

20W High Efficiency Driver

1. Product Description

Isolated LED Driver for Class I & Class II LED Luminaires

Category: AC100-277V, linear plastic case, dimmable, flicker free, IP 65

Properties: 0-10V/PWM/Rx dimmings, flicker coefficient $\leq 0.5\%$, IP 65 waterproof, active PFC, high PF, high efficiency, low THD

Application: tri-proof light, grille light, flood light, plant-growth light and etc

Warranty: 3 years (Please refer to the warranty condition.)



2. Technical Data (1)

	Full model number	FSP020OUCS029M(70)	FSP020OUCS031M(65)	FSP020OUCS033M(60)
Output	Output voltage	20-29 VDC	20-31 VDC	20-33 VDC
	Output current	700mA	650mA	600mA
	Ripple voltage	< 1V		
	Current tolerance	$\pm 5\%$		
	Time to light	100Vac < 0.75S 230Vac < 0.5S 277ac < 0.5S		
	Temperature drift	$\pm 10\%$		
	Line regulation	$\pm 5\%$		
Input	Line regulation	$\pm 5\%$		
	Rated input voltage	100-240 Vac, 277 Vac (Max input voltage: 90-305Vac)		
	Frequency	47Hz-63Hz		
	Input current	0.4A Max		
	Power factor	$\geq 0.97/100\text{Vac}$		
		$\geq 0.95/230\text{Vac}$		
		$\geq 0.90/277\text{Vac}$		
	THD	$\leq 20\%$		
	Efficiency	$\geq 82\%/100\text{Vac}$	$\geq 82\%/100\text{Vac}$	$\geq 83\%/100\text{Vac}$
		$\geq 83\%/230\text{Vac}$	$\geq 83\%/230\text{Vac}$	$\geq 83\%/230\text{Vac}$
		$\geq 82\%/277\text{Vac}$	$\geq 82\%/277\text{Vac}$	$\geq 82\%/277\text{Vac}$
Protective features	In-rush current (peak /duration)	I<60A/350uS@230Vac		
	Typ. power input on stand-by	Pin<1.5W		
Protective features	No-load	Max. output voltage (no-load voltage) 55V		
	Short-circuit	Hiccup mode (auto-recovery)		
Environment condition	Working temperature	$-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$		
	Working humidity	20-90%RH (no condensation)		
	Storage temperature/humidity	$-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$ (6 months under the class I environment); 10-90%RH (no condensation)		
	Atmospheric pressure	86-106KPa		
Safety and norms	Certificate	UL(Class P), FCC		
	Hi-pot test	I/P-O/P: 3.75KVac, <5mA, 60S		
	Insulation resistance	I/P-O/P: 500VDC, >100M Ω		
	Surge level	Comply with IEC61000-4-5 (L/N:1KV)		
	EMI	Comply with EN55015, EN61000-3-2		
	EMS	Comply with EN61000-4-2,3,4,5,6,8,11; EN61547		
Others	Packing (weight)	Net weight: 140g $\pm 5\%$ /pc; 70pcs/ctn; 10.5KG $\pm 5\%$ /ctn; Carton size: 39 x 29 x 21 cm (L*W*H)		
	IP level	IP65		
	Warranty condition	3 years (Max. case temperature must not exceed 85 $^{\circ}\text{C}$)		

Test conditions	The parameters above including the power factor, THD, efficiency are all tested under the ambient temperature 25℃ and humidity 50%, AC input 230V and 90% DC load.
Additional Remark	<p>1. In the power supply circuit, it is recommended that the customer should install an over-under-voltage protection and surge protection device to ensure the safety of using electricity.</p> <p>2. The PC cover, shell, end caps used together with the LED driver inside the LED lamp must meet the UL94V-0 fire rating level or above.</p> <p>3. As a part of the LED lamp, the LED driver is not the only factor determining the EMC performance of the LED lamp. And the EMC performance is also related to the LED lamp's structure and the wire routing. Thus we strongly recommend the manufacturer of the finished LED lamp must re-confirm the EMC of the LED lamps.</p>

Technical Data (2)

	Full model number	FSP020OUCS036M(55)	FSP020OUCS040M(50)	FSP020OUCS044M(45)
Output	Output voltage	20-36 VDC	20-40 VDC	20-44 VDC
	Output current	550mA	500mA	450mA
	Ripple voltage	< 1V		
	Current tolerance	±5%		
	Time to light	100Vac<0.75S 230Vac < 0.5S 277Vac < 0.5S		
	Temperature drift	±10%		
	Line regulation	±5%		
Input	Line regulation	±5%		
	Rated input voltage	100-240 Vac, 277 Vac (Max input voltage: 90-305Vac)		
	Frequency	47Hz-63Hz		
	Input current	0.4A Max		
	Power factor	≥0.97/100Vac		
		≥0.95/230Vac		
		≥0.90/277Vac		
	THD	≤20% at AC230V		
	Efficiency	≥83%/100Vac	≥82%/100Vac	≥81%/100Vac
		≥84%/230Vac	≥84%/230Vac	≥83%/230Vac
		≥83%/277Vac	≥82%/277Vac	≥82%/277Vac
Protective features	In-rush current (peak /duration)	I<60A/350uS@230Vac		
	Typ. power input on stand-by	Pin<1.5W		
Protective features	No-load	Max. Vout < 55V	Max. Vout < 55V	Max. Vout < 60V
	Short-circuit	Hiccup mode (auto-recovery)		
Environment condition	Working temperature	-30℃ ~ +60℃		
	Working humidity	20-90%RH (no condensation)		
	Storage temperature/humidity	-40℃ ~ +80℃ (6 months under the class I environment); 10-90%RH (no condensation)		
	Atmospheric pressure	86-106KPa		
Safety and norms	Certificate	UL(Class P), FCC		
	Hi-pot test	I/P-O/P: 3.75KVac, <5mA, 60S		
	Insulation resistance	I/P-O/P: 500VDC, >100MΩ		
	Surge level	Comply with IEC61000-4-5 (L/N:1KV)		
	EMI	Comply with EN55015, EN61000-3-2		
	EMS	Comply with EN61000-4-2,3,4,5,6,8,11; EN61547		
Others	Packing (weight)	Net weight: 140g±5%/pc; 70pcs/ctn; 10.5KG±5%/ctn; Carton size: 39 x 29 x 21 cm (L*W*H)		
	IP level	IP65		
	Warranty condition	5 years (Max. case temperature must not exceed 85℃)		

Test conditions	The parameters above including the power factor, THD, efficiency are all tested under the ambient temperature 25℃ and humidity 50%, AC input 230V and 90% DC load.
Additional Remark	1. In the power supply circuit, it is recommended that the customer should install an over-under-voltage protection and surge protection device to ensure the safety of using electricity. 2. The PC cover, shell, end caps used together with the LED driver inside the LED lamp must meet the UL94V-0 fire rating level or above. 3. As a part of the LED lamp, the LED driver is not the only factor determining the EMC performance of the LED lamp. And the EMC performance is also related to the LED lamp's structure and the wire routing. Thus we strongly recommend the manufacturer of the finished LED lamp must re-confirm the EMC of the LED lamps.

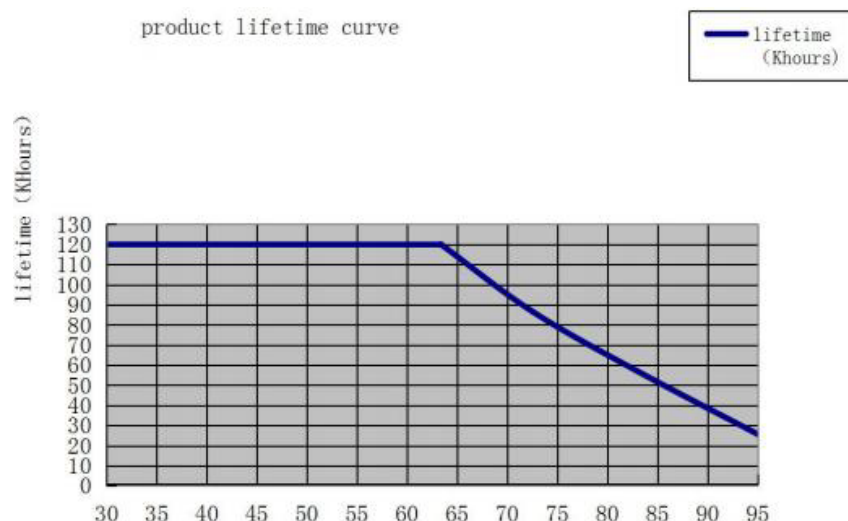
Technical Data (3)

	Full model number	FSP020OUCS050M(40)	FSP020OUCS050M(35)	FSP020OUCS050M(30)
Output	Output voltage	20-50 VDC	20-50 VDC	20-50 VDC
	Output current	400mA	350mA	300mA
	Ripple voltage	< 1V		
	Current tolerance	±5%		
	Time to light	100Vac<0.75S 230Vac < 0.5S 277Vac < 0.5S		
	Temperature drift	±10%		
	Line regulation	±5%		
Input	Line regulation	±5%		
	Rated input voltage	100-240 Vac, 277 Vac (Max input voltage: 90-305Vac)		
	Frequency	47Hz-63Hz		
	Input current	0.4A Max		
	Power factor	≥0.97/100Vac	≥0.97/100Vac	≥0.97/100Vac
		≥0.95/230Vac	≥0.94/230Vac	≥0.94/230Vac
		≥0.90/277Vac	≥0.90/277Vac	≥0.90/277Vac
	THD	≤20% at AC230V		
	Efficiency	≥81%/100Vac	≥81%/100Vac	≥81%/100Vac
		≥83%/230Vac	≥82%/230Vac	≥81%/230Vac
		≥82%/277Vac	≥82%/277Vac	≥81%/277Vac
Protective features	In-rush current (peak /duration)	I<60A/350uS@230Vac		
	Typ. power input on stand-by	Pin<1.5W		
Protective features	No-load	Max. output voltage (no-load voltage) 60V		
	Short-circuit	Hiccup mode (auto-recovery)		
Environment condition	Working temperature	-30℃ ~ +60℃		
	Working humidity	20-90%RH (no condensation)		
	Storage temperature/humidity	-40℃ ~ +80℃ (6 months under the class I environment); 10-90%RH (no condensation)		
	Atmospheric pressure	86-106KPa		
Safety and norms	Certificate	UL(Class P), FCC		
	Hi-pot test	I/P-O/P: 3.75KVac, <5mA, 60S		
	Insulation resistance	I/P-O/P: 500VDC, >100MΩ		
	Surge level	Comply with IEC61000-4-5 (L/N:1KV)		
	EMI	Comply with EN55015, EN61000-3-2		
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Others	Packing (weight)	Net weight: 140g±5%/pc; 70pcs/ctn; 10.5KG±5%/ctn; Carton size: 39 x 29 x 21 cm (L*W*H)		
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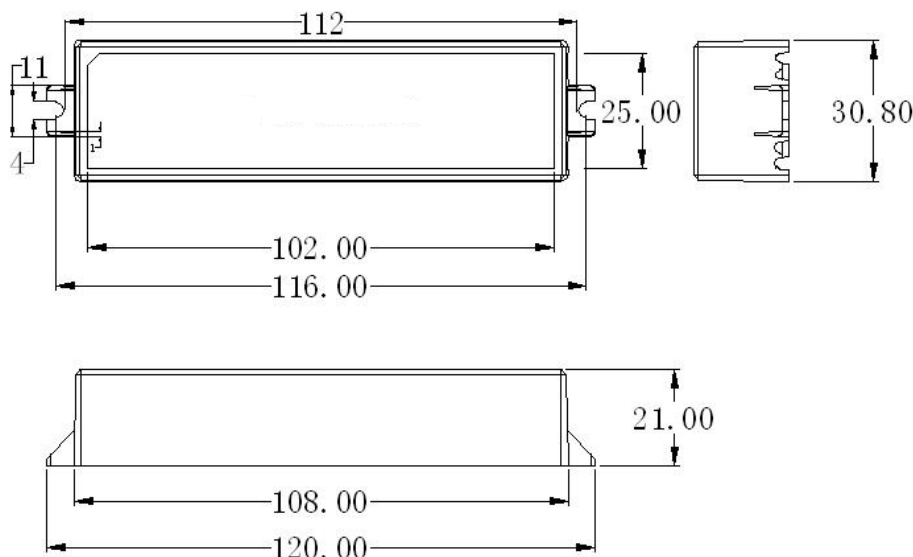
Test conditions	The parameters above including the power factor, THD, efficiency are all tested under the ambient temperature 25°C and humidity 50%, AC input 230V and 90% DC load.
Additional Remark	<ol style="list-style-type: none"> 1. In the power supply circuit, it is recommended that the customer should install an over-voltage protection and surge protection device to ensure the safety of using electricity. 2. The PC cover, shell, end caps used together with the LED driver inside the LED lamp must meet the UL94V-0 fire rating level or above. 3. As a part of the LED lamp, the LED driver is not the only factor determining the EMC performance of the LED lamp. And the EMC performance is also related to the LED lamp's structure and the wire routing. Thus we strongly recommend the manufacturer of the finished LED lamp must re-confirm the EMC of the LED lamps.

3. Product Referenced Lifetime Curve

The curve below illustrates the driver's lifetime data when the LED driver's Max. case temperature reaches 40°C, 50°C, 60°C, 70°C, 80°C and 90°C.



4. Dimensional Drawing (unit: mm)



5. Wire Connection Diagram:



Remarks:

- AC_L: PVC UL 1015 lead wire AWG#18, single core, black, 250mm
- AC_N: PVC UL 1015 lead wire AWG#18, single core, white, 250mm
- LED+: PVC UL 1015 lead wire AWG#18, single core, red, 250mm
- LED-: PVC UL 1015 lead wire AWG#18, single core, blue, 250mm
- DIM+: PVC UL 1015 lead wire AWG#22, single core, purple, 250mm
- DIM-: PVC UL 1015 lead wire AWG#22, single core, gray, 250mm

6. Dimmable Feature

1) 0-10V dimmable, dimming range 0%~100%.

voltage signal	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Output current percentage	off	5%	17%	30%	40%	55%	68%	80%	93%	100%	100%	95%-105%

2) Resistor dimmable, dimming range 10%~100%, resistance value range 10kΩ~100kΩ.

Resistance value	10kΩ	20kΩ	30kΩ	40kΩ	50kΩ	60kΩ	70kΩ	80kΩ	90kΩ	100kΩ	OPEN
Output current percentage	4%	10%	17%	27%	36%	44%	53%	60%	68%	76%	95%-105%

3) PWM dimmable, dimming range 10%~100%, 10V voltage amplitude, frequency of PWM signal 500Hz~5KHz.

PWM signal	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Output current percentage	5%	17%	25%	40%	50%	60%	70%	80%	90%	100%	95%-105%

Remark: The output current percentages above are typical values.