

### Features

- Ultra High Efficiency (Up to 88%)
- Full Power at Wide Output Current Range (Constant Power)
- Thermal Sensing and Protection for LED Module
- 0-10V/PWM/Timer Dimmable (3 Ways of Timers)
- Input Surge Protection: 5kV line-line, 10kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location  
In Wet Locations must be Built-In SELV Output



### Description

The EDC series is a 105W, constant-current, programmable LED driver that operates from 180Vac-305Vac input with excellent power factor. Created for high bay, tunnel and roadway lights, led grow light. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.

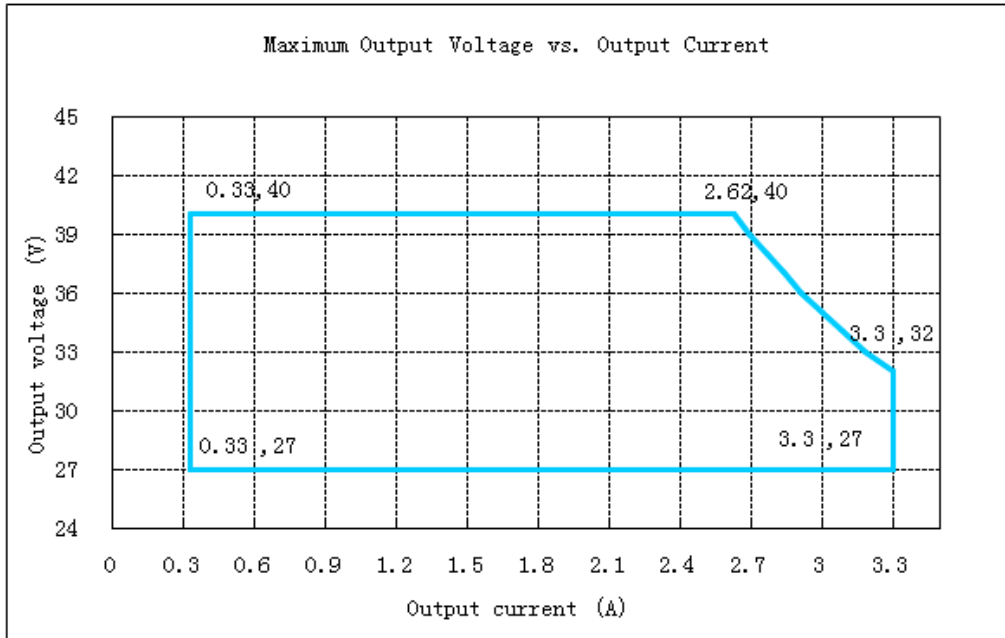
### Models

Model Number	Output Current Range	Full-Power Current Range	Default Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (3)	PF 220Vac
EDC-105R/M040	0.33-3.30A	2.62-3.3A	3.3A	180-305Vac	27-40V	105W	89%	0.97
EDC-105R/M050	0.25-2.50A	2.10-2.50	2.5A	180-305Vac	27-50V	105W	89%	0.97

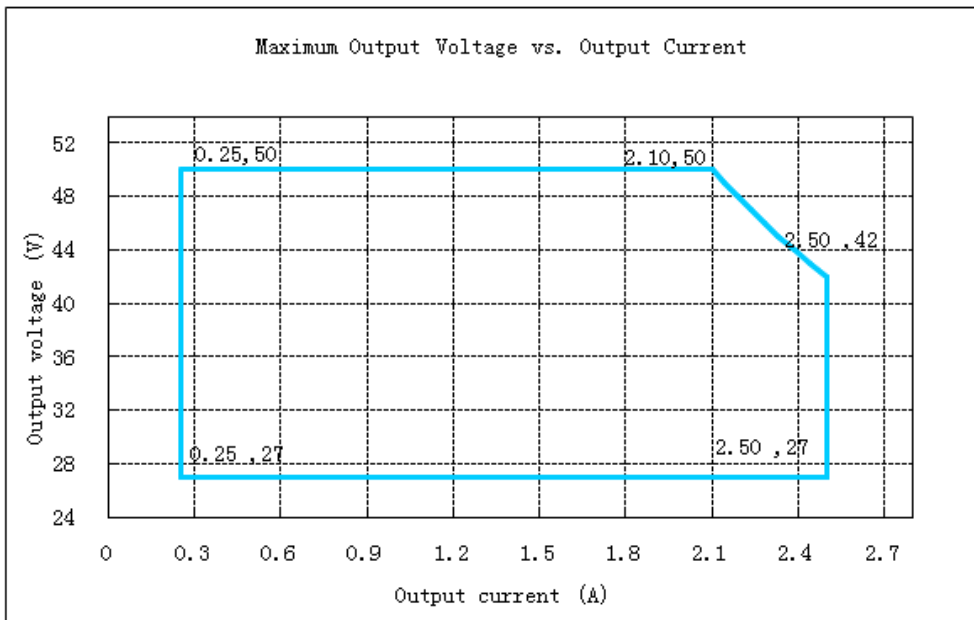
- Notes:** 1. Output current range with constant power at 105W  
2. Measured at full load and 220Vac input (see below "General Specifications" for details).

I-V Operating Area

EDC-105R/M040



EDC-105R/M050



Input Specifications



Parameter	Min.	Typ.	Max.	Notes
Input Voltage	180 Vac	-	305 Vac	100-277Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	<0.75 mA	Under 25°C±10°C ambient temperature and 230Vac/50Hz
Input AC Current	-	-	<1.0 A	Under 25°C±10°C ambient temperature, rated input and output
Inrush Current	-	-	<75 A	Under 25°C±10°C ambient temperature, 230Vac input, cold start.
PF	0.96	-	-	At 200-277Vac, 70%-100% Load
THD	-	-	15%	
THD	-	-	15%	At 220-240Vac, 50-60Hz, 75%-100%

**Output Specifications**

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%loset	-	5%loset	At full load condition
Output Current Setting(loset)				
EDC-105R/M040	0.33A	-	3.3A	
EDC-105R/M050	0.25 A	-	2.5A	
Output Current Setting Range				
EDC-105R/M040	2.62A	-	3.3A	
EDC-105R/M050	2.1A	-	2.5A	
Total Output Current Ripple (pk-pk)	-		10%Iomax	At full load condition, 20 MHz BW
Startup Overshoot Current	-	-	10%Iomax	At full load condition
No Load Output Voltage			≤60 V	
EDC-105R/M040	-	-	≤60 V	
EDC-105R/M050	-	-		
Line Regulation	-	-	±0.5%	Measured at full load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	1.0 s	Measured at 120Vac input.
	-	-	0.5 s	Measured at 220Vac input.
Temperature Coefficient of loset	-	-	0.03%/°C	Case temperature = 0°C ~Tc max

**Note:** All specifications are typical at 25°C unless otherwise stated.

**General Specifications**

Parameter	Min.	Typ.	Max	Notes
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Efficiency at 220 Vac input: EDC-105R/M040 Io= 2.62A Io=3.3A  EDC-105R/M050 Io=1.10 A Io=0.53 A	87.0% 87.0%  87.0% 87.0%	89.0% 89.0%  89.0% 89.0%	- - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	200,000 Hours		-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK- 217F)
Lifetime	50,000 Hours		-	Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+85° C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+80° C	
Storage Temperature	-40°C	-	+85° C	Humidity: 5%RH to 100%RH
Dimensions (L × W × H) Millimeters	157× 53 × 34 mm			With mounting ear 164× 68 ×39 mm
Gross Weight				755±50g

Note: All specifications are typical at 25°C unless otherwise stated

### Dimming Specifications

Parameter		Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin		-20 V	-	20 V	
Source Current on Vdim (+)Pin		200 uA	300	450 uA	Vdim(+) = 0 V
Dimming Output Range	EDC-105R/M040	10% loiset	-	loiset	0.33A ≤ loiset ≤ 2.62A
	EDC-105R/M040				0.25A ≤ loiset ≤ 2.1A
		3.3A	-	loiset	2.62A ≤ loiset < 3.3A
		2.5A			2.1A ≤ loiset < 2.5A
Recommended Dimming		0 V	-	10 V	Default 0-10V dimming mode.
Dim off Voltage		0.35 V	0.5V	0.65 V	
Dim on Voltage		0.55 V	0.7 V	0.85 V	
Hysteresis		-	0.2 V	-	
PWM_in High Level		3 V	-	10 V	Dimming mode set to PWM in PC interface.
PWM_in Low Level		-0.3 V	-	0.6 V	
PWM_in Frequency Range		200 Hz	-	3 KHz	
PWM_in Duty Cycle		1%	-	99%	
PWM Dimming off (Positive Logic)		2%	5%	8%	
PWM Dimming on (Positive Logic)		4%	7%	10%	
PWM Dimming off ( Negative Logic)		92%	95%	98%	
PWM Dimming on ( Negative Logic)		90%	93%	96%	
Hysteresis		-	2%	-	

**Note:** All specifications are typical at 25 °C unless stated otherwise.

### Safety & EMC Compliance

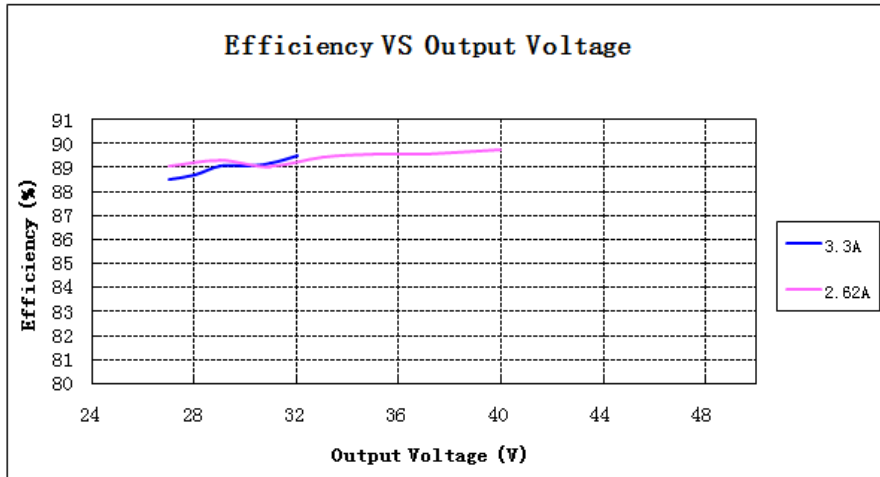
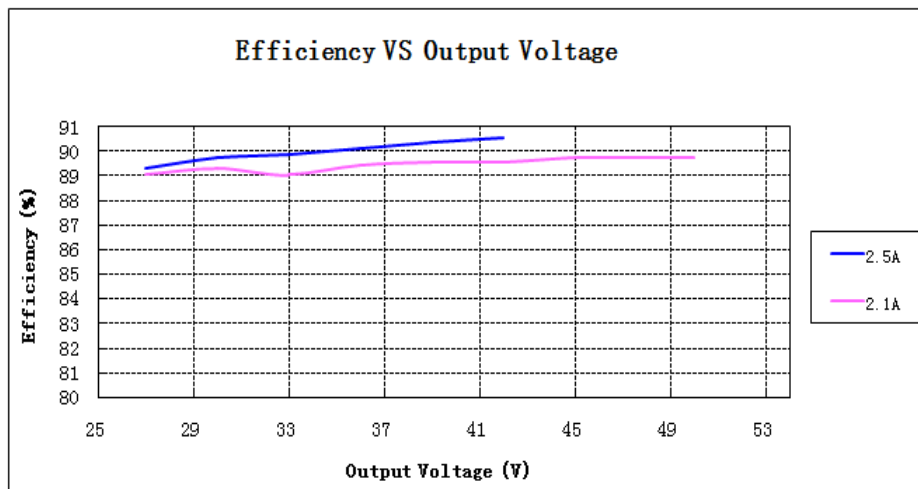
Safety Category	Standard
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13-12
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655 : 2011

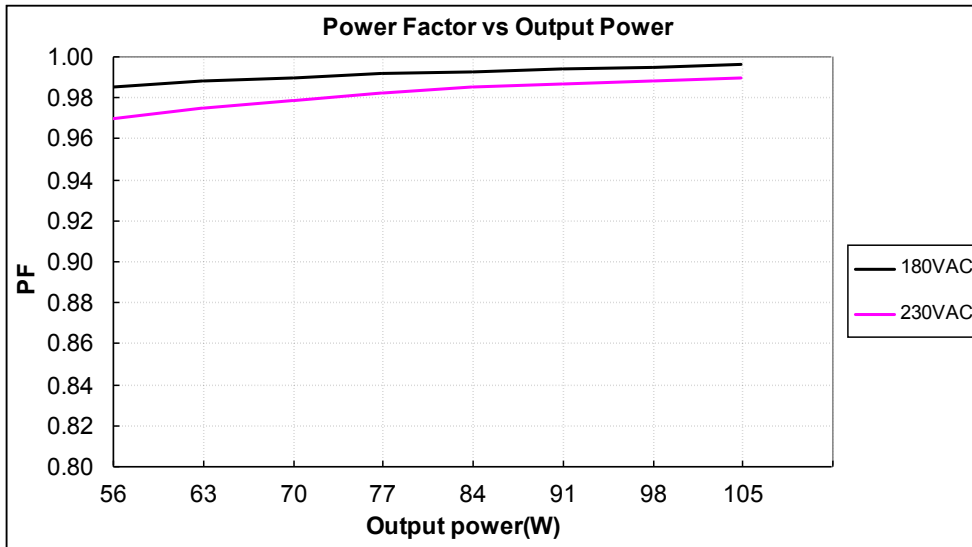
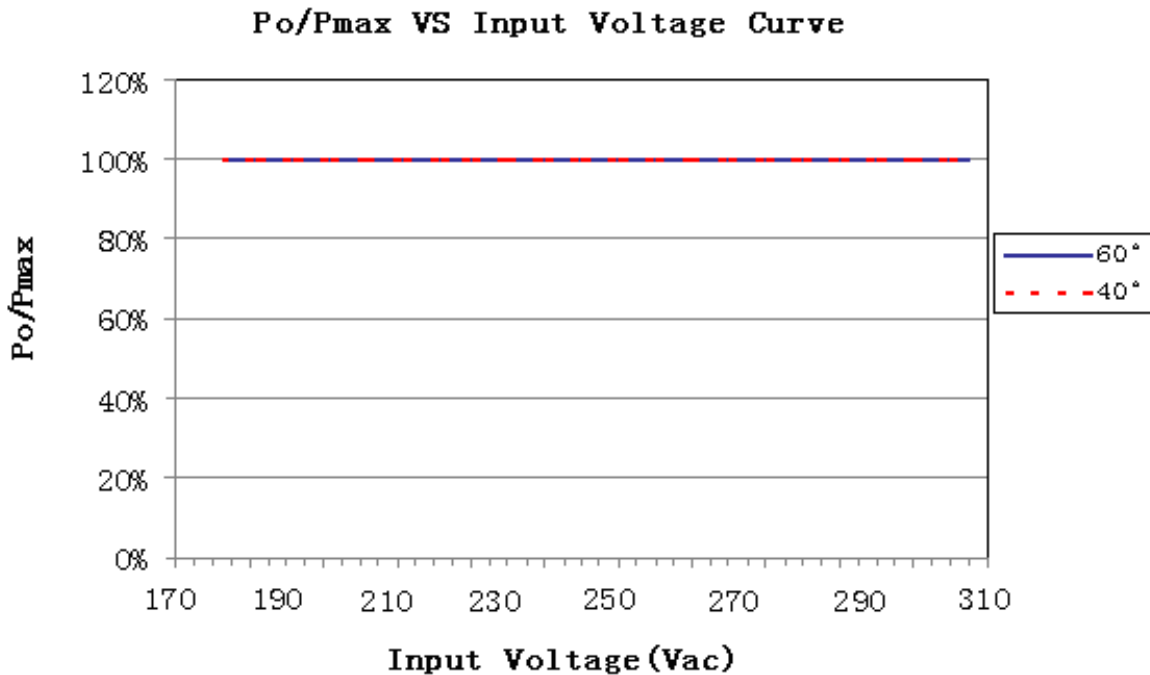
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker

**Safety & EMC Compliance (Continued)**

EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 6 kV, line to earth 10 kV <sup>(2)</sup>
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

- Note:** 1. This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.
2. To perform electric strength (hi-pot) testing, the "GDT ground disconnect" (nut and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

**Efficiency vs. Output Voltage Curve****EDC-105R/M040****EDC-105R/M050**

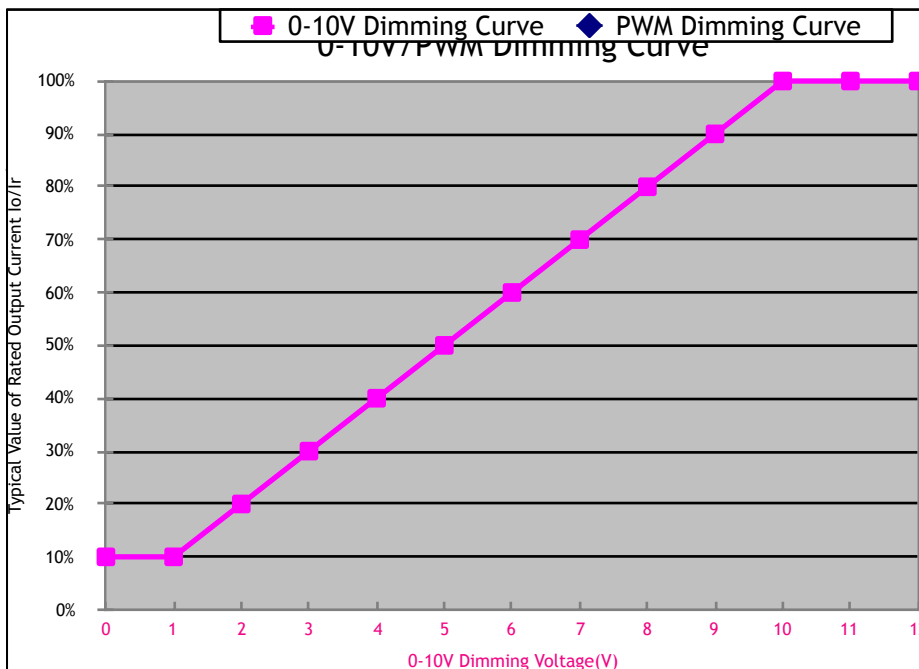
**Power factor****Output Power VS Input Voltage Curve**



### Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.			
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.			
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.			

### Dimming



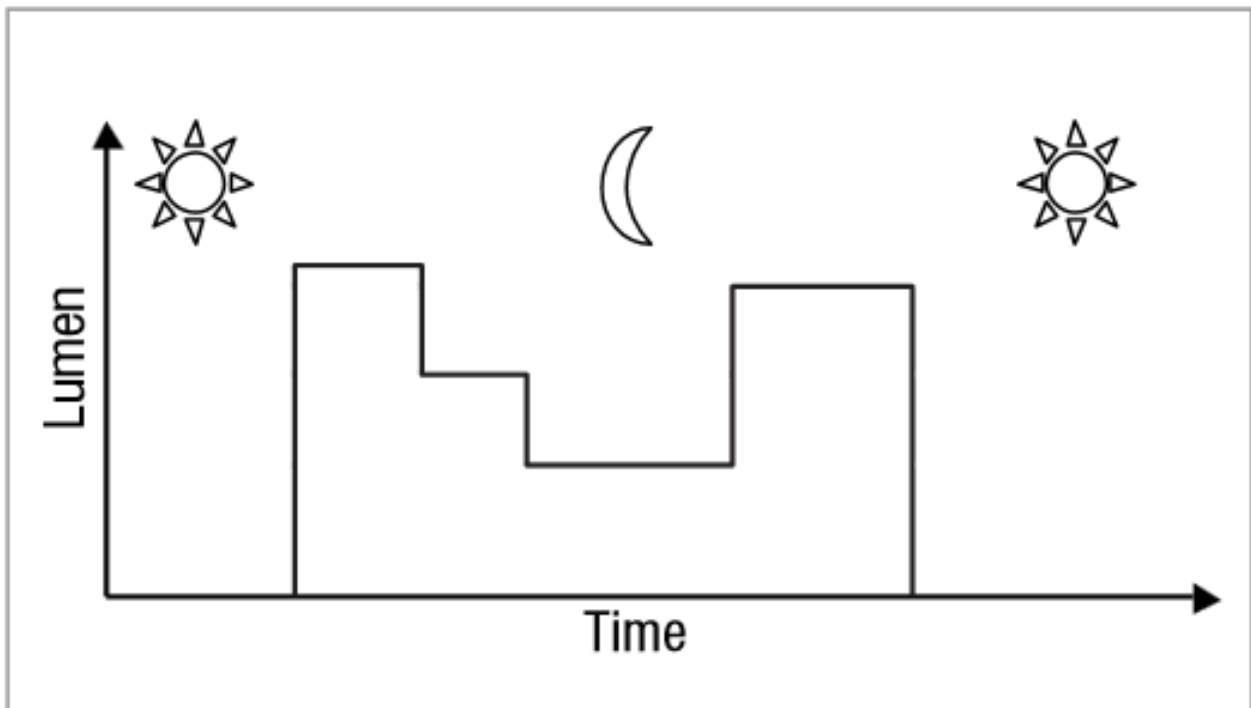
**NOTE:**

1. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
3. If 0-10V dimming is not used, Dim + should be open.

**Time Dimming**

Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

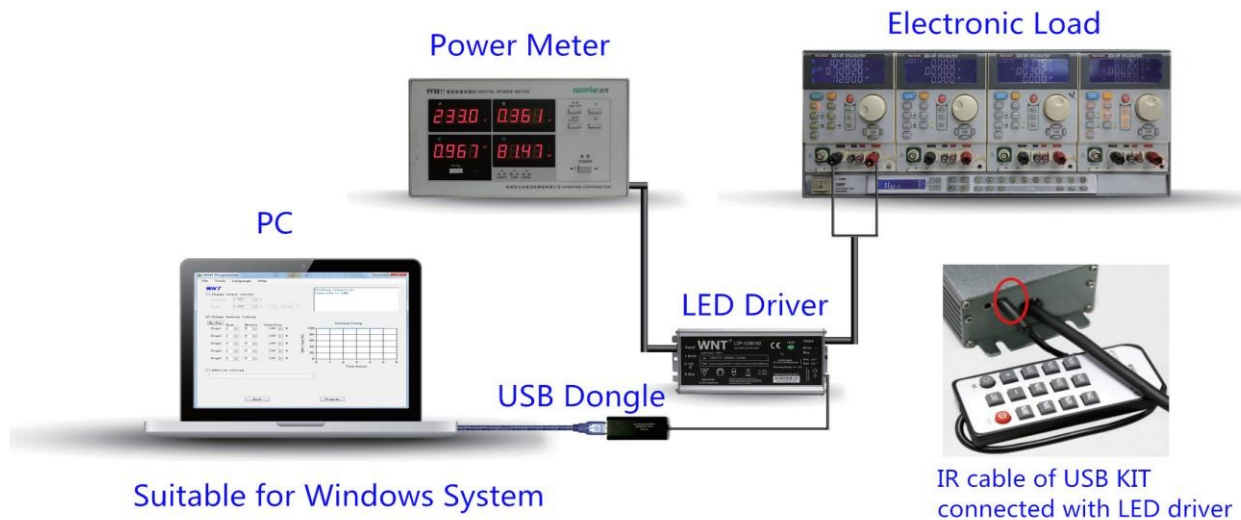
- **Self Adapting-Midnight:** Automatically adjusts the dimming curve based on the on-time of past two days (if difference <15 minutes), assuming that the center point of the dimming curve is midnight local time.
- **Self Adapting-Percentage:** Automatically adjusts the on-time of each step by a constant percentage = (actual on-time for the past 2 days if difference <15 min) / (programmed on-time from the dimming curve).
- **Traditional Timer:** Follows the programmed timing curve after power on with no changes.



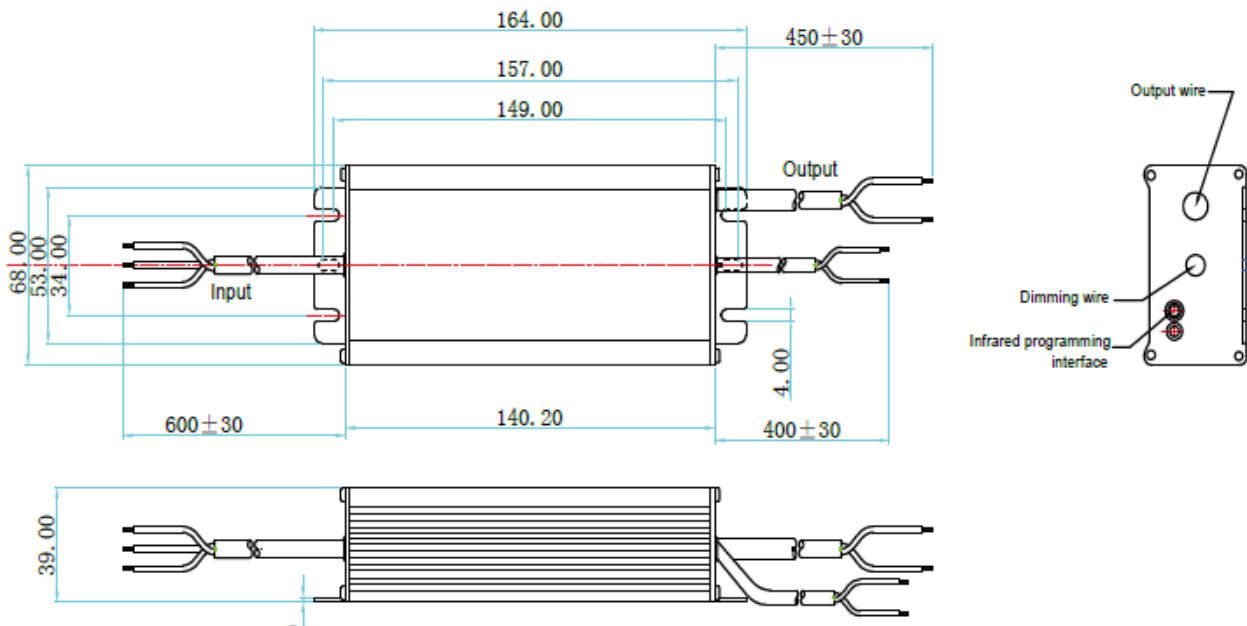
### Programming Connection Diagram

**Note:** The driver does not need to be powered on during the programming process.

- Please refer to USB-Programmer datasheet for details.



### Mechanical Outline





### RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic product.

### Revision History

Rev No.	Date	Description	Approval	Remarks
REV 00	07/15/2017	Released	DY Deng	