



#### Features :

- Wide input range 180~528VAC
- Built-in active PFC function
- High efficiency up to 90%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- OCP point adjustable through output cable or internal potentiometer
- IP67 / IP65 design for indoor or outdoor installations
- Class 2 power unit
- Three in one dimming function (0~10Vdc or 10V PWM signal or resistance)
- Suitable for LED lighting and street lighting applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 5 years warranty (Note.9)

IP65 IP67 

HVG-65-12  A : IP65 rated. Output voltage and constant current level can be adjusted through internal potentiometer.  
B : IP67 rated. Constant current level adjustable through output cable with 0~10Vdc or 10V PWM signal or resistance.  
D (option) : IP67 rated. Timer dimming function, contact MEAN WELL for details.

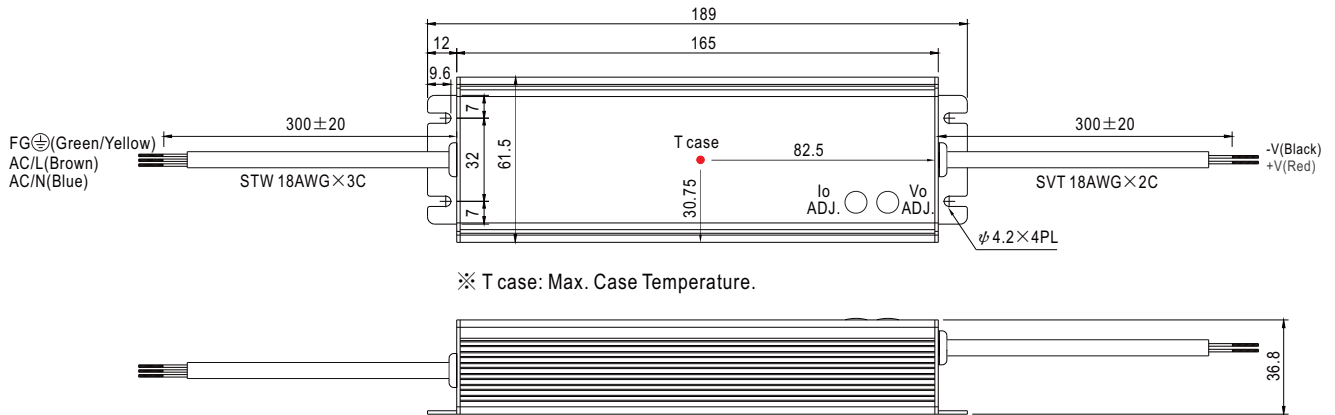
#### SPECIFICATION

| MODEL               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HVG-65-12                                                                                                                                                                                                            | HVG-65-15   | HVG-65-20       | HVG-65-24    | HVG-65-30   | HVG-65-36    | HVG-65-42    | HVG-65-48    | HVG-65-54    |  |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|--------------|-------------|--------------|--------------|--------------|--------------|--|
| 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                                                                                                                                                                                                                   | 4.3A        | 3.25A           | 2.71A        | 2.17A       | 1.81A        | 1.55A        | 1.36A        | 1.21A        |  |
|                     | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 60W                                                                                                                                                                                                                  | 64.5W       | 65W             | 65W          | 65.1W       | 65.2W        | 65.1W        | 65.3W        | 65.3W        |  |
|                     | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 120mVp-p                                                                                                                                                                                                             | 150mVp-p    | 150mVp-p        | 150mVp-p     | 200mVp-p    | 200mVp-p     | 300mVp-p     | 300mVp-p     | 300mVp-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                                                                                                                                                                                                               | 2.58 ~ 4.3A | 1.95 ~ 3.25A    | 1.62 ~ 2.71A | 1.3 ~ 2.17A | 1.08 ~ 1.81A | 0.93 ~ 1.55A | 0.81 ~ 1.36A | 0.72 ~ 1.21A |  |
|                     | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ±2.0%                                                                                                                                                                                                                | ±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     | ±1.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±1.5%                                                                                                                                                                                                                | ±0.5%       | ±0.5%           | ±0.5%        | ±0.5%       | ±0.5%        | ±0.5%        | ±0.5%        |              |  |
| SETUP, RISE TIME    | 500ms, 80ms / 230VAC    400ms, 80ms / 347VAC / 480VAC at full load<br>B type 500ms, 80ms / 230VAC    500ms, 80ms / 347VAC / 480VAC at 95% load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                      |             |                 |              |             |              |              |              |              |  |
| HOLD UP TIME (Typ.) | 16ms / 347VAC        30ms / 480VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                      |             |                 |              |             |              |              |              |              |  |
| INPUT               | VOLTAGE RANGE <small>Note.5</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 180 ~ 528VAC                                                                                                                                                                                                         |             | 254VDC ~ 747VDC |              |             |              |              |              |              |  |
|                     | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 47 ~ 63Hz                                                                                                                                                                                                            |             |                 |              |             |              |              |              |              |  |
|                     | POWER FACTOR (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PF≥0.98/230VAC, PF≥0.97/277VAC, PF≥0.97/347VAC, PF≥0.93/480VAC at full load (Please refer to "Power Factor Characteristic" curve)                                                                                    |             |                 |              |             |              |              |              |              |  |
|                     | TOTAL HARMONIC DISTORTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC / 277VAC / 347VAC<br>Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 480VAC |             |                 |              |             |              |              |              |              |  |
|                     | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 86.5%                                                                                                                                                                                                                | 87.5%       | 88.5%           | 89%          | 89%         | 89.5%        | 89.5%        | 90%          | 90%          |  |
|                     | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.22A / 347VAC        0.18A / 480VAC                                                                                                                                                                                 |             |                 |              |             |              |              |              |              |  |
|                     | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | COLD START 25A(t <sub>width</sub> =420μs measured at 50% I <sub>peak</sub> ) at 480VAC                                                                                                                               |             |                 |              |             |              |              |              |              |  |
|                     | MAX. No. of PSUs on 16A CIRCUIT BREAKER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12 units (circuit breaker of type B) / 20 units (circuit breaker of type C) at 480VAC                                                                                                                                |             |                 |              |             |              |              |              |              |  |
|                     | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <0.75mA / 480VAC                                                                                                                                                                                                     |             |                 |              |             |              |              |              |              |  |
| PROTECTION          | OVER CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 95 ~ 108%<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed                                                                                                    |             |                 |              |             |              |              |              |              |  |
|                     | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Constant current limiting, recovers automatically after fault condition is removed                                                                                                                                   |             |                 |              |             |              |              |              |              |  |
|                     | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 14.4 ~ 16.8V                                                                                                                                                                                                         | 18 ~ 21V    | 23 ~ 27V        | 28 ~ 34V     | 34 ~ 38V    | 41 ~ 46V     | 47 ~ 53V     | 54 ~ 60V     | 59 ~ 65V     |  |
|                     | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Shut down o/p voltage, recovers automatically after temperature goes down                                                                                                                                            |             |                 |              |             |              |              |              |              |  |
| ENVIRONMENT         | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 ~ +70℃ (Refer to "Derating Curve")                                                                                                                                                                               |             |                 |              |             |              |              |              |              |  |
|                     | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 20 ~ 95% RH non-condensing                                                                                                                                                                                           |             |                 |              |             |              |              |              |              |  |
|                     | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -40 ~ +80℃, 10 ~ 95% RH                                                                                                                                                                                              |             |                 |              |             |              |              |              |              |  |
|                     | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.03%/℃ (0 ~ 60℃)                                                                                                                                                                                                   |             |                 |              |             |              |              |              |              |  |
| SAFETY & EMC        | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                                                                                                              |             |                 |              |             |              |              |              |              |  |
|                     | SAFETY STANDARDS <small>Note.7</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | UL8750, CSA C22.2 No. 250.0-13, IP65 or IP67 approved                                                                                                                                                                |             |                 |              |             |              |              |              |              |  |
|                     | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I/P-O/P:3.75KVAC    I/P-FG:2KVAC    O/P-FG:1.5KVAC                                                                                                                                                                   |             |                 |              |             |              |              |              |              |  |
|                     | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH                                                                                                                                                             |             |                 |              |             |              |              |              |              |  |
|                     | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Compliance to EN55015, EN61000-3-2 Class C (≥60% load) ; EN61000-3-3, FCC part 15 class B                                                                                                                            |             |                 |              |             |              |              |              |              |  |
| OTHERS              | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level (surge 4KV), criteria A                                                                                                                        |             |                 |              |             |              |              |              |              |  |
|                     | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 208K hrs min.        MIL-HDBK-217F (25℃)                                                                                                                                                                             |             |                 |              |             |              |              |              |              |  |
|                     | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 189*61.5*36.8mm (L*W*H)                                                                                                                                                                                              |             |                 |              |             |              |              |              |              |  |
|                     | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.77Kg; 18pcs/14.9Kg/0.89CUFT                                                                                                                                                                                        |             |                 |              |             |              |              |              |              |  |
| NOTE                | 1. All parameters NOT specially mentioned are measured at 347VAC 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.<br>8. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br>(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )<br>9. Refer to warranty statement.<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. |                                                                                                                                                                                                                      |             |                 |              |             |              |              |              |              |  |

Case No.957 Unit:mm

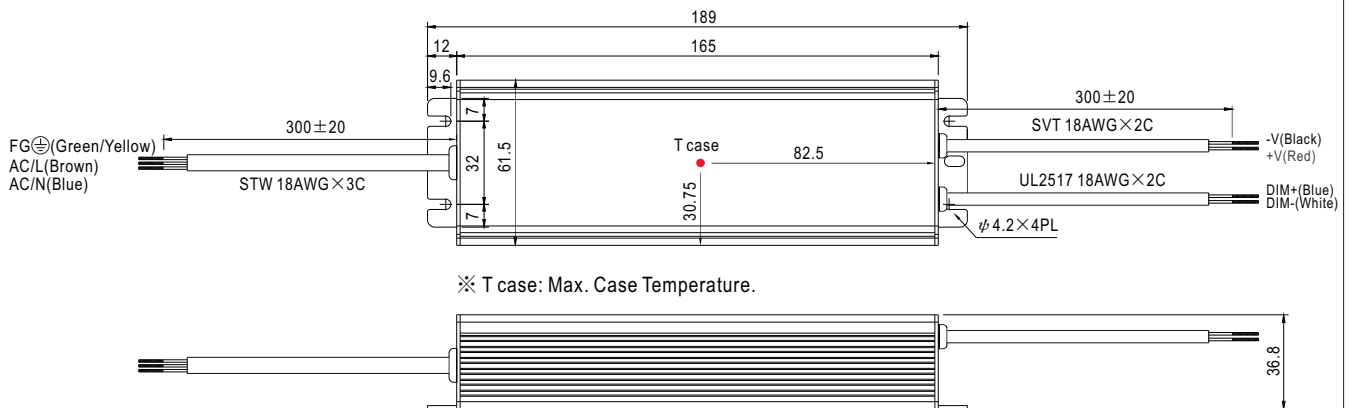
# Mechanical Specification

## A Type:(HVG-65\_A)

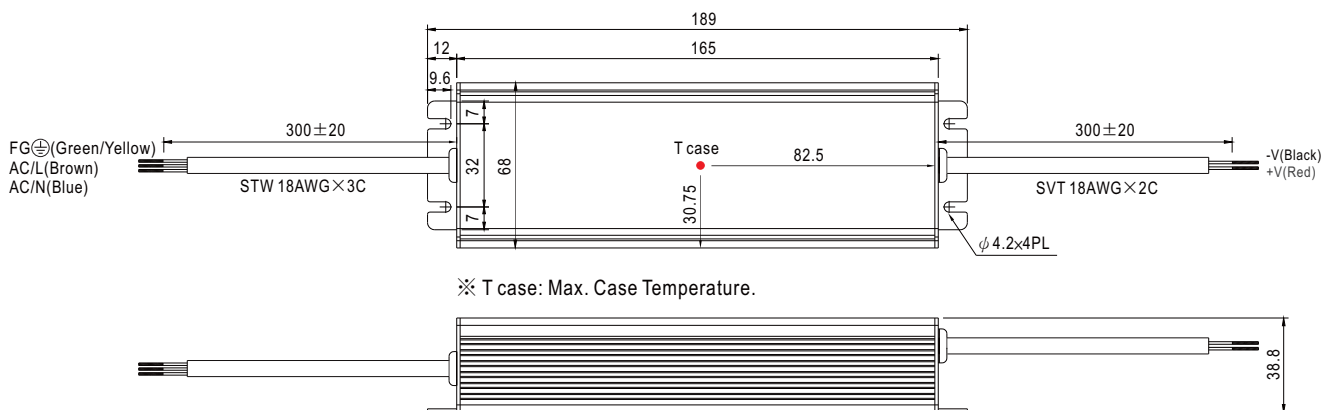


※ IP65 rated. Output voltage and constant current level can be adjusted through internal potentiometer.  
(Can access by removing the rubber stopper on the case.)

## B Type:(HVG-65\_B)

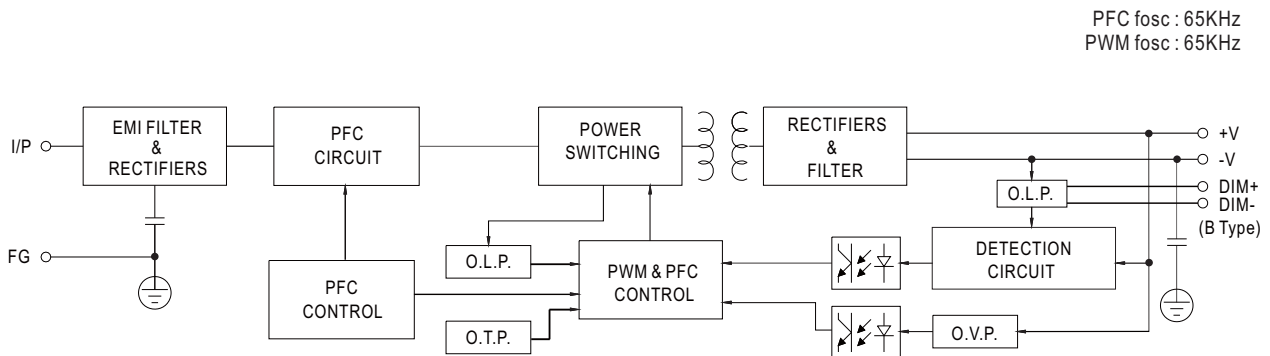


## D Type(option):(HVG-65\_D)

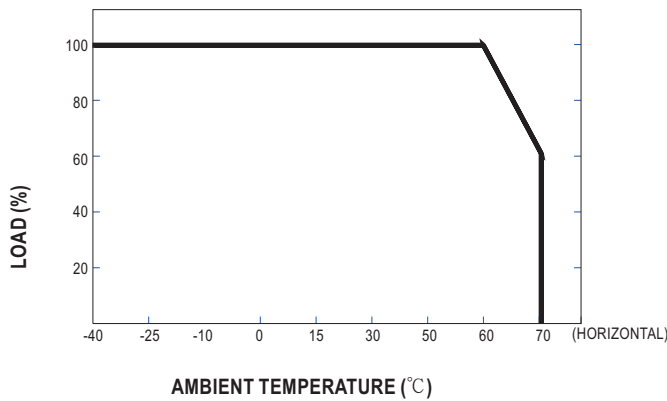


※ IP67 rated. Timer dimming function, contact MEAN WELL for details.

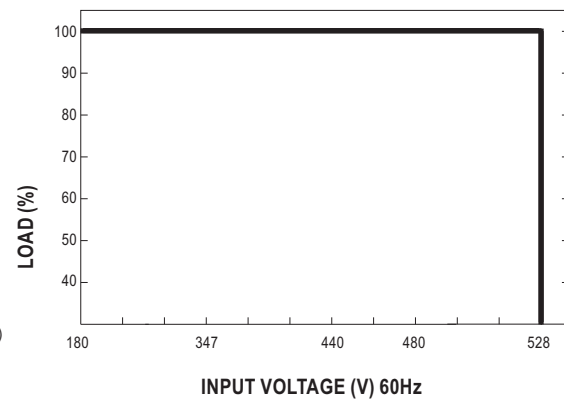
### Block Diagram



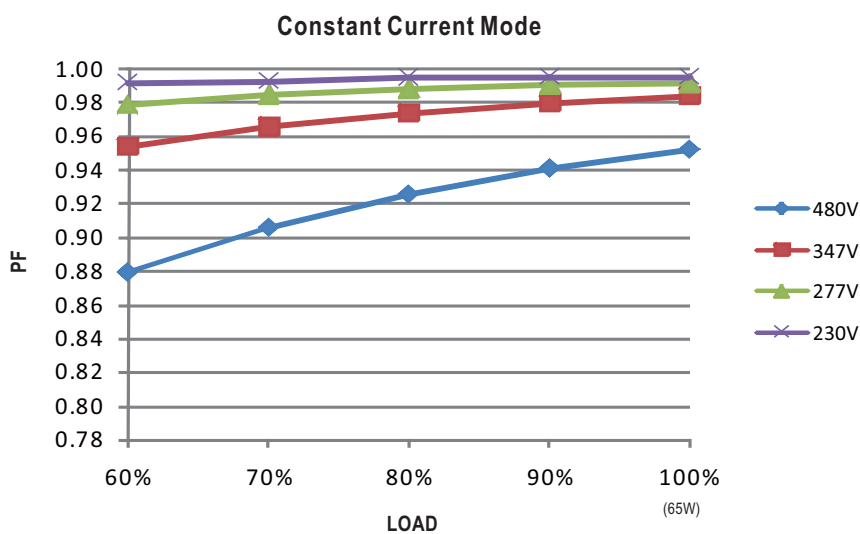
### Derating Curve



### Static Characteristics

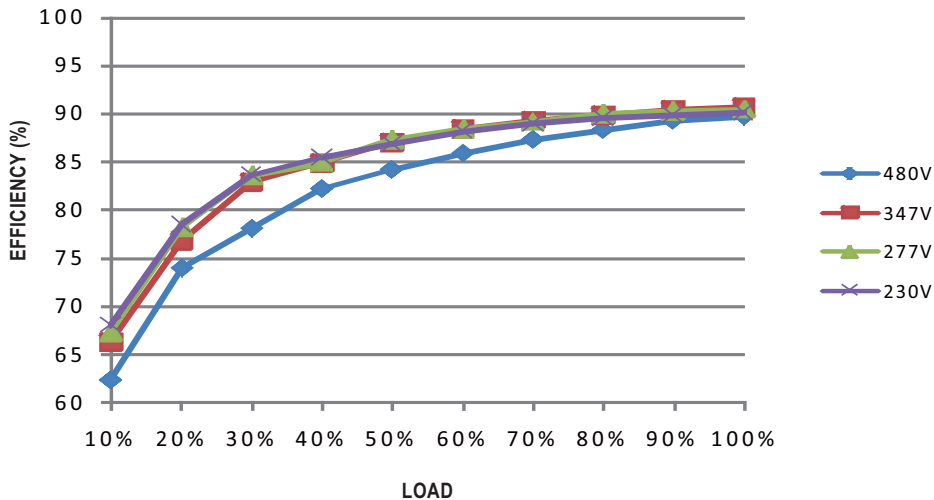


### Power Factor Characteristic



### ■ EFFICIENCY vs LOAD (48V Model)

HVG-65 series possess superior working efficiency that up to 90% can be reached in field applications.

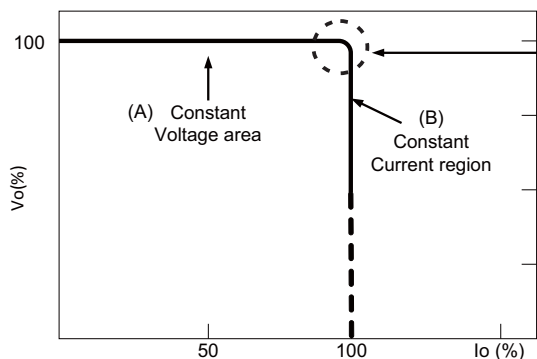


### ■ DRIVING METHODS OF LED MODULE

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)).

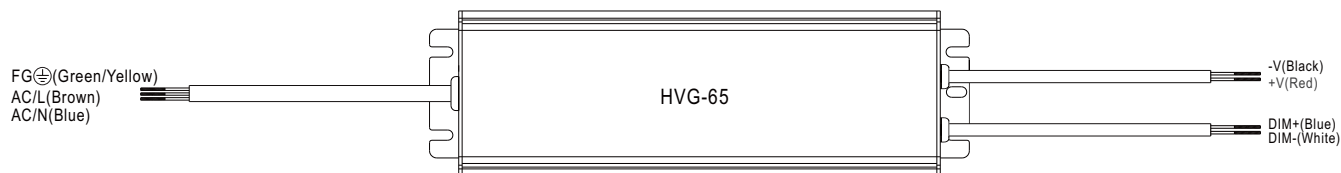


Typical LED power supply I-V curve

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, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 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                                                              | Short | 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) | Short | 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 |                                                                            | 0%    | 10%             | 20%             | 30%             | 40%             | 50%             | 60%             | 70%             | 80%             | 90%             | 100%             | 95%~108% |

※ 0 ~ 10V dimming function for output current adjustment (Typical)

| Dimming value               | 0V | 1V  | 2V  | 3V  | 4V  | 5V  | 6V  | 7V  | 8V  | 9V  | 10V  | OPEN     |
|-----------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----------|
| Percentage of rated current | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 95%~108% |

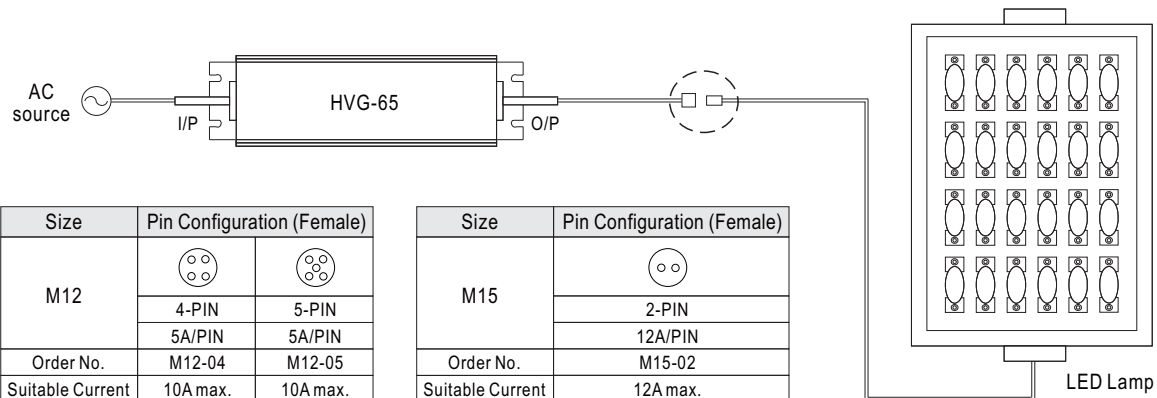
※ 10V PWM signal for output current adjustment (Typical): Frequency range :100Hz ~ 3KHz

| Duty value                  | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN     |
|-----------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----------|
| Percentage of rated current | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 95%~108% |

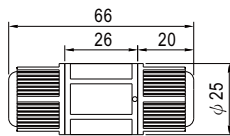
## WATERPROOF CONNECTION

◎ Waterproof connector

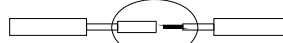
Waterproof connector can be assembled on the output cable of HVG-65 to operate in dry/wet/damp or outdoor environment.



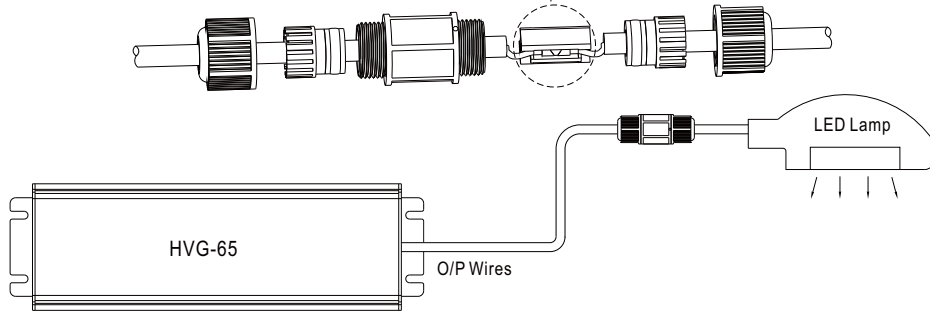
◎ Cable Joiner



CJ04-1 suitable for 14AWG~16AWG  
CJ04-2 suitable for 18AWG~22AWG



Up to four wires can be connected through this cable joiner by soldering or clamping by tools.



※CJ04 cable joiner can be purchased independently for user's own assembly.  
MEAN WELL order No. : CJ04-1, CJ04-2.