



# Thomas Research Products

SSL Solutions Faster Than The Speed Of Light®

## 75W TRC-075 Dimmable Series Switch Mode LED Drivers - Constant Current

Total Power: 75 Watts  
Input Voltage: 100-277 Vac, 50/60 Hz  
Outputs: Single from 6-170 Vdc  
High Efficiency: 86-92%  
High Power Factor  
Wet Location Rated, IP67 Compliant  
Input/Output Protection & Lightning Protection  
UL8750 and EN61347 Certified

### 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  
Typical Efficiency: 86-92% typical @ maximum load  
Inrush Current: 60 Amps @ 230 Vac  
Input Current: 0.90 A @ 100 Vac, 0.42 A @ 220 Vac  
Maximum Power: 75W  
Line Regulation:  $\pm 1\%$   
Load Regulation:  $\pm 3\%$   
Total Harmonic Distortion: <20%  
Turn-on Delay: 0.8S @ 120 Vac, 0.4S @ 220 Vac  
Protection: Output Over-Voltage, Output Over-Current,  
Output Short Circuit Protection with Auto Recovery,  
Over-Temperature Protections (110°C)

### Environmental Specifications

Operating Temperature: -40°C to +70°C  
Max Case Temperature: 87°C  
Min Operating Temp: -40°C  
Storage Temperature: -40°C to +85°C  
Humidity: 10% to 100%  
Cooling: Convection  
MTBF: 320,000 Hours @ 25°C ambient, 80% load, 110Vac  
Lifetime: 107,000 Hours @ Tc=60°C, 80% load, 110Vac  
Weight: 1.65 lbs (750 g)



| Model Number  | Output Current<br>(mA $\pm 5\%$ ) | Output Voltage<br>Range (Vdc) | Max. Output<br>Power (W) | Max<br>Efficiency |
|---------------|-----------------------------------|-------------------------------|--------------------------|-------------------|
| TRC-075S035DT | 350                               | 107-214                       | 75                       | 90%               |
| TRC-075S045DT | 450                               | 83-166                        | 75                       | 90%               |
| TRC-075S070DT | 700                               | 54-108                        | 75                       | 90%               |
| TRC-075S105DT | 1050                              | 36-72                         | 75                       | 89%               |
| TRC-075S140DT | 1400                              | 27-54                         | 75                       | 89%               |
| TRC-075S210DT | 2100                              | 18-36                         | 75                       | 88%               |
| TRC-075S280DT | 2800                              | 13-27                         | 75                       | 88%               |
| TRC-075S375DT | 3750                              | 10-20                         | 75                       | 87%               |
| TRC-075S500DT | 5000                              | 7-15                          | 75                       | 87%               |

Class 2: US/Canada US Only



#### 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.

12-03-13

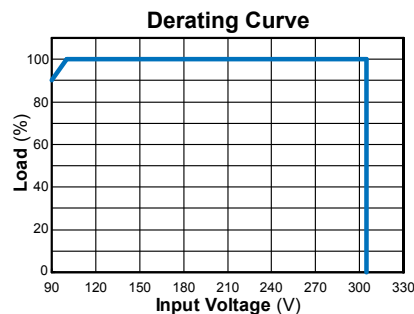
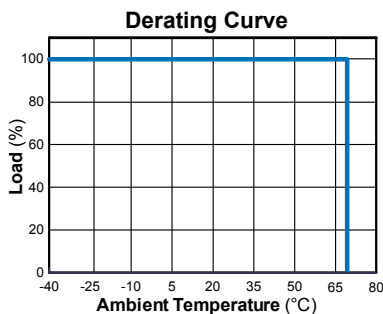
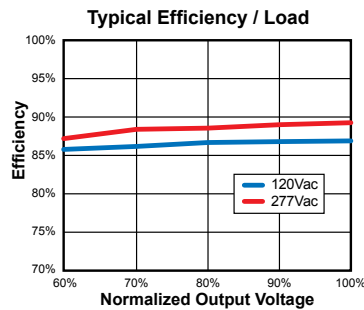
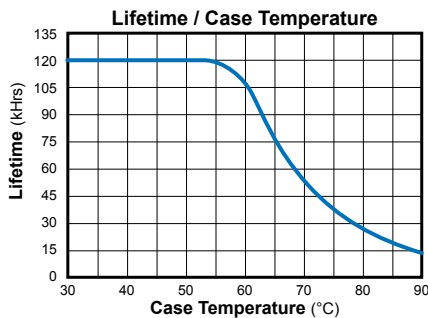
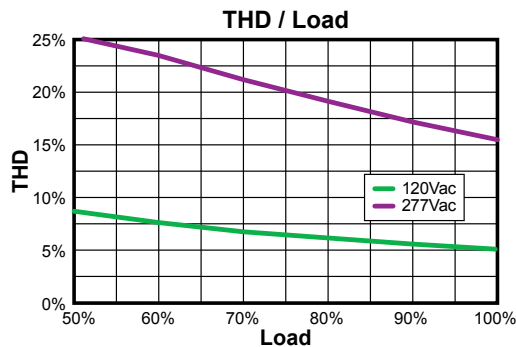
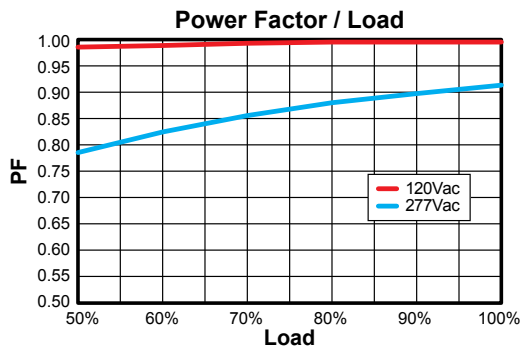
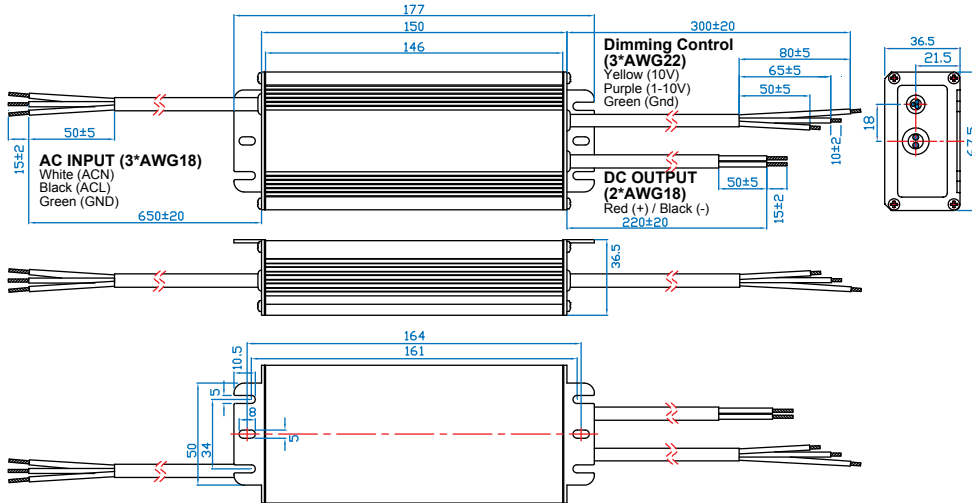


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## TRC-075 Dimming

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### Safety and EMC Compliance

|                                     |                                                                                                                                                           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL/CUL CE                           | UL 8750, UL923, IL1012, UL1310 Class 2<br>EN 61347-1, EN61347-2-13                                                                                        |
| EN 55015                            | Conducted emission                                                                                                                                        |
| EN 61000-3-2                        | Harmonic current emissions                                                                                                                                |
| EN 61000-3-3                        | Voltage fluctuations and flicker                                                                                                                          |
| EN 61000-4-2                        | Electrostatic discharge                                                                                                                                   |
| EN 61000-4-3                        | RFE Field Susceptibility test                                                                                                                             |
| EN 61000-4-4                        | Electrical Fast Transient                                                                                                                                 |
| EN 61000-4-5                        | Surge Immunity Test, AC Power Line:<br>line to line 4 kV; line to earth 6 kV                                                                              |
| EN 61000-4-6                        | Conducted Radio Frequency                                                                                                                                 |
| EN 61000-4-8                        | Power Frequency Magnetic Field Test                                                                                                                       |
| EN 61000-4-11                       | Voltage Dips                                                                                                                                              |
| EN 61547                            | Electromagnetic Immunity                                                                                                                                  |
| ANSI/IEEE C62.41-1991 (Energy Star) | Transient Protection. 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. |

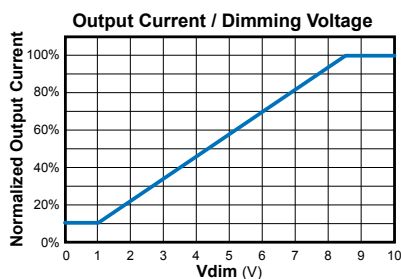
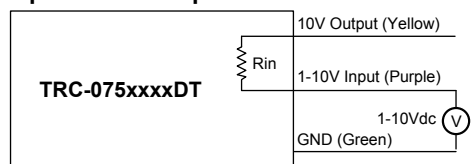


### Dimming Control Details

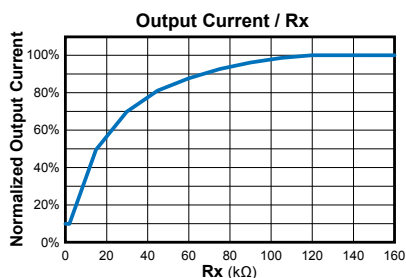
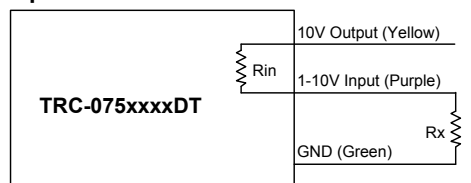
| Parameters                                                                                                            | Minimum | Typical | Maximum |
|-----------------------------------------------------------------------------------------------------------------------|---------|---------|---------|
| 10V output voltage                                                                                                    | 9.8 V   | 10 V    | 10.2 V  |
| 10V output source current                                                                                             | 0 mA    | —       | 10 mA   |
| Absolute maximum voltage on the 0-10V input pin                                                                       | -2 V    | —       | 12 V    |
| Source current on 0-10V input pin                                                                                     | 0 uA    | —       | 0.5 mA  |
| Value of Rin (the resistor inside the LED driver which is located between the 1-10V input pin and the 10V output pin) | 19.8K   | 20K     | 20.2K   |

The dimmer control is operated from either a potentiometer or from an input signal of 1 – 10 Vdc. Recommended implementations are provided below.

#### Option 1 - DC Input



#### Option 2 - External Resistor



#### Notes:

1. If the dimming function is not used, the dimming leads should be floated.
2. Io is actual output current and Ir is rated current without dimming control.
3. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 50% of the max. output voltage for any given model).
4. If the output voltage is maintained above 50% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
5. The dimming signal is allowed to be less than 1V, however, when 0-1V, the output current can maintain about 10%Ir. When 8.5-10V, the output current can maintain about 100%Ir.
6. Do not connect the GND of dimming to the output; otherwise the LED driver will not function properly.