

## YEC60 SERIES 60W



YEC series is a AC/DC security power supply, allowing the universal input range between 90VAC and 264VAC and incorporating the built-in PFC function. In addition to the primary output, there is a charger output, with a smaller rated current, providing the backup application the security access systems normally need. This series is designed with thorough alarm features, including AC ok and battery low signaling; moreover, the relay contact is provided to facilitate users' system designs. This series of power supply is widely used in emergency lighting system security monitoring and alarm system, UPS system.

### Features



Universal AC input / Full range



Cooling by free air convection



Battery low protections



100% full load burn-in test



Protection: Short circuit/Overload/  
Over voltage



Two Years Warranty

## Model Information

| Yingjiao Part Number | DC Voltage CH1/CH2 | Rated Current CH1/CH2 | Rated Power | CURRENT RANGE | VOLTAGE ADJ.RANGE |
|----------------------|--------------------|-----------------------|-------------|---------------|-------------------|
| YEC60-13.8           | 13.8V/13.8V        | 2.8A/1.5A             | 59.34W      | 0~4.3A        | 12~15V            |
| YEC60-27.6           | 27.6V/27.6V        | 1.4A/0.75A            | 59.34W      | 0~2.15A       | 24-29V            |

## Input

|                      |                                  |            |
|----------------------|----------------------------------|------------|
| VOLTAGE RANGE        | 90-264VAC/127-370VDC             |            |
| FREQUENCY RANGE      | 47-63Hz                          |            |
| EFFICIENCY(Typ.)     | 84%                              | YEC60-13.8 |
|                      | 84%                              | YEC60-27.6 |
| AC CURRENT(Typ.)     | 1.6A/115VAC                      |            |
|                      | 1A/230VAC                        |            |
| INRUSH CURRENT(Typ.) | COLD START 30A/115VAC 60A/230VAC |            |
| LEAKAGE CURRENT      | <1mA/240VAC                      |            |

## Output

|                      |                                  |            |
|----------------------|----------------------------------|------------|
| RIPPLE & NOISE(max.) | 120mVp-p                         | YEC60-13.8 |
|                      | 240mVp-p                         | YEC60-27.6 |
| VOLTAGE TOLERANCE    | ±1.0%                            |            |
| LINE REGULATION      | ±0.5%                            |            |
| LOAD REGULATION      | ±0.5%                            |            |
| SETUP,RISE TIME      | 800ms, 50ms/230VAC at full load  |            |
|                      | 1600ms, 50ms/115VAC at full load |            |
| HOLD UP TIME (Typ.)  | 50ms/230VAC at full load         |            |
|                      | 10ms/115VAC at full load         |            |

## Protection

|                 |  |
|-----------------|--|
| OVER LOAD       | 105%-150% Rated Output Power   |
|                 | Protection type : Hiccup mode, recovers automatically after fault condition is removed |
| OVER VOLTAGE    | CH1:14.49~18.63V    YEC60-13.8   |
|                 | CH1:28.98~37.26V    YEC60-27.6   |
|                 | Protection type : Hiccup mode, recovers automatically after fault condition is removed |
| BATTERY CUT OFF | 10±0.5V    YEC60-13.8  |
|                 | 21±1V    YEC60-27.6  |

## Function

|             |  |
|-------------|--|
| AC OK       | TTL open collector output, ON : AC OK ;<br>OFF : AC Fail ; Ice : max. 30mA@ 50VDC          |
| BATTERY LOW | TTL open collector output, ON : Battery Low ;<br>OFF : Battery OK ; Ice : max. 30mA@ 50VDC |
|             | Battery low voltage : < 11V    YEC60-13.8  |
|             | Battery low voltage : < 22V    YEC60-27.6  |

## Environment

|                        |  |
|------------------------|--|
| WORKING TEMP.          | -20 °C to +70 °C (Refer to "Derating Curve")               |
| Working Humidity       | 20 ~ 90% RH Non-Condensing                                 |
| STORAGE TEMP, HUMIDITY | -20°C ~ +85°C, 10 ~ 95% RH                                 |
| TEMP. COEFFICIENT      | ± 0.03%/°C(0~50°C) on CH1 output                           |
| VIBRATION              | 10~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y,Z axes |
| MTBF                   | 580K hrs min. MIL-HDBK-217F (25°C)                         |

## SAFETY & EMC

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|                      |   |
|----------------------|---|
| SAFETY STANDARDS     | UL62368-1, TUV BS EN/EN62368-1,EACTPTC 004 approved                     |
| WITHSTAND VOLTAGE    | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC                               |
| ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/ 500VDC/25 °C/70% RH                  |
| EMC EMISSION         | Compliance to BS EN/EN55032 (CISPR32) Class B,<br>BS EN/EN61000-3-2,-3, |
| EMC IMMUNITY         | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11,BS EN/EN55035              |

## Note

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1. All parameters NOT specially mentioned are measured at 115/230VAC input, rated load and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1  $\mu$  F & 47  $\mu$  F parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.
5. Heat sink HS1,HS2 can not be shorted.
6. Heat sink HS1 must have safety isolation distance with system case.
- 7.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.
- 8.The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).

## Dimensions & Weight

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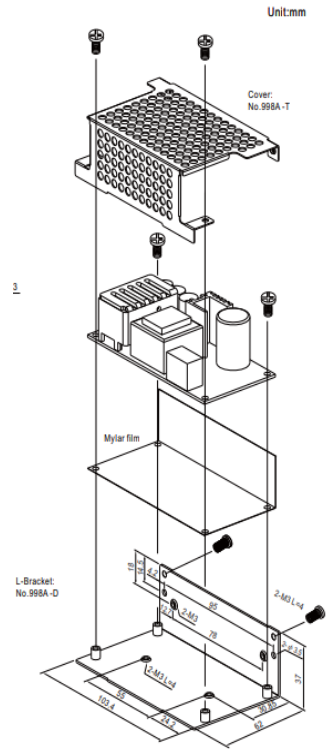
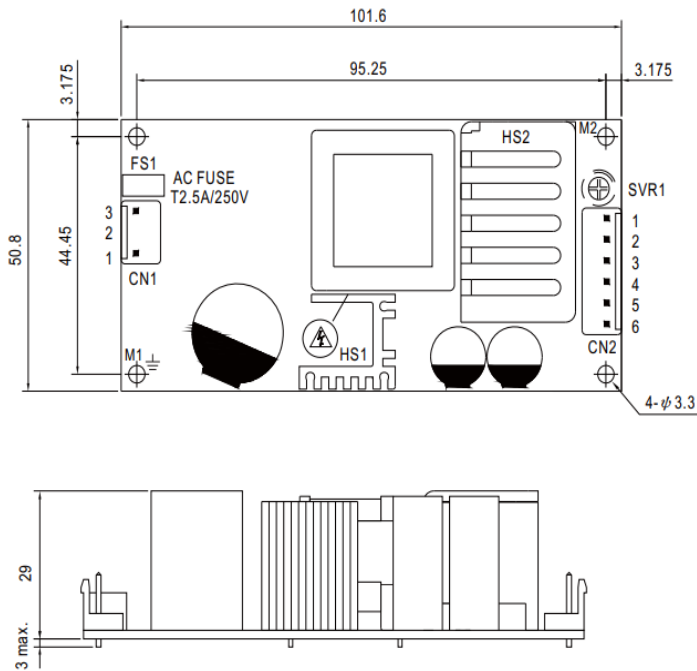
|         |                |
|---------|----------------|
| Length: | 103.4mm/4.07in |
| Width:  | 62mm/2.44in    |
| Height: | 37mm/1.45in    |
| Weight: | 130g           |

## Packing

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|                           |  |
|---------------------------|--|
| Carton Size:              | 52 × 32.5 x 11.5 CM<br>20.47 x 12.80 x 4.53 in |
| Master Carton Quantities: | 45pcs/Carton                                   |

## Dimensions and Installation



AC Input Connector (CN1) : JST B3P-VH or equivalent

| Pin No. | Assignment | Mating Housing        | Terminal                       |
|---------|------------|-----------------------|--------------------------------|
| 1       | AC/N       | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2       | No Pin     |                       |                                |
| 3       | AC/L       |                       |                                |

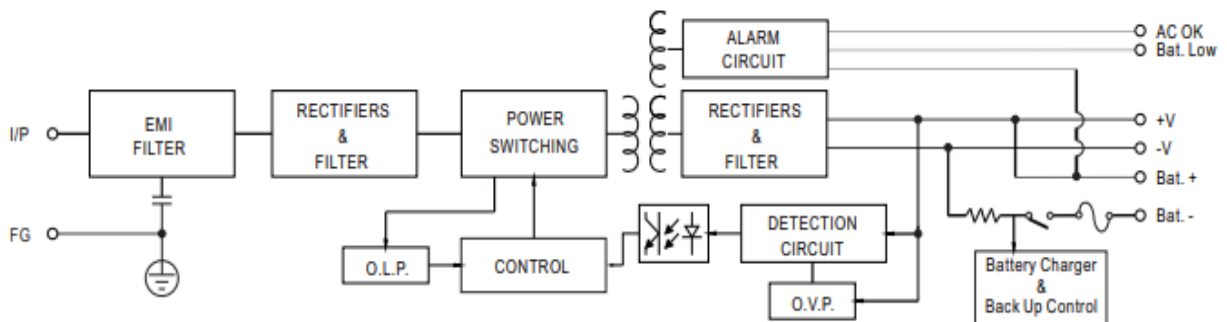
DC Output Connector (CN2) : JST B6P-VH or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing        | Terminal                       |
|---------|------------|---------|------------|-----------------------|--------------------------------|
| 1       | Bat. Low   | 4       | Battery +  | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2       | AC OK      | 5       | +V         |                       |                                |
| 3       | Battery -  | 6       | -V         |                       |                                |



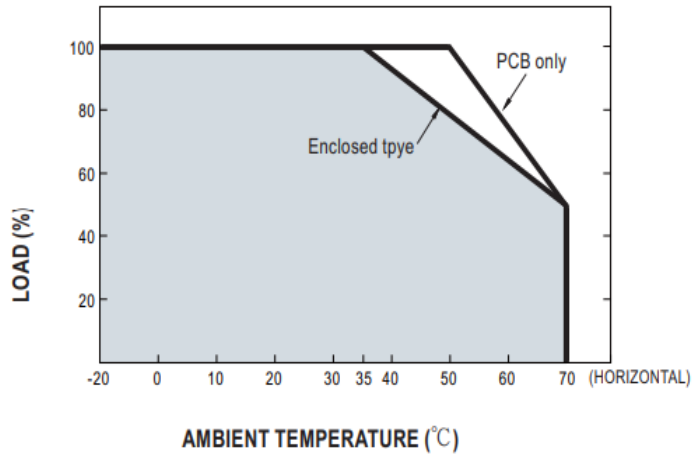
1. HS1, HS2 can not be shorted.
2. HS1 must have safety isolation distance with system case.
3. ⚡ Grounding required
4. -V and Bat- can not be shorted

## Block Diagram



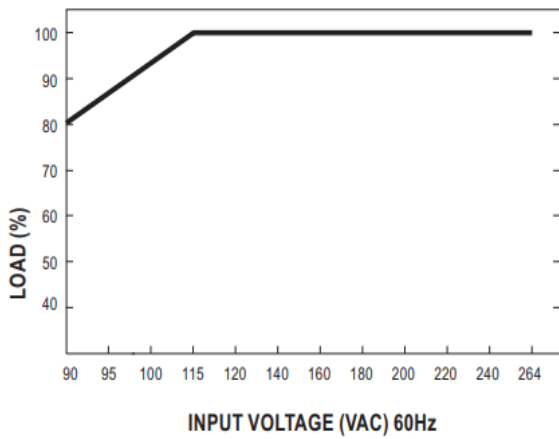
## Deduction curve and temperature

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## Minus output and input voltage curves

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## Suggested Application

### 1.Backup connection for AC interruption

(1) Please refer to the Fig.1.1 for suggested connection.

The power supply charges the battery and provides energy to the load at the same time when the AC main is OK. The battery starts to supply power to the load when the AC mains fails.

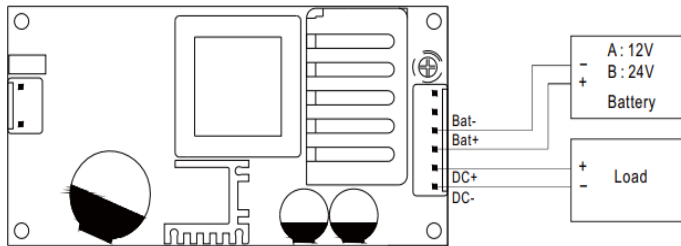


Fig 1.1 Suggested system connection

### 2.Alarm Signal for AC OK and Battery Low

(1) Alarm Signal is sent out through " AC OK " & " Battery Low " pins.

(2) An external voltage source is required for this function. The maximum applied voltage is 50V and the maximum sink current is 30mA.

(3) Table.2.1 explains the alarm function built in the power supply

| Function    | Description  | Output of alarm                                 |
|-------------|--|---|
| AC OK       | The signal is "Low" when the power supply turns on                     | Low (0.3V max. at 30mA)                         |
|             | The signal turns to be "High" when the power supply turns OFF          | High or open(External applied voltage 50V max.) |
| Battery Low | The signal is "Low" when the voltage of battery is under A:11V, B:22V  | Low (0.3V max. at 30mA)                         |
|             | The signal is "High" when the voltage of battery is above A:11V, B:22V | High or open(External applied voltage 50V max.) |

Table 2.1 Explanation of Alarm Signal

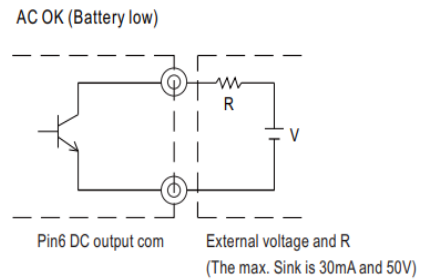


Fig 2.2 Internal circuit of AC OK (Battery Low)