



# Thomas Research Products

SSL Solutions Faster Than The Speed Of Light®

**LED-90W Series– Fixed Output and Dimmable  
Switch Mode LED Drivers  
Constant Current & Constant Voltage with Isolation  
Black Magic Thermal Advantage™ Aluminum Housing**

Total Power: 90 Watts  
Input Voltage: 100-277 Vac  
Outputs: Single from 5 - 257 Vdc  
Indoor or Outdoor Applications, IP66  
High Power Factor  
UL8750, EN61347, CSA 22.2  
EN61000-3-2, EN61000-3-3 Class C

## Electrical Specifications

Input Voltage Range: 100-277 Vac Nom. (90-305 V Min/Max)  
Frequency: 50/60 Hz Nom. (47-63 Hz Min/Max)  
Power Factor: >0.90 @ full load, 100V through 277V  
Inrush Current: <30.0 Amps max @ 230 Vac, cold start 25°C  
Input Current: 1.2 Amps max  
Maximum Power: 90W  
Current Accuracy: ± 1% Over input line variation  
Load Regulation: ± 3%  
THD: ≤ 20% @ full load  
Leakage Current: 400 µA Typical  
Hold Up Time: Half Cycle  
Protection: Output Over-Voltage, Output Over-Current, and Output Short Circuit Protection reset by power cycling

## Electrical Specifications

Operating Temperature: -30°C to +65°C  
Maximum Case Temp. 90°C  
Storage Temperature: -40°C to +85°C  
Humidity: 5% to 95%  
Cooling: Convection  
Vibration Frequency: 5 to 55 Hz/2g, 30 minutes  
MTBF: 418,000 Hours at full load and 40°C ambient conditions per MIL-217F Notice 2  
EMC: FCC 47CFR Part 15 Class B compliant



## Constant Current - Product Specifications

Model Number	Output Current (mA ±3%)	Output Voltage Range (Vdc)	Max. Output Power (W)	Typical Efficiency
LED90W-257-C0350-XX	350	85-257	90	92%
LED90W-200-C0450-XX	450	66-200	90	92%
LED90W-128-C0700-XX	700	42-128	90	92%
LED90W-085-C1050-XX	1050	28-85	90	91%
LED90W-064-C1400-XX	1400	21-64	90	91%
LED90W-056-C1600-XX	1600	18-56	90	91%
LED90W-048-C1875-XX	1875	16-48	90	91%
LED90W-036-C2500-XX	2500	12-36	90	90%
LED90W-030-C3000-XX	3000	10-30	90	90%
LED90W-027-C3330-XX	3330	9-27	90	89%
LED90W-025-C3500-XX	3500	8-25	90	89%
LED90W-022-C4090-XX	4090	7-22	90	89%
LED90W-020-C4500-XX	4500	7-20	90	88%
LED90W-018-C5000-XX	5000	6-18	90	87%
LED90W-015-C6000-XX	6000	5-15	90	87%

-XX indicates dimming options are available. See options at left. Blank = fixed current output

## Constant Voltage - Product Specifications

Model Number	Output Voltage (Vdc ±5%)	Output Current Range (mA)	Max. Output Power (W)	Typical Efficiency
LED90W-257	257	88-350	90	92%
LED90W-200	200	113-450	90	92%
LED90W-128	128	175-700	90	92%
LED90W-085	85	263-1050	90	91%
LED90W-064	64	350-1400	90	91%
LED90W-056	56	400-1600	90	91%
LED90W-048	48	469-1875	90	91%
LED90W-036	36	625-2500	90	90%
LED90W-030	30	750-3000	90	90%
LED90W-027	27	833-3330	90	89%
LED90W-025	25	875-3500	90	89%
LED90W-022	22	1023-4090	90	89%
LED90W-020	20	1125-4500	90	88%
LED90W-018	18	1250-5000	90	87%
LED90W-015	15	1500-6000	90	87%

Class 2: US/Canada US Only

### Ordering Options:

- D: 0-10V & Resistance dimmable version comes with an extra two wires +Purple/-Gray on the output side. -D 0-10V Dimming is compatible with most quality 0-10V wall dimmers. See page 3 for additional specifications.
- PD: PWM Dimmable version comes with an extra two wires +Purple/-Gray on the output side. PD PWM version is PWM Dimmable via a positive 10% to 100% Duty Cycle, 200Hz to 1KHz, 0-10V Pulse. See page 4 for additional specifications.



### Note:

LED drivers are designed and intended to operate LED loads only. Non-LED loading may be outside the specified design limits of our LED driver, and therefore cannot be covered by any warranty. If you desire to use our LED drivers to operate non-LED loads please contact us to discuss compatibility.

Specifications subject to change without notice.

7-11-13



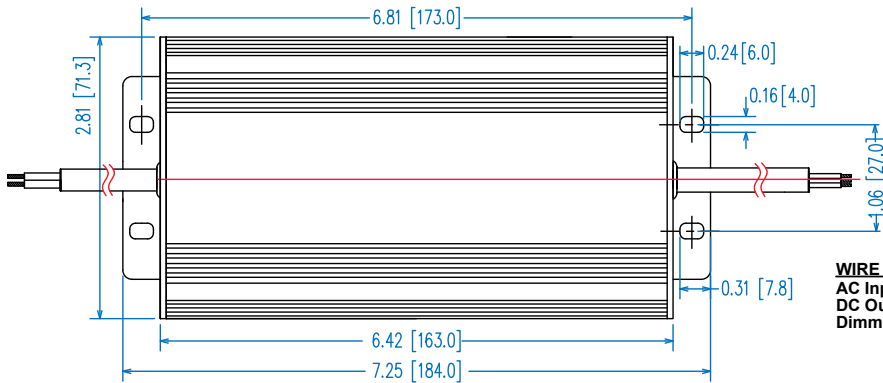
# Thomas Research Products

SSL Solutions Faster Than The Speed Of Light®

LED90W

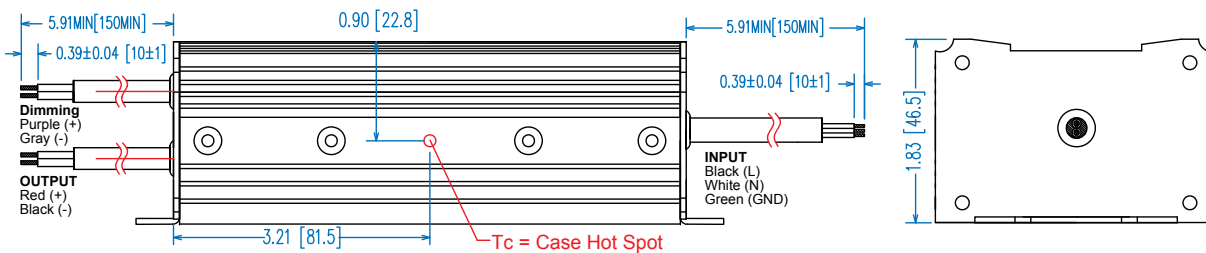
Pg 2 of 4

## Dimensions - Inches (mm)

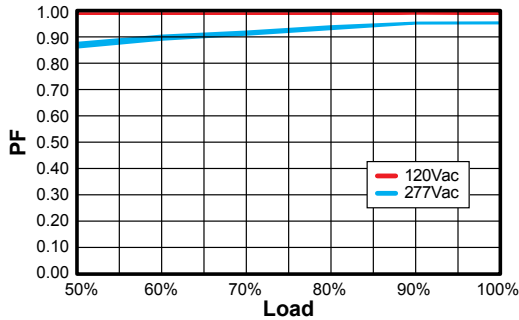


**WIRE SPECS:**

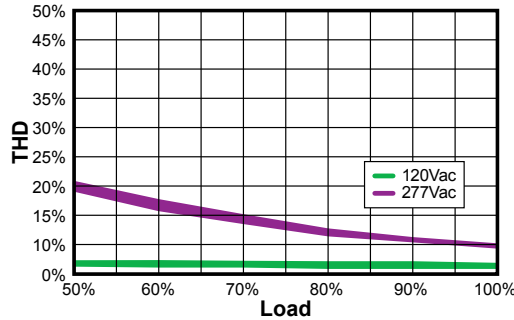
AC Input: UL2733 Jacketed #18AWG  
 DC Output: UL2733 Jacketed #18AWG  
 Dimming Control: UL2733 Jacketed #22AWG



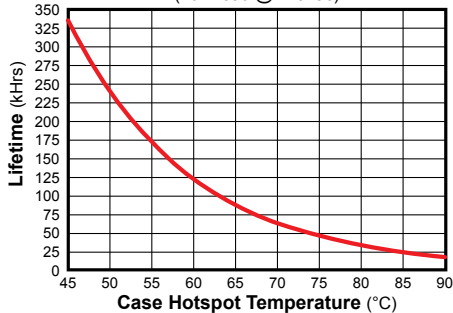
**Power Factor / Load**



**THD / Load**



**Lifetime / Case Temperature**  
 (Full Load @ 120Vac)



**UL Conditions of Acceptability**

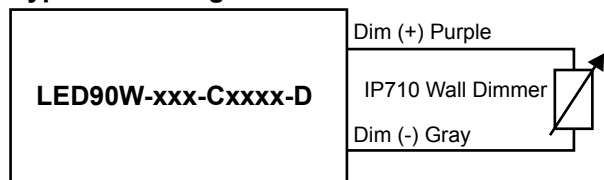
See website for additional information



### “-D” Option: 0-10VDC and Resistance Dimming

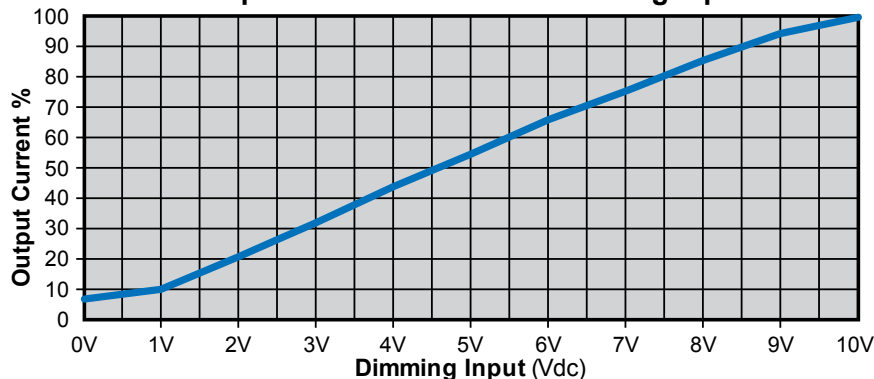
Parameters	Minimum	Typical	Maximum
Source Current out of 0-10V Purple Wire	0 mA	—	10 mA
Absolute Voltage Range on 0-10V (+) Purple Wire	-2.0 V	—	+15 V

#### Typical Dimming Circuit



(Dimmer must be current-sink type control)

#### Output Current / 0-10VDC Dimming Input



#### Notes:

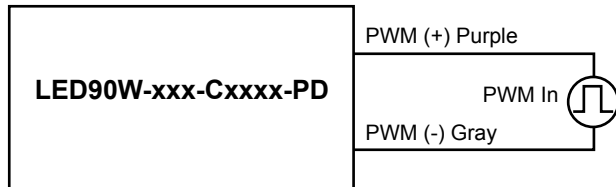
1. 0-10V dimmable version comes with an extra two wires +Purple/-Gray on the output side.
2. Compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended dimmer is Leviton IP710 or equivalent
3. 0-10V dimmable version is not intended to dim below about 5% @ 0V or 10% @ 1.0V
4. 0-10V dimmable version output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.



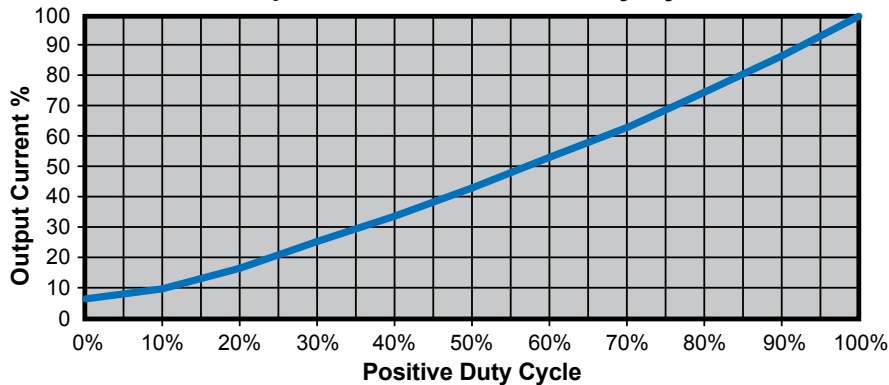
## “-PD” Option: PWM Dimming

Parameters	Minimum	Typical	Maximum
Absolute Maximum Voltage Range on PWM Input (Purple Wire)	-2.0V	10V	+28V
Input LOW Level Voltage Range (Purple Wire)	-2.0	0V	+7.5V
Input HIGH Level Voltage Range (Purple Wire)	+9.0	10V	28V
Sink Current into PWM Input (Purple Wire)	0mA	—	1.2mA
PWM Input Signal Frequency	200Hz	—	1000Hz
PWM Input Signal Positive Duty Cycle	0%	10-90%	100%

### PWM Positive Dimming Typical Circuit



### Output Current / Positive Duty Cycle



### Notes:

1. PWM Dimmable version comes with an extra 2 wires +Purple/-Gray on the output side.
2. Below 10% Duty cycle proper dimming operation is not assured. Unit is not intended to turn off at <10% Duty Cycle.
3. PWM dimmable version output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.