

Features

- Dimming port programming without driver power on
- Constant current output
- High efficiency (Max 97%), active power factor correction
- Ultra low THD at light load
- Isolated 0~10V/ PWM dimming
- 12V/200mA AUX Output
- UL/FCC/CB/CE
- 5 years warranty
- IP67



Description

400W LED Drivers offers digital programmable drivers with wide-range adjustable output current, together with 12V/200mA auxiliary output (optional) for smart lighting.

The output current of this series are programmable, and designed for 0-10V/PWM.

Model Name Definition

400	FGH	420	C	-	CA	-	xxx
Rated Output Power	Series name	Internal code	Constant current Output		Filling glue and outlet line		Options

Specifications

Part Number	Max. Output Power	Programmable Current Region@CC	Output Voltage Range	Efficiency @277VAC
400FGH420C-CA	400W	0.8-2A	150-420V	96%

Note: Efficiency value is typical value.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	198 Vac	-	528Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac / 60Hz input , grounding effectively
Input AC Current	-	-	2.12A	Measured at full load and 220 Vac input.
Inrush Current	-	-	65A	At 400Vac input, 25°C cold start,
Inrush Current ($I^2 \cdot t$)	-	0.3	-	A ² Sec (50%Imax to 50%Imax)
PF	0.95	-	-	At 220-480Vac, full load
THD	-	4.87%	15%	At 220-480Vac ,full load condition(Typ@277Vac, full load)

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5% lo set	-	5% lo set	At 25°C and full load condition
Total Output Current Ripple (pk-pk)	-	-	10% lo max	At 25°C and full load condition, 20 MHz BW
Startup Overshoot Current	-	-	20% lo max	At 25°C and full load condition
No Load Output Voltage	-	-	550V	At 25°C
Line Regulation	-	-	±1%	At 25°C and full load condition
Load Regulation			±3%	At 25°C
Turn-on Delay Time	-	0.8 s	2s	Measured at 277Vac input & 25°C
Output SCP				AC power on restart
Temperature Coefficient of lo set	0.1%/°C	-	0.1%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	11.4V	12 V	12.6V	200mA ripple can not exceed 100mV
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is "Dim-"
OTP Tc	85°C	90°C	100°C	Output current will drop to 50%
12V Auxiliary Output SCP				Hiccup mode, Auto recover
Overvoltage Protection	-	-	20V	
Overcurrent Protection	-	-	0.5A	

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	-	1W	Measured at 208-400Vac/60Hz; Dimming off
MTBF	-	234,000 Hours	-	Measured at 277Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK- 217F)
Lifetime	-	97,000 Hours	-	Measured at 400Vac input, 100%Load and 72°C case temperature.
Dielectric Strength(Hi-pot)			10mA	Primary to Earth: 1800Vac 60 seconds
Grounded Resistance			0.1Ω	25A, 1 minute
Operating Case Temperature Tc	-40°C	-	90°C	
Operating Ambient Temperature Ta	-40°C	-	50°C	
Storage Temperature	-40°C	-	+85°C	
Dimensions				
Inches (L × W × H)	18.03 × 1.73 × 1.67in			
Millimeters (L × W × H)	458 × 43.9 × 42.4 mm			
Net Weight/pcs	-	1.6kg	-	

Dimming Specifications

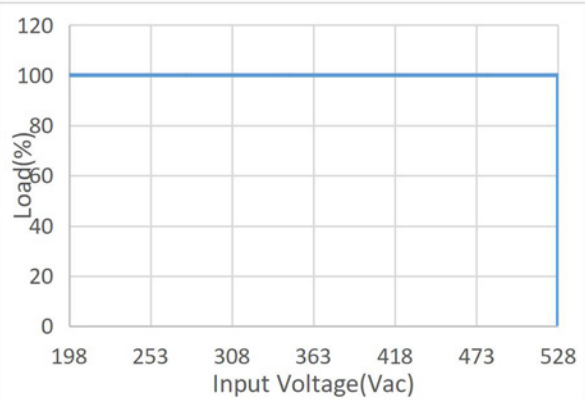
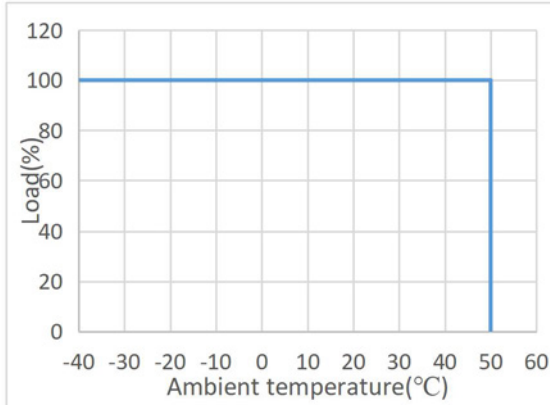
Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	0V	-	15 V	
Source Current on Vdim (+)Pin	90 uA	100 uA	110 uA	
Dimming Output Range	10% Io set	-	Io set	80% Io max ≤ Io set ≤ 100% Io max
	8% Io max	-	Io set	Io set < 80% Io max
Recommended Dimming Input Range	0 V	-	10 V	Default 0-10V dimming mode.
Dimming On Voltage	0.5V	0.7V	0.9V	
Dimming Off Voltage	0.3V	0.5V	0.7V	
Hysteresis Voltage	-	0.2V	-	
PWM_in High Level	9.5 V	10V	10.5 V	
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	1KHz	-	3KHz	
PWM_in Duty Cycle	1%	-	100%	
PWM Dimming off	3%	5%	7%	
PWM Dimming on	5%	7%	9%	
PWM Hysteresis Voltage	-	2%	-	

Safety & EMC Compliance

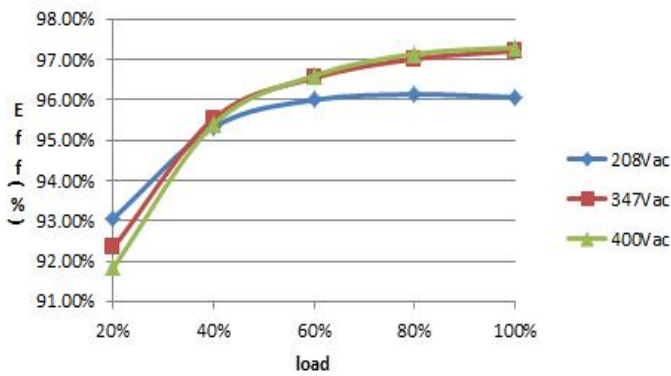
Safety Category	Standard
UL	UL8750
CE	EN 61347-1, EN 61347-2-13, EN 55015, EN 61000-3-2
CB	IEC 61347-1, IEC 61347-2-13
EMC Standards	Notes
FCC Part 15/EN 55015	ANSI C63.4:2009 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired Operation.
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: level 3, criteria A
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4kV, line to earth 6kV
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

Performance Curve

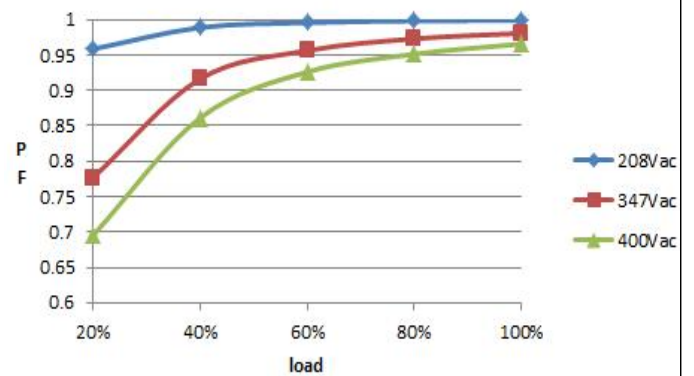
Derating curve



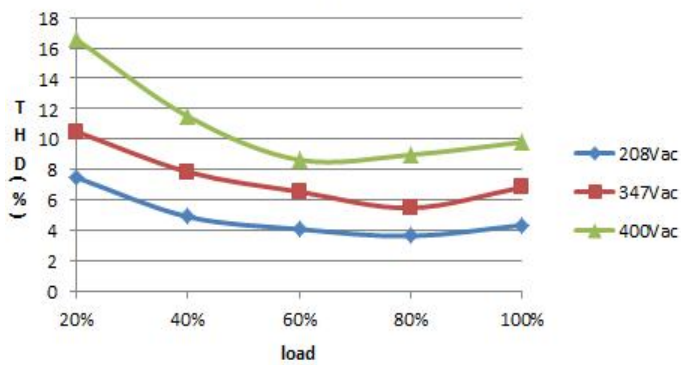
Eff VS load(363Vdc 1.1A)



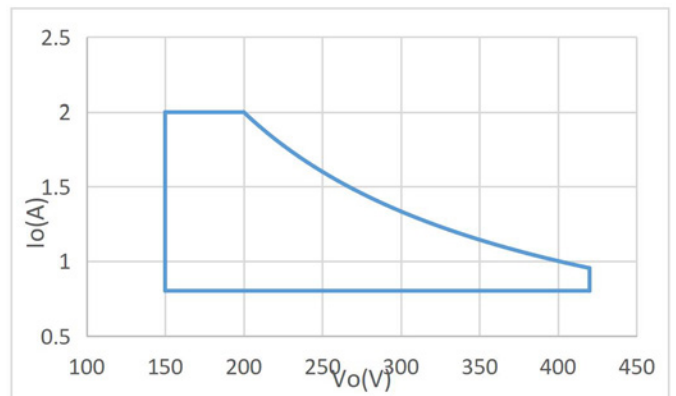
PF VS load(363Vdc 1.1A)



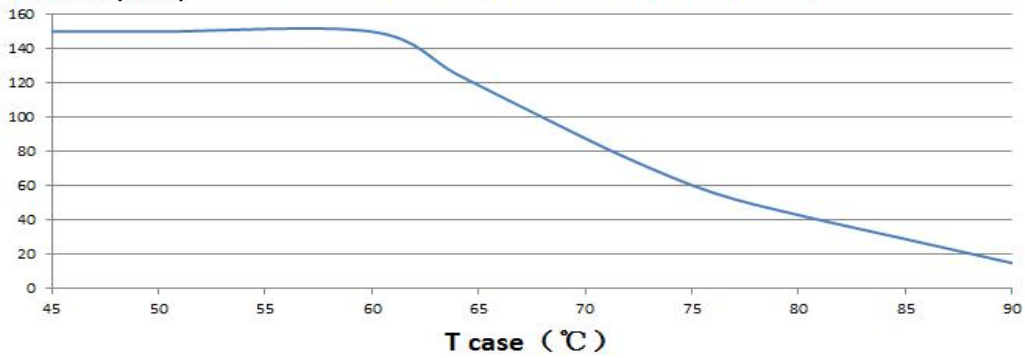
THD VS load(363Vdc 1.1A)



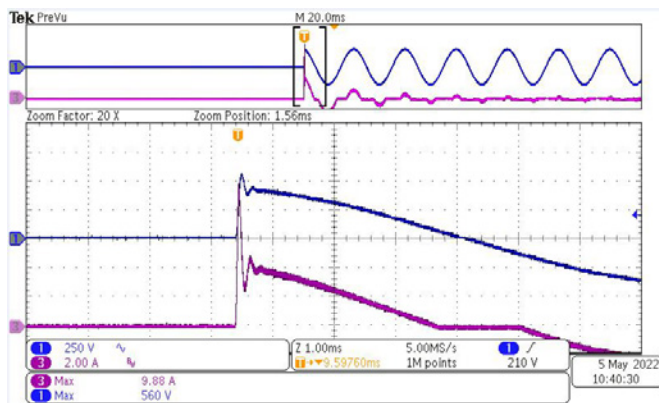
I/V Operating Area



Life time (K hrs) Lifetime VS case temperature@400Vac full load

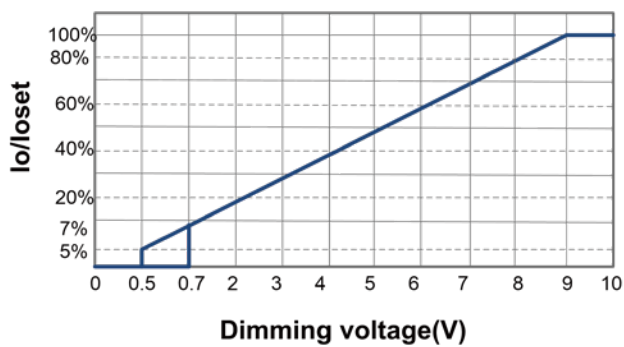


Inrush current

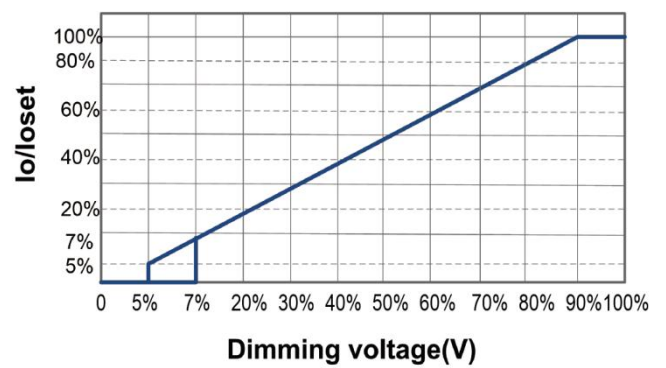


0-10V Analog Dimming & PWM Dimming

Io/IoSet vs. Dimming voltage



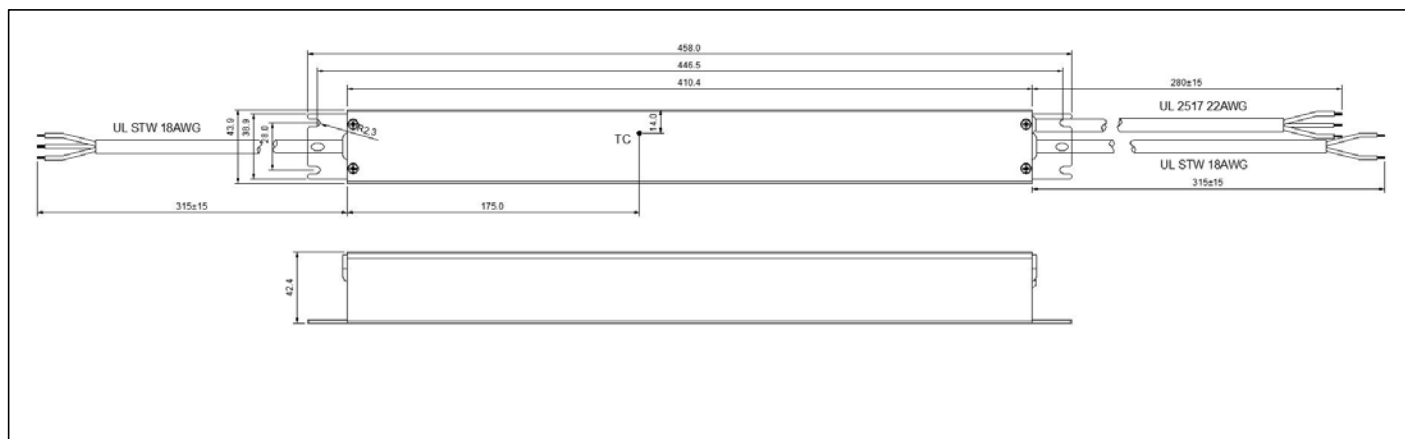
Io/IoSet vs. Dimming voltage



Programming wiring diagram



Mechanical Specification



Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2022.11.20	V1.0			
2023.3.21	V1.1	Update 0-10V Analog Dimming &PWM Dimming		
		Update Mechanical Specification		
		Update Derating curve		
2023.6.12	V1.2	PWM_in Frequency Range	Min: 600Hz	Min: 1KHz
		Overvoltage Protection	Max: 15V	Max: 20V