■ **Features**

· Input voltage: 90-305VAC
· Built-in active PFC function: 0.98 Typ.
· High efficiency: 92% Typ.
· IP67 design for indoor or outdoor installations
· High surge immunity
· Compliance to worldwide safety regulations for lighting
· Suitable for dry/damp locations

UL E348796   C E

■ **Specification**

Model (MU120CxxxAQ_CLKS)	035	045	053	070	085	105	140	175	210	245	280	315	347	420	500
Input Efficiency(120Vac)(Typ.)Note.1	90.0%	90.0%	90.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	88.0%	88.0%	88.0%	88.0%	88.0%	87.0%
Efficiency(230Vac)(Typ.)Note.1	92.0%	92.0%	92.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	90.0%	90.0%	90.0%	90.0%	90.0%	89.0%
Voltage Range (V)Note.2	90 ~ 305Vac, OR 127~ 430Vdc (Derating may be need under low inputs, Refer to 'Derating Curve')														
Voltage Rate (V)Note.2	100Vac-277Vac														
Frequency Range (Hz)	47~63														
Power Factor(Typ.)	0.98 (Typ.) with 80%-100% load,at 120Vac														
	0.95 (Typ.) with 80%~100% load,at 230Vac														
	>0.9 with 80%~100% load,at 277Vac														
THD(Typ.)	<20% with 80% ~ 100% load, at 100Vac~277Vac														
AC Current(Typ.)	1.5A at 100VAC input, 0.6A at 230VAC														
Inrush Current(Max.)	65A at 230Vac input 25℃ Cold Start (time wide=500uS, measured at 50% Ipeak,Not applicable for the inrush current to Noise Filter for less than 0.2ms)														
Leakage Current(Max.)	1mA at 277Vac/60Hz														
Output DC Voltage (V)	343	267	226	170	141	114	86	69	57	49	43	38	34	29	24
Rated Current(mA)	350	450	530	700	850	1050	1400	1750	2100	2450	2800	3150	3570	4200	5000
Voltage Range(V)	171~343	133~267	113~226	85~170	70~141	57~114	43~86	34~69	28~57	24~49	21~43	19~38	17~34	14~29	12~24
Rated Power (W)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Ripple&Noise Current(Typ.)	<10%((PK-AV) /AV) with LED default mode and full load)														
Current Tolerance	5%														
Line Regulation	1%														
Load Regulation	3%														
Current ADJ. Range	-														
Turn on delay Time	<3s, at 120Vac; <1.5s, at 277Vac														
Protection Over Voltage(V)	Protection type : Hiccup mode.The power supply shall be self-recovery when the fault is removed.														
Short Circuit	Protection type : Recovers automatically after fault condition is removed.														
Over Temperature	Protection type : The power supply shall return to normal operation only after the power is turn-on again.														
Environment Operating Temp.	-40~+70℃(Refer to 'Derating Curve')														
Tc	90℃ max														
Operating Humidity	20~95%RH														
Storage Temp., Humidity	-40~+85℃ , 10-95%RH														
Temp. Coefficient	0.03%/℃ (0~50℃)														
Vibration	10-55-500Hz, 2G(10~55Hz),5G(55~500Hz) 1 octave/minute, period for 1hour each along X、Y、Z axes														
Safety & EMC Safety Standard	UL 8750,UL1012,IEC61347-1,IEC61347-2-13														
Withstand Voltage	I/P-O/P:3.75KVAC I/P-FG:1.875KV O/P-FG:1.5KV														
Isolation Resistance	I/P-O/P ,I/P-FG,O/P-FG:100M Ohms/500VDC/25℃/70%RH														
EMC Emission	EN55015/FCC Part 15 Class B，EN61000-3-2 Class C，EN61000-3-3														
EMC Immunity	EN61000-4-2,3,4,5,6,8,11，EN61547（Surge L,N-FG 6KV，L-N 4KV）														
Others MTBF	300,000 Hours,measured at full load,25℃ ambient temperature														
Lifetime	50,000 Hours at Tc 75℃(Refer to"Life Time VS. Tcase (Ref.)")														
Dimension	221 x 67.5 x 37 (mm) (LxWxH)														
Weight	0.95kg														

Note.1: Measured at full load and steady-state temperature in 25℃ ambient(Efficiency will be about 2% lower if measured immediately after startup);   Note. 2: Derating may be needed under low input voltages , Please Refer to 'Derating Curve' ; Note. 3: All parameters NOT specially mentioned are measured at 230VAC input , rated load and 25℃ of ambient temperature ;
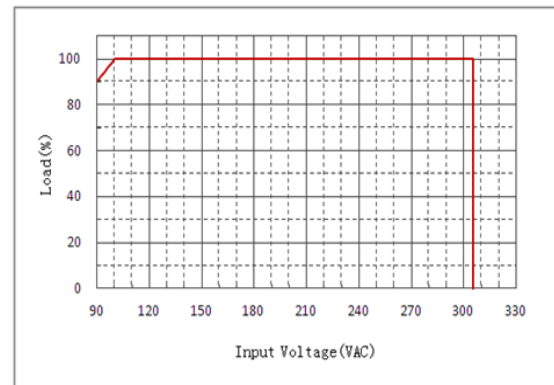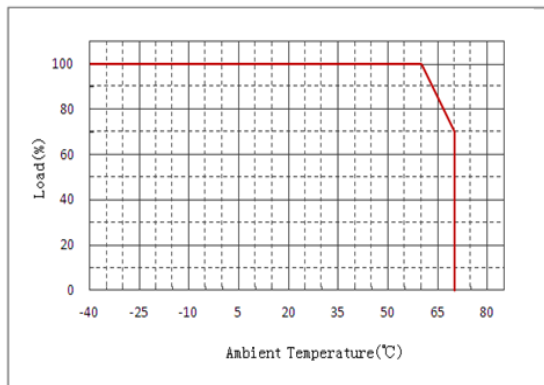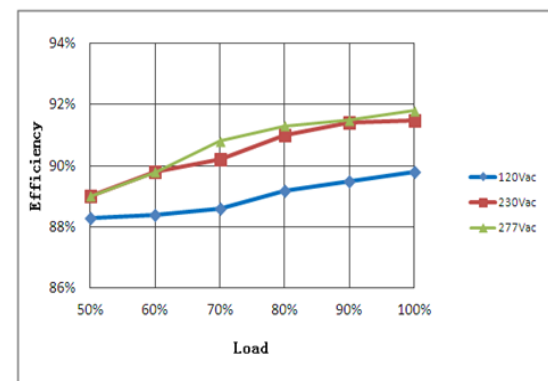
Derating Curve

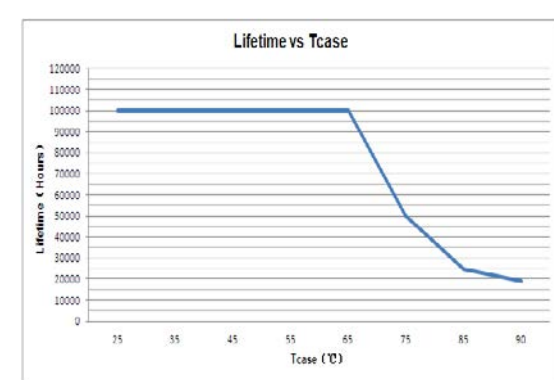**Power Factor VS. Load Curve**
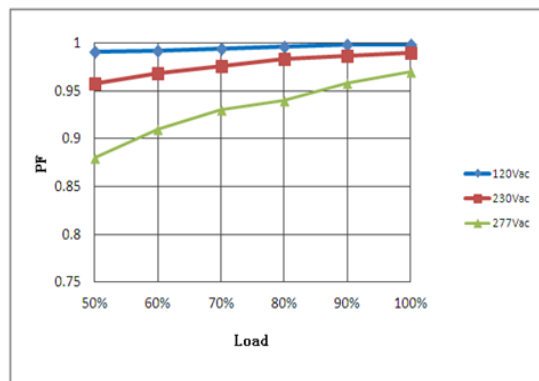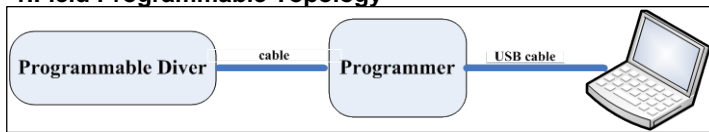

Efficiency VS. Load Curve

THD　Curve
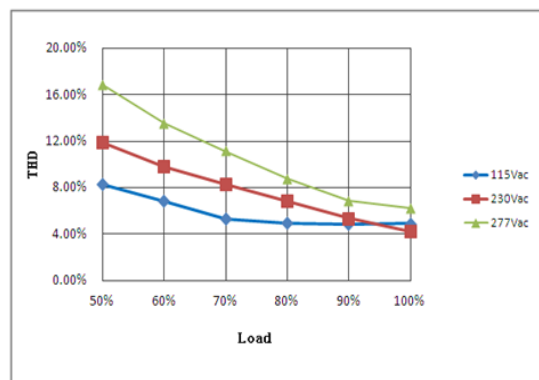
Life Time VS. Tcase (Ref.)

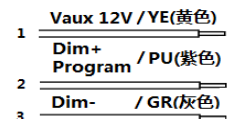## ■ Instruction

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
1	Vaux 12V	10.8V-13.2V	Passive dimmers power supply
2	Dim+/Program	0-10V	Dimming/Programming input
3	Dim-	0V	DC Ground

CLKS DIMMING
PROGRAMMING INTERFACE

Vaux 12V / YE(黄色)
1
Dim+
Program / PU(紫色)
2
Dim-   / GR(灰色)
3

3.Dimming Software Function Instruction

■ Adjustable Output Current(AOC)

Adjustable Output Current(AOC)

Module Current 1050   mA

Max Current 1050 mA Power 150 W

Users can set the rated current between 10%*Max Current and 100%*Max Current

■ PWM

Input a PWM signal from the 2nd pin(Dim+/Program) of the dimming interface to change the output current.User can set "Positive Logic" or " Negative Logic" of the PWM signal. PWM duty circle: 1%~99%(it has both positive and negative logics), frequency: 500Hz~5kHz, 3V~10V is

■ Adjustable Startup Time(AST)

Adjustable Startup Time(AST)

Start Fadeup Time 5 ▾ s

Set driver's "Start Fade up Time". It means how much time the driver costs to achieve the "Module Current" that the user set. The valid value is 0s, 1s, 2s, 5s, 10s, 20s, 40s.

Dimming Interface Selection(DIS)

○ 1-10V   ◉ PWM   ○ Smart Midnight ClockDIM   ○ Fixed ClockDIM   ○ No Dimming
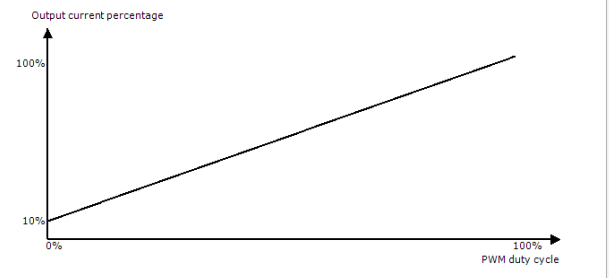
PWM Logic(PWML)

Positive Or Negative Logic   + ▾

■ Fade Time(FT)

Fade Time(FT)

Fadeup Time 1 ▾ s

Set driver's "Fade up Time". This function is available in the Smart Midnight ClockDIM and Fixed ClockDIM mode; It means how much time the driver costs to achieve another dimming level from previous dimming level. The valid value is 0s, 1s, 2s, 5s, 10s, 20s, 40s.


■ 1-10V

Allow users to set the max and min output current and corresponding output voltage to clarify the 1-10V dimming curve. Input a 0~10V signal from 2nd pin of the dimming interface. Default: input ≤1V, output current 10%; input ≥
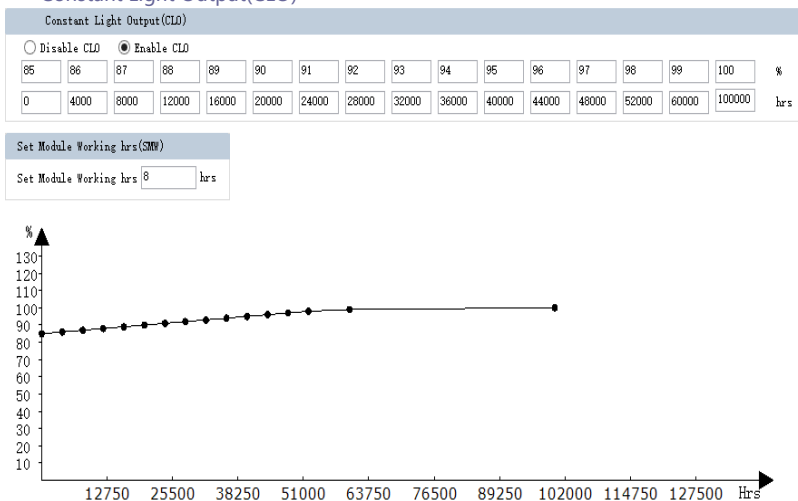
Dimming Interface Selection(DIS)

◉ 1-10V   ○ PWM   ○ Smart Midnight ClockDIM   ○ Fixed ClockDIM   ○ No Dimming

1-10V Min dim level 1 V 10 %

1-10V Max dim level 8.5 V 100 %
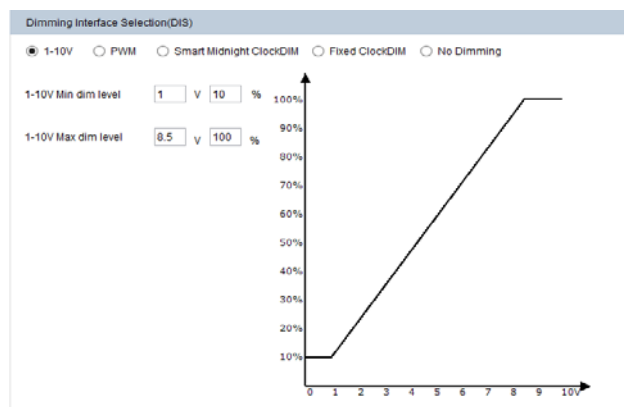
■ Instruction

■ Integrated Dynadimmer

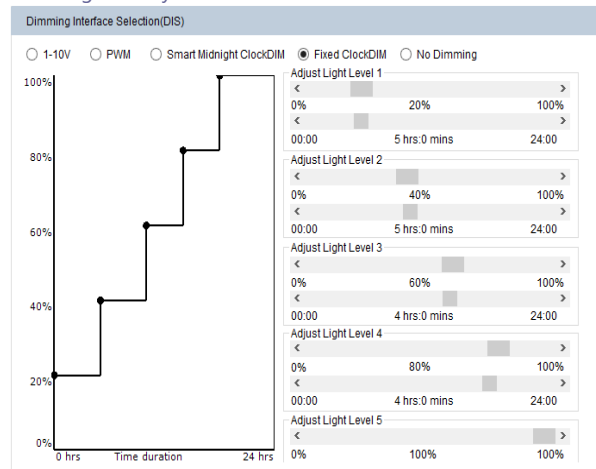### ■ Integrated Dynadimmer Time Based
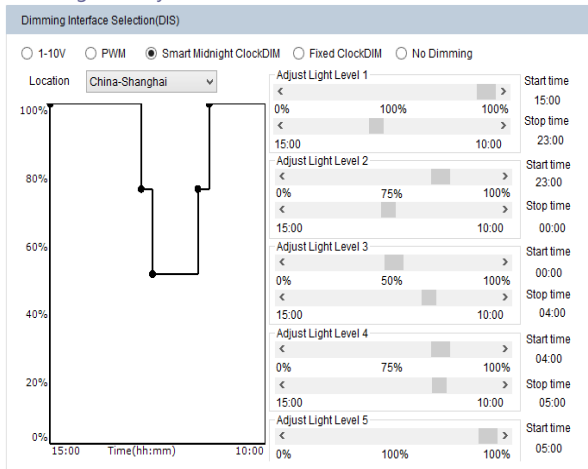
Integrated Dynadimmer allows dimming to predefined light levels based on the nightly operating time. With flexibility in setting time and light levels, the user can configure the driver for specific locations and application needs. Using Integrated Dynadimmer, it is possible to set up to 5 dim levels and time intervals. The driver does not have a real time clock. Instead it runs a virtual clock, determined by the length of nightly operating hours. After 3 ON-OFF cycles, the driver will calculate the virtual clock time. A valid ON-time is defined as a period during which the driver operates continuously for ≥ 4 hours to ≤ 24 hours. For example, if the requirement in summer is: 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75% (other time 100% or Off). The driver should be powered on for 7h, so it can calculate the virtual clock time as 22:00. Then we can set the dimming plan: 22:00~23:00: 100%, 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75%. From summer to winter, the valid ON-time changes day by day. The driver should be powered on for 17h in winter, and it also can calculate the virtual clock time as 17:00. Then the dimming plan is 17:00~23:00: 100%, 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75%, 05:00~10:00: 100%. From the above, if we set the dimming plan as shown in the picture, after repeating the driver ON-time for 3 consecutive days, the dimming plan takes effect from the 4th day onwards. Each day the driver powered on, it has a different start time according to the virtual clock
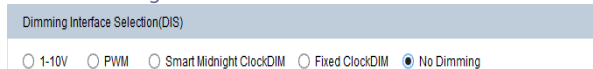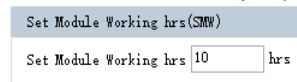
Allow users to separate 24hrs into 5 sections and corresponding output current.

■ No Dimming

The driver will be in constant output mode.
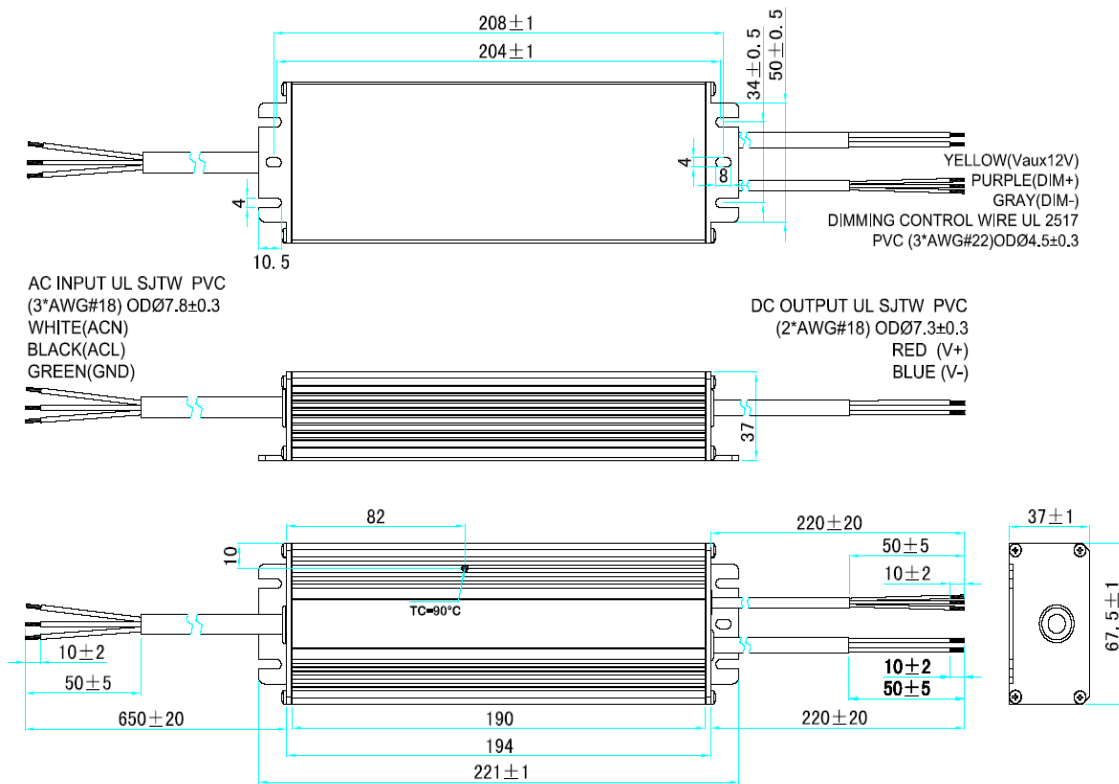
■ Set MODULE Working hrs(SMW)

User can check how much time the driver works through this function.

■ Constant Light Output(CLO)

Traditional light sources suffer from depreciation in light output over time. This applies to LED light sources as well. The CLO feature enables LED solutions to deliver constant lumen output through the life of the light engine. Based on the type of LEDs used, heat sinking and driver current, it is possible to estimate the depreciation of light output for specific LEDs and this information can be entered into the driver. The driver counts the number of light source working hours and will increase output current based on this input to enable CLO.

When the CLO feature is enabled, the driver nominal output current will be defined by the CLO percentage as shown by the equation below: Driver target nominal output current = CLO percentage * AOC. For example, in the CLO profile shown in Figure, between 52,000-60,000 working hours, the CLO percentage is set at 98%. Assuming the nominal AOC is set to 500mA, the driver output current with CLO enabled will be 0.98 x 500 = 600 mA.

The CLO percentage can be set to a value between 85%-100%, in increments of 1%. The LED module working hours can be set at any value between (0

■ Mechanical Specification

Dimensions (Unit: mm)

208±1
204±1
34±0.5
50±0.5
4
8
4
10.5

YELLOW(Vaux12V)
PURPLE(DIM+)
GRAY(DIM-)
DIMMING CONTROL WIRE UL 2517
PVC (3*AWG#22)ODØ4.5±0.3

AC INPUT UL SJTW PVC
(3*AWG#18) ODØ7.8±0.3
WHITE(ACN)
BLACK(ACL)
GREEN(GND)

DC OUTPUT UL SJTW PVC
(2*AWG#18) ODØ7.3±0.3
RED (V+)
BLUE (V-)

37

82
10
TC=90°C

220±20
50±5
10±2

10±2
50±5

220±20

37±1
67.5±1

10±2
50±5

650±20
190
194
221±1

RoHS Compliance:

Our products comply with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.