# Thomas Research Products

*SSL Solutions Faster Than The Speed Of Light*

## LED-40W Series– Fixed Output and Dimmable

**Switch Mode LED Drivers**
**Constant Current & Constant Voltage with Isolation**
**Black Magic Thermal Advantage™ Plastic Housing**

**Total Power: 40 Watts**
**Input Voltage: 100-277 Vac**
**Outputs: Single from 3-114 Vdc**
**Indoor or Outdoor Applications, IP66**
**High Power Factor**
**UL8750 and Class 2 Compliant, as noted**

## 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:** | **<20.0 Amps max @ 230 Vac, cold start 25ºC** |
| **Input Current:** | **0.40 Amps max** |
| **Maximum Power:** | **40W** |
| **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 with Auto Recovery** |

## Environmental Specifications

| | |
|---|---|
| **Maximum Case Temp.** | **90°C** |
| **Storage Temperature:** | **-40ºC to +85ºC** |
| **Humidity:** | **5% to 95%** |
| **Cooling:** | **Convection** |
| **Vibration Frequency:** | **5 to 55 Hz/2g, 30 minutes** |
| **MTBF:** | **482,000 Hours at full load and 40ºC ambient conditions per MIL-217F Notice 2** |
| **EMC:** | **FCC 47CFR Part 15 Class B compliant** |


### Constant Current - Product Specifications

| Model Number | Output Current *(mA ±5%)* | Output Voltage Range *(Vdc)* | Max Output Power *(W)* | Max Efficiency |
|---|---|---|---|---|
| LED40W-114-C0350-XX | 350 | 38-114 | 40 | 87% |
| LED40W-100-C0400-XX | 400 | 33-100 | 40 | 87% |
| LED40W-89-C0450-XX | 450 | 30-89 | 40 | 87% |
| LED40W-54-C0700-XX | 700 | 18-54 | 37.8 | 86% |
| LED40W-48-C0830-XX | 830 | 16-48 | 40 | 86% |
| LED40W-45-C0900-XX | 900 | 15-45 | 40 | 86% |
| LED40W-36-C1100-XX | 1100 | 12-36 | 40 | 86% |
| LED40W-30-C1300-XX | 1300 | 10-30 | 39.0 | 86% |
| LED40W-24-C1400-XX | 1400 | 8-24 | 33.6 | 86% |
| LED40W-24-C1670-XX | 1670 | 8-24 | 40 | 86% |
| LED40W-22-C1820-XX | 1820 | 7-22 | 40 | 86% |
| LED40W-18-C2220-XX | 2200 | 6-18 | 40 | 85% |
| LED40W-15-C2680-XX | 2680 | 5-15 | 40 | 85% |
| LED40W-13-C3080-XX | 3080 | 4-13 | 40 | 85% |
| LED40W-12-C3330-XX | 3330 | 4-12 | 40 | 84% |
| LED40W-10-C4000-XX | 4000 | 3-10 | 40 | 84% |
| LED40W-09-C4450-XX | 4450 | 3-9 | 40 | 83% |

-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)* | Max Efficiency |
|---|---|---|---|---|
| LED40W-114 | 114 | 88-350 | 40 | 87% |
| LED40W-100 | 100 | 100-400 | 40 | 87% |
| LED40W-89 | 89 | 113-450 | 40 | 87% |
| LED40W-54 | 54 | 175-700 | 40 | 86% |
| LED40W-48 | 48 | 208-830 | 40 | 86% |
| LED40W-45 | 45 | 225-900 | 40 | 86% |
| LED40W-36 | 36 | 275-1100 | 40 | 86% |
| LED40W-30 | 30 | 325-1300 | 40 | 86% |
| LED40W-24 | 24 | 418-1670 | 40 | 86% |
| LED40W-22 | 22 | 455-1820 | 40 | 86% |
| LED40W-18 | 18 | 550-2200 | 40 | 85% |
| LED40W-15 | 15 | 670-2680 | 40 | 85% |
| LED40W-13 | 13 | 770-3080 | 40 | 85% |
| LED40W-12 | 12 | 833-3330 | 40 | 84% |
| LED40W-10 | 10 | 1000-4000 | 40 | 84% |
| LED40W-09 | 9 | 1112-4450 | 40 | 83% |

**Class 2:** US/Canada | US Only

### Ordering Options:

-D: 2-wire dimmable model dims 100% to 10%. Two extra wires included on the output side: +Purple/-Gray. This model is offers 0-10V & Resistance dimming, compatible with most quality 0-10V dimmers. See page 3.

-D3: 3-wire dimmable model dims 100% to 10%. Three extra wires included on the output side: Yellow/Purple/Gray. This model is suitable for potentiometer dimming. See page 3.

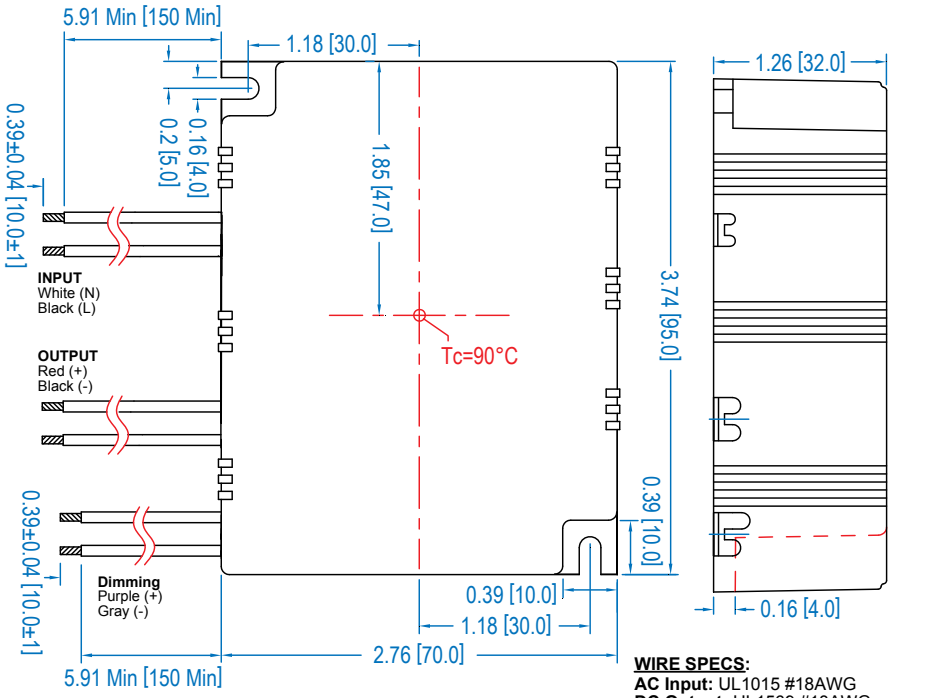
-PD: PWM dimmable version dims 100% to 10%. Two extra wires included on the output side: +Purple/-Gray. This model is PWM Dimmable via a positive duty cycle, 200Hz to 1KHz, 0-10V Pulse. See page 4.

c UL us E332160 CE FC RoHS IP66

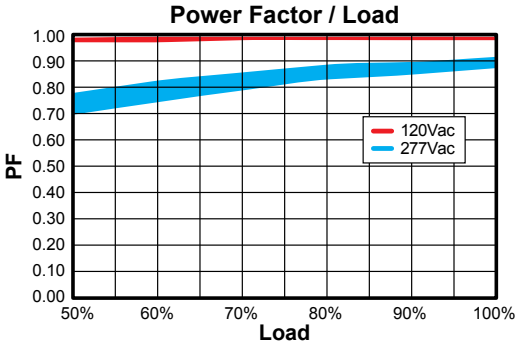
*Specifications subject to change without notice.*

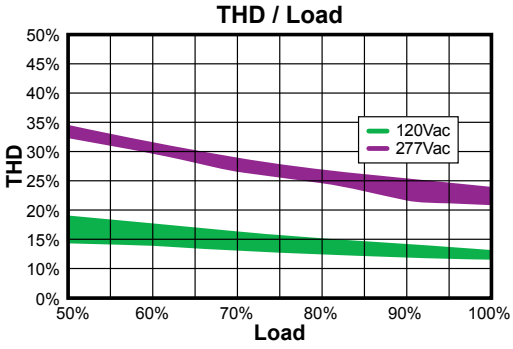
**4-02-13**

## Dimensions - Inches (mm)




**WIRE SPECS:**
**AC Input:** UL1015 #18AWG
**DC Output:** UL1569 #18AWG
**Dimming Control:** UL1569 #22AWG



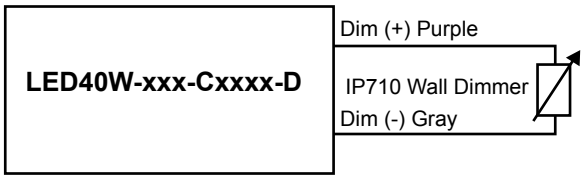

## UL Conditions of Acceptability

See website for additional information

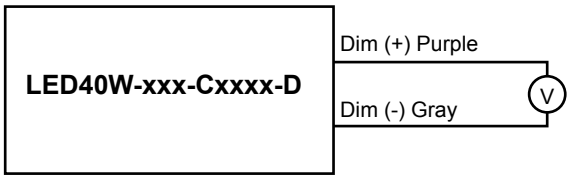
## "-D" and "-D3" Option: 0-10VDC and Resistance Dimming

| 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 |
| Sink Current into 0-10V Purple Wire | 0 mA | — | 1.2 mA |

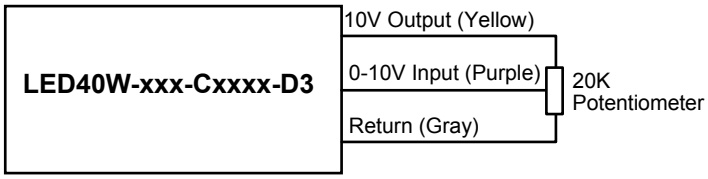
### "-D" Resistance Dimming Circuit



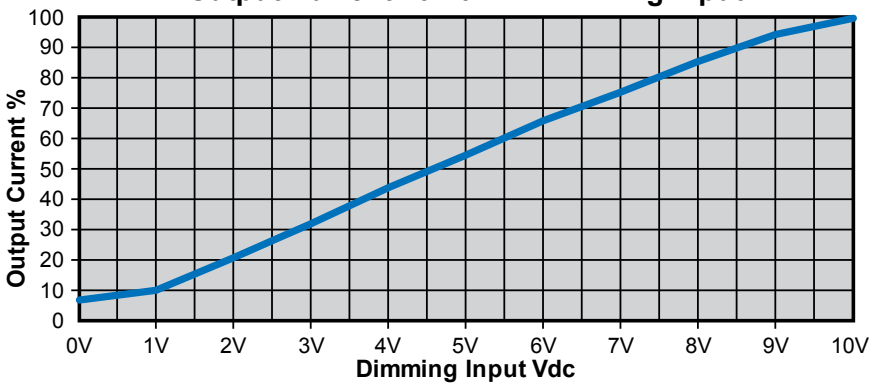

### "-D" 0-10V Analog Dimming Circuit




### "-D3" 3-Wire Dimming Circuit




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



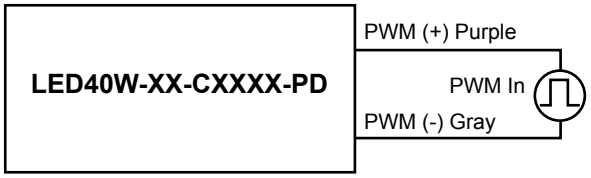

**Notes:**

1. D dimmable version comes with an extra two wires on the output side: +Purple/-Gray.
2. Compatible with most 0-10V dimmers. Recommended dimmer is Leviton IP710 or equivalent.
3. D & D3 dimmable versions are not intended to dim below about 5% @ 0V or 10% @ 1.0V.
4. Output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.

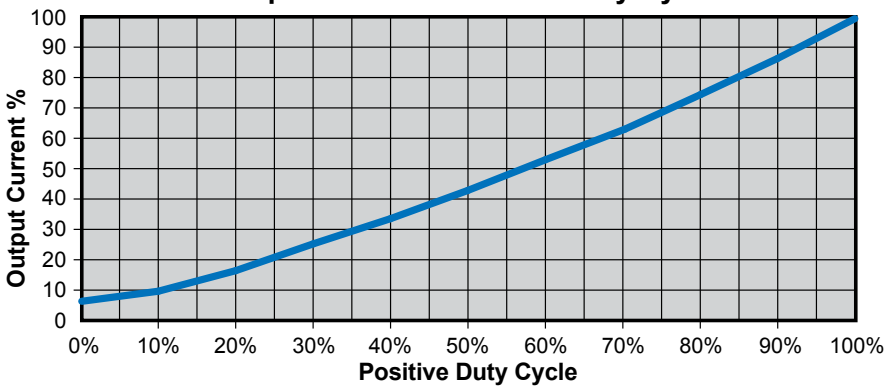
## "-PD" Option: PWM Dimming

| 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% |

### "-PD" PWM Positive Dimming Typical Circuit




### Output Current / Positive Duty Cycle




**Notes:**

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