MAGTECH
The Power To Drive Innovations

Project Name:	
Type:	

MCF(G)-400W Series

400W Outdoor Driver

PRODUCT FEATURE

- Input voltage range: 90~305 Vac;
- Constant power design, outputs programmable;
- Adjustable output current by software;
- Multiple dimming capability (P types): 0~10Vdc/ PWM / Step time dimming;
- Dim to off;
- Surge protection: 5KV line-line, 10KV line-earth;
- Protections: SCP / OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;

NOTES:
MCF-400 is Class I type, MCG-400 is Class II type.

APPLICATION

- Street Lighting, architecture lighting, industrial lighting, flood lighting, etc

WARRANTY

- See Limited Warranty Policy for more additional information

MODEL ENCODING

M C F - 400 - 056 XY
① ② ③ ④ ⑤ ⑥

SERIAL NUMBER	ITEM	DEFINITION
①	Structure	**M:** Metal case **P:** Plastic case **O:** Open frame (It can add module power supply, iron shell power supply, and etc.)
②	Type	**C:** Constant current **V:** Constant voltage **P:** Constant current & constant voltage (Other specifications can be defined later, such as **I:** Industrial power supply, **R:** Rainproof power supply, **S:** Customized power supply, etc.)
③	Series Name	**F:** Class I **G:** Class II
④	Rated Wattage	3 to 4 digits (such as 105 means 105)
⑤	Output Voltage	Maximum voltage
⑥	Dimming	**X** (**N:** No dimming, **P :** Programmable with wire dimming and time step dimming, **L :** DALI dimming **Y** (Y=0-24v auxiliary power supply)

DIMMING	FUNCTION	NOTES
P	Programmable with wire dimming and time step dimming	
L	Dimming capability EN62386-101(DALI-2),EN62386-102(DALI-2), EN62386-207(DALI-2)	
P12	Programmable with wire dimming and time step dimming, 12v auxiliary power supply	Auxiliary power supply isolated from the output.
L5	Dimming capability EN62386-101(DALI-2),EN62386-102(DALI-2), EN62386-207(DALI-2), 5V auxiliary power supply	
L12	Dimming capability EN62386-101(DALI-2),EN62386-102(DALI-2), EN62386-207(DALI-2), 12v auxiliary power supply	
L24	Dimming capability EN62386-101(DALI-2),EN62386-102(DALI-2), EN62386-207(DALI-2), 24V auxiliary power supply	

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SPECIFICATION		
MODEL MCF(G)-400-XXX		56
Input	Efficiency (230Vac) Typ.	94%
	Voltage Range (V)	90 – 305Vac, or 127 – 430Vdc
	Rated Voltage (V)	100 – 277Vac
	Frequency Range (Hz)	47 – 63
	Power Factor	PF > 0.99/ 120Vac, PF > 0.98/ 230Vac, PF > 0.95/ 277Vac at full load
	THD	THD<10% when output loading ≧ 50% at 120VAC/ 230VAC THD<15% when output loading ≧ 50% at 277VAC (Take refer to THD vs. Load Curve for details)
	AC Current (Max)	5.5A MAX at 120Vac, 2.2A MAX at 230Vac
	Inrush Current (Max)	COLD START 100A (twidth=39μs measured at 50% Ipeak) at 230VAC, Per NEMA410
	Leakage Current (Max)	0.75mA at 277Vac/60Hz
	MAX. No. of PSUs on 16S Circuit Breaker	3 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC
	Standby Power Consumption	Standby Power Consumption <0.5W
Output	Rated Output Voltage (V)	42-56
	Output Voltage Range (V)	42-56
	Rated Current (A)	7.1-8.3
	Rated Power (W)	400
	Output Current Setting Range/ Dimming Range (A)	0.833-8.33
	Constant Power Setting Range (A)	7.1-8.33
	Ripple Current (Typ.)	5% of Io_max. ((PK-AV) /AV) with LED loading mode and full load.)
	Current Tolerance	<5%
	Line Regulation	<3%
	Load Regulation	<3%
	Setup Time	<2s, at 120Vac; <0.5s, at 230Vac (P type);<1s, at 230Vac (L type)
	DC AUX Power （P12 Type）	5V/12V/24V Selectable; Max Output Current：200mA; Output Voltage Tolerance: ±10%; Max Output Power：2.4W
	Dim to Off	30V Max
		Yes, but need to take refer to the above turn-off voltage
	DIM+ Short/Source Current	150uA~350uA
Protection	Short Circuit Protect (SCP)	Hiccup mode, recover automatically with short circuit removed.
	Over Voltage Protect (OVP)	Voltage limiting. Output current is decreased if the required loading voltage is higher than MAX. output voltage.
	Over Temperature Protect (OTP)	Decrease the output current, but not less than 20% of rated output current, recover automatically once the fault condition is removed.
Environmental	Working Temperature	-40~+60°C(Refer to 'Derating Curve')
	Max. Case Temperature (Tc)	95°C max
	Working Humidity	20~95%RH
	Storage Temp., Humidity	-40~+85°C，10-95%RH
	Vibration	10-500Hz, 5G 12min/cycle, period for 72min each along X、Y、Z axes
Safety & EMC	Safety Standard	UL8750, CSA C22.2 No. 250.13-12; ENEC EN61347-1, EN61347-2-13 independent, EN62384; GB19510.1,GB19510.14
	Withstand Voltage	I/P-O/P: 3.75kVac, I/P-FG:1.65kVac, O/P-FG:1.5kVac
	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms (500VDC / 25°C/ 70% RH)
	EMC Emission	FCC Part 15 Class B/ EN55015, EN61000-3-2 Class C, EN61000-3-3
	EMC Immunity	EN61000-4-2,3,4,5,6,8,11, EN61547 (Surge: L-N: ±5kV, L,N-FG: ±10kV)
Others	MTBF	200000Hrs @25℃±10℃ ambient temperature, 230Vac,80% load (MIL-HDBK-217F)
	Lifetime	50000Hrs@80℃ case temperature (Refer to 'Lifetime Curve')
	Dimension	L255.2*W78.7*H40.3mm
	Weight (Typ.)	1430g/PCS±100g
Reliability	Screen test (1)	336Hrs aging test @95℃ & full load without temperature protection

Notes:
1. The test results are based on 14 samples with OTP moved
2. All the data are measured under room temperature if not specified.

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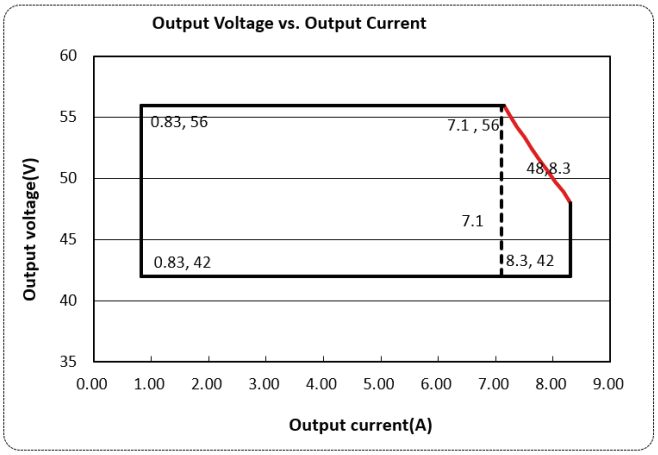
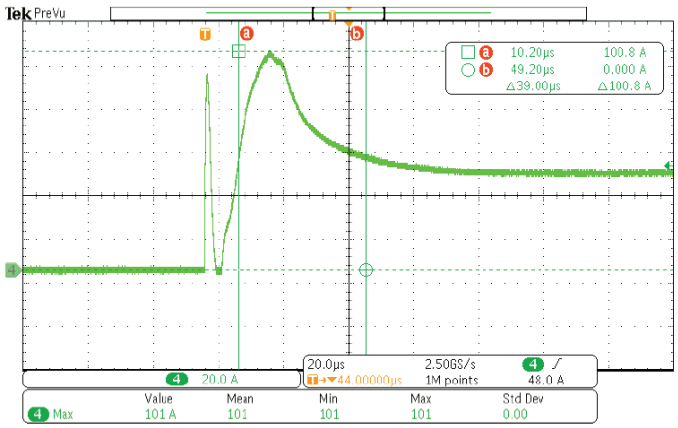
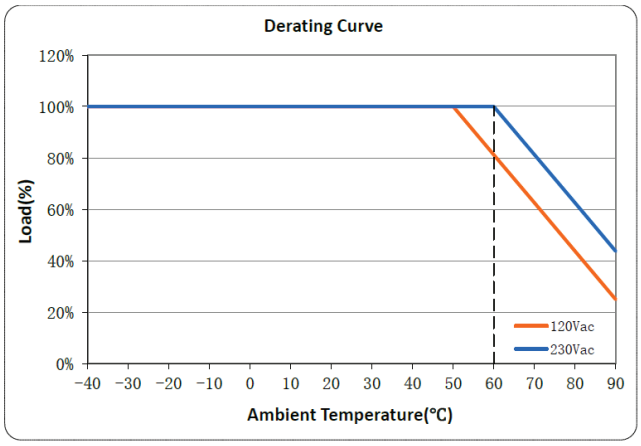
OPERATING AREA I-V



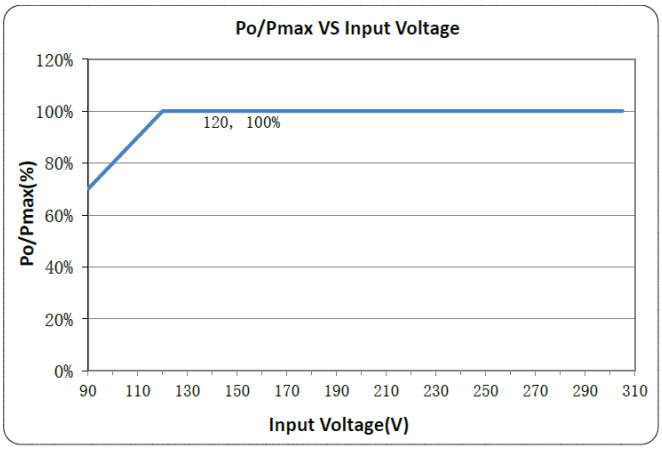
INRUSH CURRENT WAVE FORM



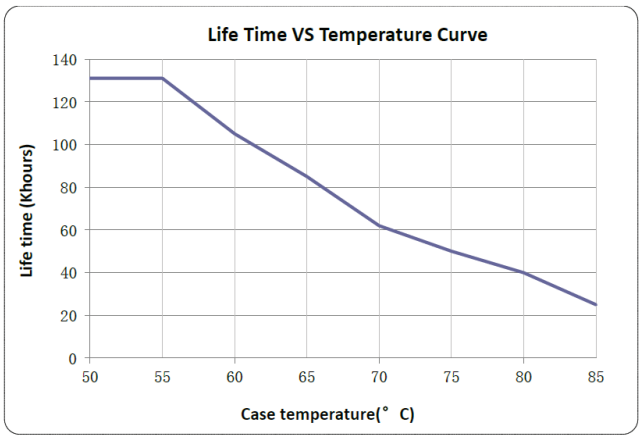
DERATING CURVE



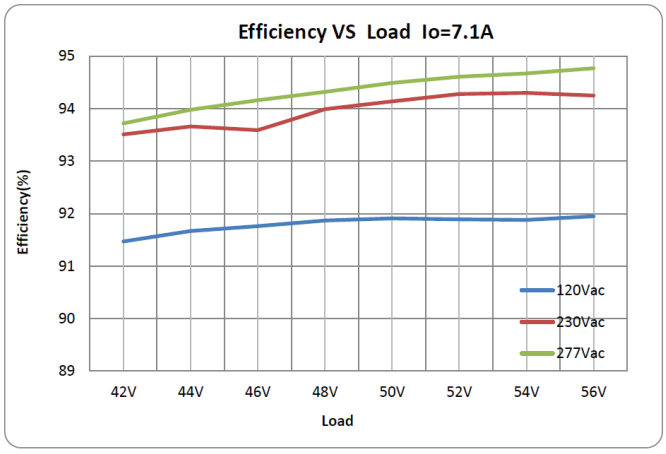
OUTPUT POWER VS INPUT VOLTAGE



LIFETIME VS CASE TEMPERATURE



EFFICIENCY VS LOAD



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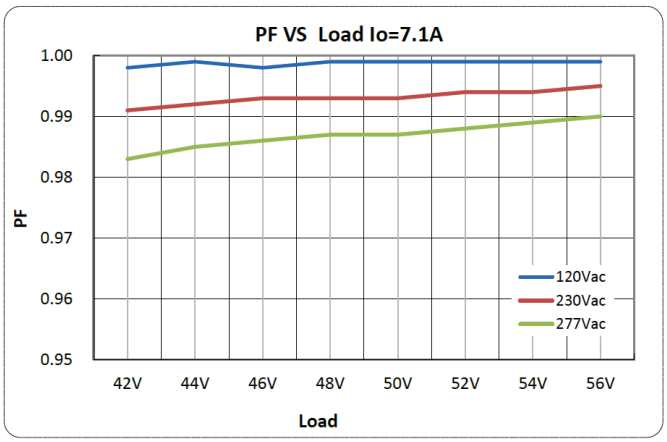
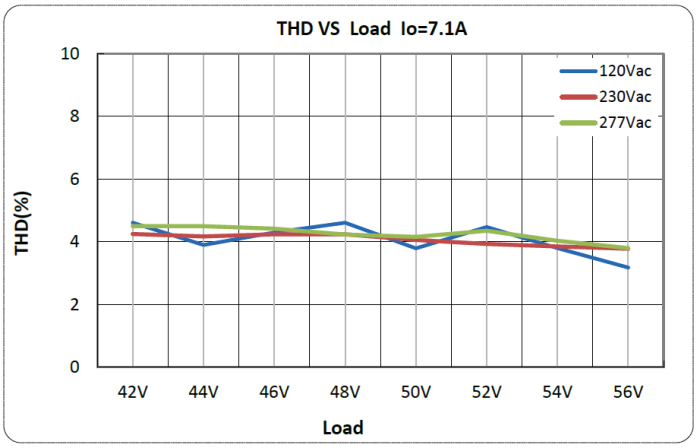
POWER FACTOR VS LOAD

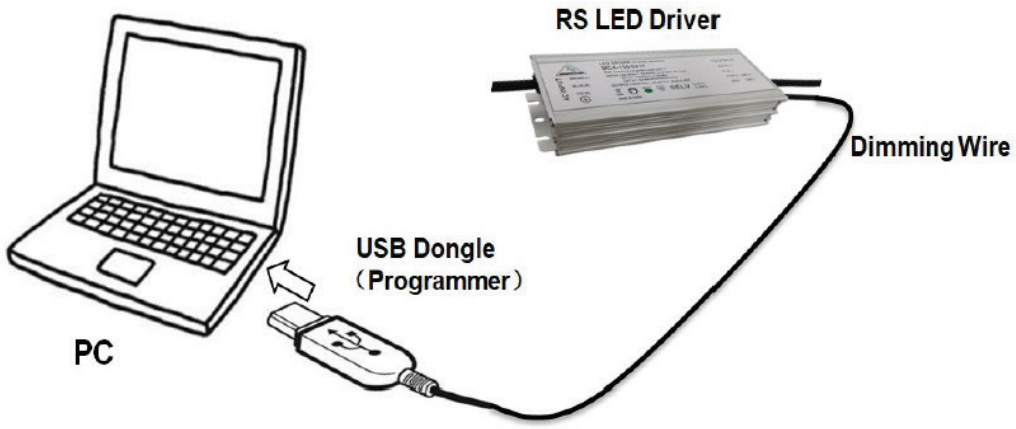


TOTAL HARMONIC DISTORTION



INSTRUCTION

1. Field Programmable Topology



The programmable driver can be programmed by using special PC software and the programmer module.

2. Dimming Interface Description

PIN	NAME	VALUE	DESCRIPTION	COLOR
1	Vaux 12V+	10.8V-13.2V	Auxiliary DC power supply	BROWN
2	Vaux 12V-	0V	Auxiliary DC power ground	BLUE
3	Dim+/Prog+	0-10V	Dimming/Programming input	WHITE(P12)/PURPLE(P)
4	Dim-/Com	0V	Common terminal of Dim/Prog.	BLACK(P12)/GRAY(P)

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3. Dimming Software Function Instruction

COMMUNICATION SETUP

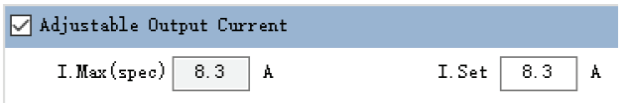
Click "Connect" to set up the link between the computer and the USB dongle.

DRIVER INDENTIFICATION

Click "Read" to identify the driver, then fill in the part number and max current automatically.

ADJUSTABLE OUTPUT CURRENT (AOC)

Click ON "☑" to activate the output current configuration, I.Max(Spec) is filled in automatically during identify driver, I.Set can be filled in any value lower than I.Max(spec).

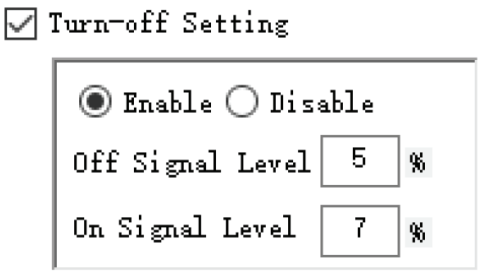


DIMMING SELECTION AND SETTING

Click ON "☑" to activate the dimming selection and setting, or else no update during current setting. Choose one of the control method listed below to go with, then the related setting interface will appear.

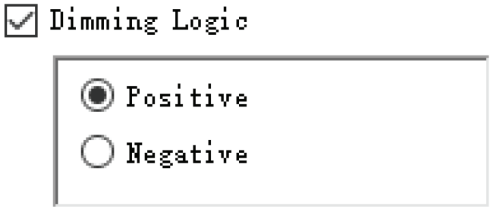
TURN - OFF SETTING

Click ON "☑" to active the turn-off function configuration. Choose "enable" or "disable", and set the turn on and off dimming signal when "enable" selected. In turn off status, the driver will output minimum output voltage, please make sure the LED lamp can be turned off when applied with this level voltage.



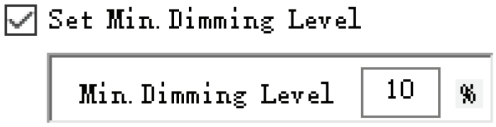
DIMMING LOGIC

Click ON "☑" to activate the dimming logic configuration, default setting is "Positive" logic, it means the output current will increase with the dimming signal level up; and "Negative" logic will decrease the output current with dimming signal level up.



SET MINIMUM DIMMING LEVEL

Set the minimum dimming output current, default setting is 10%

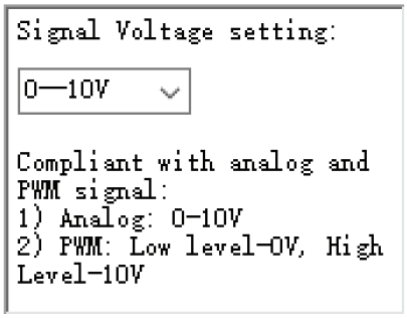


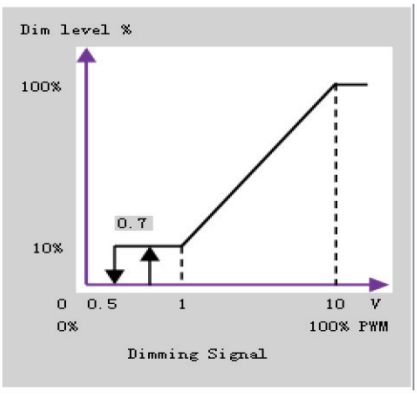
DIMMING SIGNAL CONFIGURATION

Click ON "☑" to activate dimming signal configuration, the dimming signal can be analog or PWM signal, here to set the value of the high level of these two signals, the setting can be:
0-3.3V, 0-5V, 0-9V, 0-10V

For example, if 0-10V is selected, the dimming signal will be:
1). Analog: 0-10V.
2). PWM: Low level-0V, High Level-10V.

This graph presents how the output current will react to the dimming signal, including analog and PWM dimming signal.





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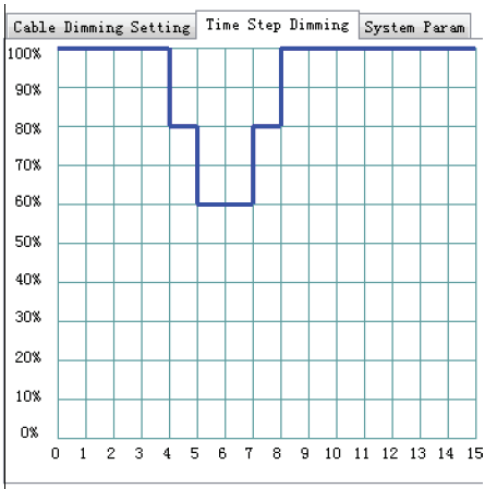
CONFIGURE TIME STEP DIMMING (TSD)

Click ON "☑" to activate Time Step Dimming configuration

Step (0) : Setting the fading time of soft start, maximum value can be 10 seconds.

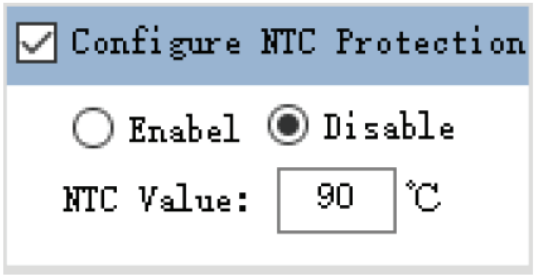
Step (1)-(7): Maximum time step number is 7, and the output current can be set according to the customer requirements to save energy.

The graph presents how the output current will react to the setting of time step dimming.



CONFIGURE TIME STEP DIMMING (TSD)

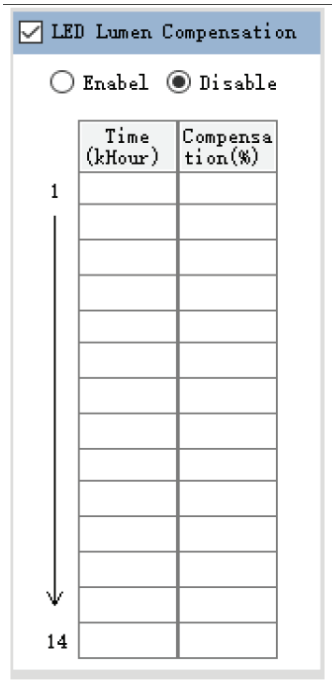
Click ON "☑" to activate NTC configuration Choose "enable" or "disable", and set NTC value when "enable" selected



LED LUMEN COMPENSATION (LLC)

Click ON "☑" to activate NTC configuration Choose "enable" or "disable", and set Time VS Compensation value when "enable" selected.

The compensation can be set for maximum 14 periods, "Time" Colum define the working hours for the defined "Compensation" ratio. For example, if "compensation" is set to 1%, and the corresponding "Time" is set to 10, that means the output current will be set to 101% of rated current for 10K hours at this interval.



CONFIGURE TIME STEP DIMMING (TSD)

Click ON "☑" to activate NTC configuration Choose "enable" or "disable", and set NTC value when "enable" selected

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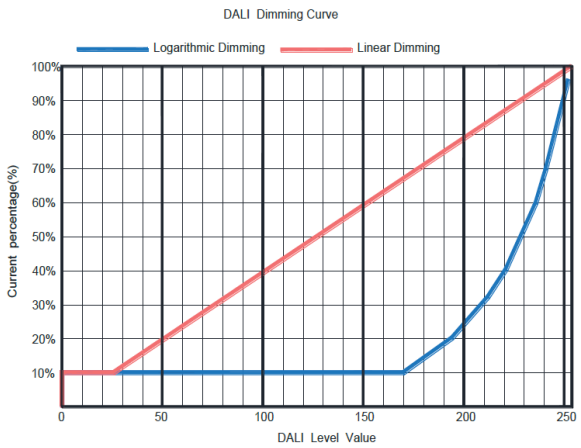
INSTRUCTION (L TYPE)

1. DIMMING INTERFACE DESCRIPTION

PIN	NAME	VALUE	DESCRIPTION	COLOR
1	Vaux 5V/12V/24V	4.5V-5.5V 10.8V-13.2V 21.6V-26.4V	Auxiliary DC power supply	BROWN
2	Vaux GND	0V	Auxiliary DC power ground	BLUE
3	DA		Dimming input	WHITE(L12)/PURPLE(L)
4	DA		Dimming input	BLACK(L12)/GRAY(L)

2. DALI INTERFACE



WIRE SPECIFICATION

DIMMING	FUNCTION	NOTES
Input	18AWG*3C SJTW L=70mm	for UL
	L（BLACK） N（WHITE） G（GREEN）	
Output	18AWG*2C SJTW L=70mm	for UL
	+（RED）-（BLACK）	
Dimming	22AWG*4C UL2517 L=65mm	for P12
	DIM+（WHITE）DIM-（BLACK）12V+（BROWN）12V-（BLUE）	

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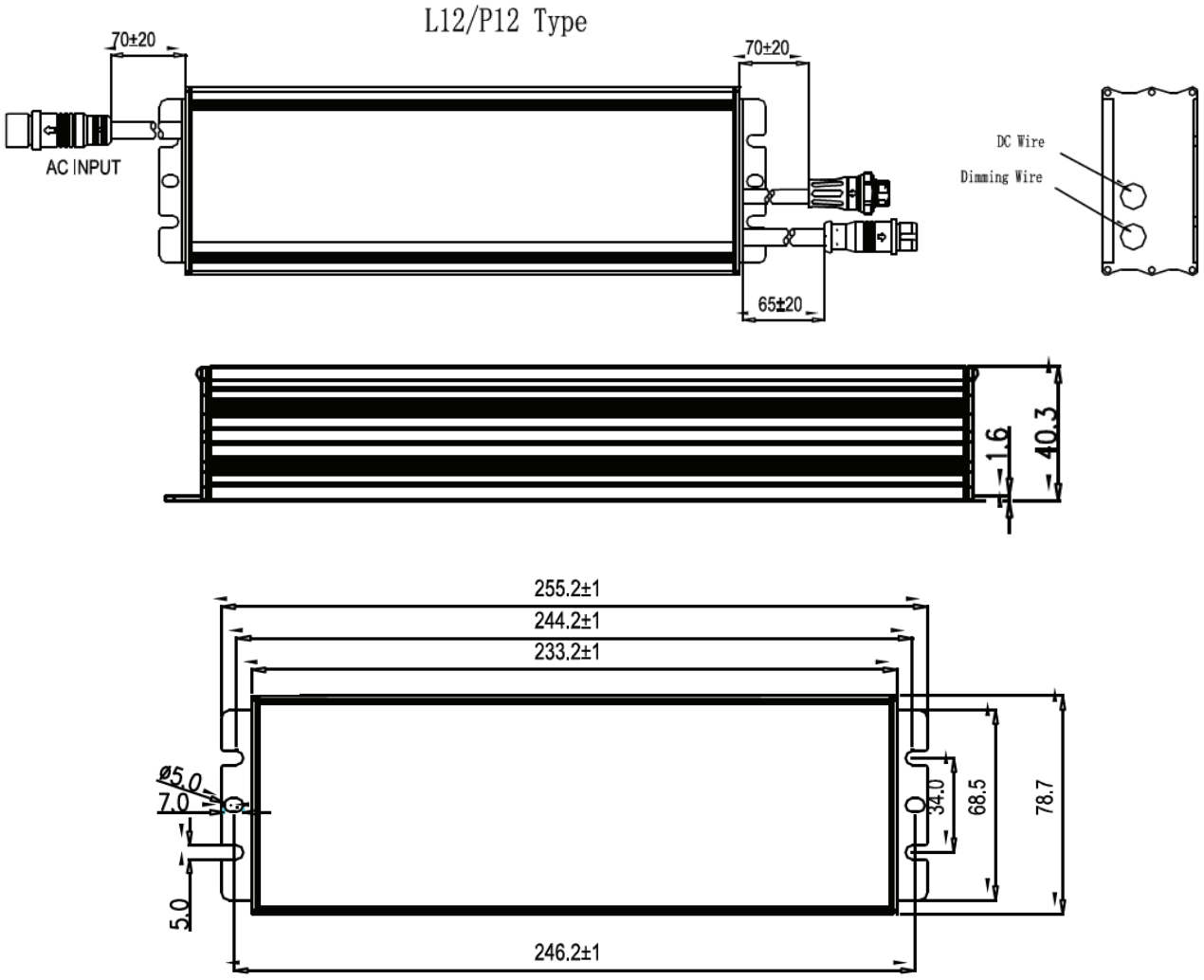
MECHANICAL OUTLINE



LABEL

Initial Current: 8.00A

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