



Thomas Research Products

SSL Solutions Faster Than The Speed Of Light®

LED-20W Series

Switch Mode LED Drivers with Isolation, Constant Current, Dimming & Constant Voltage

Total Power: 20 Watts
 Input Voltage: 100-277 Vac
 Outputs: Single from 7-57 Vdc
 Dry, Damp or Wet Locations
 IP66, NEMA4
 High Power Factor

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:	<15.0 Amps max @ 230 Vac, cold start 25°C
Input Current:	0.25 Amps max at 120 Vac
Efficiency:	85% typical at max load
Maximum Power:	20W
Line Regulation:	± 2%
Load Regulation:	± 3%
THD:	≤ 20% @ 120 Vac, ≤ 35% @ 277 Vac
Leakage Current:	300 µA Typical
Hold Up Time:	Half Cycle
Output Protection:	Over-Voltage, Over-Current, and Short Circuit Protection with Auto Recovery

Environmental Specifications

Operating Temperature:	-30°C to +60°C
Storage Temperature:	-40°C to +85°C
Maximum Case Temp.	90°C
Humidity:	5% to 95%
Cooling:	Convection
Vibration Frequency:	5 to 55 Hz/2g, 30 minutes
MTBF:	488,000 Hours at full load and 40°C ambient conditions per MIL-217F Notice 2
Weight:	5.8 oz (165 grams) typical



Constant Current - Product Specifications

Model Number	Output Current (mA ±4%)	Output Voltage Range (Vdc)	Max. Output Power (W)	Typical Efficiency
LED20W-057-C0350-XX	350	19-57	20	84%
LED20W-048-C0350-XX	350	16-48	16.8	83%
LED20W-043-C0460-XX	460	15-43	20	83%
LED20W-040-C0500-XX	500	14-40	20	82%
LED20W-036-C0550-XX	550	18-36	20	82%
LED20W-028-C0700-XX	700	10-28	20	81%
LED20W-024-C0830-XX	830	12-24	20	81%
LED20W-022-C0910-XX	910	12-22	20	81%
LED20W-018-C1100-XX	1100	10-18	20	80%
LED20W-015-C1330-XX	1330	9-15	20	80%
LED20W-013-C1540-XX	1540	7-13	20	79%
LED20W-012-C1660-XX	1660	7-12	20	78%

-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
LED20W-057	57	88-350	20	85%
LED20W-048	48	88-350	16.8	85%
LED20W-043	43	115-460	20	85%
LED20W-040	40	125-500	20	85%
LED20W-036	36	138-550	20	85%
LED20W-028	28	175-700	20	84%
LED20W-024	24	208-830	20	84%
LED20W-022	22	228-910	20	84%
LED20W-018	18	275-1100	20	83%
LED20W-015	15	333-1330	20	83%
LED20W-013	13	385-1540	20	82%
LED20W-012	12	415-1660	20	82%

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.



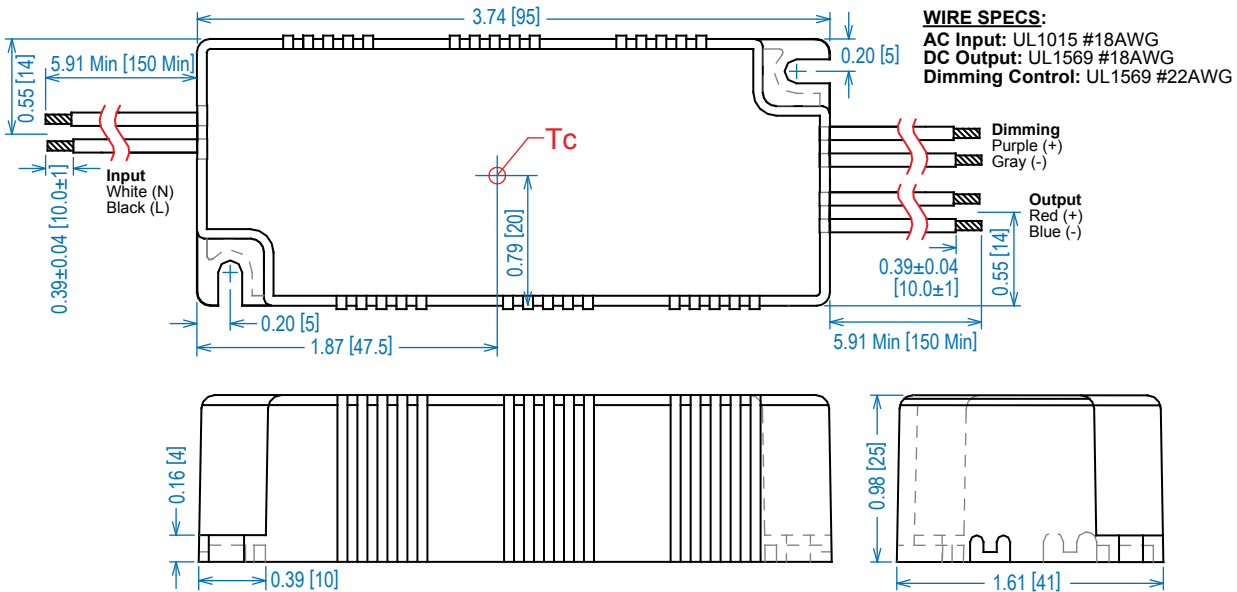
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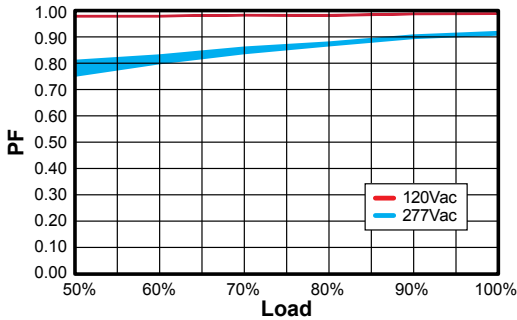
LED20W

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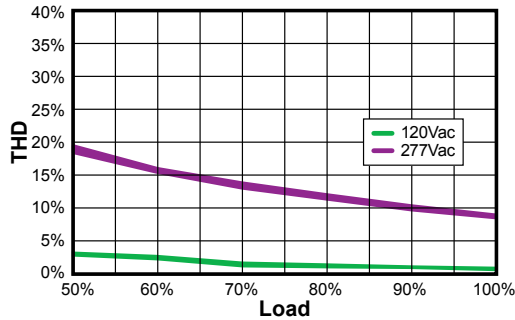
Dimensions - mm



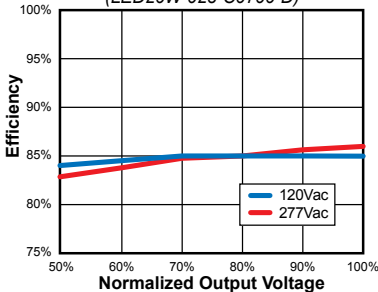
Power Factor / Load



THD / Load



Typical Efficiency / Load
(LED20W-028-C0700-D)



Safety and EMC Compliance

UL/CUL	UL8750, CSA-C22.2
C E	EN61347
FCC, 47CFR Part 15	Class B
EN61000-3-2	
EN61000-3-3	Class C

UL Conditions of Acceptability

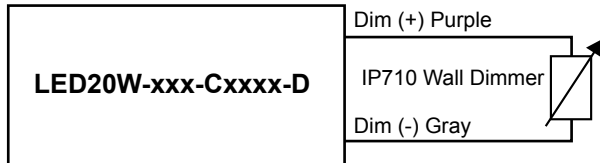
See website for additional information



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

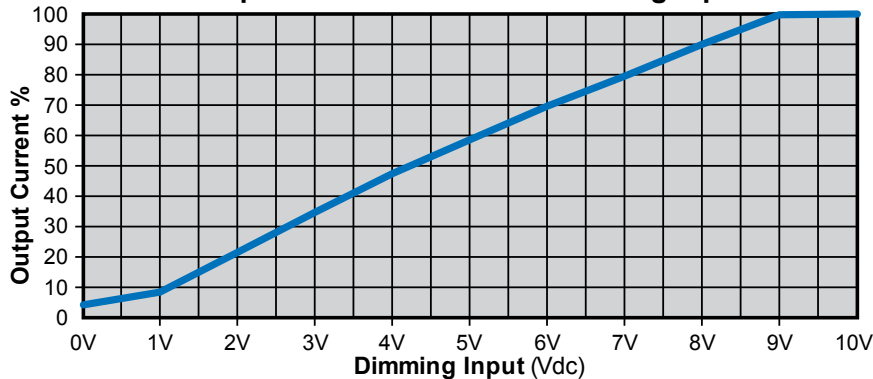
Parameters	Minimum	Typical	Maximum
Source Current out of 0-10V Purple Wire	0 mA	—	0.5 mA
Absolute Voltage Range on 0-10V (+) Purple Wire	-2.0 V	—	+15 V

Typical Dimming Circuit



(Dimmer must be current-sink type control)

Output Current / 0-10VDC Dimming Input



Notes:

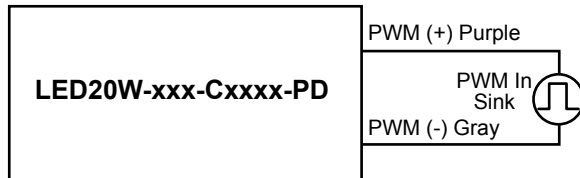
1. 0-10V dimmable version comes with an extra two wires +Purple/-Gray on the output side.
2. Compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended dimmer is Leviton IP710 or equivalent
3. 0-10V dimmable version output will be $\leq 10\%$ @ 0-1.0V
4. 0-10V dimmable version output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.



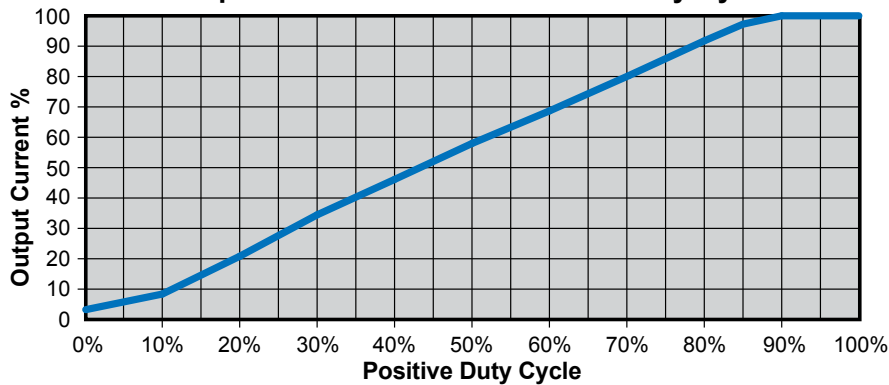
“-PD” Option: PWM Dimming

Parameters	Minimum	Typical	Maximum
Absolute Maximum Voltage Range on PWM Input (Purple Wire)	-2.0 V	10 V	+15 V
Input LOW Level Voltage Range (Purple Wire)	-2.0 V	0 V	+5.5 V
Input HIGH Level Voltage Range (Purple Wire)	+9.0 V	10 V	+15 V
Current into PWM Input (Purple Wire)	0 mA	—	1.2 mA
Source Current out of PWM Input (Purple Wire)	0 mA	—	2 mA
PWM Input Signal Frequency	500 Hz	—	1500 Hz
PWM Input Signal Positive Duty Cycle	0%	10-90%	100%

PWM Positive Dimming Typical Circuit



Output Current / 1.0kHz 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 dim below 5% at 0% Duty Cycle.
3. PWM dimmable version output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.