LED Driver
DALI Performance Series

LITEON

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

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

* Up to 89 % Efficiency

* AC Loop Through Availability

* Up to 100,000 Hrs Lifetime

* DALI 2.0 Certificated

* Full Protections: Short-circuit / Over-voltage / Over temperature

* Standby Power < 0.5 W

* IEC 61347-1 / IEC 61347-2-13 Certificated

* Suitable For Emergency Lighting (EL)

Electrical Specification

Model Name	PE-1360-99DK
Output	
Rated power (note #2)	40 W
Rated voltage	24 - 48 V
Rated current (note #3)	0.5 - 1.1 A
Ripple current (note #4)	±5 %
Start-up time (Typ.)	700 mS
Input Specification	
Rated voltage range	200 - 240 Vac
Input voltage AC	180 - 264 Vac
Input voltage DC	180 - 264 Vdc
Max. Input Current	0.31 A
DC Input Current (Typ.)	0.22 A
Min. Power factor (note #5)	0.9

Max. Total Harmonic Distortion (note #5)	20 %
Emergency Output Factor EOFi	0.9
Inrush current (note #6)	25 A / 195 uS
Frequency range	0 / 50 / 60 Hz
Leakage current (max.)	0.7 mA
Efficiency (min.) (note #7)	88 %
Standby power	< 0.5 W
MCB	
Max. Driver no. on circuit breaker 10 A	17
Max. Driver no. on circuit breaker 16 A	27
Max. Driver no. on circuit breaker 20 A	34
Protection Function	
Over voltage (max.)	< 60 Vdc, auto recovery
Short circuit	Auto recovery
Over temperature	Output current decrease then shut down
Others	
Lifetime (note #8)	100,000 Hrs
Acoustic Noise	Under 25 dB, 30 CM, full load
Dimming Function	
Dimmable	Yes
Dimming range	1 - 100 %
Dimming interface	DALI-2 、 Push Dim
Suitable for emergency lighting	Yes
Environment	
Tc-max	90 °C
Temperature	(operating) -25~60 °C / (storage) -25~85 °C
Humidity	(operating) 10~90 % RH non-condensing / (storage) 5~95 % RH
Mechanical	
Dimension	200(L) * 74(W) * 25.5mm(H)
Vibration (with shipping container)	1.146 Grms / 5~200 Hz / six sides (30 minutes for each side)
Vibration (operation)	2 Grms / 10~500 Hz / X, Y, Z axis (15 minutes for each axis)
Weight (Typ.)	237 g
Cable cross-section, input side	0.5 - 2.5 mm^2
Cable cross-section, output / DALI / AOC side	0.5 - 1.5 mm^2
Wire preparation length, input side	10 - 11 mm
Wire preparation length, output / DALI / AOC side	8.5 - 9.5 mm
Clamping box Screw Torque	8.0 ± 0.5 kgf-cm

Safety	
Standard	IEC 61347-1:2015 / IEC 61347-2-13:2014 +A1 :2016 / CCC / CE / ENEC / IEC62386-101, 102, 207 / RCM
Hi-pot	Input-Output: 3750 Vac / Input-DALI: 1500 Vac
Isolation	(see table below)
Protection Class	Class II

Insulation	AC Input Port	SELV Output Port	DALI Port
AC Input Port		Reinforced	Basic
SELV Output Port	Reinforced		
DALI Port	Basic	Supplementary	

EMC	
EN55015	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, class B
EN61000-4-3	Radiated RF immunity: 3V/m
EN61000-4-4	EFT: ±1 kV (AC input power)
EN61000-4-5	Surge: ±1 kV DM / ±2 kV CM, class B
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 12 … 39.6 W

#3: Output Current Regulation ±5%

#4: Ripple current is defined under 120 Hz (peak / average).

#5: At 50 % ~ 100 % load.

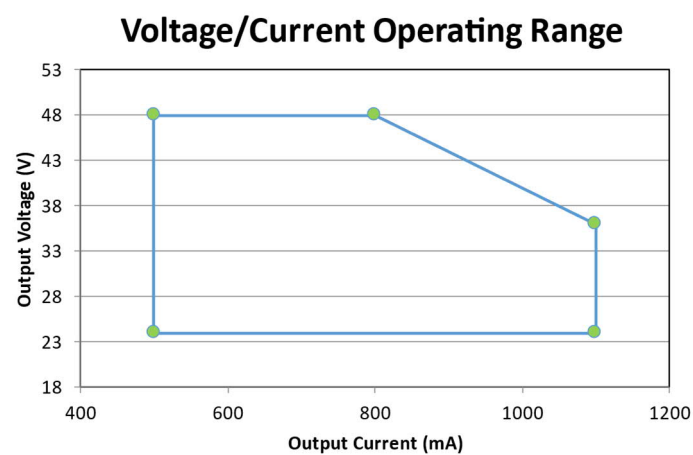#6: 230 Vac / 50 Hz & max. output wattage. (cold start)

#7: Efficiency test condition at 700 mA / 48 V output.
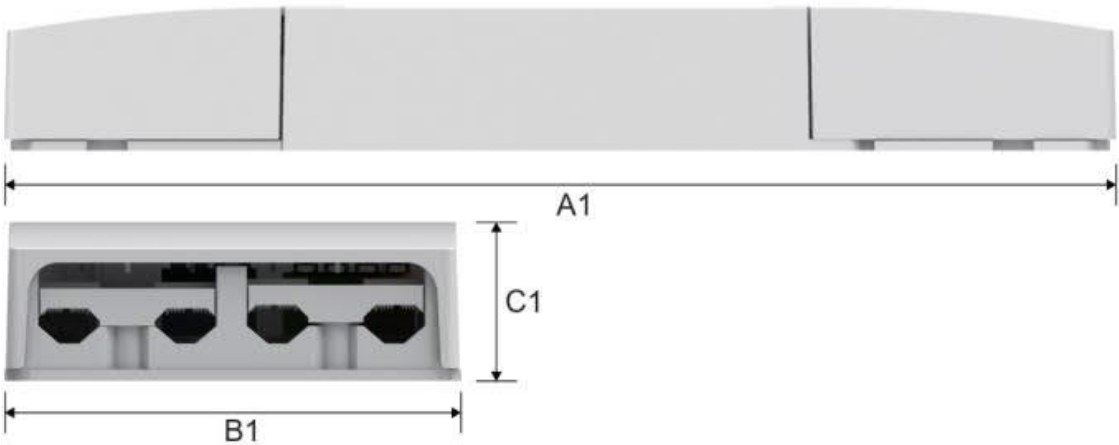
#8: At 700 mA / 48 V output, 65 °C Tc.

#9: Push dim function is designed for manual control, it is not suitable for a connection to an automation.

#10: Clamp clip can be applied both upward and downward to have wiring properly.

Operating Window

Voltage/Current Operating Range
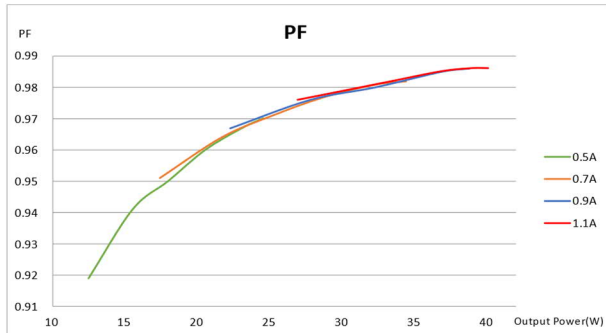

Mechanical Specification

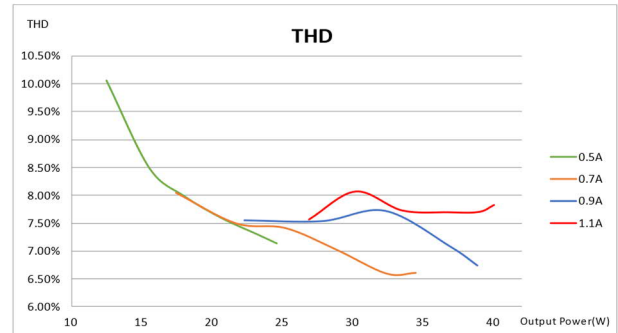| Item	Value	Unit
Length (A1)	200.0±1	mm
Width (B1)	74±1	mm
Height (C1)	25.5±1	mm

Performance Characteristics

All specifications are defined at 230 Vac / 50 Hz rated power, and 25℃ ambient temperature with 30 minutes burn-in.
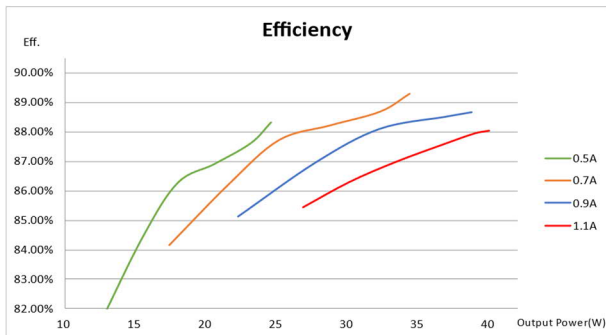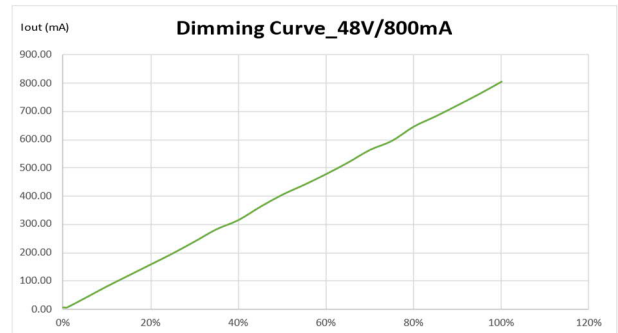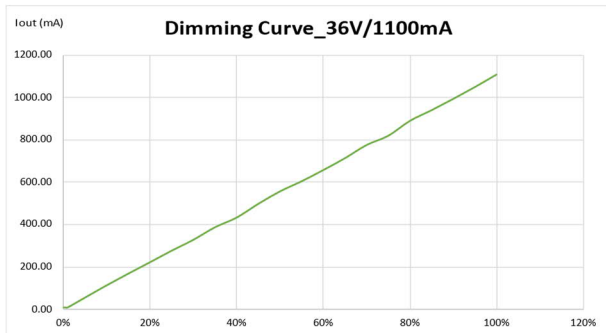
Power Factor Vs. Output Power

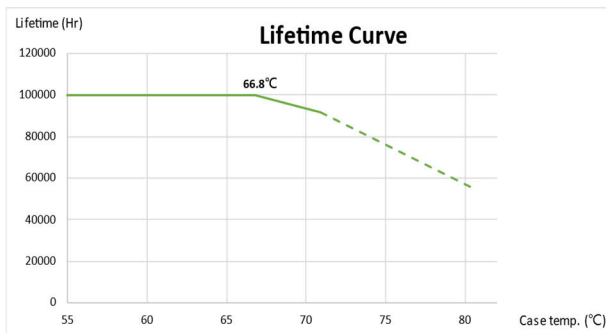Total Harmonic Distortion Vs. Output Power

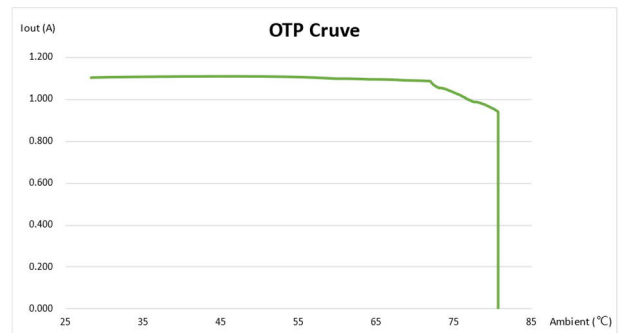Efficiency Vs. Output Power

Output Current Vs. Dimming Percentage

Lifetime Vs. Driver Case Temperature
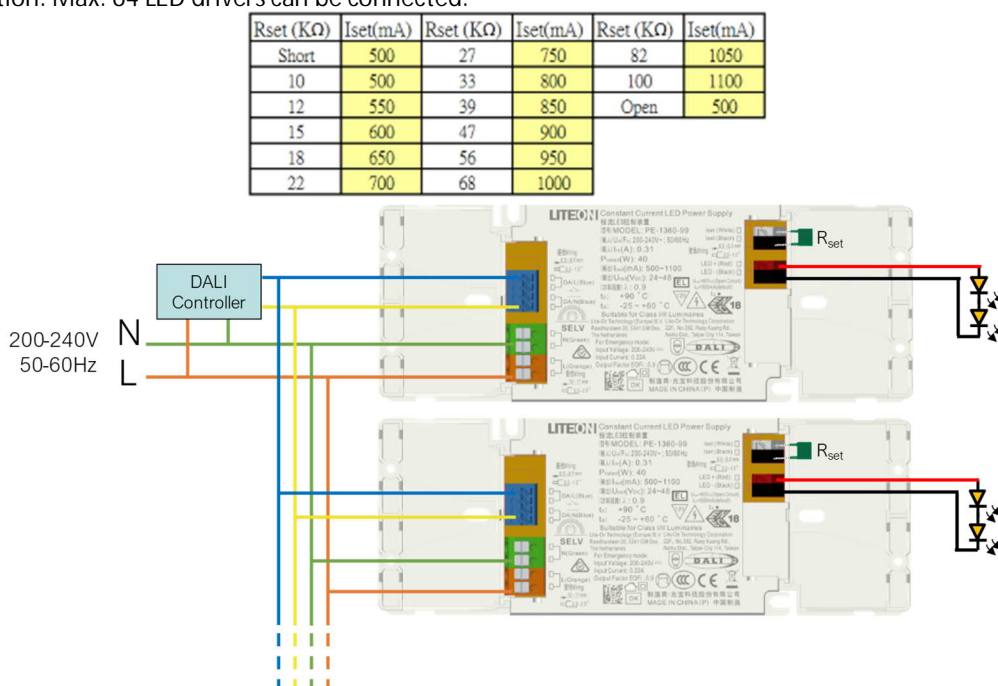

Output Current Vs. Ambient Temperature

Notes

#11: 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.

Rset (KΩ)	Iset(mA)	Rset (KΩ)	Iset(mA)	Rset (KΩ)	Iset(mA)
Short	500	27	750	82	1050
10	500	33	800	100	1100
12	550	39	850	Open	500
15	600	47	900		
18	650	56	950		
22	700	68	1000		

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