

## Features & Benefits

Universal AC input voltage(110-277VAC)

All-round protection: SCP, OVP, OTP, OPP(CC/CV mode, especially suitable for LED strip)

Flicker free, excellent camera compatibility, spec-grade smoothness

Isolated 0-10Vdimming, PWM output, down to 0.1% dimming level

Painted sheet steel

Class2, Class P

Operating temperature: -40°C~+55°C

Comply with IEEE1789, UL8750

## Model List

| Model Name        | Rated Input Voltage | Max Output Power(Total) | Output Current(Total) | Rated Output Voltage | Efficiency | Dimension                           |
|-------------------|---------------------|-------------------------|-----------------------|----------------------|------------|-------------------------------------|
| CVL-B1-060S012U-V | 110-277VAC          | 60W max.                | 0-5000mA              | 12VDC                | 87%        | 242*44.5*30.5 mm<br>9.5*1.7*1.2 in. |
| CVL-B1-060S024U-V | 110-277VAC          | 60W max.                | 0-2500mA              | 24VDC                | 87%        | 242*44.5*30.5 mm<br>9.5*1.7*1.2 in. |

## Optional Function

Aux power of 12V/100mA

Category B 6KV/IP65

## Approvals



## Model name code

|        |   |     |   |     |   |   |   |
|--------|---|-----|---|-----|---|---|---|
| CVL-B1 | - | 060 | S | XXX | U | - | V |
| ①      |   | ②   | ③ | ④   | ⑤ |   | ⑥ |

|   |                 |                           |
|---|-----------------|---------------------------|
| ① | Series          | Constant Voltage Series   |
| ② | Output power    | Maximum output power: 60W |
| ③ | Output Channel  | Single channel            |
| ④ | Output Voltage  | 012=12V,024=24V           |
| ⑤ | Input voltage   | 120-277VAC                |
| ⑥ | Dimming Control | 0-10V                     |

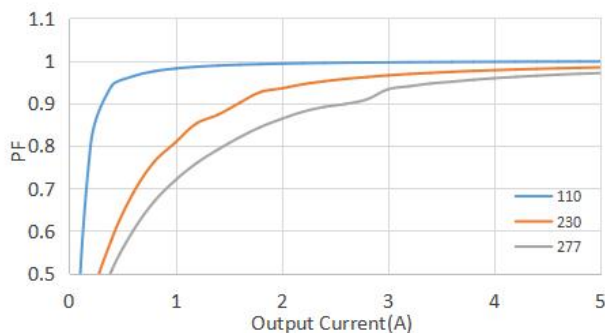
## Specification:

| Parameters          | Symbols         | Test Conditions / Comment        | Min | Typ   | Max  | Units    |
|---------------------|-----------------|----------------------------------|-----|-------|------|----------|
| <b>INPUT</b>        |                 |                                  |     |       |      |          |
| Input Voltage       | $V_{IN}$        |                                  | 100 |       | 305  | $V_{AC}$ |
| Rated Input Voltage | $V_{IN\ RATED}$ |                                  | 110 |       | 277  | $V_{AC}$ |
| Input Frequency     | $f_{line}$      |                                  | 47  | 50/60 | 63   | Hz       |
| Input Current       | $I_{IN}$        | Full Load, $V_{IN} = 110V_{AC}$  |     |       | 0.7  | A        |
| Inrush Current      | $I_{INRUSH}$    | Cold Start, $V_{IN} = 277V_{AC}$ |     |       | 70   | A        |
| Leakage Current     | $I_{Leakage}$   | $V_{IN} = 277V_{AC}$ , 60Hz      |     |       | 0.75 | mA       |

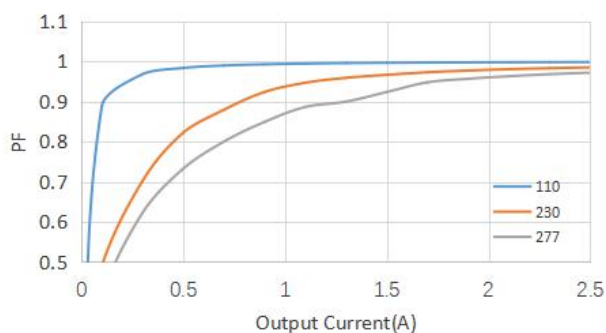
## General Characteristics

|                           |                 |                                                                   |      |      |     |    |
|---------------------------|-----------------|-------------------------------------------------------------------|------|------|-----|----|
| Power Factor              | PF              | 20~100% load, $V_{IN} = 110V_{AC}$                                | 0.9  |      |     | PF |
|                           |                 | 60~100% load, $V_{IN} = 277V_{AC}$                                | 0.9  |      |     |    |
| Total Harmonic Distortion | THD             | 20~100% load, $V_{IN} = 110V_{AC}$                                |      |      | 20  | %  |
|                           |                 | 60~100% load, $V_{IN} = 277V_{AC}$                                |      |      | 20  |    |
| Efficiency                | $\eta_{12V}$    | CVL-B1-060S012U-V, Full load, $V_{IN} = 110V_{AC}$ , Steady state | 82   | 84   |     | %  |
|                           |                 | CVL-B1-060S012U-V, Full load, $V_{IN} = 277V_{AC}$ , Steady state | 85   | 87   |     |    |
|                           | $\eta_{24V}$    | CVL-B1-060S024U-V, Full load, $V_{IN} = 110V_{AC}$ , Steady state | 83   | 85   |     |    |
|                           |                 | CVL-B1-060S024U-V, Full load, $V_{IN} = 277V_{AC}$ , Steady state | 85.5 | 87.5 |     |    |
| Turn On Delay Time        | $T_{on\_delay}$ | Cold Start                                                        |      |      | 0.5 | S  |

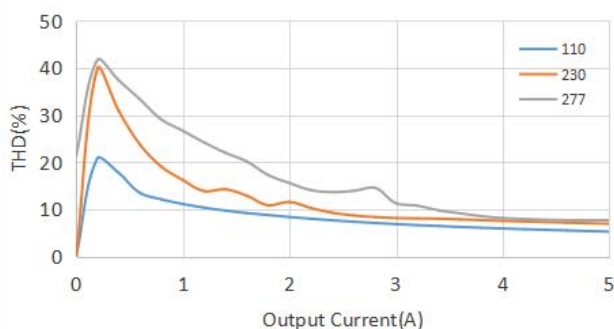
Iout-PF(12V)



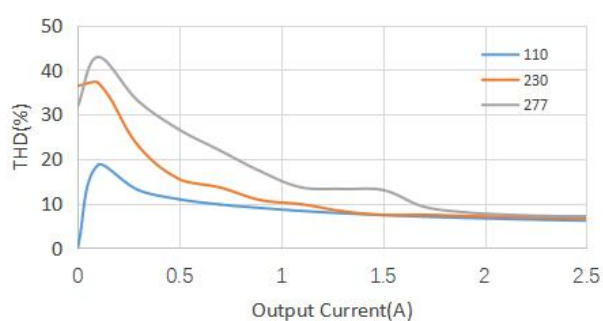
Iout-PF(24V)



Iout-THD(12V)

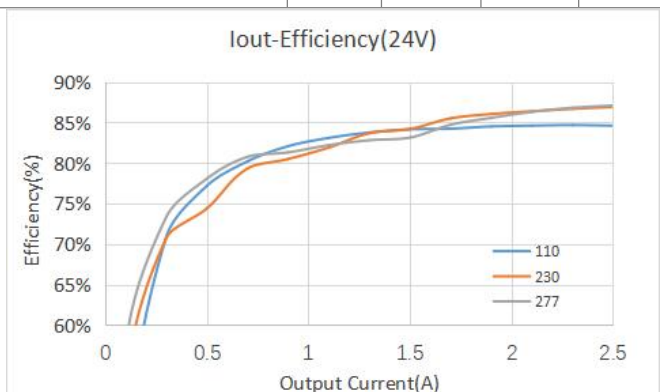
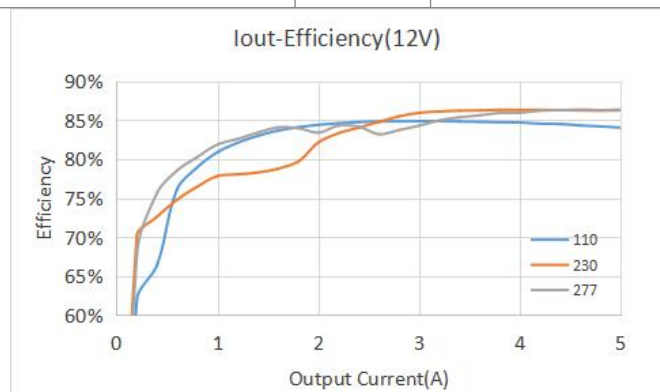


Iout-THD(24V)



## OUTPUT

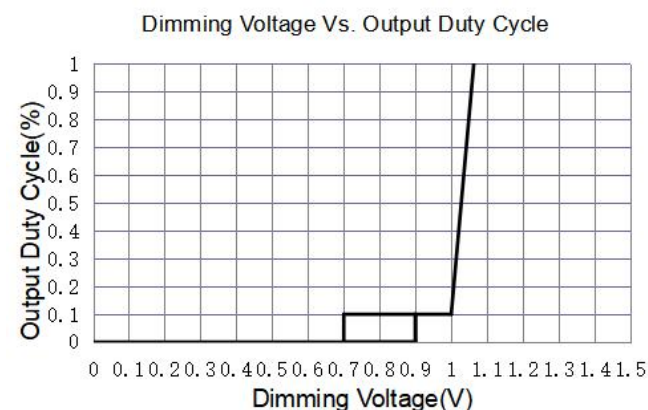
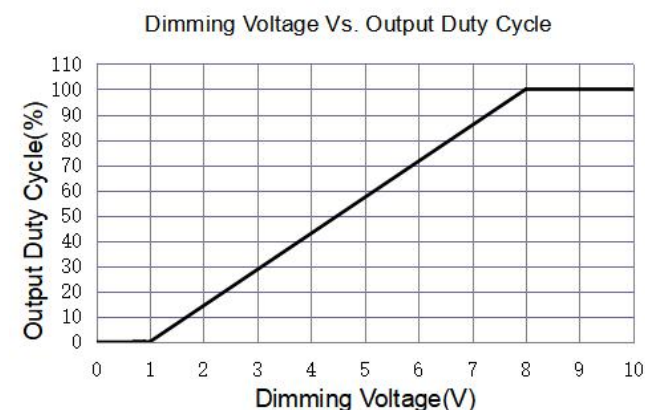
|                                  |                 |                                               |   |  |      |    |
|----------------------------------|-----------------|-----------------------------------------------|---|--|------|----|
| Output Voltage Tolerance         | $t_{OUT}$       | No Dimming                                    |   |  | 5    | %  |
| No Load Output Voltage Tolerance | $t_{NO\ LOAD}$  | No Load, No Dimming                           |   |  | 3    | %  |
| Output Current                   | $I_{OUT}$       | CVL-B1-060S012U-V                             | 0 |  | 5000 | mA |
|                                  |                 | CVL-B1-060S024U-V                             | 0 |  | 2500 | mA |
| Output Power                     | $P_{OUT}$       |                                               |   |  | 60   | W  |
| Line Regulation                  | $V_{OUT-LINE}$  |                                               |   |  | 1    | %  |
| Ripple Voltage                   | $V_{OUT-LINE}$  | Full Load, (pk-to-pk)/Average, Without Dimmer |   |  | 10   | %  |
| Output Voltage Overshoot         | $V_{OVERSHOOT}$ | Turning Power ON                              |   |  | 10   | %  |



## 0~10V

The 0~10V dimming can be used to dim the output voltage via a standard commercial wall dimmer (0~10VDC) or an external control voltage source (0~10VDC) or external resistor. The unit can be compatible with both sink and source current dimmers.

|                                       |                                     |  |   |     |    |    |
|---------------------------------------|-------------------------------------|--|---|-----|----|----|
| Dimming Curve                         | Linear. please see "Dimming curve". |  |   |     |    |    |
| Absolute Maximum Voltage on 0~10V Pin | $V_{DIM}$                           |  | 0 |     | 50 | V  |
| Source Current on 0~10V Dimming Pin   | $I_{DIM}$                           |  |   | 200 |    | uA |
| Light On                              | $V_{DIM-on}$                        |  |   | 0.9 |    | V  |
| Light Off                             | $V_{DIM-off}$                       |  |   | 0.7 |    | V  |
| Clamp voltage at Min. dimming level   | $V_{DIM-Clamp}$                     |  |   | 1   |    | V  |
| Dimming Voltage for Full Bright       | $V_{DIM-MAX}$                       |  |   | 8   |    | V  |



## Auxiliary source (Optional)

|               |           |                  |    |     |     |     |
|---------------|-----------|------------------|----|-----|-----|-----|
| Voltage range | $V_{AUX}$ | Standard product | 11 | 12  | 13  | Vdc |
| Current range | $I_{AUX}$ | $V_{AUX}=12V$    |    |     | 100 | mA  |
| Output Power  | $P_{AUX}$ |                  |    | 1.2 |     | W   |

## Protection

|                             |                                                                       |                                                                                                       |      |    |      |    |
|-----------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------|----|------|----|
| Over Voltage Protection     | $V_{OVP}$                                                             | CVL-B1-060S012U-V, Latch mode.                                                                        | 14   |    | 17   | V  |
|                             |                                                                       | CVL-B1-060S024U-V, Latch mode.                                                                        | 28   |    | 36   | V  |
| Over Current Protection     | $I_{OCP}$                                                             | CVL-B1-060S012U-V, Hiccup mode.                                                                       | 5000 |    | 5500 | mA |
|                             |                                                                       | CVL-B1-060S024U-V, Hiccup mode.                                                                       | 2500 |    | 3000 | mA |
| Over Temperature Protection | $T_{OTP}$                                                             | If the case temperature exceeds OTP point, the output voltage of the driver is automatically reduced. | 90   | 95 | 100  | °C |
| Over Power Protection       | CC/CV mode.                                                           |                                                                                                       |      |    |      |    |
| Short Circuit Protection    | The unit can recover automatically after fault conditions is removed. |                                                                                                       |      |    |      |    |

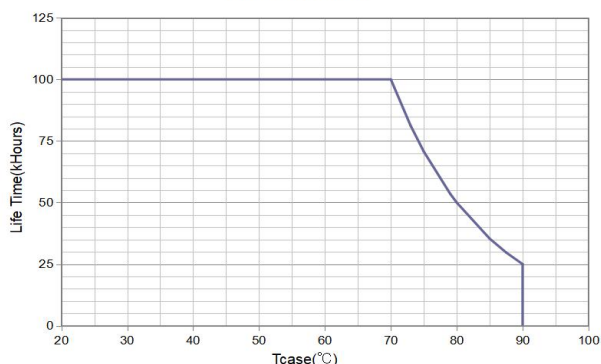
## Environment

|                               |                                                                |                               |     |   |     |     |
|-------------------------------|----------------------------------------------------------------|-------------------------------|-----|---|-----|-----|
| Storage Temperature           | $T_{Storage}$                                                  | Humidity: 5% RH to 95% RH     | -40 | - | +85 | °C  |
| Ambient Operating Temperature | $T_a$                                                          |                               | -40 | - | +55 | °C  |
| Max. Case Temperature         | $T_c$                                                          | Hot spot on case              |     |   | 90  | °C  |
| Operating Relative Humidity   | $H_a$                                                          | Non-Condensing                | 10  |   | 90  | %   |
| Acoustic Noise                |                                                                | Measured from 1 m w/o dimmer. |     |   | 24  | dBA |
| Cooling                       | Convection Cooling                                             |                               |     |   |     |     |
| IP Rating                     | IP20, (IP65/Wet location, Please contact Lumigear for details) |                               |     |   |     |     |

## Others

|            |                                           |                                     |     |     |  |      |
|------------|-------------------------------------------|-------------------------------------|-----|-----|--|------|
| Life Time  | $T_{Life}$                                | Full Load, 80°C case temperature    | 50  |     |  | kHrs |
| MTBF       | $T_{MTBF}$                                | Full Load, 25°C ambient temperature | 200 |     |  | kHrs |
| Net Weight | $W_{NET}$                                 |                                     |     | 586 |  | g    |
| Warranty   | 5 Years Warranty at $T_c \leq 80^\circ C$ |                                     |     |     |  |      |
| Flicker    | IEEE 1789( $\geq 1\%$ dimming), Title 24  |                                     |     |     |  |      |

Life Time Curve



## Safety Compliance

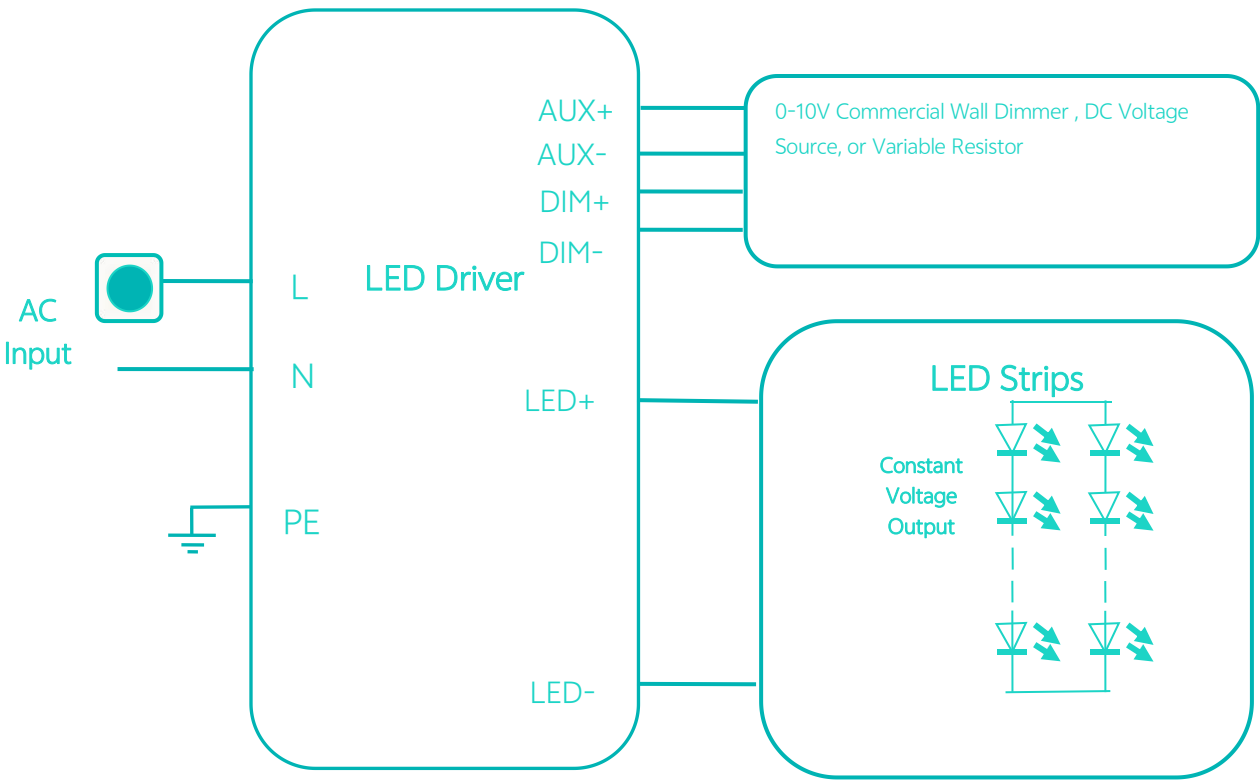
|        |                                  |
|--------|----------------------------------|
| CUL/UL | UL8750, CAN/CSA-C22.2 No. 250.13 |
|--------|----------------------------------|

## Electromagnetic Compliance

| EMC Requirements                 | Standard                | Conditions                                                                                                                                        |
|----------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI Emissions                    | FCC Title 47 Part 15B   | Class B at 110VAC, Class A at 277VAC                                                                                                              |
| Voltage Fluctuations and Flicker | IEC61000-3-3            |                                                                                                                                                   |
| Immunity Compliance              | IEC 61000-4-2           | ±8kV air Discharge, ±6kV Contact Discharge                                                                                                        |
|                                  | ANSI/IEEE C62.41.2      | 2 kV combination wave                                                                                                                             |
|                                  | ANSI/IEEE C62.41.1-2002 | 2.5kV Ring Wave, test at 30 $\Omega$ 7 Strikes/1 minute interval, Common and Differential mode, 56 total strikes                                  |
|                                  | IEC 61000-4-11          | >95% dip, .5 period; 30% dip, 25 periods; 95% reduction, 250 periods                                                                              |
|                                  | IEC 61000-4-4           | ± 2kV Direct couple to Line input, 5kHz repetition rate, 15mS duration, 300mS period. 7 coupling paths, 1 minute per path (14 total combinations) |

Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and rated voltage.

## Typical Application



Packaging

| Driver quantity<br>(pcs) | Layer | Weight (kg) | Outer dimensions of Carton<br>L*W*H(mm) |
|--------------------------|-------|-------------|-----------------------------------------|
| 25                       | 5     | 15.0        | 335 X 265 X 230                         |

## Mechanical Drawing:

