

# OPTOTRONIC® LED Power Supply OTi 50W Programmable - Technical Specifications



ELECTRICAL SPECIFICATIONS		
<b>Input</b>		
Input Voltage (VAC)	120V-277V (+/- 10%)	
Frequency Range (Hz)	50 – 60 Hz (+/- 10%)	
	<b>120V</b>	<b>277V</b>
Input Current (A)	0.52	0.23
THD @ Full Load	<10%	<20%
Power Factor @ Full Load	>0.9	>0.9
Efficiency @ Full Load	>85%	>85%
Inrush Current (A <sub>pk</sub> )	1.33	2.66
<b>Output</b>		
Output Current (mA)	400-1400mA (1mA step)	
Output Voltage (VDC)	10-55VDC	
Output Ripple Current	<20% @ 1400mA	
Max. Output power (W)	50W	
LED Power Up Time	<1sec	
Load Regulation	<5%	
Line Regulation	<5%	
Over Voltage Protection	Yes, non-latching	
Over Load Protection	Yes, non-latching	
Output Short-Circuit Protection	Yes, non-latching	
Over Temperature Protection	Foldback at 110°C	
<b>Auxiliary Output</b> (Models: 79398 & 79467 only)		
Output Voltage (VDC)	12/20/24V <sup>1</sup> (configurable)	
Output Current (mA)	40	
Voltage Regulation	±10%	
<b>LED Thermal Protection (NTC)</b>		
NTC Value Active Range	≤25kΩ	
Output level minimum	User defined	

GENERAL INFORMATION	
Item Number	79631, 79398, 79467, 79516
Type	Constant Current, Class 2
Output Power	50W (Max.)
Programming Tool	51645 & 51647/51648
Software	<a href="#">Download</a>
Programmable Features	Output current Dimming level Dim-to-off, Soft start LED thermal protection Auxiliary output voltage Constant lumen output End-of-life indicator

DIMMING SPECIFICATIONS	
Dimming Control	0 – 10V (Isolated)
Dimming Range	10-100%, 1-100%
Dimming Type	Analog , PWM <sup>1</sup> (≥1kHz)
Dimming Input Isolation	2.5kV
Source/Sink Current	0.2mA max
Dim-to-Off Threshold	0.8V
Standby Power	1.4W(120V); 1.7W(277V)

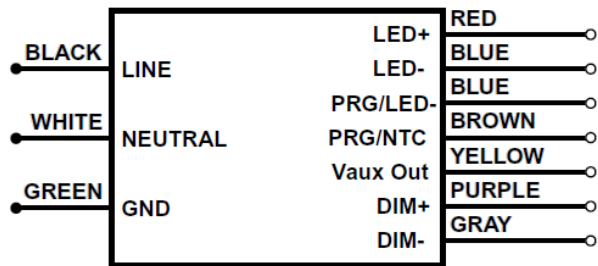
ENVIRONMENTAL SPECIFICATIONS	
Ambient Operating Temperature	-30°C to 50°C
Case Temperature (T <sub>c</sub> )	75°C (50kHrs) <sup>3</sup> 90°C (20kHrs)
Max. Storage Temp.	70°C
Max. Relative Humidity (%)	85% non-condensing
Transient Protection	NEMA SSL1 - 2010 Non-Roadway 2.5KV
UL Rating	Dry & Damp
UL File Number	E320395 // Class TL
EMI Compliance	FCC Part 15 Class A
Sound Rating	Class A

1- Default for Gen 1.5 is 12V  
 2- The output is in PWM mode under 350mA. The lowest output current is 10mA and the minimum percentage of dimming is dependent on the programmed output current of the driver  
 3- Warranty applicable only at 75°C

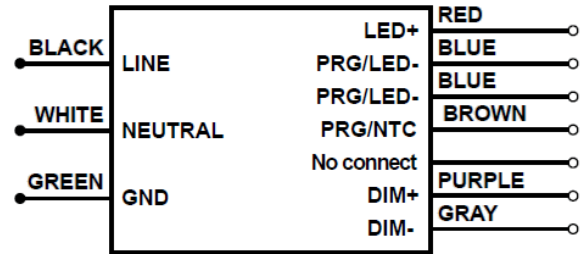


## WIRING DIAGRAM

Wiring diagram for AUX output models



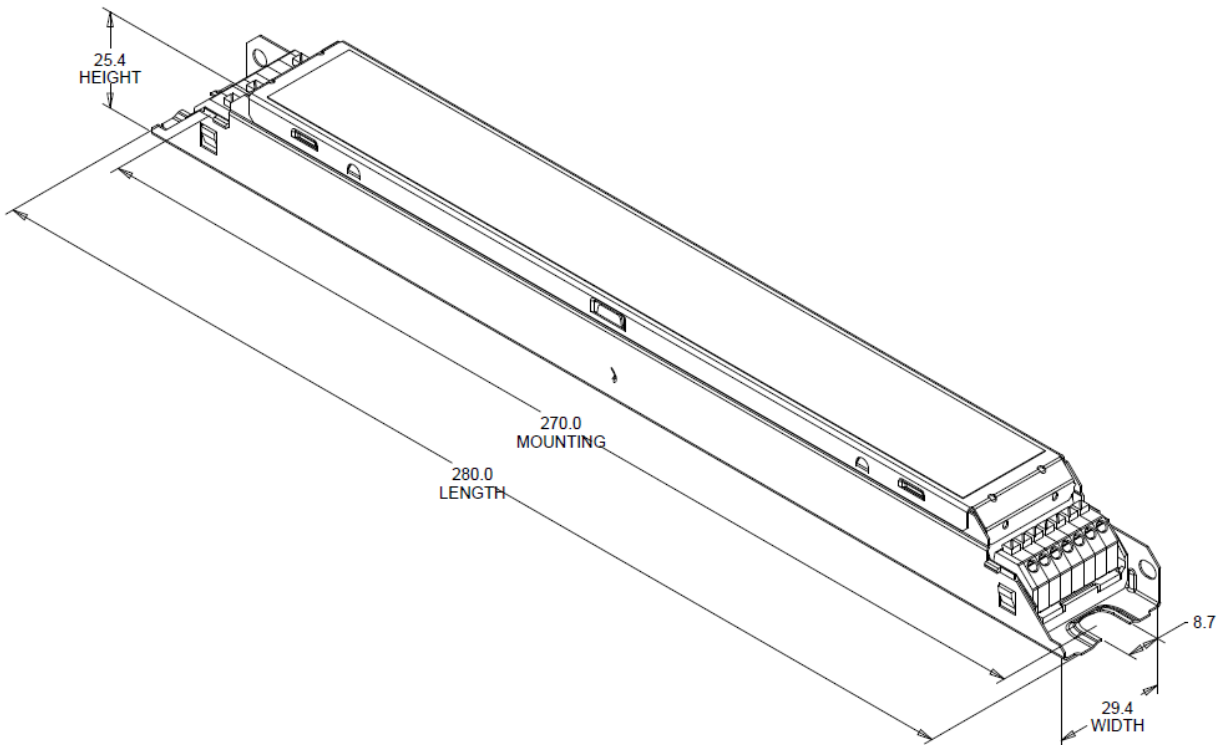
Wiring diagram for non-AUX output models



**Note 1:** The Vaux Out (YELLOW) and LED- (BLUE) will provide the DC Auxiliary output. Yellow is “+ve” polarity and blue is “-ve” polarity.

**Note 2:** Maximum suggested remote mounting distance is 16 feet. For additional information on further distances and EMI compliance reference OPTOTRONIC Technical Guide LED258

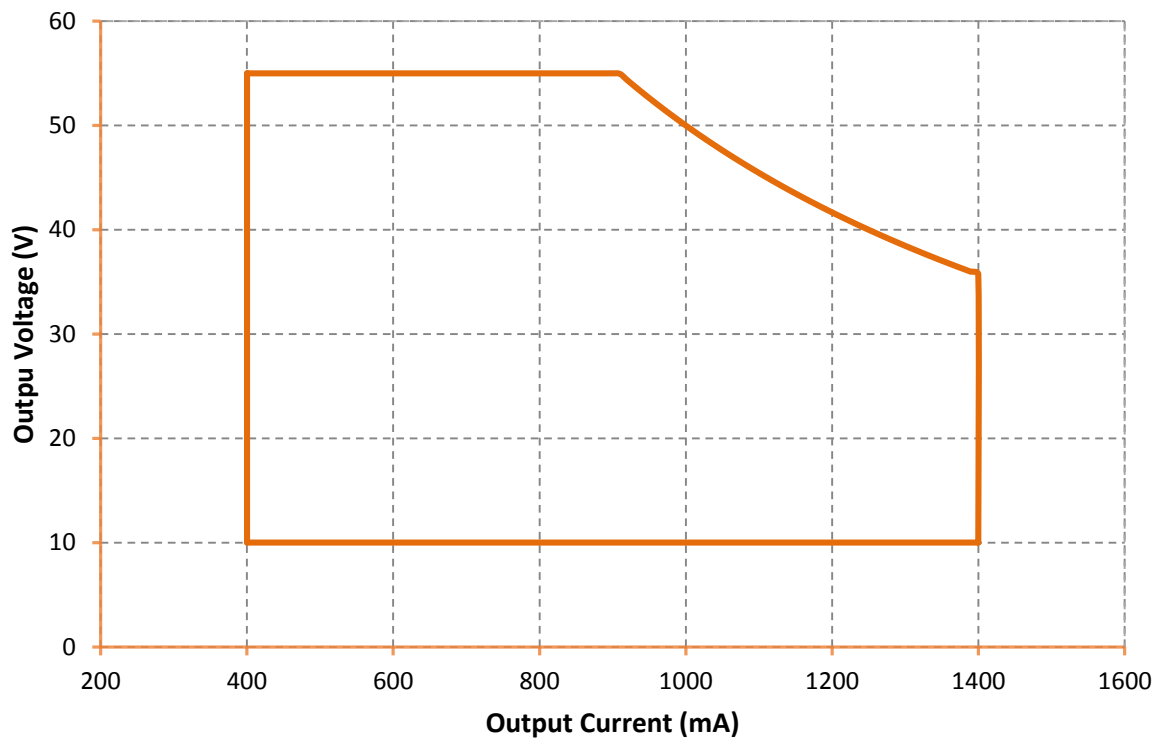
## MECHANICAL DIAGRAM



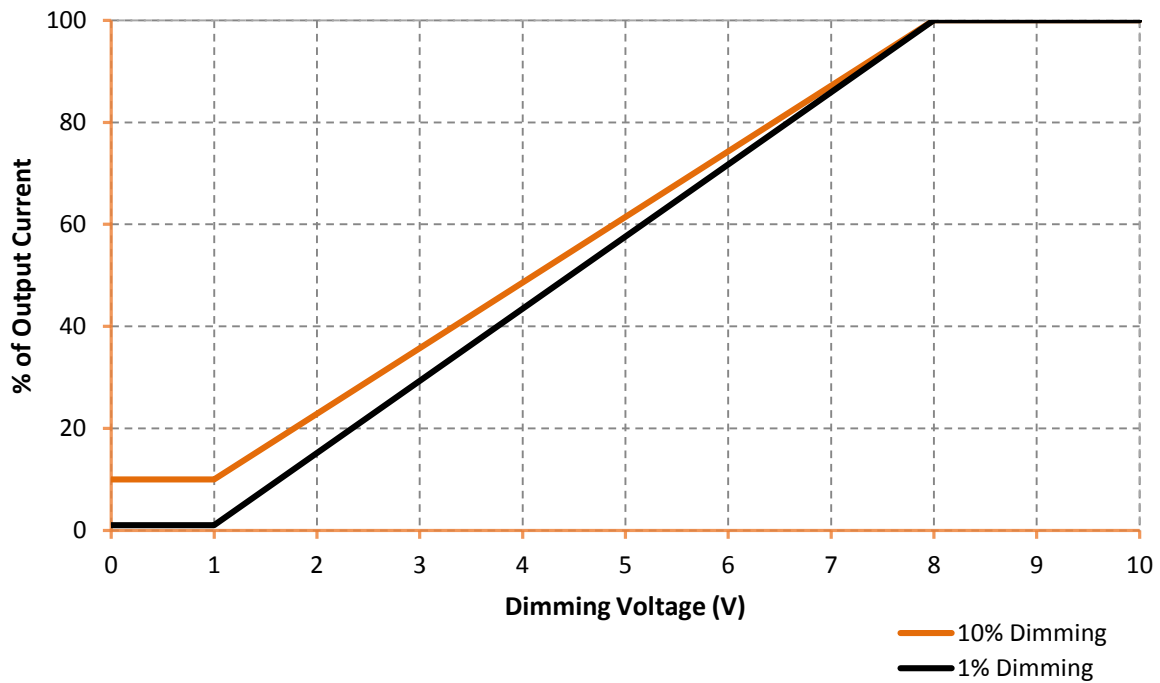
### MECHANICAL SPECIFICATIONS

Length	11.02" (280mm)
Width	1.15" (29.4mm)
Height	1.0" (25.4mm)
Mounting Length	10.63" (270mm)

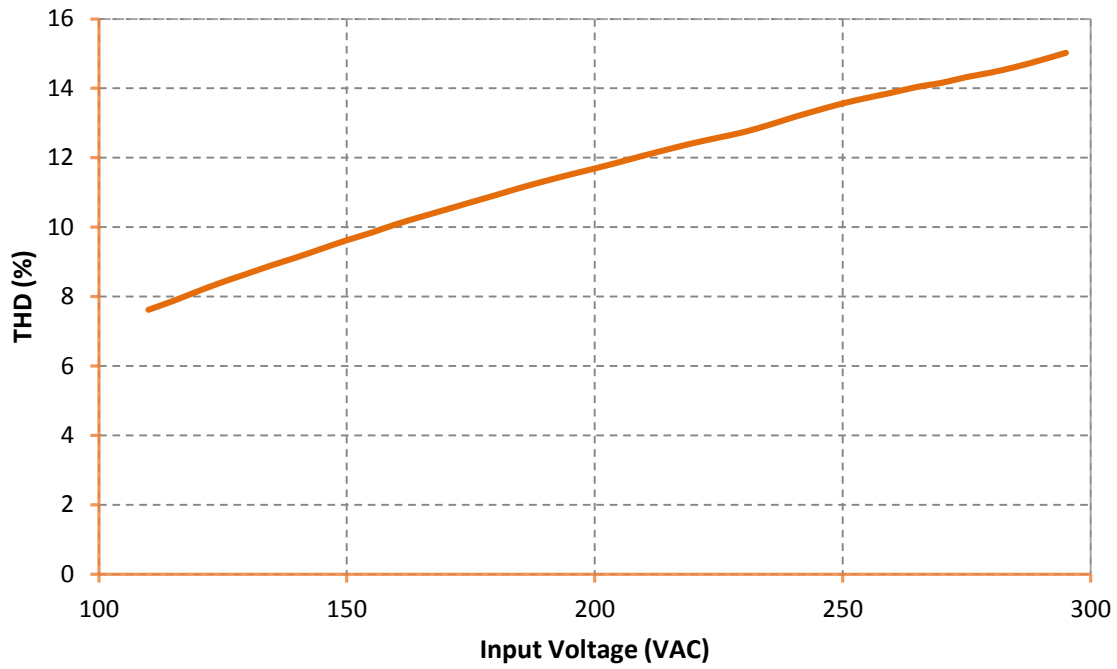
## OPERATING RANGE



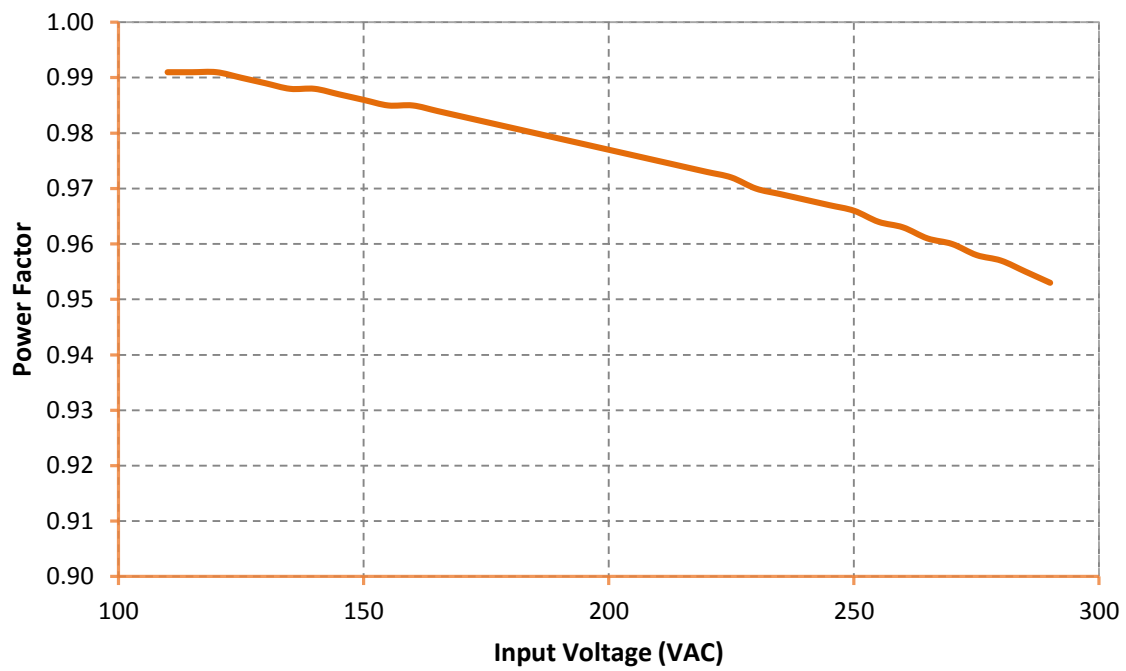
## DIMMING CURVE



### THD VS INPUT VOLTAGE (FULL LOAD)

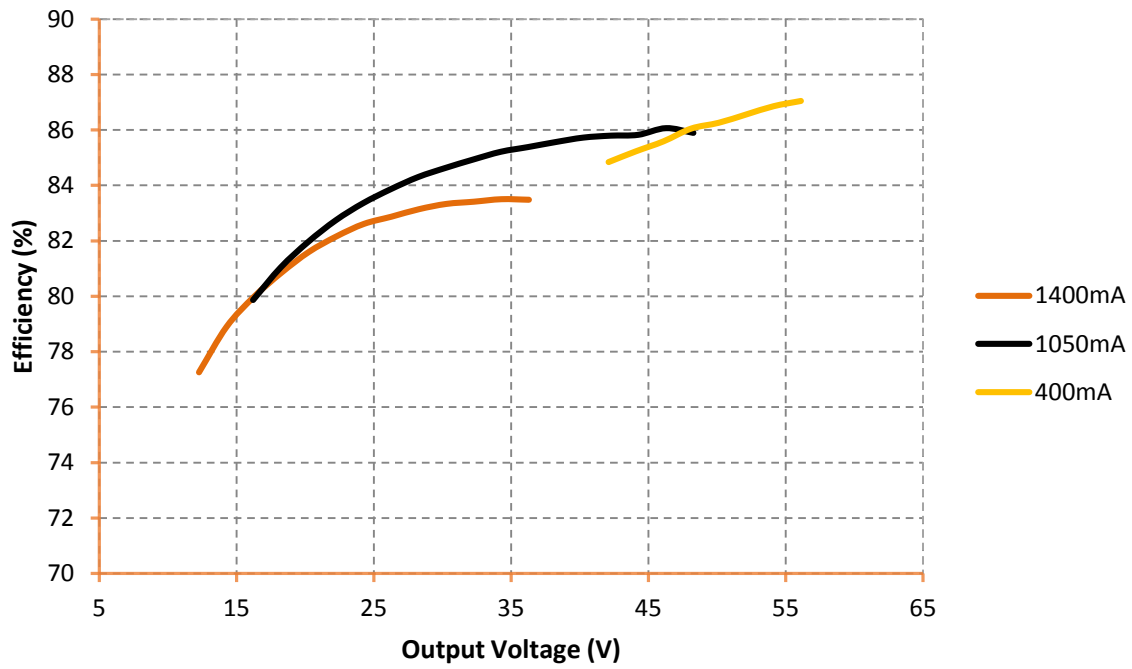


### POWER FACTOR VS INPUT VOLTAGE (FULL LOAD)

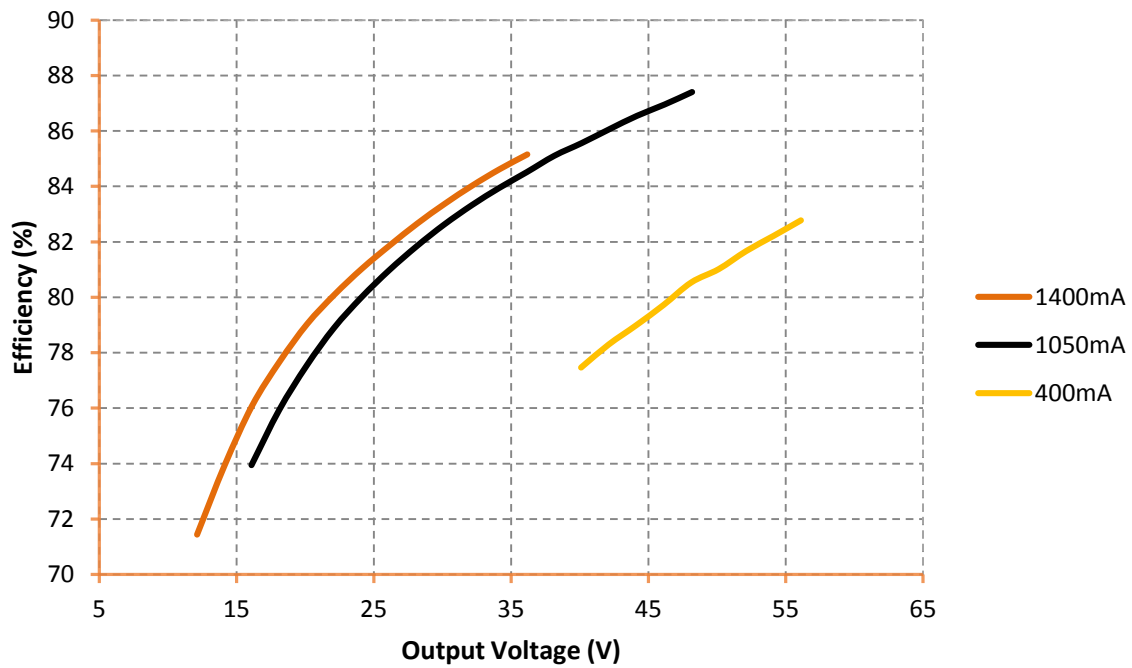


# EFFICIENCY VS OUTPUT VOLTAGE

## Efficiency @ 120V

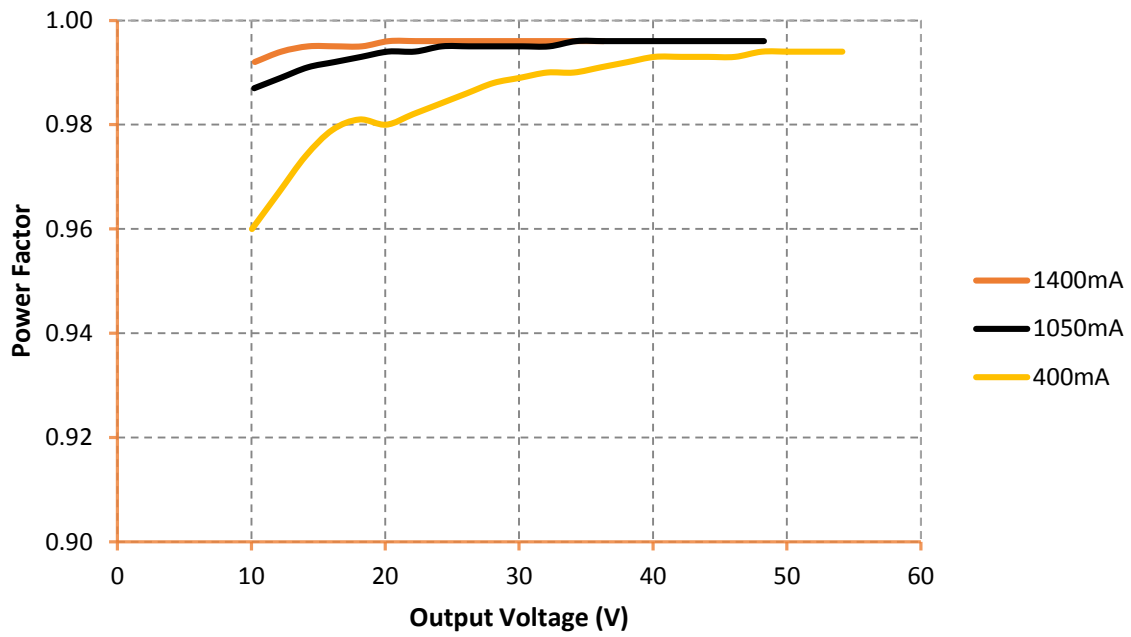


## Efficiency @ 277V

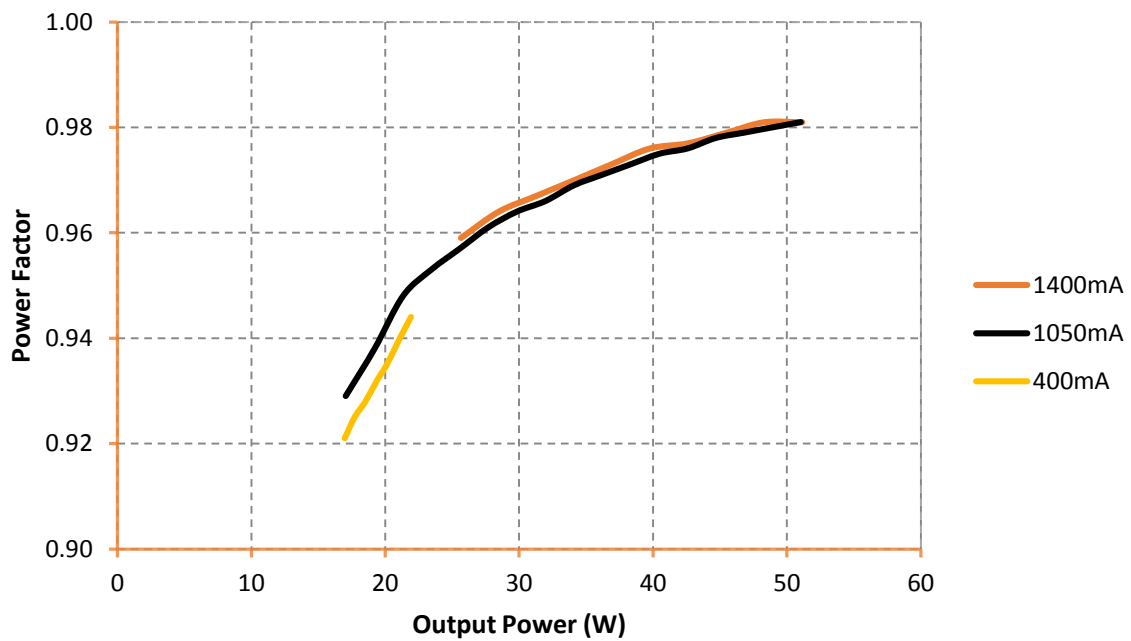


# POWER FACTOR VS LOAD

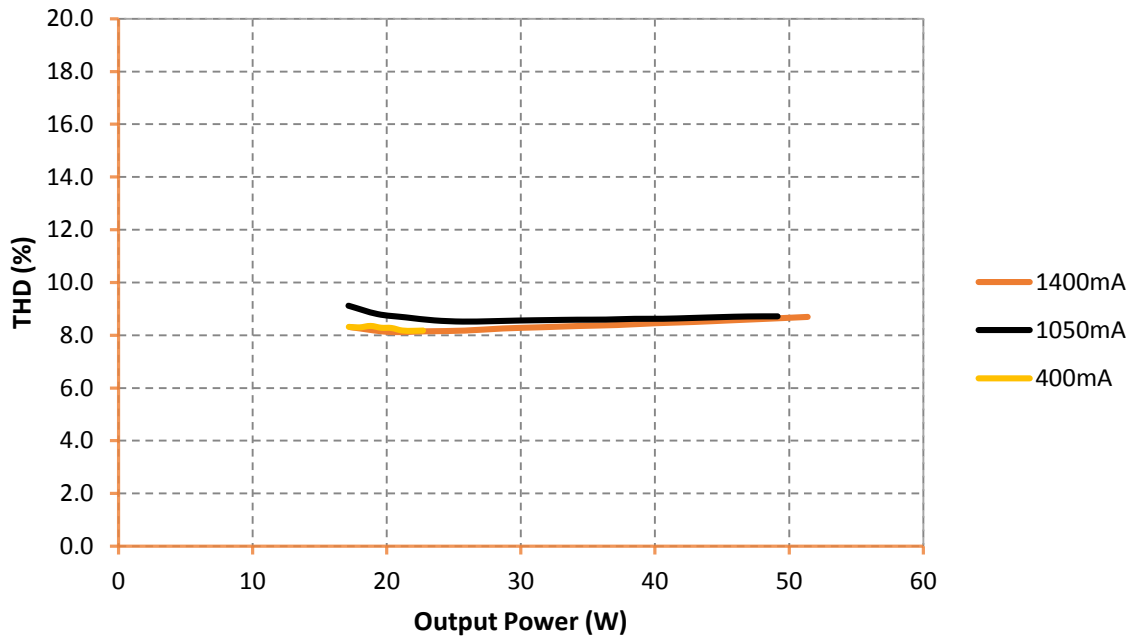
## Power Factor @ 120V



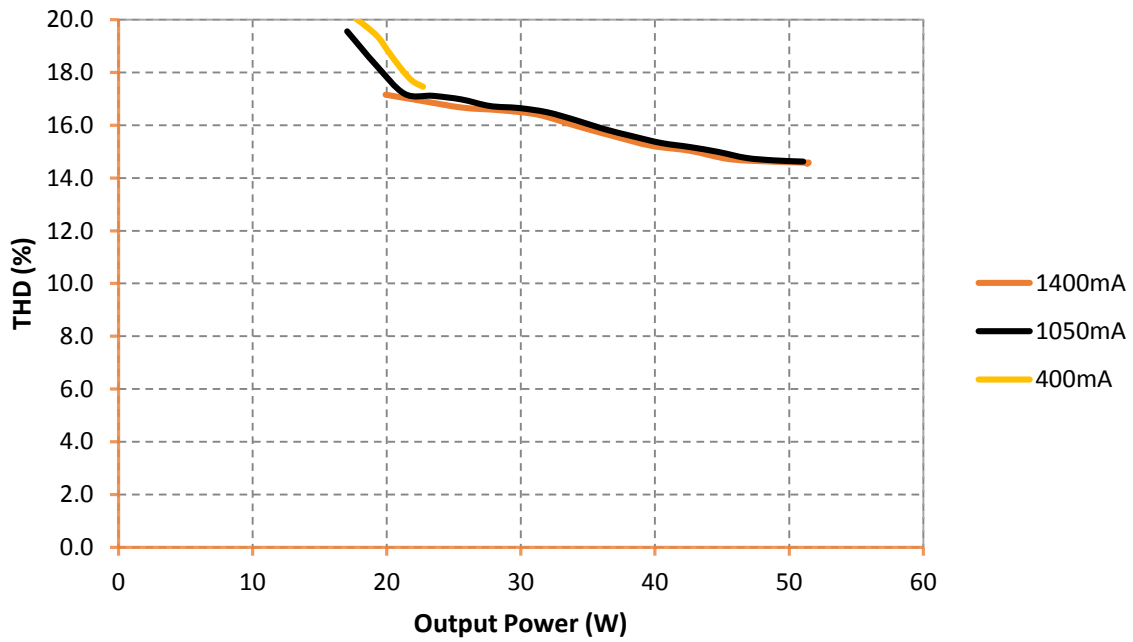
## Power Factor vs Output Power (277V)



### THD vs Output Power (120V)

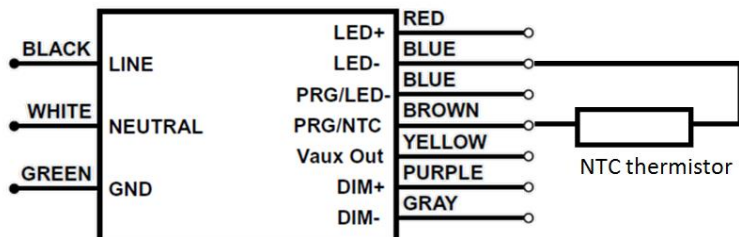


### THD vs Output Power (277V)



## LED THERMAL PROTECTION (NTC) CHARACTERISTIC

The LED thermal protection feature of the OTi 50W helps reduce the temperature of the LED module by reducing the output current in case of abnormal temperature conditions. To use this feature, a third party NTC thermistor should be connected to the LED power supply as shown in the wiring diagram below.

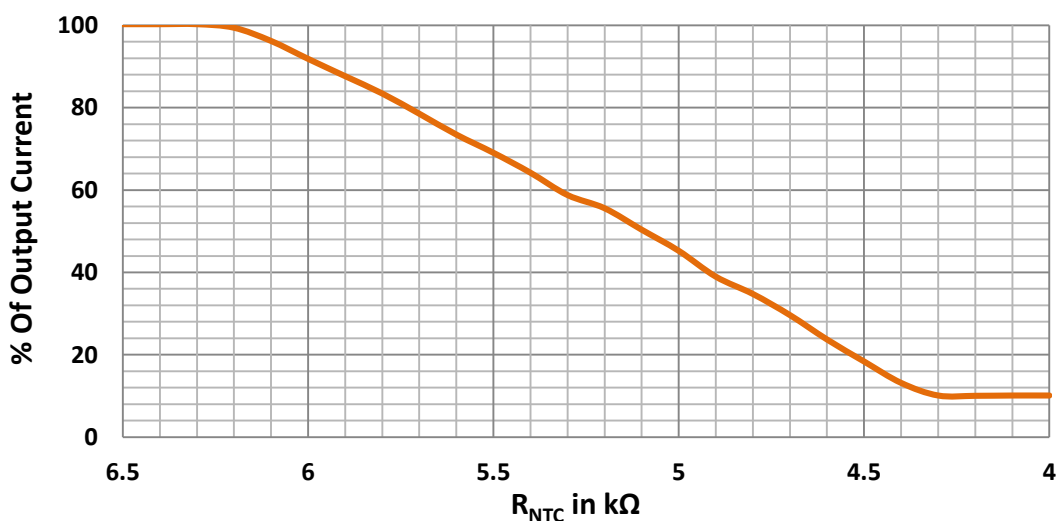


In the end application, care must be taken to place the NTC thermistor close to the hottest spot on the LED module. If LED thermal protection is not required the NTC port on the LED power supply connector can be left open.

Vishay, EPCOS, Murata, Panasonic are some of the manufacturers of NTC thermistor. EPCOS part number for reference only **B57164K153J (15kΩ @ 25°C)**. Murata part number for reference only - **NCP03XH223J05RL (22kΩ @ 25°C)**

**Note 3:** Graphs for reference. The derating limits can be programmed using the OT Linear Handheld Programmer

**Derating start = 6.3kΩ; Derating end = 4.3kΩ; Min output level = 10%**



## CONSTANT LUMEN MAINTENANCE

The Constant Lumen Maintenance feature of the OTi 50W helps to maintain the required lumen output of the fixture at a constant level throughout its lifetime. In general LED's lumen output will depreciate over time and in order to maintain sufficient light level towards the end of lifetime, the LED's are driven at high current initially and will result in more energy consumption. The constant lumen maintenance will give the flexibility to drive the LEDs at optimal driving current throughout its lifetime. This helps in energy savings, constant light output and enhanced reliability of the system.

**Note 4:** A detailed step-by-step instructions are outlined in the [OT Programmer User Manual V2.4](#)

## END-OF-LIFE INDICATOR

The End-of-Life indicator helps the end user to receive a signal from the fixture indicating that it has reached its programmed life-time. After the LED driver reaches the programmed life-time, whenever it is turned ON, it stays at 'Dim' level (10%) for 10 minutes and reaches its appropriate level.



## INRUSH CHARACTERISTICS

Vin (V)	Ipeak (A)	T (@ 50% of Ipeak)
120	1.33	57µs
277	2.66	46µs

## DIMMER COMPATIBILITY

Manufacturer	Part no
OSRAM	ZBHA-CLM DIM (NAED: 45678)
Encelium EMS	EN-LCM-1R10V-GB2-BK EN-LCM-1R10V-GB2-BK/DR EN-ALC-1R10V-GB2-BK EN-ALC-1R10V-GB2-BK-DR
OSRAM	45561 - LC-SL3W-TVWBX/UNV
Leviton	IP710-DLX
Lutron	DVTV-XX
Wattstopper	ADF-120277
Synergy lighting Controls	ISD BC
Wattstopper	FD-301

**Note 5:** The absence of a dimmer from this chart does not necessarily imply incompatibility. Please reference the dimmer manufacturer's instructions for installation.

## UL CONDITIONS OF ACCEPTABILITY (E320395)

**Conditions of Acceptability** – When installed in the end-product, consideration shall be given to the following:

- The LED driver was evaluated using an electronic LED load resulting in an output rated current and rated power as indicated in the electrical ratings.
- The unit employs a Class B isolation transformer (T1) on the main PWB. The need to repeat the Temperature Test shall be determined in end-use product. Tc point case temperatures in the end-use shall not exceed 90°C.
- The unit was tested on a 20A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.
- The PWB spacing for use in Damp locations have been evaluated to UL 8750. The unit is completely potted on the bottom and partially potted on the top. Areas that are potted meet spacing requirements are out of Table 7.4 Parts Potted or subsequently coated. Other areas meet applicable requirements in Table 7.4.
- The Leakage current test was conducted between the ground terminal, exposed conductive surface and the grounded pole of the supply circuit.
- These products are intended for use in Dry and Damp locations. The use in other environmental locations shall be considered in the end product
- For models with rated output voltage above 30V rms (42.4V peak) suitability shall be determined in the cUL end-use application based on accessibility to the user.

- These test conditions are for TL rating: This model was tested in a 40°C ambient. For Tref. values see Table below. Determination to repeat the temperature test shall be made in end-use product. During the normal temperature test of the end product, the temperature at any point on the case is to be monitored and shall not exceed 90°C. When provided the Tc in a circle can be considered a reference hot spot on the case:

Product	Tref Max	Tref – measured @ 40C
OTi 50/120-277/1A4 DIM L *	79°C	73°C

\*Applies to DIM or DIM-1 and may be followed by AUX

## WARRANTY

OPTOTRONIC® products are covered by our LED Module, OPTOTRONIC Power Supply or Control Warranty. For additional details, refer to the latest version of the warranty (LED395) available at [www.osram-americas.com/optotronic](http://www.osram-americas.com/optotronic).

