

# 12V Direct Wire Dimmable Power Supply

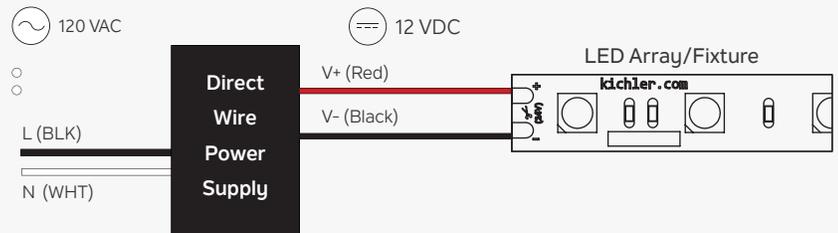
12V 60W Constant Low Voltage LED Driver

4TD12V060BKTV2



60W Power Supply with wiring compartment. No additional NEMA enclosure required.

## Typical Application and Wiring Diagram



## FEATURES & BENEFITS

- Compact size allows for more placement flexibility
- All-in-one driver and box meets NEC Code

## APPLICATIONS

- 4T 12V LED Tape
- As a system with 4T 12V Tape and Extruded Aluminum Channels
- 4D Series 12V LED Accent Discs

Nominal Input Voltage	Max Output Power	Output Voltage	Output Load Min
120 VAC	60W	12V CV	3W

CV: Constant Voltage

Output Current Max	Efficiency	Max Ambient Temperature	THD
5A (12V, 60W)	> 80% typical	40° C	<20%

Power Factor	Dimming Range	Startup Time
>0.9	5-100% of light output	< 500 ms



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# 12V Direct Wire Dimmable Power Supply

## 1 - ORDERING INFORMATION

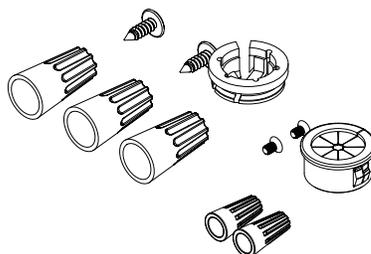
Part Number	Nominal AC Line Voltage (VAC)	Pout Max (W)	Pout Min (W)*	Vout Max (V)	Iout Max (V)	Vout Regulation
4TD12V060BKTV2	120	60	3	12	5	11.52-12.48 (+/- 0.48V)

\*Load must exceed Pout Min for proper operation. Pout Min is a typical value and may vary from unit to unit.

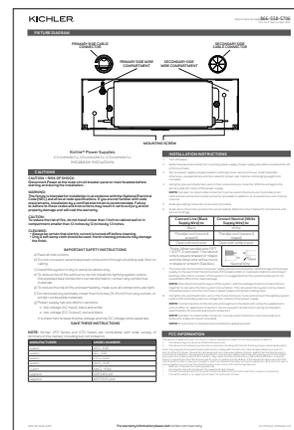
## CONTENTS OF BOX



Direct Wire Dimmable Power Supply with Wiring Compartment – No additional NEMA enclosure required.



5 wire nuts, 2 mounting screws, 2 lid screws, 2 conduit fitting



Instruction Sheet

## 2 - INPUT SPECIFICATION (at 25°C AMBIENT TEMPERATURE)

	Units	Minimum	Typical	Maximum	Notes
Input Voltage Range (Vin)	VAC	108	120	132	-
Input Frequency Range	Hz	47	60	63	When not used with a dimmer. (60 Hz +/- 3 when used with a dimmer)
Power Factor (PF)	-	0.9	>0.99	-	At 120VAC input voltage and full rated load
Inrush Current	Meets NEMA-410 requirements			At any nominal input full sine wave voltage and full rated load	
Input Harmonics	Complies with IEC61000-3-2 for Class C			-	
Total Harmonic Distortion (THD)	-	-	-	20%	<ul style="list-style-type: none"> <li>At nominal input voltage and full rated load</li> <li>Complies with DLC (Design Light Consortium) technical requirements</li> </ul>
Efficiency	%	-	80%	60W	At 120VAC input voltage and full rated load
Isolation	Meets UL60950-1 for class II reinforced/double insulation power supply				
Standby Power	W	-	-	4.5	With no load

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## 3 - OUPUT SPECIFICATION (at 25°C AMBIENT TEMPERATURE)

	Units	Minimum	Typical	Maximum	Notes
Output Voltage (Vout)	Vdc	-	12	-	-
Output Current (Iout)	A	0	-	5.0A	For 4TD12V060BKT2, 60W/12V
Output Voltage Regulation	%	-	+/- 4.0	-	Includes AC line voltage, load, and voltage set point variations
Output Voltage Overshoot	%	-	-	20	The driver does not operate outside of the regulation requirements for more than 200 ms during power on
Output Current Ripple	≤ 15% output current ripple for each model				Measured at nominal input voltage
Dimming Range	%	5	-	100	As a % of light output
Start-up Time	ms	-	-	<500	-

## 4 - ENVIRONMENTAL CONDITIONS

	Units	Minimum	Typical	Maximum	Notes
Operating Ambient Temperature (Ta)	°C	-20	-	+40	-
Storage Temperature	°C	-20	-	+60	-
Humidity	%	10	-	95	Non-condensing
Cooling	Convection cooled				-
Lifetime	hours	50,000	-	-	-

**D** Damp Rated

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## 5 - EMC COMPLIANCE AND SAFETY APPROVALS

EMC Compliance			
Conducted and Radiated EMI		FCC CFR Title 47 Part 15 Class B at 120 VAC	
Harmonic Current Emissions		IEC61000-3-2	-
Voltage Fluctuations & Flicker		IEC61000-3-3	-
Immunity Compliance	ESD (Electrostatic Discharge)	IEC61000-4-2	6kV contact discharge, 8kV air discharge, level 3
	RF Electromagnetic Field Susceptibility	IEC61000-4-3	3V/m, 80 - 1000 MHz, 80% modulated at a distance of 3 meters
	Electrical Fast Transient	IEC61000-4-4	+/- 2kV on AC power port for 1 minute, +/- 1kV on signal/control lines
	Surge	IEC61000-4-5	+/- 1kV line to line (differential mode) / +/- 2kV line to common mode ground (tested to secondary ground) on AC power port, +/- 0.5kV for output cables
	Conducted RF Disturbances	IEC61000-4-6	3V, 0.15-80MHz, 80% modulated
	Voltage Dips	IEC61000-4-11	>95% dip, 0.5 period; 30% dip, 25 periods; 95% reduction, 250 periods
Transient Protection	Ring Wave	-	ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A, 2.5kV ring wave

Safety Agency Approvals	
ETL	Conforms to ANSI/UL 2108
cETL	Certified to CAN/CSA Std. C22 No. 9.0

Safety					
	Units	Minimum	Typical	Maximum	Notes
Hi Pot (High Potential) or Dielectric Voltage-Withstand	Vdc	2500	-	-	<ul style="list-style-type: none"> <li>Insulation between the input (AC line and Neutral) and the output</li> <li>Tested at the RMS voltage equivalent of 1768 VAC</li> </ul>

## 6 - PROTECTION FEATURES

### • Under-Voltage (Brownout)

The Power Supply provides protection circuitry such that an application of an input voltage below the minimum stated in paragraph 1 (Input Specification) shall not cause damage to the driver.

### • Short Circuit

The Power Supply is protected against short circuit such that a short from any output to return shall not result in a fire hazard or shock hazard. The driver shall hiccup as a result of a short circuit or over current fault. Removal of the fault will return the driver to within normal operation. The driver shall recover, with no damage, from a short across the output for an indefinite period of time.

### • Internal Over Temperature Protection

The Power Supply incorporates circuitry that prevents internal damage due to an over temperature condition. An over temperature condition may be a result of an excessive ambient temperature or as a result of an internal failure. When the over temperature condition is removed, the driver shall automatically recover.

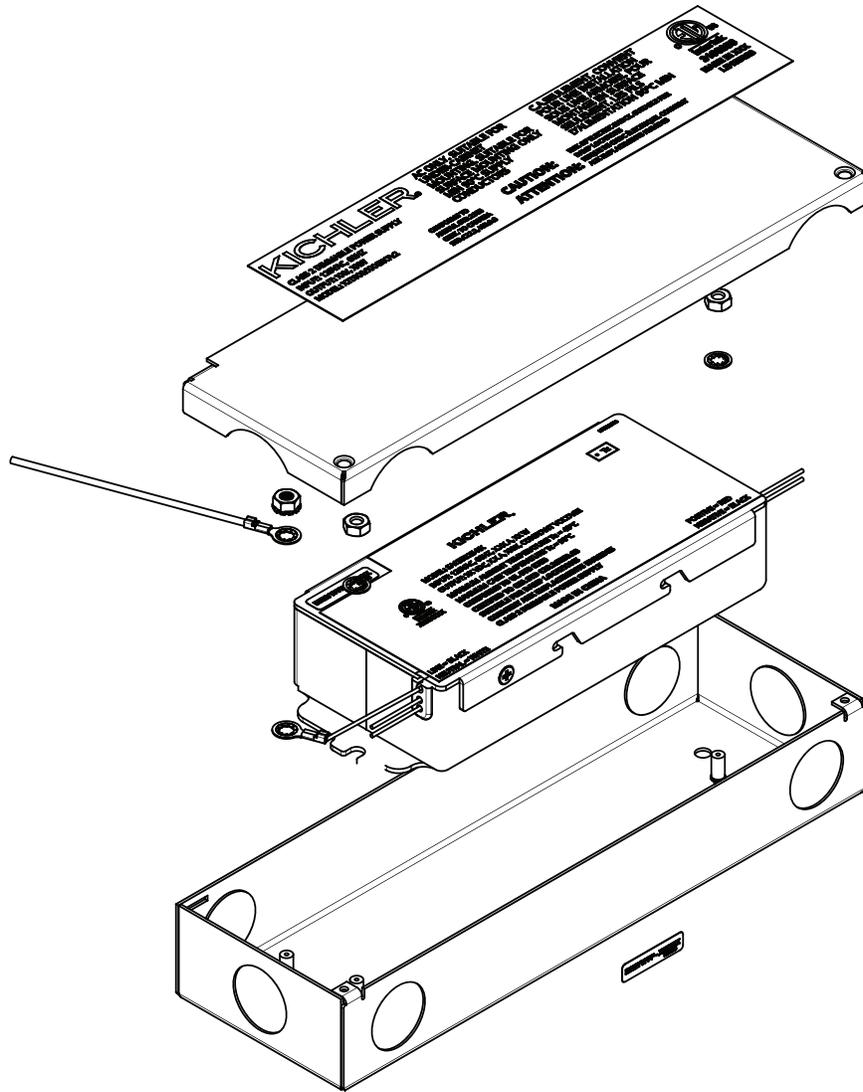
### • Output Over-Voltage Protection

The output voltage of the Power Supply is limited to +5% of the rated output voltage of each model.

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## 7 - INSTALLATION

Figure 1



## 8 - DIMMING

For recommended dimmers, visit [Kichler.com/dimming](http://Kichler.com/dimming).

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## 9 - VOLTAGE DROP CHARTS

For best performance and lumen output, ensure proper wire gauge is installed to compensate for voltage drop of low voltage circuits.

12V VOLTAGE DROP CHART

	5W 0.42A	10W 0.83A	20W 1.67A	30W 2.5A	40W 3.33A	50W 4.17A	60W 5A
18 AWG	65 ft.	32 ft.	16 ft.	10 ft.	8 ft.	6 ft.	5 ft.
16 AWG	100 ft.	50 ft.	25 ft.	16 ft.	12 ft.	10 ft.	8 ft.
14 AWG	160 ft.	79 ft.	39 ft.	26 ft.	20 ft.	16 ft.	13 ft.
12 AWG	240 ft.	120 ft.	59 ft.	39 ft.	30 ft.	24 ft.	20 ft.
10 AWG	392 ft.	196 ft.	98 ft.	65 ft.	49 ft.	39 ft.	32 ft.

- 1 Determine load size.**  
Let's assume the load is 55W. Round up to the nearest load.
- 2 Determine distance from power supply to load.**  
Let's assume the distance is 32 ft. Round up to the nearest distance.
- 3 See the recommended wire gauge** to install to eliminate excess voltage drop. Recommended wire gauge is 10AWG.

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## 10 - MECHANICAL DETAILS

**Packaging:** Metal case for all variations.

**I/O Connections:** Flying leads, 18 AWG on both AC and DC connections, insulation rated minimum 90°C, 300V, stripped and tinned. There is a ground wire attached to the metal enclosure.

## 11 - OUTLINE DRAWINGS

Figure 2



## 12 - LABELING

The 4TD12V060BKTv2 is used in Figure 3 as an example to illustrate a typical label.

Figure 3



# 12V Direct Wire Dimmable Power Supply

## 13 - SAFETY WARNINGS / DISCLOSURES

1. Install in accordance with national and local electrical code regulations.
2. This product is intended to be installed and serviced by a qualified, licensed electrician.
3. NEC code 725.136: Class 1 and Class 2 circuits in same enclosure must be separated by a barrier unless Class 2 circuit conductors are installed in accordance with 725.41 Class 1 circuits. For example, Non Metallic (NM) cable is considered a Class 1 circuit conductor. Therefore, if both high voltage and low voltage circuits are installed with NM cable then the voltage barrier is not required for installation.
4. Only install compatible 12V Constant Voltage DC fixtures or warranty will be void.
5. Suitable for indoor / damp installation.
6. To compensate for voltage drop, ensure applicable gauge in-wall rated wire is installed between control and fixture.
7. Do not modify product beyond instructions or warranty will be void.

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**TECHNICAL SUPPORT** - Contact Kichler Advanced Product Support: techsupport@kichler.com or 844-KICHLER (844-542-4537) M-F, 8:00 a.m. – 6:30 p.m. ET FREE

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