LHA240-Cxxx-NN/TRK (UL Cable)

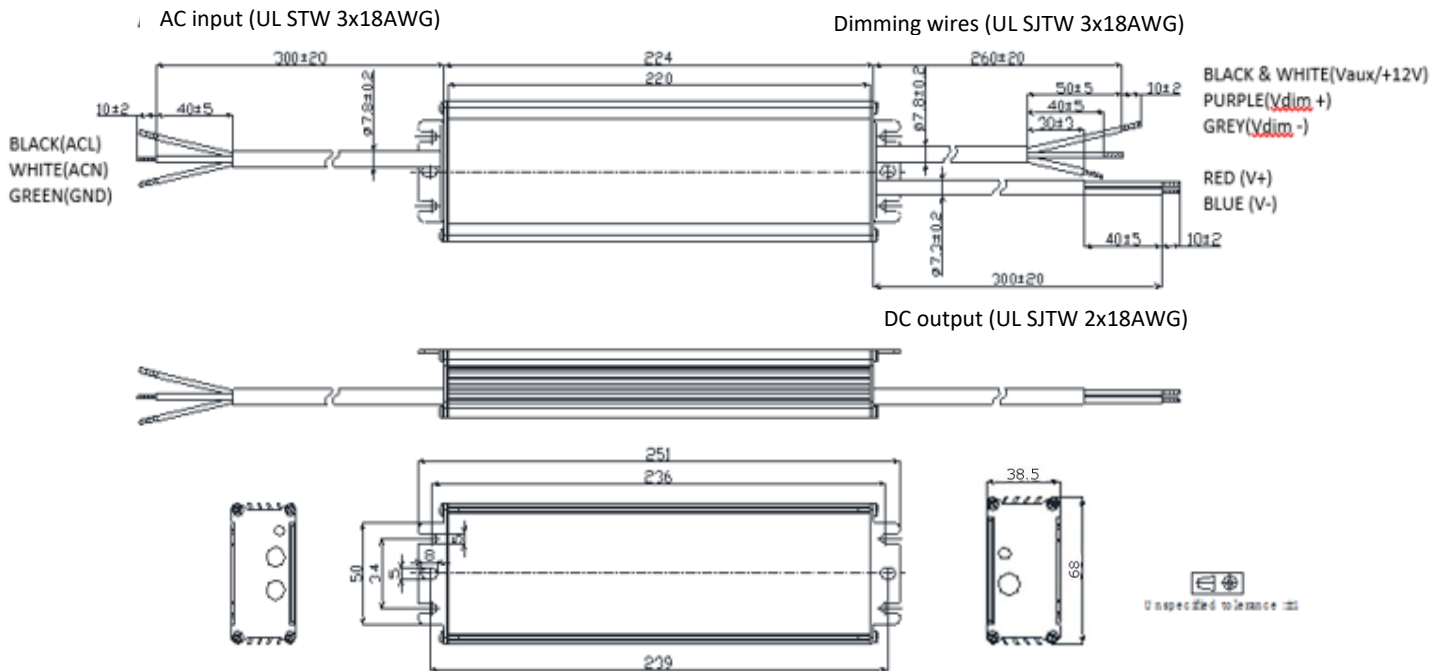


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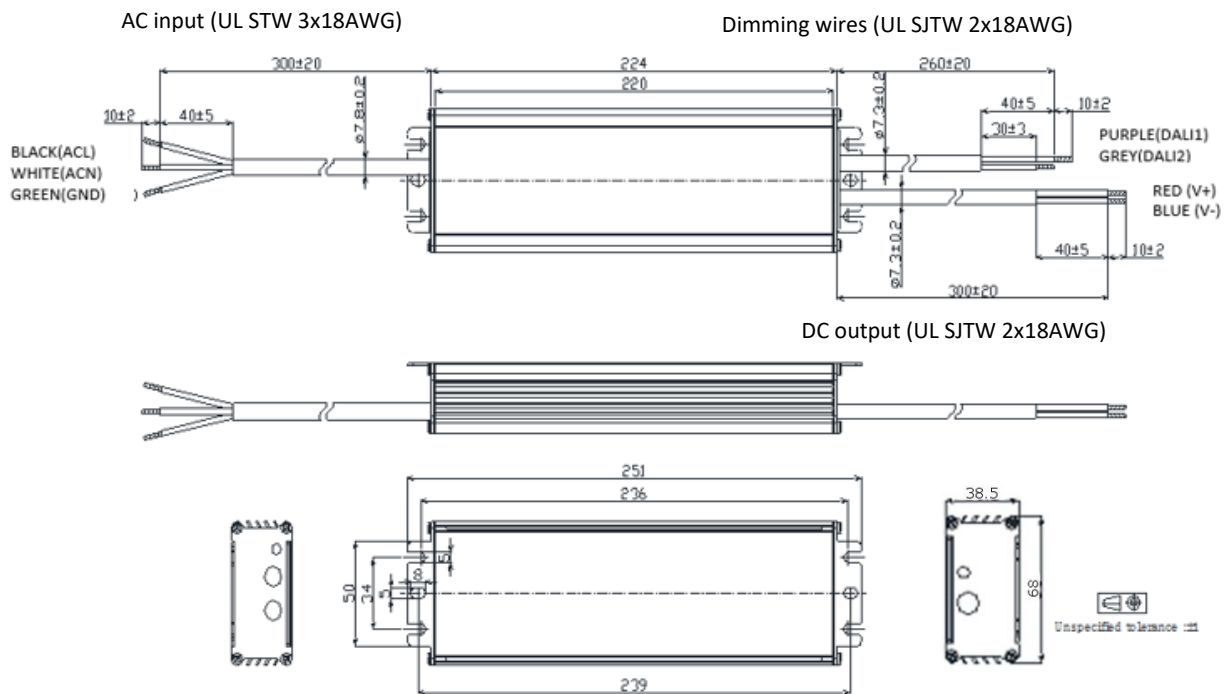
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- LHA240-Cxxx-EN/ERK (UL Cable)



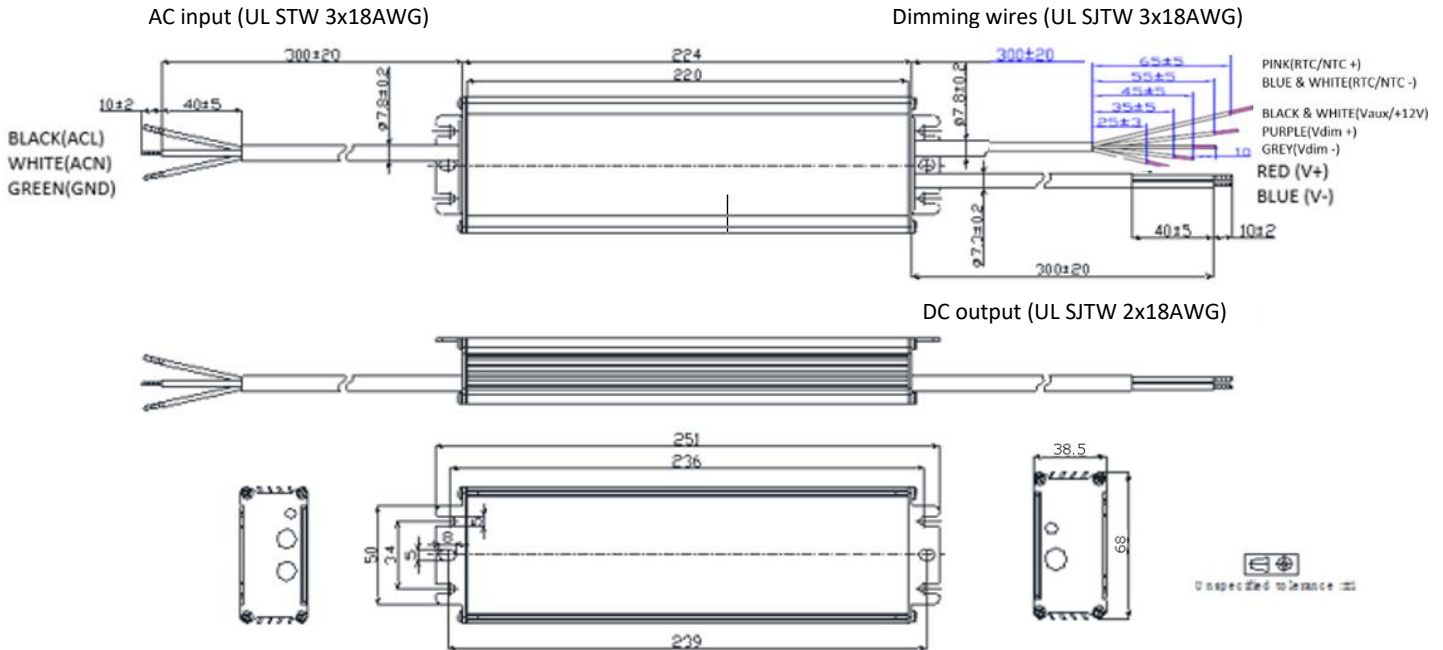
- LHA240-Cxxx-ANK (UL Cable)



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- LHA240-Cxxx-ERK-THR (Optional Thermal Protection)



\*Contact Autec Sales for non UL Mechanical Diagrams

■ Operation Range

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA240-C105-XYZ	1050	250	143	238	105
	1000	250	150	250	100
	950	250	158	263	95
	900	250	167	278	90
	850	250	176	294	85
	800	250	183	305	80
	750	250	183	305	75
	700	250	183	305	70
	650	232	183	305	70
	600	214	183	305	70
	550	196	183	305	70
	500	179	183	305	70
	...	...	...	...	...
70	25	183	305	70	

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240/250W, 180-528Vac Input, Constant Current Programmable LED Driver

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA240-C140-XYZ	1400	250	107	179	140
	1300	250	115	192	130
	1200	250	125	208	120
	1100	250	136	227	110
	1050	250	143	238	105
	1000	238	183	305	105
	950	226	183	305	105
	900	214	183	305	105
	850	202	183	305	105
	800	190	183	305	105
	750	179	183	305	105
	700	167	183	305	105
	...	...	...	...	...
	105	25	183	305	105

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA240-C210-XYZ	2100	250	71	119	210
	2000	250	75	125	200
	1900	250	79	132	190
	1800	250	83	139	180
	1700	250	88	147	170
	1600	250	94	156	160
	1500	250	100	167	150
	1400	250	107	179	140
	1300	232	107	179	140
	1200	214	107	179	140
	1100	196	107	179	140
	1000	179	107	179	140
	...	...	...	...	...
	140	25	107	179	140

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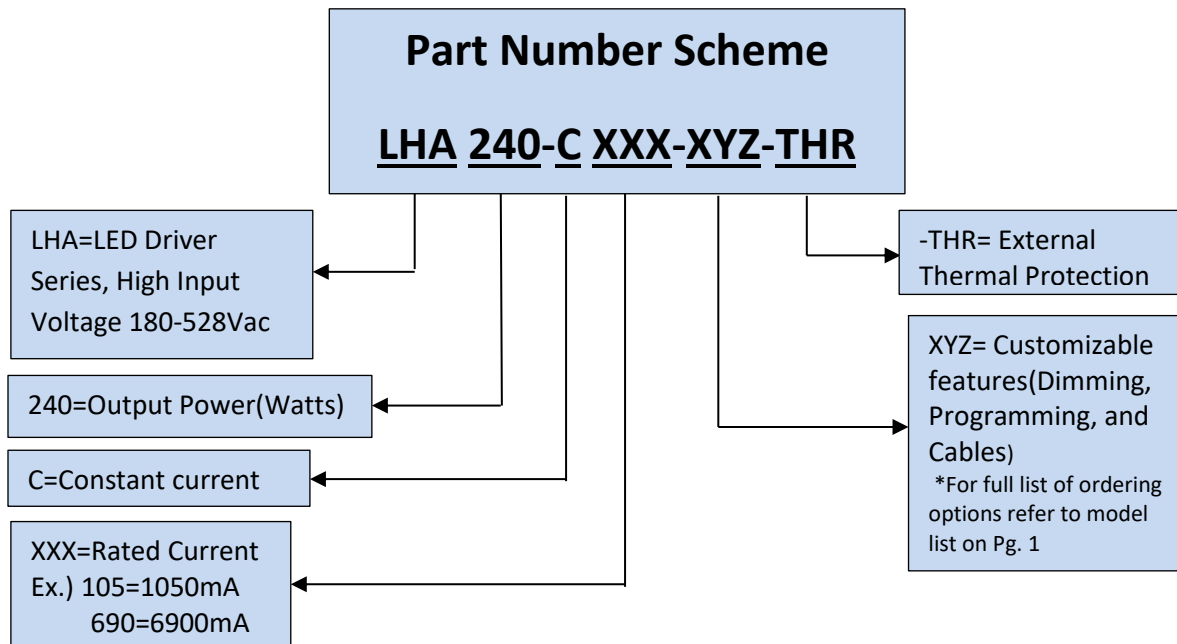
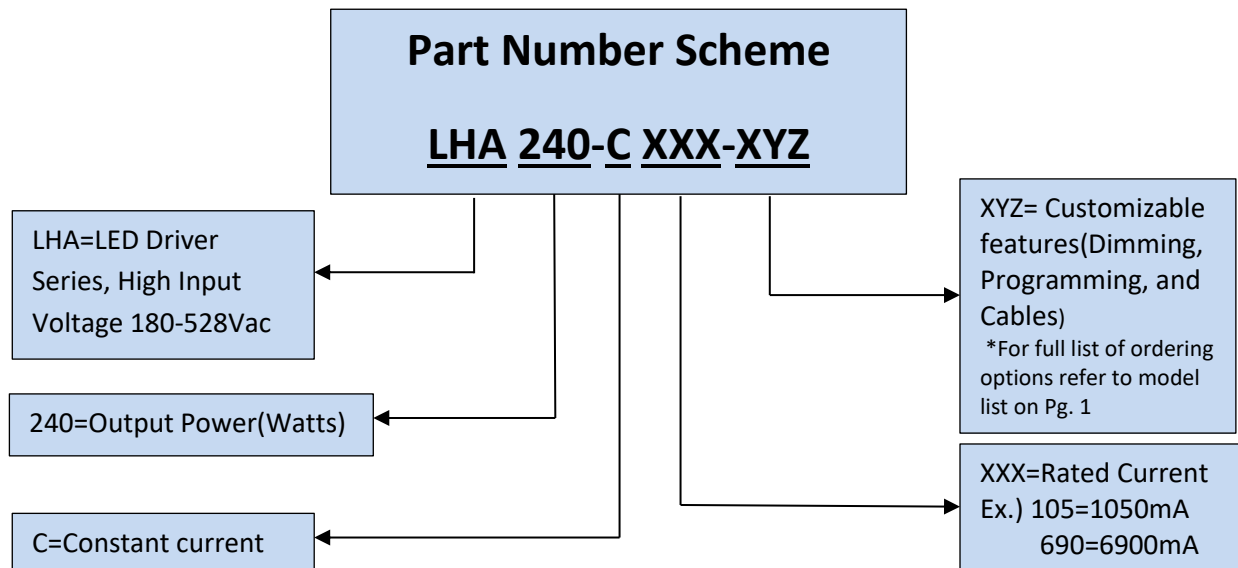
**240/250W, 180-528Vac Input, Constant Current Programmable LED Driver**

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA240-C420-XYZ	4200	250	36	60	420
	4100	250	37	61	410
	4000	250	38	63	400
	3900	250	38	64	390
	3800	250	39	66	380
	3700	250	41	68	370
	3600	250	42	69	360
	3500	250	43	71	350
	3400	250	44	74	340
	3300	250	45	76	330
	3200	250	47	78	320
	3100	250	48	81	310
	3000	250	50	83	300
	2900	250	52	86	290
	2800	250	54	89	280
	2700	241	54	89	280
	2600	232	54	89	280
	...	...	...	...	...
	280	25	54	89	280

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA240-C690-XYZ	6900	250	22	36	690
	6800	250	22	37	680
	6600	250	23	38	660
	6400	250	23	39	640
	6200	250	24	40	620
	6000	250	25	42	600
	5800	250	26	43	580
	5600	250	27	45	560
	5400	250	28	46	540
	5200	250	29	48	520
	5000	250	30	50	500
	4800	250	30	50	500
	4600	240	30	50	500
	4400	229	30	50	500
	4200	219	30	50	500
	4000	208	30	50	500
	3800	198	30	50	500
	...	...	...	...	...
	480	25	30	50	500

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