

40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO



DIMMING

LD40W Series

40W

Model: LD40W Series

- Drive Mode: Constant Current
- Technology: Advanced PFC Off-Line Switch Mode
- Output Power: 40W Max.
- Number of Outputs: One
- Output Voltages: 12VDC - 130VDC
- Output Currents: 300mA - 1670mA
- Optional 0-10V Linear Dimming 1% to 100%
- Dims to Zero @ $\leq 1.0V$, Standby Power $\leq 0.5W$

Environmental

1. Operating temperature: Tc 90C Maximum. Reference -40 to +60°C ambient
2. UL Recognized, UL Type HL
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@ Tc = 80°C: 545,000 hours @ Full Load per MIL-HDBK-217F Notice 2

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety recognized, UL Type HL
2. FCC, 47CFR Part 15 & EN55015 compliant.
3. Water resistant and Dust Proof Design: IP66, NEMA4, for Dry & Damp Locations.
4. Compact, Lightweight Design.
5. Safety Isolation between Primary, Secondary & 0-10V Dim
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, over temperature, auto-recovery.
8. EN61000-4-5: 2kV L-N, 8/20 μ sec surge protection.

Electrical Specifications at 25°C

- Input voltage range: 120 to 277Vac (Full Range 100 to 305VAC)
- Frequency: 47- 63HZ
- Power Factor: ≥ 0.90 at 120/230/277Vac $\geq 50\%$ Load
- THD%: $\leq 20\%$ at 120/230/277Vac $\geq 50\%$ Load
- Inrush current: $< 50A$ at 25C, 277Vac, cold start, Full Load
- Input current: 0.43A Maximum at 120Vac, 60Hz, Full Load
- Efficiency: 83% typical 230Vac Full Load
- Line regulation accuracy: $\pm 3\%$
- Load regulation accuracy: $\pm 4\%$
- Leakage current: 277Vac, 700uA maximum

Constant Current Dimmable Versions



IP66



| Part Number ⁽²⁾ | US Class 2 | CN Class 2 | Output Voltage Range | Output Constant Current | Current Accuracy | Output Power Maximum | Typical Efficiency ⁽¹⁾ |
|----------------------------|------------|------------|----------------------|-------------------------|------------------|----------------------|-----------------------------------|
| LD40W-130-C0300-RD | NO | NO | 65 - 130 VDC | 300 mA | $\pm 5\%$ | 40W | 87% |
| LD40W-114-C0350-RD | NO | NO | 57 - 114 VDC | 350 mA | $\pm 5\%$ | 40W | 86% |
| LD40W-89-C0450-RD | NO | NO | 45 - 89 VDC | 450 mA | $\pm 5\%$ | 40W | 86% |
| LD40W-72-C0550-RD | NO | NO | 36 - 72 VDC | 550 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-57-C0700-RD | YES | YES | 28 - 57 VDC | 700 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-54-C0700-RD | YES | YES | 28 - 54 VDC | 700 mA | $\pm 5\%$ | 37.8W | 85% |
| LD40W-48-C0830-RD | YES | YES | 24 - 48 VDC | 830 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-45-C0900-RD | YES | YES | 23 - 45 VDC | 900 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-40-C1000-RD | YES | YES | 20 - 40 VDC | 1000 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-36-C1100-RD | YES | YES | 18 - 36 VDC | 1100 mA | $\pm 5\%$ | 40W | 85% |
| LD40W-30-C1400-RD | YES | YES | 15 - 30 VDC | 1400 mA | $\pm 5\%$ | 42W | 85% |
| LD40W-24-C1670-RD | YES | YES | 12 - 24 VDC | 1670 mA | $\pm 5\%$ | 40W | 85% |

Notes

1. Typical efficiency measured at 230VAC input, full load
2. -RD 0-10V standard dimmable part numbers shown. For other versions change designator at the end of the part number. For Example: LD40W-36-C1000 is non-dimmable version.
3. -RD 0-10V & Resistance dimmable version comes with an extra two wires +VIOLET/-PINK on the output side. (Legacy DIM- = GRAY)
4. -RD 0-10V Dimming is compatible with most quality 0-10V wall dimmers and direct 0-10V analog signal. See page 3 for details.

Custom designs available. Please consult with the factory.

Specifications subject to change without notice

40W

LD40W Series

DIMMING



LED Optimized Drivers

40 Watt- LD40W Series

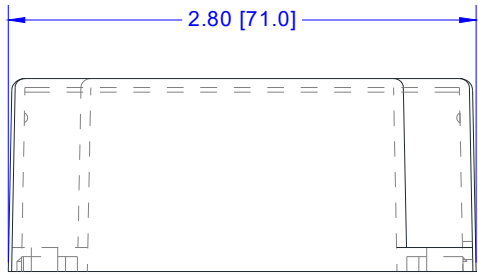
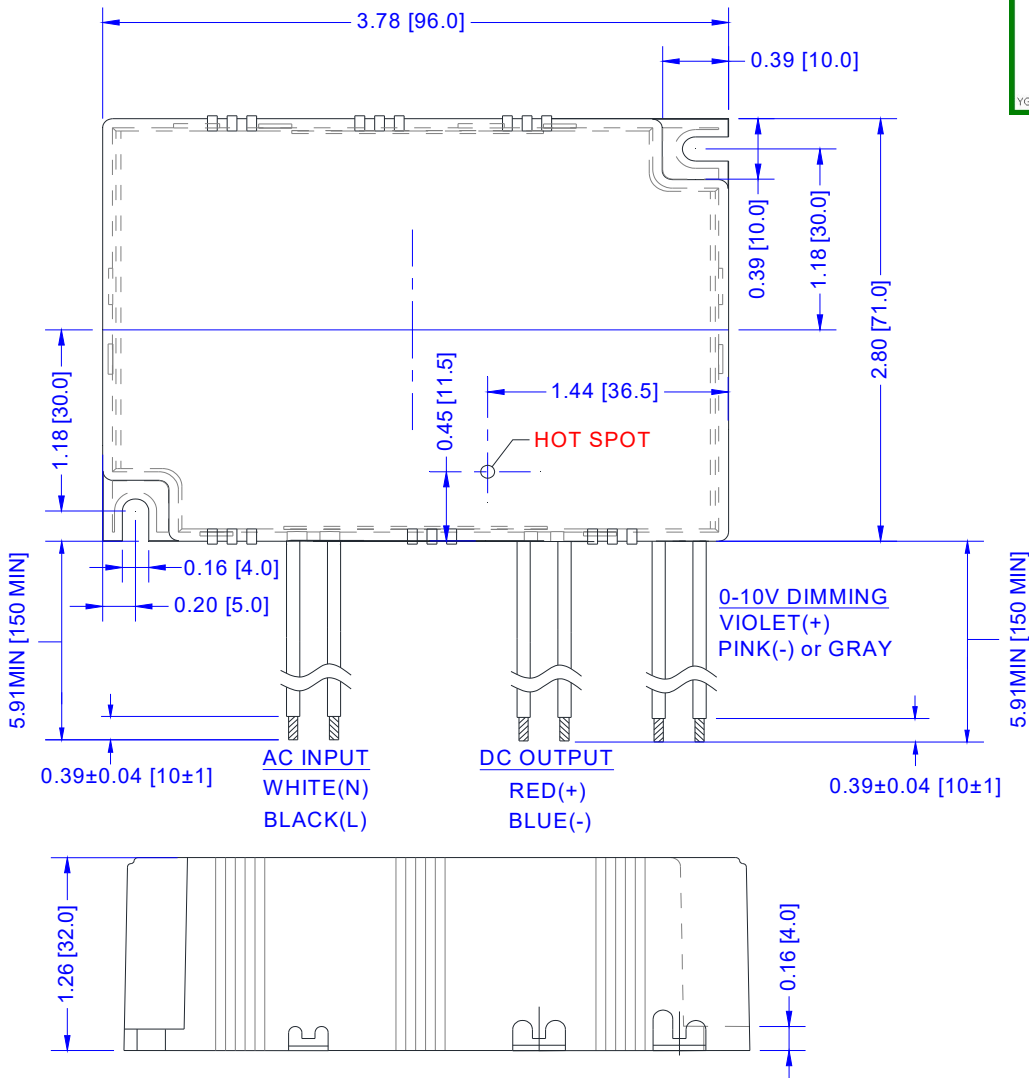
CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

Mechanical Dimensions: Inches [mm]

Material: Black PC ABS Plastic Case
Fully Encapsulated
Weight: 311 grams (11.0 oz) Typical

Labeling Example

| | | | |
|--|-------|---|------------------------------------|
| DC OUTPUT + = RED - = BLUE | | LED Optimized Driver EPtronics, Inc. www.EPtronics.com 800 643-0688/310 536-0700 | AC INPUT L = BLACK N = WHITE |
| Part Number: LD40W-36-C1100-RD | | 0-10V DIMMING DIM+ = VIOLET DIM- = PINK | |
| Input Voltage: 120-277 VAC 50/60Hz | | | |
| Input Current: 0.43 Amp Max @ 120Vac | | | |
| Output Voltage: 18-36 VDC, 40W Maximum | | | |
| Output Current: 1100 mA Constant Current | | | |
| UL & cUL Class 2 Output & 0-10V CCR Dimming | | | |
| Isolated Class 2 Dim suitable for Class 1 or 2 circuit | | | |
| Suitable for Dry & Damp Locations, UL Type HL | | | |
| IP66 | | | |
| YG | REV F | Made in China | |



40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

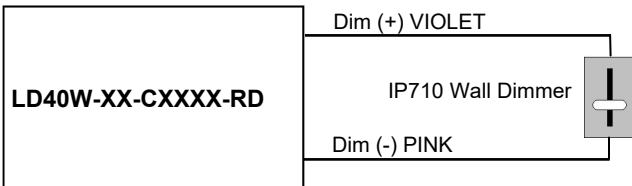
-RD 2-Wire 0-10V CCR Dimming Scheme

| Parameters | Minimum | Typical | Maximum |
|---|---------|---------|---------|
| Source Current out of 0-10V VIOLET Wire | 0mA | — | 1.0mA |
| Absolute Voltage Range on 0-10V (+) VIOLET Wire | -2.0V | — | +15V |

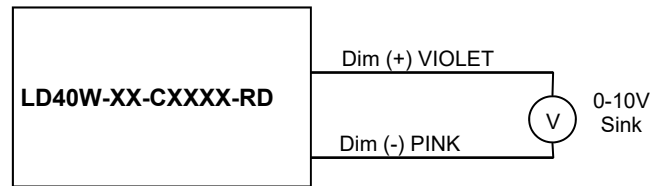
Notes

- RD 0-10V dimmable version comes with an extra two wires +VIOLET/-PINK 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 Dim to Zero @ ~1.00V and 1% Min Dim.
- RD 0-10V dimmable version output will be 100% with VIOLET/PINK open and minimum with VIOLET/PINK Shorted.
- Dimming wires +VIOLET/-PINK must not touch any other wires or damage to LED Driver can occur.

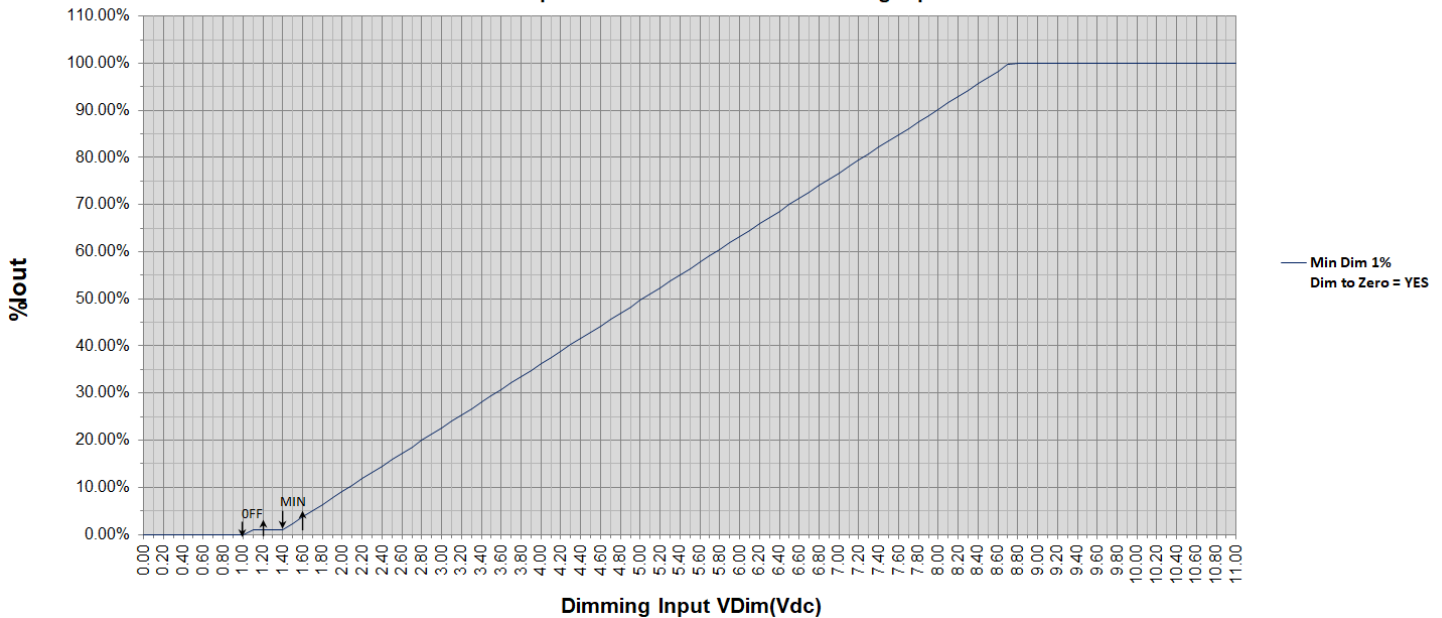
-RD 2-Wire Resistance Dimming Scheme



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



% Output Current Vs. 0-10V DC Dimming Input



40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

Input Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|--|---------|------|---------|--|
| Input Voltage | 100 Vac | — | 305 Vac | 120, 230, 240, 277 Vac Nominal Values |
| Input Frequency | 47 Hz | — | 63 Hz | 50/60Hz Nominal |
| Input AC Current | — | — | 0.43 A | Measured at 120Vac/60Hz Input, Output Full load. |
| | — | — | 0.21 A | Measured at 277Vac/60Hz Input, Output Full load. |
| Inrush Current (Peak) Ipk 10%Pw <60usec | — | — | 40 A | Measured at 120Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start |
| | — | — | 50 A | Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start |
| Leakage Current | — | — | 0.50mA | Measured at 120Vac/60Hz Input, Output Full load. |
| | — | — | 0.70mA | Measured at 277Vac/60Hz Input, Output Full load. |
| THD | — | — | 20% | Measured at 120, 230, 277Vac Input, Output ≥50% Load |
| Power Factor (PF) | 0.90 | — | — | Measured at 120, 230, 277Vac Input, Output ≥50% Load |
| Standby Power (Dim to Zero) | — | — | 0.5W | Measured at 120/230/277Vac, Dimmed to Zero (Vdim ≤0.9V) |

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 (Vpk-pk) | — | — | 20% Vo | 20 MHz BW, Full load output in parallel with 0.1 μF ceramic & 10 μF Electrolytic. |
| Ripple (Ipk-pk) | — | — | 50% Io | 20 MHz BW, Full load output in parallel with 0.1 μF ceramic & 10 μF Electrolytic. 120 Hz component |
| Start-up Time | — | — | 500 mS | Measured at 120Vac/60Hz Input, Output Full load, VDim = 10.0V |
| Output Overshoot | -5% | — | +10% | Measured at 120Vac/60Hz Input, Output Full load @ AC Power ON |

Environmental Specifications

| Parameter | Min. | Typ. | Max. | Notes/Conditions |
|----------------------------|--------|---------------|--------|---|
| Case Temperature (Tc) | -40 °C | — | +90 °C | Measured at location specified on case. |
| Operating Temperature (Ta) | -40 °C | — | +60 °C | This is a reference range. Tc controls temperature range. |
| Storage Temperature (Ts) | -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 | — | 545,000 Hours | — | MIL-HDBK-217F Notice 2, Tc = 80C, 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% Io | Constant Current Limiting circuit. |
| Output Over Voltage (OVP) | — | — | +20% Vo | No Damage, Auto recovery after fault is removed. |
| Over Temp Protection (OTP) | 95 °C | — | 100 °C | Iout Foldback at Tc ≥95C, OFF @ Tc ~110C |

40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

Safety Compliance

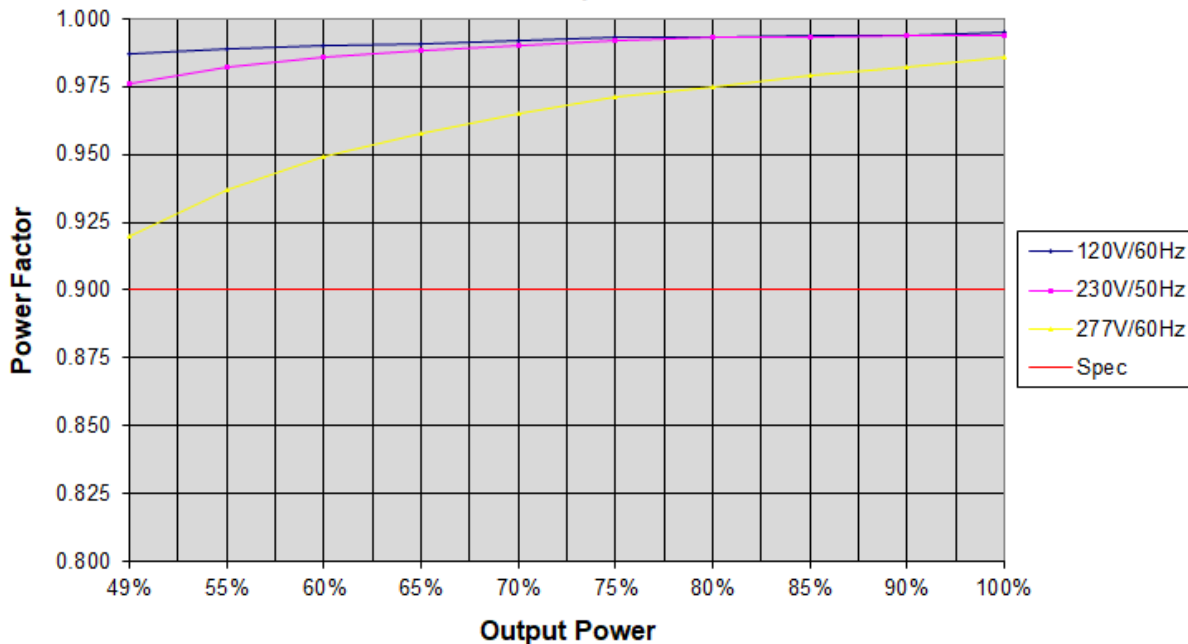
| Safety | Notes/Standards |
|--|---|
| UL/CUL | UL8750 & CAN/CSA C22.2 No. 250.13, UL Type HL |
| CE | EN61347-1, EN61347-2-13, EN62493 |
| Dielectric Withstand Voltage | Input to Output & Dimming: 3750 Vac (CE, ENEC covers UL 2000V requirement) Dimming to Output: 2500 Vac |
| Isolation Resistance | Input to Output: >100 MΩ, 500VDC @ 25 °C, 70 % RH |
| 0-10V Class 2 Isolated Dimming Circuit | Dim+ VIOLET/Dim- PINK are Class 2 Isolated from all other inputs & outputs. 0-10VDC Dimming suitable for Class 1 or Class 2 circuit. |
| Sound Rating | <24dB Class A @ 1 Meter |

EMC Compliance

| Standard | Notes/Conditions |
|-------------------------------|--|
| FCC, 47CFR Part 15 ANSI C63.4 | Class B @120Vac, Class A @ 277Vac |
| 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, ≥50% 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 |
| 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)

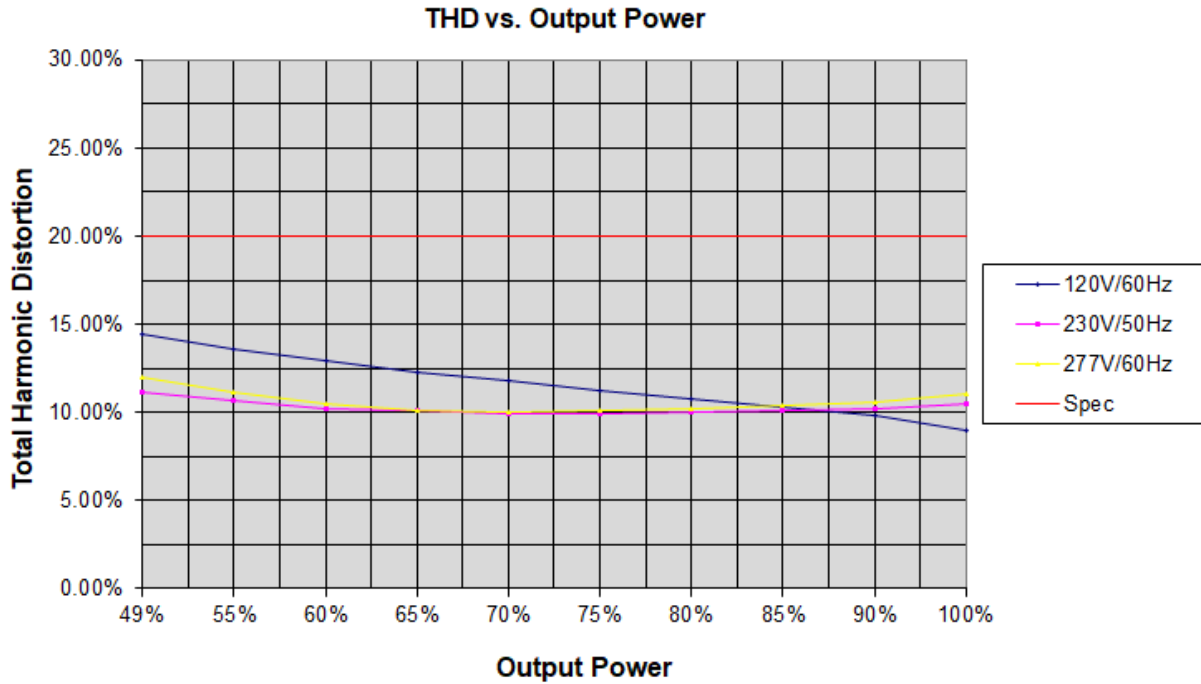
PF vs. Output Power



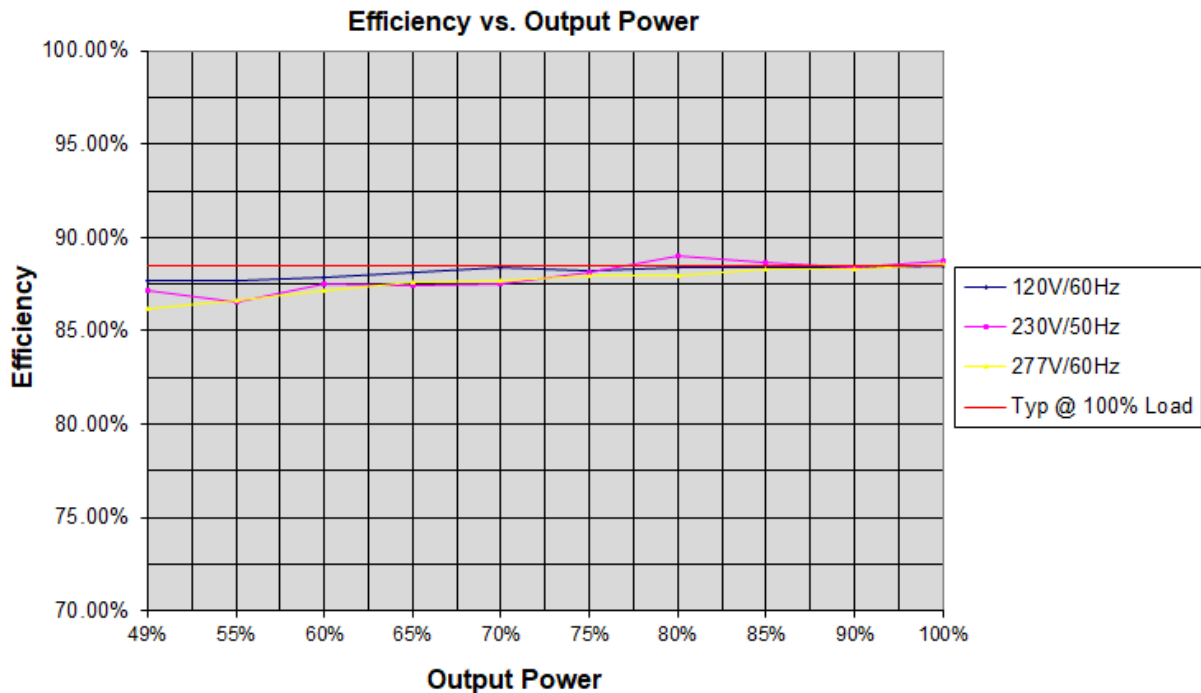
40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

THD Curves (Typical)



Efficiency Curve (Typical)

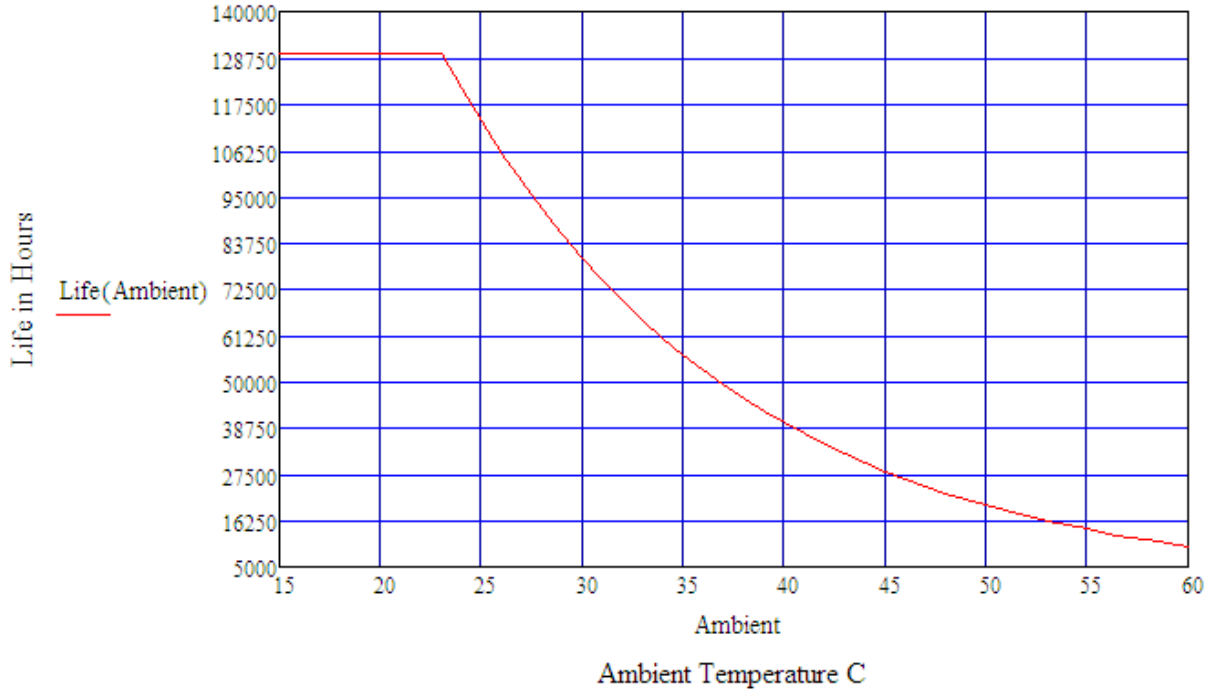


40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

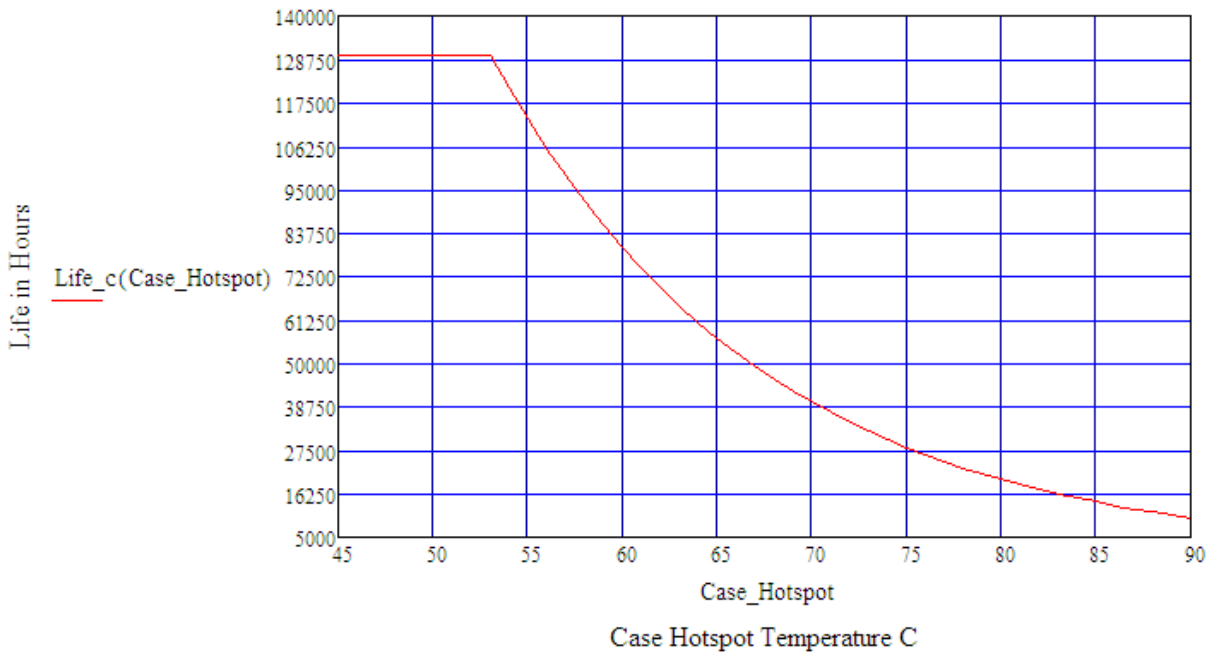
Life vs. Ambient Temperature

LD40W Estimated Life Full Load @ 120Vac



Life vs. Case (Tc) Temperature

LD40W Estimated Life Full Load @ 120Vac



40W

LD40W Series

DIMMING



LED Optimized Drivers

40 Watt- LD40W Series

CONSTANT CURRENT LED DRIVER WITH DIMMING & DIM TO ZERO

Revision History

| REV - Change Date | Description of Changes | | |
|--------------------|------------------------|--------------|---------------------------|
| | Items | Changed From | Changed To |
| REV F - 11/01/2020 | Initial spec release | REV E1.2 | REV F |
| REV F - 06/18/2021 | DIM Wire Colors | PURPLE/GREY | VIOLET/PINK, per NEMA 100 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |