



## Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- OCP point adjustable through output cable or internal potentiometer
- IP64 design for indoor or outdoor installations
- Three in one dimming function (1~10Vdc or PWM signal or resistance)
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp location or outdoor application
- 3 years warranty



HLN-80H-12 **A** : IP64 rated. Output voltage and constant current level can be adjusted through internal potentiometer.

B : IP64 rated. Constant current level adjustable through output cable with 1~10Vdc or 10V PWM signal or resistance.

## SPECIFICATION

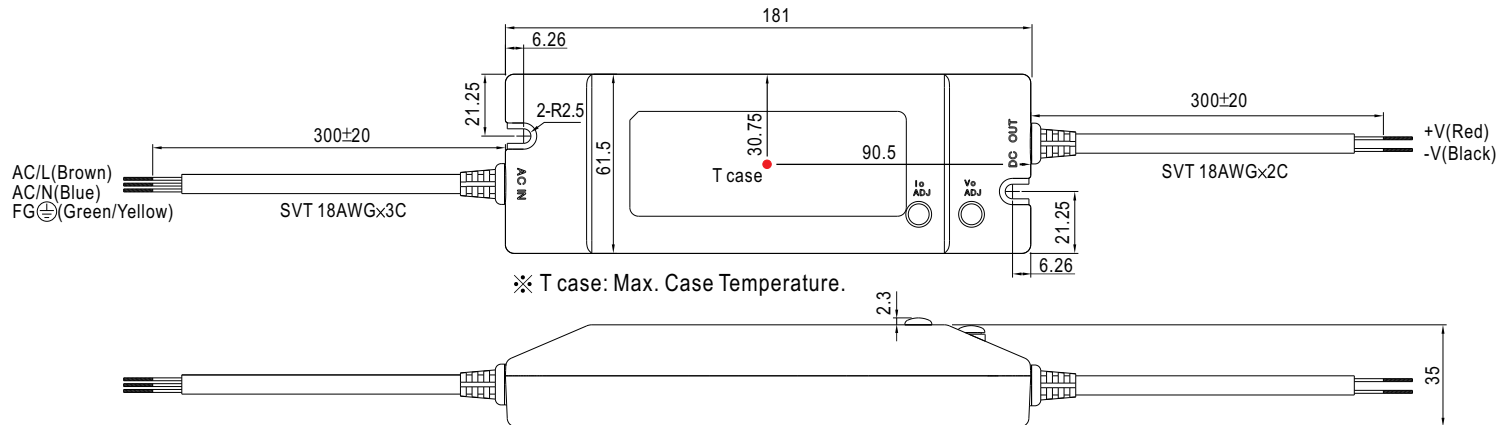
| MODEL        |                                               | HLN-80H-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HLN-80H-15 | HLN-80H-20 | HLN-80H-24  | HLN-80H-30  | HLN-80H-36  | HLN-80H-42   | HLN-80H-48  | HLN-80H-54 |
|--------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-------------|-------------|-------------|--------------|-------------|------------|
| OUTPUT       | DC VOLTAGE                                    | 12V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15V        | 20V        | 24V         | 30V         | 36V         | 42V          | 48V         | 54V        |
|              | CONSTANT CURRENT REGION <small>Note.4</small> | 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.) <small>Note.2</small>   | 150mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 150mVp-p   | 150mVp-p   | 150mVp-p    | 200mVp-p    | 200mVp-p    | 200mVp-p     | 200mVp-p    | 200mVp-p   |
|              | VOLTAGE ADJ. RANGE <small>Note.6</small>      | 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 potentiometer 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 <small>Note.3</small>       | ±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%      |
| INPUT        | LOAD REGULATION                               | ±2.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±1.5%      | ±1.0%      | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%        | ±0.5%       | ±0.5%      |
|              | SETUP, RISE TIME <small>Note.8</small>        | 2000ms, 80ms / 115VAC at full load ; 1000ms, 80ms / 230VAC at full load ; B type 2000ms, 200ms at 95% load ; 230VAC / 115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |             |             |             |              |             |            |
|              | HOLD UP TIME (Typ.)                           | 16ms at full load ; 230VAC / 115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |            |             |             |             |              |             |            |
|              | VOLTAGE RANGE <small>Note.5</small>           | 90 ~ 305VAC ; 127 ~ 431VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |             |             |             |              |             |            |
|              | FREQUENCY RANGE                               | 47 ~ 63Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            |             |             |             |              |             |            |
|              | POWER FACTOR (Typ.)                           | PF>0.96/115VAC, PF>0.96/230VAC, PF>0.94/277VAC at full load (Please refer to "Power Factor Characteristic" curve)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |             |             |             |              |             |            |
|              | EFFICIENCY (Typ.)                             | 88%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 89%        | 90%        | 90.5%       | 91%         | 91%         | 91%          | 91%         | 91%        |
|              | AC CURRENT (Typ.)                             | 0.85A / 115VAC ; 0.425A / 230VAC ; 0.4A / 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |             |             |             |              |             |            |
| PROTECTION   | INRUSH CURRENT(Typ.)                          | COLD START 70A/230VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |             |             |             |              |             |            |
|              | LEAKAGE CURRENT                               | <0.75mA / 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |             |             |             |              |             |            |
|              | OVER CURRENT <small>Note.4</small>            | 95 ~ 108%<br>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   |
| ENVIRONMENT  |                                               | Protection type : Shut down o/p voltage, re-power on to recover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |             |             |             |              |             |            |
|              | OVER TEMPERATURE                              | 100°C ±10°C (RTH2)<br>Protection type : Shut down o/p voltage, re-power on to recover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |             |             |             |              |             |            |
|              | WORKING TEMP.                                 | -40 ~ +50°C (Refer to "Derating Curve")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |             |             |             |              |             |            |
|              | WORKING HUMIDITY                              | 20 ~ 95% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |             |             |             |              |             |            |
|              | STORAGE TEMP., HUMIDITY                       | -40 ~ +80°C, 10 ~ 95% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |            |             |             |             |              |             |            |
| SAFETY & EMC | TEMP. COEFFICIENT                             | ±0.03%/°C (0 ~ 40°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |             |             |             |              |             |            |
|              | VIBRATION                                     | 10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |             |             |             |              |             |            |
|              | SAFETY STANDARDS <small>Note.7</small>        | EN61347-1, EN61347-2-13 independent, J61347-1, J61347-2-13, IP64 approved ; Design refer to UL60950-1, TUV EN60950-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |             |             |             |              |             |            |
|              | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |             |             |             |              |             |            |
| OTHERS       | EMC EMISSION                                  | Compliance to EN55015, EN61000-3-2 Class C (≥60% load, 12V model ≥65% load) ; EN61000-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            |             |             |             |              |             |            |
|              | EMC IMMUNITY                                  | Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, EN55024, light industry level (surge 4KV), criteria A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |            |             |             |             |              |             |            |
|              | MTBF                                          | 356.4Khrs min. ; MIL-HDBK-217F (25°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |             |             |             |              |             |            |
|              | DIMENSION                                     | 181*61.5*35mm (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |            |             |             |             |              |             |            |
| NOTE         | PACKING                                       | 0.5Kg; 24pcs/13Kg/0.75CUFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |             |             |             |              |             |            |
|              |                                               | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>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.<br>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.<br>6. Type A only.<br>7. Safety and EMC design refer to EN60598-1, CNS15233, GB7000.1, FCC part18.<br>8. 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.<br>9. 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. |            |            |             |             |             |              |             |            |

## Mechanical Specification

Case No.HLN-80A

Unit:mm

### A Type:(HLN-80H-\_A)

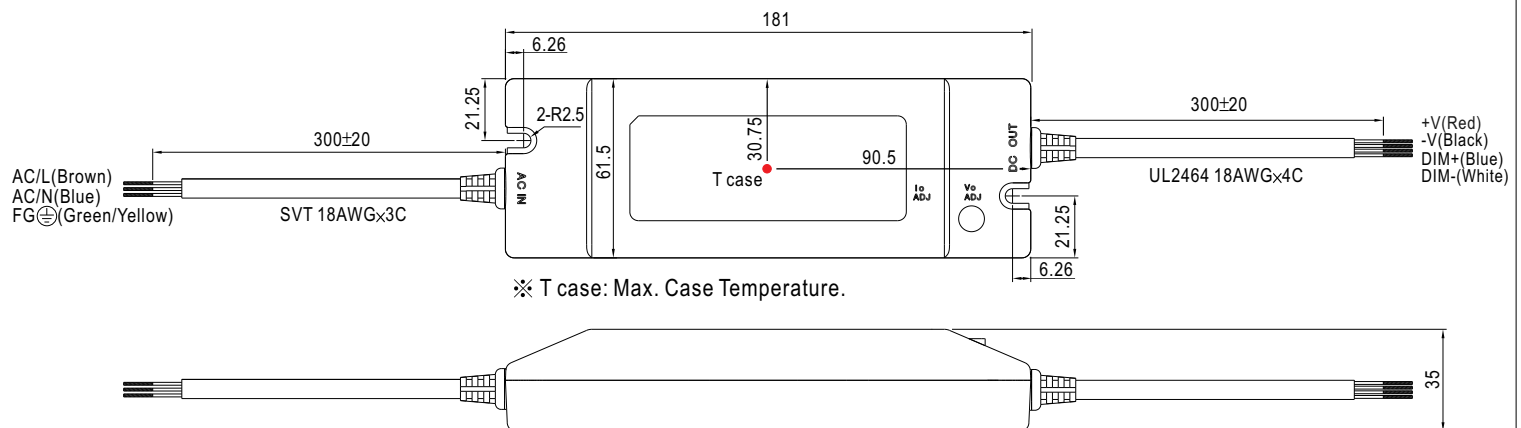


※IP64 rated. Output voltage and constant current level can be adjusted through internal potentiometer.  
(can access by removing the rubber stopper on the case).

### B Type:(HLN-80H-\_B)

Case No.HLN-80B

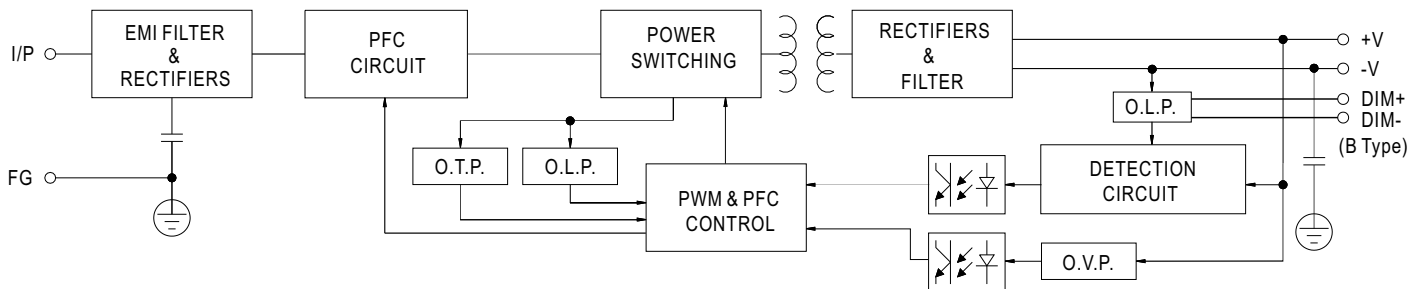
Unit:mm



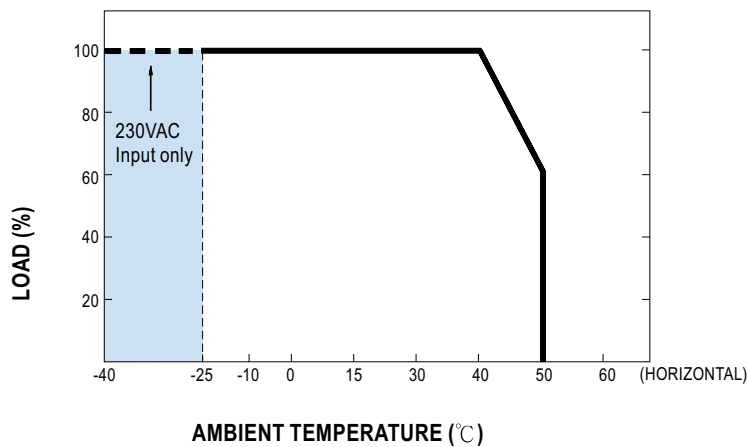
DIM+ / DIM- : Commercial wall dimmer 1 ~ 10V & PWM control function

## Block Diagram

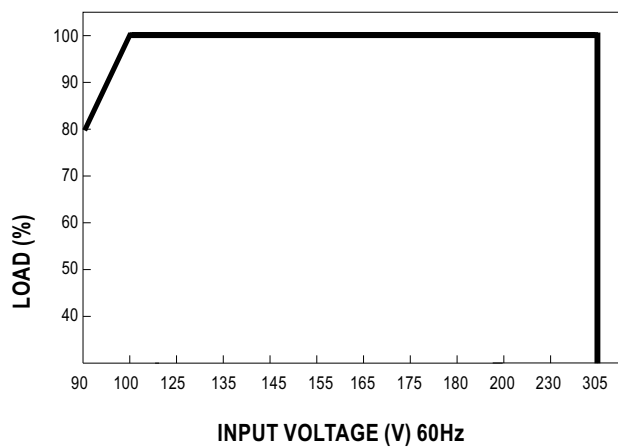
fosc : 100KHz



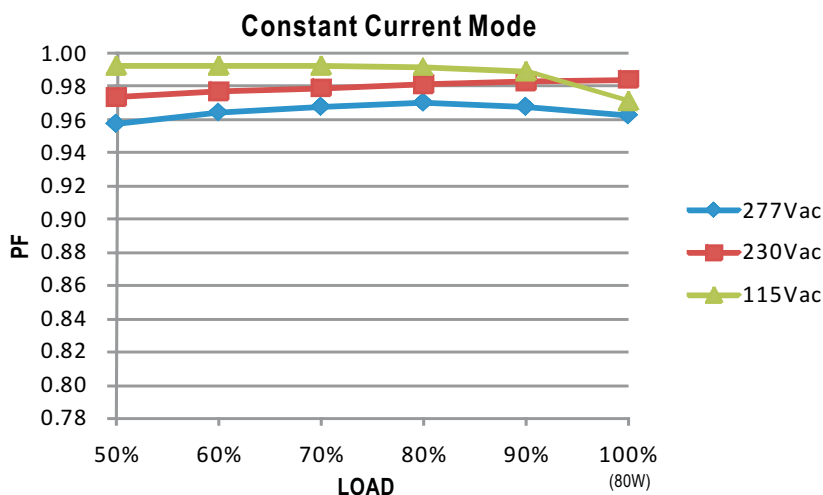
## Derating Curve



## Static Characteristics

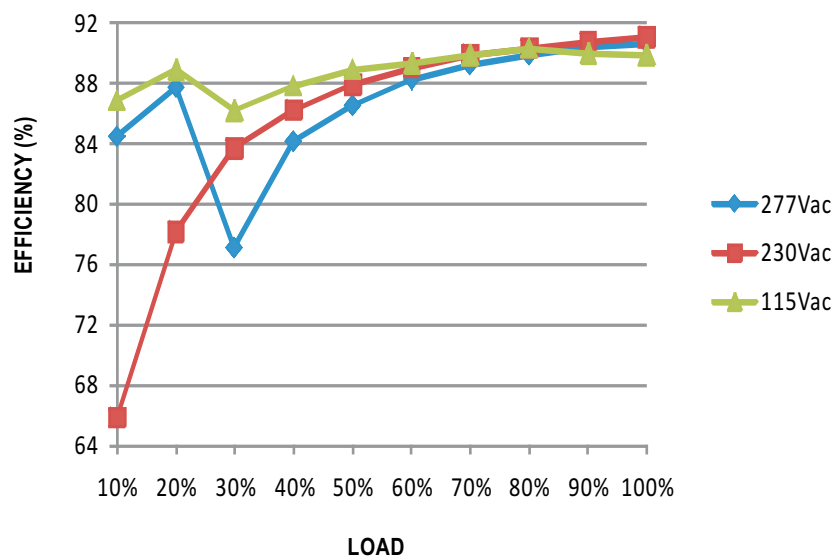


## Power Factor Characteristic



## EFFICIENCY vs LOAD (48V Model)

HLN-80H series possess superior working efficiency that up to 91% can be reached in field applications.

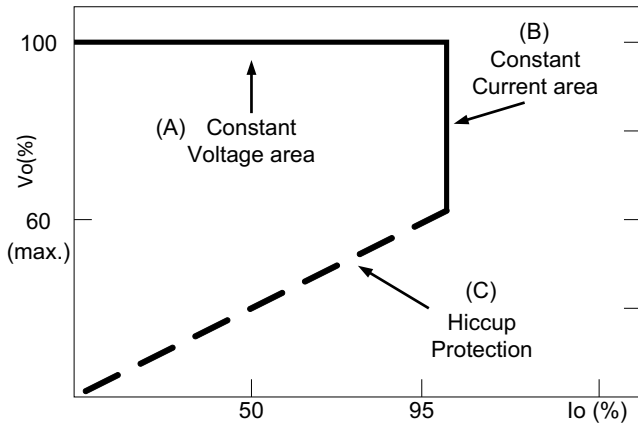


## DRIVING METHODS OF LED MODULE

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

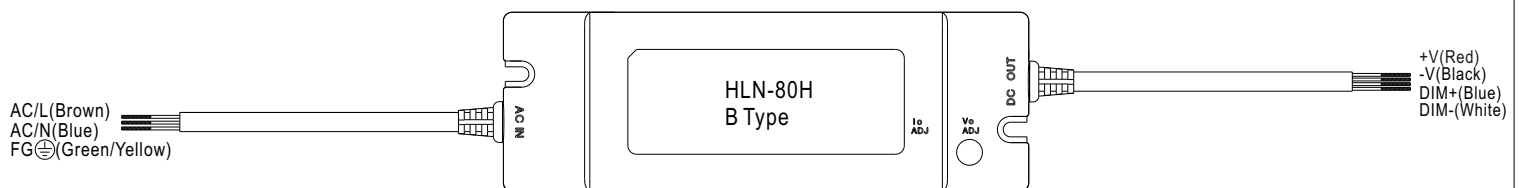
A typical LED power supply may either work in "constant voltage mode (CV)" or constant current mode (CC)" to drive the LEDs.

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

## DIMMING OPERATION(for B-type only)



※  $V_o$  and  $I_o$  can not be adjusted (B type)

※ Built-in 3 in 1 dimming function, IP64 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

| Resistance value            | Single driver                                                              | 10K $\Omega$    | 20K $\Omega$    | 30K $\Omega$    | 40K $\Omega$    | 50K $\Omega$    | 60K $\Omega$    | 70K $\Omega$    | 80K $\Omega$    | 90K $\Omega$    | 100K $\Omega$    | OPEN      |
|-----------------------------|----------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------|
|                             | Multiple drivers<br>(N=driver quantity for synchronized dimming operation) | 10K $\Omega$ /N | 20K $\Omega$ /N | 30K $\Omega$ /N | 40K $\Omega$ /N | 50K $\Omega$ /N | 60K $\Omega$ /N | 70K $\Omega$ /N | 80K $\Omega$ /N | 90K $\Omega$ /N | 100K $\Omega$ /N | -----     |
| 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)

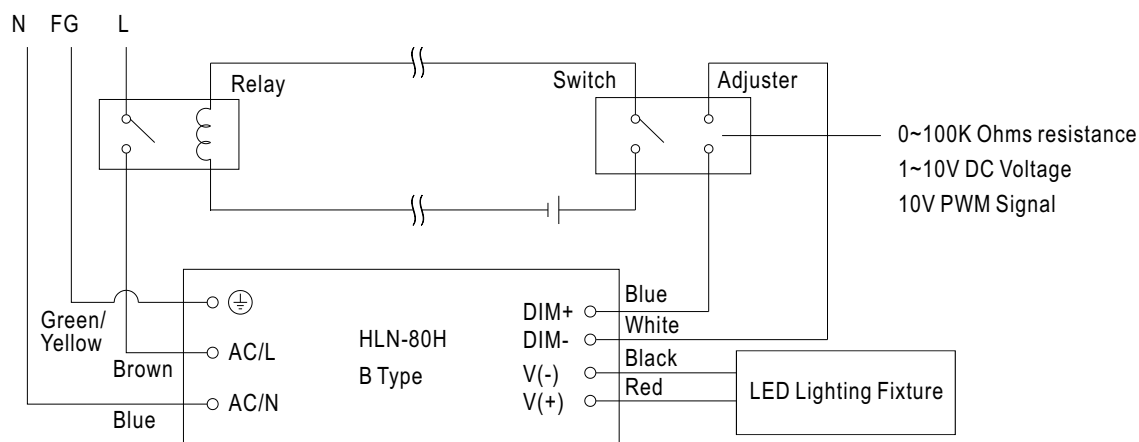
| Dimming value               | 1V  | 2V  | 3V  | 4V  | 5V  | 6V  | 7V  | 8V  | 9V  | 10V  | OPEN      |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100%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

※Using the built-in dimming function on B-type model 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 resistance or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.