

LED Driver

DALI Performance Series



40W Constant Current LED Driver With DALI Dimming Interface Data Sheet

For the latest revision, please visit <https://power.liteon.com>

Description

This is a versatile DALI window LED Driver which can output 40 watts of continuous power and with flexibility in designing luminaires used in DALI networks. These drivers offer the needed performance for the application with the precise tuning of drive currents and selectable dimming curves. It complies with worldwide safety and EMC regulations (refer to details below) for various LED applications.

Features

- * High Power Factor
- * Low Total Harmonic Distortion
- * Standby Power <0.5 W
- * Up to 100,000 Hrs Lifetime
- * Low Flickering With Amplitude Dimming Control
- * Full Protections: Short-circuit/ Over-voltage/ Over-power / Over temperature
- * IEC 61347-1/ IEC 61347-2-13 Certificated
- * Suitable For Emergency Lighting (EL)



Electrical Specification

Model Name	RE-1400-89LR
Output	
Rated power(note #2)	40 W
Rated voltage	25-48 V
Rated current (note #3)	0.35-0.86 A
Ripple current (note #4)	±5 %
Start-up time(Typ.)	700 mS
Input Specification	
Rated voltage range	220-240 Vac
Input voltage AC	198-264 Vac
Input voltage DC	180-270 Vdc
Current range (typ.) (note #5)	0.21 A
Power factor (note #6)	≥0.95
Total Harmonic Distortion (note #6)	≤20 %
Emergency Output Factor EOFi	0.9
Inrush current (max.) (note #7)	60 A/350 uS

Frequency range	0 / 50-60 Hz
Leakage current (max.)	0.7 mA
Efficiency (Typ.) (note #8)	87 %
Standby power	<0.5 W
MCB	
Max. Driver no. on circuit breaker 10 A	14
Max. Driver no. on circuit breaker 16 A	23
Max. Driver no. on circuit breaker 25 A	36
Protection Function	
Over voltage (max.)	≤ 60 Vdc, no damage and Latched-off
Over power (max.)	105 % of rated power, no damage and Latched-off
Short circuit	No damage and Latched-off
Over temperature	No damage and Latched-off
IP Rating	IP20
Others	
Lifetime (note #9)	100,000 Hrs
Failure rate (note #9)	10 %
Acoustic Noise	Under 25 dB, 30 CM, full load
Switching Cycle	100,000 times
Dimming Function	
Dimmable	Yes
Dimming range (note #10)	1-100 %
Dimming interface	DALI-2 、 Push Dim
Suitable for emergency lighting	Yes
Environment	
Tc-max	80 °C
Temperature	(operating) -20~50 °C / (storage) -20~80 °C
Humidity	(operating) 10~85 % RH non-condensing / (storage) 5~90 % RH
Max. cable length to lamp/LED module	2 meters
Warranty year	5
Mechanical	
Dimension	284(L)*31(W)*21mm(H)
Vibration	1.146 Grms / 5~200 Hz / six sides (30 minutes for each side)
Weight (Typ.)	250 g
Cable cross-section, input side	0.5-0.75 mm ²
Cable cross-section, output side	0.5-0.75 mm ²
Wire preparation length, input side	8-9 mm

Wire preparation length, output side	8-9 mm			
Safety				
Standard	IEC 61347-1:2015 / IEC 61347-2-13:2014 +A1 :2016 / CE / ENEC / IEC62386-101, 102, 207 / UKCA			
Hi-pot	Input-Output: 3000 Vac / Input-FG: 1500 Vac / Input-DALI: 1500 Vac DALI-Output: 1500 Vac			
Isolation	Insulation	AC Input Terminal	SELV Output Terminal	DALI Terminal
	AC Input Terminal	-	Reinforced	Basic
	SELV Output Terminal	Reinforced	-	Reinforced
	DALI Terminal	Basic	Reinforced	-
Protection Class	Class I			
EMC				
EN55015 (note #11)	Conducted: class B / Radiated: class B			
EN61000-3-2	Harmonic distortion: class C			
EN61000-3-3	Voltage Fluctuations & Flicker			
EN61000-4-2	ESD: ±4 kV contact discharge / ±8 kV air discharge			
EN61000-4-3	Radiated RF immunity: 3V/m			
EN61000-4-4	EFT: ±1 kV (AC input power) / ±500 V (DC input power) / ±500 V (Signal and Control lines)			
EN61000-4-5	Surge: ±1 kV DM / ±2 kV CM			
EN61000-4-6	Conducted RF immunity: 3 V			
EN61000-4-11	Voltage dip immunity			

Notes

#1: All specifications are defined at 230 Vac/50 Hz rated power, and 25 °C ambient temperature if not mentioned specifically.

#2: Partial load 8.75...38.7 W

#3: Output current regulation ± 5 %.

#4: Ripple current is defined under 120 Hz.

#5: ± 10 %.

#6: At Full load.

#7: 240 Vac/50 Hz & max. output wattage. (cold start)

#8: Efficiency is measured at full load after burn in 30 minutes.

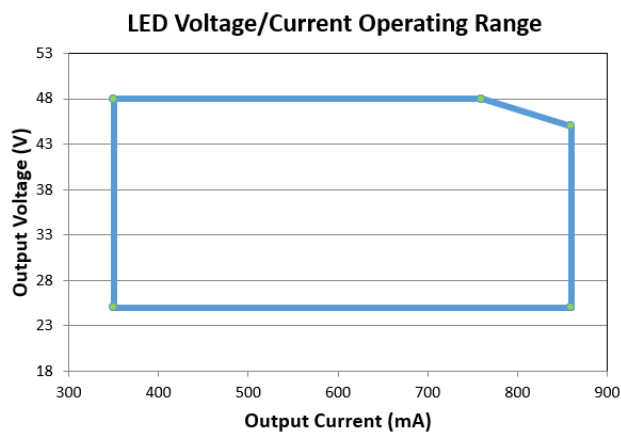
#9: At full load / 65 °C Tc.

#10: Min. dimming level is 5 mA.

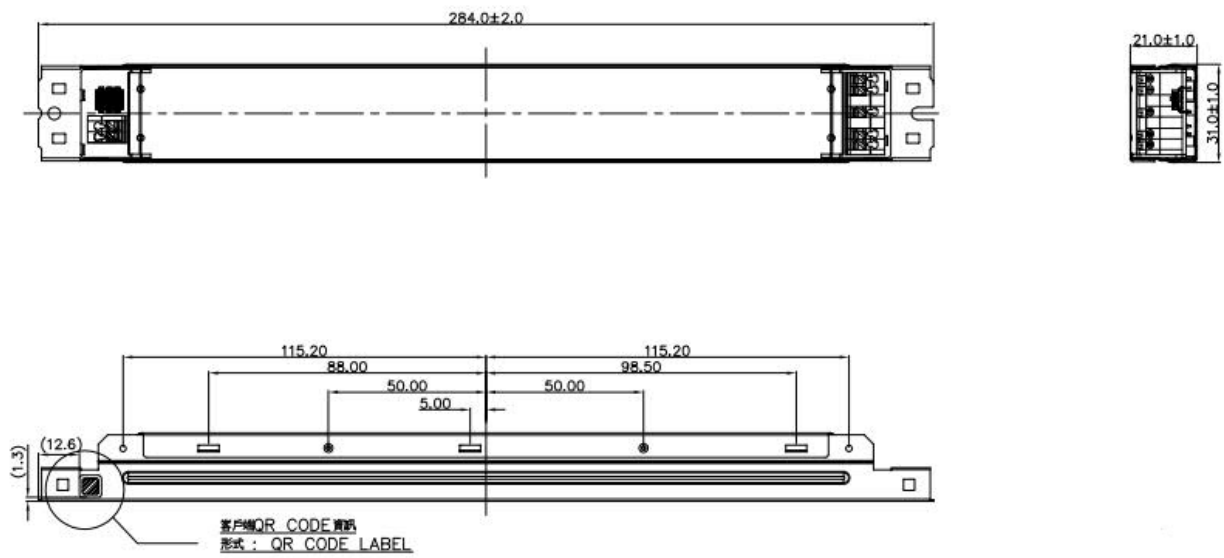
#11: The test is conducted with a suggested setup that includes a driver and LED modules combination mounted on a metal plate and is verified in insulation Class I configuration.

#12: At dimming-off mode, around 15 V (max.) voltage on the output terminal, please make sure LED Load is designed within guaranteed range.

Operating Window



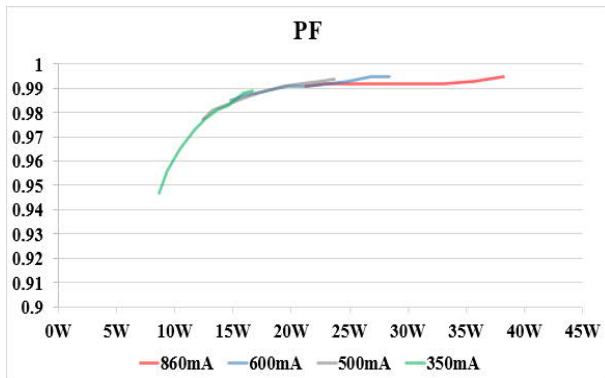
Mechanical Specification



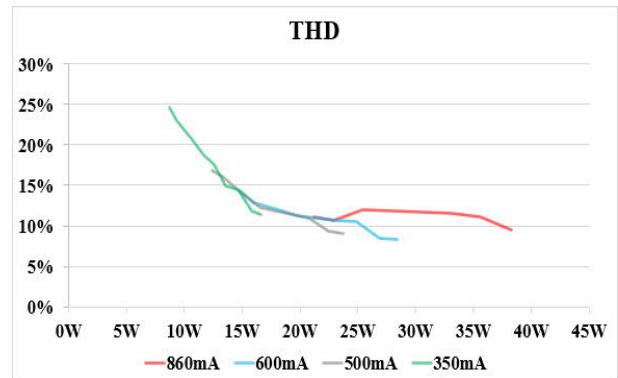
Performance Characteristics

All specifications are defined at 230 Vac/50 Hz rated power, and 25 °C ambient temperature with 30 minutes burn-in. Based on measurements on a typical sample. The accuracy of the measurements is within the tolerance of the measurement instruments.

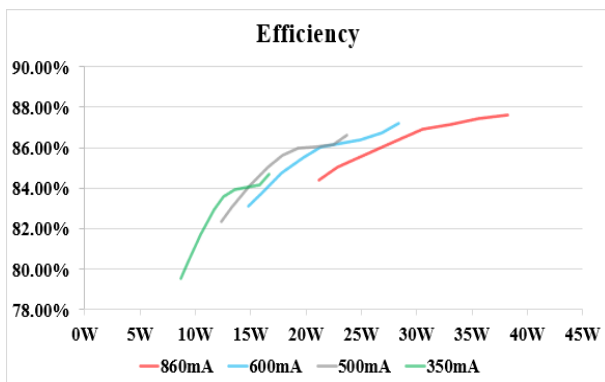
Power Factor Vs. Output Power



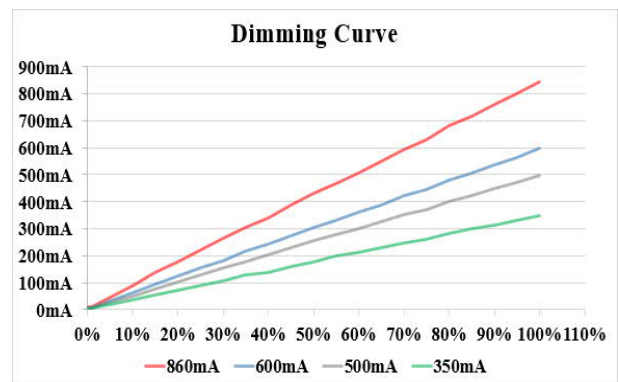
Total Harmonic Distortion Vs. Output Power



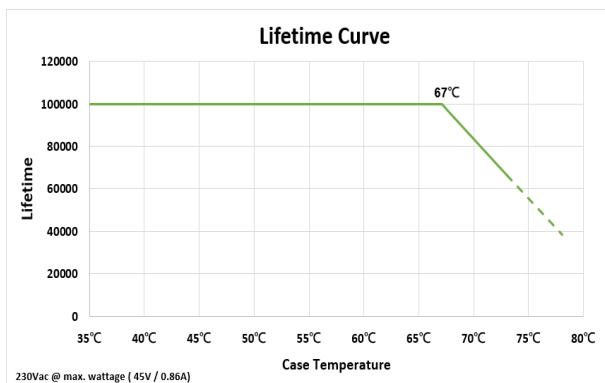
Efficiency Vs. Output Power



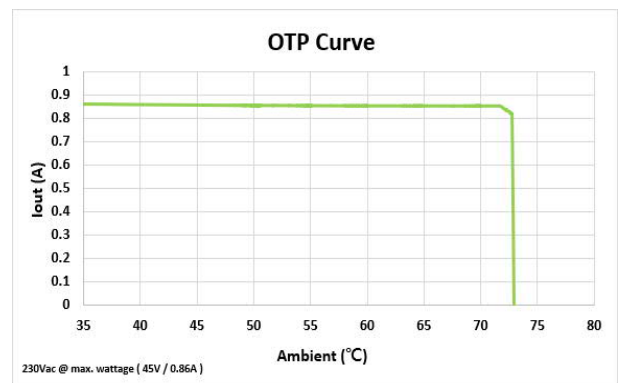
Output Current Vs. Dimming Percentage



Lifetime Vs. Driver Case Temperature



Output Current Vs. Ambient Temperature



Notes

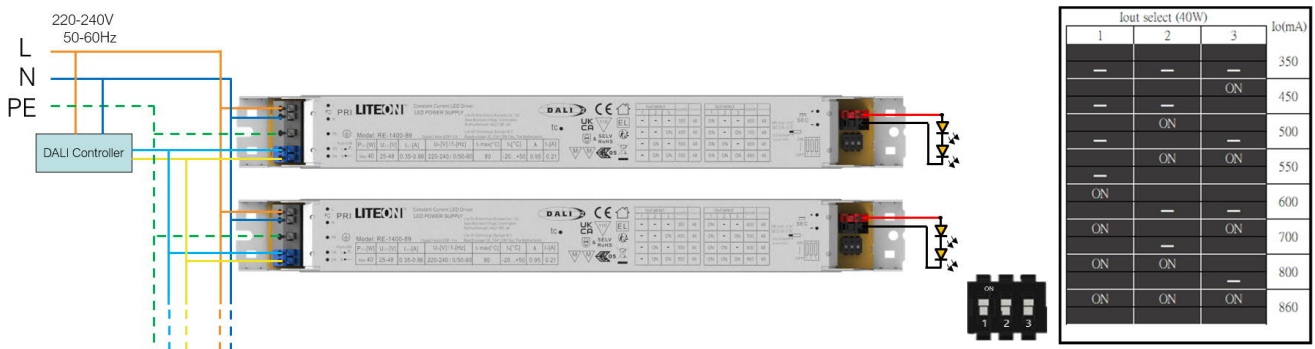
#13: Programmable temperature & humidity chamber: Chroma THS-B4T-150 / E-Load: Prodigit 3340F、3341F.

Push Dim Information

Action	Action duration	Push-button	LED Status
Initialization	Time > 1 s	Press and hold the Push-button still the brightness decreases	Initialization
LED turn off	Time < 0.5 s	Click the push-button one time	Off
LED turn on	Time > 0.5 s	Press the push-button one time	On
Dimming	Time 1 s ... 5 s	Dimming brightness up or down, the initial dimming direction is defined from 100 % to 1 %. Every long push changes the dimming direction	Dimming up or down
Reset	Time > 10 s	Long press and hold push-button, reset control gear output current as default value (100 %). Or remove AC input voltage from AC input port and then plug in again.	Reset brightness to the default value (100 %)

Installation

DALI Installation: Max. 64 LED drivers can be connected.



Push Dim Installation: Max. 15 LED drivers can be connected.

