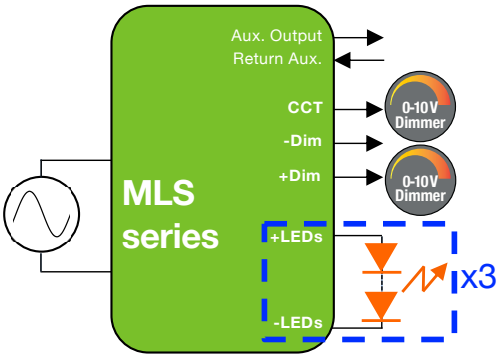
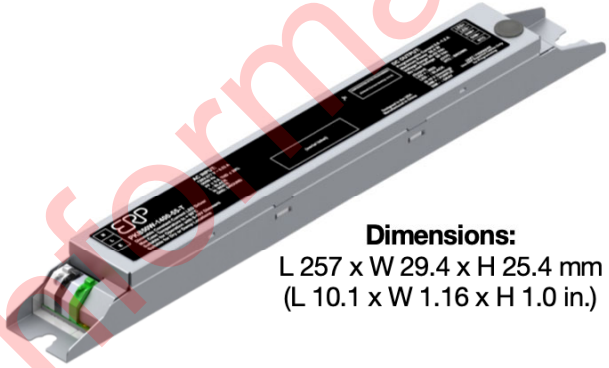
MLS Series

MLS30 30 W
MLS50 50 W
MLS80 80 W

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

Input Voltage	Max. Output Power	Efficiency	Max. Case Temperature	THD	Power Factor	Dimming Method	Dimming Range	Start-up Time
120 - 277 Vac	80 W	up to 88% typical	90°C (measured at the hot spot)	< 20% @ max load	> 0.9	Programmable 0-10 V	1 - 100%	300 ms typical

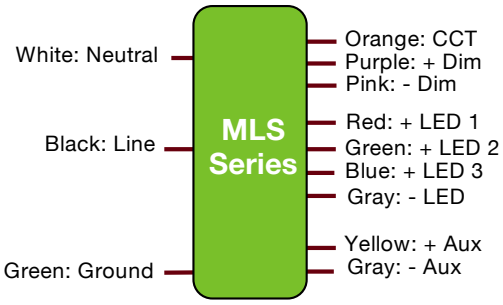




Dimensions:
L 257 x W 29.4 x H 25.4 mm
(L 10.1 x W 1.16 x H 1.0 in.)

FEATURES

- 3 fully configurable outputs: can drive 1, 2, or 3 outputs for tunable and static white applications
- Optimized for use with TWT series tape light
- 3 modes of operation:
  - Tunable White: 1800 K – 6500 K adjustable range
  - Warm Dim:
    - Incandescent (1800-2850 K),
    - Halogen (1800–3050 K)
  - Static White: 1800, 2000, 2200, 2500, 2700, 3000, 3500, 4000, 4500, 5000, 5700, 6500 K
- Meets IEEE 1789-2015 “no impact” recommended practices for flicker
- UL8750 Class P/Class 2 output
- Synchronized start-up: 100 ms
- 9.5 – 24 Vdc auxiliary output (1.2 W max)
- Lifetime: 50,000 hours @ Tc ≤ 75°C
- 90°C maximum case hot spot temperature
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®), and CA Title 24 technical requirements



Wiring Diagram

PROGRAMMING

- Audio jack and cradle programming
- Control Lumens per foot, CCT, mode of operation
- 0-10V dimming profiles: Linear, Non-linear, Logarithmic
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., power cycles

APPLICATIONS

- Commercial linear lighting
- Architectural lighting
- Indoor Lighting

c UL us LISTED · FC · ENERGY STAR · CA Title 24 · RoHS · 5 Year Warranty

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

1 - ORDERING INFORMATION

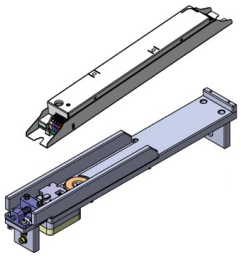
Part Number	Input Voltage (Vac)	Max Output Power (W)	Max Light Output (lm/ft)	Run Length (ft)	Vout Min. (Vdc)	Vout Nom. (Vdc)	Vout Max. (Vdc)[2]	Open Loop (No Load) Voltage (Vdc)	Notes
Up to 30W									
MLS-A30W-03-56-TXZ	120 - 277	30	1400	2 to 3	10	50.4	56	60	• Terminal Blocks • Auxiliary output
Up to 50W									
MLS-A50W-05-56-TXZ	120 - 277	50	1400	3 to 5	10	50.4	56	60	• Terminal Blocks • Auxiliary output
Up to 80W									
MLS-A80W-08-56-TXZ	120 - 277	80	1400	5 to 8	10	50.4	56	60	• Terminal Blocks • Auxiliary output

Preliminary Information

Notes:
- *Please order the programming cable using part number PROG-JACK-USB.*
- *Optional programming cradle can be ordered using part number PROG-CRADLE*

Programming Cable
Part number: PROG-JACK-USB

Programming Cradle
Part number: PROG-CRADLE



30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

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

	Units	Minimum	Typical	Maximum	Notes
Input Voltage Range (Vin)	Vac	108	120, 277	305	•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	50/60	63	
Input Current (Iin)	A			0.8 A @ 120 Vac 0.4 A @ 277 Vac	
Power Factor (PF)		0.9	> 0.9		•At nominal input voltage (120 & 277 Vac) and rated output power
Inrush Current	A	Meets NEMA-410 requirements			•At any point on the sine wave and 25°C
Leakage Current	mA			0.4 mA @ 120 Vac 0.92 mA @ 277 Vac	Measured per IEC60950-1
Input Harmonics	Complies with IEC61000-3-2 for Class C equipment				
Total Harmonics Distortion (THD)				20%	•At nominal input voltage (120 & 277 Vac) and rated output power •Complies with DLC (Design Light Consortium) technical requirements
Efficiency	%	-	up to 85%	-	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.				

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

	Units	Minimum	Typical	Maximum	Notes
Output Voltage (Vout)	Vdc				•See ordering information for details
Light Output	lm/ft			1400	•See ordering information for details •When used with ERP TWT tape light
Dimming Range	%	1		100	•The dimming range is dependent on each specific dimmer. It may not be able to achieve 1% dimming with some dimmers. •When testing, if light is measured, dimming range is based on light output. If no light is measured, dimming range is based on percentage of output current. •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	•Without any dimmer attached, and at nominal input voltages and nominal load •Synchronized start-up of 100 ms when multiple drivers on same circuit •Measured from application of AC line voltage to continuous light output •Complies with ENERGY STAR® luminaire specification and CA Title 24
Isolation	The main DC output is certified and tested per UL8750 Class 2 or LED Class 2.				

4 - AUXILIARY OUTPUT SPECIFICATION (@25°C ambient temperature)

	Units	Minimum	Typical	Maximum	Notes
Auxilliary Output Voltage	Vdc	9.5	12	24	•Default value is 12 V •+/-10% voltage regulation •Can be prorgammed to 9.5 Vdc, 12 Vdc, 18 Vdc and 24 Vdc
Auxilliary Output Power	W			1.2	

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

5 - ENVIRONMENTAL CONDITIONS

	Units	Minimum	Typical	Maximum	Notes
Operating Ambient Temperature (Ta)	°C	-20		50	50°C is the non-derated temperature (Refer to section 9 'Output power de-rating at elevated temperatures'.)
Maximum Case Temperature (Tc)	°C			+90	Case temperature measured at the hot spot •tc (see label on page 9)
Storage Temperature	°C	-40		+85	
Humidity	%	5	-	95	Non-condensing
Cooling	Convection cooled				
Acoustic Noise	dBA			24	Measured at a distance of 1 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 (see hot spot •tc on label on page 9)				
Warranty	5 years. 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.				

6 - EMC COMPLIANCE, SAFETY, AND ENVIRONMENTAL APPROVALS

EMC Compliance			
Conducted and Radiated EMI	•Compliant with FCC CFR Title 47 Part 15 Class B at 120 Vac & Class A 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
		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 & Environmental Approvals	
UL	UL8750 listed Class 2, supplement SF
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	2200			•Tested at the RMS voltage equivalent of 1555 Vac

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

7 - DIMMING FEATURES

Synchronized Start-up

The MLS series incorporates a synchronized start-up feature. When wired into the same dimmer, multiple MLS series drivers will dim to the same level and turn on within 100 ms of each other.

Fully Programmable Dimming Curve

In the MLS series, several dimming profiles can be selected, such as a logarithmic profile, a non-linear profile with 1% minimum dimming, and a non-linear profile with 10% minimum dimming. Furthermore, every point in the non-linear dimming profile can be programmed using the programming software.

8 - PROTECTION FEATURES

Input Over Current Protection

The MLS 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 6.

Short Circuit and Over Current Protection

The MLS 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 MLS 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 MLS series is typically limited to 1.3 times the maximum output voltage of each model.

9 - OUTPUT POWER DE-RATING AT ELEVATED TEMPERATURES

The MLS 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 until internal over temperature protection activates.

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

10 - PROGRAMMING

The MLS series can be programmed by inserting the audio jack of the cable shown in figure 1 into the driver and by plugging the USB other end of the cable into a computer. Alternatively, the MLS series can be programmed via programming cradle. ***The driver should not be powered on during the programming process.***

When ordering the MLS series, please make sure to order a programming cable. The part number for the programming cable is "PROG-JACK-USB". Additionally, there is an optional programming cradle intended for higher volume use that can be ordered using the part number "PROG-CRADLE".

Programming is done by using the ERP GUI (Graphical User Interface), which enables the user to adjust output current and dimming profile.

Please note that, for each model, the **default lumens per foot are 1400**.

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 power cycles.

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.

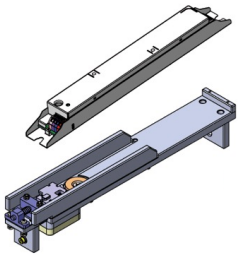
Equipment	Part Number	Where to buy
Printer	TSC TC210	barcodefactory.com/tsc/printers/tc210/99-059a001-54lf
Ribbon	TSC Prem. Resin, 60mm x 110mm	barcodefactory.com/tsc/35-r060110-23cf
Labels	BAR-.81x.28-1-TT	barcodefactory.com/barcodefactory/labels/bar-_81x_28-1-tt

For more information, please refer to the GUI user's manual at: erp-power.com/our-products/programming-software/

Programming Cable
Part number: PROG-JACK-USB

Figure 1

Programming Cradle
Part number: PROG-CRADLE



Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

11 - 0-10 V DIMMING CONTROL (@25°C ambient temperature)

In the MLS series, several 0-10V dimming profiles can be selected, such as a logarithmic profile, a non-linear profile with 1% minimum dimming, a non-linear profile with 10% minimum dimming, and optional dim-to-off function. Furthermore, every point in the non-linear dimming profile can be programmed using the ERP Power LED Configuration software (ERP GUI).

By default, the non-linear profile with 1% minimum dimming and NO dim-to-off is pre-loaded in the MLS series.

	Units	Minimum	Typical	Maximum	Notes
+Dim Signal, -Dim Signal	The MLS series operates only with 0-10 V dimmers that sink current. The method to dim the output current of the driver is done via the +Dim/-Dim Signal pins. The +Dim/-Dim signal pins can be used to adjust the output setting via a standard commercial wall dimmer, an external control voltage source (0 to 10 Vdc), or a variable resistor when using the recommended number of LEDs. The dimming input permits 1% to 100% dimming.				
Dimming Profile	100% of output current between 10 V and 8 V, Linear between 8 V and 1 V, 1% of output current below 1 V.				
Dimming Range	%	1		100	When testing, if light is measured, dimming range is based on light output. If no light is measured, dimming range is based on percentage of output current.
High Level Voltage - A	V		8.0	8.1	Highest voltage available with programming: 8.5 V
Low Level Voltage - B	V	0.9	1.0		Lowest voltage available with programming: 0.1V
Dim to Off - C	V	0.6	0.7	0.8	
Dim to Off Hysteresis - D	V		+0.2		
Current Supplied by the +Dim Signal Pin	mA			0.5	
Dimming Voltage Sensing Tolerance	mV			100	The tolerance of the difference between the 0-10 V signal supplied by the dimmer and sensed by the driver.
Output Current Tolerance While Being Dimmed	%		±8		In the linear region of the dimming curve (between points A and B in Figure 1).
Minimum Dimming Tolerance	%	0.6	1	2	At point B, in figure 1
Isolation	The 0-10 V circuit is isolated from the AC input and meets UL8750 supplement SF requirements. "-TPZ" Models feature additional isolation between the DC output and 0-10 V dimming circuit.				

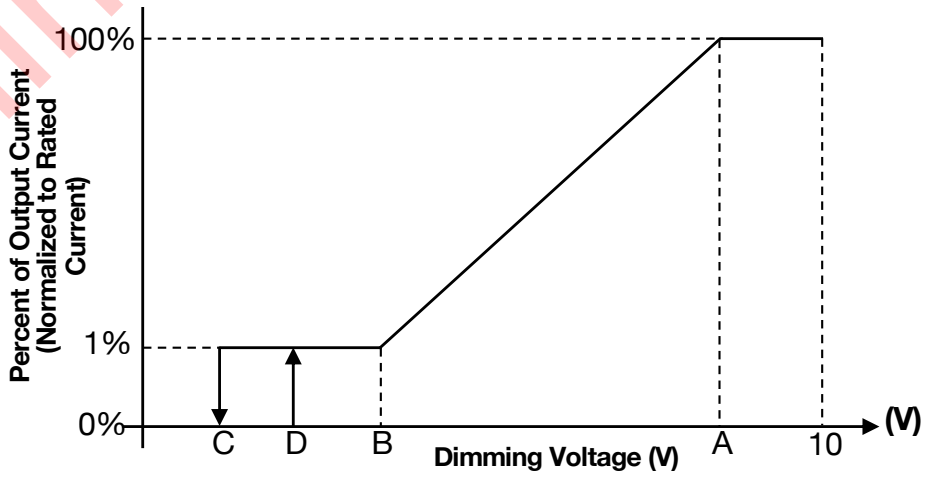


Figure 1

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

11 - 0-10 V DIMMING CONTROL (@25°C ambient temperature) (Continued)

The MLS series operate only with 0-10 V dimmers that sink current. They are not designed to operate with 0-10 V control systems that source current, as used in theatrical/entertainment systems. Developed in the 1980's, the 0-10 V sinking current control method is adopted by the International Electrotechnical Commission (IEC) as part of its IEC Standard 60929 Annex E.

The method to dim the output current of the driver is done via the +Dim/-Dim Signal pins. The +Dim/-Dim Signal pins respond to a 0 to 10 V signal, delivering 1% to 100% of the output current based on rated current for each model. A pull-up resistor is included internal to the driver. If the +Dim input is > 10 V or open circuited, the output current is programmed to 100% of the rated current.

0-10V dimming is isolated from AC input and DC output for -TPZ models and isolated from AC input for -TZ and TXZ models.

The maximum source current (flowing from the driver to the 0-10 V dimmer) supplied by the +Dim Signal pin is ≤ 0.5 mA. The tolerance of the output current while being dimmed shall be +/-8% typical until down to 1 V.

In the MLS series, several 0-10 V dimming profiles can be selected, such as a logarithmic profile, a non-linear profile with 1% minimum dimming, and a non-linear profile with 10% minimum dimming.
By default, the non-linear profile with 1% minimum dimming and NO dim-to-off is pre-loaded in the MLS series. In this non-linear 0-10 V dimming profile, 10 V to 8 V=100% of the output current, <1 V =1%.

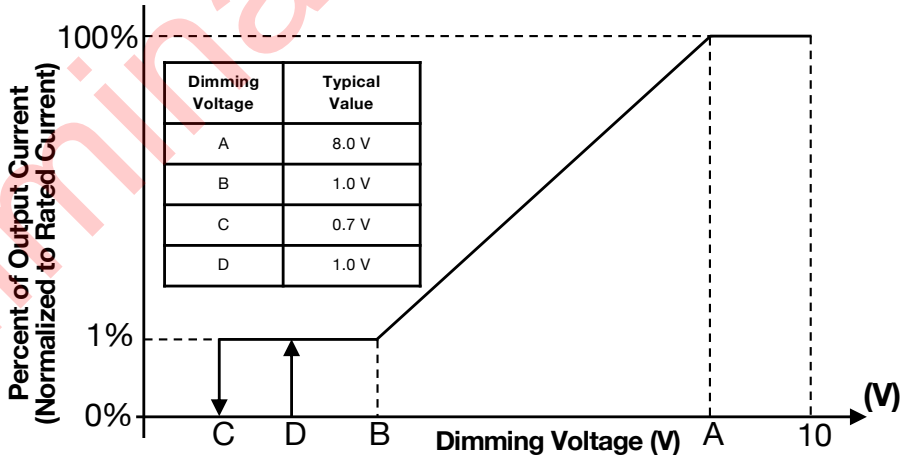


Figure 2

12 - COMPATIBLE 0-10 V DIMMERS

- Lutron, Nova series (part number NFTV)
- Leviton, IllumaTech series (part number IP710-DL)
- Lutron, Diva series (part number DVTV)

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

13 – CCT CONTROL VIA 0-10 V DIMMER

The method to control the CCT is done via the +CCT and -DIM signal pins. Adjust the 0–10 V CCT dimmer DC inputs to be between 0.6 V and 9 V.
If the CCT input is > 8.2 V or open circuited, the output is at the maximum CCT. The CCT linearly reduces until 0.7 V and remains at the same CCT value until 0.3 V.
Below 0.3 V, the MLS will switch to Warm Dim mode. To exit Warm Dim mode, the CCT dimmer voltage must be raised to at least 0.6 V. We recommend using a linear 0–10 V dimmer between 0.7 V and 8 V for best results.

The maximum current supplied by the +CCT signal pin is ≤ 1mA. CCT controller is isolated from AC input and DC output to comply with UL8750 supplement SF.

When operating with 0-10Vdc dimmer, the RMS output current shall have range of 1%-100% depending upon the voltage of dimmer except incandescent warm dimming and MR16/Halogen warm dimming curve.

14 - COMPATIBLE 0-10 V DIMMERS

- Lutron, Diva series (part number DVSTV)

Preliminary Information

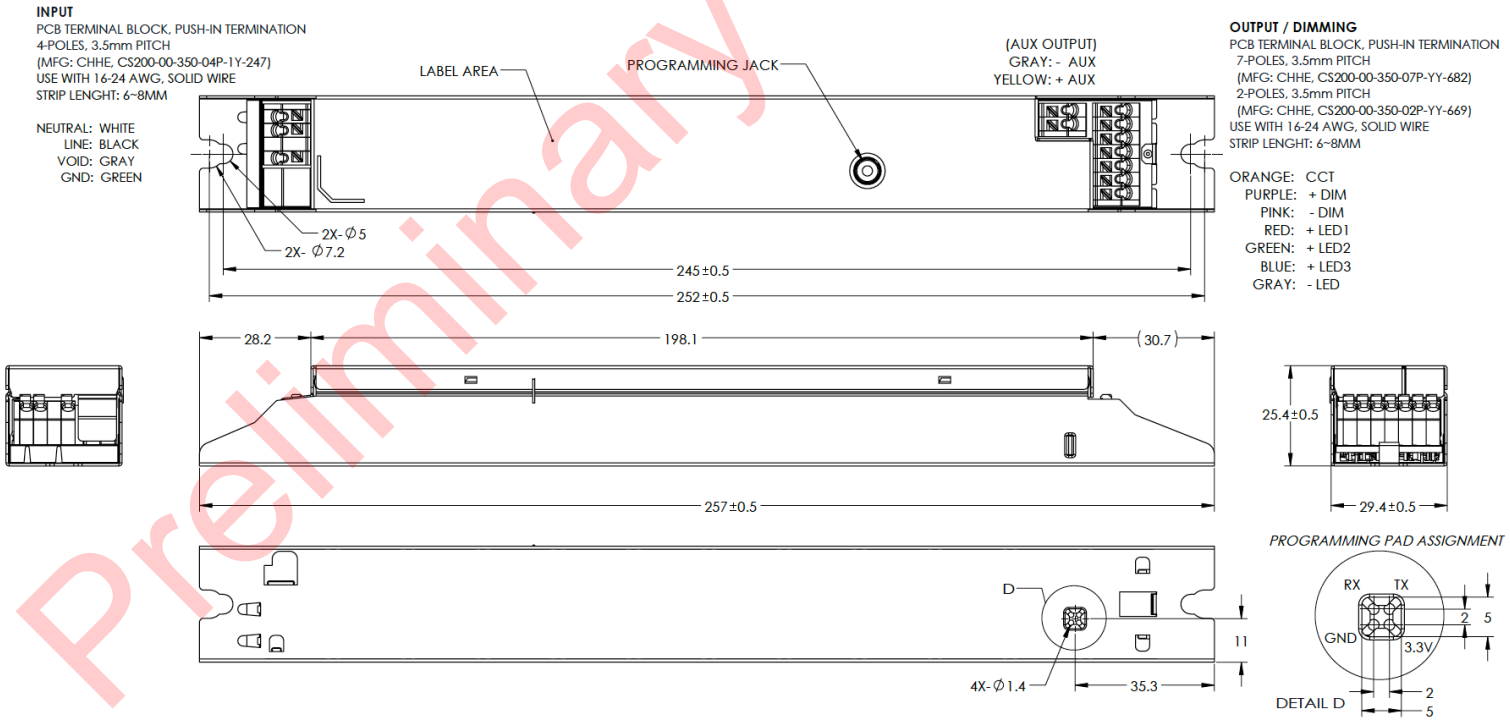
30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

15 - MECHANICAL DETAILS

- **Packaging:** Aluminum case
- **I/O Connections:** Terminal blocks
- **Ingress Protection:** IP20 rated
- **Mounting Instructions**: The MLS driver case must be secured on a flat surface through the two mounting tabs, shown here below in the case outline drawings. The use of double-sided tape voids the warranty.

16 - OUTLINE DRAWINGS (ALL MODELS)

Dimensions: L 257 x W 29.4 x H 25.4 mm (L 10.1 x W 1.16 x H 1.0 in.)
Volume: 190 cm^3 (11.6 in^3)
Weight: 240 g (8.5 oz)



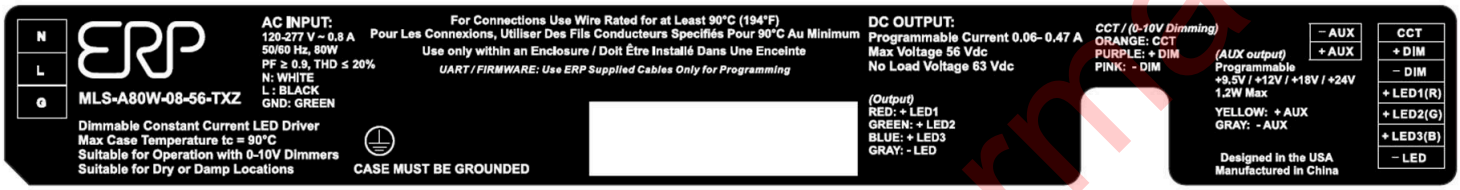
All dimensions are in mm

Preliminary Information

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

17 - LABELING

The MLS-A80W-08-55-TXZ is used as an example to illustrate a typical label.



Preliminary Information

USA Headquarters
Tel: +1-805-517-1300
Fax: +1-805-517-1411
2625 Townsgate Road, Suite 106
Westlake Village, CA 91361, USA

CHINA Operations
Tel: +86-756-6266298
Fax: +86-756-6266299
No. 8 Pingdong Road 2
Zhuhai, Guangdong, China 519060

ERP Power, LLC (ERP) reserves the right to make changes without further notice to any products herein. ERP makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ERP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in ERP data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ERP does not convey any license under its patent rights nor the rights of others. ERP products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the ERP product could create a situation where personal injury or death may occur. Should Buyer purchase or use ERP products for any such unintended or unauthorized application, Buyer shall indemnify and hold ERP and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ERP was negligent regarding the design or manufacture of the part. ERP is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

30 to 80 W Multi-Channel Programmable Constant Current Class 2 LED Driver with 0-10 V Dimming & Auxiliary Output

Revision History

Date	Comments
28MAR2025	• Preliminary Release
06MAY2025	• Added input current and leakage current
29MAY2025	• Various grammar changes
04AUG2025	• Updated part numbers
06AUG2025	• Updated mechanical case outline and wiring diagram • Engineering specification of record 0010-03876 rev. X12
11AUG2025	• Updated part numbers, 0-`10 V dimming section • Engineering specification of record 0010-03876 rev. X13

Preliminary Information