

Project Name:	
Type:	

# HA-060W Series

60W 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: 4KV line-line, 6KV line-earth;
- Protections: SCP / OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty



CE EN62385 cULus CB n.ECM 20 A TEX-B DW96 II 2G Ex mb IIC T4 Gb HL

Notes: MCH-680 is Class I type.

## APPLICATION

Hazardous Location Applications, Street light, Architecture lighting, Industrial lighting, Flood lighting, etc.

## WARRANTY

- See [Limited Warranty Policy](#) for more additional information

SPECIFICATION			
MODEL		048	090
HA060-XXX			
INPUT	Efficiency (2300Vac)(Typ.)	86%	87%
	Voltage Range (V)	90~305VAC, or 127 ~ 250VDC	
	Rated Voltage (V)	100~277VAC	
	Frequency Range (Hz)	47~63	
	Power Factor	PF>0.99/120VAC, PF>0.95/230VAC, PF>0.92/277VAC at full load PF>0.90/277vVAC at half load	
	THD	THD<15% when output loading≥50% at 120VAC/230VAC THD<20% when output loading≥50% at 50VAC/277VAC (Take refer to THD vs. Load Curve for details)	
	AC Current (Max.)	0.7A MAX at 100Vac, 0.7A MAX at 230Vac	
	Inrush Current (Max.)	COLD START 20A, Per NEMA410	
	Leakage Current (Max.)	0.7mA at 277VAC / 60Hz	
	MAX. No. of PSUs on 16A Circuit Breaker	3 units (circuit breaker of type B) / 6 units breaker of type C) at 230VAC	
	No Load/ Standby Power Consumption	No load power consumption <10W	
OUTPUT	Rated Output Voltage (V)	24 ~ 48	45 ~ 90
	Output Voltage Range (V)	20 ~ 48	45 ~ 90
	Rated Current (A)	1.4	0.75
	Rated Power (W)	60	60
	Output Current Setting Range/ Dimming Range (A)	0.14 ~ 1.40	0.075 ~ 0.75
	Ripple Current (Typ.)	20% of Io_max. ((PK-AV) /AV) with LED loading mode and full load.)	
	Current Tolerance	<5%	
	Line Regulation	<5%	
	Load Regulation	<5%	
	Setup Time	<0.5s, at 230Vac	
	DC AUX Power	12V; Output Current: 200mA; Max Output Power: 2.4W	
	Dim to Off	Yes	
	DIM+ Short/ Source Current	150uA~350uA	

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<b>PROTECTION</b>	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.
<b>ENVIRONMENTAL</b>	Working Temperature	-40~+70°C (Refer to 'Derating Curve' )
	Max. Case Temperature (Tc)	90°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
<b>SAFETY &amp; EMC</b>	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)
<b>OTHERS</b>	MTBF	120000Hrs @25°C±10°C ambient temperature, 230Vac, full load
	Lifetime	50000Hrs@80°C case temperature (Refer to 'Lifetime Curve')
	Dimension	190 x 63.8 x 37mm (LxWxH)
	Weight (Typ.)	750±50g/ PCS
<b>RELIABILITY</b>	Screen test <sup>(1)</sup>	336Hrs aging test @95°C & full load without temperature protection

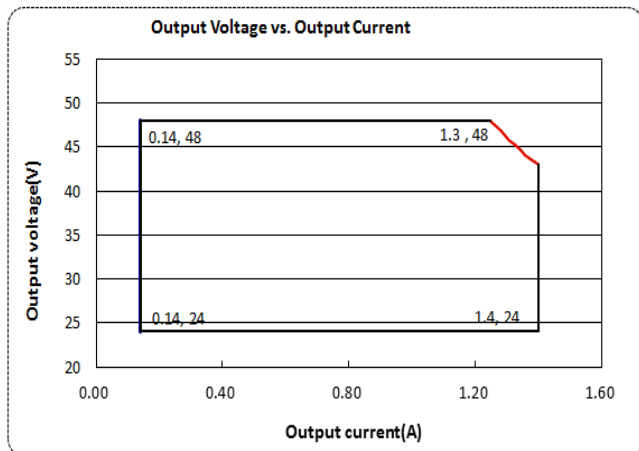
Notes:

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

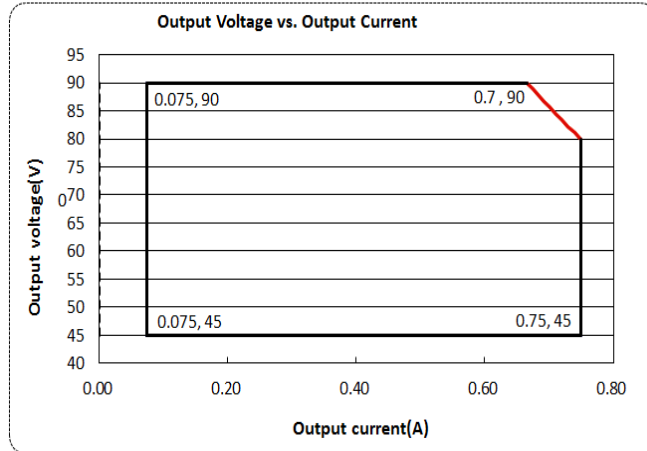
## OPERATING AREA I-V

Note: X=N is suitable for the right area of the dotted line; X=P is suitable for the solid line contain area.

**HA060-048-1400**



**HA060-090-0750**

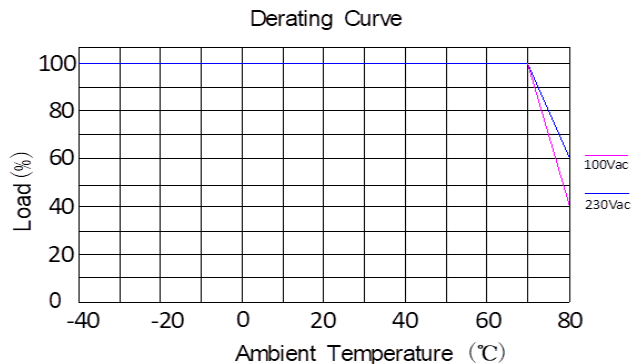


# HA-060W Series

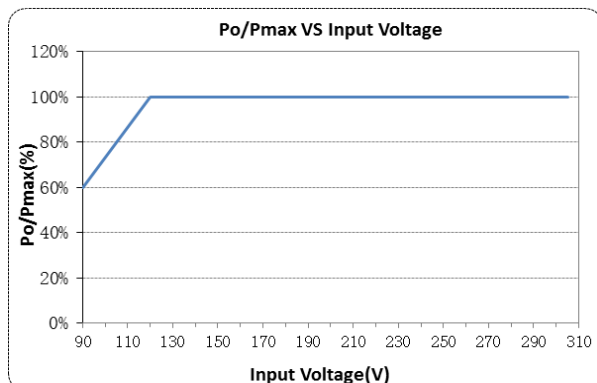
60W Outdoor Driver

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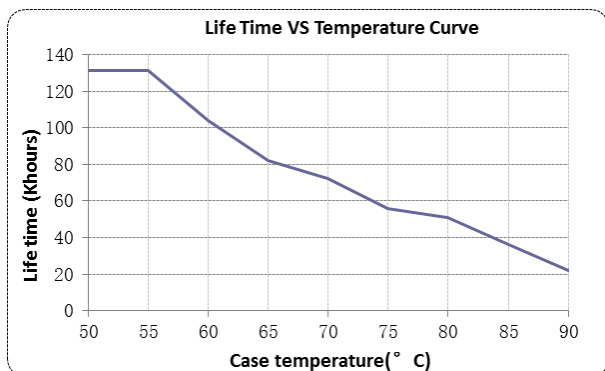
## DERATING CUI



## OUTPUT POWER VS INPUT VOLTAGE

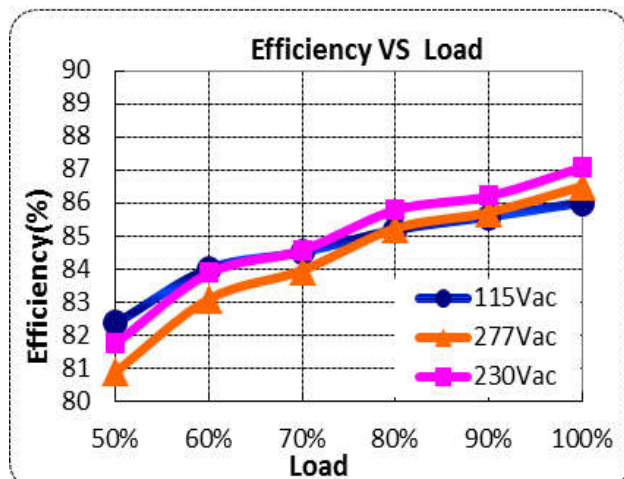


## LIFETIME VS CASE TEMPERATURE

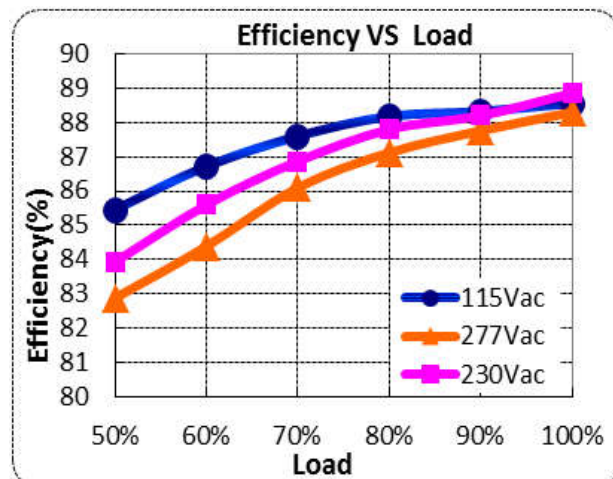


## EFFICIENCY VS LOAD

HA060-048-1400



HA060-090-0750



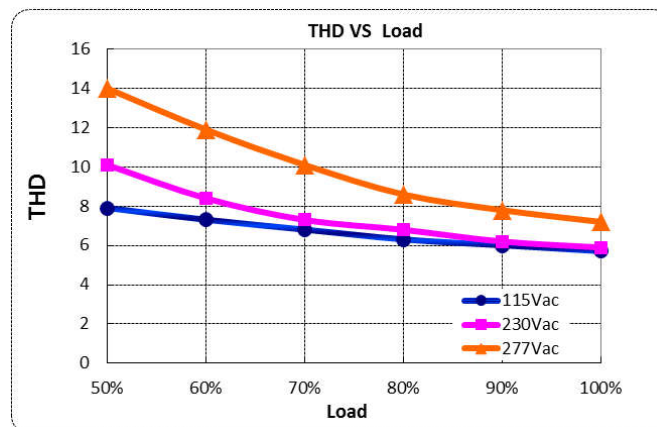
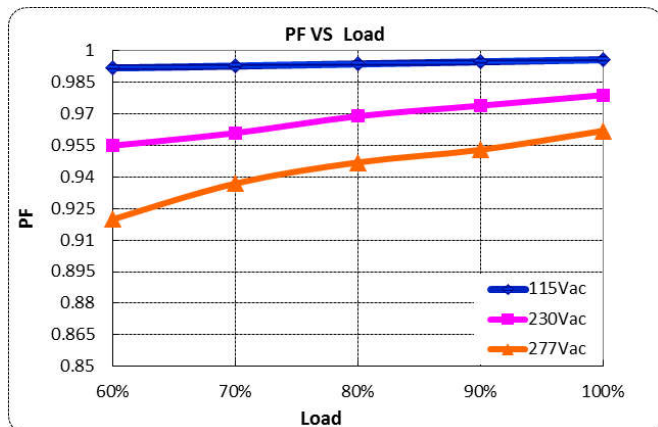
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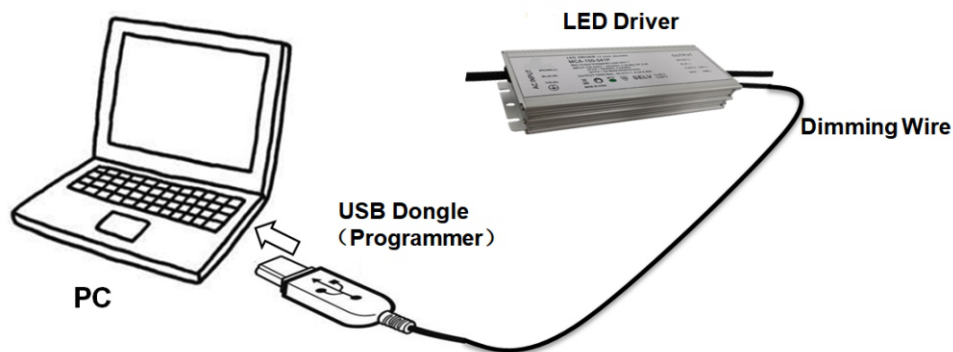
## TOTAL HARMONIC DISTORTION



## 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 DESCRIPTION

PIN	NAME	VALUE	DESCRIPTION	COLOR
1	Vaux 12V	10.8V – 13.2V	Auxiliary DC power supply	WHT/BLK
2	Dim+/ Prog+	0-10V	Dimming/ Programming inout	PURPLE
3	Dim-/ Com	0V	Common terminal of Dim/ Prog./Aux	GRAY

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Project Name:	
Type:	

## 3. Dimming Software Function Instruction

### • Communication Setup



Connect Status: **Disconnected**

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

### • Driver Identification



Read P/N: **MCH-680-056L12** ✓

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

### • Adjustable Output Current (AOC)



☒ Adjustable Output Current  
I.Max(spec) **14.2** A I Set **13** A

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).

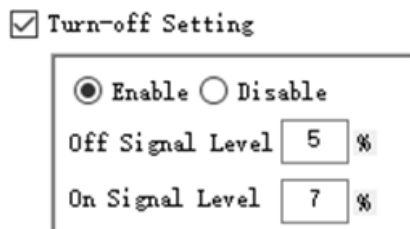
### • Dimming Selection and Setting



☒ Dimming Selection and Setting  
☒ Cable Dimming ☐ Time Dimming ☐ No Dimming

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.

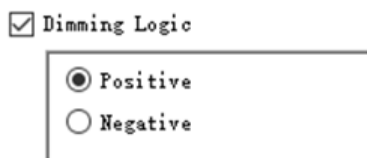
### • Turn-Off signal setting



☒ Turn-off Setting  
☒ Enable ☐ Disable  
Off Signal Level **5** %  
On Signal Level **7** %

Click ON "☒" to activate 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.

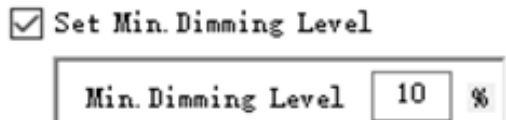
### • Dimming Logic



☒ Dimming Logic  
☒ Positive ☐ Negative

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 Min. Dimming Level  
Min. Dimming Level **10** %

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

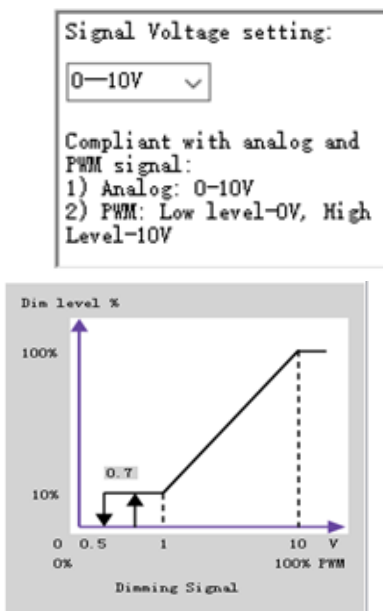
# HA-060W Series

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Type:	

## • Dimming Signal Configuration

☒ Configure Dimming Signal



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.

## • Configure Time Step Dimming (TSD)

☒ Configure Time Step Dimming

	Hour	Minute	Power
(0) <input checked="" type="checkbox"/>	10		Second(Soft Start)
(1) <input checked="" type="checkbox"/>	4	0	100 %
(2) <input checked="" type="checkbox"/>	1	0	80 %
(3) <input checked="" type="checkbox"/>	2	0	60 %
(4) <input checked="" type="checkbox"/>	1	0	80 %
(5) <input checked="" type="checkbox"/>	3	0	100 %
(6) <input type="checkbox"/>	0	0	10 %
(7) <input type="checkbox"/>	0	0	10 %

Click ON “☒” to activate Time Step Dimming configuration

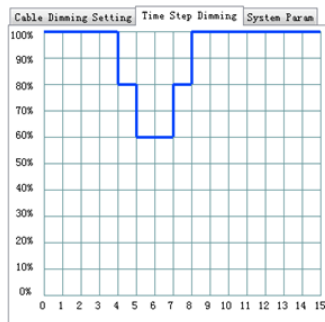
Step(0): Setting the fading time of soft start, maximum value can be 10 seconds.

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

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60W Outdoor Driver

Project Name:	
Type:	



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

## • Configure NTC Protection

☒ Configure NTC Protection

☐ Enable
 ☒ Disable

NTC Value:  °C

Click ON “☒” to activate NTC configuration Choose “enable” or “disable”, and set NTC value when “enable” selected.

## • LED Lumen Compensation (LLC)

☒ LED Lumen Compensation

☐ Enable
 ☒ Disable

	Time (kHour)	Compensation (%)
1		
14		

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” Column 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.

## • Program

Program

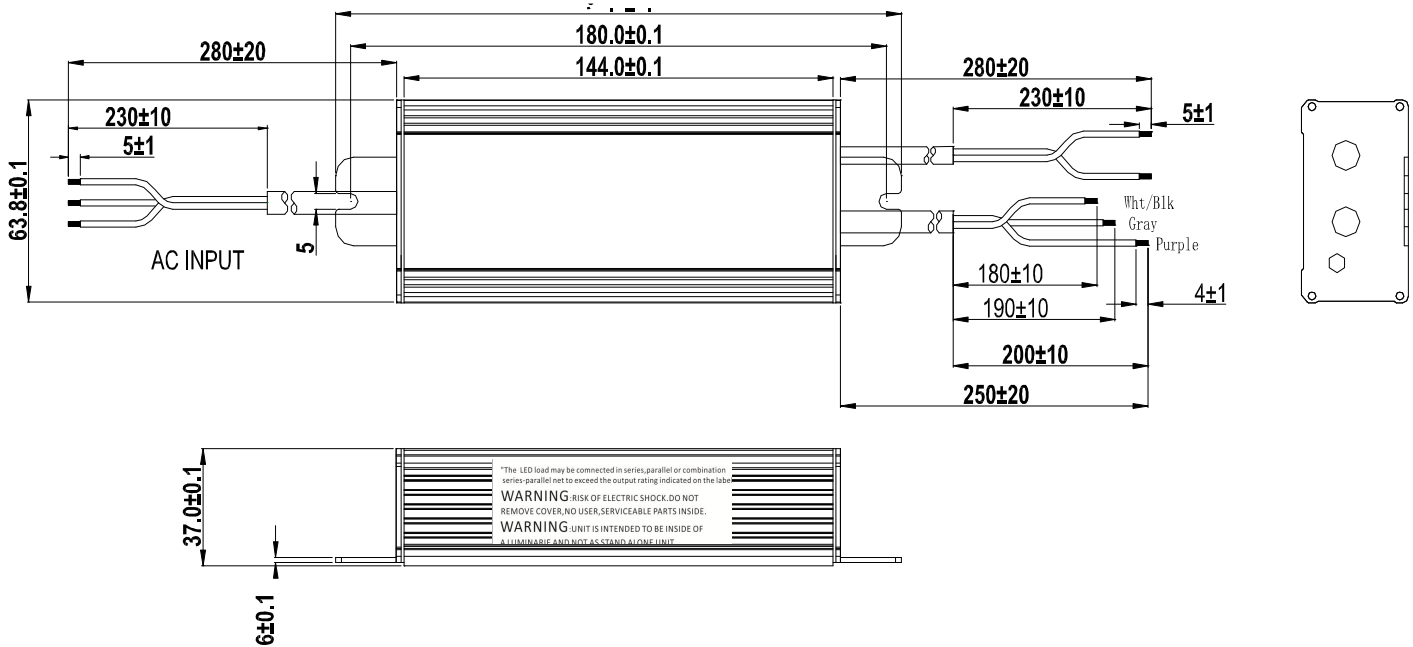
Click “Program” button to burn the setting into drivers.



# HA-060W Series

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## INSTRUCTION (L type)



Notes: The word "WARNING" shall be in letters not less than 3.2mm tall, remaining letters not less than 1.6mm tall.

WIRE	SPECIFICATION	NOTE
AC INPUT	UL SJTW 18AWG/ 3C L=280mm	UL
	L (BLACK), N (WHITE), G (GREEN)	
DC OUTPUT	UL SJTW 18AWG/ 2C L=280mm	UL
	+ (RED) – (BLACK)	
DIMMING	22# 3c L=250mm	UL
	+(WHT/ BLK) – (GRAY) DIM+ (PURPLE)	

## LABEL - HA060-048-1400

42.00

**MAGTECH**  
www.magtechind.com

AC INPUT  
BLACK (L)  
WHITE (N)  
GREEN (G)

5625-A S. Arville St., Las Vegas, NV 89118, USA

Constant Current, Programmable LED driver

**MODEL: HA060-048-1400**

INPUT: { 100-277Vac ~, 0.70-0.25A, 50/60Hz, PF > 0.9  
127-250Vdc ~, 0.60-0.30A

OUTPUT1: 1.4A max, 48V max, 60W max, CC

OUTPUT2: 12V, 200mA, CV Short Circuit Current < 4A

ECM 20 ATEX-B DW96

CE II 2G Ex mb IIC T4 Gb

P/N: 20-5701  
REV A

Tc: 90°C

Type HL

IP67  
RoHS

OUTPUT 2

WHT/BLK (+)  
GRAY (-)  
PURPLE (DIM+)

DIM CTRL

For Dry and Damp Locations  
MADE IN CHINA

E357847

Initial Current: 1.4A

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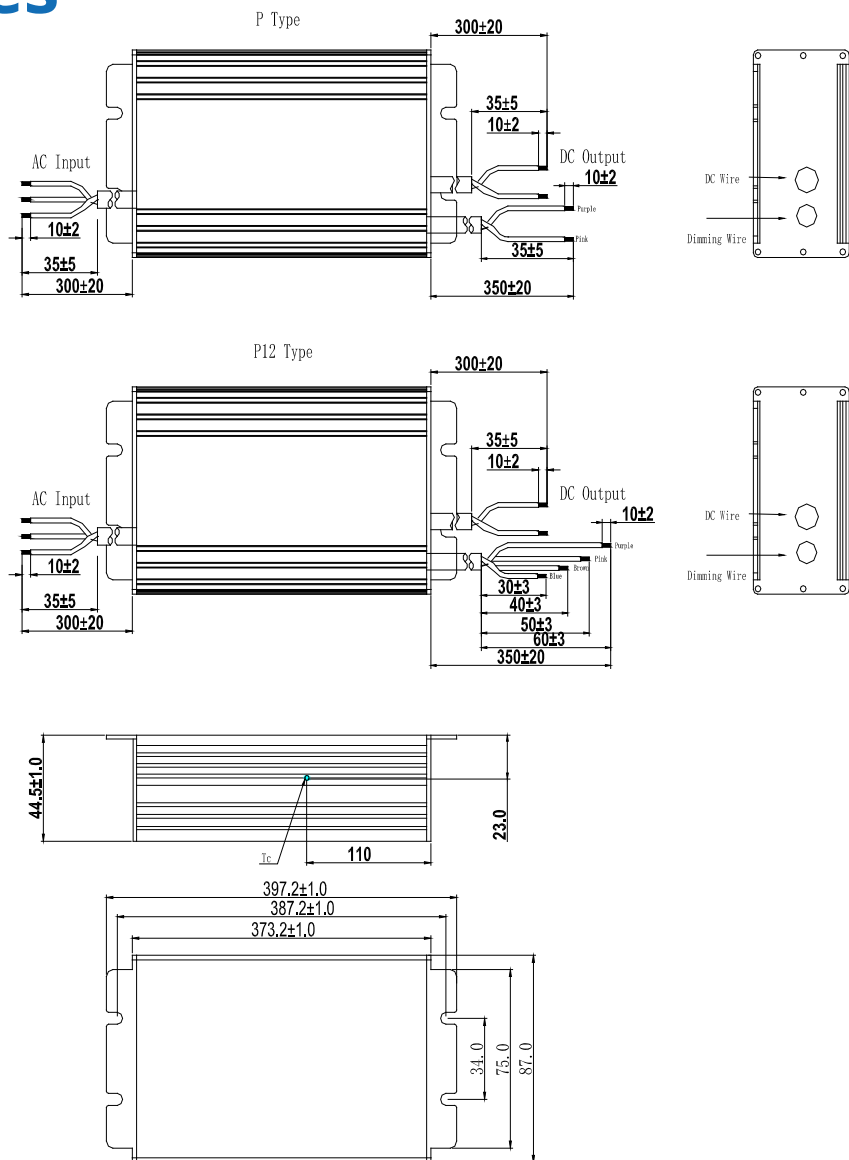
ANZ279



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## MECHANICAL OUTLINE - MCH-680W



WIRE	SPECIFICATION	NOTE
Input	18AWG*3C SJOW L=300mm	for UL
	L (BLACK) N (WHITE) G (GREEN)	
Output	14AWG*2C SJOW L=300mm	for UL
	+(RED) - (BLACK)	
Dimming	22AWG*2C UL2733 L=350mm	for L
	DIM + (PURPLE) DIM - (PINK)	
	22AWG*4C UL2517 L=350mm	for P12, for L12
	DIM+DA(PURPLE) DIM-DA(PINK) 12V+ (BROWN) 12V-(BLUE)	