



## ■ 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
- Fully isolated plastic case with IP64 level
- Class 2 power unit
- 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 locations 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.

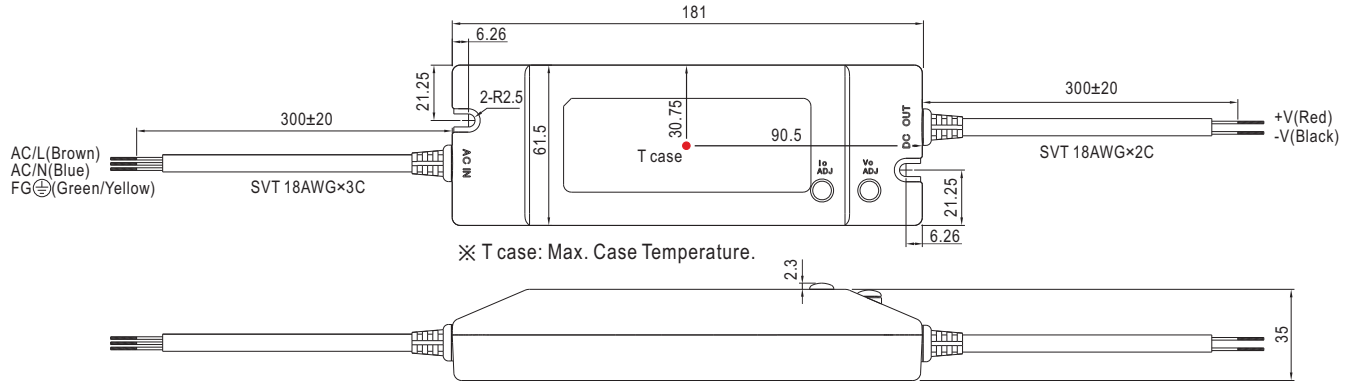
## SPECIFICATION

| 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 A type only                                                                                                                      |            |                 |             |               |             |              |             |            |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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%      |
| 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> | 1200ms,80ms/115VAC    500ms,80ms/230VAC at full load ; B type 1200ms,200ms/115VAC    500ms,200ms/230VAC at 95% load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                            |            |                 |             |               |             |              |             |            |
| HOLD UP TIME (Typ.)                    | 16ms at full load    230VAC /115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                            |            |                 |             |               |             |              |             |            |
| INPUT                                  | 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)                                                          |            |                 |             |               |             |              |             |            |
|                                        | TOTAL HARMONIC DISTORTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | THD< 20% when output loading≥60% at 115VAC/230VAC input and output loading≥75% at 277VAC input                                                                             |            |                 |             |               |             |              |             |            |
|                                        | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88%                                                                                                                                                                        | 89%        | 90%             | 90.5%       | 91%           | 91%         | 91%          | 91%         | 91%        |
|                                        | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.85A / 115VAC                                                                                                                                                             |            | 0.425A / 230VAC |             | 0.4A / 277VAC |             |              |             |            |
|                                        | INRUSH CURRENT(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | COLD START 70A(twidth=485μs measured at 50% Ipeak) at 230VAC                                                                                                               |            |                 |             |               |             |              |             |            |
|                                        | MAX. No. of PSUs on 16A CIRCUIT BREAKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC                                                                                        |            |                 |             |               |             |              |             |            |
|                                        | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <0.75mA / 277VAC                                                                                                                                                           |            |                 |             |               |             |              |             |            |
| PROTECTION                             | OVER CURRENT <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 95 ~ 108%<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed                                                          |            |                 |             |               |             |              |             |            |
|                                        | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Hiccup mode, recovers automatically after fault condition is removed                                                                                                       |            |                 |             |               |             |              |             |            |
|                                        | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 ~ 17V                                                                                                                                                                   | 18 ~ 24V   | 23 ~ 30V        | 28 ~ 35V    | 35 ~ 43V      | 41 ~ 49V    | 48 ~ 58V     | 54 ~ 63V    | 59 ~ 68V   |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Protection type : Shut down o/p voltage, re-power on to recover                                                                                                            |            |                 |             |               |             |              |             |            |
|                                        | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Shut down o/p voltage, re-power on to recover                                                                                                                              |            |                 |             |               |             |              |             |            |
| ENVIRONMENT                            | 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                                                                                                                                                   |            |                 |             |               |             |              |             |            |
|                                        | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ±0.03%/°C (0 ~ 40°C)                                                                                                                                                       |            |                 |             |               |             |              |             |            |
|                                        | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                                                                    |            |                 |             |               |             |              |             |            |
| SAFETY & EMC                           | SAFETY STANDARDS <small>Note.7</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UL8750, CSA C22.2 No. 250.0-08(except for 48V, 54V), EN61347-1, EN61347-2-13 independent ; IP64, J61347-1, J61347-2-13 approved ; Design refer to UL60950-1, TUV EN60950-1 |            |                 |             |               |             |              |             |            |
|                                        | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | I/P-O/P:3.75KVAC    I/P-FG:2KVAC    O/P-FG:0.5KVAC                                                                                                                         |            |                 |             |               |             |              |             |            |
|                                        | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/ 70% RH                                                                                                                  |            |                 |             |               |             |              |             |            |
|                                        | 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 B                                                                     |            |                 |             |               |             |              |             |            |
| OTHERS                                 | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 356.4Khrs min.    MIL-HDBK-217F (25°C)                                                                                                                                     |            |                 |             |               |             |              |             |            |
|                                        | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 181*61.5*35mm (L*W*H)                                                                                                                                                      |            |                 |             |               |             |              |             |            |
|                                        | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.5Kg; 24pcs/13Kg/0.75CUFT                                                                                                                                                 |            |                 |             |               |             |              |             |            |
| NOTE                                   | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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. Please refer to "DRIVING METHODS OF LED MODULE".<br>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.<br>6. A type 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.<br>10. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains. |                                                                                                                                                                            |            |                 |             |               |             |              |             |            |

## Mechanical Specification

Case No. HLN-80A Unit: mm

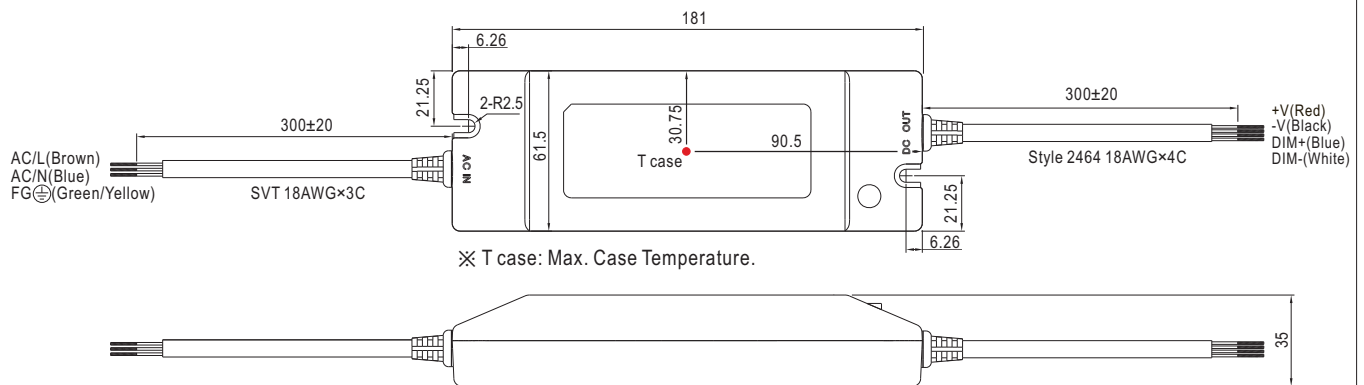
### A Type: (HLN-80H-\_A)



※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)

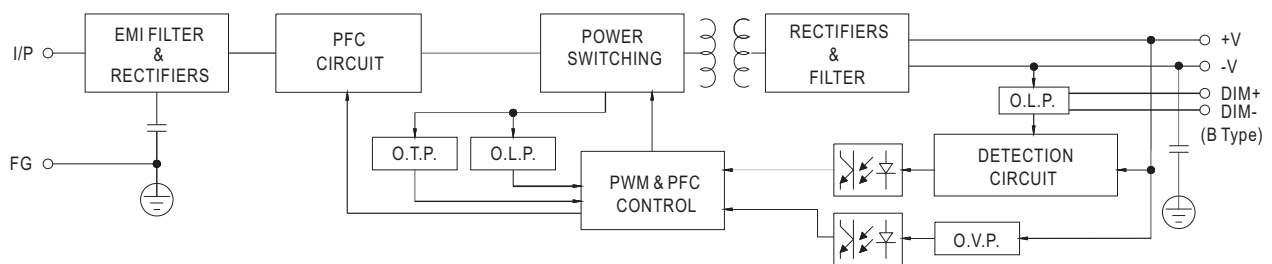
Case No. HLN-80B Unit: mm



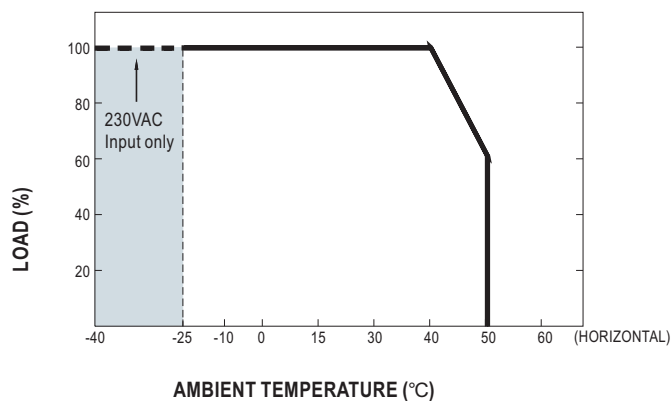
DIM+ / DIM- : Commercial wall dimmer 1 ~ 10V & PWM control function

## Block Diagram

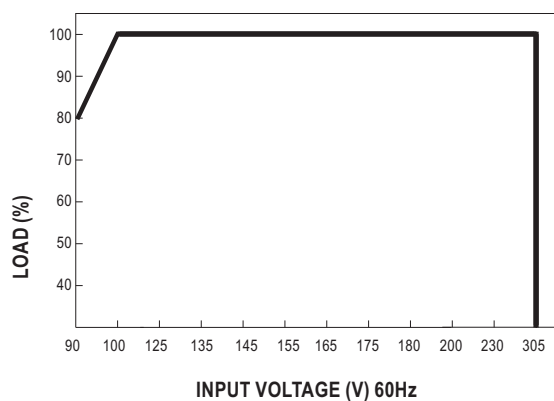
fosc : 100KHz



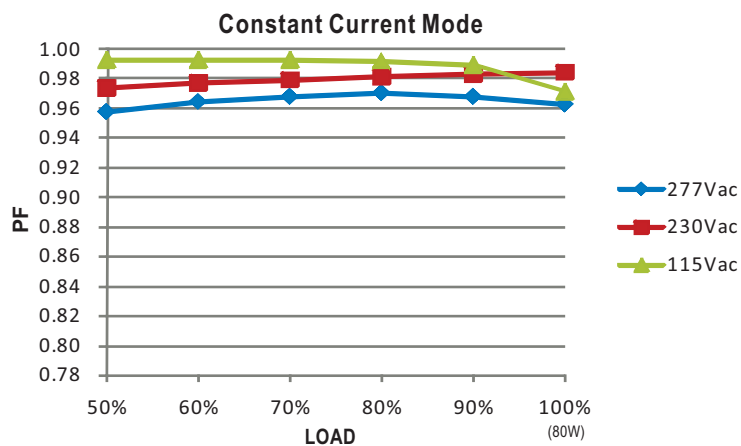
## Derating Curve



## Static Characteristics

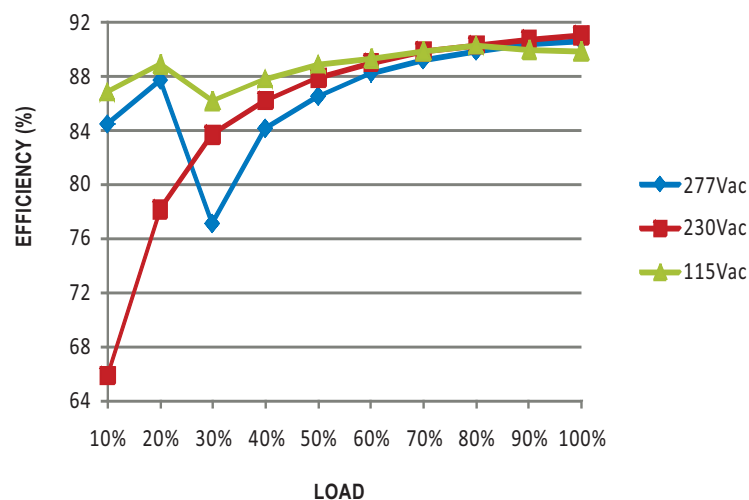


## Power Factor Characteristic



## EFFICIENCY vs LOAD (48V Model)

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

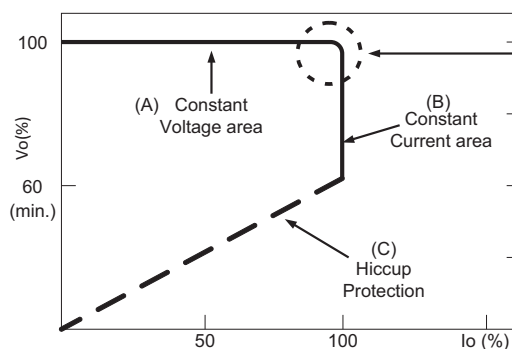


## DRIVING METHODS OF LED MODULE

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)).

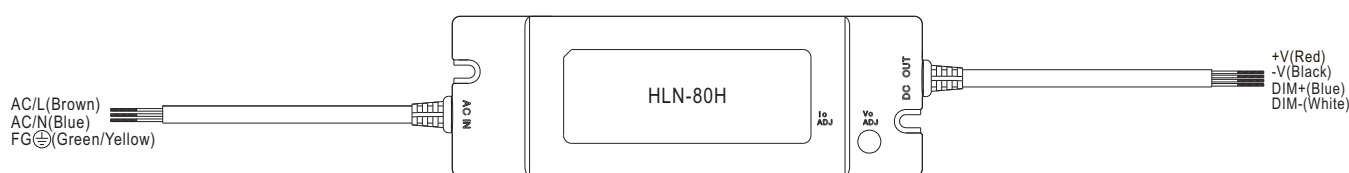


Typical LED power supply I-V curve

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

Should there be any compatibility issues, please contact MEAN WELL.

## DIMMING OPERATION(for B-type only)



※ 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                                                              | 10KΩ   | 20KΩ   | 30KΩ   | 40KΩ   | 50KΩ   | 60KΩ   | 70KΩ   | 80KΩ   | 90KΩ   | 100KΩ   | OPEN     |
|-----------------------------|----------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
|                             | Multiple drivers<br>(N=driver quantity for synchronized dimming operation) | 10KΩ/N | 20KΩ/N | 30KΩ/N | 40KΩ/N | 50KΩ/N | 60KΩ/N | 70KΩ/N | 80KΩ/N | 90KΩ/N | 100KΩ/N | -----    |
| Percentage of rated current |                                                                            | 10%    | 20%    | 30%    | 40%    | 50%    | 60%    | 70%    | 80%    | 90%    | 100%    | 95%~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% | 95%~108% |

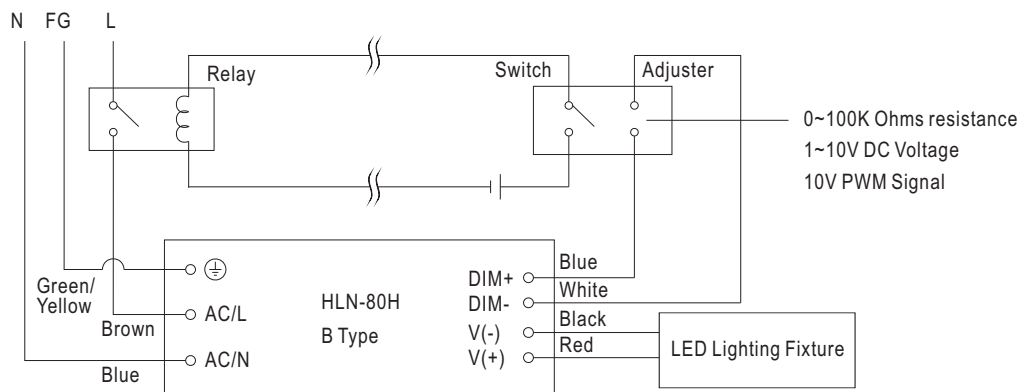
※ 10V PWM signal for output current adjustment (Typical): Frequency range:100Hz ~ 3KHz

| 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% | 95%~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.

※Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.

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.