

DALI2.0 LED Driver

Outdoor 40 W Programmable

SL-LU70140D1WW



High Efficiency Constant Current LED Driver With Active Power Factor Correction



IP67

Features & Benefits

- Output current range: 350 - 700mA Adjustable output current by DALI 2.0 or U/I
- Output voltage range: 30 - 56 Vdc @ Iset = 350mA
30 - 50 Vdc @ Iset = 700mA
- Output power range: Max. 38 W
- Dimming control: DALI 2.0
- Input voltage: 120 - 277 Vac, 50 / 60 Hz
- Safety: IEC/EN 61347-1, IEC/EN 61347-2-13
- EMI: EN 55015, EN 61547, AN/NZS CISPR15:2009
- Protections: Over Load, No Load, Short Circuit, Over Voltage, Over Temperature
- t_a range: -40 ~ +50 °C
- Expected lifetime(B10): 180,000 hrs @ $t_c=78^{\circ}\text{C}$, Load=52V/350mA
- Environmental compliance: RoHS
- Long lasting & high reliability
- Metal housing
- Flickerless

Applications

- LED Street Lighting
- Outdoor LED Lighting

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1. Characteristics

Article		Symbol	Specification			Unit	Note
			Min.	Typ.	Max.		
INPUT SPECIFICATIONS							
Nominal voltage		Vin	120 ~ 277			Vac	
Voltage range			108		300		
Nominal frequency		fin	50 / 60			Hz	
Frequency range			47		63		
Input current	At 120 Vac	Iin	0.4			A	At load=50V/700mA with aux.load
	At 277 Vac		0.2				
Total harmonic distortion		THD	20			%	At Vin=120Vac, load=40% ↑ , At Vin=240Vac, load=40% ↑ , At Vin=277Vac, load=75% ↑ With aux.load
Power factor		PF	0.9			-	
Efficiency	Iset=350mA	η	80	84.8		%	At Vin=240Vac/50Hz, Without aux.load ±0.5%η
	Iset=700mA		86	89			
In-rush current			40	50	Apk		
OUTPUT SPECIFICATIONS							
Output voltage	Iset=350mA	Vo	30		56	Vdc	
	Iset=700mA		30		50		
Peak voltage		Vp		62	Vdc	Open circuit, No-load protection	
Output current		Io	350		700	mA	±5%Io, Adjustable output current
Minimum output current		Imin	35				Dimming by DALI 2.0 protocol
Auxiliary output voltage		Vaux	21.6	24	26.4	Vdc	Meet the DiiA specification, Aux power supply part. Pavg=3W
Auxiliary output current		Iaux		125		mA	
Output power		Po			38	W	With aux.load
Turn-on delay time		Td		0.7	1	s	At load=50V/700mA, Vin=120Vac

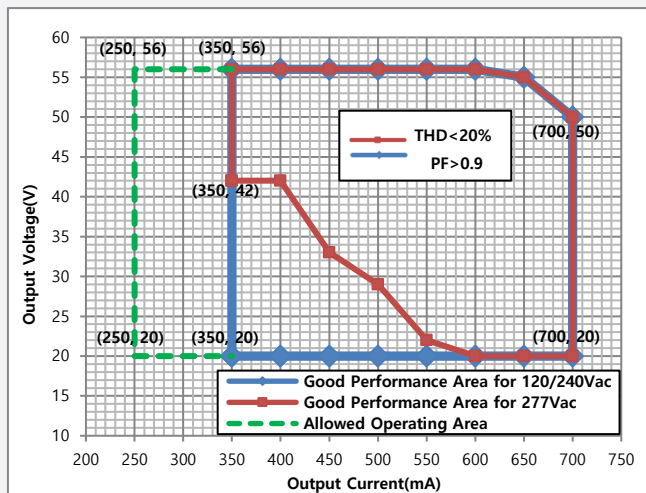
Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
ENVIRONMENTAL SPECIFICATIONS						
Ambient temperature	t _a	-40	25	50	°C	
Case temperature	t _c			85	°C	Measured at t _c point as indicated on the product label
Storage temperature	t _s	-40	25	80	°C	Cool down before operating
Relative humidity		20		85	%	
IP rating			67		-	Suitable for outdoor environment
Expected lifetime (B10)		180,000			hrs	tc=78°C, Load=52V/350mA
MTBF		411,004				tc=40°C, Load=50V/700mA
Dimensions	L x W x H	5.31 x 2.68 x 1.24			inch	
		135 x 68 x 31.4			mm	
Net weight			460		g	± 10 g

2. Safety Standards

Safety standard	Description
IEC/EN 61347-1, IEC/EN 61347-2-13	IEC/EN Safety standards
EN 55015, EN 61547, AS/NZS CISPR15:2009	Conducted and radiated emission test
IEC/EN 61000-3-2	Harmonic current emission : Class C
IEC/EN 61000-3-3	Voltage fluctuations and flicker
IEC/EN 61000-4-2	Electrostatic discharge(ESD)
IEC/EN 61000-4-3	Radio-frequency electromagnetic fields
IEC/EN 61000-4-4	Electrical fast transient(EFT)/Burst
IEC/EN 61000-4-5	Surge
IEC/EN 61000-4-6	Injected currents
IEC/EN 61000-4-8	Power frequency magnetic fields
IEC/EN 61000-4-11	Voltage dips and short interruptions
IEC 60529 : 2013 Degrees of protection provided by enclosures(IP Code)	IP Grade(IP67)
IEC/EN 62386-101, 102, 207	DALI 2.0 protocol

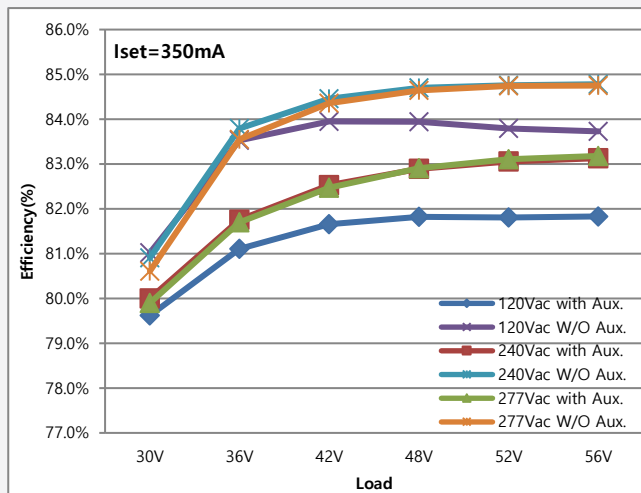
3. Typical Characteristics Graphs ($I_{set}=350mA$)

a) Operating Window

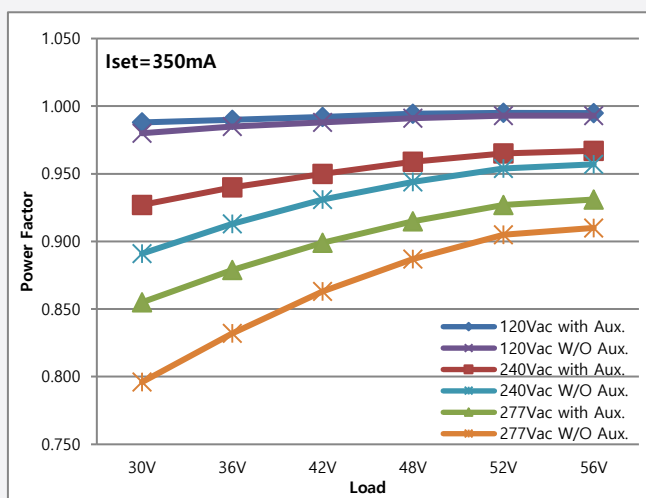


※ The expanded area can be set by SMPro v.3.0.0.

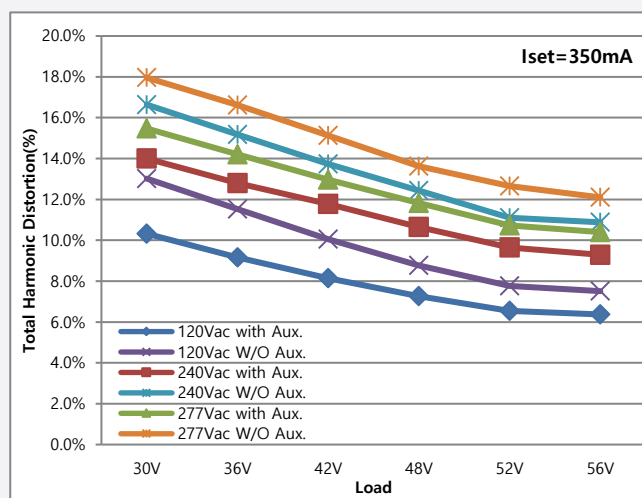
b) Efficiency vs. Load



c) PF vs. Load

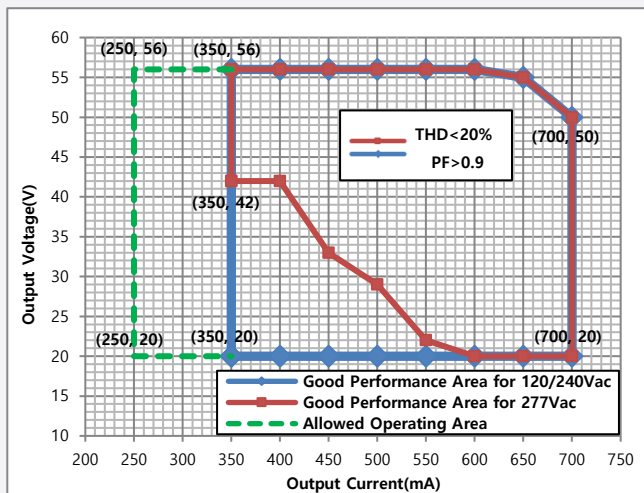


d) THD vs. Load



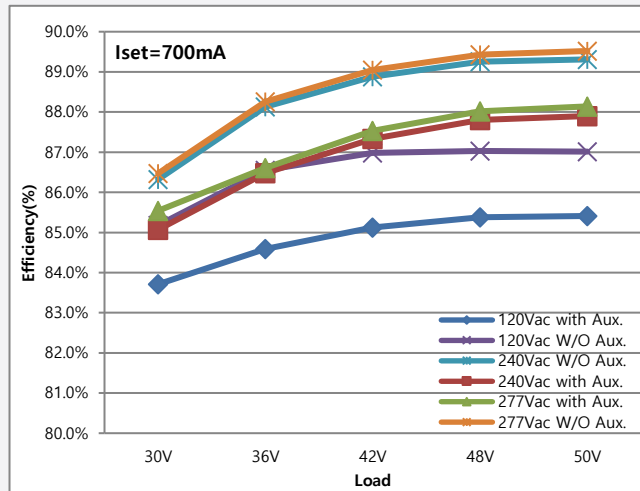
3. Typical Characteristics Graphs (I_{set}=700mA)

a) Operating Window

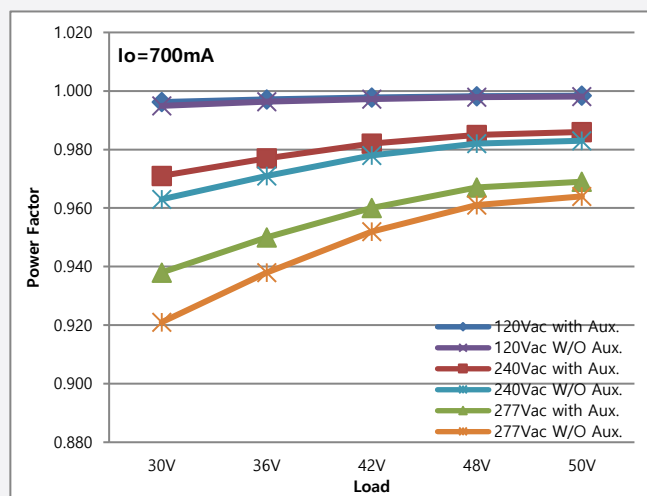


※ The expanded area can be set by SMPro v.3.0.0.

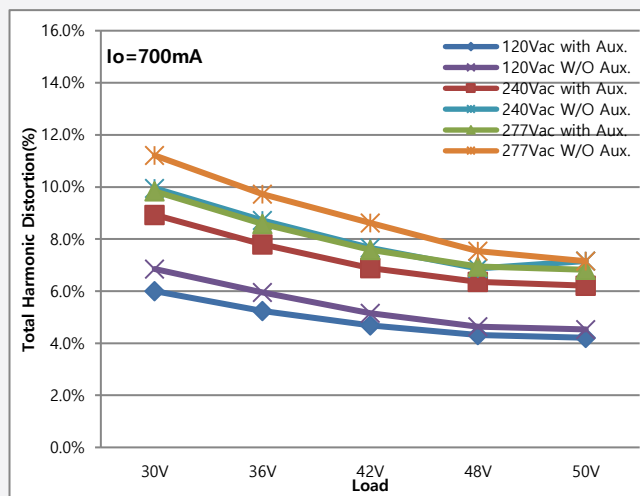
b) Efficiency vs. Load



c) PF vs. Load



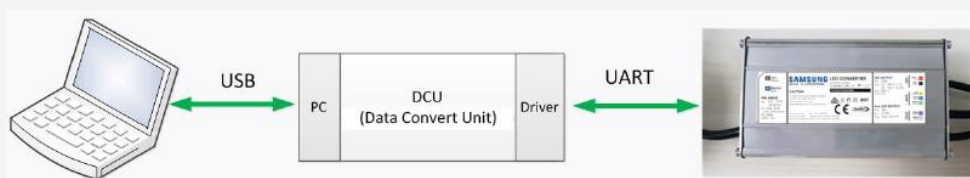
d) THD vs. Load



4. Output Current Setting Process

The programmable driver can be programmed by using special U/I software or DALI 2.0 protocol. After installing the U/I software, follow steps below.

1. Run the U/I software named SMPro v3.0.0.
2. Select the LED driver model(1. 35W 350-700mA 5% DALI).
3. Connect DCU(Data Convert Unit) and PC first. The connection status of DCU changes to 'Programming tool ready'.
4. Connect DCU and LED Driver. The connection status of LED Driver changes to 'LED Driver detected'.



5. Select the output current value.
6. Click the 'View/Driver setting' button. Then another window will be opened and you can write the luminaire information on it. After writing the luminaire information, and then click the ✓ button.

The screenshot shows the SMPro v3.0.0 software interface. The 'Device' tab is selected, showing a table of LED driver models. The 'LED Driver Model' is set to '1. 35W 350-700mA 5% DALI'. The 'DCU Connect' status is 'OK'. The 'Driver Setting' window is open, showing various settings for the selected driver. The 'Set Output Current' section is highlighted, showing 'Minimum Current: 250 [mA]', 'Maximum Current: 700 [mA]', and 'Select Output Current: 700 [mA]'. The 'View/Driver setting' button is highlighted. The 'Download' button is also highlighted. The 'Programming tool ready' and 'LED Driver detected' status bars are visible at the bottom.

7. Click the 'Download' button to apply the changed value and the luminaire information into LED driver.
8. You can check the programming result on 'Device Information' from 'Device' menu tab.

The screenshot shows the 'Driver Information' window. It displays the model name 'OPU350P701D1U', serial number 'H119019630001', and various settings for the LED driver. The 'Set Output Current' is set to 250 [mA]. The 'Dimming' section is checked, showing '0-10V Dimming', 'Time Dimming', 'DALI', and 'SLM'. The 'LED Module Thermal Protection' section is also checked, showing 'Temperature Derating Start', 'Temperature Derating End', and 'Minimum Output Level'. The 'End-Of-Life Indicator' section is checked, showing 'Set Driver end-of-life time to'. The 'Auxiliary Output' section is checked, showing '12V', '20V', and '24V'. The 'Download' button is highlighted.

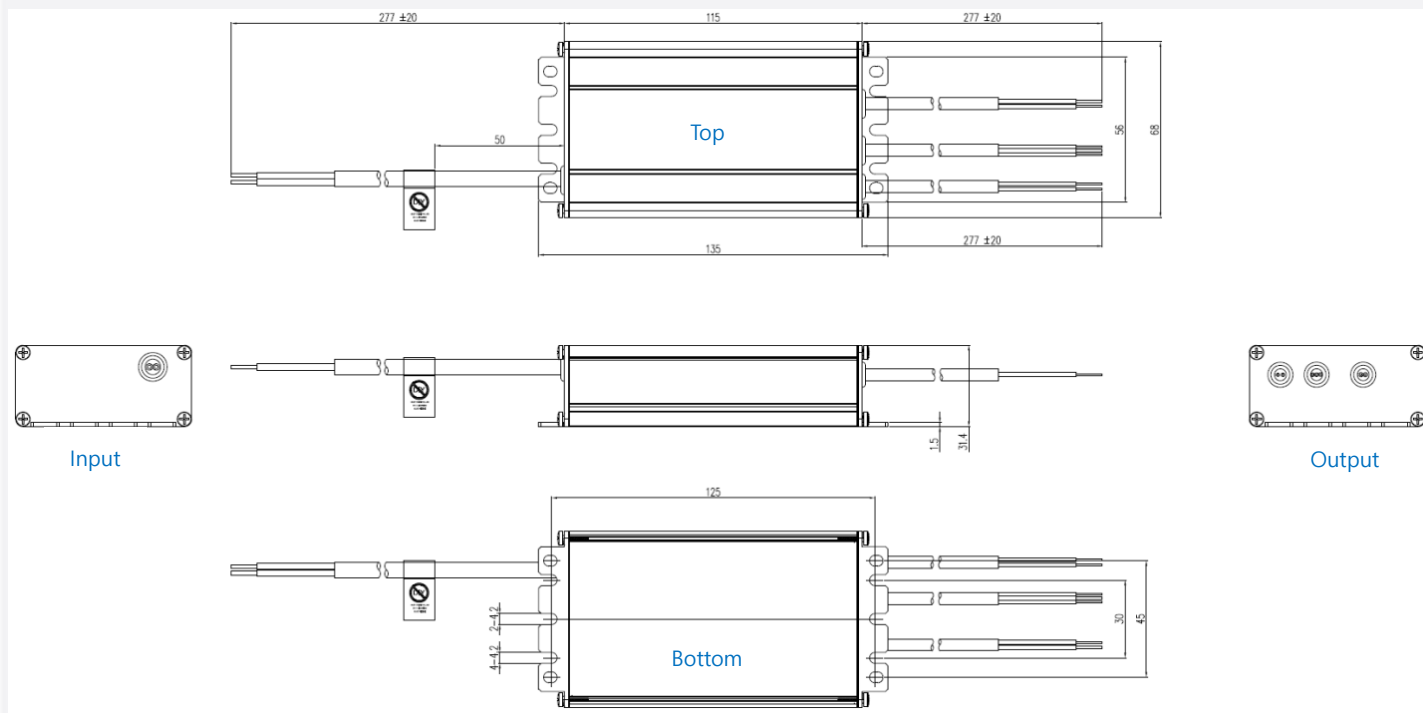
5. Reliability

Test Items and Conditions

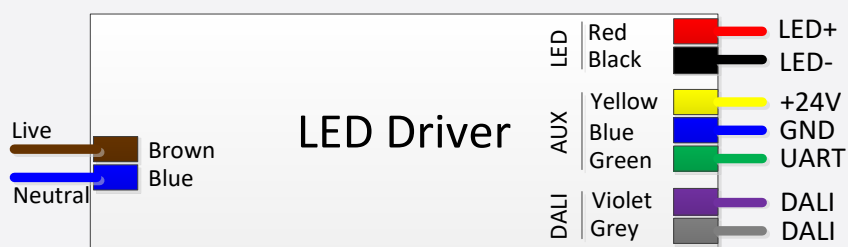
Test Item		Specification	Condition
Leakage current		< 0.5 mA	
Hi-pot	Input – Output	3750 Vac, 60 s, ≤ 10 mA	
	Input – Case	3750 Vac, 60 s, ≤ 10 mA	
	Output – Case	500 Vdc, ≤ 10mA	
Insulation resistance	Input – Output	500 Vdc, 60 s, ≥ 10 MΩ	
	Input – Case	500 Vdc, 60 s, ≥ 10 MΩ	
Surge	L / N	±6 kV	Combination waveform
	LN / FG	±10 kV	
ESD	Contact	±6 kV	
	Air	±10 kV	

6. Outline Drawing & Dimension

a) Dimension (mm)

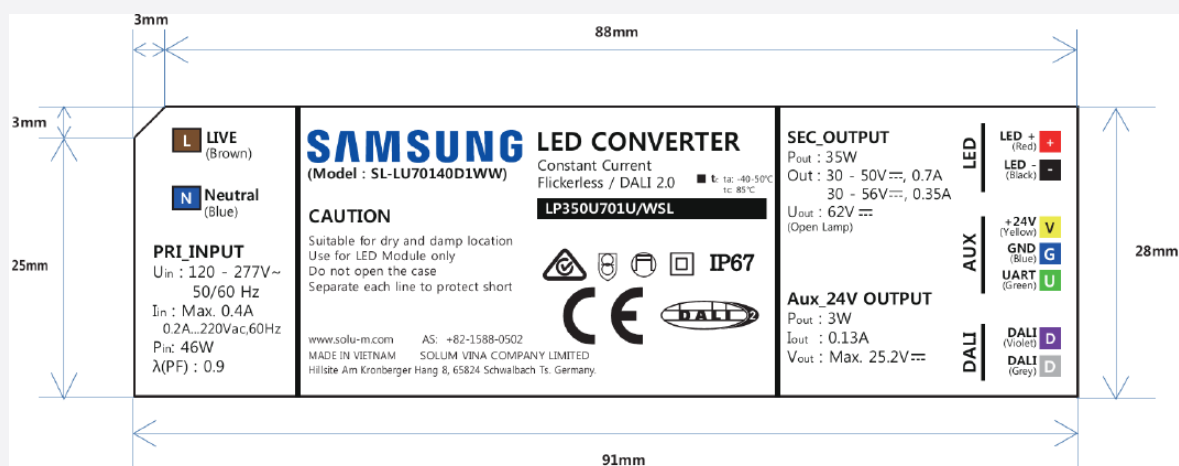


b) Wiring



Name	Feature	Color	Purpose
LED+	Positive output	Red	Supply power to LED module
LED-	Negative input	Black	Power ground
Aux.	Auxiliary output	Yellow	Supply 24V/3W to sensor or dimmer
GND	2 nd Ground	Blue	Signal ground
UART	Parameter setting	Green	Adjustable PSU parameters through User Interface
DALI	DALI port	Violet	DALI communication line
DALI	DALI port	Grey	DALI communication line

7. Label Structure



8. Packing Structure

Packing material	Max. quantity (pcs)	Dimension (mm)		
		Length	Width	Height
Outer box	20	420	325	126
Pallet	960 (48 outer boxes)	1130	1130	117

9. Precautions in Handling & Use

- To prevent the LED Driver from any defect, please handle and store it with care
 - Do not drop or give shock
 - Do not store in very humid location or at extreme temperature
 - Do not open or disassemble the product
- Static electricity or surge voltage may damage the components inside LED Driver, as such please observe proper anti-electrostatic working process
 - People handling the Driver should be well grounded (e.g. using ESD wrist band) and wear anti-static working clothes and gloves
 - All related devices and instruments in the production line should be well grounded (e.g. working table, measuring equipment, assembly jigs)
- Observe the correct polarity of output terminal
- Avoid input voltage exceeds the maximum rating, which will cause damage to the circuit and result in malfunction

Legal and additional information.

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