

■ 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
LHA320-C140-XYZ	180-528Vac	320W	137-305Vdc	1050mA	1400mA	>95%	UL/FCC
LHA320-C210-XYZ	180-528Vac	320W	91-229Vdc	1400mA	2100mA	>95%	UL/FCC
LHA320-C280-XYZ	180-528Vac	320W	69-152Vdc	2100mA	2800mA	>95%	UL/FCC
LHA320-C420-XYZ	180-528Vac	320W	46-114Vdc	2800mA	4200mA	>95%	UL/FCC
LHA320-C700-XYZ	180-528Vac	320W	27-64Vdc	5000mA	7000mA	>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	LHA320-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
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 @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%lo 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 $T_c \leq 70 \pm 10^\circ\text{C}$
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°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)

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Net Weight	1600g
Packing	10pcs/Carton/19.2kg, 490x370x345 by mm

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

■ 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%
PWM High	3.8V		10V
PWM Low	0V		0.6V
PWM Frequency	300Hz		2kHz
External PWM Controller Current Sinking Capability	300uA		

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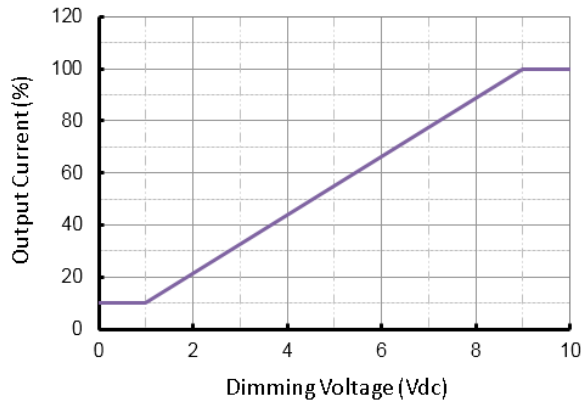
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DA1 Interface Standard	IEC62386	
DA1,DA2 High Level	9.5	16 22.5
DA1,DA2 Low Level	-6.5	0 6.5
DA1,DA2 Current	0	2mA

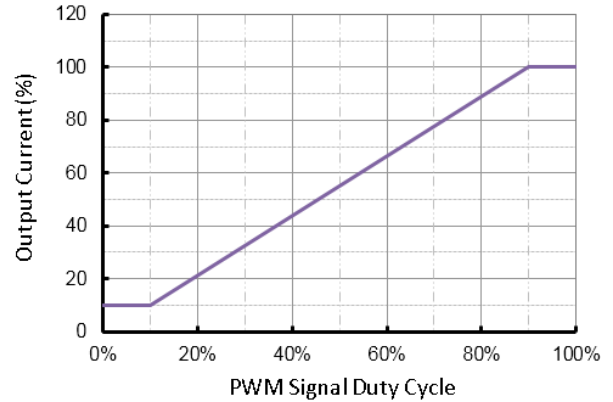
- Dimming Curve

a. Without dim-off

0-10V Dimming Curve

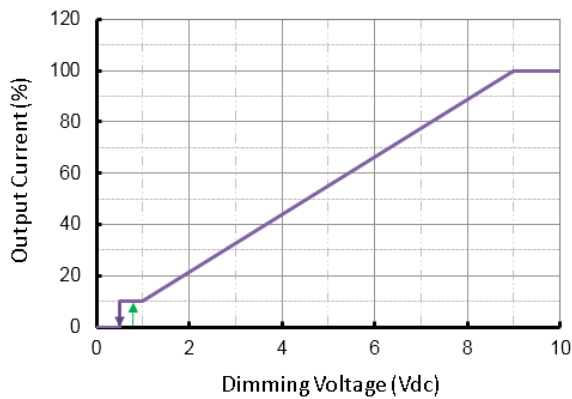


PWM Dimming Curve

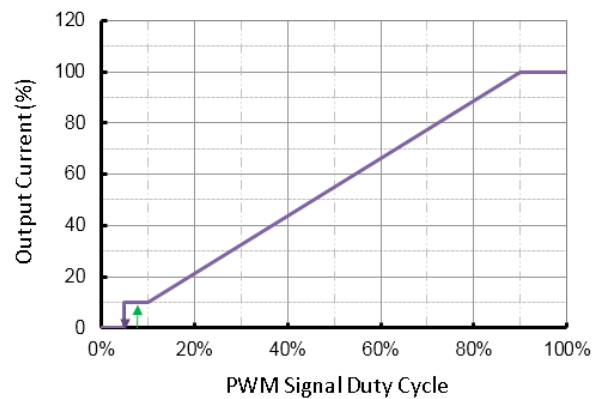


b. With dim-off

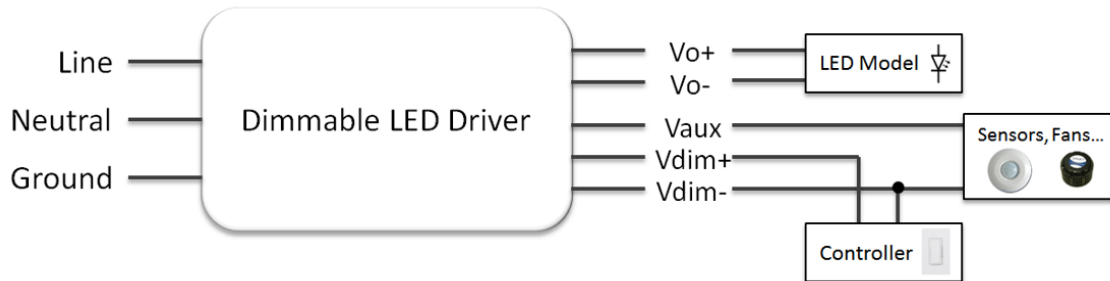
0-10V Dimming Curve



PWM Dimming Curve



- Dimming Wiring



■ Near Field Communication Programmability

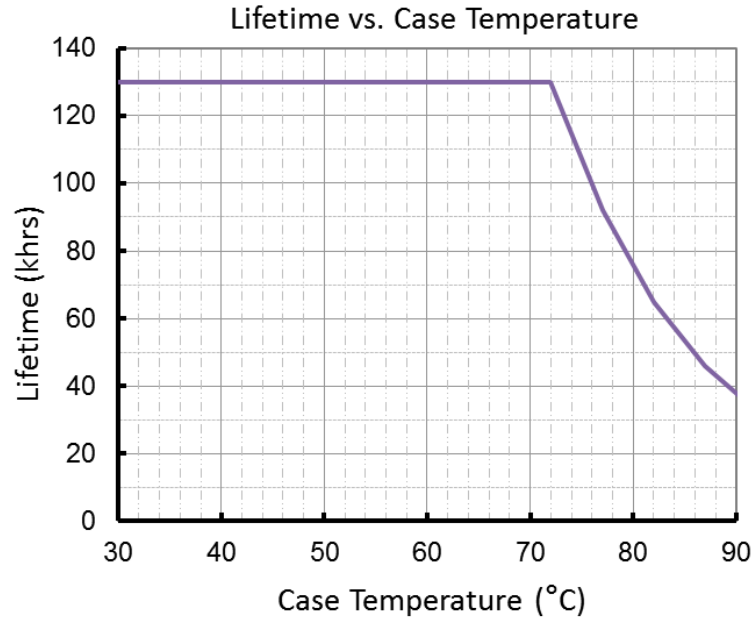


Programming Module
REF. Part# UPRG-NFC

NOTES:

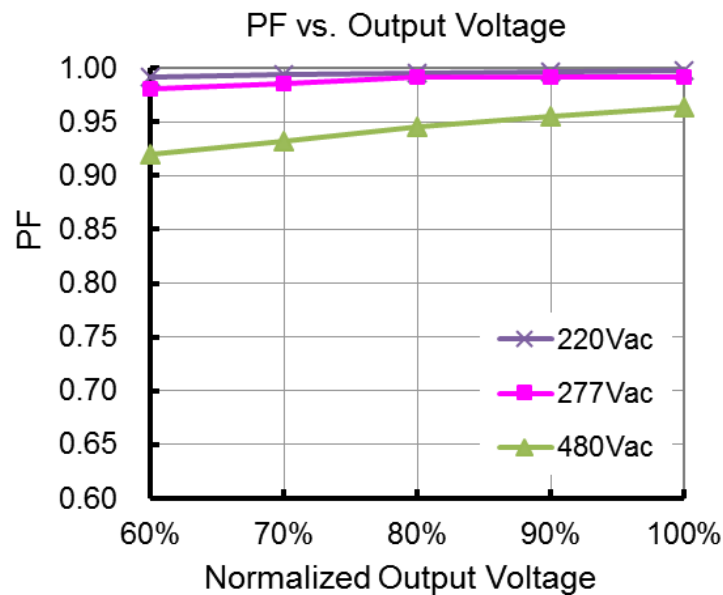
1. The Near Field Communication programming module is used to program the output current, voltage, dimming, and timer settings.
2. The programming function is a non-contact process, which is safer and more efficient compared to traditional programming methods.
3. During programming the LED Driver does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

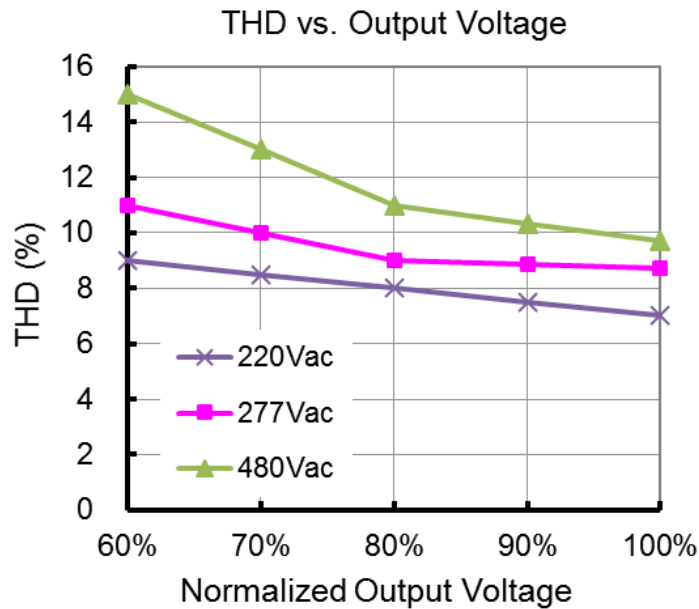


(End of Life: Maximum Failure Rate=10%)

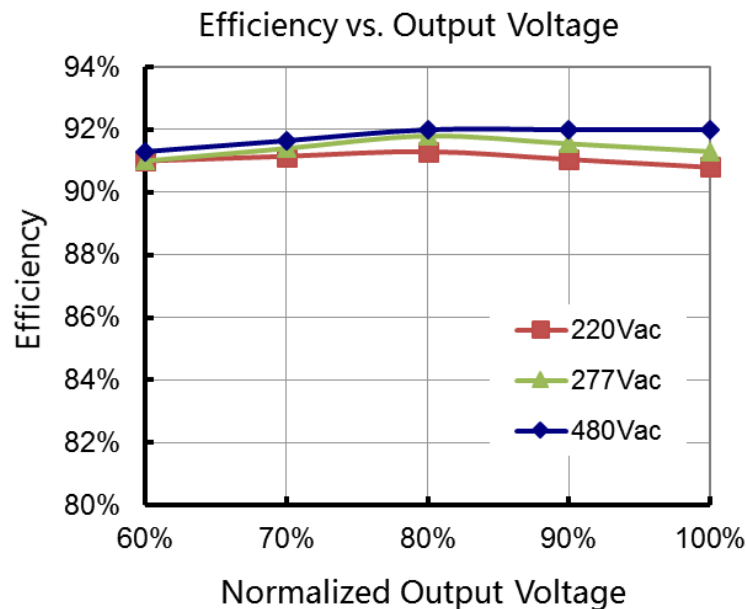
■ **Power Factor vs. Load**



■ THD vs. Load

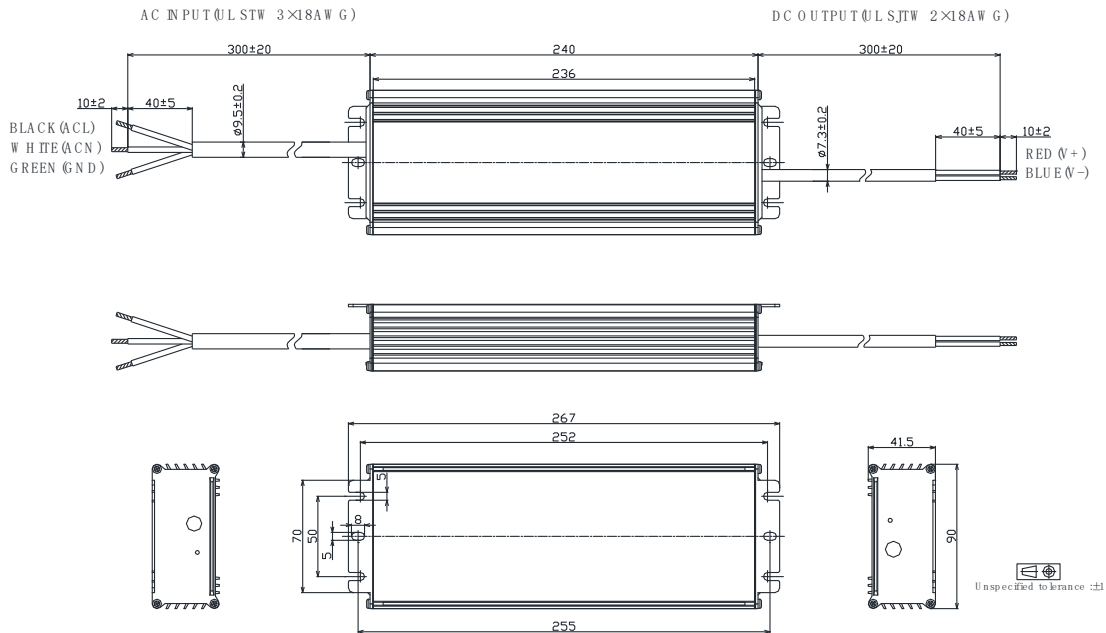


■ Efficiency vs. Load (2.1A Model)

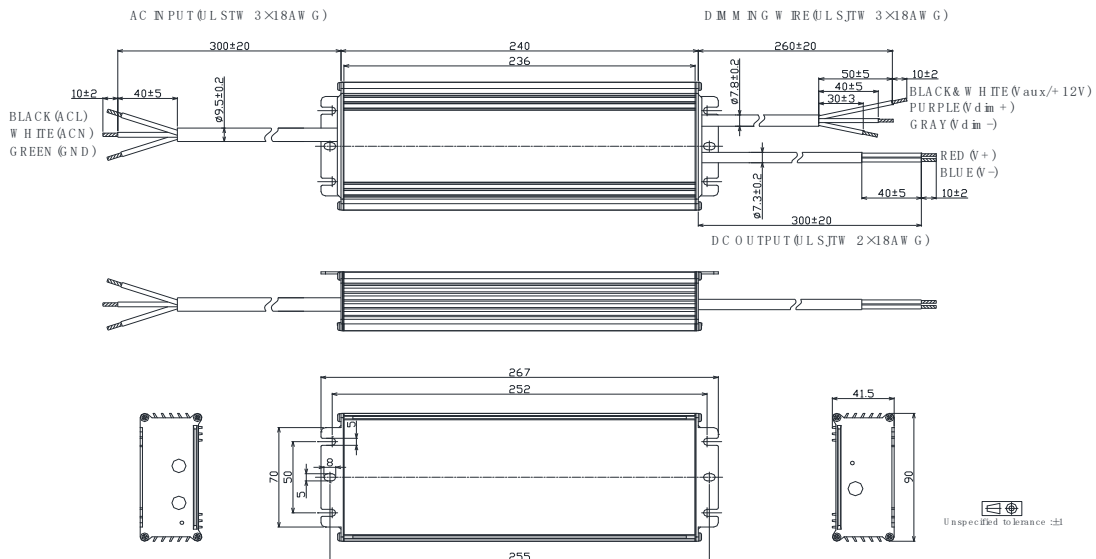


■ Mechanical Design

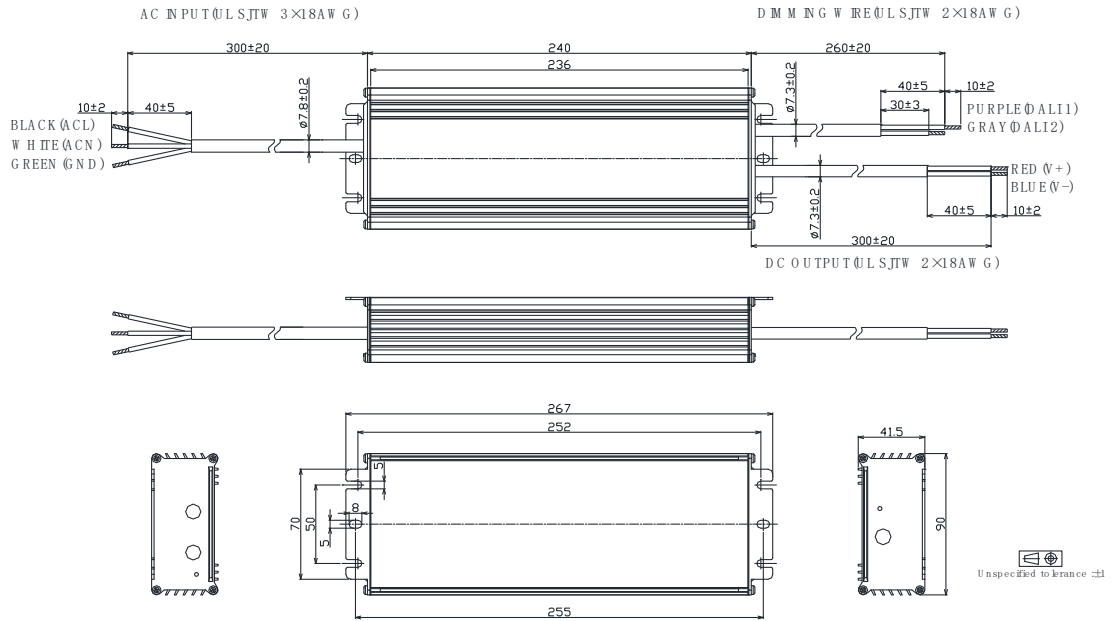
- LHA-320-Cxxx-NN/TRK (UL Cable)



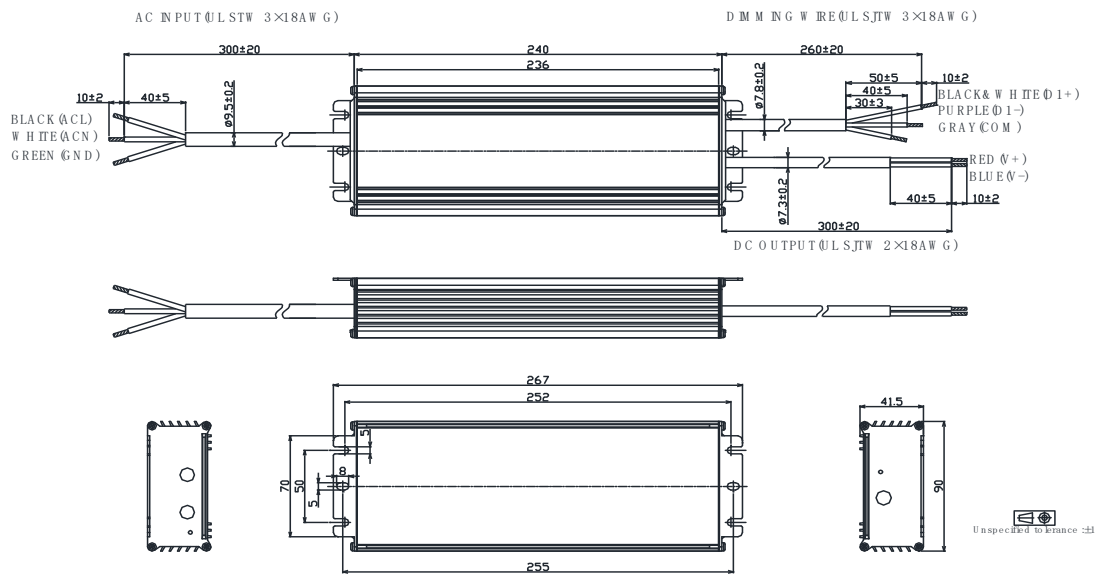
- LHA-320-Cxxx-ERK (UL Cable)



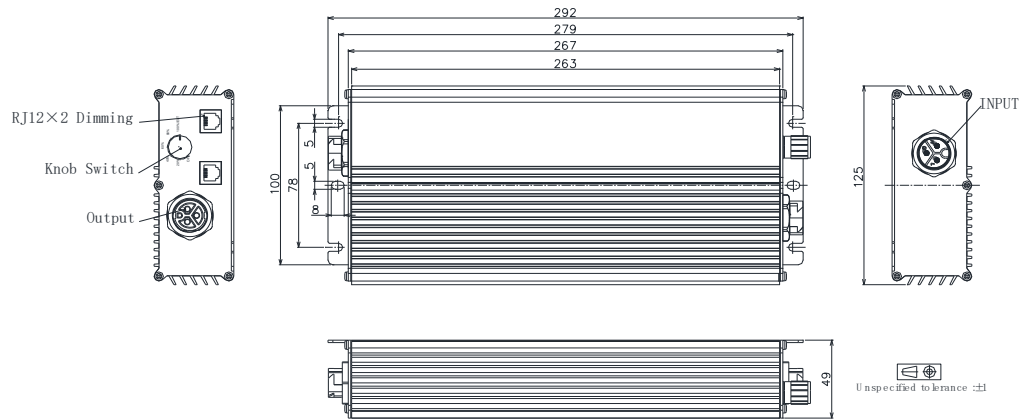
- LHA-320-Cxxx-ARK (UL Cable)



- LHA-320-Cxxx-MXK (UL Cable)



- Customized Functional End Cap Version

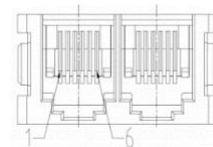


- Add suffix –abcd00 to the end of part number to indicate different configuration.

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

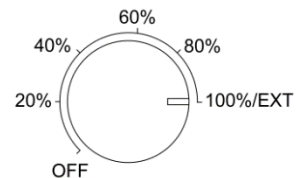
- RJ12 Pin Description

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	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

Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-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)
-C280	2800	320	69	114	280
	2700	320	71	119	270
	2600	320	74	123	260
	2500	320	77	128	250
	2400	320	80	133	240
	2300	320	83	139	230
	2200	320	87	145	220
	2100	320	91	152	210
	2000	305	91	152	210
	1900	290	91	152	210
	1800	274	91	152	210
	1700	259	91	152	210

	210	32	91	152	210

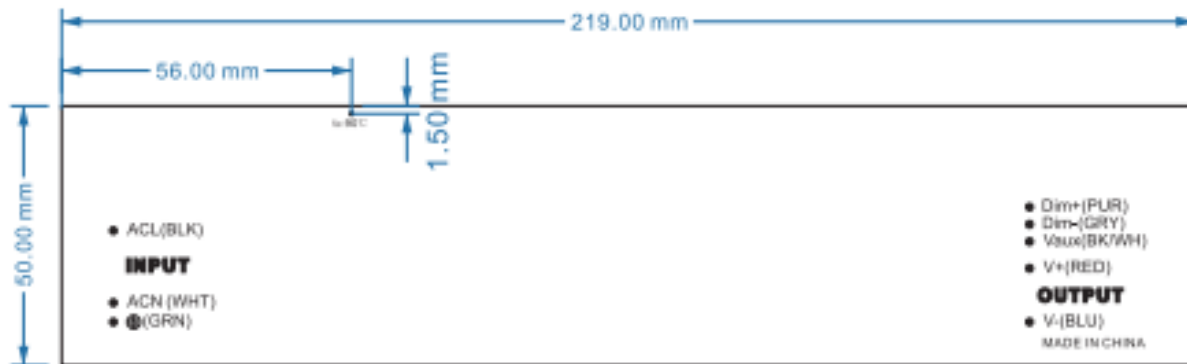
Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C420	4200	320	46	76	420
	4100	320	47	78	410
	4000	320	48	80	400
	3900	320	49	82	390
	3800	320	51	84	380
	3700	320	52	86	370
	3600	320	53	89	360
	3500	320	55	91	350
	3400	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

	280	32	69	114	280

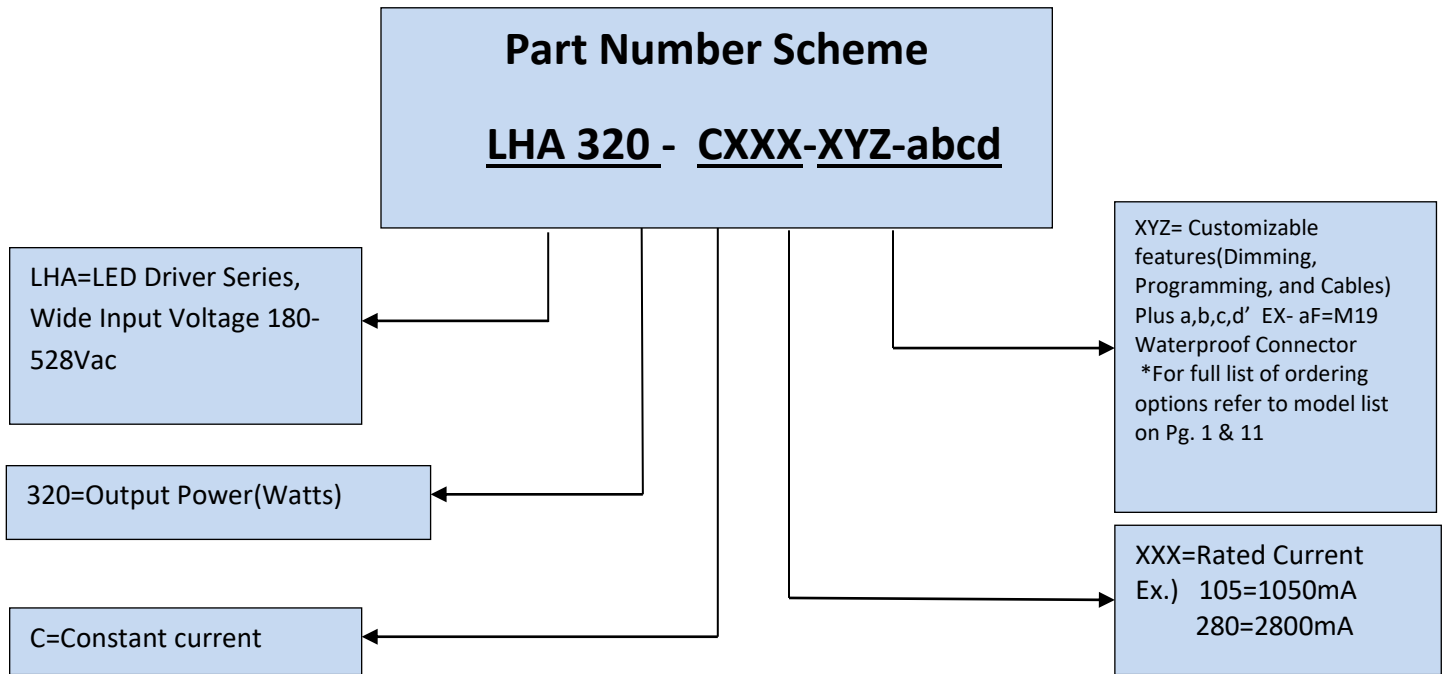
Model	Typical Set Output Current (mA)	Max Output Power (W)	Output Voltage Min (V)	Output Voltage Max(V)	Minimum Dimming Current (mA)
-C700	7000	320	27	46	700
	6800	320	28	47	680
	6600	320	29	48	660
	6400	320	30	50	640
	6200	320	31	52	620
	6000	320	32	53	600
	5800	320	33	55	580
	5600	320	34	57	560
	5400	320	36	59	540
	5200	320	37	62	520
	5000	320	38	64	500
	4800	307	38	64	500
	4600	294	38	64	500
	4400	282	38	64	500
	4200	269	38	64	500

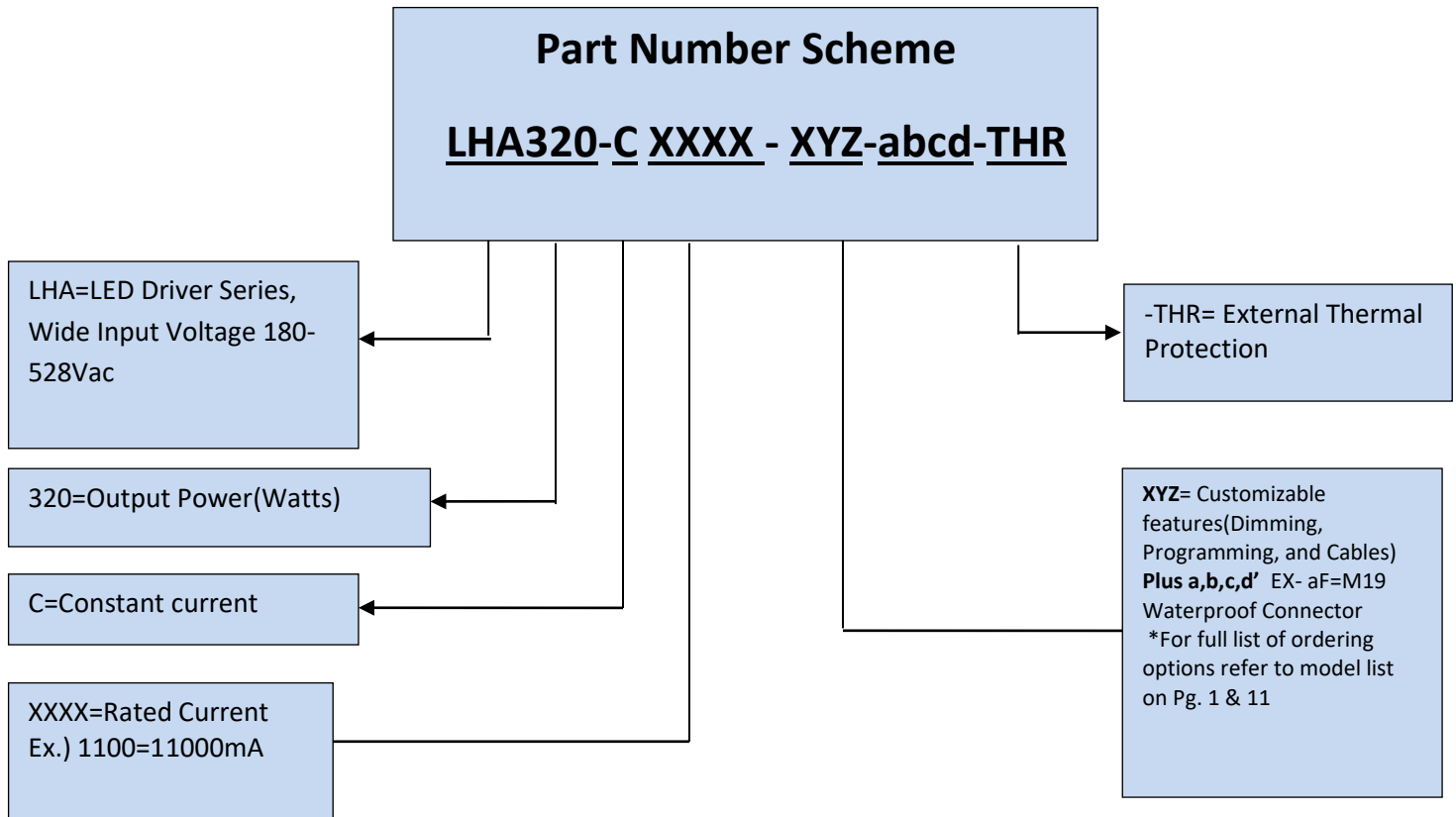
	500	32	38	64	500

■ Tc Location (LED Driver Label)



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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