

50 Watt — LTS50W Series REV C

Dual Dim, PC Programmable, Class 2 Isolated Dimming

Constant Current LED Driver with Phase Cut & 0-10V Dimming, Programmable output current.

US & CN Class 2, LED Driver Class P

LTS Series Driver is a high-performance LED driver that provides smooth, continuous <10% dimming for virtually any LED fixture. It provides constant current CCR dimming mode. It can work in either the phase cut dimming mode or the 0-10V dimming mode, providing integrated products from multiple dimming products.

The LED current is allowed to be set and is programmed by the GUI port.

It is the most versatile LED driver offered today due to its compatibility with a wide variety of LED arrays, multiple form factors, and numerous control options.

Key Features

- Drive Mode: Constant current dimming.
- Technology: Active PFC 1-Stage Switch Mode.
- Input Voltage: 120 to 277 Vac.
- Output Power: 50 Watt Max.
- Dimming: Smooth & Continuous Dimming from 10% to 100%.
LEDs turn on to any dimmed level without going to full brightness.
Constant Current Reduction (CCR) dimming methods.
- 0-10V (Class 2): Secondary side DC Dimming. Work in the AC 120-277V range.
AC Phase Cut: Primary side AC phase cut dimming, Work in the AC 120V.
- Programming: The maximum output of 0-10V and Phase cut can be set by GUI.
- Output: 28 to 48 Vdc/ 400 to 1050 mA (Set by GUI).
- Efficiency: Up to 89%.
- Warranty: 5 years.

Special Features

- Continuous dimming from 10% to 100%.
- This product has both 0-10V dimming and phase cut dimming, but only single dimming.
- 0-10V dimming control is isolated for AC input and DC output.
- The programmable function is effective for 0-10V dimming and phase cut dimming.
- Safety isolation between primary and secondary.
- A rated lifetime of 50,000 hours @ Tc = 80°C.
- Safety: UL8750, UL1310 Class 2, CSA22.2.
- EMC: FCC Part 15 Class A.
- Inrush Current Limiting Circuitry: AC Power Line: line to line 6 KV/0.5KA 8/20uS eliminates circuit breaker tripping, switch arcing and relay failure.
- Metal case, Used with silicone potting. Meet the RoHs directive.
- IP66, NEMA4 compliant for Dry & Damp location.
- 100% performance tested with CHROMA 8000 system at YG factory.
- 100% burned in with program-control test system at YG factory, at 50 degrees ambient temperature.



Enclosure



Notice of use:

1. The DIM line can't touch the DC+ line and AC line.
2. DC- cannot be shorted with the GND.
3. The input line and the output line are at the bottom.

Size	Unit	Inch	Millimeter
Case Length		4.98	126.50
Case Width		2.38	60.50
Case Height		1.17	29.60
Mounting Length		4.59	116.60

50W Dual Dim Constant Current Reduction (CCR) Part List

Part Number	Dimming mode	Input Voltage (Vac)	Output Voltage Range (Vdc)	Maximum output current set by GUI	Output current range of dimming	Current Accuracy	Power Factor	Output Power max	Efficiency max
LTS50W-48-C1050	0-10V	120	28 - 48	400-1050 mA Default setting: 1050mA	10-100%	±5%	0.90	50 W	89%
	0-10V	277			10-100%	±5%			
	Phase Cut	120			10-100%	±7%			



Excellent LED Drivers

Sino-US joint venture

Input Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Input Voltage	108 Vac	---	305 Vac	120, 230, 277 Vac Nominal Values.
Input Frequency	47 Hz	50/60 Hz	63 Hz	50/60 Hz Nominal.
Input AC Current	---	---	0.51 A	Measured at 120 Vac / 60Hz Input, Output Full Load.
	---	---	0.28 A	Measured at 230 Vac / 50Hz Input, Output Full Load.
	---	---	0.24 A	Measured at 277 Vac / 60Hz Input, Output Full Load.
Inrush Current (Peak)	---	28 A / 2.2uS	35 A / 3uS	Measured at 120 Vac / 60Hz Input, Output Full Load.
	---	62 A / 2.2uS	70 A / 3uS	Measured at 277 Vac / 60Hz Input, Output Full Load.
Leakage Current	---	---	300 μ A	Measured at 120 Vac / 60Hz Input, Output Full Load.
	---	---	700 μ A	Measured at 277 Vac / 60Hz Input, Output Full Load.
THD	---	---	20%	Measured at 120, 230, 277 Vac Input, \geq 33% Load.
Power Factor (PF)	0.90	---	---	Only suitable for CC & 0-10V dimming mode.

Output Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
DC Output Voltage	28V	---	48V	Measured at 120, 230, 277 Vac Input.
Output Power	---	---	50W	Measured at 120, 230, 277 Vac Input.
Flickering Index (Ipk-pk)	---	---	30%	20MHz BW, Full load output in parallel with 0.1uF & 10uF CAP. Flickering Index is defined as $[(I_{max}-I_{min})/(I_{max}+I_{min})] * 100\%$.
Line Regulation	-5%	---	+5%	Maximum over entire range of input voltage / output loads (any combination), and temperature range.
Load Regulation	-5%	---	+5%	
Start-up Delay	---	---	500ms	From VAC turn-on until output current reaches 90% of nominal value. Output Full Load.
Turn-off Delay	---	---	500ms	LED's not lit, No die glow.
Output Overshoot	-5%	---	+10%	Measured at 120, 230, 277 Vac Input, When power on or off.

Protection Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Output Over Voltage (OVP)	---	---	59V	No Damage. Auto recovery when the leads are open.
Output Short Circuit (SCP)	---	---	---	No Damage. Auto recovery after short is removed.

Dimming Specifications

Items	Parameter	Min.	Typ.	Max.	Notes / Conditions
0-10V Dimming	Turn-on Time	---	---	500 ms	At about 100% dim level. This time is AC input to the DC 90% output current.
	Flicker	---	---	30%	Current ripple is defined as $[(I_{max}-I_{min})/(I_{max}+I_{min})] * 100\%$.
	Shimmer	---	2%	5%	Long Term Current Stability (Average can't vary by more than X% over 10s period).
	Dimming Curve Type	Linear	Similar to Log	Similar to Log	Dim curve between max/min.
	Dimming Level Voltage	1.2V	---	8.5 V	Minimum Light Output @1.2V, Maximum Light Output @8.5V.
	Input Absolute Voltage	-2.0 V	10 V	12 V	Purple Wire.
	Output Source Current	100 uA	---	500 uA	Purple Wire.
	Dimming CCR Output Current	10%	---	100%	CCR output.
	Output Current in 0-10V Pin Open	---	Normal	---	It's a constant current output with active PFC.
Output Current in 0-10V Pin Short	---	Min.	---	CCR output.	



Excellent LED Drivers

Sino-US joint venture

Phase cut Dimming	Turn-on Time	---	---	500 ms	At about 100% dim level. This time is AC input to the DC 90% output current.
	Flicker	---	---	30%	Current ripple is defined as $[(I_{max}-I_{min})/(I_{max}+I_{min})] * 100\%$.
	Dimming CCR Output Current	10%	---	100%	CCR output.
	Shimmer	---	---	7%	Long Term Current Stability (Average can't vary by more than X% over 10s period).
	Dimming Curve Type		Similar to Log		Dim curve between max/min (NEMA-SSL-7A-Limits).
Acoustic Noise (0-10V & Phase Cut dimming)		---	22 dB	24 dB	Not to exceed at 1 ft at any dim level.

General Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Cooling	Convection			
MTBF	352,000 hours			Measured at 120 Vac input, 100% Load and Tc=80° C (MIL-HDBK-217F).
Life Time	50,000 hours			

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Case Temperature (Tc)	-30 °C	---	+90 °C	Measured at location specified on case.
Operating Temperature (Ta)	-30 °C	---	+55 °C	This is a reference range. Tc controls temperature range.
Storage Temperature (Ts)	-40 °C		+90 °C	Non operating temperature range.
Operating Humidity	---	---	95% RH	Relative Humidity. Non-condensing.
Vibration	5 Hz	---	55 Hz	1G, 10 minutes / 1 cycle, period 30 minutes, each along X, Y, Z axis.

Safety Compliance

Safety Category	Standards / Notes
UL / cUL	UL8750, UL1310 Class 2, UL Class P.
Withstand Voltage	Input to Output: 2000 Vac.
Isolation Resistance	Input to Output: >10MΩ, 500Vdc @ 25°C, 70% RH.
0-10V Class 2 Isolated Dimming	DIM+ (Purple)/DIM- (Grey) are Class 2 Isolated from AC Input and DC Output.

EMC Compliance

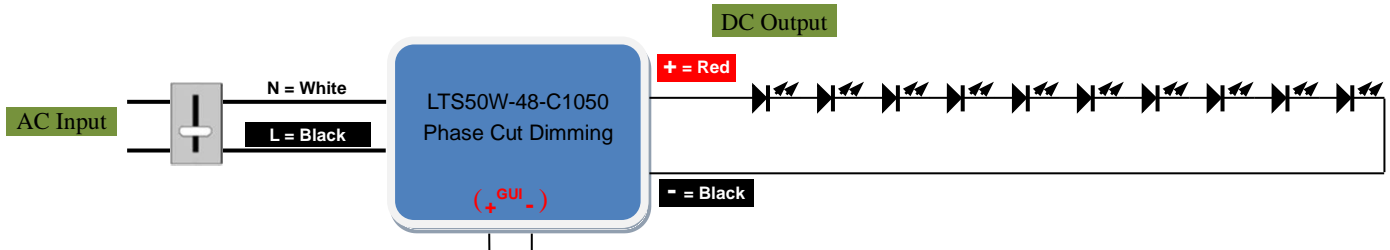
EMI Category	Standards
FCC	FCC 47CFR Part 15 Class A, ANSI C63.4: 2009.
EMS Category	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge.
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS.
EN 61000-4-4	Electrical Fast Transient / Burst-EFT. No Flicker / Restart 2KV.
EN 61000-4-5	Surge Immunity Test: ANSI C62.41 0.5 μs 100 kHz Ring, 2.5kV, L-N (10 strikes) 1.2/50μs 8/20μs Combination, 6kV/0.5kA, L-N (10 strikes)
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS.
EN 61000-4-11	Voltage Dips and short interruptions. Autorecover when power is restored to normal conditions.
EN 61000-3-2	Harmonic Current Emission.

Note: the above test data are in the condition of 25 C ambient temperature, except for the marked temperature.

Typical Applications

LED Forward voltage: $V_F = 3.0V \sim 3.5V$

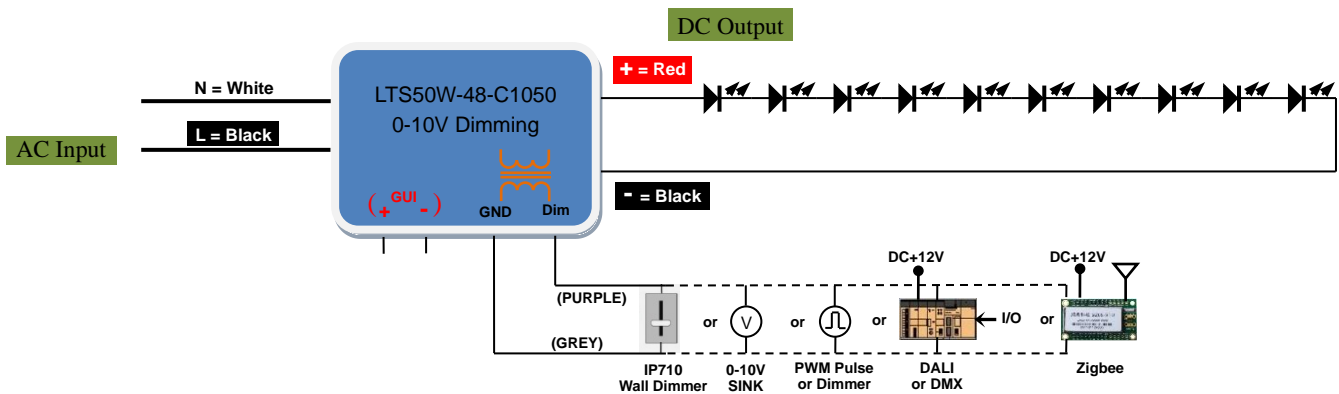
■. Driver Phase Cut CCR Dimming



■. About Phase cut dimmer

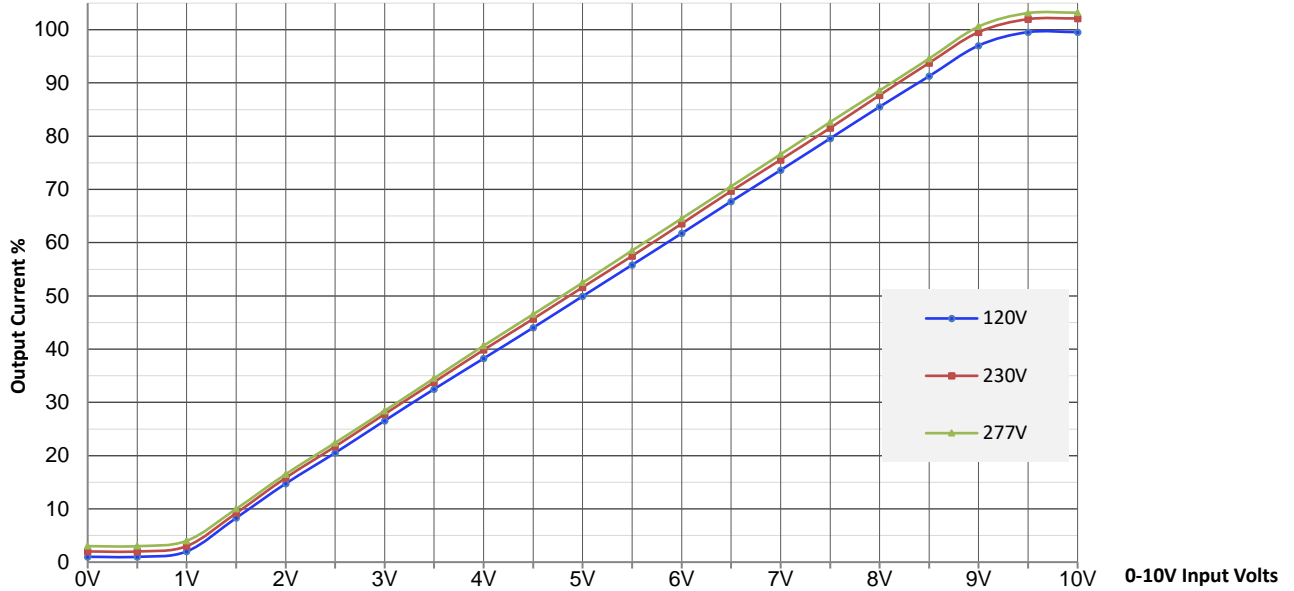
ELV dimmer	<ul style="list-style-type: none"> ▶ Electronic Low Voltage dimmer. ▶ Trailing Edge phase dimmer. ▶ Reverse phase control dimming. 		Reverse phase be cut	<ul style="list-style-type: none"> ▶ high stability. ▶ low noise. ▶ highest cost.
TRIAC dimmer	<ul style="list-style-type: none"> ▶ Incandescent phase dimmer. ▶ Leading Edge phase dimmer. ▶ SCR phase dimmer. ▶ Forward phase control dimming. 		Forward phase be cut	<ul style="list-style-type: none"> ▶ little worse stable. ▶ a little noise. ▶ lowest cost.

■. Driver 0-10V CCR Dimming

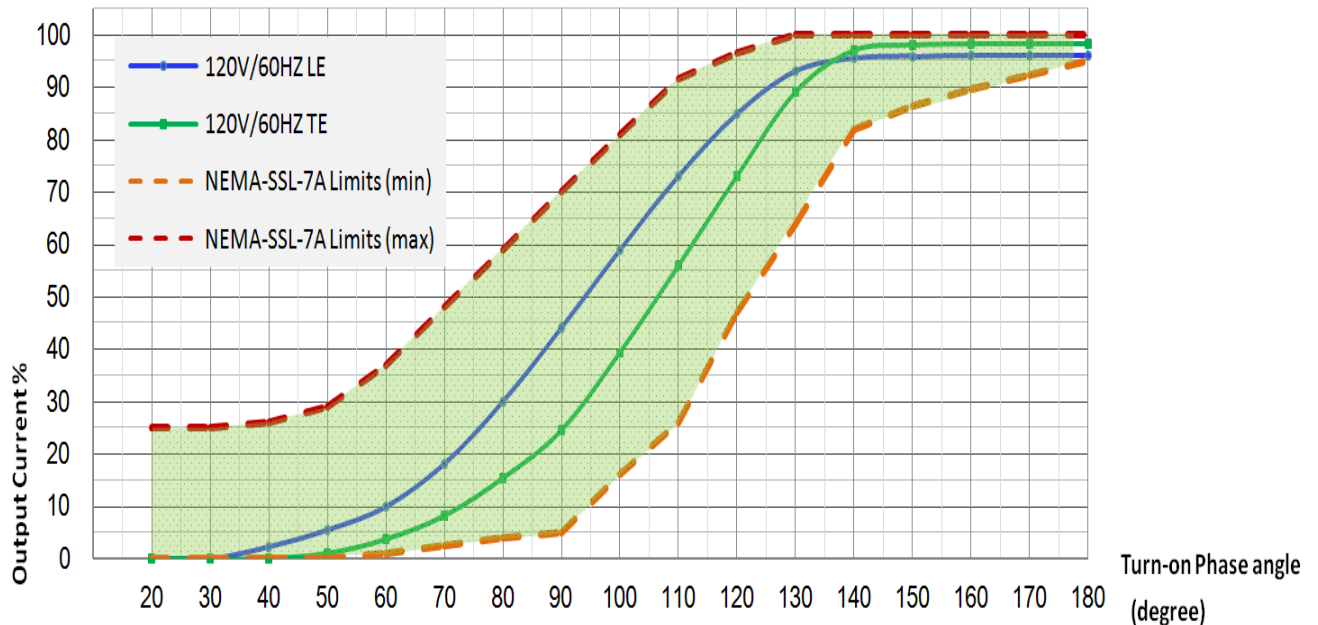


Dimming Curve

Typical Dimming vs. 0-10V Input



Typical Dimming vs. Turn-on Phase angle of AC Input



YG Programmer PC Based Software, USB Interface

Programmable Output Current (POC): Programmable I_{out} from 400mA to 1050mA.

Programming Tool:

The YG Programmer is a programming and configuration tool for YG intelligent programmable LED drivers. It consists of the YG programmer which is connected between the USB port of a computer and the LED driver being programmed, and the YG programmer software. The YG programmer software is a PC based graphical user interface that allows the user to program and configure the operating parameters of an YG Programmable LED Driver. This interface allows the operator to set the LED drivers output current within its specified range.

YG Programmer:

Is the physical USB unit connected between the USB port of a computer and the LED driver being programmed? This unit also provides all power required to the LED driver being programmed. No connection to an AC power source is required for programming the LED driver.

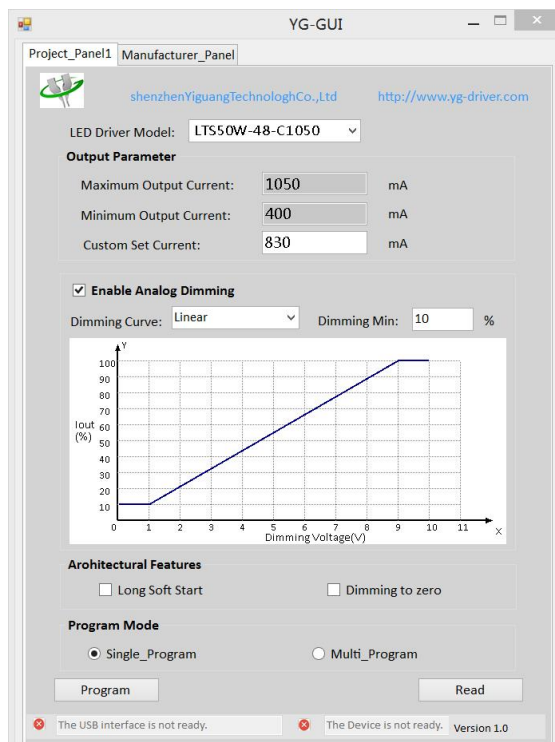
YG Programmer Software:

The YG Programmer software is the windows based GUI that allows the user to assign custom part number(s) to the LED driver being programmed. The user can then save the profile to a computer disk and recall as need. The user can then use the "Auto Program" feature to quickly program as many LED drivers with the saved profile as is required. Each driver programming simply requires a click of the mouse to program in a single step.

The YG Programmer software supports bar code scanners. The barcode scanner can be used to automate the programming of the attached LED driver. The barcodes scanner interface also provides an option to either enable or disable logging of the parameters to an excel file.

- PC programming mode is through the programmer PRG-01A two wires connected to the driver, by the GUI interface automatically complete the operation, there are engineering mode and factory mode. This mode requires the programmed driver to power on.
- NFC programming mode is through the programmer PRG-02A (hand-held) or PRG-02B (seat), automatically completed by the GUI interface, there are engineering mode and factory mode. This mode requires the antenna window of the driver to be near the programmer.

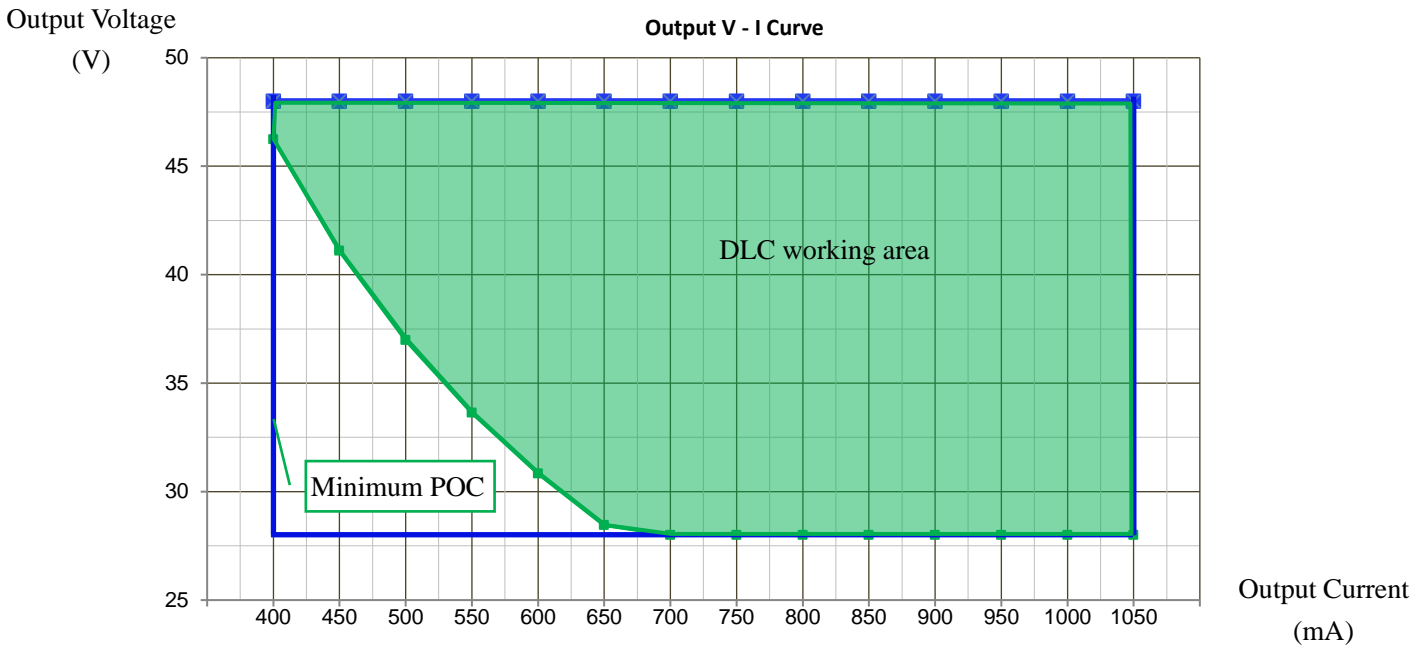
GUI Page



Note:

- ◆ Custom designs available.
- ◆ Please consult with the factory.
- ◆ Specifications subject to change without notice.

Power Operating Window

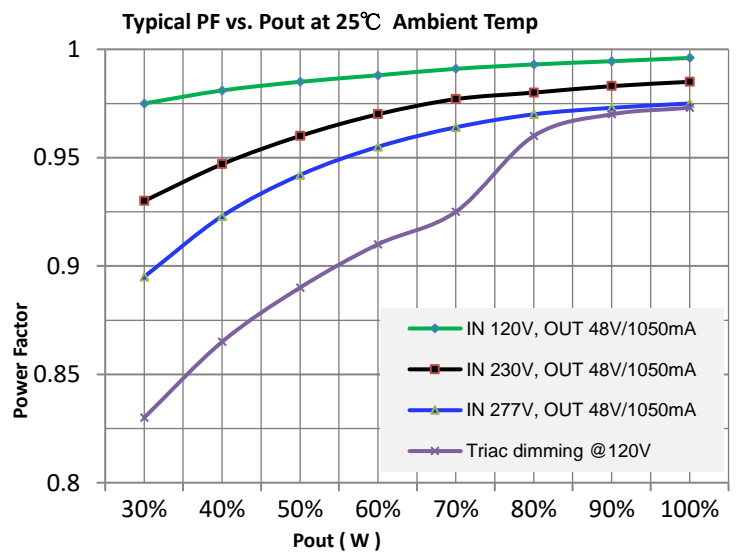
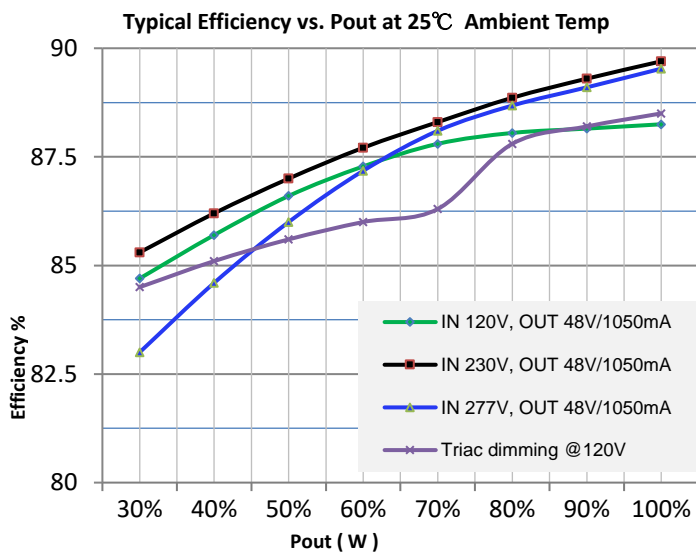


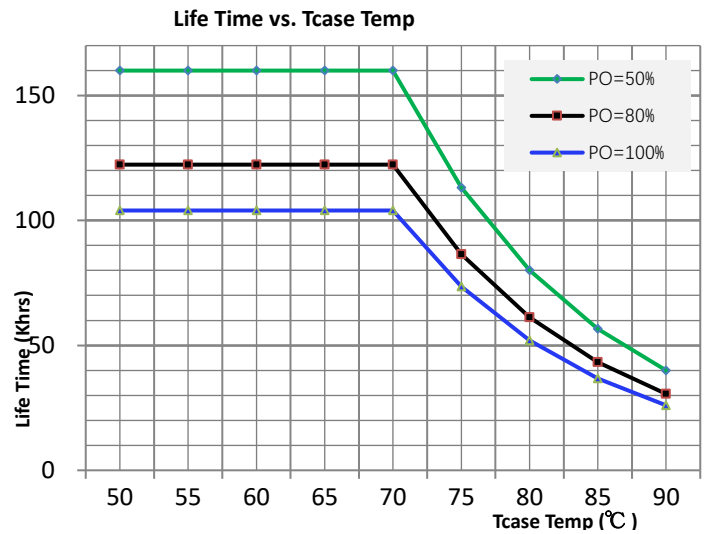
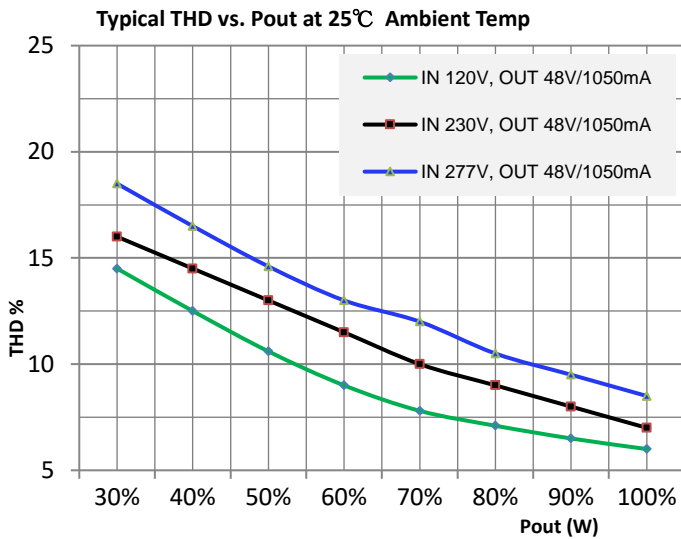
— PF>0.9 and THD<20%, Window that meet DLC standards at input 120-277V range.

— Power Operating Window.

Note: When the output current is set, the output voltage is automatically limited within the curves.

Characteristic Curve





Installation

Metal shell. This product has two $\Phi 6.3\text{mm}$ mounting holes.

AC input for connection the two core ANSI/UL1015/AWG18 temperature 105 °C core copper wire connection.

Cable Length: 150mm, stripping on the tin: 10mm.

Where: L — Black wire, N — White wire.

DC output for connection the two core ANSI/UL1569/AWG18 temperature 105 °C core copper wire.

Cable Length: 150mm, stripping on the tin: 10mm.

Where: DC+ — Red, DC- — Black.

The dimmer control input is the three copper wires, ANSI/UL1569/AWG22 & temperature 105 °C.

Cable Length: 150mm, stripping on the tin: 10mm.

Where: Dim+ (0-10V) input — Purple wire, Dim- (0-10V) — Grey wire.

Rset programmable, ANSI/UL1569/AWG22 & temperature 105 °C.

Cable Length: 150mm, stripping on the tin: 10mm.

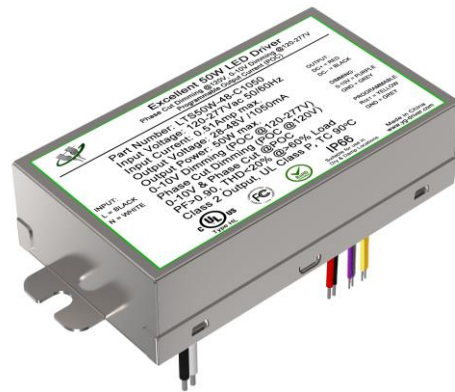
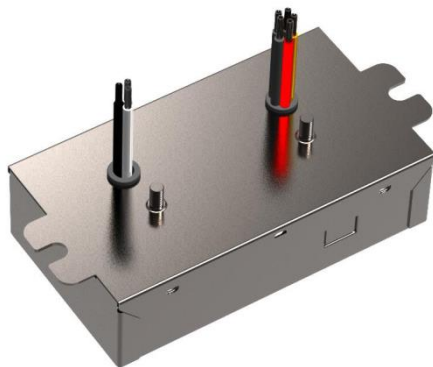
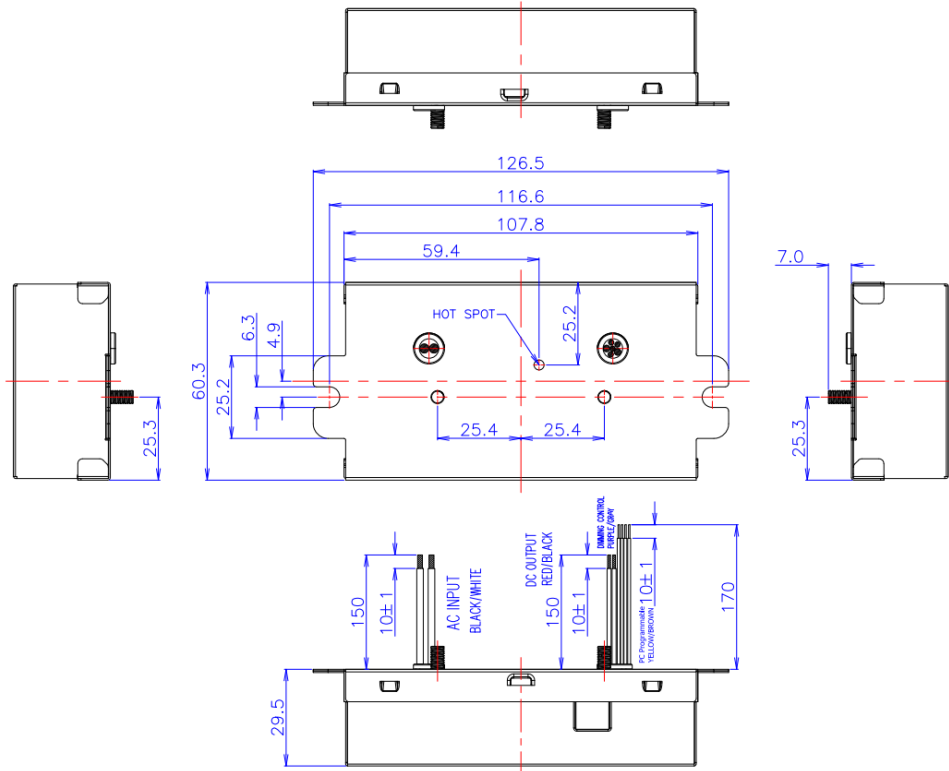
Where: GUI+ — Yellow wire, GUI- — Brown wire.

Order ID

P/N : LTS50W-48-C1050

Description: 50W, 48Vdc voltage max, constant current 400-1050mA (Set by GUI),
0-10V & phase cut CCR dimming mode.

Product Size



Programming Connection Diagram

PC Programming:

- PC+ (red) → Driver GUI+ (yellow)
- PC- (black) → Driver GUI- (brown)



Note :

- The independent LED drive conforms to the EMC standard.
But it is not guaranteed to be qualified when the drive is mounted in the LED lamp.
- Please forgive us for any discrepancy due to the update of the specifications or the upgrade of the product.
If you need the latest information, please contact our marketing department.