



# VARI-WATT DRIVERS WITH 50/50

**JAYKAL**

PROJECT NAME:

**JAYKAL LED SOLUTIONS, INC.**

[www.jaykal.net](http://www.jaykal.net)

PROJECT NOTES:

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## OVERVIEW

This multi-current output LED driver gives the installer the ability to field select the desired wattage for the fixture. Multiple output wattages are available using simple DIP switch settings.

This multi-CCT LED driver gives the installer the ability to field select the desired CCT for the fixture. Multiple CCT are available using simple DIP switch settings.

The driver features integrated bi-level dimming with selections of 40%, 50%, 60% or defeated. 0-10V dimming maintains compatibility with wall dimmers and controls.

## FEATURES

- ◆ Bi-Level Dimming Settings: 60%, 50%, 40%, Disabled
- ◆ Output Wattage and Bi-Level Dimming Selectable by DIP Switch
- ◆ 0-10V Dimming
- ◆ Fully Isolated Plastic Case



## OPERATION

Beginning with the power off, select the desired output wattage by configuring the **Setting 1** DIP switches to the desired setting. Once the output current settings are set the driver will maintain this constant current output. Configure **Setting 2** DIP switches to the desired bi-level dimming setting. Configure **Setting 3** DIP switches to the desired CCT setting.

To activate the bi-level dimming function simply turn on the light switch. The fixture will illuminate to the **Setting 2** defined level. To raise the level to 100% (Full ON), within 10 seconds of turning on the light switch, return the switch to the OFF position and immediately back to on. The next time the light switch is turned on, the fixture will return to the bi-level preset.



Revised 7/25/23

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GENERAL SPECIFICATIONS	
INPUT VOLTAGE	100-277VAC 50/60Hz +/- 10%
INRUSH CURRENT	<25A
HARMONICS (NOMINAL CONDITIONS)	Fully complies with EN61000-3-2
THD	<15% at 120V, <15% at 208V, <15% at 277V.
INPUT CURRENT PROTECTION	Fuse (Internal)
FLICKER RATE	Meets or Exceeds IEEE Standard 1789-2015
CONTINUOUS FULL RANGE DIMMING	100% - 10% of full power (standard configuration), minimum 40W Analog dimming current draw 1.5mA per fixture. Maximum number of fixtures =sensor current / 1.5mA
DIMMING OPTIONS	0-10V analog dimming by relay, ambient sensor, daylight sensor or any other compatible sensor. Bi-level dimming by relay or dry contact closure Digital dimming - with individual light point control and real-time feedback
OPERATING TEMPERATURE RANGE	-40°C to +50°C / -40°F to 122°F
OPERATING HUMIDITY	0 to 90% RH Non-Condensing
MAXIMUM CASE TEMPERATURE (Tc)	85°C / 185°F
REMOTE INSTALLATION LOSSES	Dependent upon wire length, significantly lower than class II losses
FCC COMPLIANCE	FCC Part15 Subpart A Class A
SURGE PROTECTION	IEEE C62.41 Category C Low Between phase and neutral 6KV / 3KA Between line and ground 10KV / 1KA
SELF-PROTECTION MECHANISMS	In the event of a short circuit, or open circuit; If the LED fails to light; In the end of the LED's life; Input current protection by internal fuse; Advanced surge protection between phase and neutral and between line and ground; Advanced output protection against arcing or shorting to ground.

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MODEL JLS6810D-VW-1022-[D,50]-[S,FF]-3 (10W,14W,18W,22W) (M1)				
Wattage Settings	22W	18W	14W	10W
Input Voltage	100-277VAC +/-10%			
Input Current	0.074@277V	0.06A@277V	0.047A@277V	0.029A@277V
Power Factor @120V 60Hz	0.992	0.992	0.994	0.995
Power Factor @277V 60Hz	0.984	0.98	0.975	0.965
THD @ 120V 60Hz (%)	14.4	13.9	12.3	8.5
THD @ 277V 60Hz (%)	11.7	9.9	10.3	11.4
Efficiency @ 100-277V 60Hz (%)	85.9%			
Wattage@60% Dimming	13.2W	10.8W	8.4W	6W
Wattage@50% Dimming	11W	9W	7W	5W
Wattage@40% Dimming	8.8W	7.2W	5.6W	4W
Current@60% Dimming	0.0444A@277V	0.036A@277V	0.0282A@277V	0.0174A@277V
Current@50% Dimming	0.037A@277V	0.03A@277V	0.0235A@277V	0.0145A@277V
Current@40% Dimming	0.0296A@277V	0.024A@277V	0.0188A@277V	0.0116A@277V
Current Dimming Disabled	0.074@277V	0.045A@277V	0.047A@277V	0.029A@277V
FCC Compliance	FCC Part15 Subpart A Class A			

MODEL JLS6810D-VW-1533-[D,50]-[S,FF]-3 (15W,22W,27W,33W) (M2)				
Wattage Settings	33W	27W	22W	15W
Input Voltage	100-277VAC +/-10%			
Input Current	0.104A@277V	0.09A@277V	0.073@277V	0.05A@277V
Power Factor @ 120V 60Hz	0.988	0.99	0.933	0.994
Power Factor @ 277V 60Hz	0.979	0.975	0.967	0.975
THD @ 120V 60Hz (%)	13.9	12.3	8.5	12.3
THD @ 277V 60Hz (%)	9.9	10.3	11.4	10.3
Efficiency @ 100-277V 60Hz (%)	87.1%			
Wattage@60% Dimming	19.8W	16.2W	13.2W	9W
Wattage@50% Dimming	16.5W	13.5W	11W	7.5W
Wattage@40% Dimming	13.2W	10.8W	8.8W	6W
Current@60% Dimming	0.062A@277V	0.054A@277V	0.0438A@277V	0.03A@277V
Current@50% Dimming	0.052A@277V	0.045A@277V	0.0365A@277V	0.025A@277V
Current@40% Dimming	0.0416A@277V	0.036A@277V	0.029A@277V	0.02A@277V
Current Dimming Disabled	0.104A@277V	0.09A@277V	0.073@277V	0.05A@277V
FCC Compliance	FCC Part15 Subpart A Class A			

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MODEL JLS6810D-VW-2440-[D,50]-[S,FF]-3 (24W,30W,36W,40W) (M3)				
Wattage Settings	40W	36W	30W	24W
Input Voltage	100-277VAC +/-10%			
Input Current	0.14A@277V	0.12A@277V	0.1A@277V	0.08A@277V
Power Factor @ 120V 60Hz	0.998	0.988	0.99	0.993
Power Factor @ 277V 60Hz	0.981	0.979	0.975	0.967
THD @ 120V 60Hz (%)	14.4	13.9	12.3	8.5
THD @ 277V 60Hz (%)	11.7	9.9	10.3	11.4
Efficiency @ 100-277V 60Hz (%)	86.1%			
Wattage@60% Dimming	24W	21.6W	18W	14.4W
Wattage@50% Dimming	20W	18W	15W	12W
Wattage@40% Dimming	16W	14.4W	12W	9.6W
Current@60% Dimming	0.084A@277V	0.072A@277V	0.06A@277V	0.048A@277V
Current@50% Dimming	0.07A@277V	0.06A@277V	0.05A@277V	0.04A@277V
Current@40% Dimming	0.056A@277V	0.048A@277V	0.04A@277V	0.032A@277V
Current Dimming Disabled	0.14A@277V	0.12A@277V	0.1A@277V	0.08A@277V
FCC Compliance	FCC Part15 Subpart A Class A			

MODEL JLS6810D-VW-3855-[D,50]-[S,FF]-3 (38W,43W,48W,55W) (M4)				
Wattage Settings	55W	48W	43W	38W
Input Voltage	100-277VAC +/-10%			
Input Current	0.2A@277V	0.17A@277V	0.15A@277V	0.13A@277V
Power Factor @ 120V 60 Hz	0.987	0.987	0.987	0.988
Power Factor @ 277V 60 Hz	0.977	0.976	0.973	0.968
THD @ 120V 60Hz (%)	14.8	15	14.7	14
THD @ 277V 60Hz (%)	13.3	11.1	9.4	9.5
Efficiency @ 100-277V 60Hz (%)	85.4%			
Wattage@60% Dimming	33W	28.8W	25.8W	22.8W
Wattage@50% Dimming	27.5W	24W	21.5W	19W
Wattage@40% Dimming	22W	19.2W	18W	15.2W
Current@60% Dimming	0.12A@277V	0.102A@277V	0.09A@277V	0.078A@277V
Current@50% Dimming	0.1A@277V	0.085A@277V	0.075A@277V	0.065A@277V
Current@40% Dimming	0.08A@277V	0.068A@277V	0.06A@277V	0.052A@277V
Current Dimming Disabled	0.2A@277V	0.17A@277V	0.15A@277V	0.13A@277V
FCC Compliance	FCC Part15 Subpart A Class A			

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## LIFETIME SPECIFICATIONS

AL E-CAP LIFETIME TOOL FOR MODEL JLS6810D-VW-1022-[10,50]-[S,FF]-3 (10W,14W,18W,22W) (M1)							
$L_b$ (Hr)	$T_0$ (°C)	$T$ (°C)	$\Delta T$	L(Hr)	Year		
10000	105	61.3	0.00029	206780.47	23.61	$L=L_b \times 2^{(T_0-T)/10} \times K^{[1-(1/10)+(1/10)]} \times \Delta T/10$	
I(A)	ESR( $\Omega$ )	A	H	$\Delta T$			
0.205	0.074	5.1836	2.1	0.00029	$\Delta T = I^2 \times ESR / (A \times H)$		
$\Pi$	r (cm)	L (cm)	$I_0$ (A)	A(SA cm <sup>2</sup> )			
3.142	0.500	1.400	1.45	5.1836	$A = 2 \pi r L + \pi r^2$		
$\Phi d$ (mm)	4~5	6.3	8	10	13	16	18
HX10 <sup>^3</sup> W/cm <sup>2</sup>	2.18	2.16	2.13	2.1	2.05	2	1.96
	22	25	30	35	40	50~100	
HX10 <sup>^3</sup> W/cm <sup>2</sup>	1.88	1.84	1.75	1.66	1.58	1.49	
1. To be considered the ripple current for the tool							
2. The result at 33.1 in hermetic space							

AL E-CAP LIFETIME TOOL FOR MODEL JLS6810D-VW-1533-[10,50]-[S,FF]-3 (15W,22W,27W,33W) (M2)							
$L_b$ (Hr)	$T_0$ (°C)	$T$ (°C)	$\Delta T$	L(Hr)	Year		
10000	105	65.5	0.00075	154557.42	17.64	$L=L_b \times 2^{(T_0-T)/10} \times K^{[1-(1/10)+(1/10)]} \times \Delta T/10$	
I(A)	ESR( $\Omega$ )	A	H	$\Delta T$			
0.332	0.074	5.1836	2.1	0.00075	$\Delta T = I^2 \times ESR / (A \times H)$		
$\Pi$	r (cm)	L (cm)	$I_0$ (A)	A(SA cm <sup>2</sup> )			
3.142	0.500	1.400	1.45	5.1836	$A = 2 \pi r L + \pi r^2$		
$\Phi d$ (mm)	4~5	6.3	8	10	13	16	18
HX10 <sup>^3</sup> W/cm <sup>2</sup>	2.18	2.16	2.13	2.1	2.05	2	1.96
	22	25	30	35	40	50~100	
HX10 <sup>^3</sup> W/cm <sup>2</sup>	1.88	1.84	1.75	1.66	1.58	1.49	
1. To be considered the ripple current for the tool							
2. The result at 33.1 in hermetic space							

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## LIFETIME SPECIFICATIONS

### AL E-CAP LIFETIME TOOL FOR MODEL JLS6810D-VW-2440-[10,50]-[S,FF]-3 (24W,30W,36W,40W) (M3)

$L_D$ (Hr)	$T_0$ (°C)	$T$ (°C)	$\Delta T$	L(Hr)	Year		
10000	105	71.7	0.00040	100563.65	11.48	$L=L_D \times 2^{(T_0-T)/10} \times K^{[1-(1/10)+(1/10)]} \times \Delta T/10$	
I(A)	ESR( $\Omega$ )	A	H	$\Delta T$			
0.300	0.058	6.7250	2.1	0.00038	$\Delta T=I^2 \times ESR / (A \times H)$		
$\Pi$	r (cm)	L (cm)	$I_0$ (A)	A(SA $cm^2$ )			
3.142	0.625	1.400	2.05	6.7250	$A=2 \pi rL + \pi r^2$		
$\Phi d$ (mm)	4~5	6.3	8	10	13	16	18
HX10 <sup>^3</sup> W/cm <sup>2</sup>	2.18	2.16	2.13	2.1	2.05	2	1.96
	22	25	30	35	40	50~100	
HX10 <sup>^3</sup> W/cm <sup>2</sup>	1.88	1.84	1.75	1.66	1.58	1.49	
1. To be considered the ripple current for the tool							
2. The result at 33.1 in hermetic space							

### AL E-CAP LIFETIME TOOL FOR MODEL JLS6810D-VW-3855-[10,50]-[S,FF]-3 (38W,43W,50W,55W) (M4)

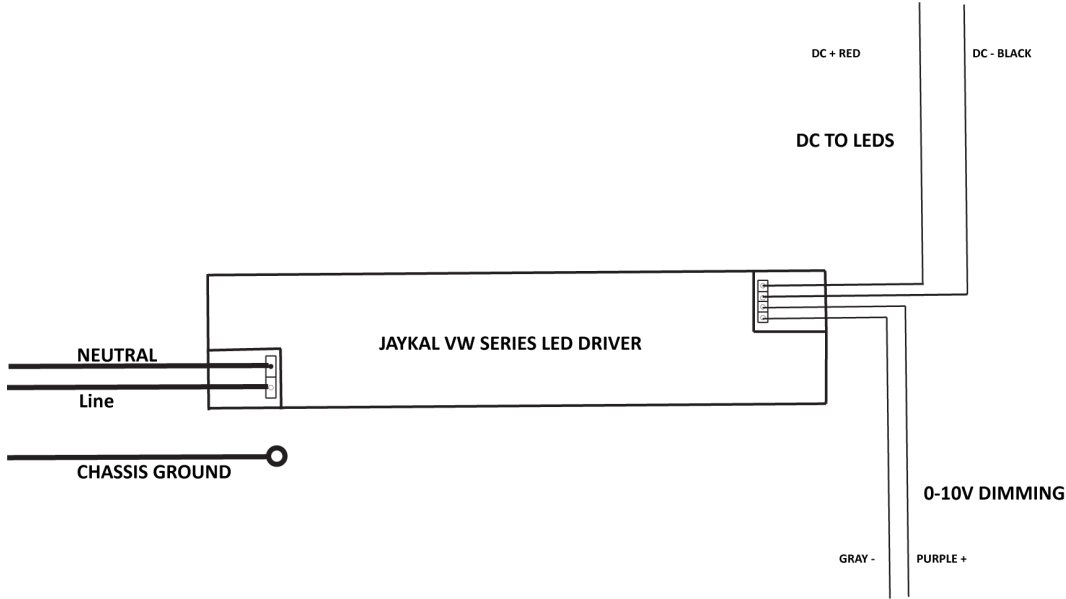
$L_D$ (Hr)	$T_0$ (°C)	$T$ (°C)	$\Delta T$	L(Hr)	Year		
10000	105	80.0	0.00030	56569.63	6.46	$L=L_D \times 2^{(T_0-T)/10} \times K^{[1-(1/10)+(1/10)]} \times \Delta T/10$	
I(A)	ESR( $\Omega$ )	A	H	$\Delta T$			
0.371	0.039	9.0812	2.1	0.00030	$\Delta T=I^2 \times ESR / (A \times H)$		
$\Pi$	r (cm)	L (cm)	$I_0$ (A)	A(SA $cm^2$ )			
3.142	0.625	2.000	2.25	9.0812	$A=2 \pi rL + \pi r^2$		
$\Phi d$ (mm)	4~5	6.3	8	10	13	16	18
HX10 <sup>^3</sup> W/cm <sup>2</sup>	2.18	2.16	2.13	2.1	2.05	2	1.96
	22	25	30	35	40	50~100	
HX10 <sup>^3</sup> W/cm <sup>2</sup>	1.88	1.84	1.75	1.66	1.58	1.49	
1. To be considered the ripple current for the tool							
2. The result at 33.1 in hermetic space							

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### WIRING DIAGRAM



### DRIVER DIMENSIONS (IN.)

ALL VW Series Drivers	Length	Width	Height
	6.125	1.813	1.118

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