

150 Watt - LD150W Series

CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING



150W
 LD150W Series
 DIMMING

Model: LD150W Series

- Drive Mode: Constant Current or Constant Voltage
- Technology: PFC Corrected 2-Stage Switch Mode
- Output Power: 150W Max.
- Input Voltage: 90 to 305VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 8VDC - 428VDC
- Output Currents: 350mA - 6250mA
- Optional 0-10V or PWM Positive Dimming 10% ~ 100%

Environmental

1. Operating temperature: Tc 90C Maximum. Reference -30 to +60°C ambient
2. UL Type TL (Tref Max/Meas. Tref): 90/82°C
3. Storage temperature range: -40 to +85°C
4. Humidity (non-condensing): 5% - 95%RH
5. Cooling: Convection
6. Vibration Frequency: 5-55Hz/2g, 30 minutes
7. Impact resistance: 1g/s
8. MTBF@ 40°C: 260,000 hours @ Full Load per MIL-217F Notice 2.

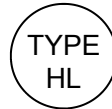
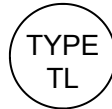
Safety and Compliance

1. UL8750, EN61347, CSA 22.2, UL Type TL & HL recognized.
2. FCC, 47CFR Part 15 Class B certified
3. Water resistant and Dust Proof Design: IP66, NEMA6, for Dry, Damp, Wet Locations.
4. Compact Miniature, Lightweight Design.
5. Safety Isolation between Primary and Secondary
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, auto-recovery.
8. EN61000-4-5: 2kV/4kV 8/20 µsec surge protection.

Electrical Specifications at 25°C

- Input voltage range: 90 to 305VAC
- Frequency: 47- 63HZ
- Power Factor: ≥ 0.90 at ≥ 60% Load, 120Vac/230Vac/277Vac 50/60Hz
- THD%: ≤ 20% at ≥ 60% Load, 120Vac/230Vac/277Vac 50/60Hz
- Inrush current: <60A at 25C, 277Vac, cold start, Full Load
- Input current: 0.75A Max @ 230Vac, 1.41A Max @ 120Vac, Full load
- Efficiency: Up to 92% typical at 230Vac Full Load
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 4%
- Leakage current: 700uA typical; Hold up time: half cycle

Constant Current Versions



IP66



| Part Number ⁽²⁾ | UL Types | Output Voltage Range | Output Constant Current | Current Accuracy | Output Power Maximum | Typical Efficiency ⁽¹⁾ |
|--------------------------------|----------|----------------------|-------------------------|------------------|----------------------|-----------------------------------|
| LD150W-428-C0350 | TL & HL | 142 - 428 VDC | 350 mA | ± 5% | 150W | 92% |
| LD150W-333-C0450 | TL & HL | 111 - 333 VDC | 450 mA | ± 5% | 150W | 92% |
| LD150W-283-C0530 | TL & HL | 95 - 283 VDC | 530 mA | ± 5% | 150W | 91% |
| LD150W-214-C0700 | TL & HL | 72 - 214 VDC | 700 mA | ± 5% | 150W | 91% |
| LD150W-142-C1050 | TL & HL | 48 - 142 VDC | 1050 mA | ± 5% | 150W | 91% |
| LD150W-107-C1400 | TL & HL | 36 - 107 VDC | 1400 mA | ± 5% | 150W | 91% |
| LD150W-85-C1750 | TL & HL | 29 - 85 VDC | 1750 mA | ± 5% | 150W | 90% |
| LD150W-71-C2100 | TL & HL | 24 - 71 VDC | 2100 mA | ± 5% | 150W | 90% |
| LD150W-61-C2450 | TL & HL | 21 - 61 VDC | 2450 mA | ± 5% | 150W | 90% |
| LD150W-53-C2800 | TL & HL | 18 - 53 VDC | 2800 mA | ± 5% | 150W | 90% |
| LD150W-48-C3150 | TL & HL | 16 - 48 VDC | 3150 mA | ± 5% | 150W | 89% |
| LD150W-42-C3500 | TL & HL | 14 - 42 VDC | 3500 mA | ± 5% | 150W | 89% |
| LD150W-35-C4200 | TL & HL | 12 - 35 VDC | 4200 mA | ± 5% | 150W | 89% |
| LD150W-30-C4900 | TL & HL | 10 - 30 VDC | 4900 mA | ± 5% | 150W | 88% |
| LD150W-24-C6250 ⁽⁵⁾ | TL & HL | 8 - 24 VDC | 6250 mA | ± 5% | 150W | 88% |

Notes

1. Typical efficiency measured at 230VAC input, full load
2. For dimmable versions add appropriate designator to the end of the part number: For Example: LD150W-24-C6250-RD is 0-10V or resistance dimmable version, LD150W-24-C6250-PD is PWM dimmable version.
 -RD 0-10V & Resistance dimmable version comes with an extra two wires +Purple/-Grey on the output side.
 -PD PWM Dimmable version comes with an extra two wires +Purple/-Grey on the output side.
3. -RD 0-10V Dimming is compatible with most quality 0-10V wall dimmers and direct 0-10V analog signal. See page 3 for details.
4. -PD PWM version is PWM Dimmable via a positive 10% to 100% Duty Cycle, 200Hz to 1KHz, 0-10V Pulse. See page 4 for details.
5. SAM Recognized.

150W**LD150W Series****DIMMING****LED Optimized Drivers**

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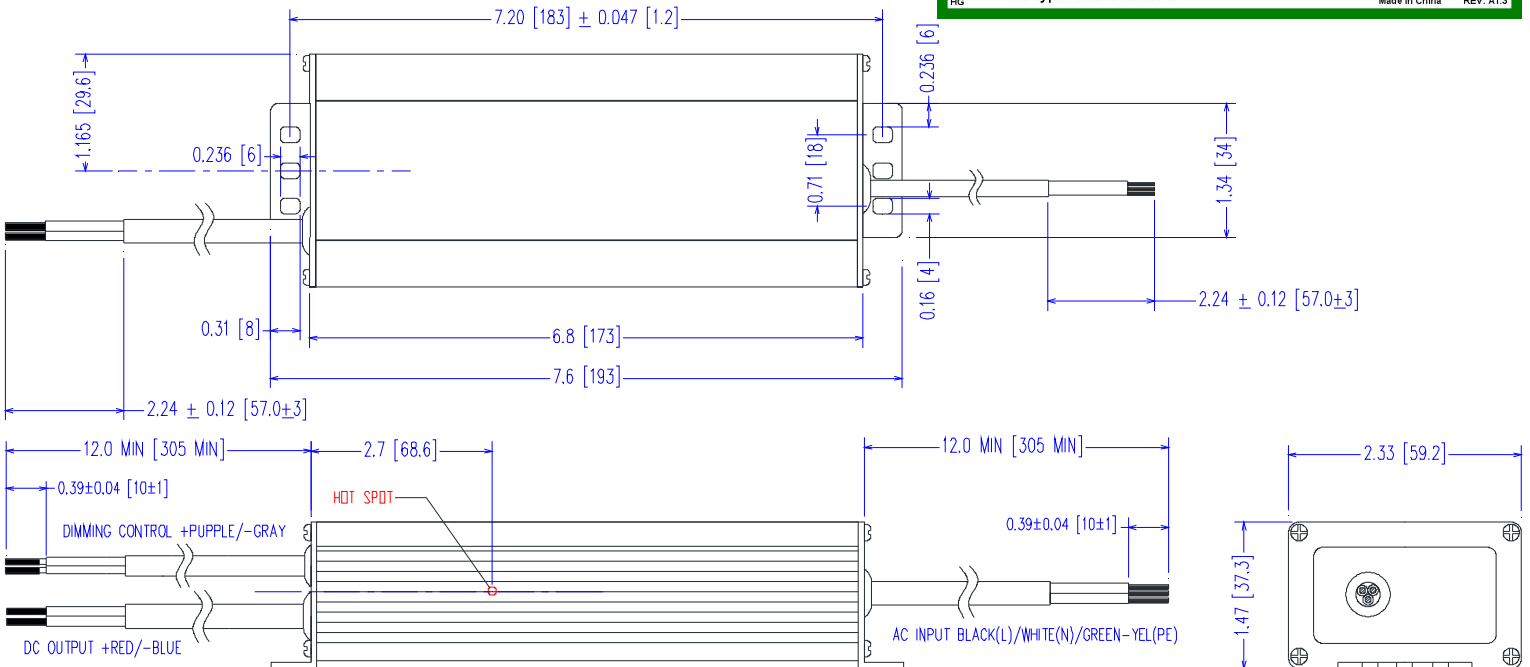
CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING

Constant Voltage Versions

| Part Number | UL Types | Output Constant Voltage | Output Current Range | Voltage Accuracy | Output Power Maximum | Typical Efficiency ⁽¹⁾ |
|--------------------------|----------|-------------------------|----------------------|------------------|----------------------|-----------------------------------|
| LD150W-428 | TL & HL | 428 VDC | 88 - 350 mA | ± 5% | 150W | 92% |
| LD150W-333 | TL & HL | 333 VDC | 113 - 450 mA | ± 5% | 150W | 92% |
| LD150W-283 | TL & HL | 283 VDC | 133 - 530 mA | ± 5% | 150W | 91% |
| LD150W-214 | TL & HL | 214 VDC | 175 - 700 mA | ± 5% | 150W | 91% |
| LD150W-142 | TL & HL | 142 VDC | 263 - 1050 mA | ± 5% | 150W | 91% |
| LD150W-107 | TL & HL | 107 VDC | 350 - 1400 mA | ± 5% | 150W | 91% |
| LD150W-85 | TL & HL | 85 VDC | 438 - 1750 mA | ± 5% | 150W | 90% |
| LD150W-71 | TL & HL | 71 VDC | 525 - 2100 mA | ± 5% | 150W | 90% |
| LD150W-61 | TL & HL | 61 VDC | 613 - 2450 mA | ± 5% | 150W | 90% |
| LD150W-53 | TL & HL | 53 VDC | 700 - 2800 mA | ± 5% | 150W | 90% |
| LD150W-48 | TL & HL | 48 VDC | 788 - 3150 mA | ± 5% | 150W | 89% |
| LD150W-42 | TL & HL | 42 VDC | 875 - 3500 mA | ± 5% | 150W | 89% |
| LD150W-35 | TL & HL | 35 VDC | 1050 - 4200 mA | ± 5% | 150W | 89% |
| LD150W-30 | TL & HL | 30 VDC | 1225 - 4900 mA | ± 5% | 150W | 88% |
| LD150W-24 ⁽⁵⁾ | TL & HL | 24 VDC | 1563 - 6250 mA | ± 5% | 150W | 88% |

Mechanical Dimensions: Inches [mm]

Material: Black Aluminum Housing
 Fully Encapsulated
 Weight: 690 grams (24.4 oz) Typical

Labeling Example

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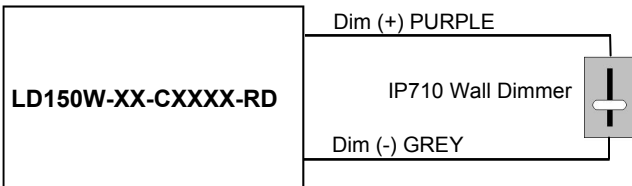
-RD 2-Wire 0-10V CCR Dimming Scheme

| Parameters | Minimum | Typical | Maximum |
|---|---------|---------|---------|
| Source Current out of 0-10V Purple Wire | 0mA | — | 2mA |
| Absolute Voltage Range on 0-10V (+) Purple Wire | -2.0V | — | +15V |
| Sink Current into 0-10V Purple Wire | 0mA | — | 1.2mA |

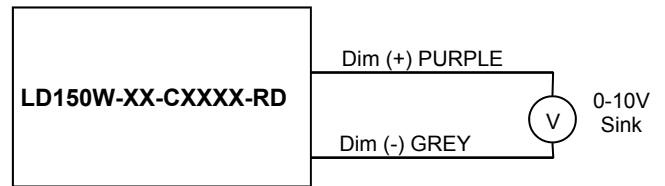
Notes

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

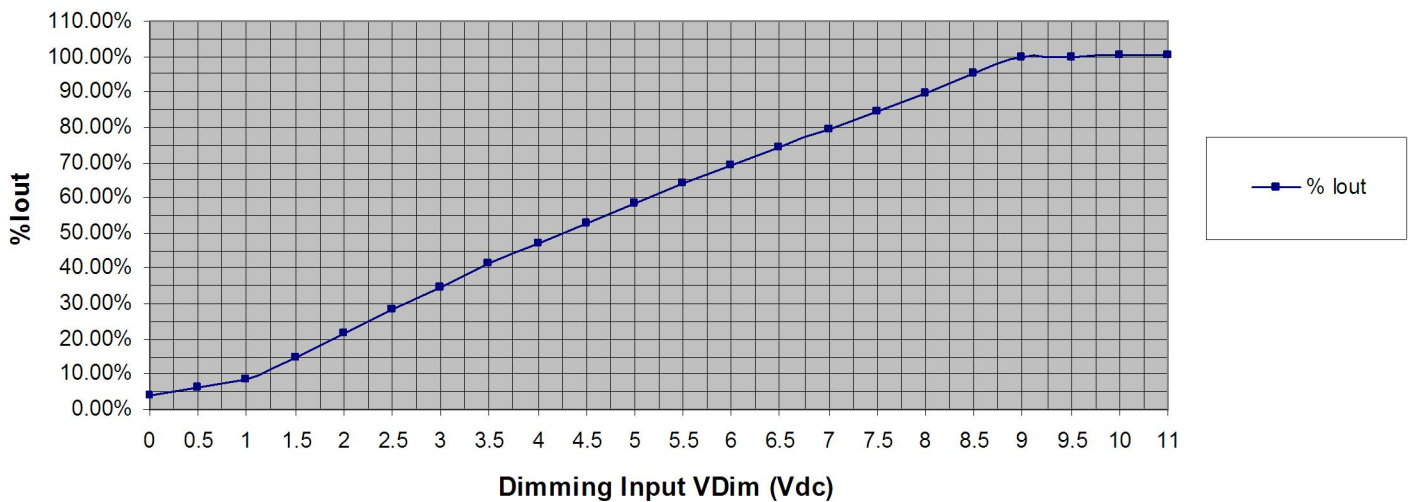
-RD 2-Wire Resistance Dimming Scheme



-RD 2-Wire 0-10V Analog Dimming Scheme



% Output Current vs. 0-10VDC Dimming Input



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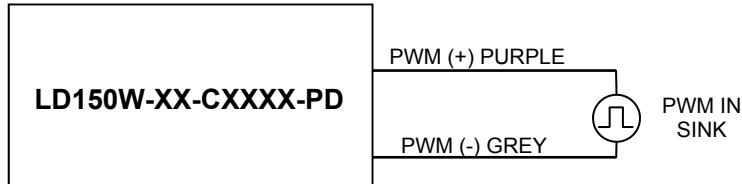
-PD 2-Wire CCR PWM Positive Dimming Scheme

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

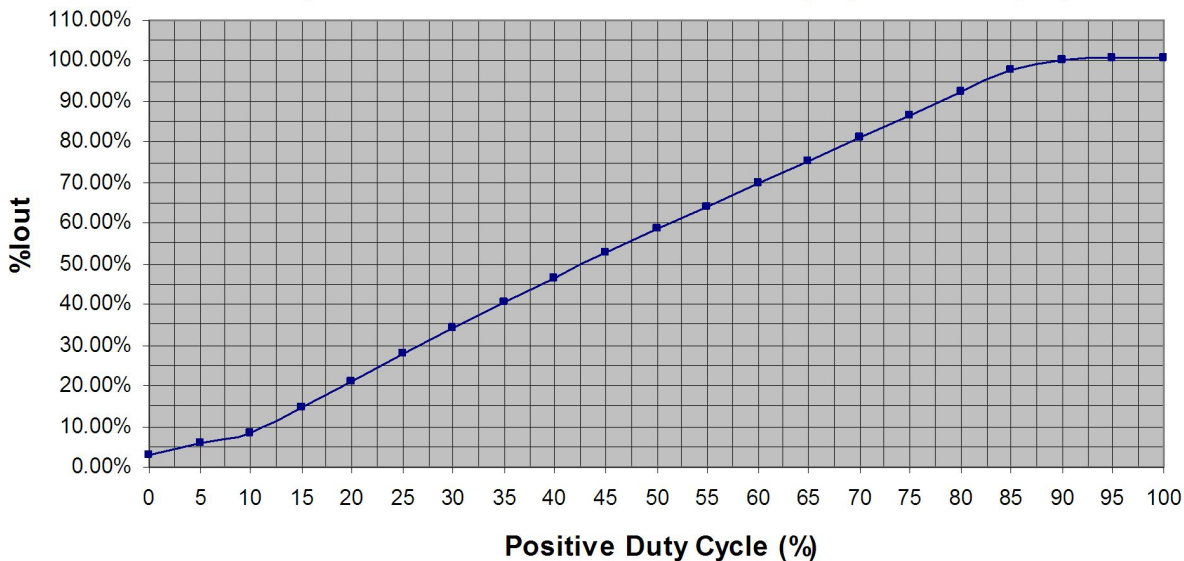
Notes

1. -PD PWM Dimmable version comes with an extra 2 wires +Purple/-Grey on the output side.
2. -PD PWM Dimmable version is not intended to dim below about 5% @ 0% Duty Cycle or 10% @ 10% Duty Cycle
3. -PD PWM dimmable version output will be 100% with Purple/Grey open and minimum with Purple/Grey Shorted.

-PD 2-Wire PWM Positive Dimming Scheme



% Output Current vs. 1.0 kHz, Positive Duty Cycle Dimming Input



—■ % Iout

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Input Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|-----------------------------------|--------|------|-----------------------|---|
| Input Voltage | 90 Vac | — | 305 Vac | 120, 230, 240, 277 Vac Nominal Values |
| Input Frequency | 47 Hz | — | 63 Hz | 50/60Hz Nominal |
| Input AC Current | — | — | 1.41 A | Measured at 120Vac/60Hz Input, Output Full load. |
| | — | — | 0.75 A | Measured at 230Vac/60Hz Input, Output Full load. |
| Inrush Current (Peak) | — | 48A | 60A | Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start 50% I _{peak} duration \approx 750 μ sec (1/2*I _p ² *t) |
| Inrush Current (I ² t) | — | — | 1.35 A ² s | |
| Leakage Current | — | — | 0.68mA | Measured at 120Vac/60Hz Input, Output Full load. |
| | — | — | 0.75mA | Measured at 277Vac/60Hz Input, Output Full load. |
| THD | — | — | 20% | Measured at 120, 230, 277Vac Input, Output \geq 60% Load, See Graphs |
| Power Factor (PF) | 0.90 | — | — | Measured at 120, 230, 277Vac Input, Output \geq 60% Load, See Graphs |

Output Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|--------------------------------------|-----------|-----------|-------------------|---|
| DC Output Voltage | Per Table | — | Per Table | Per Tables on Page 1 |
| DC Output Constant Current | -5% | Per Table | +5% | Per Tables on Page 1 |
| Output Power | — | — | Per Table | Per Tables on Page 1 |
| Ripple & Noise (V _{pk-pk}) | — | — | 5% V _o | 20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic. 120 Hz component (Flicker Free) |
| Ripple (I _{pk-pk}) | — | — | 5% I _o | 20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic. 120 Hz component (Flicker Free) |
| Start-up Time | — | 150 mS | 1000 mS | Measured at 120Vac/60Hz Input, Output Full load. |
| Hold-up Time | — | 30 mS | — | Typical @ 277Vac Input, Output Full load. |

Environmental Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|---|---------------|------|--------|---|
| Case Temperature (T _c) | -30 °C | — | +90 °C | Measured at location specified on case. |
| Operating Temperature (T _a) | -30 °C | — | +60 °C | This is a reference range. T _c controls temperature range. |
| Storage Temperature (T _s) | -40 °C | — | +85 °C | Non operating temperature range. |
| Operating Humidity | — | — | 95% RH | Relative Humidity, non-condensing. |
| Vibration | 5 Hz | — | 55 Hz | 2G, 10 minutes/1 cycle, period 30 minutes, each along X, Y, Z axis. |
| MTBF | 280,000 Hours | — | — | MIL-HDBK-217F Notice 2, T _a = 40C, Output Full Load. |

Protection Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|----------------------------|------|------|---------------------|--|
| Output Short Circuit (SCP) | — | — | — | No Damage, Auto recovery after short is removed. |
| Output Over Current (OCP) | — | — | +10% I _o | Constant Current Limiting circuit. |
| Output Over Voltage (OVP) | — | — | 120% V _o | No Damage, Auto recovery after fault is removed. |

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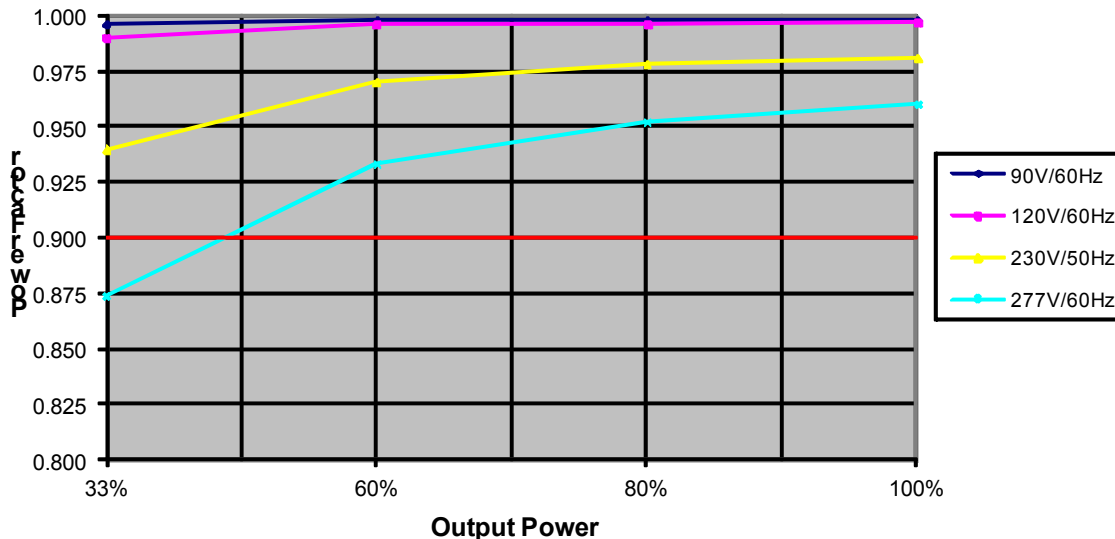
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Safety Certification

| Safety | Notes/Standards |
|----------------------|--|
| UL/CUL | UL8750, UL1310 for UL Class 2 & CAN/CSA C22.2 No. 250.13, UL Type HL & TL 90/82 °C |
| CE | EN61347-1, EN61347-2-13 |
| Withstand Voltage | Input to Output: 3750 Vac. Parts use a GDT. Hipot cannot be done with Case or GND connected. |
| Isolation Resistance | Input to Output: >100 MΩ, 500VDC @ 25 °C, 70 % RH |
| Dimming Circuit | Dim+ Purple/Dim- Grey are considered part of the secondary circuit. |

EMC Certification

| Standard | Notes/Conditions |
|--------------------|--|
| FCC, 47CFR Part 15 | Class B |
| EN 55015 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment. |
| EN 61000-3-2 | Part 3-2: Limits for harmonic current emissions Class C, ≥80% Rated Power |
| EN 61000-3-3 | Part 3-3: Limitation of voltage changes, voltage fluctuations and flicker. |
| EN 61000-4-5 | Part 4-5: Surge Immunity test, 2 kV L-N, 4 kV L-FG & N-FG |
| Energy Star | Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, Category A operation. The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode. |

Power Factor Curves (Typical)**PF vs. Output Power**

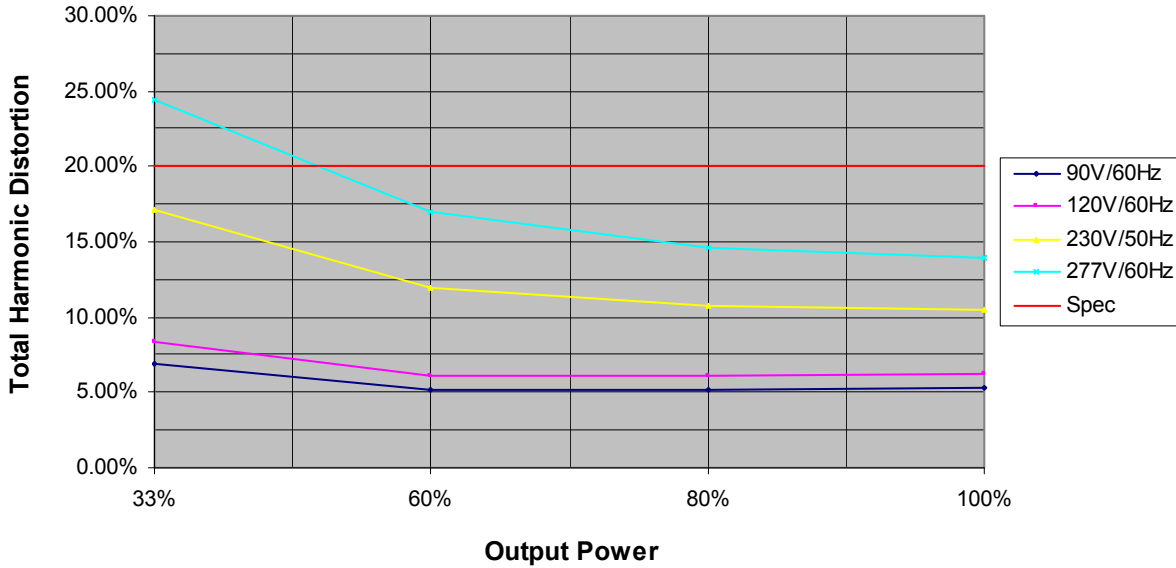
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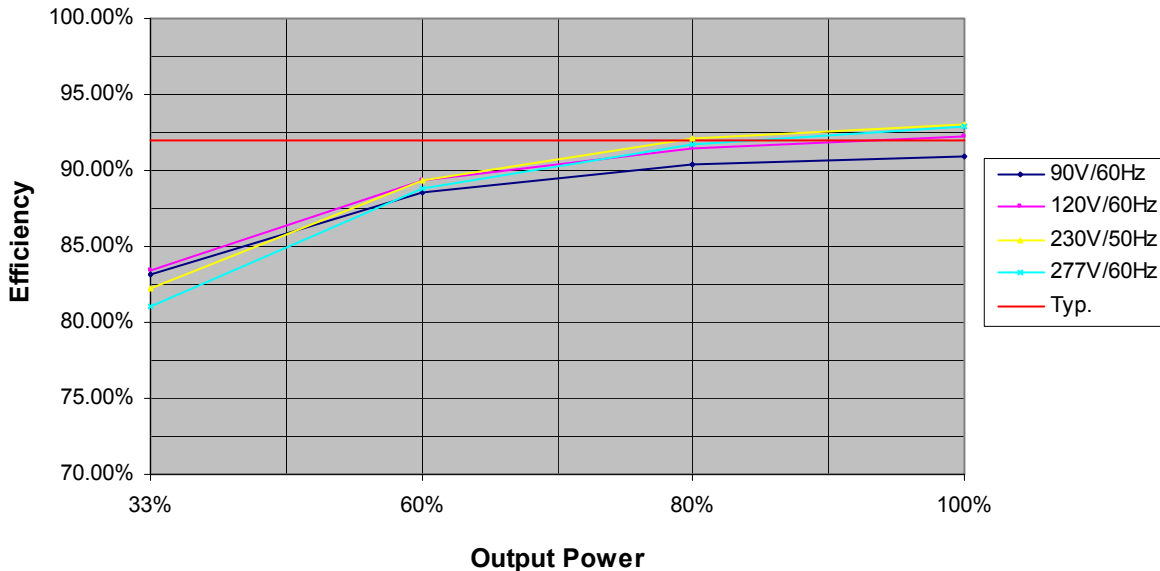
THD Curves (Typical)

THD vs. Output Power



Efficiency Curve (Typical) LD150W-428-C0350-RD

Efficiency vs. Output Power

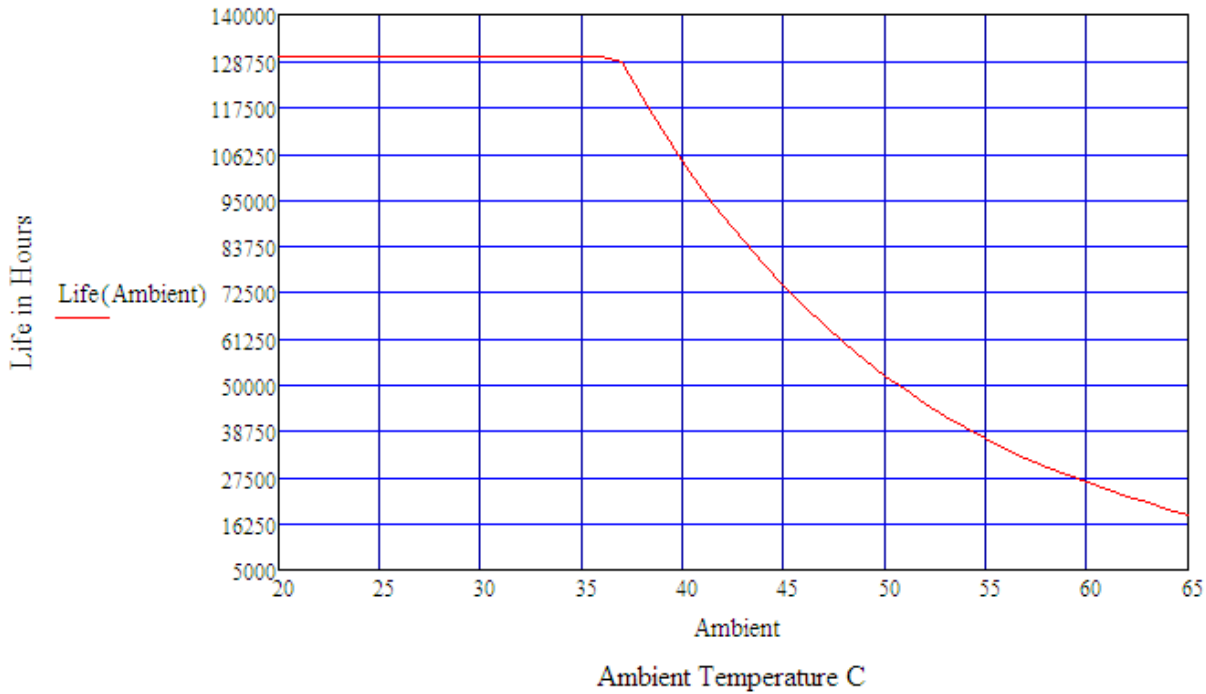


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CONSTANT VOLTAGE OR CONSTANT CURRENT LED DRIVER WITH DIMMING

Life vs. Ambient Temperature

LD150W Estimated Life Full Load @ 120Vac



Life vs. Case (Tc) Temperature

LD150W Estimated Life Full Load @ 120Vac

