PLY240W

Constant current LED driver with 0-10V dimming

Product family features

- Constant Current, Dimming, Programmable
- Technology: Active PFC Corrected 2-Stage Switch Mode
- Input Voltage: 120 to 277Vac (UL). 100 to 240Vac (ENEC)
- Output Power: 240Watt Max
- Dimming: Smooth & Continuous Dimming from 1%① to 100%.
  LEDs turn on to any dimmed level without going to full brightness.
  Constant Current Reduction (CCR) dimming methods.
  0-10V: 2-wire Analog Control Dimming (Isolated, Class 2)
- Output Voltage: 10Vdc to 450Vdc (With Auxiliary CV 12V or 24V Output)
- Output Current: 200mA to 6000mA (Set by PC or NFC programming)
- Efficiency: Up to 94%.
- Warranty: 5 years
- Continuous, flicker-free dimming from 1%① to 100%, dim-to-off programmable, Minimum dimming programmable, Dimming curve programmable (Optional: linear, log)
- Safety isolation between primary and secondary. Dimming control is isolated for AC input and DC output
- Programmable options: Output Current Soft-Start, Constant Lumen Output, End-of-life Indicator
- Output current can be controlled by an external NTC, Protection temperature programmable
- Output current can be set by PC or NFC (wireless programming).
  PC and NFC programming can only be one of the optional
- A rated lifetime of 50,000 hours @ Tc = 75 °C
- The standby power is lower than 0.4W @120V AC Input and 0.5W @ 277V AC input
- Safety: UL8750-2018 SF, UL1310 Class 2, Class P, CSA22.2. EN61347-2-13:2014, EN61347-1:2015, EN62384:2006+A1
- EMC: FCC 47CFR Part 15 Class B. EN55015, EN61547, RED 2014/53/EU
- Surge: line to line 6KV/2Ω 8/20us line to earth (PG) 10KV/12Ω 8/20us
- NFC: working frequency 13.56MHz, maximum output power -1.91dBuA/m
- Metal shell, Used with silicone potting. Meet the RoHS directive
- IP67, NEMA4 compliant for Dry, Damp, Wet Locations

Product datasheet

Technical data

Electrical data

Product Modle	US & CN Class 2	Output Voltage Range(Vdc)	Output Voltage (V)	Programable Current Range Max. (mA)	Programable Current Range at 240W output (mA)	Efficiency% @ Max Load @120V	@230	@277	Uout max (V)
PLY240W-55-C6000-YY-P-W-Z	No	240	10-55	700 – 6000	4300-6000	90.5	92.5	93.0	59.0
PLY240W-200-C3000-YY-P-W-Z	No	240	36-200	350– 3000	1200-3000	91.0	93.0	93.5	225.0
PLY240W-450-C1400-YY-P-W-Z	No	240	82-450	200 – 1400	530-1400	91.5	93.5	94.0	480.0

Note: Product may be suffixed by "YY", where "YY" may be RD,RDNFC or blank, which mean different dimmer control function in secondary circuit.
–RD, PC programming, 0-10V dimming.
–RDNFC, NFC programming, 0-10V dimming. Use the housing with antenna.
–Blank, non dimming & non programming.
Product may be suffixed by "-P", which means suitable for UL listed & class P use while models
Product may be suffixed by "-W", which means suitable for wet location use while models, without suffix "-W" are suitable dry/damp location use only
Product may be suffixed by "Z", where "Z" may be 12, 24 or blank, which mean different auxiliary output in secondary circuit.
–12, auxiliary constant voltage output 12V/200mA. –24, auxiliary constant voltage output 24V/100mA.
–Blank, non auxiliary output.
① The minimum dimming is less than 1%, when the programming current is 40-100% of the maximum current of the model.

Programmable Parameters

Programmable Parameter		Programmable Minimum Value	Programmable Maximum Value	Factory Default	PC (NTC) Programmable	NFC (wireless) Programmable	Notes / Conditions
Output Constant Current 1		700mA	6000mA	3000mA	YES	YES	PLY240W-55-C6000
Output Constant Current 2		350mA	3000mA	1050mA	YES	YES	PLY240W-200-C3000
Output Constant Current 3		200mA	1400mA	1050mA	YES	YES	PLY240W-450-C1400
Disable Dimming		No	YES	NO	YES	YES	
Dimming Curve	LINEAR	0%	N/A Fixed 100%	0%	YES	YES	
	LOG	0%	N/A Fixed 100%	0%	YES	YES	
NTC Minimum Ohms		1KΩ	10KΩ	2KΩ	YES	YES	
NTC Minimum %out		~0%	100%	~10%	YES	YES	
NTC Maximum Ohms		2KΩ	10KΩ	6.3KΩ	YES	YES	
Output Current Soft-Start		N/A	N/A	OFF	YES	YES	
Constant Lumen Output		N/A	N/A	OFF	YES	YES	
End-of-life Indicator		N/A	N/A	OFF	YES	YES	

Product datasheet

Technical data

Electrical Specifications

	Parameter	Min	Typ	Max	Notes / Conditions
Input	Input Voltage	100V		277V	
	Input Frequency	47Hz	50/60Hz	63Hz	
	Input AC Current			2.25A	Measured at 120 Vac / 60Hz Input, Output Full Load
				1.22A	Measured at 230 Vac / 50Hz Input, Output Full Load
				1.05A	Measured at 277 Vac / 60Hz Input, Output Full Load
	Inrush Current (Peak)		83A /140uS		Pulse width Measured at 50% Ipeak & 120Vac / 60Hz Input, Output Full Load
			205A /149uS		Pulse width Measured at 50% Ipeak & 120Vac / 60Hz Input, Output Full Load
	Leakage Current			400µA	Measured at 120 Vac / 60Hz Input, Output Full Load
				750µA	Measured at 277 Vac / 60Hz Input, Output Full Load
	THD			20%	Measured at 120, 230, 277Vac Input, Output ≥ 45% Load
	Power Factor (PF)	0.90			
	Standby Power	0.3W	0.4W	0.5W	Measured at 120, 230, 277Vac Input, Dimming to off and auxiliary are no-load
Output	DC Output Voltage	Per Table	Per Table	Per Table	Per Tables on Page 1
	Output Constant Current	-5%	Per Table	+5%	Per Tables on Page 1
	Output Power			Per Table	Per Tables on Page 1
	Flicker Index (Vpk-pk)			5% Vo	20MHz BW, Full load output in parallel with 0.1uF & 10uF CAP. Flicker Index is defined as [(Ymax-Ymin)/ (Ymax+Ymin)] * 100%. Y may be V or I
	Flicker Index (Ipk-pk)			5% Lo	
	Line Regulation	-3%		+3%	Measured at 120, 230, 277Vac / 60Hz Input, Output Full Load
	Load Regulation	-4%		+4%	Measured at 120, 230, 277Vac / 60Hz Input
	Start-up Time		400ms	500ms	Measured at 120, 230Vac / 60Hz Input, Output Full Load
			350ms	500ms	Measured at 277Vac / 50Hz Input, Output Full Load
	Output Overshoot	-2%		+10%	Measured at 120, 230, 277Vac Input, When power on or off
Protection	Output Short Circuit (SCP)				No Damage. Auto recovery after short is removed
	Output Over Current (OCP)			+10% Io	Constant Current Limiting circuit
	Output Over Voltage (OVP)			120% Vo	No Damage. Requires AC Power Cycle after fault is removed
General	Cooling		Convection		
	MTBF		340,000 hours		Measured at 120Vac input, 100% Load and Tc=75° C (MIL-HDBK-217F).
	Life Time		50,000 hours		
	Product Noise		< 24 dBA		Class A, Not to exceed at 1 meter at any dim level
Environmental	Case Temperature (Tc)	-40 °C		+90 °C	Measured at location specified on case
	Operating Temperature (Ta)	-40 °C		+50 °C	This is a reference range. Tc controls temperature range
	Storage Temperature (Ts)	-40 °C		+85 °C	Non operating temperature range
	Operating Humidity	5% RH		95% RH	Relative Humidity. Non-condensing
	Vibration	5 Hz		55 Hz	2G, 10 minutes / 1 cycle, period 30 minutes, each along X, Y, Z axis

Product datasheet

Technical data

Electrical Specifications

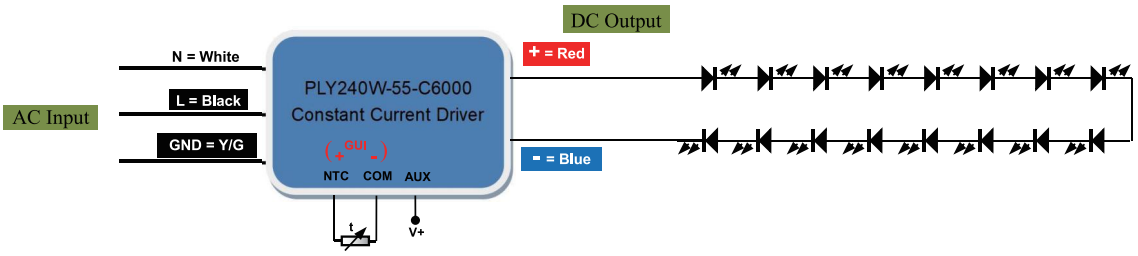
		Parameter	Min	Typ	Max	Notes / Conditions
Dimming	Auxiliary Output	Output Voltage 12V or 24V (optional)	-10%		+10%	Voltage Margin: +/-10% of the standard value,12V/200mA max, 24V/100mA max, Yellow Wire.
		Output Current (12V/24V)	0	100/50mA	200/100mA	
	0-10V Dimming	Input Absolute Voltage	-2.0V	10V	15V	Purple Wire DIM+、Pink Wire DIM-
		Output Source Current	20uA	100uA	200uA	
		Output Current Range in 0-10V Dimming	1%		100%	DIM+/DIM- Reverse connection is prohibited
		Vdim @ Maximum Output Current	8.0V	8.25V	8.5V	
		Vdim @ Minimum Output Current	1.0V		1.6V	
		Vdim @ Dim On Threshold		1.2V		Vdim where output power changes from Standby to minimum
		Vdim @ Dim Off Threshold		1.0V		As Vdim falls, output power changes from Minimum to Standby

	Category		Standards / Notes
Safety Compliance	UL / cUL		UL8750, CAN/CSA C22.2 No. 250.13, UL Class P
	CE		EN61347-2-13:2014+A1, EN61347-1:2015, EN62493:2015, EN62384:2006+A1
	Withstand Voltage		Input to Output: 3750Vac
	Output / Dim		2.5KV
	Enclosure / Ground - Input & output / NTC & Dim		1.5KV
	Isolation Resistance		Input to Output: >10MΩ, 500Vdc @ 25°C, 70% RH
	Aux Circuit		Aux are considered part of the secondary circuit
	0-10V Class 2 Isolated Dimming		DIM+ (Purple) / DIM- (Pink) are Class 2 Isolated from AC Input and DC Output
	FG		The metal case of the driver must be connected to earth ground (FG) in the end-use application
EMC Compliance	EMI	FCC	FCC 47CFR Part 15, ANSI C63.4: 2009
		CE	EN55015:2013+A1:2015, EN61547:2009. RED 2014/53/EU EN 61000-3-2:2014, EN 61000-3-3:2013, EN301489-1 V2.2.3:2019, EN301489-3 V2.1.1:2019, EN300330 V2.1.1:2017
		Energy Star	Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, Category A operation. The line transient shall consist of seven strikes of a 100KHZ ring wave, 2.5KV level, for both common mode and differential mode
	EMS	IEC 61000-4-2	Electrostatic Discharge (ESD): 8KV air discharge, 4KV contact discharge
		IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
		IEC 61000-4-4	Electrical Fast Transient / Burst-EFT
		IEC 61000-4-5	Surge Immunity Test: AC Power Line: line to line 6KV /2Ω, line to earth 10KV / 12Ω
		IEC 61000-4-6	Radio-frequency Common Mode / Conducted Susceptibility (CS)
		IEC 61000-4-8	Electromagnetic Immunity Requirements Applies to Lighting Equipment
		IEC 61000-4-11	Voltage Dips and Interruptions

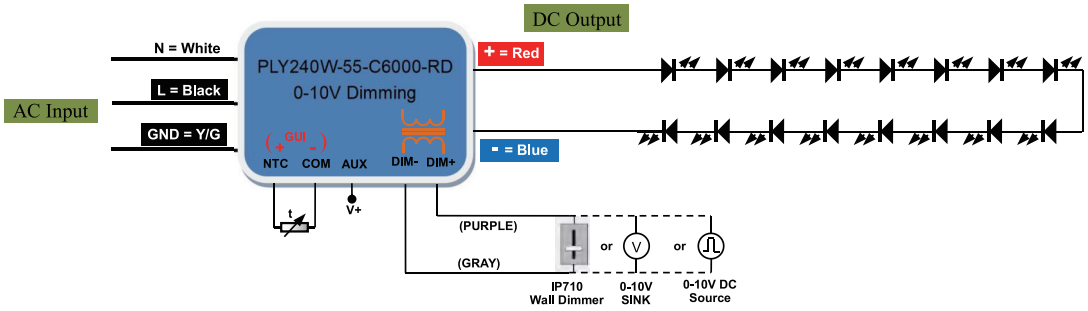
Note: The above test data are in the condition of 25℃ ambient temperature, except for the marked temperature

Typical Applications

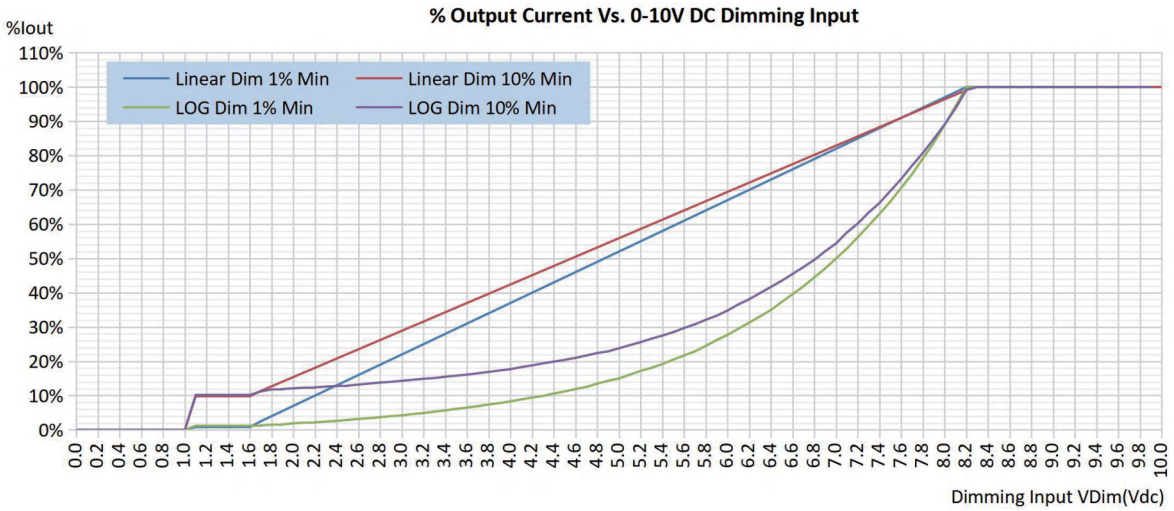
Constant Current Driver



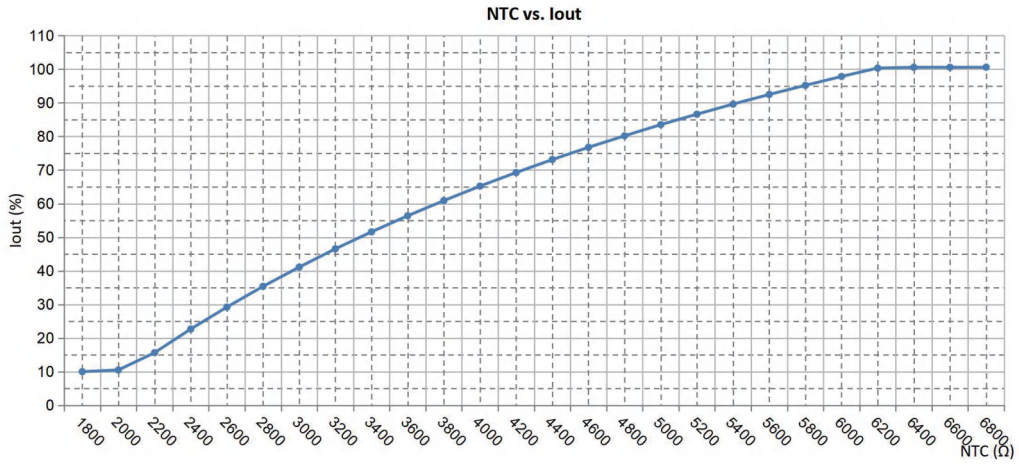
0-10V Dimming Driver



0-10V Dimming Curve @ Minimum dimming set to 0



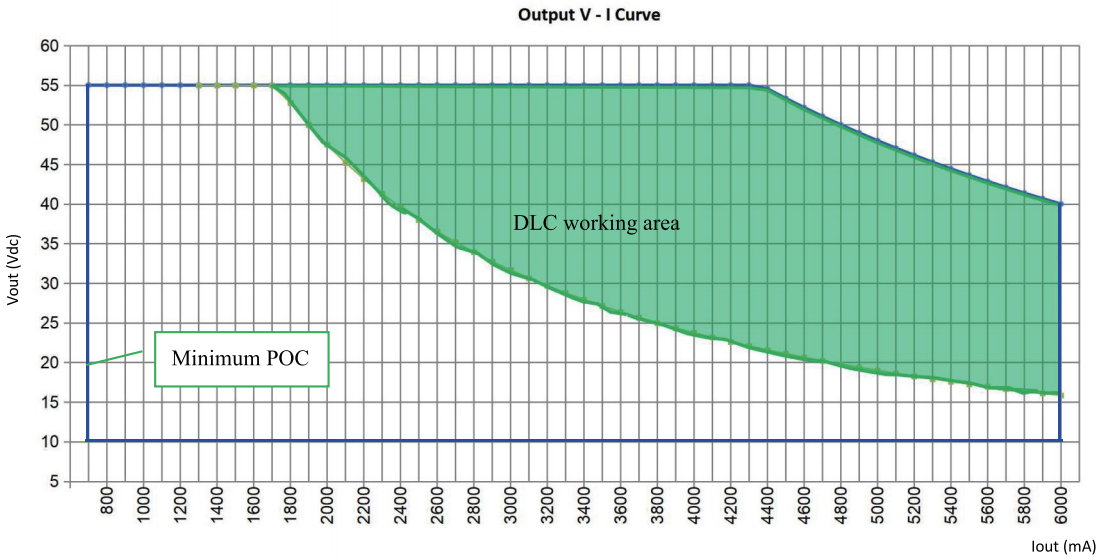
NTC Current Control



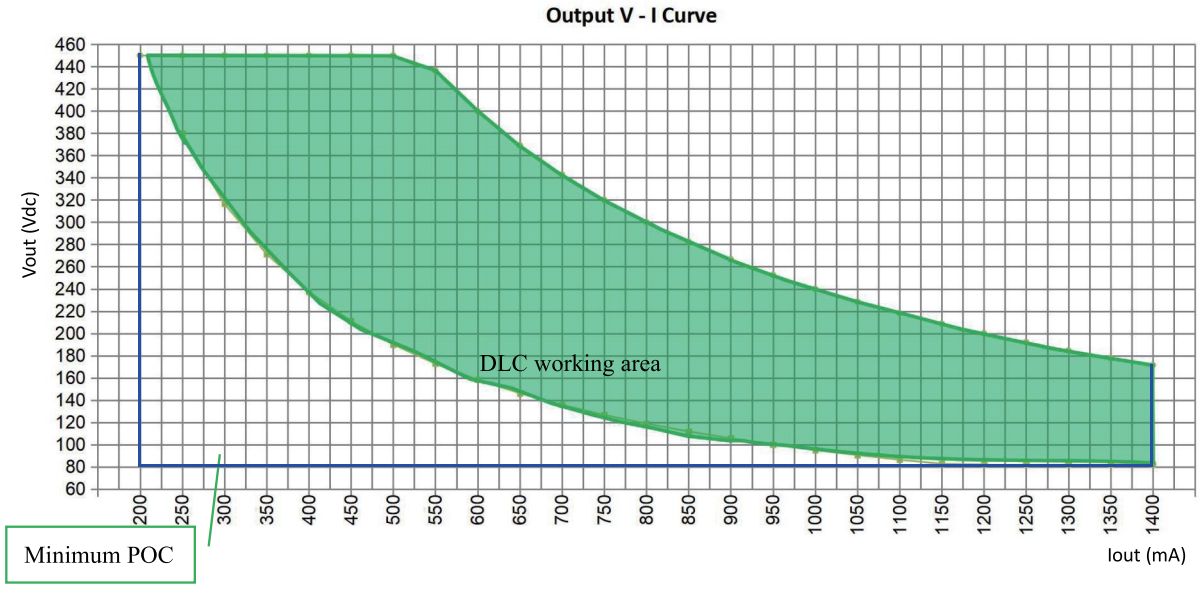
Note:

Maximum dimming current is limited by NTC.
NTC values, NTC High, NTC Low and NTC Minimum Iout can be programmed.
Using pairui Programmer USB interface & YG PC based GUI Software.
Default: NTC Low = 2.0K ~ 10% Iout, NTC High = 6.3K, 100% Iout.
NTC Minimum value set must not exceed 70% of Maximum value set.

Operating Window & DLC Window (PLY240W-55-C6000)



Operating Window & DLC Window (PLY240W-450-C1400)

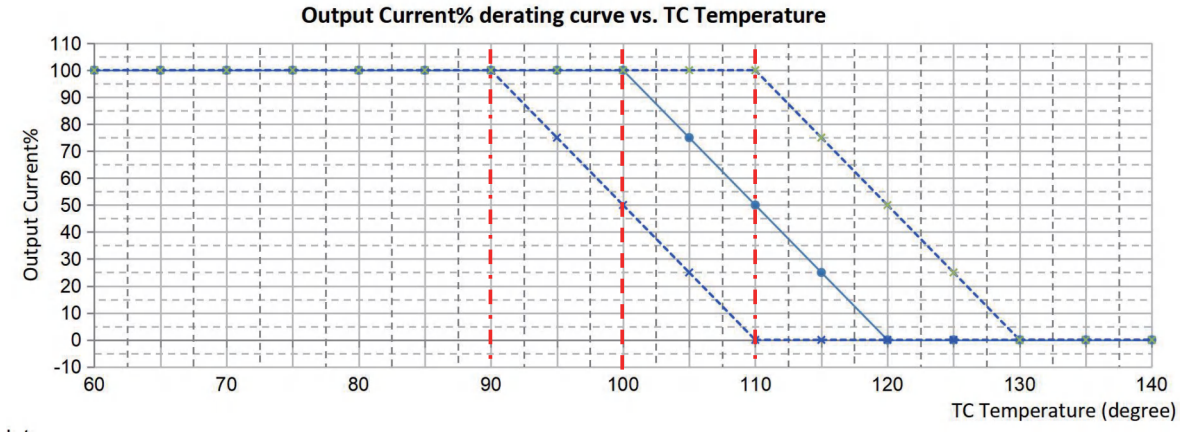


PF>0.9 and THD<20%, Window that meet DLC standards at input 120-277V range.

Power Operating Window.

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

Output Current derating vs. TC Temperature Curve



Note:

The temperature control curve is the test result of the technical sample, and the product is not tested. Affected by the internal temperature distribution of the shell, the test temperature has a large error corresponding to the TC temperature.

YG Programmer PC Based Software, USB Interface

Programmable Output Current (POC): Programmable Iout from 200mA to 1400mA.
Programmable NTC Values:
Default: 2.0K ≈ 10% Iout, 6.3K = 100% Iout.
Programmable settings: NTC Minimum Level (%), NTC Minimum Ohms, NTC Maximum Ohms.
Programmable Minimum Dim Level: 0% (OFF) to 100% Iout programmed value.

Programming Tool:
The pairui Programmer is a programming and configuration tool for pairui intelligent programmable LED drivers. It consists of the pairui programmer which is connected between the USB port of a computer and the LED driver being programmed, and the pairui programmer software. The pairui programmer software is a PC based graphical user interface that allows the user to program and configure the operating parameters of an pairui Programmable LED Driver. This interface allows the operator to set the LED drivers output current within its specified range. In the increments specified. It also provides the ability to enable/disable and control features like “Dimming”, “Output Current Soft-Start”, “NTC Thermal Protection”, “Constant Lumen Module” & “End-of-life indicator” when available in the pairui intelligent LED driver being programmed.

pairui Programmer:
The physical USB unit is 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.

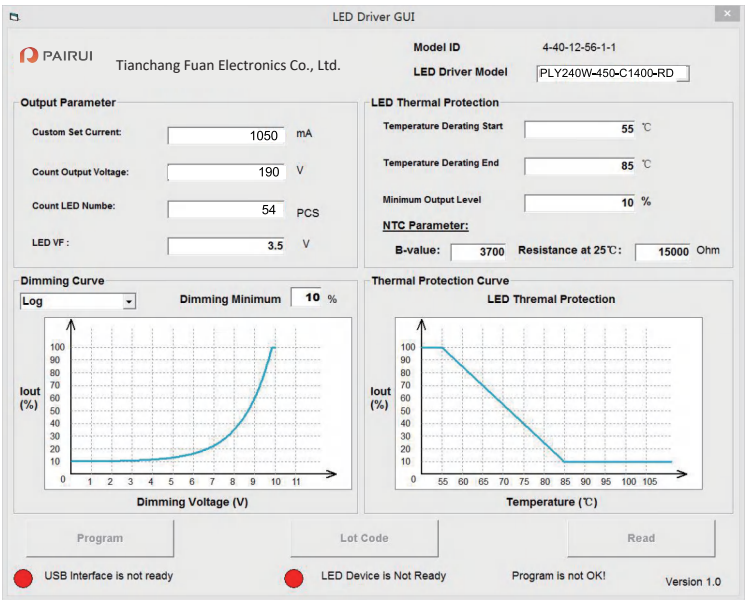
pairui Programmer Software:
The pairui Programmer software is the windows based GUI that allows the user to assign custom part number(s) to the LED driver being programmed. The user can then save the profile to a computer disk and recall as need. The user can then use the “Auto Program” feature to quickly 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 pairui 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.

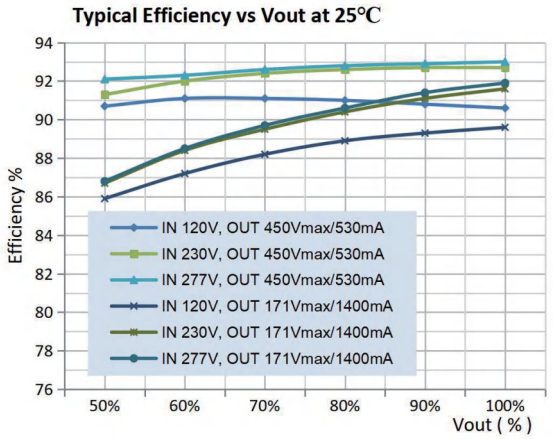
NFC programming mode is through the programmer PRG-02A (hand-held) or PRG-02B (seat), automatically completed by the GUI interface, there are engineering mode and factory mode. This mode requires the antenna window of the driver to be near the programmer.

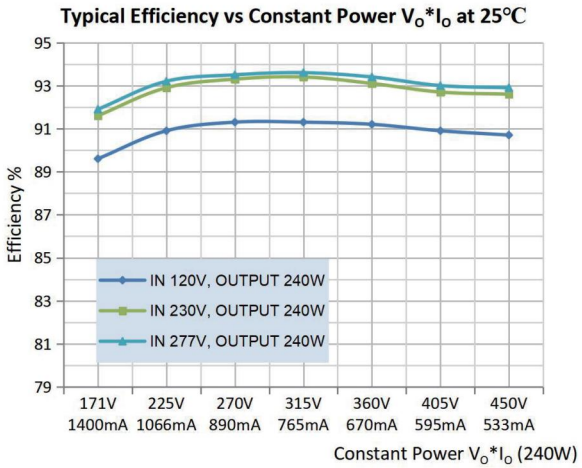
GUI page

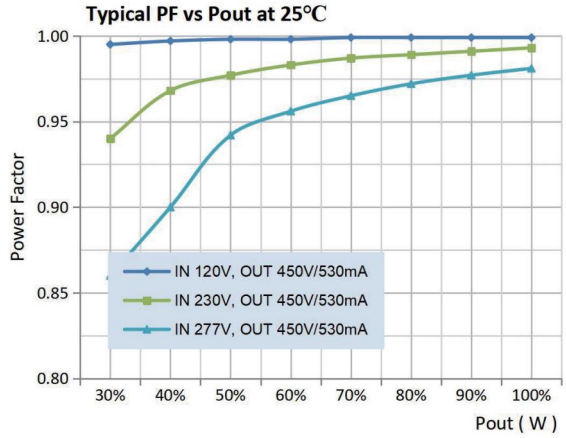


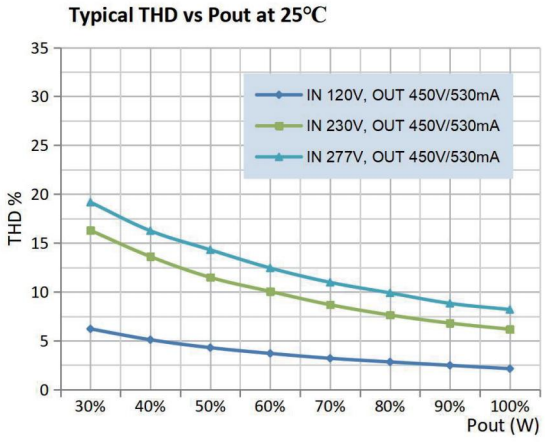
Note:
Custom designs available.
Please consult with the factory.
Specifications subject to change without notice.

Characteristic Curve

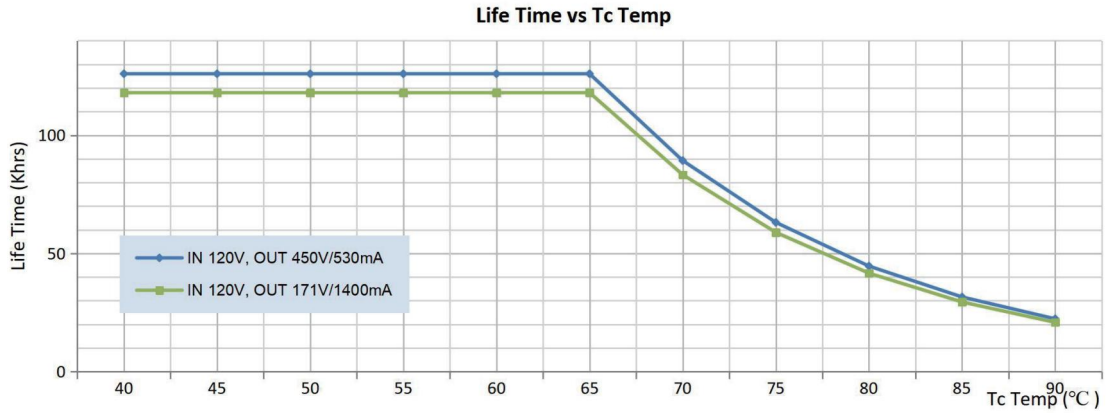








Lifetime Curve



Programming Connection Diagram

PC Programming:

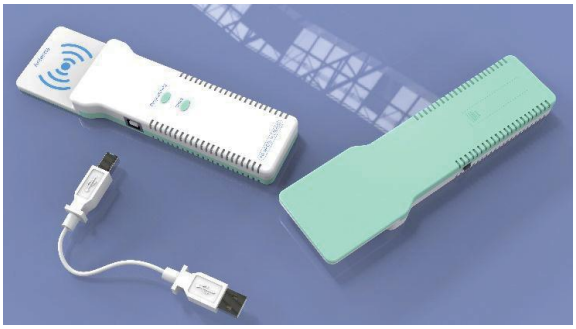
GUI+ (red) → NTC (brown)

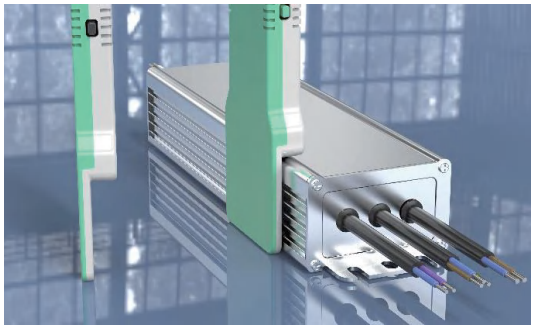
GUI− (black) → COM (black)

NFC Programming:

The NFC programming window is located on the side of the driver, which should be close to the wireless emitter when programming.

Desktop NFC programmer - suitable for production line





Coming soon: Handheld NFC programmer (card type) - suitable for field use.
(with two AAA batteries inside)

Installation

UL Cable used in Dry & Damp Location:
AC input cable, the three cores, ANSI/UL2733/18AWG, temperature 105 °C.
Cable Length: 230mm, stripping on the tin: 10mm.
Where: L — Black wire, N — White wire, GND — Yellow/Green wire.

DC output cable, the two cores, ANSI/UL2733/18AWG, temperature 105 °C.
Cable Length: 230mm, stripping on the tin: 10mm.
Where: DC+ — Red wire, DC- — Blue wire.

Dimming control cable, the two cores, ANSI/UL2733/22AWG, temperature 105 °C.
Cable Length: 310mm, stripping on the tin: 10mm.
Where: DIM+ (0-10V) input — Purple wire, DIM- — Pink wire.

GUI & NTC control cable, the three cores, ANSI/UL2733/22AWG, temperature 105 °C.
Cable Length: 230mm, stripping on the tin: 10mm.
Where: Aux V+ — Yellow wire, NTC (GUI+) — Brown wire, COM (GUI-, Aux V-) — Black wire.

UL & CE, CB, ENEC Standard and used in Wet Location:
AC input for connection the three cores copper wire connection.
Outdoor Type (IP67): IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 3x1.0mm2 105 °C 300V Brown、Blue、Yellow\Green
Cable Length: 230mm, stripping on the tin: 10mm.
Where: L — Brown wire, N — Blue wire, GND — Yellow/Green wire.

DC output for connection the two core copper wire.
Outdoor Type (IP67): IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 2x1.0mm2 105 °C 300V Brown、Blue
Cable Length: 230mm, stripping on the tin: 10mm.
Where: DC+ — Brown wire, DC- — Blue wire.

The dimmer control input is the two copper wires.
Outdoor Type (IP67): IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 2x1.0mm2 105 °C 300V Brown、Blue
Cable Length: 310mm, stripping on the tin: 10mm.
Where: DIM+ (0-10V) input — Purple wire, DIM- — Pink wire
(Note: Brown wire covers purple sleeve for Dim+; Blue wire covers pink sleeve for Dim-)

The GUI & NTC control input is the three copper wires.
Outdoor Type (IP67): IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 3x1.0mm² 105 °C 300V Brown、Blue、Yellow\Green
Cable Length: 230mm, stripping on the tin: 10mm.
Where: Aux V+ — Yellow wire, NTC (GUI+) — Brown wire, COM (GUI-, Aux V-) — Blue wire.
(Note: Yellow\Green wire covers yellow sleeve for Aux V+)

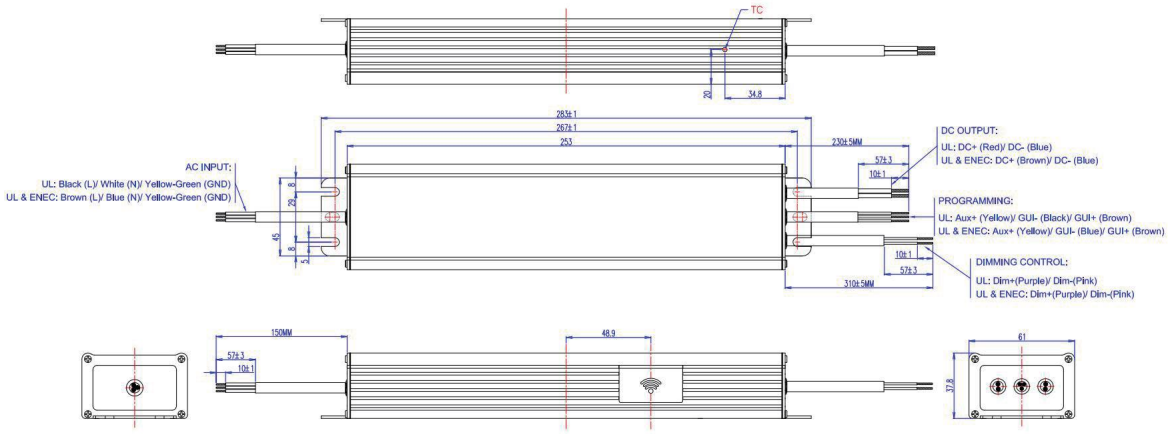
H05RN-F (SJOW) is IP67 waterproof cable

Order ID

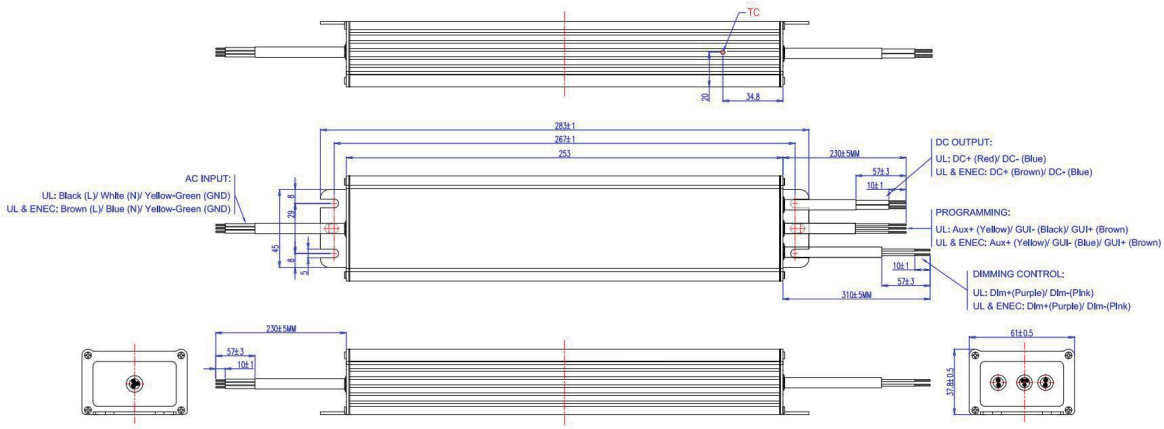
P/N 1: PLY240W-450-C1400-RD
Description: 240W, Maximum output voltage 450Vdc, Maximum output current 1400mA, PC programming mode.
P/N 2: PLY240W-450-C1400-RDNFC
Description: 240W, Maximum output voltage 450Vdc, Maximum output current 1400mA, NFC programming mode.

Product size

NFC Programming mode



PC Programming mode



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 Fixture.

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.

It is not the same sample for UL and ENEC models.