

PRODUCT SPECIFICATION

Product Model: 240 Watt —PYG240W

Version Number: V3.0

Created	Validated	Approved
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Version	Description of change	Date
V2.0	1.Dimensioning updated. 2. Uout max updated.	2023-05-25
V2.0	1. Efficiency @120V updated.	2023-07-27
V3.0	1. Safety Compliance.	2023-08-25
V3.0	1.Characteristic Curve.	2023-09-05

240 Watt — PYG240W V3.0

PC Programmable, Flicker-Free, Isolated dim

CONSTANT CURRENT & CONSTANT VOLTAGE LED DRIVER WITH 0-10V or PWM DIMMING

PYG Series Driver is a high-performance LED driver that provides smooth, continuous <10% dimming for virtually any LED fixture, whether it requires constant current or constant voltage. 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.

LED codes configure dimming curve, LED current and more. Programmable solution that offer ultimate design flexibility. GUI interface for programmable output current using. The driver has PC programmable function, it's designed to give OEMs ultimate flexibility. With wide operating windows and programmable function, the drivers make it easy for luminaire manufacturers to design luminaires of different sizes and lumen levels for outdoor applications.

Key Features

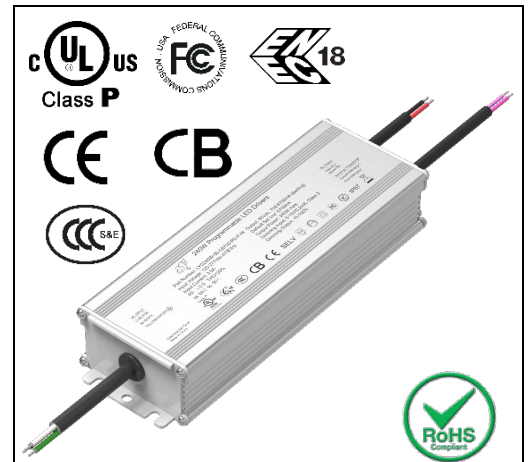
- Drive Mode: Constant Current, Constant Voltage, Dimming.
- Technology: Active PFC Corrected 2-Stage Switch Mode.
- Input Voltage: 100 to 277 Vac (UL). 100 to 240 Vac (ENEC).
- Output Power: 240Watt Max.
- Dimming: Smooth & Continuous Dimming from 10% to 100%. LEDs turn on to any dimmed level without going to full brightness.
Constant Current Reduction (CCR) dimming methods.
- 0-10V: 2-wire Analog / PWM Control Dimming (Isolated from AC & DC).
- Efficiency: Up to 91.5%.
- Warranty: 5 years.

Special Features

- Continuous, flicker-free dimming from 10% to 100%, Set maximum output current, Set minimum dim.
- The programming cable and the dimming cable are combined to simplify the user's operation.
- Three timecontrolled dimming modes.
- Safety isolation between primary and secondary. Dimming control is isolated from AC input and DC output.
- A rated lifetime of 50,000 hours @ Tc = 80°C.
- Safety: UL8750, Class P, CSA22.2, EN61347, GB19510.
- EMC: FCC 47CFR Part 15, Class B @120V & Class A @277V, EN55015, GB17625.
- Inrush Current Limiting: AC Line: line to line 6KV, line to earth 10KV. eliminates circuit breaker tripping, switch arcing and relay failure.
- Metal shell, Used with silicone potting. Meet the RoHS directive.
- IP67, NEMA4 compliant for Dry, Damp, Wet Locations. Type HL.

240W 0-10V & PWM Dimming or Constant Current Part List (Programmable)

No.	Part Number	US & CN Class 2	Output Voltage Range (Vdc)	Programable Current Range (mA)	Programmable Current / Voltage Range at Full Power Output (mA / Vdc)	Typical Current at Full Power Output (mA)	Efficiency% @ Max Load				Uout max (V)
							Vout(V)	@120V	@230V	@277V	
1	PYG240W-56-C6700-RP-P-W	No	28 – 56	700 – 6700	6700 – 4280 / 36 – 56	6700, 4280	56	88.5	91.5	91.5	59
2	PYG240W-180-C2100-RP-P-W	No	90 – 180	500 – 2100	2100 – 1330 / 114 – 180	2100, 1330	114	89.5	92.2	91.5	190
3	PYG240W-342-C1100-RP-P-W	No	171 – 342	350 – 1100	1100 – 700 / 218 – 342	1100, 700	218	88.5	91.5	91.5	360



Notice of use:

1. The DIM+ line can't touch the DC+ line and AC line.
2. DC- cannot be shorted with the DIM-.

Size	Unit	Inch	Millimeter
Case Length		7.68	195.0
Case Width		2.60	66.0
Case Height		1.44	36.5
Mounting Length		7.36	187.0

4	PYG240W-56-C6700-RP-P	No	28 – 56	700 – 6700	6700 – 4280 / 36 – 56	6700, 4280	56	88.5	91.5	91.5	59
5	PYG240W-180-C2100-RP-P	No	90 – 180	500 – 2100	2100 – 1330 / 114 – 180	2100, 1330	114	89.5	92.2	91.5	190
6	PYG240W-342-C1100-RP-P	No	171 – 342	350 – 1100	1100 – 700 / 218 – 342	1100, 700	218	88.5	91.5	91.5	360

Note:

- ◆ Maximum efficiency measured at 230VAC input.
- ◆ Product may be suffixed by "-P", which means suitable for UL listed & class P models, without suffix "-P" are suitable UL component use only.
- ◆ Product may be suffixed by "-W", which means suitable for EU or UL wet location use models, without suffix "-W" are suitable dry/damp location use only.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Input Voltage	90Vac	---	305Vac	
Input Frequency	47Hz	50/60Hz	63Hz	
Input AC Current	---	---	2.43A	Measured at 120Vac / 60Hz Input, Output Full Load.
	---	---	1.37A	Measured at 230Vac / 50Hz Input, Output Full Load.
	---	---	1.17A	Measured at 277Vac / 60Hz Input, Output Full Load.
Inrush Current (Peak)	---	75A / 3us	80A / 5us	Measured at 120Vac / 60Hz Input, Output Full Load.
	---	160A / 3us	170A / 5us	Measured at 277Vac / 60Hz Input, Output Full Load.
Leakage Current	---	---	400μA	Measured at 120Vac / 60Hz Input, Output Full Load.
	---	---	750μA	Measured at 277Vac / 60Hz Input, Output Full Load.
THD	---	---	20%	Measured at 120, 230, 277 Vac Input, 60%-100% Load (144W-240W) .
Power Factor (PF)	0.90	---	---	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
DC Output Voltage	Per Table	Per Table	Per Table	Per Tables on Page 1, 2
Output Constant Current	-5%	Per Table	+5%	Per Tables on Page 1, 2
Output Power	---	---	Per Table	Per Tables on Page 1, 2
Output LF Current Ripple (<120Hz)	---	5%	10%	20MHz BW, Full load output . Ripple Index is defined as $[(Y_{max}-Y_{min})/(Y_{max}+Y_{min})]/2 * 100\%$. Y may be V or I
Line Regulation	-2%	---	+2%	Measured at 120, 230, 277Vac / 60Hz Input, Output Full Load
Load Regulation	-5%	---	+5%	Measured at 120, 230, 277Vac / 60Hz Input
Start-up Time	---	---	500ms	Measured at 120, 230Vac / 60Hz Input, Output Full Load
	---	---	450ms	Measured at 277Vac / 50Hz Input, Output Full Load
Output Overshoot	-2%	---	+10%	Measured at 120, 230, 277Vac Input, When power on or off
Hold-up Time	---	10ms	---	Typical @ 277Vac Input, Output Full Load

Protection Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions	
Input undervoltage protection	Protection voltage	70Vac	---	90Vac	The input voltage is lower than the protection voltage, and the output is turned off.
	Recovery voltage	75Vac	---	95Vac	Self recovery mode. The input voltage is higher than the recovery voltage, and the driver restarts.
Output Short Circuit (SCP)	---	---	---	No Damage	
Output Over Current (OCP)	---	---	+10% I _o	Constant Current Limiting circuit	

Output Over Voltage (OVP)	---	---	150% Vo	No Damage.
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Dimming Specifications

Items	Parameter	Min.	Typ.	Max.	Notes / Conditions
0-10V Dimming	Input Absolute Voltage	-2.0V	10V	15V	Purple Wire
	Output Source Current	200µA	300µA	450µA	Purple Wire
	Output Current Range in 0-10V Dimming	10%	---	100%	CCR output
	Output Current in 0-10V Pin Open	---	Normal	15V	
	Output Current in 0-10V Pin Short Circuit	---	Min.	---	CCR output
PWM Dimming	Input Absolute Voltage	-2.0V	10V	15V	
	Input Current on PWM pin	200µA	300µA	450µA	
	PWM Frequency	200Hz	1KHz	1.5KHz	
	PWM Duty	0 %	---	100%	
	Output Current Range in PWM Dimming	10%	---	100%	CCR output
	Output Current in PWM Pin Open	---	Normal	15V	
	Output Current in PWM Pin Short Circuit	---	Min.	1000µA	
Dimming output range	PYG240W-56-C6700-P-W	10%loset		loset	4280 mA ≤ loiset ≤ 6700 mA
	PYG240W-180-C2100-P-W				1330 mA ≤ loiset ≤ 2100 mA
	PYG240W-342-C1100-P-W				700 mA ≤ loiset ≤ 1100 mA
	PYG240W-56-C6700-P-W	428 mA	loset	428 mA ≤ loiset ≤ 4200 mA	
	PYG240W-180-C2100-P-W	133 mA		133 mA ≤ loiset ≤ 1330 mA	
	PYG240W-342-C1100-P-W	70 mA		70 mA ≤ loiset ≤ 700 mA	

General Specifications

Parameter	Typ.	Notes / Conditions
Cooling	Convection	
MTBF	480,000 hours	Measured at 230Vac input, 100% Load and Tc=25°C (MIL-HDBK-217F).
Life Time	50,000 hours	@ Tc = 80°C.

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes / Conditions
Case Temperature (Tc)	-30 °C	---	+90 °C	Measured at location specified on case.
Input Voltage 100-176V AC Operating Temperature (Ta)	-30 °C	---	+45°C	This is a reference range. Tc controls temperature range.
Input Voltage 176-277V AC Operating Temperature (Ta)	-30 °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.

Safety Compliance

Safety Category	Standards / Notes
UL / cUL	UL8750, UL1310 Class 2, UL1012 Non Class 2, CSA-C22.2 No. 107.1
CCC	GB19510.14-2009, GB19510.1-2009
ENEC & CE	EN 61347-1:2007+A1:2010+A2:2012, EN61347-2-13:2014
	EN 62493:15
Withstand Voltage	Input to Output: 2000 Vac (UL), 3750 Vac (CE, TUV, ENEC); PE to Input: 1500 Vac; Dim to Input: 2500Vac, Dim to Output: 2500Vac.
Isolation Resistance	Input to Output: >10MΩ, 500Vdc @ 25°C, 70% RH
Dimming	DIM+ (Purple) / DIM- (Pink) are Class 2 Isolated from AC Input and DC Output.

EMC Compliance

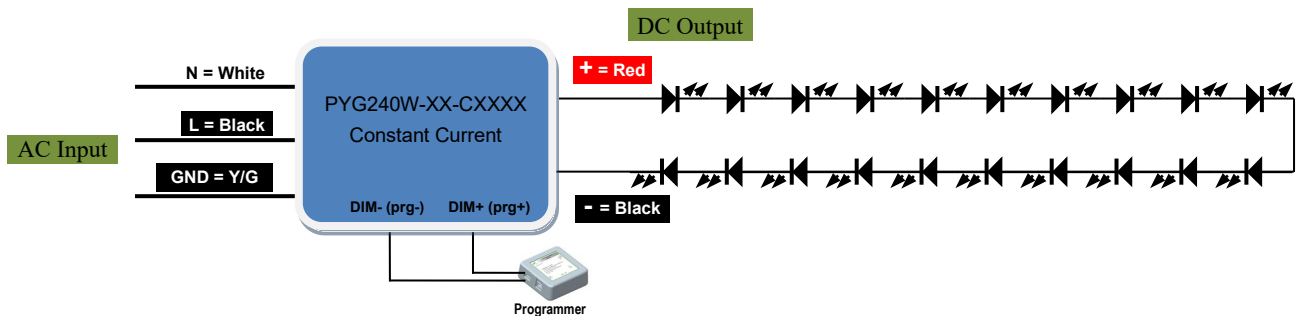
EMI Category	Standards
FCC	FCC 47CFR Part 15, Class B, ANSI C63.4: 2009
CCC	GB17743-2007, GB17625.1-2012
ENEC & CE	EN55015:2013+A1:2015
	EN 61000-3-2:2014, EN 61000-3-3:2013
Energy Star	Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, 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 Category	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8KV air discharge, 4KV 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 6KV, line to earth 10KV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

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

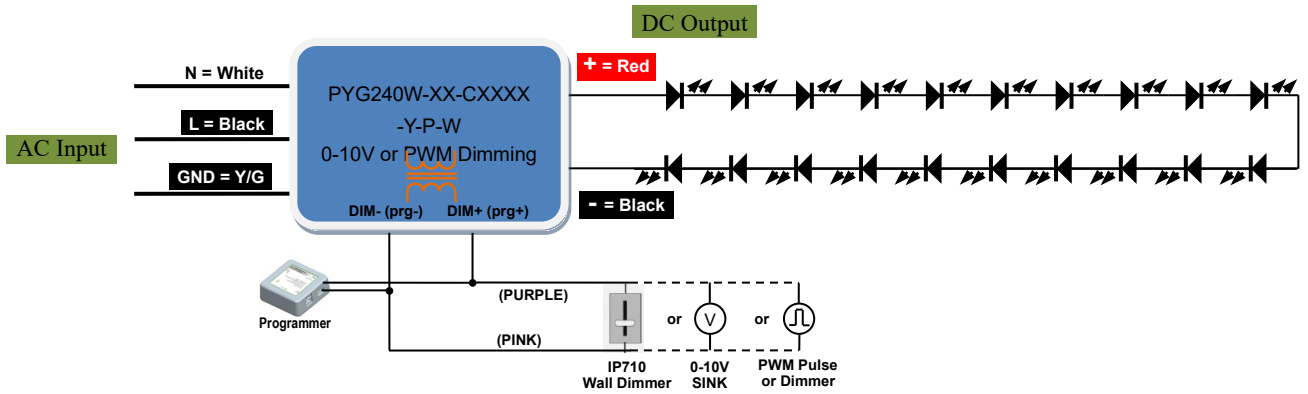
Typical Applications

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

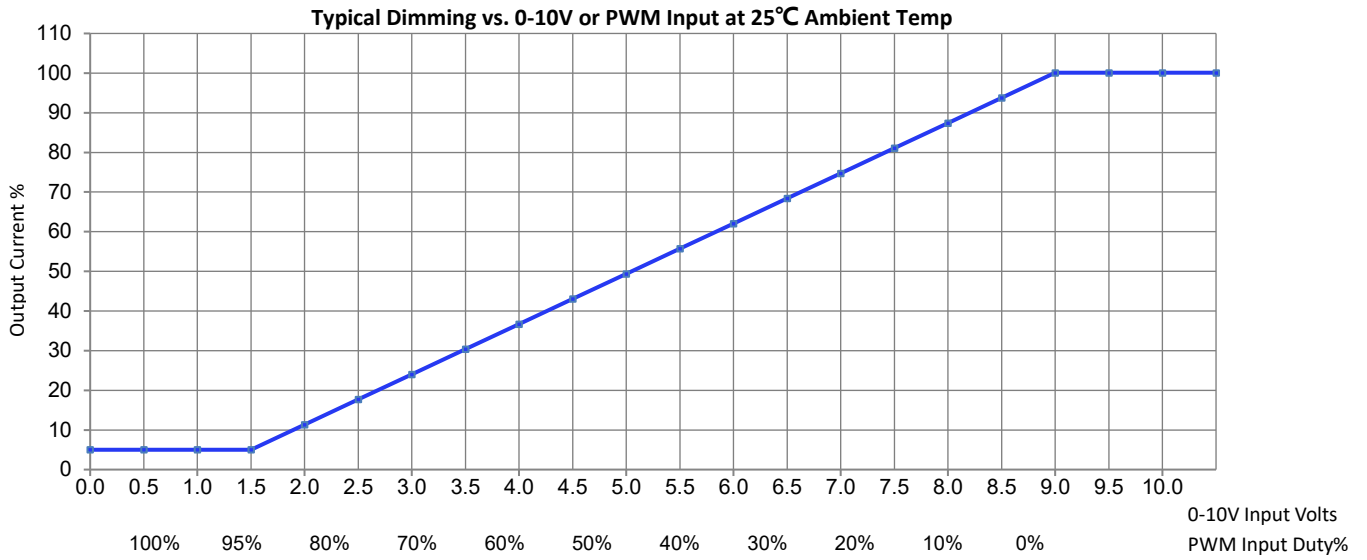
■ Constant Current Driver



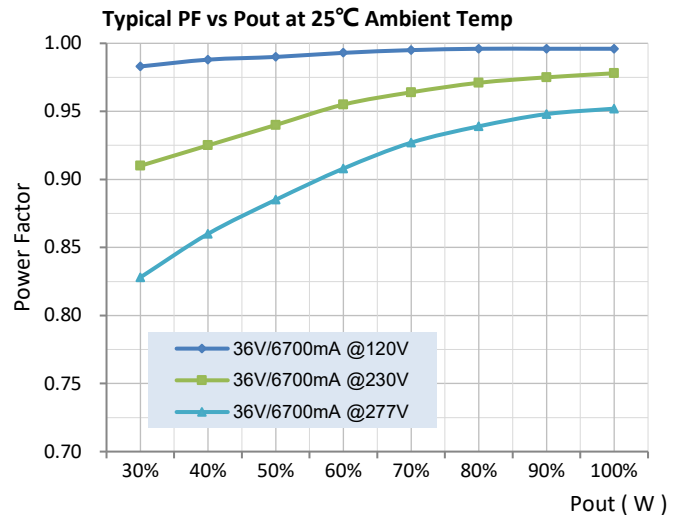
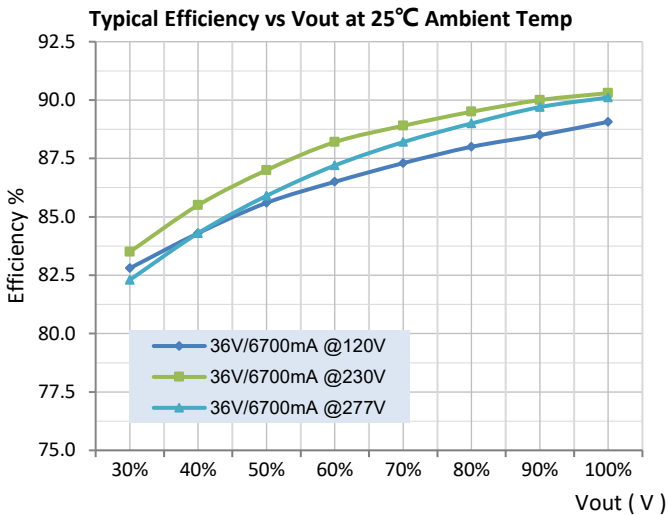
■ 0-10V or PWM Dimming Driver



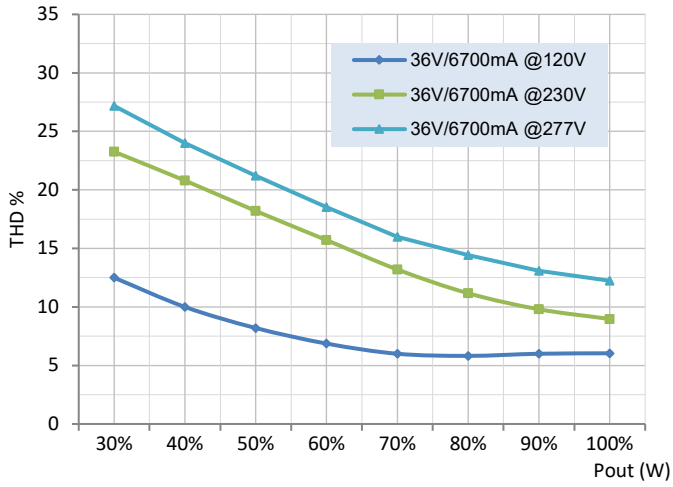
Dimming Curve



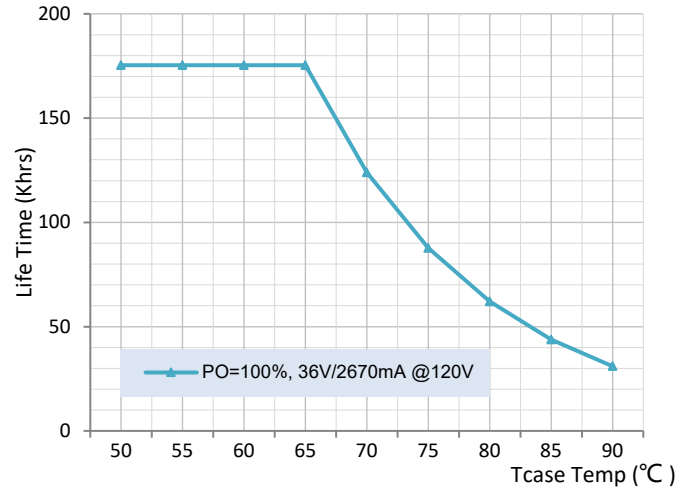
Characteristic Curve



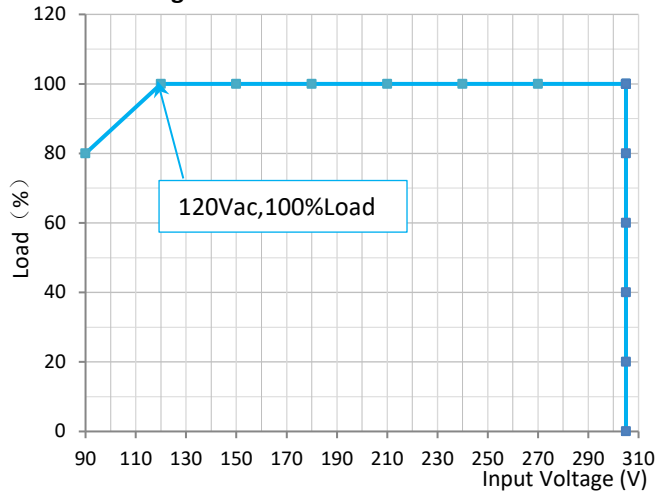
Typical THD vs Pout at 25°C Ambient Temp



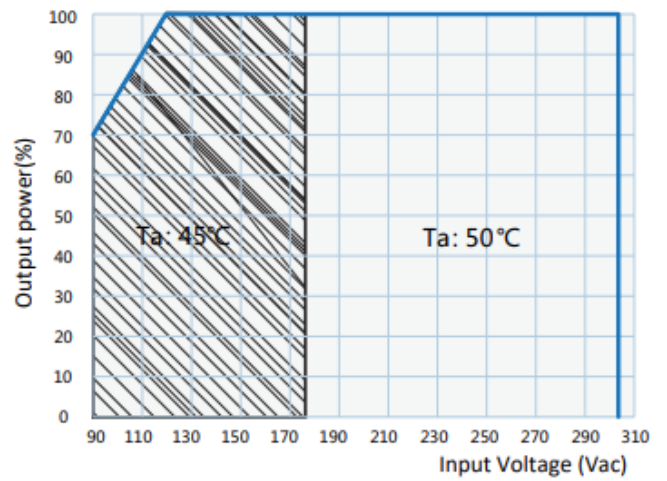
Typical Life Time vs Tcase Temp



Derating Curve

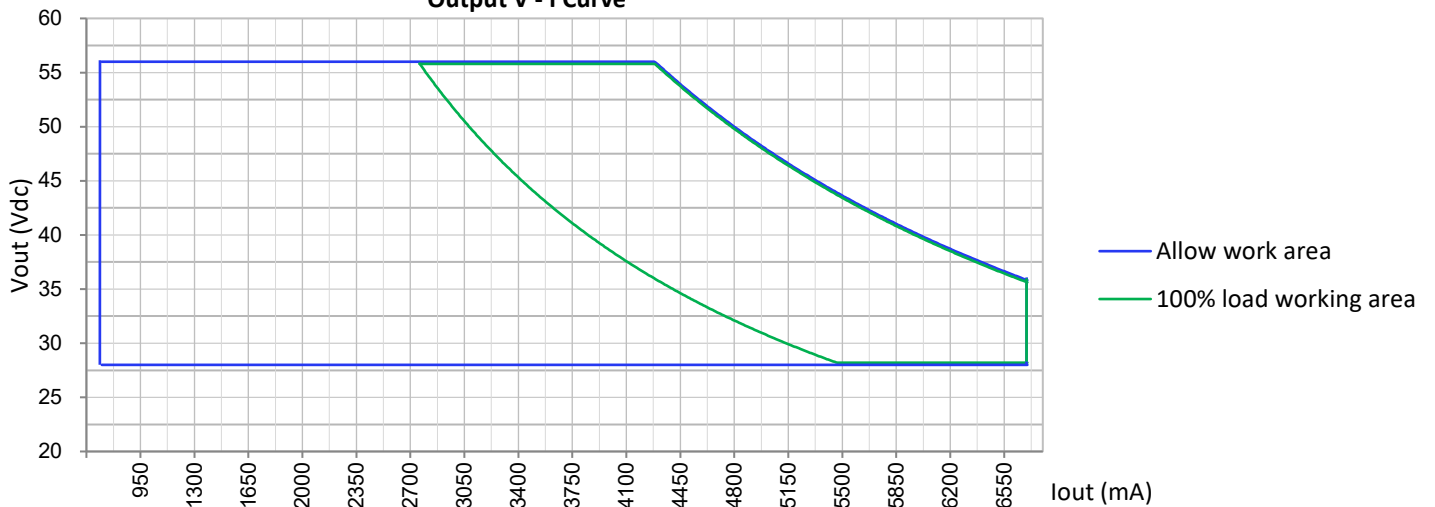


O/P power Vs. Input Voltage

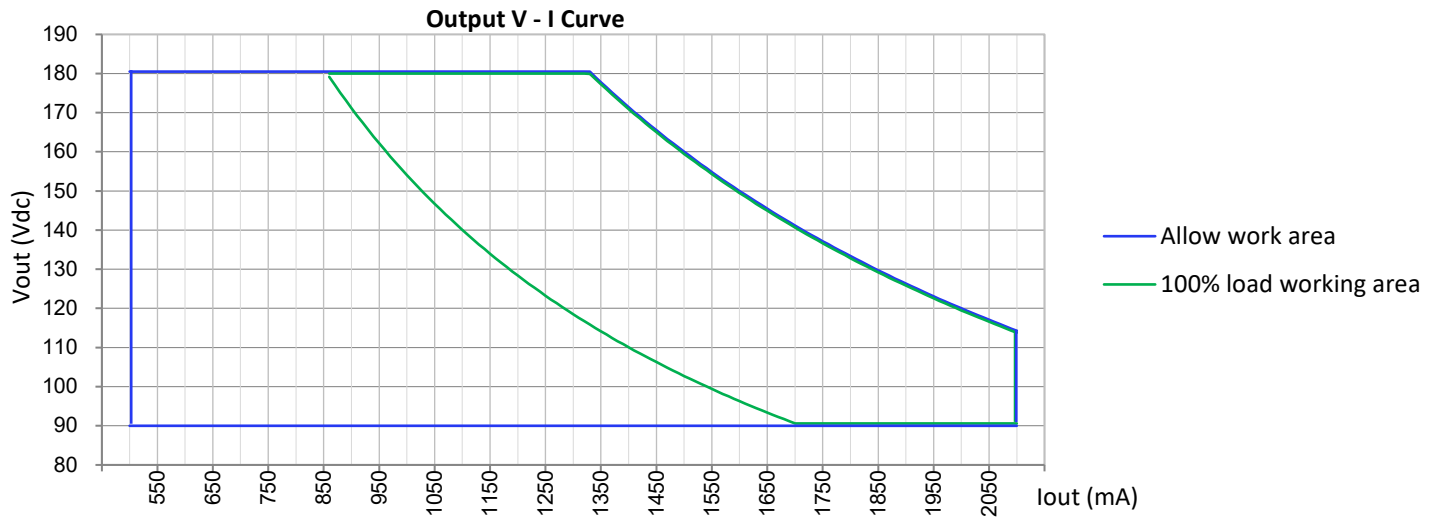


Operating Window (PYG240W-56-C6700)

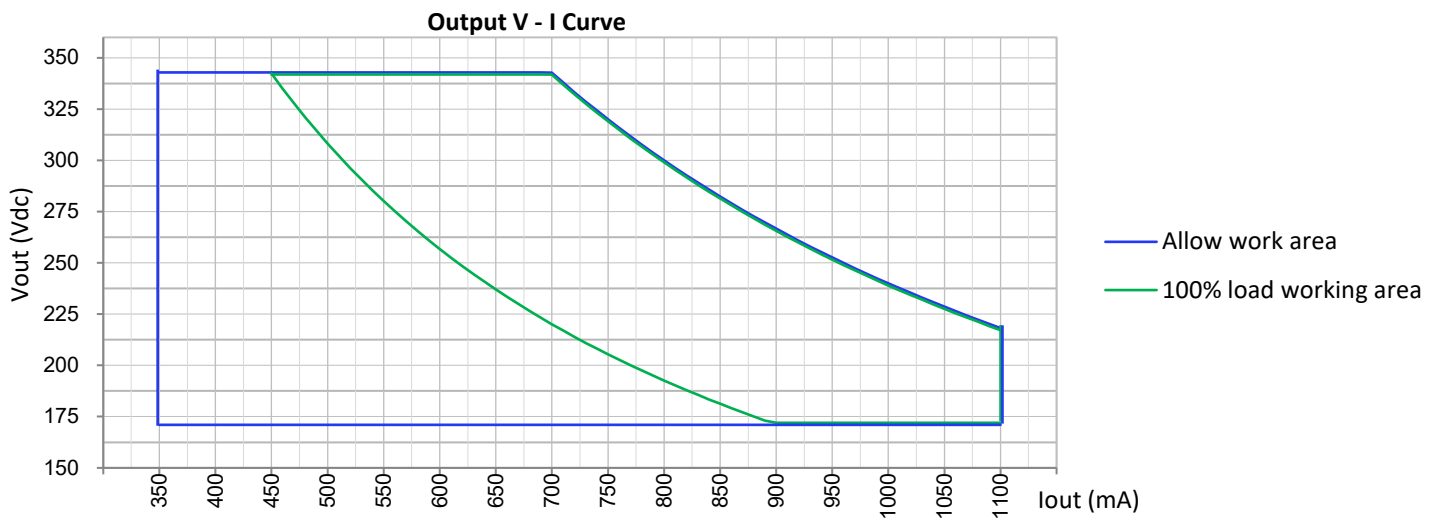
Output V - I Curve



Operating Window (PYG240W-180-C2100)



Operating Window (PYG240W-342-C1100)



Installation

■ UL Cable used in Dry & Damp Location:

AC input cable, the three cores, ANSI/UL2733 18AWG 3C -40°C ~105°C PVC 600V Black、White、Green\Yellow
 Cable Length: 230mm, External stripping 57mm, Stripping on the tin: 10mm.
 Where: L — Black wire, N — White wire, GND — Green\Yellow wire.

DC output cable, the two cores, ANSI/UL2733 18AWG 2C -40°C ~105°C PVC 600V Red、Blue
 Cable Length: 230mm, External stripping 57mm, Stripping on the tin: 10mm.
 Where: DC+ — Red wire, DC- — Blue wire.

Dimming control cable, the two cores, ANSI/UL2733 22AWG 2C -40°C ~105°C PVC 600V Purple、Pink
 Cable Length: 310mm, External stripping 57mm, Stripping on the tin: 10mm.
 Where: DIM+ (0-10V or PWM) input — Purple wire, DIM- — Pink wire

■ UL & CE, CCC, ENEC Standard used in Wet Location:

AC input for connection the three cores copper wire connection.

Outdoor Type : IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 3x1.0mm² -40°C~105°C Rubber 300V Brown、Blue、Green\Yellow

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 : IEC 60245 /VDE 0282-4 / H05RN-F (SJOW) 17AWG 2x1.0mm² -40°C~105 °C Rubber 300V Brown、Blue

Cable Length: 230mm, stripping on the tin: 10mm.

Where: DC+ — Brown wire, DC- — Blue wire.

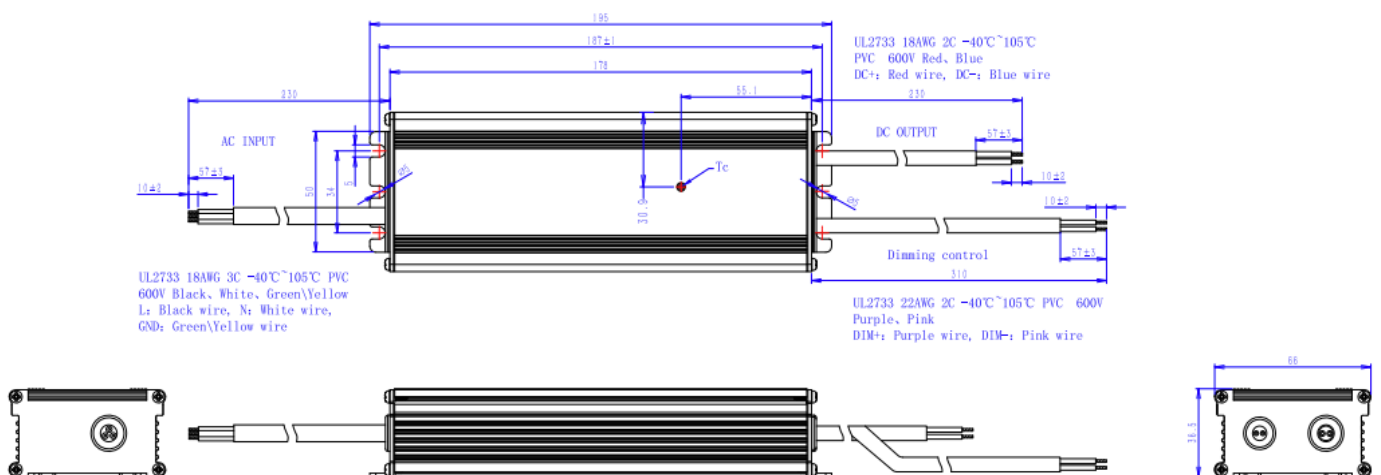
The dimmer control input is the two copper wires. ANSI/UL2196 22AWG 2C -40°C ~105°C PVC 300V Purple、Pink

Cable Length: 310mm, stripping on the tin: 10mm.

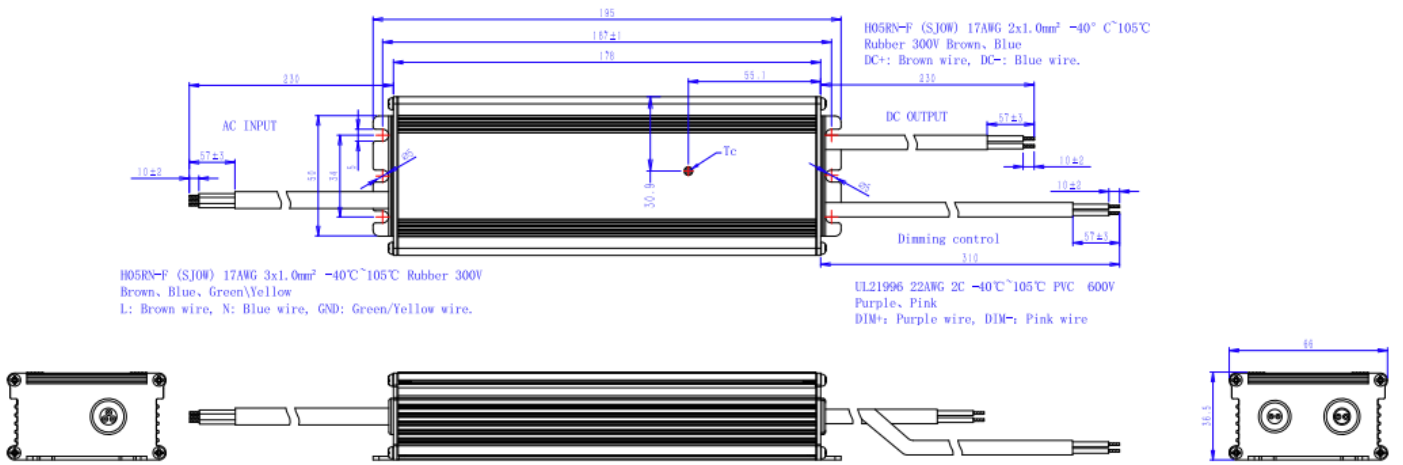
Where: DIM+ (0-10V or PWM) input — Purple wire, DIM- — Pink wire.

Product size

Note: The following is the UL size drawing.



Note: The following is the EU size drawing.



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.