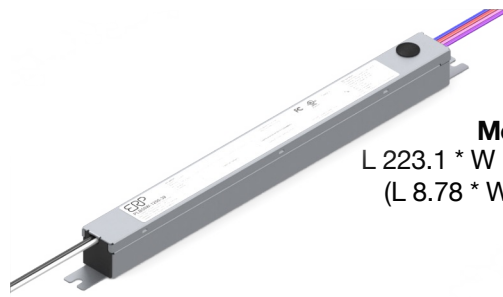
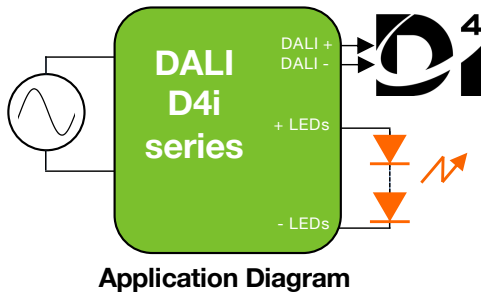


15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

Input Voltage	Max. Output Power	Efficiency	Max. Case Temperature	THD	Power Factor	Dimming Method	Dimming Range	Startup Time
120 - 277 Vac	50 W	up to 90% typical	90°C (measured at the hot spot)	< 20% @ max load	> 0.9	DALI D4i	1 - 100% (% of Iout)	300 ms typical



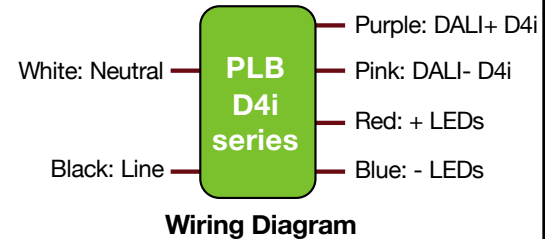
Metal Case
L 223.1 * W 18.25 * H 18.65 mm
(L 8.78 * W 0.72 * H 0.73 in.)

FEATURES

- Complies with the following IEC 62386 sections/parts:
 - Part 101 General Requirements
 - Part 102 Control Gear
 - Part 207 LED Drivers
 - Part 250 Integrated Bus Power Supply
 - Part 251 Memory Bank1 Extension (luminaire data)
 - Part 252 Energy Reporting
 - Part 253 Diagnostics Data

Certification data available from the [DALI alliance product database](#).

- UL8750 Class P/Class 2 power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 90°C maximum case hot spot temperature
- IP20-rated case with silicone-based potting
- Indoor surge protection:
 - IEC61000-4-5: 2 kV line to line/2 kV line to earth
 - 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®), IEEE-1789, and CA Title 24 technical requirements
- The PLB series is also available with only 0-10V. Please refer to the PLB series data sheet.



PROGRAMMING

- Serial port programming with USB audio jack programming cable
- Current: 100% to 60% in each voltage range
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., fault events: power failure, transients (short or surge), thermal



15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

1 - ORDERING INFORMATION

ERP Part Number	Input Voltage (Vac)	Max Output Power (W)	Iout (mA) ⁽¹⁾	Default Programmed Current (mA) ⁽³⁾	Vout Min. (Vdc)	Vout Nom. (Vdc)	Vout Max. (Vdc) ⁽²⁾	Open Loop (No Load) Voltage (Vdc)
D4i 15W								
PLB15W-0300-38-D4i	120 - 277	11.4	100 to 300	100	26	34	38	55
D4i 30W								
PLB30W-0600-38-D4i	120 - 277	22.8	300 to 600	300	26	34	38	55
D4i 50W								
PLB50W-1200-38-D4i	120 - 277	45.6	600 to 1200	600	26	34	38	55

Notes:

- (1) The ERP LED Driver Configuration Tool (ERP GUI) allows programming of the output current to values below the minimum limits specified in the table above. However, when the programmed output current is set below these minimum thresholds, the LED driver's Total Harmonic Distortion (THD) and Power Factor (PF) may not meet the values defined in the INPUT SPECIFICATION section of this datasheet.
- (2) The forward voltage (Vf) of the LED load should not exceed Vout Max. of the driver under worst case field operating conditions which are the Vf max. of the LED load under lowest temperature and highest forward current conditions. As a general design guideline, the nominal LED load Vf measured at the operating current and at room temperature should be \leq Vout Nom. of the driver.
- (3) For each model, the default output current setting is the MINIMUM current.
Example: the default output current setting for the PLB50W-1200-38 is 600 mA.

ACCESSORIES

Please order the programming cable using the part number PROG-JACK-USB.

Programming Cable
Part number: PROG-JACK-USB



15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

2 - INPUT SPECIFICATION (@25°C ambient temperature)

	Units	Minimum	Typical	Maximum	Notes
Input Voltage Range (Vin)	Vac	90	120, 277	305	<ul style="list-style-type: none"> The rated output current for each model is achieved at Vin ≥ 108 Vac & at Vin ≥ 249 Vac At nominal load
Input Frequency Range	Hz	47	60	63	
Input Current (Iin)	A			0.5 A @ 120 Vac 0.23 A @ 277 Vac	
Power Factor (PF)		0.9	> 0.9		<ul style="list-style-type: none"> At nominal input voltage and with nominal LED voltage From 100% to 60% of output current. Not compliant < 60% of Iout max
Inrush Current	A	Meets NEMA-410 requirements			At any point on the sine wave and 25°C
Leakage Current	mA			0.3 mA @ 120 Vac 0.7 mA @ 277 Vac	Measured per IEC60950-1
Input Harmonics	Complies with IEC61000-3-2 for Class C equipment				
Total Harmonics Distortion (THD)				20%	<ul style="list-style-type: none"> At nominal input voltage and nominal LED voltage From 100% to 60% of output current Not compliant < 60% of Iout max Complies with DLC (Design Light Consortium) technical requirements
Efficiency	%	82%	up to 90%	-	Measured with nominal input voltage, a full sinusoidal wave form and without dimmer attached.
Isolation	The AC input to the main DC output is isolated.				
Standby	W			1	Measured with nominal input voltage, a full sinusoidal wave form and without dimmer attached.

3 - MAIN OUTPUT SPECIFICATION (@25°C ambient temperature)

	Units	Minimum	Typical	Maximum	Notes
Output Voltage (Vout)	Vdc				See ordering information for details
Output Current (Iout)	mA				<ul style="list-style-type: none"> See ordering information for details The rated output current for each model is achieved at Vin ≥ 108 Vac & at Vin ≥ 249 Vac.
Output Current Regulation	%	-5	±2.5	5	<ul style="list-style-type: none"> At nominal AC line voltage Includes load and current set point variations
Output Current Overshoot	%	-	-	10	The driver does not operate outside of the regulation requirements for more than 500 ms during power on with nominal LED load and without dimmer.
Ripple Current		≤ 10% of rated output current @ 100% load & frequency > 94 kHz ≤ 25% of rated output current @ 20% load & frequency > 94 kHz			<ul style="list-style-type: none"> Measured at nominal LED voltage and nominal input voltage Calculated in accordance with the IES Lighting Handbook, 9th edition Complies with IEEE1789
Dimming Range (% of Iout)	%	1		100	<ul style="list-style-type: none"> The dimming range and dimming profile (linear, logarithmic, etc...) is dependent on each specific dimmer. It may not be able to achieve 1% dimming with some dimmers. Dimming performance is optimal when the driver is operated at its nominal output voltage matching the LED nominal Vf (forward voltage). Dimming performance may vary when the driver is operated near its minimum output voltage.
Start-up Time	ms		300	500	<ul style="list-style-type: none"> Without any dimmer attached, and at nominal input voltages and nominal load Measured from application of AC line voltage to 100% light output
Isolation	The main DC output is certified and tested per UL8750 Class 2.				

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

4 - ENVIRONMENTAL CONDITIONS

	Units	Minimum	Typical	Maximum	Notes
Operating Ambient Temperature (Ta)	°C	-20		50	50°C is the non-derated temperature (refer to Section 7 - OUTPUT POWER DE-RATING AT ELEVATED TEMPERATURES)
Maximum Case Temperature (Tc)	°C			+90	Case temperature measured at the hot spot •tc
Storage Temperature	°C	-40		+85	
Humidity	%	5	-	95	Non-condensing
Cooling	Convection cooled				
Acoustic Noise	dBA			22	Measured at a distance of 0.3 meter, without dimmer
Mechanical Shock Protection	per EN60068-2-27				
Vibration Protection	per EN60068-2-6 & EN60068-2-64				
MTBF	> 200,000 hours when operated at nominal input and output conditions, and at Tc ≤ 75°C				
Lifetime	50,000 hours at Tc ≤ 75°C maximum case hot spot temperature				

5 - EMC COMPLIANCE AND SAFETY APPROVALS

EMC Compliance			
Conducted and Radiated EMI	Compliant with FCC CFR Title 47 Part 15 Class A at 120 Vac and at 277 Vac		
Harmonic Current Emissions	IEC61000-3-2	For Class C equipment	
Voltage Fluctuations & Flicker	IEC61000-3-3		
Immunity Compliance	ESD (Electrostatic Discharge)	IEC61000-4-2	6 kV contact discharge, 8 kV air discharge, level 3
	RF Electromagnetic Field Susceptibility	IEC61000-4-3	3 V/m, 80 - 1000 MHz, 80% modulated at a distance of 3 meters
	Electrical Fast Transient	IEC61000-4-4	± 2 kV on AC power port for 1 minute, ±1 kV on signal/control lines
	Surge	IEC61000-4-5	•± 2 kV line to line (differential mode) / ± 2 kV line to common mode ground (tested to secondary ground) on AC power port, ±0.5 kV for outdoor cables
		ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A, 2.5 kV ring wave	
	Conducted RF Disturbances	IEC61000-4-6	3V, 0.15-80 MHz, 80% modulated
	Voltage Dips	IEC61000-4-11	>95% dip, 0.5 period; 30% dip, 25 periods; 95% reduction, 250 periods

Safety Agency Approvals	
UL	UL8750 Class P/Class 2 power supply
cUL	CAN/CSA C22.2 No. 250.13-14 LED equipment for lighting applications

Safety					
	Units	Minimum	Typical	Maximum	Notes
Hi Pot (High Potential) or Dielectric voltage-withstand	Vdc	2500			<ul style="list-style-type: none"> Insulation between the input (AC line and Neutral) and the output Tested at the RMS voltage equivalent of 1767 Vac

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

6 - PROTECTION FEATURES

Input Over Current Protection

The PLB DALI D4i LED driver series incorporates a primary AC line fuse for input over current protection to prevent damage to the LED driver and meet product safety requirements as outlined in Section 5.

Short Circuit and Over Current Protection

The PLB DALI D4i LED driver series is protected against short-circuit such that a short from any output to return shall not result in a fire hazard or shock hazard. The driver shall hiccup as a result of a short circuit or over current fault. Removal of the fault will return the driver to within normal operation. The driver shall recover, with no damage, from a short across the output for an indefinite period of time.

Internal Over temperature Protection

The PLB DALI D4i LED driver series is equipped with internal temperature sensor on the primary power train. Failure to stay within the convection power rating will result in the power supply reducing the available current (fold back) below the programmed amount. The main output current will be restored to the programmed value when the temperature of the built-in temperature sensor cools adequately.

Output Open Load Protection

When the LED load is removed, the output voltage of the DALI D4i customer LED driver series is typically limited to 1.3 times the maximum output voltage of each model.

Protection on DALI Wires

The DALI circuit is isolated from both the AC input and the DC output and is also protected from mis-wiring of AC to the DALI terminals for all nominal AC input voltage.

7 - OUTPUT POWER DE-RATING AT ELEVATED TEMPERATURES

The PLB DALI D4i series can be operated with cooling air temperatures above 50°C by linearly de-rating the total maximum output power (or current) by 2.5%/°C typical until internal over temperature protection activates.

8 – DALI DIMMING CONTROL

Dimming is controlled by DALI from 1% to 100%. The DALI circuit is isolated from both the AC input and the main DC output and meets UL8750 supplement SF requirements.

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

9 - PROGRAMMING

The PLB DALI D4i series can be programmed by inserting the audio jack of the cable shown in figure 3 into the driver and by plugging the USB other end of the cable into a computer. **The driver should not be powered on during the programming process.**

When ordering the PLB DALI D4i series, please make sure you order a programming cable. The part number for the programming cable is “PROG-JACK-USB”.

Programming is done by using the ERP LED Driver Configuration Tool (also known as ERP GUI), downloadable through the ERP website (<https://www.erp-power.com/erp-light-engines/led-light-programming-software/>), which enables the user to adjust output current and dimming profile.

Please note that, for each model, the **default output current setting is listed on page 2 of this datasheet.**

Furthermore, when connecting the driver to a computer using the programming cable, you can access the driver’s internal data log and read the following information: SKU, serial number, manufacturing lot code, hours of operation, firmware revision, and fault events: power failure, transients (short or surge), thermal events (i.e. number of times the case temperature has exceed the maximum case temperature of 90°C).

While programming drivers in a lot, the ERP GUI can interface with a label printer, which enables the user to add configuration labels to driver labels in order to highlight programmed output current. Listed below is the equipment needed to print labels.

Equipment	Part Number	Where to buy
Printer	TSC TC210	barcodefactory.com/tsc/printers/tc210/99-059a001-54lf
Ribbon	TSC Prem. Resin, 60mm x 110mm	barcodefactory.com/tsc/35-r060110-23cf
Labels	BAR-.81x.28-1-TT	barcodefactory.com/barcodefactory/labels/bar-.81x.28-1-tt

For more information, please refer to the ERP LED Driver Configuration Tool user’s manual at: (<https://www.erp-power.com/erp-light-engines/led-light-programming-software/>).



Figure 3

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

10 - PREDICTED LIFETIME VERSUS CASE AND AMBIENT TEMPERATURE

Lifetime is defined by the measurement of the temperatures of all the electrolytic capacitors whose failure would affect light output under the nominal LED load and worst case AC line voltage. The graph in figure 4 are determined by the electrolytic capacitor with the shortest lifetime, among all electrolytic capacitors. It represents a worst case scenario in which the LED driver is powered 24 hours/day, 7 days/week. The lifetime of an electrolytic capacitor is measured when any of the following changes in performance are observed:

- 1) Capacitance changes more than 20% of initial value
- 3) Equivalent Series Resistance (ESR): 150% or less of initial specified value

- 2) Dissipation Factor ($\tan \delta$): 150% or less of initial specified value
- 4) Leakage current: less of initial specified value

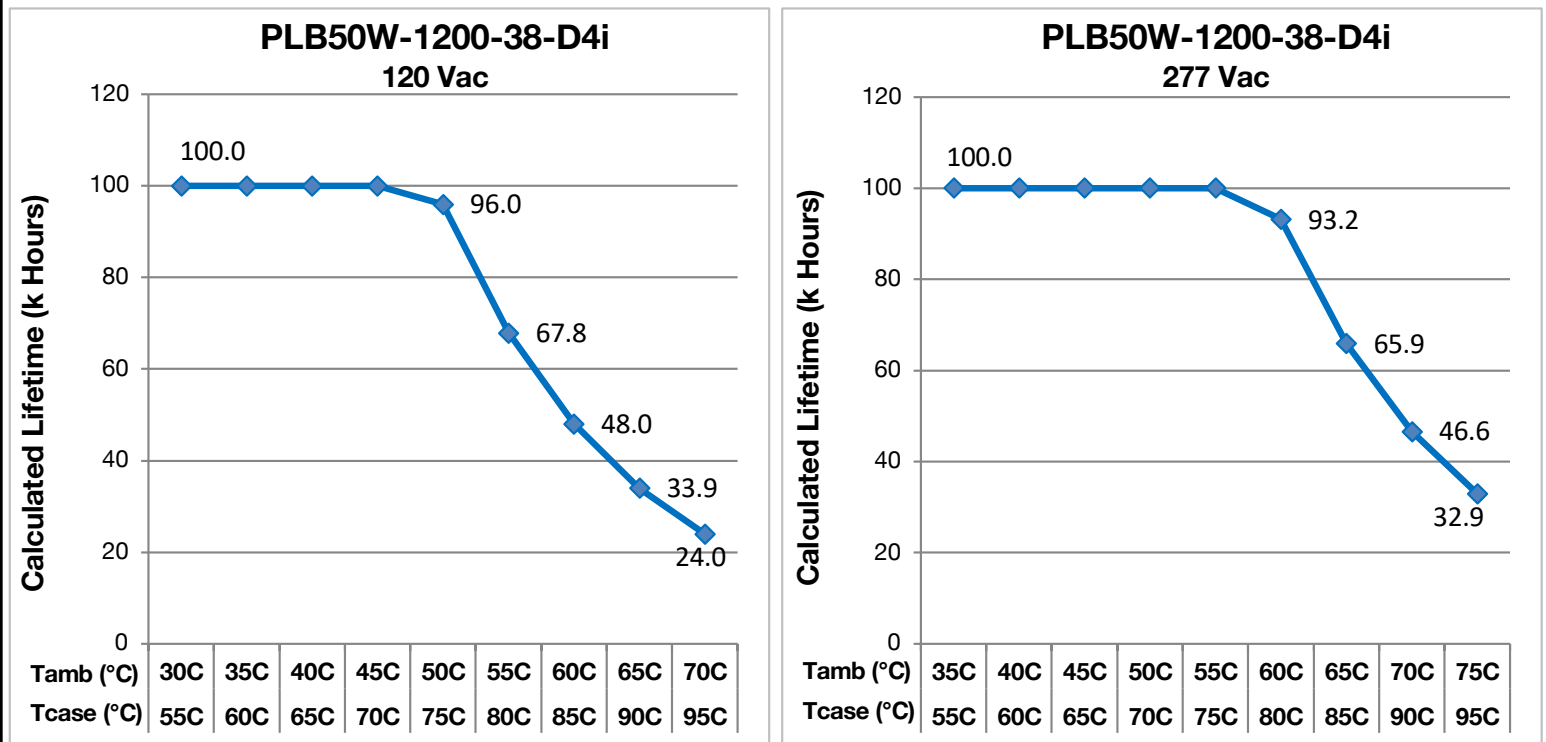


Figure 2

Notes:

- The above lifetime graphs were generated with the driver attached to a baseplate of dimensions 250 x 90 x 2 mm.
- The ambient temperature $T_{ambient}$ and the differential between $T_{ambient}$ and T_{case} mentioned in the above graphs are relevant only as long as both the driver and the light fixture are exposed to the same ambient room temperature. If the LED driver is housed in an enclosure or covered by insulation material, then the ambient room temperature is no longer valid. In this situation, please refer only to the case temperature T_{case} .
- It should be noted the graph "Lifetime vs. Ambient Temperature" may have an error induced in the final application if the mounting has restricted convection flow around the case. For applications where this is evident, the actual case temperature measured at the Tc point in the application should be used for reliability calculations.
- Users must utilize proper thermal management techniques to ensure proper thermal conductivity between the driver and heat sink. The use of double-sided tape to mount the driver voids the warranty.

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

11 – EFFICIENCY VERSUS LOAD

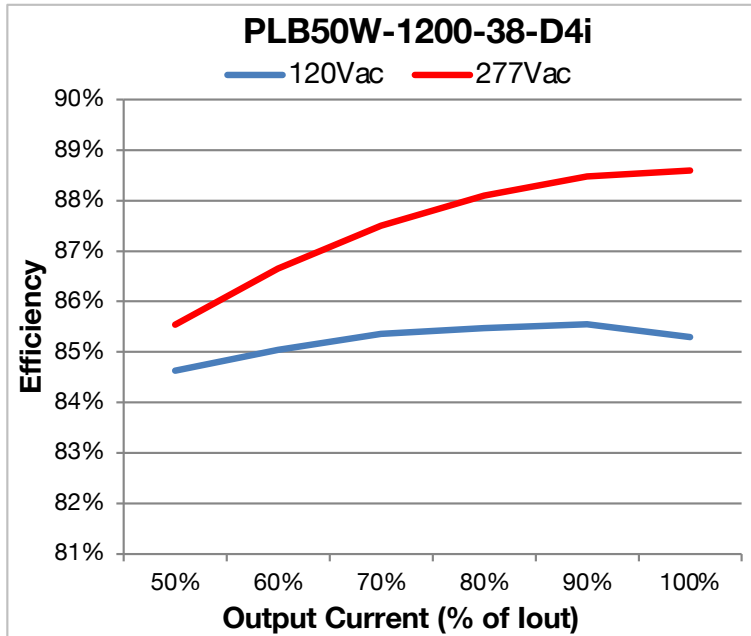


Figure 3

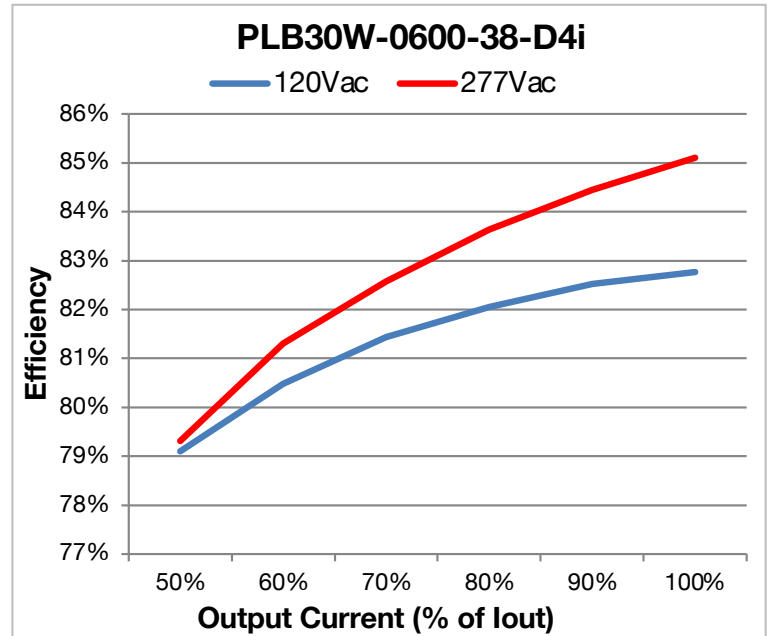


Figure 4

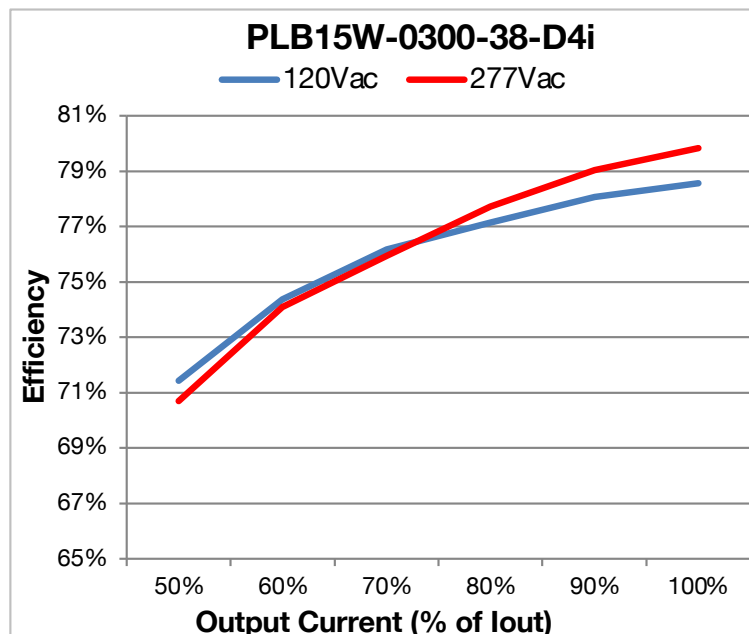


Figure 5

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

12 – POWER FACTOR VERSUS LOAD

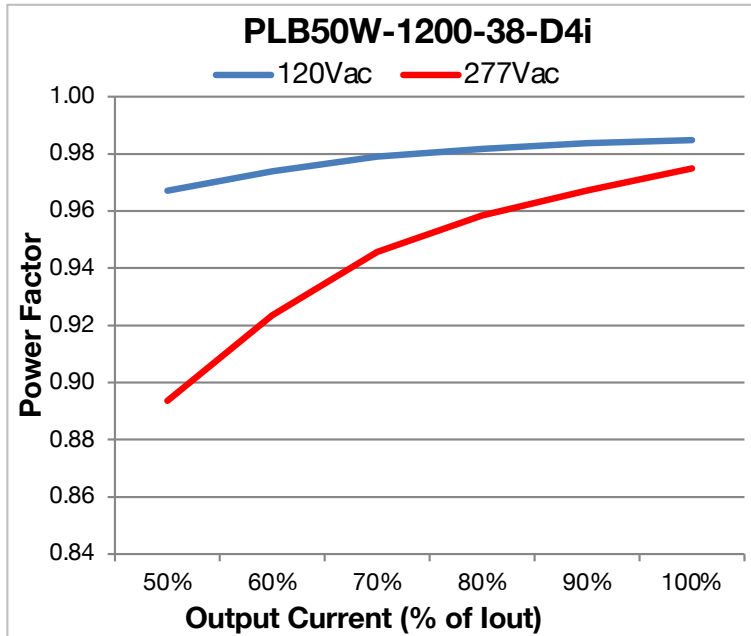


Figure 6

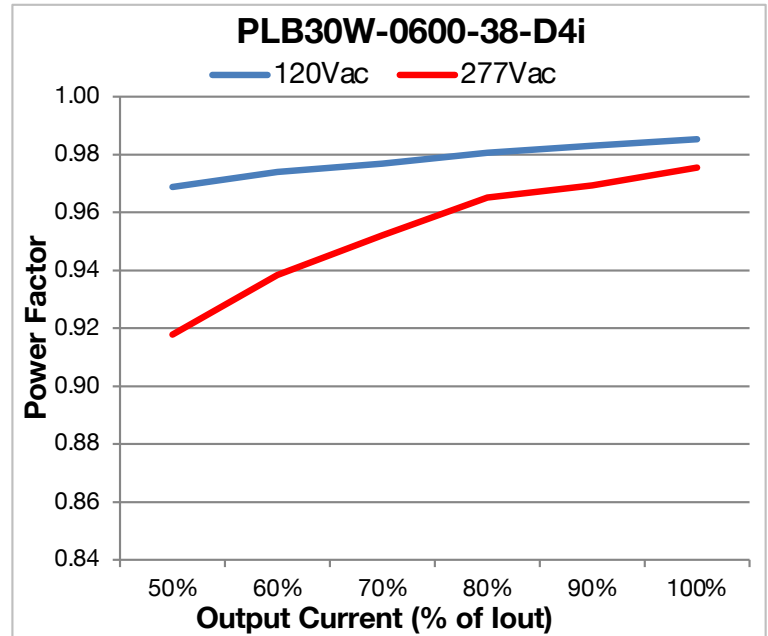


Figure 7

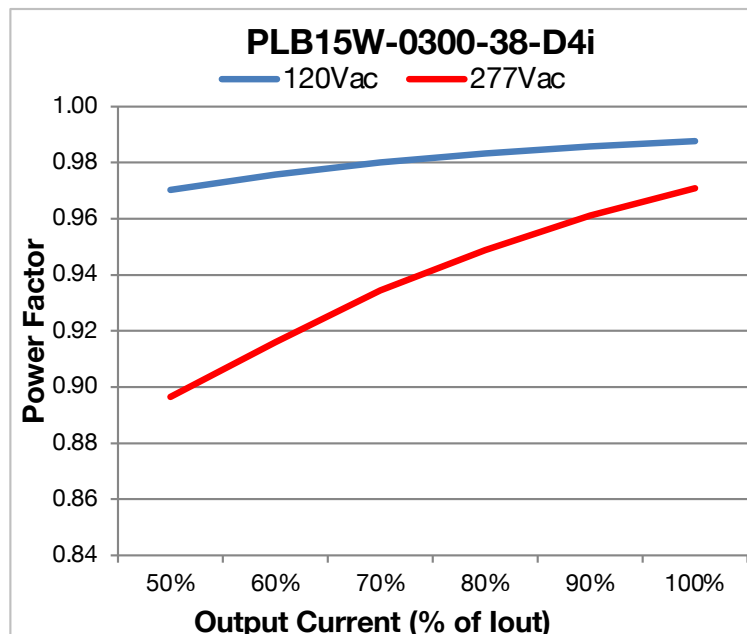


Figure 8

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

13 – THD VERSUS LOAD

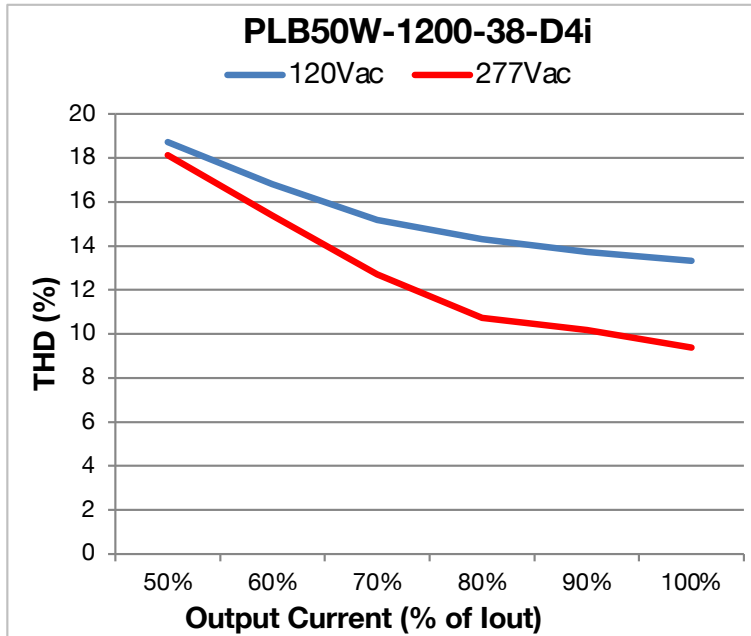


Figure 9

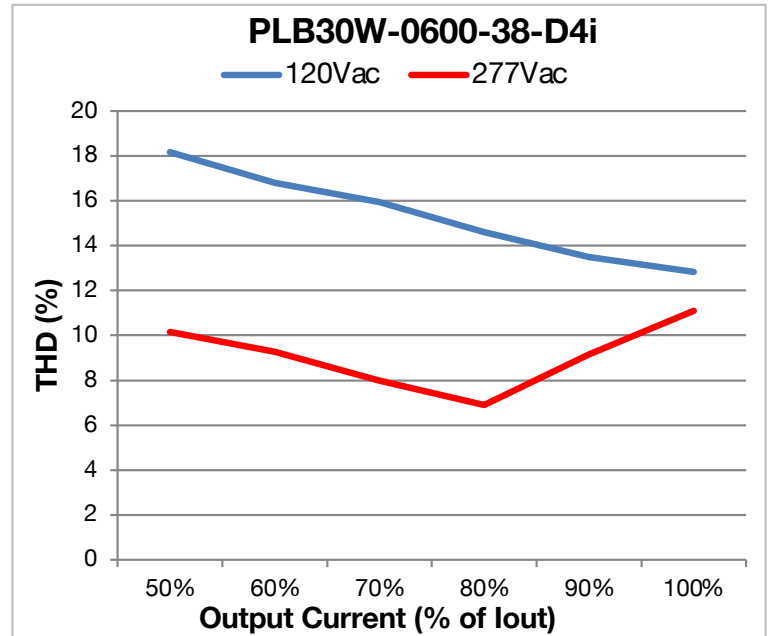


Figure 10

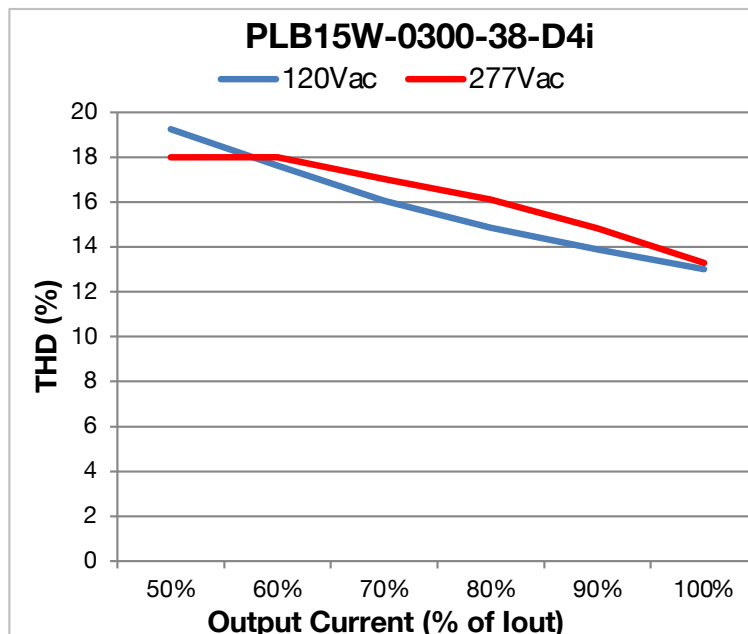


Figure 11

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

14 - MECHANICAL DETAILS

- **Packaging:** Aluminum case
- **I/O Connections:** 18 AWG on input and output leads, 22 AWG on 0-10V dimming wires, 105°C rated, stranded, stripped by approximately 9.5 mm, and tinned. All the wires, on both input and output, have a 300 V insulation rating.
- **Ingress Protection:** IP20 rated
- **Mounting Instructions:** The PLB DALI D4i driver case must be secured on a flat surface through the two mounting tabs, shown here below in the case outline drawings.

15 - OUTLINE DRAWINGS (MODELS WITH FLYING LEADS)

Dimensions: L 223.1 * W 18.25 * H 18.65 mm (L 8.78 * W 0.72 * H 0.73 in.)

Volume:

Weight:

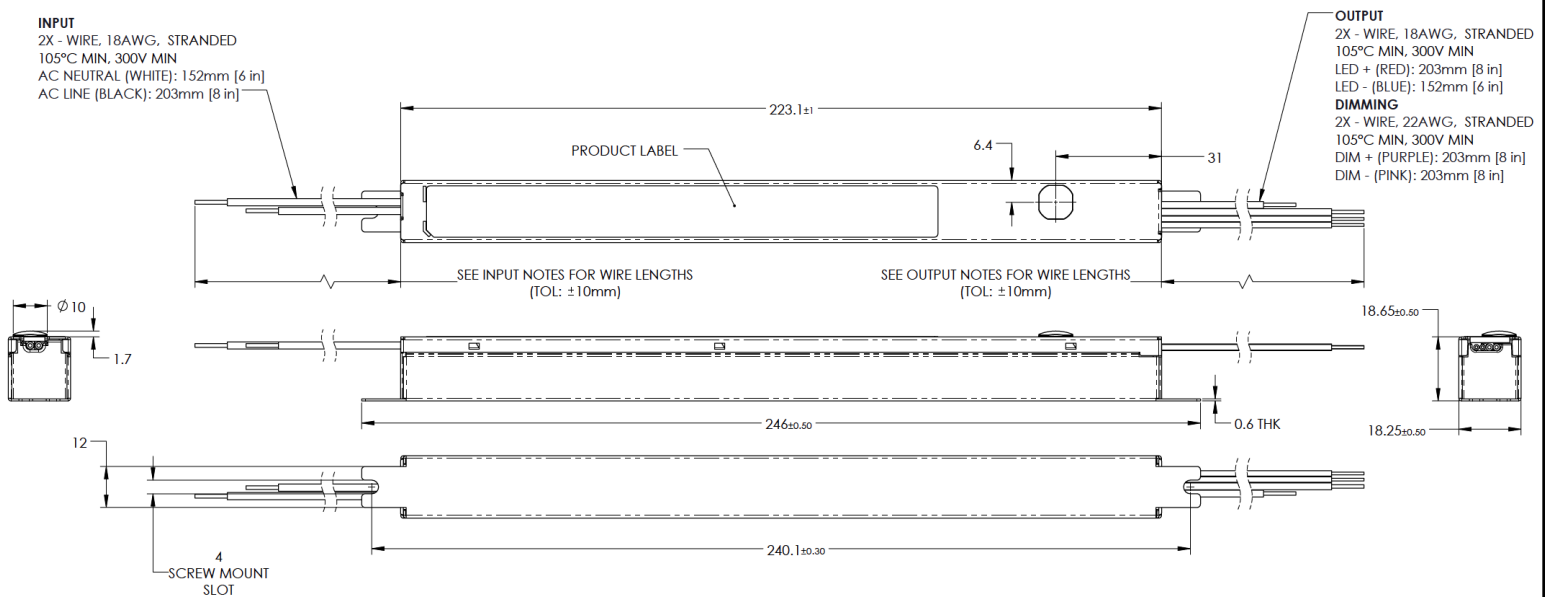


Figure 12

15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

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15, 30 & 50 W Programmable Constant Current LED Driver with DALI D4i

Revision History

Date	
02JUL2025	Final data sheet
05SEP2025	Added notes 1, 2 & 3 in the ORDERING INFORMATION section