

GPHC-042 series

42W Constant Current Driver with Dimming Function (0-10V/PWM)

Features:

- Universal input voltage / Full range: 90-305VAC
- Flicker free design (no stroboscopic)
- Input Protections: OVP
- Output Protections: SCP / OVP / OTP
- Surge protection: line-line - 4kV, line-earth – 6kV
- Dimming 2 in 1(0-10VDC, PWM) through dimming wire
- Dim to off function
- IP67 design for indoor and outdoor applications
- Suitable for dry / damp / wet locations
- 5 Years warranty

Application:

- LED street lighting
- Industrial lighting
- Landscape Lighting



DESCRIPTION

The GPHC-042W is a 42W, constant-current LED driver with dimming function (0-10V/PWM) that operates from 90-305Vac input with excellent power factor and low THD. It is created for industrial lights, tunnel and street lights. The high efficiency of these drivers and compact metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input over voltage, output over voltage, short circuit, and over temperature.

MODEL INFORMATION

MODEL NUMBER	OUTPUT POWER [W]	OUTPUT VOLTAGE RANGE [VDC]	OUTPUT CURRENT [A]	DEFAULT SETTING	TYPICAL EFFICIENCY	TYPICAL PF	
						115VAC	230VAC
GPHC-042M036	42	20 ÷ 36	0.117 ÷ 1.170	20 ÷ 36V / 1.170A	85%	0.99	0.96
GPHC-042M062	42	30 ÷ 62	0.070 ÷ 0.700	30 ÷ 62V / 0.700A	85%	0.99	0.96

Notes:

1. All specifications are measured at 230VAC input, full load and 25°C ambient temperature if no specific note.

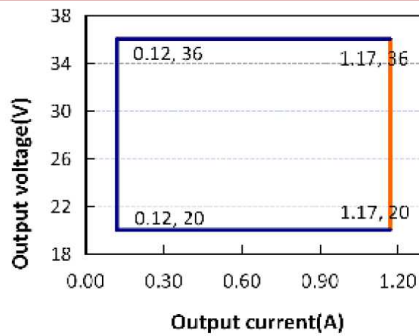
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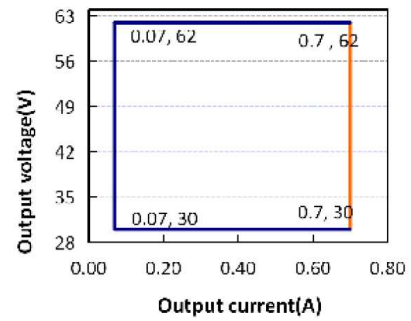


⊙ OPERATING AREA I-V

GPHC-042M036



GPHC-042M062



⊙ INPUT SPECIFICATIONS

PARAMETER	Min.	Typ.	Max.	Notes
INPUT VOLTAGE	90VAC	100 ÷ 240VAC	305VAC	Refer to derating curve
INPUT FREQUENCY	47Hz	50/60Hz	63Hz	-
LEAKAGE CURRENT	-	-	0.70mA	277VAC/60Hz
INPUT AC CURRENT	-	-	0.75Amax	100-277VAC & full load
INRUSH CURRENT	-	-	30A	230VAC, full load
POWER FACTOR	0.96	0.98	-	120VAC, full load
	0.95	0.96	-	230VAC, full load
THD	-	15%	20%	120-277VAC, 70 ÷ 100% load
	-	10%	15%	120-230VAC, 80 ÷ 100% load

⊙ OUTPUT SPECIFICATIONS

PARAMETER	Min.	Typ.	Max.	Notes
OUTPUT CURRENT TOLERANCE	-8%	-	+8%	-
TOTAL OUTPUT CURRENT RIPPLE (PK-PK)	-	10%	20%	20MHz BW & full LED load, ripple is different with difference LED load
STARTUP OVERSHOOT CURRENT	-	5%	10%	120 ~ 277VAC & 100% load, load is LED
NO LOAD OUTPUT VOLTAGE GPHC-042M036 GPHC-042M062	-	-	50V 80V	-
LINE REGULATION	-8%	-	+8%	25°C ± 10°C ambient temperature, input voltage changes from 120VAC to 277VAC
LOAD REGULATION	-8%	-	+8%	25°C ± 10°C ambient temperature, 230 VAC input load changes from 60% to 100%
TURN-ON DELAY TIME	-	-	3s	120VAC, full load
	-	1s	2s	230VAC, full load

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⊙ GENERAL SPECIFICATIONS

PARAMETER		Min.	Typ.	Max.	Notes
EFFICIENCY AT 120VAC					
GPHC-042M036		82%	83%	-	25°C ambient temperature, full load
GPHC-042M062		82%	83%	-	
EFFICIENCY AT 230VAC					
GPHC-042M036		83%	85%	-	25°C ambient temperature, full load
GPHC-042M062		83%	85%	-	
EFFICIENCY AT 277VAC					
GPHC-042M036		83%	85%	-	25°C ambient temperature, full load
GPHC-042M062		83%	85%	-	
DIELECTRIC STRENGTH	IN / OUT	-	3750VAC	-	10mA / 60s
	IN / PE	-	1600VAC	-	
	OUT / PE	-	1600VAC	-	
GROUNDING RESISTANCE		-	-	0.1Ω	25A / 60s
INSULATION RESISTANCE		50MΩ	-	-	IN / OUT, IN / PE, OUT / PE; 500VDC, 60s, 25°C, 70%RH
MTBF		-	200 000 hours	-	230VAC, 80% load (MIL-HDBK-217F)
LIFETIME		-	50 000 hours	-	230VAC, 100% load, 70°C case temperature, refer to lifetime VS Tc curve for details
OPERATING CASE TEMPERATURE FOR SAFETY T_{c_s}		-40°C	-	+85°C	Refer to Derating Curve
OPERATING CASE TEMPERATURE FOR SAFETY T_{c_w}		-40°C	-	+70°C	Humidity: 10% to 95% RH
STORAGE TEMPERATURE		-40°C	-	+85°C	Humidity: 10% to 95% RH
DIMENSIONS (L x W x H)		111 x 64 x 33mm			-
NET WEIGHT		400 ± 50g / pcs.			-
PACKAGE (L x W x H)		480 x 275 x 208mm; 24pcs/ctn			-

⊙ DIMMING

PARAMETER		Min.	Typ.	Max.	Notes
0-10V ABSOLUTE MAXIMUM VOLTAGE ON THE V_{DIM} (+) PIN		-	10V	-	-
0-10V SOURCE CURRENT ON THE V_{DIM} (+) PIN		-	1mA	2mA	
DIMMING OUTPUT RANGE	GPHC-042M036 GPHC-042M062	10% I _{MAX}	-	100% I _{MAX}	I _{max} =1.170A I _{max} =0.700A
	GPHC-042M036 GPHC-042M062	0.117A 0.070A	-	1.170A 0.700A	-
RECOMMENDED DIMMING RANGE FOR 0-10V		0V	-	10V	Default 0-10V / 10V PWM Dimming
PWM_{IN} HIGH LEVEL		9.7V	-	10.3V	
PWM_{IN} LOW LEVEL		0V	-	0.3V	
PWM_{IN} FREQUENCY RANGE		200Hz	-	2000Hz	
PWM_{IN} DUTY CYCLE		10%	-	100%	

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◎ SAFETY STANDARDS

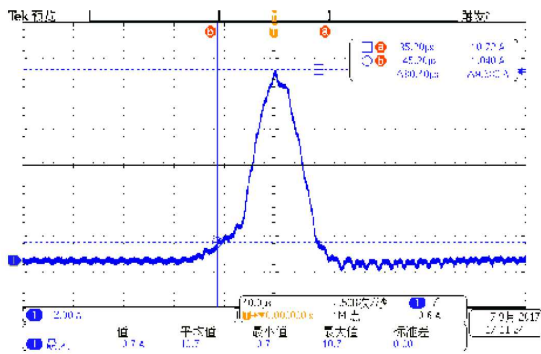
SAFETY CATEGORY	COUNTRY / TERRITORY	STANDARDS
CE	Europe	EN61347-1, EN61347-2-13
		EN 62493

◎ EMC STANDARDS

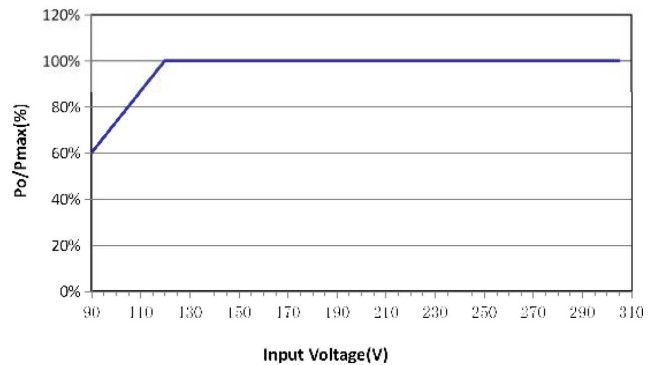
EMC CATEGORY	COUNTRY / TERRITORY	STANDARDS
CE	Europe	EN55015
		EN61000-3-2, EN61000-3-3
		EN61000-4-2, -3, -4, -5, -6, -11
		EN61547

Note: This LED driver meets the EMC specifications above, but EMC performance of luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

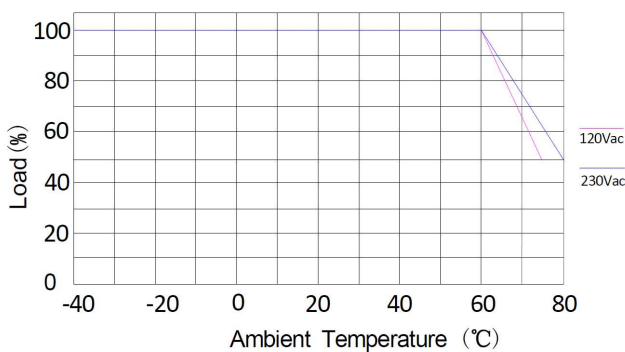
◎ INRUSH CURRENT WAVEFORM



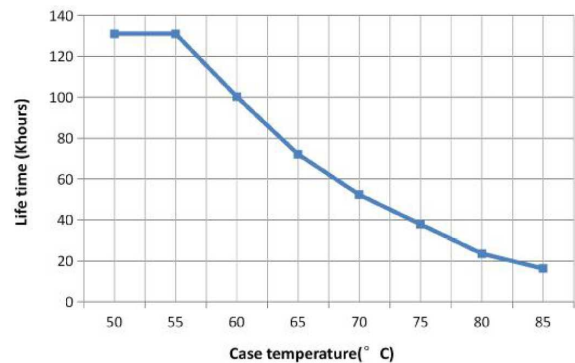
◎ P_o / P_{MAX} VS. INPUT VOLTAGE CURVE



◎ DERATING CURVE



◎ LIFETIME vs. CASE TEMPERATURE CURVE



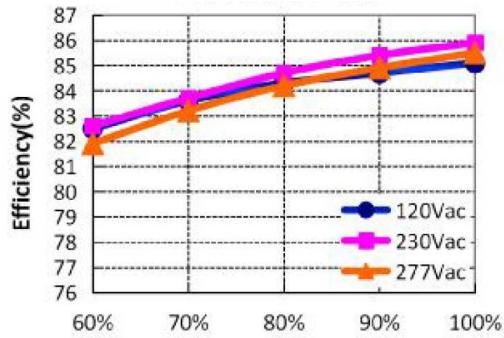
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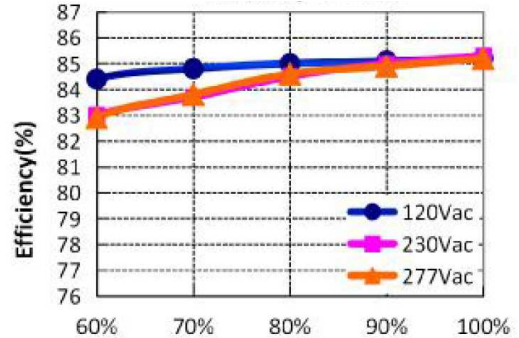


© EFFICIENCY vs. LOAD CURVE

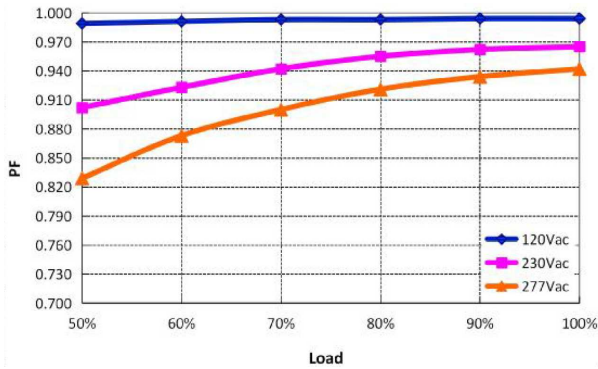
GPHC-042M036 (I_{out} = 1.17A)



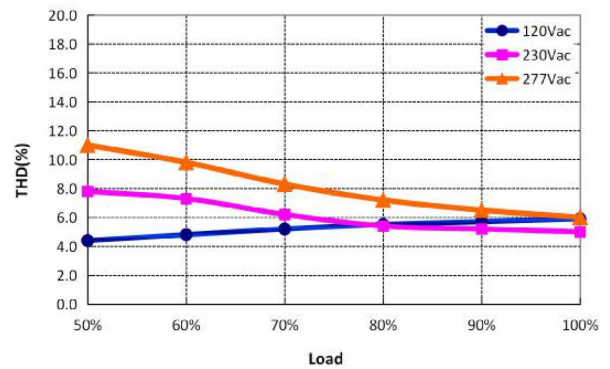
GPHC-042M062 (I_{out} = 0.70A)



© POWER FACTOR vs. LOAD CURVE



© THD vs. LOAD CURVE



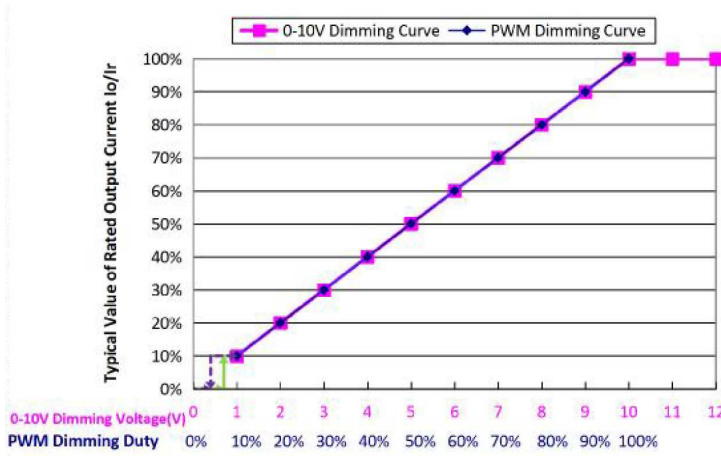
© PROTECTIONS

	PARAMETER	MIN.	TYP.	MAX.	NOTES
INPUT OVER VOLTAGE PROTECTION	INPUT PROTECTION VOLTAGE	310VAC	330VAC	350VAC	Turn off the output when the input voltage exceeds protection voltage.
	RECOVERY VOLTAGE	300VAC	320VAC	340VAC	Auto Recovery. The driver will restart when the input voltage falls below recovery voltage.
	MAX. OF INPUT OVER VOLTAGE	-	-	440VAC	The driver can survive for 48 hours with input over voltage of 440VAC
OVER TEMPERATURE PROTECTION		Decreases output current, returning to normal operation after over temperature is removed. The max. Derating could be 30%.			
SHORT CIRCUIT PROTECTION		Hiccup mode and auto recovery. No damage will occur when output is under short circuit condition. The output shall return to normal operation when the fault condition is removed.			
INPUT OVERT VOLTAGE PROTECTION		Limits output voltage at no load and in case the normal voltage limit fail			

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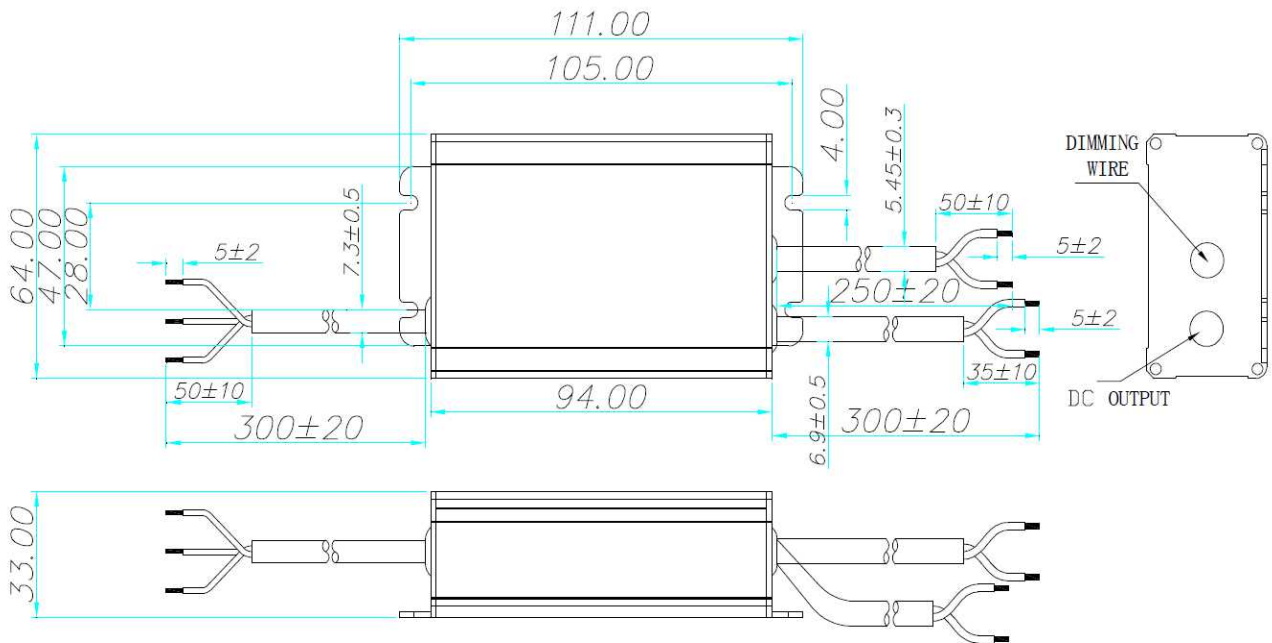
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© 0-10V / PWM DIMMING



Note: Dim to off function is realized by decreasing the output voltage, driver still has a residual voltage when is in dim to off state, so the start up voltage of the lamp should be higher than the residual voltage

© MECHANICAL SPECIFICATIONS



WIRE	SPEC	NOTE
INPUT	CCC + VDE H05RN-F 3x1.0mm ² , Outer Diameter = 7.3mm, Length = 300± 20mm	CCC/CE driver, L: Brown, N: Blue, PE: Yellow-Green
	SJOW 18AWG*3C, Outer Diameter = 7.3mm, Length = 300± 20mm	UL driver
OUTPUT	CCC + VDE H05RN-F 2x1.0mm ² , Outer Diameter = 7.0mm, Length = 300± 20mm	CCC/CE driver V+: Brown, V-: Blue
	SJOW 18AWG*2C, Outer Diameter = 7.0mm, Length = 300± 20mm	UL driver
DIMMING	UL2733 22AWG*2C, Outer Diameter = 5.45mm, Length = 250 ± 20mm	DIM"+": Purple, DIM"-": Gray