



■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- OCP point adjustable through output cable or internal potential meter
- IP67 / IP65 design for indoor or outdoor installations
- Three in one dimming function (1~10Vdc or PWM signal or resistor)
- Suitable for LED lighting and street lighting applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet location
- 5 years warranty



**SELV**

**IP65**

**IP6**



**CBC €**

HLG-320H-12 **A** Blank : IP67 rated. Cable for I/O connection.

A : IP65 rated. Output voltage and constant current level can be adjusted through internal potential meter.

B : IP67 rated. Constant current level adjustable through output cable with 1~10Vdc or PWM signal or resistor.

C : Terminal block for I/O connection. Output voltage and constant current level can be adjusted through internal potential meter.

D : (option) : IP67 rated. Timer dimming function, contact MEAN WELL for details.

## SPECIFICATION

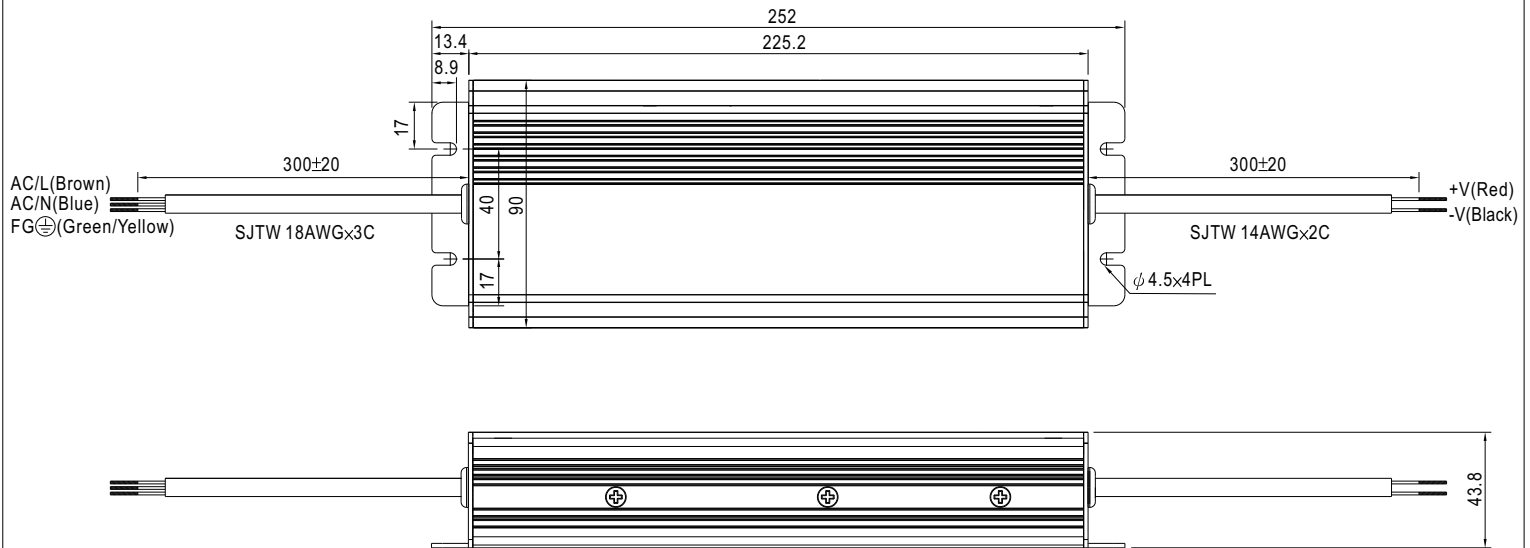
| MODEL                                  | HLG-320H-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | HLG-320H-15                                                                                                                                                                   | HLG-320H-20 | HLG-320H-24                                            | HLG-320H-30   | HLG-320H-36                       | HLG-320H-42 | HLG-320H-48                | HLG-320H-54 |              |  |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|---------------|-----------------------------------|-------------|----------------------------|-------------|--------------|--|
| OUTPUT                                 | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 12V                                                                                                                                                                           | 15V         | 20V                                                    | 24V           | 30V                               | 36V         | 42V                        | 48V         | 54V          |  |
|                                        | CONSTANT CURRENT REGION <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6 ~ 12V                                                                                                                                                                       | 7.5 ~ 15V   | 10 ~ 20V                                               | 12 ~ 24V      | 15 ~ 30V                          | 18 ~ 36V    | 21 ~ 42V                   | 24 ~ 48V    | 27 ~ 54V     |  |
|                                        | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 22A                                                                                                                                                                           | 19A         | 15A                                                    | 13.34A        | 10.7A                             | 8.9A        | 7.65A                      | 6.7A        | 5.95A        |  |
|                                        | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 264W                                                                                                                                                                          | 285W        | 300W                                                   | 320.2W        | 321W                              | 320.4W      | 321.3W                     | 321.6W      | 321.3W       |  |
|                                        | RIPPLE & NOISE (max.) <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 150mVp-p                                                                                                                                                                      | 150mVp-p    | 150mVp-p                                               | 150mVp-p      | 200mVp-p                          | 250mVp-p    | 250mVp-p                   | 250mVp-p    | 350mVp-p     |  |
|                                        | VOLTAGE ADJ. RANGE <small>Note.6</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10.8 ~ 13.5V                                                                                                                                                                  | 13.5 ~ 17V  | 17 ~ 22V                                               | 21 ~ 26V      | 26 ~ 32V                          | 32 ~ 39V    | 38 ~ 45V                   | 43 ~ 52V    | 49 ~ 58V     |  |
|                                        | CURRENT ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Can be adjusted by internal potential meter or through output cable                                                                                                           |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11 ~ 22A                                                                                                                                                                      | 9.5 ~ 19A   | 7.5 ~ 15A                                              | 6.67 ~ 13.34A | 5.35 ~ 10.7A                      | 4.45 ~ 8.9A | 3.8 ~ 7.65A                | 3.35 ~ 6.7A | 2.97 ~ 5.95A |  |
|                                        | VOLTAGE TOLERANCE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±3.0%                                                                                                                                                                         | ±2.0%       | ±1.5%                                                  | ±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> | 2500ms, 80ms at full load    230VAC /115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                               |             |                                                        |               |                                   |             |                            |             |              |  |
| HOLD UP TIME (Typ.)                    | 15ms at full load    230VAC /115VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                               |             |                                                        |               |                                   |             |                            |             |              |  |
| INPUT                                  | VOLTAGE RANGE <small>Note.5</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 90 ~ 305VAC                                                                                                                                                                   |             | 127 ~ 431VDC                                           |               |                                   |             |                            |             |              |  |
|                                        | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 47 ~ 63Hz                                                                                                                                                                     |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | POWER FACTOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PF ≥ 0.95/230VAC                                                                                                                                                              |             | PF ≥ 0.98/115VAC at full load and rated output voltage |               |                                   |             | PF ≥ 0.9 at 50 ~ 100% load |             |              |  |
|                                        | EFFICIENCY (Typ.) (230Vac)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 91%                                                                                                                                                                           | 92.5%       | 93.5%                                                  | 94%           | 94%                               | 94.5%       | 95%                        | 95%         | 95%          |  |
|                                        | EFFICIENCY (Typ.) (277Vac)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 91.5%                                                                                                                                                                         | 93%         | 94%                                                    | 94.5%         | 94.5%                             | 95%         | 95%                        | 95%         | 95%          |  |
|                                        | AC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.5A / 115VAC                                                                                                                                                                 |             | 1.65A / 230VAC                                         |               | 1.45A / 277VAC                    |             |                            |             |              |  |
|                                        | INRUSH CURRENT(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | COLD START 75A/230VAC                                                                                                                                                         |             |                                                        |               |                                   |             |                            |             |              |  |
| LEAKAGE CURRENT                        | <0.75mA / 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                               |             |                                                        |               |                                   |             |                            |             |              |  |
| PROTECTION                             | OVER CURRENT <small>Note.4</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 95 ~ 108%                                                                                                                                                                     |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Protection type : Constant current limiting, recovers automatically after fault condition is removed<br>Hiccup mode, recovers automatically after fault condition is removed. |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 14 ~ 17V                                                                                                                                                                      | 18 ~ 21V    | 23 ~ 27V                                               | 28 ~ 34V      | 34 ~ 38V                          | 41 ~ 46V    | 47 ~ 53V                   | 54 ~ 60V    | 59 ~ 65V     |  |
|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Protection type : Shut down and latch off o/p voltage, re-power on to recover                                                                                                 |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 100℃ ±10℃ (RTH2)<br>Protection type : Shut down and latch off o/p voltage, re-power on to recover                                                                             |             |                                                        |               |                                   |             |                            |             |              |  |
| ENVIRONMENT                            | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -40 ~ +60℃ (Refer to output load derating curve)                                                                                                                              |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 20 ~ 95% RH non-condensing                                                                                                                                                    |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -40 ~ +80℃, 10 ~ 95% RH                                                                                                                                                       |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ±0.03%/℃ (0 ~ 50℃)                                                                                                                                                            |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes                                                                                                       |             |                                                        |               |                                   |             |                            |             |              |  |
| SAFETY & EMC                           | SAFETY STANDARDS <small>Note.7</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UL8750, EN61347-1, EN61347-2-13 independent (except for HLG-320H C type) approved ; Design refer to UL60950-1, TUV EN60950-1                                                  |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | I/P-O/P:3.75KVAC    I/P-FG:1.88KVAC    O/P-FG:0.5KVAC                                                                                                                         |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH                                                                                                                     |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Compliance to EN55015, EN55022 (CISPR22) Class B                                                                                                                              |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | HARMONIC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Compliance to EN61000-3-2 Class C (≥ 50% load) ; EN61000-3-3                                                                                                                  |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | EMS IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN61547, EN55024, heavy industry level (surge 4KV), criteria A                                                              |             |                                                        |               |                                   |             |                            |             |              |  |
| OTHERS                                 | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 157.1Khrs min.    MIL-HDBK-217F (25℃)                                                                                                                                         |             |                                                        |               |                                   |             |                            |             |              |  |
|                                        | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 252*90*43.8mm (L*W*H)(HLG-320H-Blank/A/B)                                                                                                                                     |             |                                                        |               | 256*90*43.8mm (L*W*H)(HLG-320H-C) |             |                            |             |              |  |
|                                        | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1.88Kg; 8pcs/16Kg/0.83CUFT                                                                                                                                                    |             |                                                        |               |                                   |             |                            |             |              |  |
| 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. Constant current operation region is within 50% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.<br>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.<br>6. Type A and type C only.<br>7. Safety and EMC design refer to EN60598-1, subject CNS15233, GB7000.1, FCC part18.<br>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.<br>9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again. |                                                                                                                                                                               |             |                                                        |               |                                   |             |                            |             |              |  |

## Mechanical Specification

Case No.202A

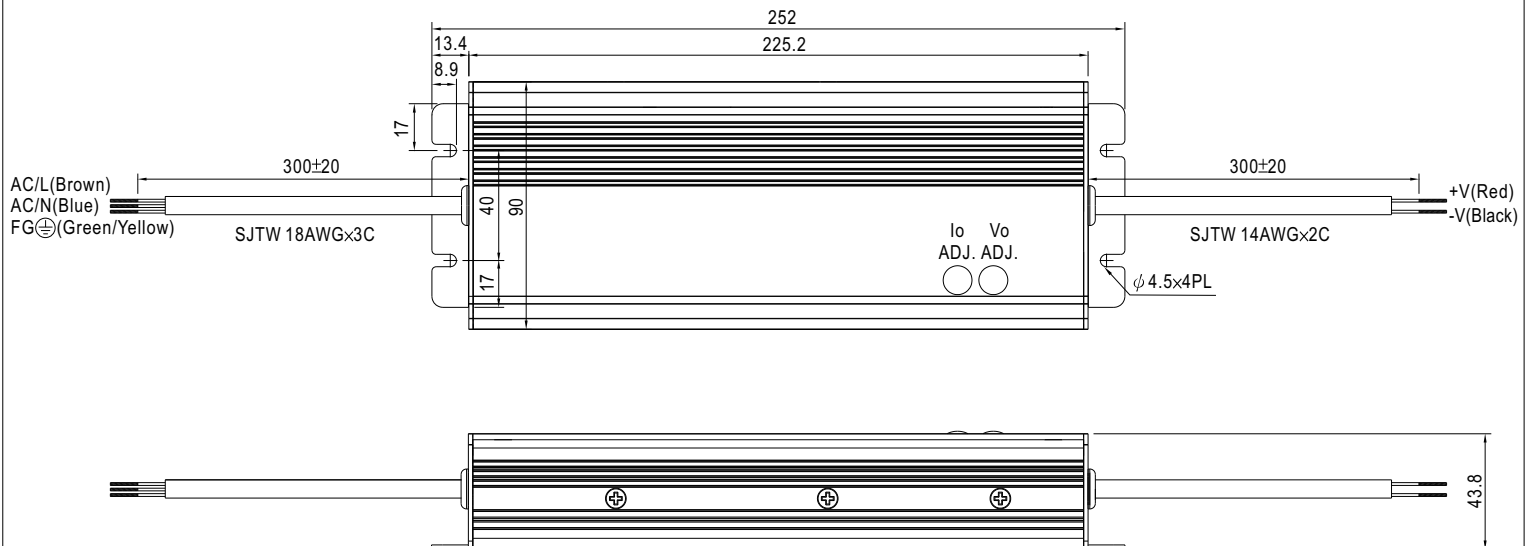
Unit:mm

Blank:(HLG-320H)



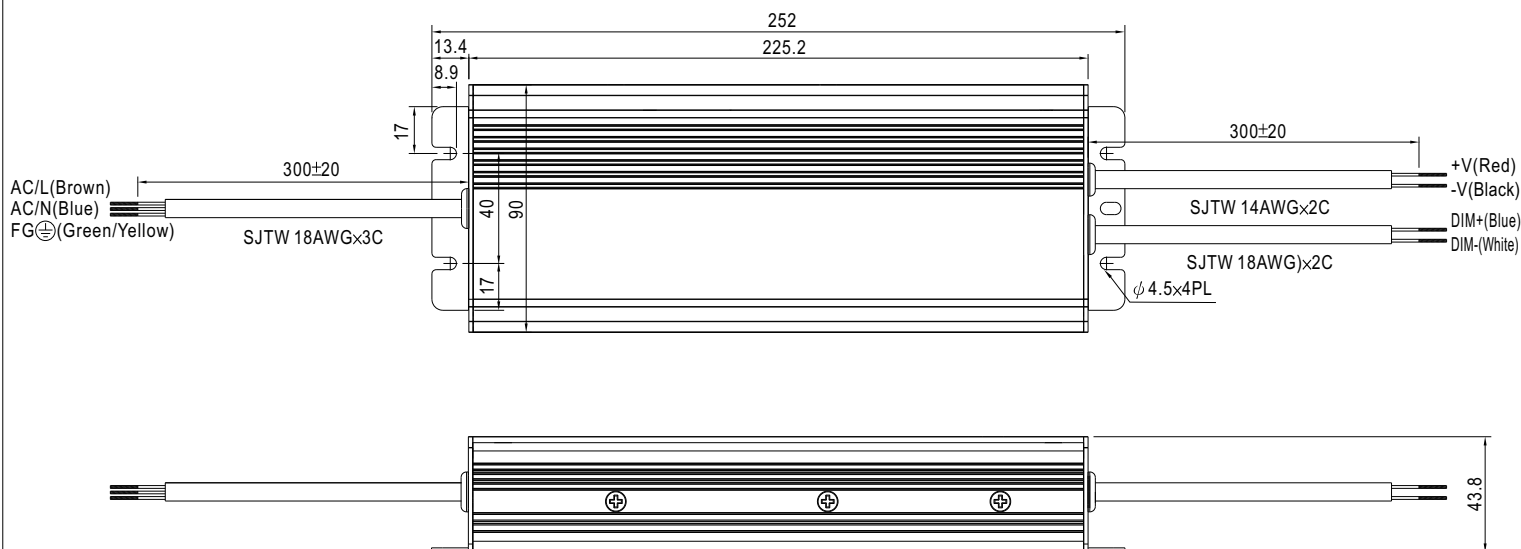
※IP67 rated. Cable for I/O connection.

A Type:(HLG-320H-\_A)



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

## B Type:(HLG-320H-\_B)



※ IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistor or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

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

※ Reference resistance value for output current adjustment (Typical)

| Resistance value            | 10KΩ | 20KΩ | 30KΩ | 40KΩ | 50KΩ | 60KΩ | 70KΩ | 80KΩ | 90KΩ | 100KΩ | OPEN     |
|-----------------------------|------|------|------|------|------|------|------|------|------|-------|----------|
| Percentage of rated current | 10%  | 20%  | 30%  | 40%  | 50%  | 60%  | 70%  | 80%  | 90%  | 100%  | 98%~108% |

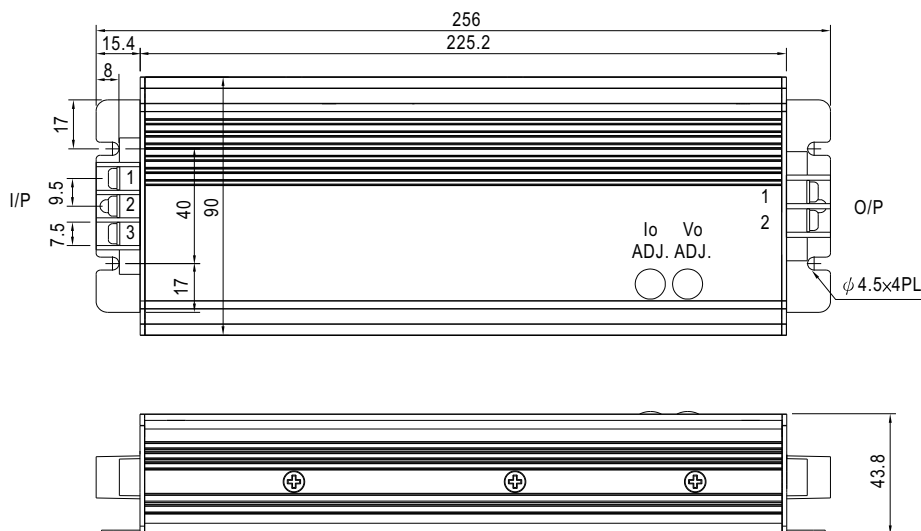
※ 1 ~ 10V dimming function for output current adjustment (Typical)

| 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% | 98%~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% | 98%~108% |

## C Type:(HLG-320H-\_C)



### AC Input Terminal Pin No. Assignment

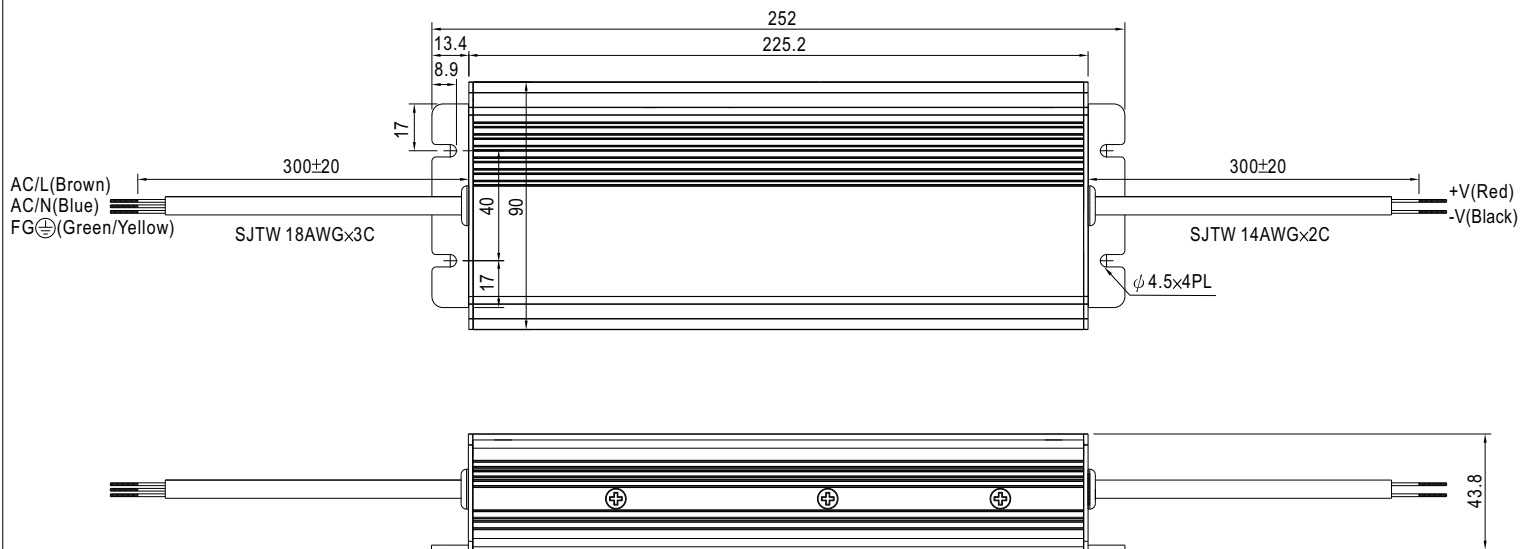
| Pin No. | Assignment |
|---------|------------|
| 1       | FG         |
| 2       | AC/L       |
| 3       | AC/N       |

### DC Output Terminal Pin No. Assignment

| Pin No. | Assignment |
|---------|------------|
| 1       | +V         |
| 2       | -V         |

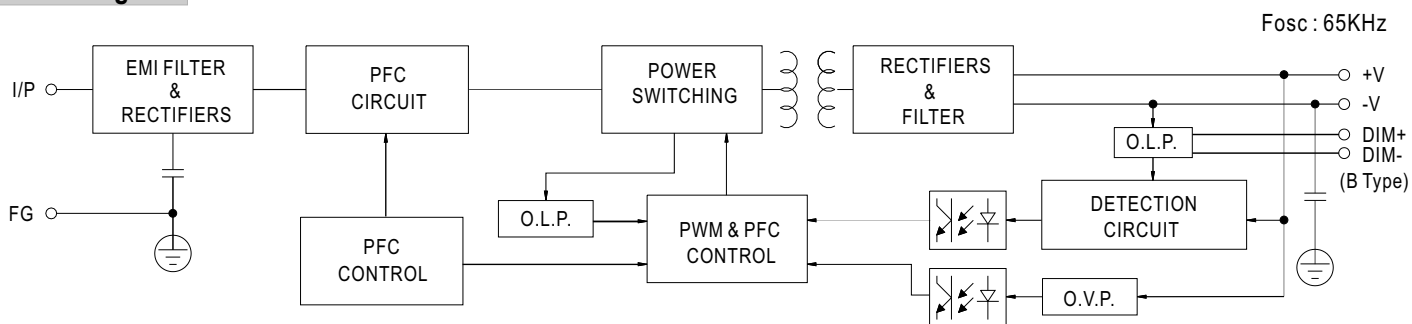
※ Output voltage and constant current level can be adjusted through internal potential meter.  
(Can access by removing the rubber stopper on the case.)

D Type:(HLG-320H-\_D)

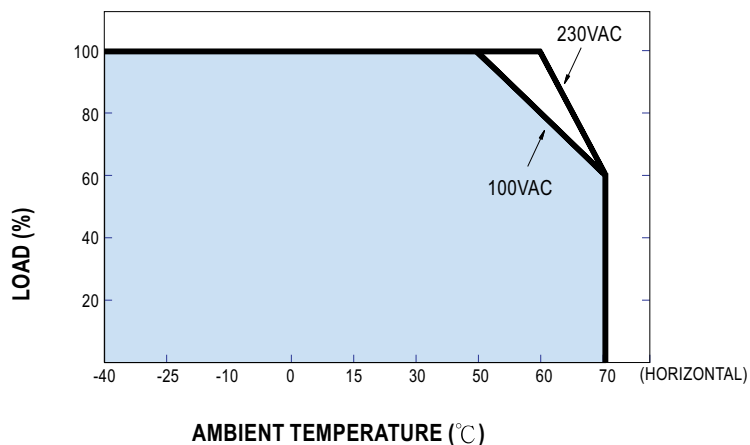


※ IP67 rated. Timer dimming function, contact MEAN WELL for details.

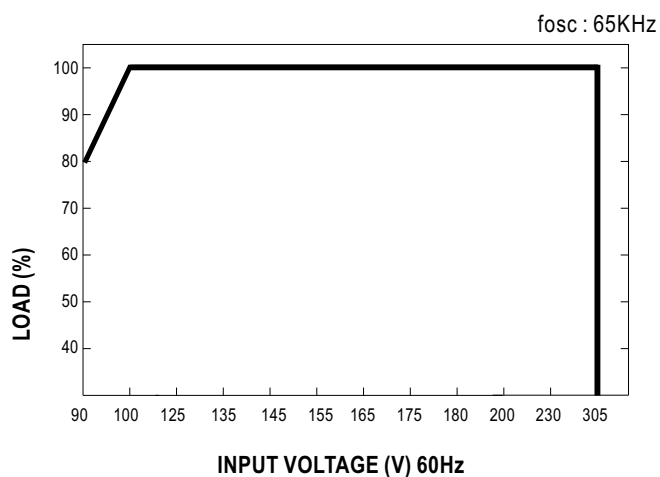
## Block Diagram



## Derating Curve



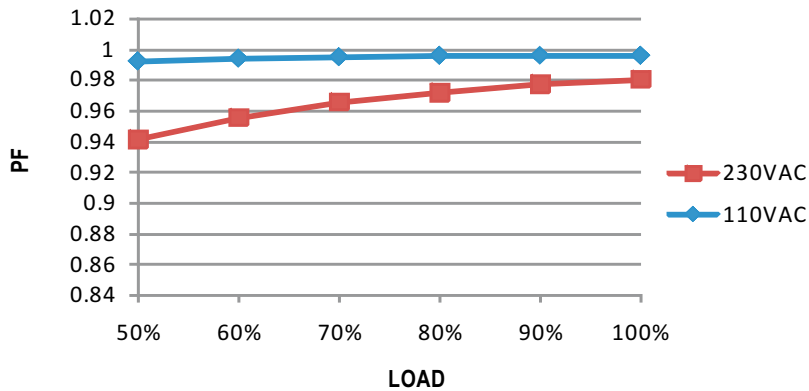
## Static Characteristics



## Power Factor Characteristic

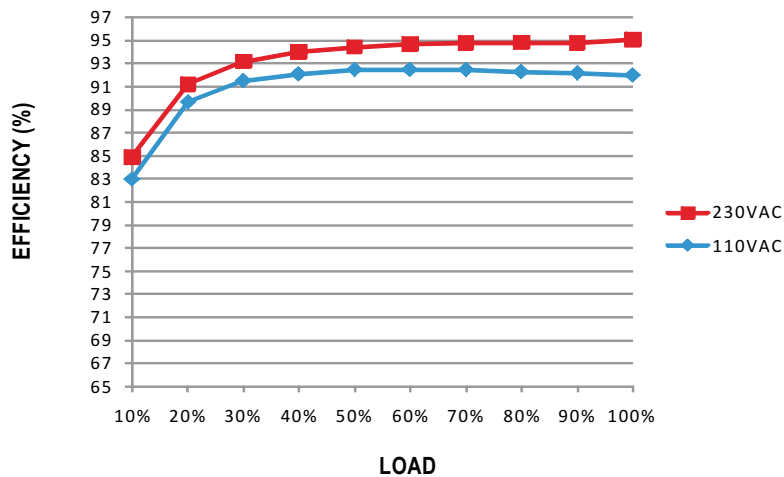
Power factor will be higher than 0.9 when output loading is 50% or higher.

### Constant Current Mode



## EFFICIENCY vs LOAD (48V Model)

HLG-320H series possess superior working efficiency that up to 95% can be reached in field applications.

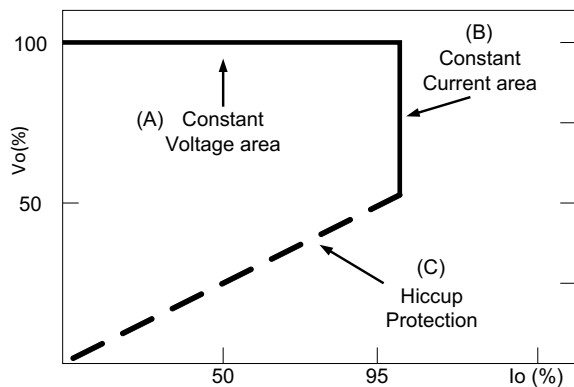


## DRIVING METHODS OF LED MODULE

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

## ◎ Direct driving :

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

The total forward voltage of series connecting LEDs is suggested for 75%~95% of power supply rated output voltage due to concern of the best PF value and efficiency.

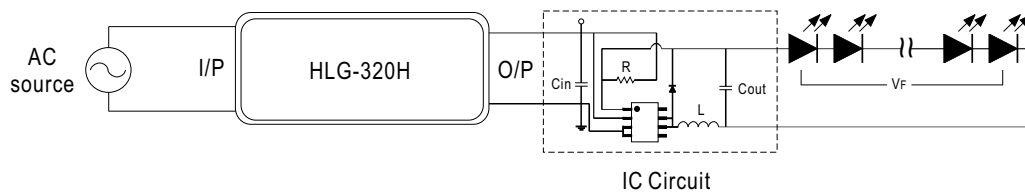


## ◎ With LED driver :

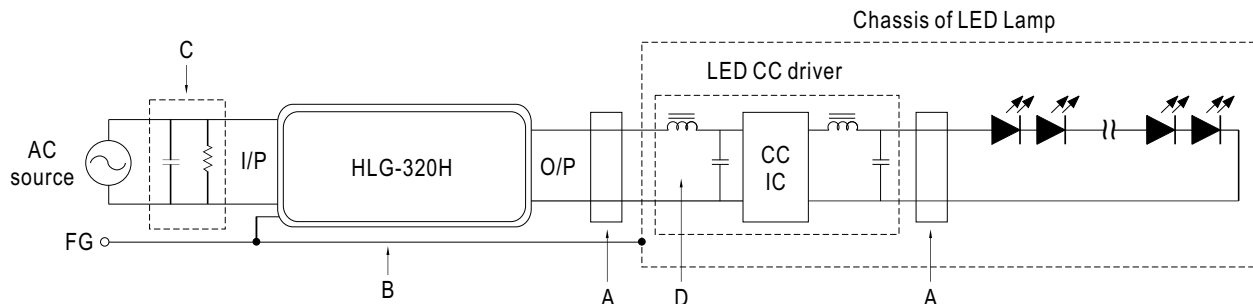
Using additional driver, the power supply will work in "constant voltage mode (CV)" and output voltage of the power supply will be kept in rated value.

In this drive mode, several design issues need to be considered:

1. Output voltage of PSU must be higher than total forward voltage of series connecting LEDs by 3V minimum.
2. Input capacitor (C<sub>in</sub>) of LED driver circuit should use 2.2uF ~ 22uF (typ.) of rating depends on the operating frequency of the LED driver.  
The higher the operating frequency is used, the smaller value of C<sub>in</sub> should be chosen, and vice versa.



## ■ EMI DEBUG SUGGESTION

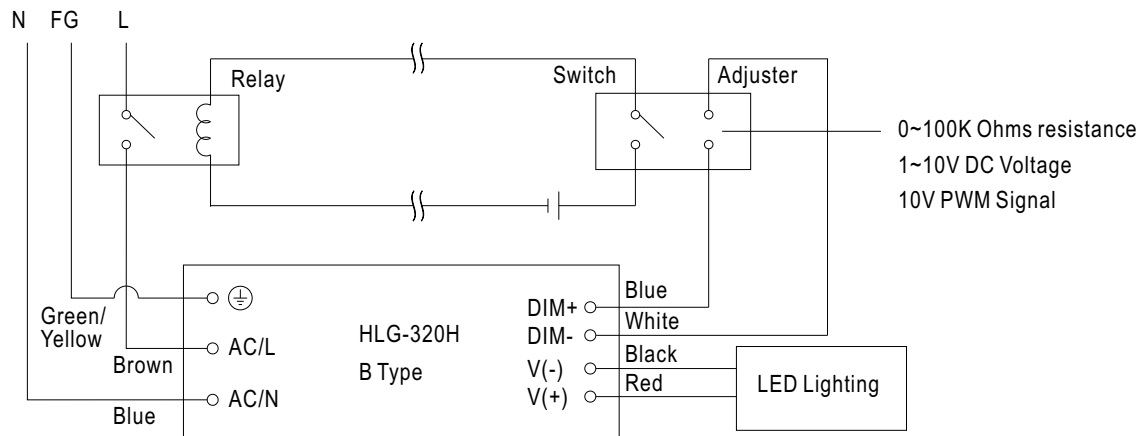


- A. Add a common mode ferrite choke on output wires to reduce the common emission between 10M ~ 300MHz per lighting EMI regulation.
- B. Chassis of LED lamp and chassis of HLG-320H or the FG wire should be connected to the safety ground to reduce the EMI noise, including the conduction and radiation emission.
- C. The additional X-Cap and discharge resistor can reduce the low frequency conduction noise between 9K ~ 1MHz per lighting EMI regulation.
- D. L-C filter should be added at the DC input of LED constant current driver to avoid the differential emission and high frequency noise generated by the CC driver.

## DIMMING OPERATION(for B-type only)

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

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



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

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