



■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Output constant current level adjustable
- 100% full load burn-in test
- Dimming function (1~10Vdc & PWM type)
- Suitable for built in LED lighting system
- Suitable for dry / damp location
- 3 years warranty



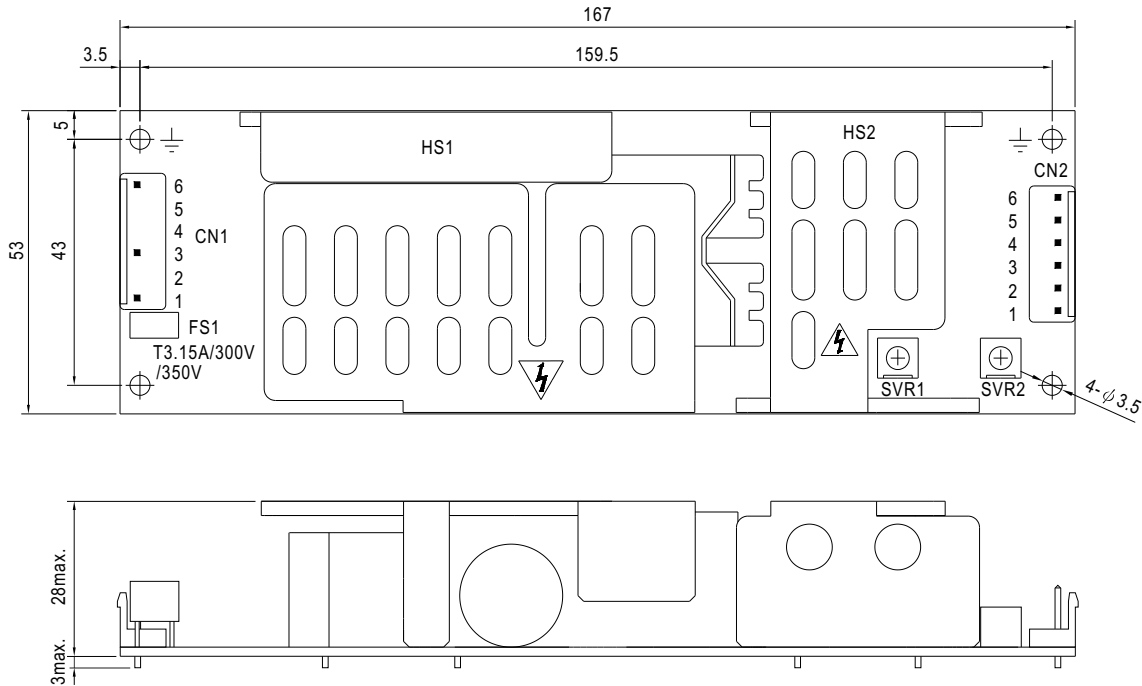
SPECIFICATION

| MODEL | HLP-80H-12 | HLP-80H-15 | HLP-80H-20 | HLP-80H-24 | HLP-80H-30 | HLP-80H-36 | HLP-80H-42 | HLP-80H-48 | HLP-80H-54 | |
|-------------------------|--|--|------------|-----------------|--|---------------|-------------|----------------------------|-------------|------------|
| OUTPUT | DC VOLTAGE | 12V | 15V | 20V | 24V | 30V | 36V | 42V | 48V | 54V |
| | CONSTANT CURRENT REGION Note.4 | 7.2 ~ 12V | 9 ~ 15V | 12 ~ 20V | 14.4 ~ 24V | 18 ~ 30V | 21.6 ~ 36V | 25.2 ~ 42V | 28.8 ~ 48V | 32.4 ~ 54V |
| | RATED CURRENT | 5A | 5A | 4A | 3.4A | 2.7A | 2.3A | 1.95A | 1.7A | 1.5A |
| | RATED POWER | 60W | 75W | 80W | 81.6W | 81W | 82.8W | 81.9W | 81.6W | 81W |
| | RIPPLE & NOISE (max.) Note.2 | 150mVp-p | 150mVp-p | 150mVp-p | 150mVp-p | 200mVp-p | 200mVp-p | 200mVp-p | 200mVp-p | 200mVp-p |
| | VOLTAGE ADJ. RANGE | 10.8 ~ 13.5V | 13.5 ~ 17V | 17 ~ 22V | 22 ~ 27V | 27 ~ 33V | 33 ~ 40V | 38 ~ 46V | 43 ~ 53V | 49 ~ 58V |
| | CURRENT ADJ. RANGE | Can be adjusted by internal potential meter or through output cable | | | | | | | | |
| | | 3 ~ 5A | 3 ~ 5A | 2.4 ~ 4A | 2.04 ~ 3.4A | 1.62 ~ 2.7A | 1.38 ~ 2.3A | 1.17 ~ 1.95A | 1.02 ~ 1.7A | 0.9 ~ 1.5A |
| | VOLTAGE TOLERANCE Note.3 | ±2.5% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| LOAD REGULATION | ±2.0% | ±1.5% | ±1.0% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | |
| SETUP, RISE TIME Note.7 | 2000ms, 200ms / 115VAC at full load | | | | 1000ms, 200ms / 230VAC at full load | | | | | |
| HOLD UP TIME (Typ.) | 16ms at full load 230VAC / 115VAC | | | | | | | | | |
| INPUT | VOLTAGE RANGE Note.5 | 90 ~ 305VAC | | 127 ~ 431VDC | | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | | | | |
| | POWER FACTOR | PF ≥ 0.96/230VAC | | | PF ≥ 0.96/115VAC at full load and rated output voltage | | | PF ≥ 0.9 at 60 ~ 100% load | | |
| | EFFICIENCY (Typ.) | 88% | 89% | 90.5% | 91% | 91% | 91% | 91% | 91% | 91% |
| | AC CURRENT | 0.85A / 115VAC | | 0.425A / 230VAC | | 0.4A / 277VAC | | | | |
| | INRUSH CURRENT(Typ.) | COLD START 70A/230VAC | | | | | | | | |
| LEAKAGE CURRENT | <0.75mA / 277VAC | | | | | | | | | |
| PROTECTION | OVER CURRENT Note.4 | 95 ~ 108% | | | | | | | | |
| | | Protection type : Constant current limiting, recovers automatically after fault condition is removed | | | | | | | | |
| | OVER VOLTAGE | 14 ~ 17V | 18 ~ 21V | 23 ~ 27V | 28 ~ 34V | 34 ~ 38V | 41 ~ 46V | 47 ~ 53V | 54 ~ 60V | 59 ~ 65V |
| | Protection type : Shut down o/p voltage, re-power on to recover | | | | | | | | | |
| OVER TEMPERATURE | 100°C ±10°C (RTH2) | | | | | | | | | |
| | Protection type : Shut down o/p voltage, re-power on to recover | | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -30 ~ +50°C (Refer to output load derating curve) | | | | | | | | |
| | WORKING HUMIDITY | 20 ~ 95% RH non-condensing | | | | | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +80°C, 10 ~ 95% RH | | | | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/°C (0 ~ 50°C) | | | | | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes | | | | | | | | |
| SAFETY & EMC | SAFETY STANDARDS Note.6 | EN61347-1, EN61347-2-13 approved ; Design refer to UL60950-1, TUV EN60950-1, UL8750 | | | | | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3.75KVAC | | | I/P-FG:1.88KVAC | | | O/P-FG:0.5KVAC | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH | | | | | | | | |
| | EMI CONDUCTION & RADIATION | Compliance to EN55015, Class B | | | | | | | | |
| | HARMONIC CURRENT | Compliance to EN61000-3-2 Class C (≥60% load) ; EN61000-3-3 | | | | | | | | |
| EMS IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN61547, EN55024, heavy industry level (surge 4KV), criteria A | | | | | | | | | |
| OTHERS | MTBF | 316.2Khrs min. MIL-HDBK-217F (25°C) | | | | | | | | |
| | DIMENSION | 162*53*28mm (L*W*H) | | | | | | | | |
| | PACKING | 0.27Kg; 36pcs/11.2Kg/0.67CUFT | | | | | | | | |

- NOTE**
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
 3. Tolerance : includes set up tolerance, line regulation and load regulation.
 4. Constant current operation region is within 60% ~ 100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
 5. Derating may be needed under low input voltages. Please check the static characteristics for more details.
 6. Safety and EMC design refer to EN60598-1, CNS15233, GB7000.1, FCC part18.
 7. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.
 8. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
 9. Heat Sink HS1, HS2 can not be shorted.

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B6P-VH or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|-----------------------|--------------------------------|
| 1 | AC/L | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2,4,5 | No Pin | | |
| 3 | AC/N | | |
| 6 | FG \perp | | |

DC Output Connector (CN2) : JST B6P-VH or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|-----------------------|--------------------------------|
| 1 | DIM+(VR1) | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2 | DIM-(VR2) | | |
| 3,4 | +V | | |
| 5,6 | -V | | |

⚠ HS1,HS2 can not be shorted

※ Output constant current level can be adjusted through output cable by connecting a resistor or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Reference resistance value for output current adjustment (Typical)

| Resistance value | 10K Ω | 20K Ω | 30K Ω | 40K Ω | 50K Ω | 60K Ω | 70K Ω | 80K Ω | 90K Ω | 100K Ω | OPEN |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

※ 1 ~ 10V dimming function for output current adjustment (Typical)

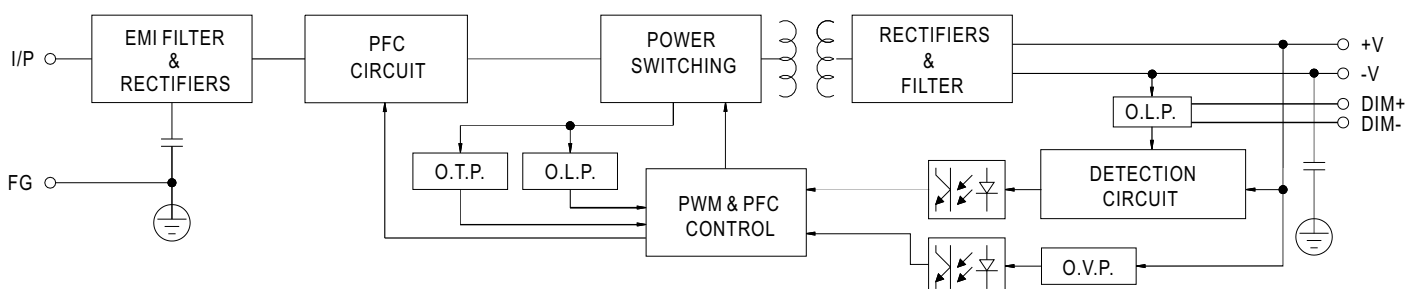
| Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

※ 10V PWM signal for output current adjustment (Typical): Frequency range:100Hz ~ 3KHz

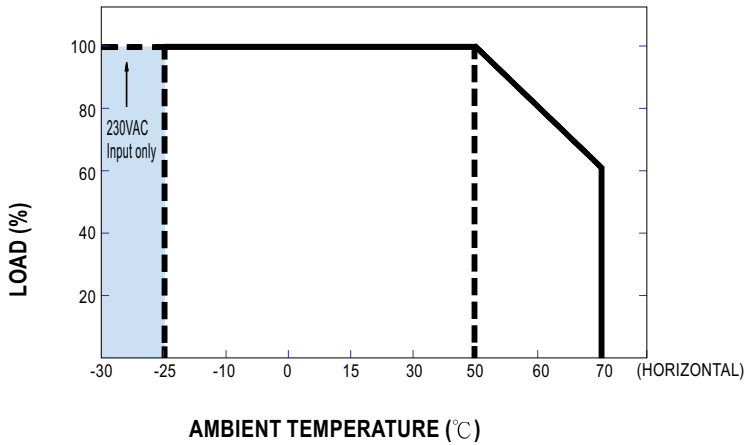
| Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

Block Diagram

fosc : 100KHz

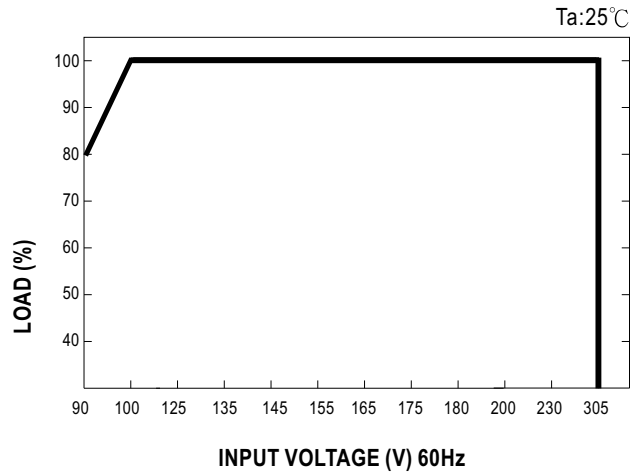


Derating Curve



※-30°C start up possible for 230VAC input

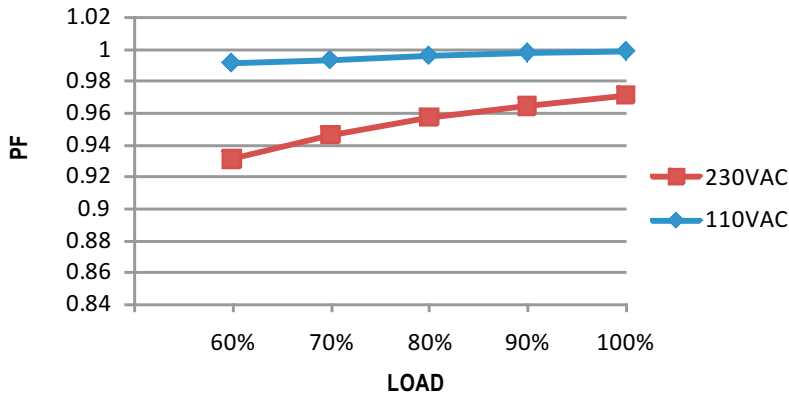
Static Characteristics



Power Factor Characteristic (48V Model)

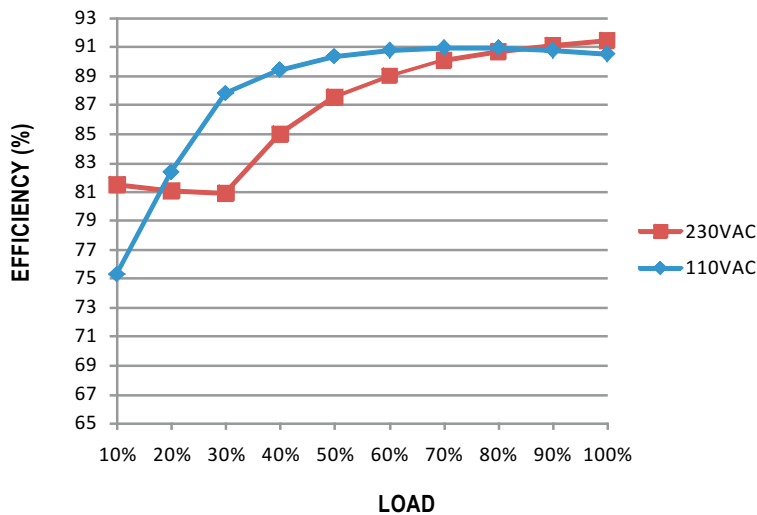
Power factor will be higher than 0.9 when output loading is 60% or higher.

Constant Current Mode



EFFICIENCY vs LOAD (48V Model)

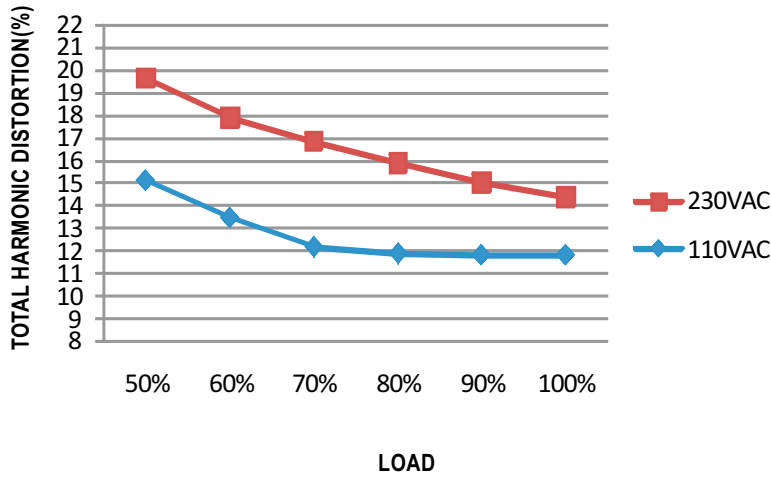
HLP-80H series possess superior working efficiency that up to 90% can be reached in field applications.



TOTAL HARMONIC DISTORTION vs LOAD (48V Model)

Total harmonic distortion will be lower than 20% when output loading is 60% or higher.

Constant Voltage Mode

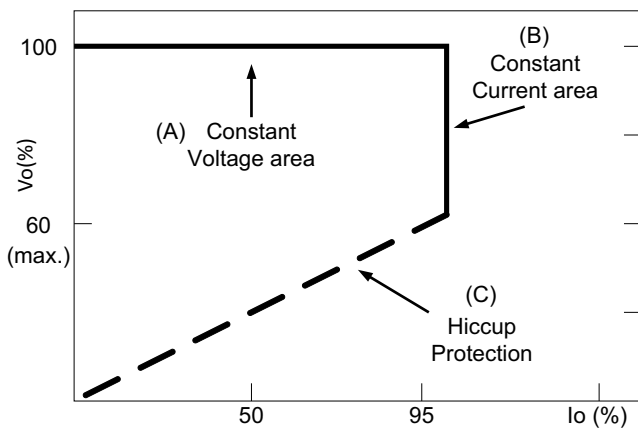


DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method "direct drive" and "with LED driver".

A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode (with LED driver, at area (A) and CC mode (direct drive, at area (B)).

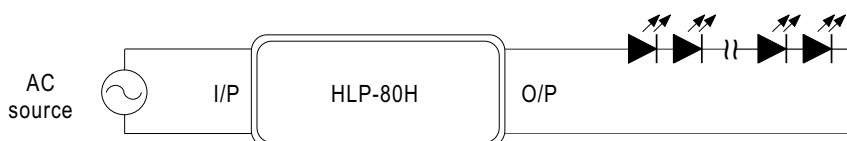


Typical LED power supply I-V curve

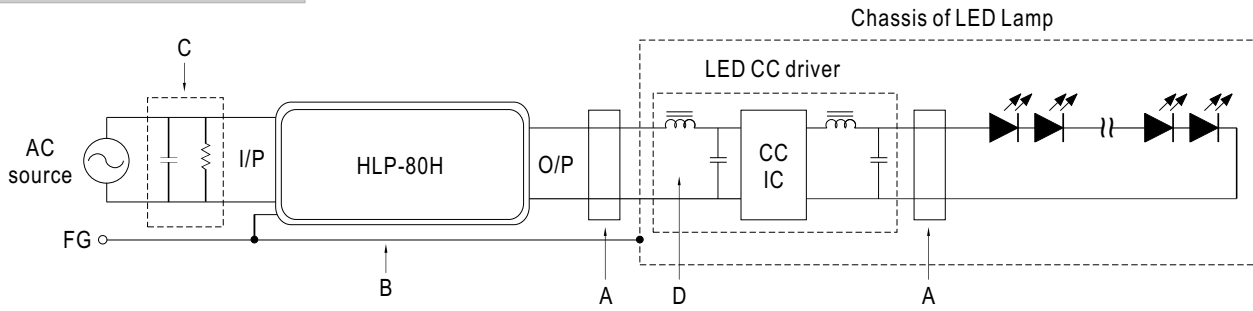
Direct driving :

Under direct driving, the power supply will work in "constant current mode (CC)" and output voltage of the power supply will be clamped by sum of forward voltage (V_F) of the LED strip.

The total forward voltage of series connecting LEDs is suggested for 60%~95% of power supply rated output voltage due to concern of the best PF value and efficiency.



EMI DEBUG SUGGESTION

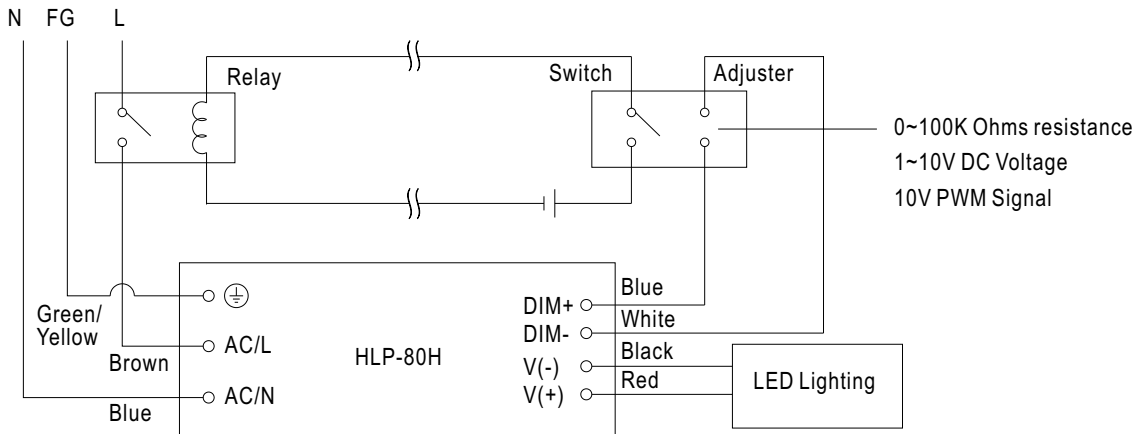


- A. Add a common mode ferrite choke on output wires to reduce the common emission between 10M ~ 300MHz per lighting EMI regulation.
- B. Chassis of LED lamp and chassis of HLP-80H or the FG wire should be connected to the safety ground to reduce the EMI noise, including the conduction and radiation emission.
- C. The additional X-Cap and discharge resistor can reduce the low frequency conduction noise between 9K ~ 1MHz per lighting EMI regulation.
- D. L-C filter should be added at the DC input of LED constant current driver to avoid the differential emission and high frequency noise generated by the CC driver.

DIMMING OPERATION

Using the built-in dimming function can't turn the lighting fixture totally dark. Please refer to the connection method below to achieve 0% brightness of the lighting fixture connecting to the LED power supply unit.

Dimming connection diagram for turning the lighting fixture ON/OFF :



Using a switch and relay can turn ON/OFF the lighting fixture.

1. Output constant current level can be adjusted through output cable by connecting a resistor or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.