

■ **Features**

- Power Rating: 320W
- Input Voltage: 180-528Vac
- Constant current design
- Output current settable(1050mA-7000mA)
- +/-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	Efficiency	Certification
LHA320-C140-XYZ	180-528Vac	320W	137-305Vdc	1050mA	1400mA	93% @ 120Vac 94% @ 277Vac	UL/cUL
LHA320-C210-XYZ	180-528Vac	320W	91-229Vdc	1400mA	2100mA	92.5% @ 120Vac 93.5% @ 277Vac	UL/cUL
LHA320-C420-XYZ	180-528Vac	320W	46-114Vdc	2800mA	4200mA	92% @ 120Vac 93% @ 277Vac	UL/cUL
LHA320-C700-XYZ	180-528Vac	320W	27-64Vdc	5000mA	7000mA	92% @ 120Vac 93% @ 277Vac	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	√	-	√
<b>Cable Options</b>	<b>Z=</b>	K=UL cable with ground wire (green), S=VDE cable/Class I, D=VDE cable/Class II			
<b>External Thermal Protection NTC Option</b>	<b>-THR</b>	LHA320-C140-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	1.3Amax@277Vac & Full-Load, 0.75Amax@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, 0.75mA 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
Ripple Current	Ip-p:5%lo max
Setup Time	1.2s max
Overshoot	10% lo 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	90°C max, marked in the Tc point of label
Dimensions	9.29x3.54x1.63 by inch (body), 10.35x3.54x1.63 by inch (endcaps included) 236x 90 x 41.5 by mm (body), 263 x 90 x 41.5 by mm (endcaps included)
Net Weight	1600g
Packing	10pcs/Cartron/19.2kg, 490x370x345mm

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.

**■ 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.

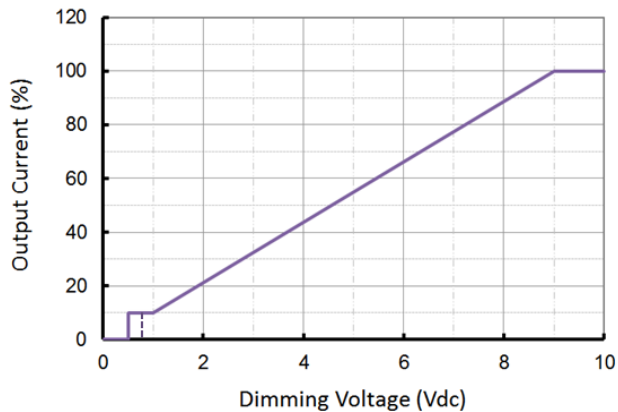
## ■ Dimming

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

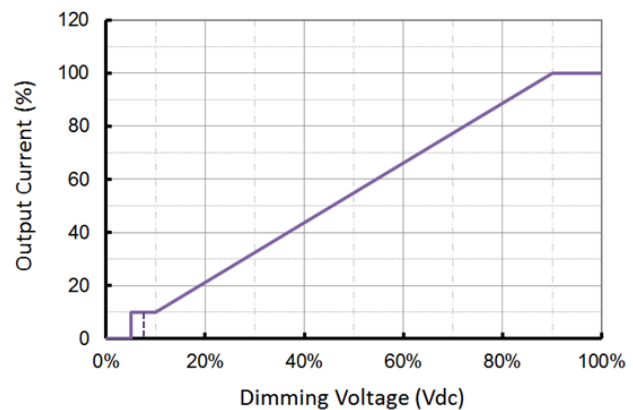
## ■ Dimming Curve

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

0-10V Dimming Curve

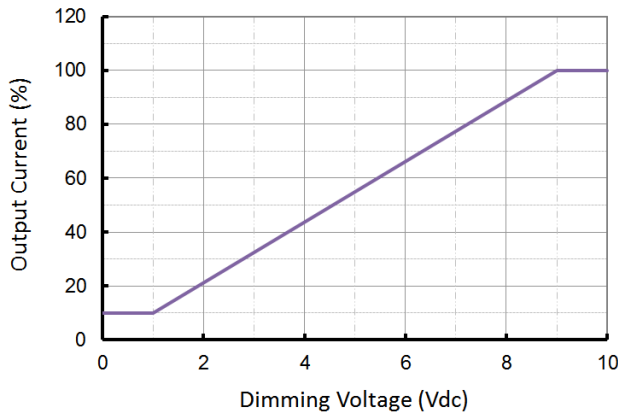


PWM Dimming Curve

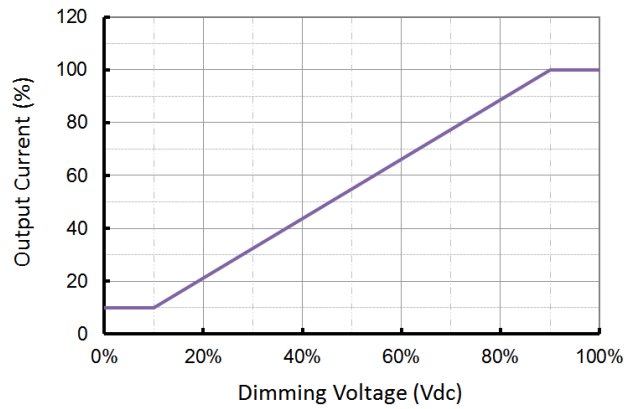


**b. Without dim-off (contact sales to get this feature)**

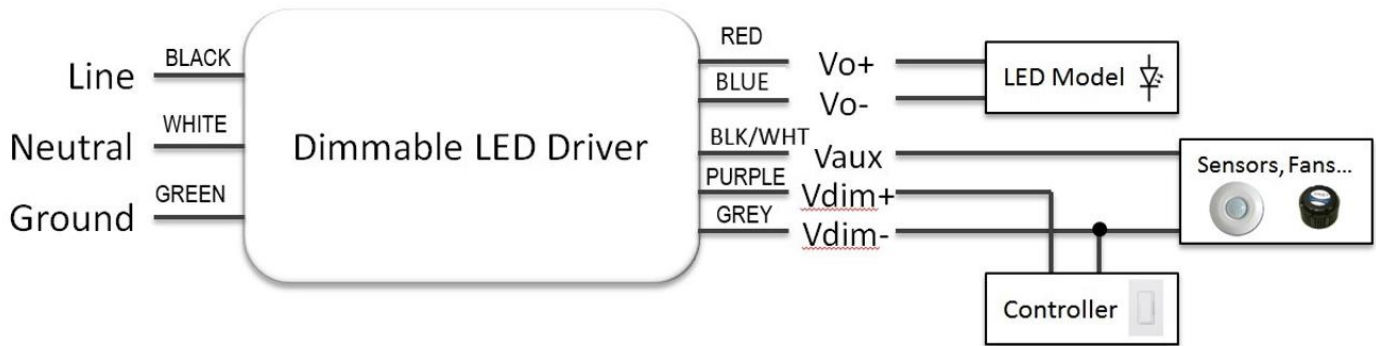
0-10V Dimming Curve



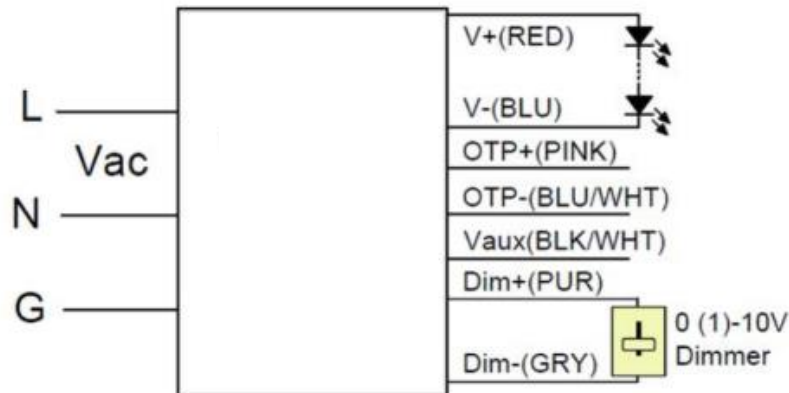
PWM Dimming Curve



■ **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 > 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:

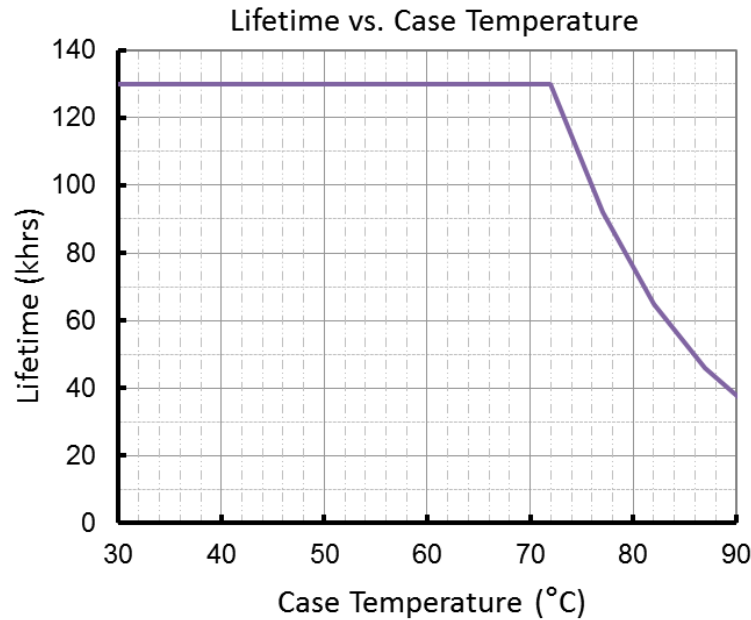
1. The Near Field Communication programming module is used to program the output current, voltage, dimming, and timer settings.
2. The programming function is a non-contact process, which is safer and more efficient compared to traditional programming methods.
3. During programming the LED Driver does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

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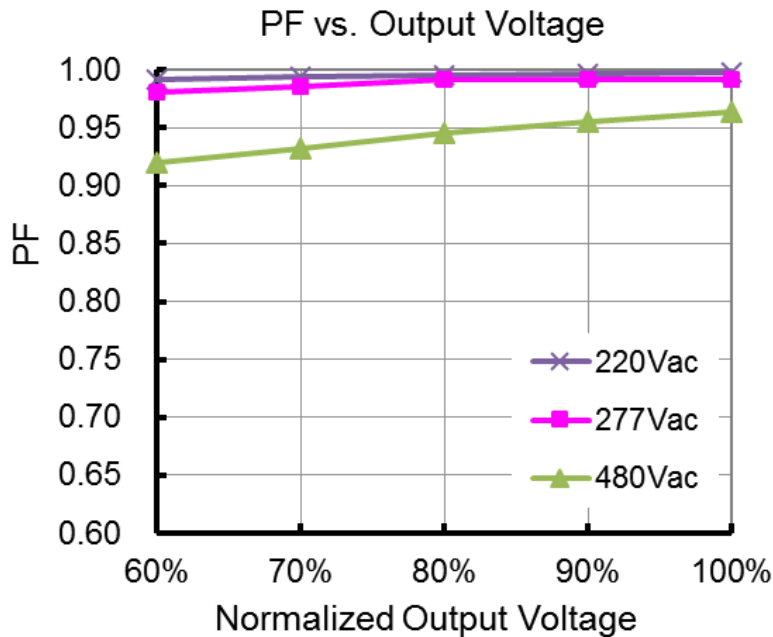
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■ **Lifetime vs. Case Temperature**

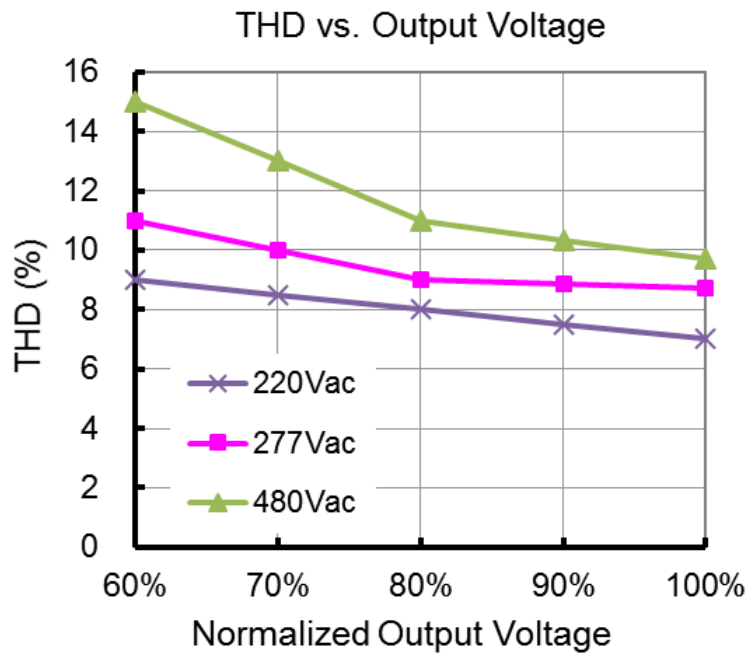


(End of Life: Maximum Failure Rate=10%)

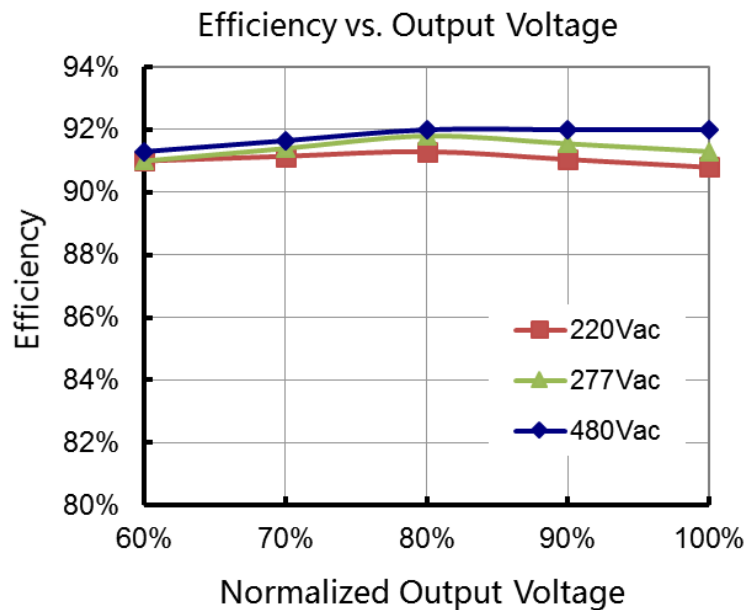
■ **Power Factor vs. Load**



■ THD vs. Load

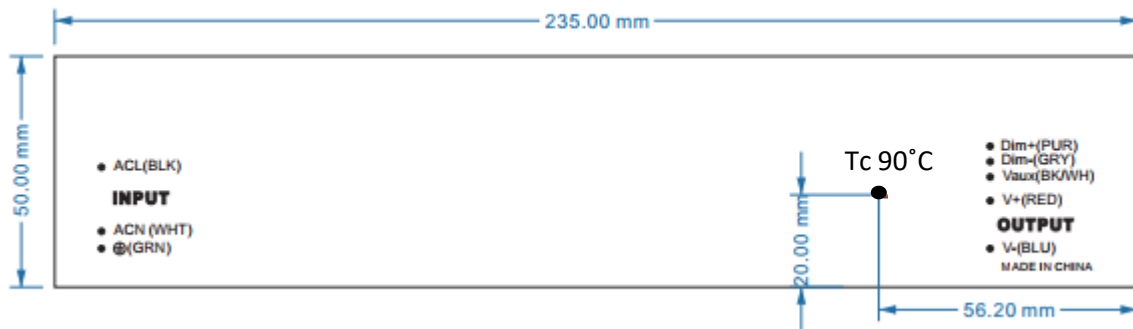


■ Efficiency vs. Load (2.1A Model)



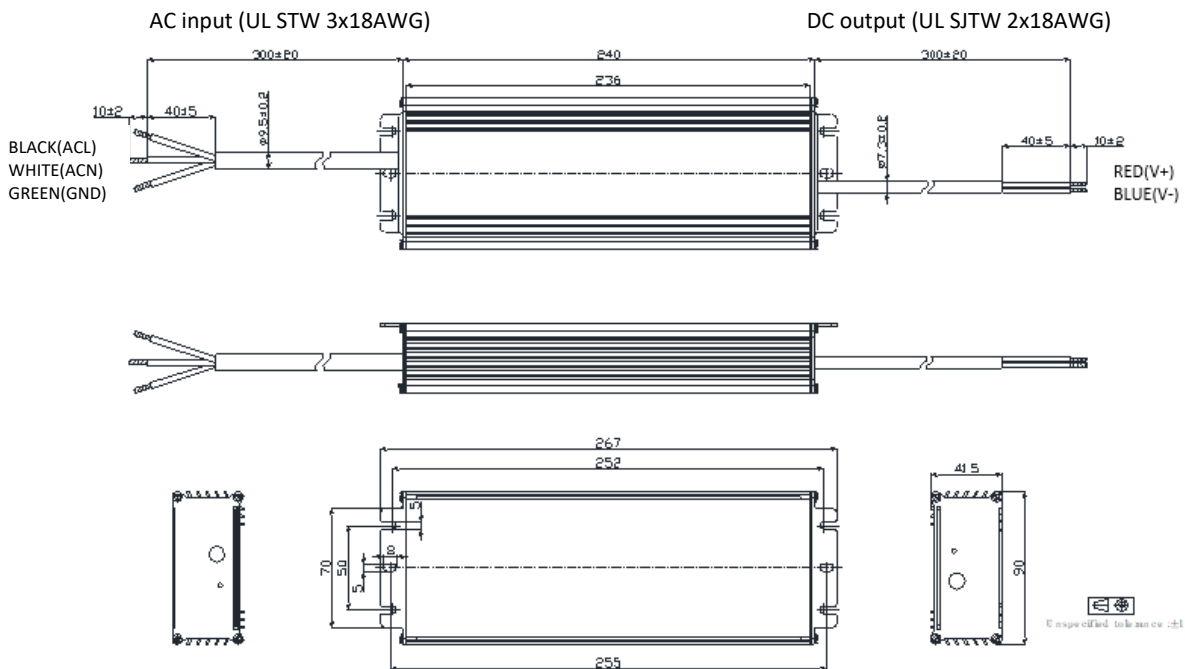


■ Tc location(LED Driver Label)



■ Mechanical Design

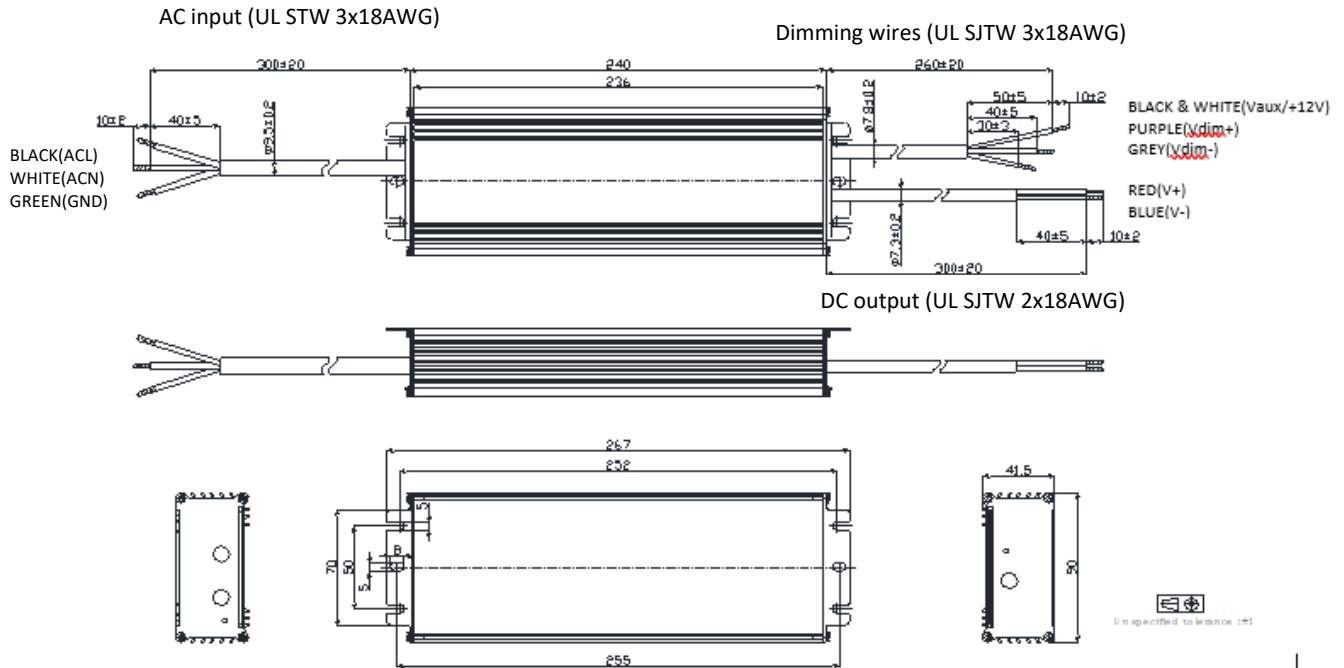
- LHA320-Cxxx-NN/TRK (UL Cable)



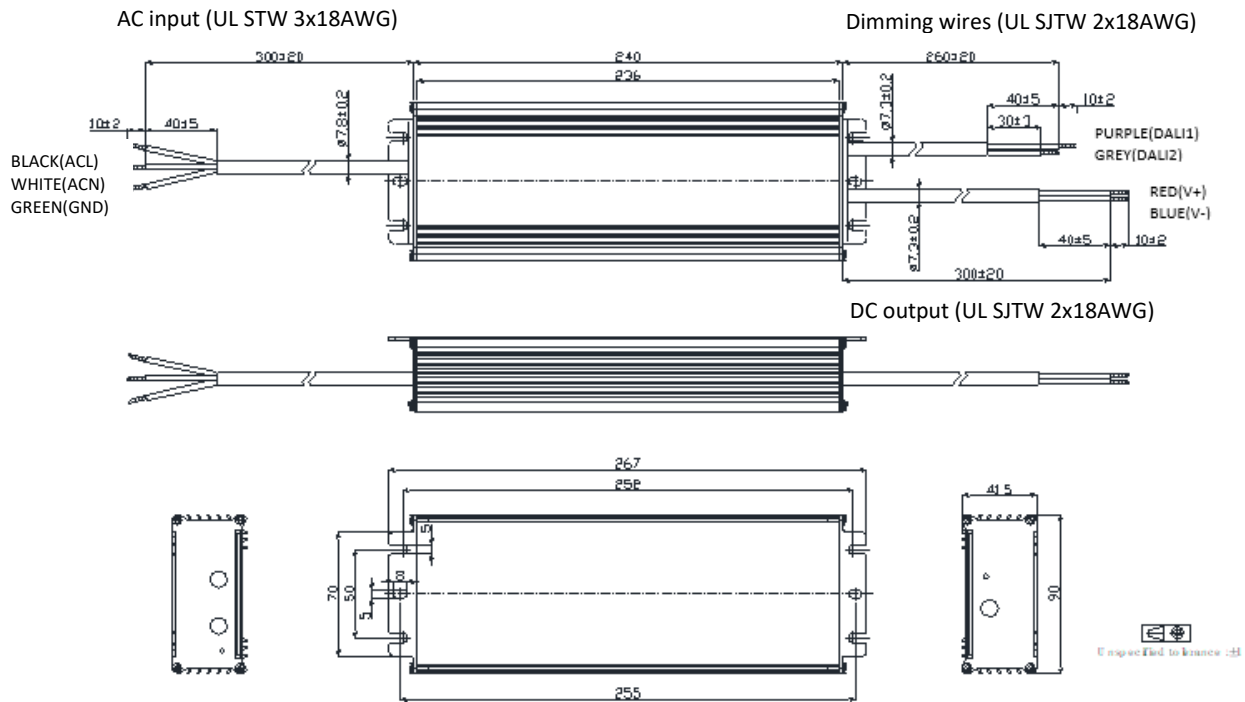
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- LHA320-Cxxx-ERK (UL Cable)



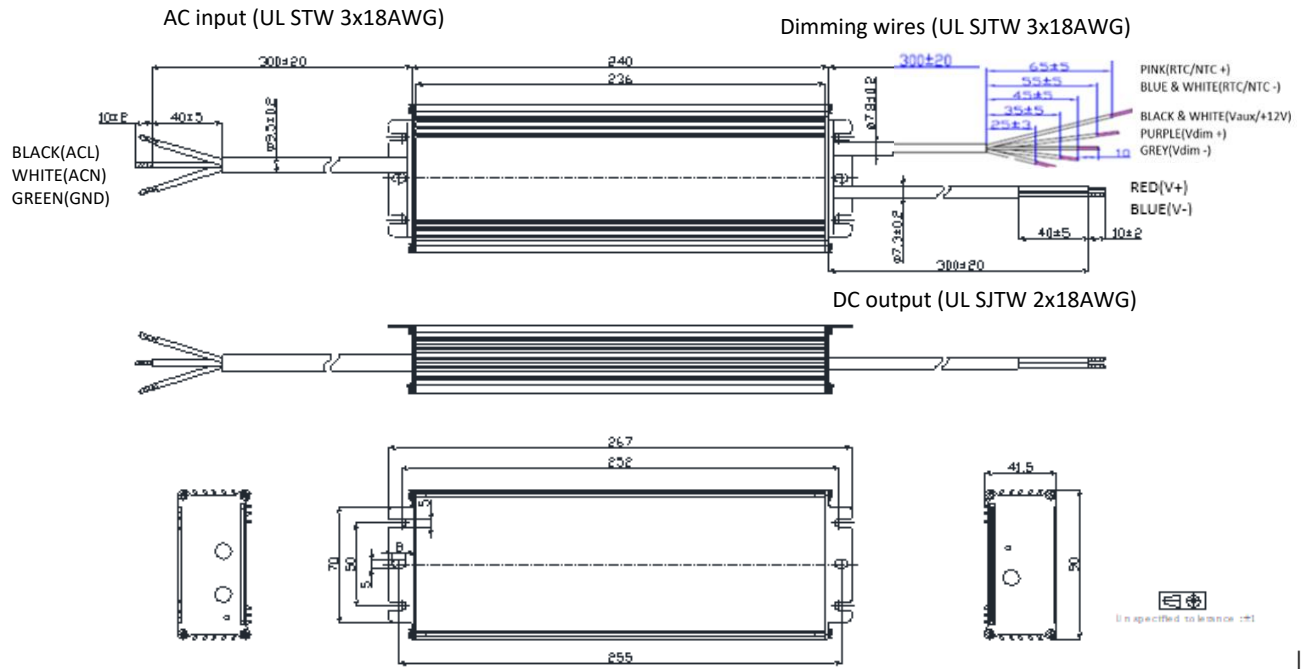
- LHA320-Cxxx-ANK (UL Cable)



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- **LHA320-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)
LHA320-C140	1400	320	137	229	140
	1300	320	148	246	130
	1200	320	160	267	120
	1100	320	175	291	110
	1050	320	183	305	105
	1000	305	183	305	105
	950	290	183	305	105
	900	274	183	305	105
	850	259	183	305	105
	800	244	183	305	105
	750	229	183	305	105
	700	213	183	305	105
...	...	...	...	...	...
	105	32	183	305	105

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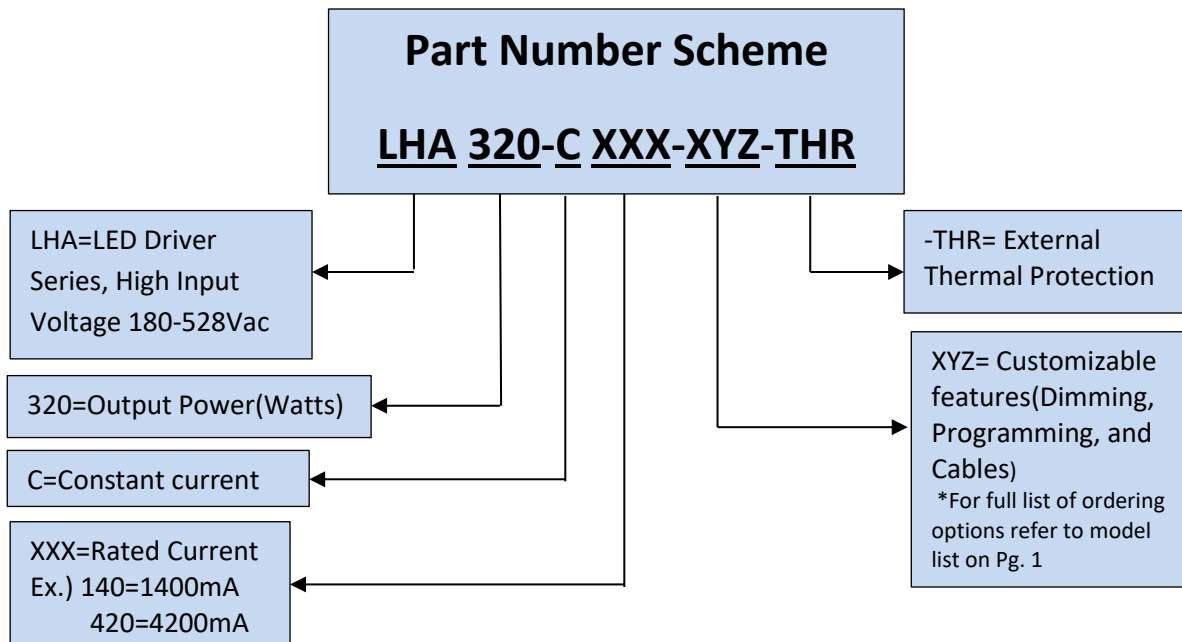
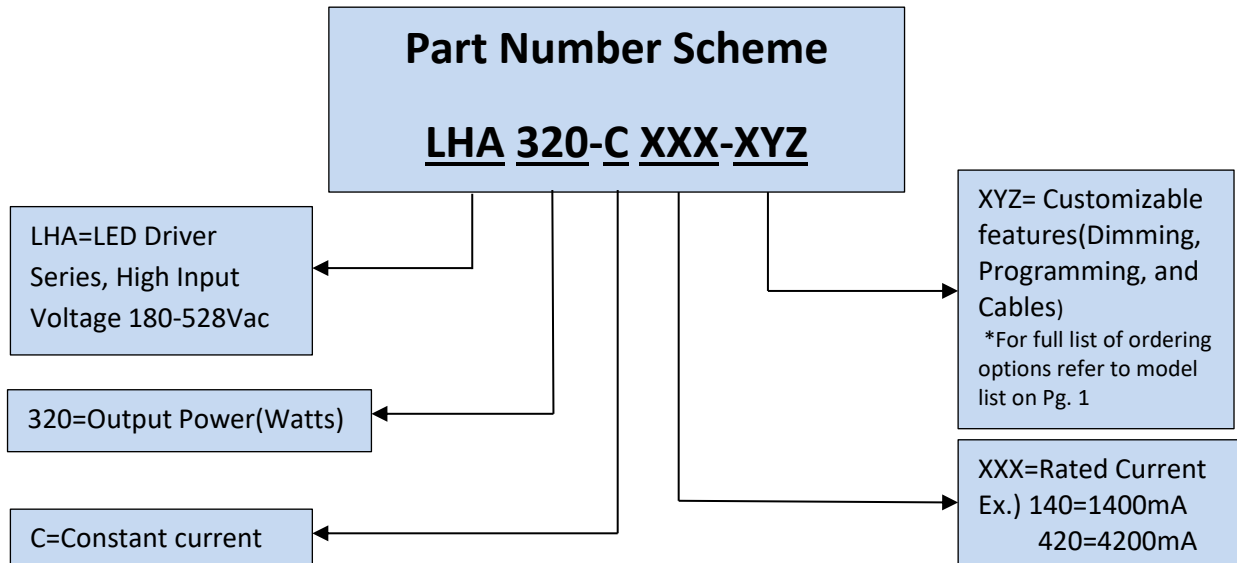
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**320W, 180-528Vac Input, Constant Current Programmable LED Driver**

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA320-C210	2100	320	91	152	210
	2000	320	96	160	200
	1900	320	101	168	190
	1800	320	107	178	180
	1700	320	113	188	170
	1600	320	120	200	160
	1500	320	128	213	150
	1400	320	137	229	140
	1300	297	137	229	140
	1200	274	137	229	140
	1100	251	137	229	140
	1000	229	137	229	140
	...	...	...	...	...
	140	32	137	229	140

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
LHA320-C420	4200	320	46	76	420
	4100	320	47	78	410
	4000	320	48	80	400
	3900	320	49	82	390
	3800	320	51	84	380
	3700	320	52	86	370
	3600	320	53	89	360
	3500	320	55	91	350
	3400	320	56	94	340
	3300	320	58	97	330
	3200	320	60	100	320
	3100	320	62	103	310
	3000	320	64	107	300
	2900	320	66	110	290
	2800	320	69	114	280
	2700	309	69	114	280
	2600	297	69	114	280
	...	...	...	...	...
	280	32	69	114	280

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