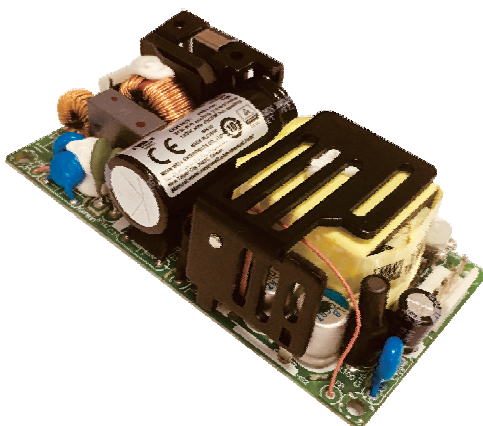




## Features

- 4"×2" miniature size
- Universal AC input / Full range
- EMI Class B for both Class I (with FG) and Class II (without FG) configuration
- No load power consumption < 0.3W
- High efficiency up to 91%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection for 84W and 120W with 10CFM forced air
- Built-in 12V/0.5A fan supply
- LED indicator for power on
- Operating altitude up to 5000 meters
- 3 years warranty

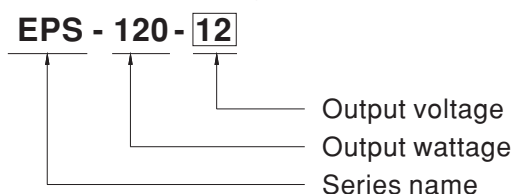
## Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus

## Description

EPS-120 is a 120W highly reliable green PCB type power supply with a high power density on the 4" by 2" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 48V. The working efficiency is up to 91% and the extremely low no load power consumption is down below 0.3W. EPS-120 is able to be used for both Class I (with FG) and Class II (no FG) system design. EPS-120 has the complete protection functions; it is complied with the international safety regulations such as TUV EN62368-1, UL62368-1 and IEC62368-1. EPS-120 series serves as a high price-to-performance power supply solution for various industrial applications.

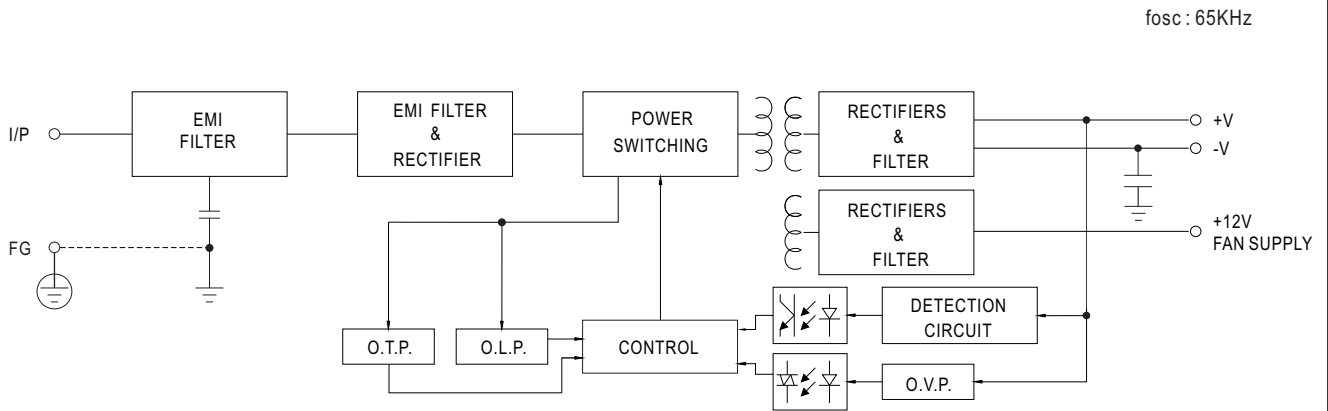
## Model Encoding



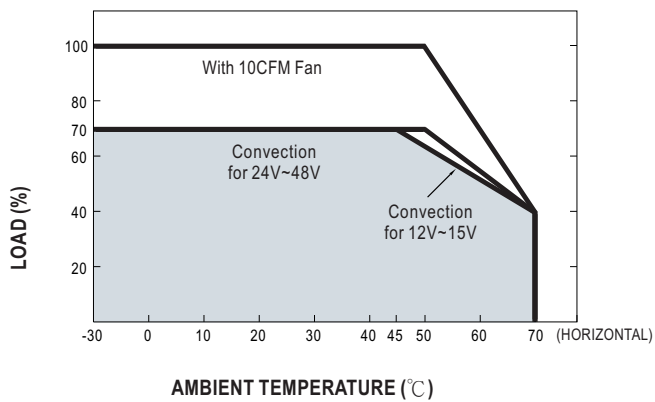
**SPECIFICATION**

| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | EPS-120-12                                                                                                    | EPS-120-15   | EPS-120-24   | EPS-120-27   | EPS-120-48   |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|
| OUTPUT                   | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 | 12V                                                                                                           | 15V          | 24V          | 27V          | 48V          |
|                          | CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10CFM                                                           | 10A                                                                                                           | 8A           | 5A           | 4.5A         | 2.5A         |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Convection                                                      | 7.0A                                                                                                          | 5.6A         | 3.5A         | 3.15A        | 1.75A        |
|                          | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10CFM                                                           | 120W                                                                                                          | 120W         | 120W         | 121.5W       | 120W         |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Convection                                                      | 84W                                                                                                           | 84W          | 84W          | 85W          | 84W          |
|                          | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 | 120mVp-p                                                                                                      | 120mVp-p     | 150mVp-p     | 150mVp-p     | 200mVp-p     |
|                          | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 | 11.4~12.6V                                                                                                    | 14.3~15.8V   | 22.8~25.2V   | 25.6 ~ 28.4V | 45.6 ~50.4V  |
|                          | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 | ± 2.0%                                                                                                        | ± 2.5%       | ± 1.0%       | ± 1.0%       | ± 1.0%       |
|                          | LINE REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | ± 0.5%                                                                                                        | ± 0.5%       | ± 0.5%       | ± 0.5%       | ± 0.5%       |
|                          | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | ± 1.0%                                                                                                        | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       |
|                          | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 | 500ms, 30ms/230VAC      500ms, 30ms/115VAC at full load                                                       |              |              |              |              |
|                          | HOLD UP TIME (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                 | 50ms/230VAC      10ms/115VAC at full load                                                                     |              |              |              |              |
| INPUT                    | VOLTAGE RANGE Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 | 80 ~ 264VAC                                                                                                   | 113 ~ 370VDC |              |              |              |
|                          | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | 47 ~ 63Hz                                                                                                     |              |              |              |              |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 | 88%                                                                                                           | 88.5%        | 90%          | 90%          | 91%          |
|                          | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 | 2.1A/115VAC      1.2A/230VAC                                                                                  |              |              |              |              |
|                          | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                 | COLD START 30A/115VAC      60A/230VAC                                                                         |              |              |              |              |
|                          | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | <0.75mA / 240VAC                                                                                              |              |              |              |              |
| PROTECTION               | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 | 115~150% rated output power                                                                                   |              |              |              |              |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | Protection type : Hiccup mode, recovers automatically after fault condition is removed                        |              |              |              |              |
|                          | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 | 13.2 ~ 15.6V                                                                                                  | 16.5 ~ 19.5V | 26.4 ~ 31.2V | 29.7 ~ 35V   | 52.8 ~ 62.4V |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 | Protection type : Shut down o/p voltage, re-power on to recover                                               |              |              |              |              |
| OVER TEMPERATURE         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Protection type : Shut down o/p voltage, re-power on to recover |                                                                                                               |              |              |              |              |
| FUNCTION                 | FAN SUPPLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 | 12V@0.5A for driving a fan ; tolerance -15% ~ +10%                                                            |              |              |              |              |
| ENVIRONMENT              | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                 | -30 ~ +70℃ (Refer to "Derating Curve")                                                                        |              |              |              |              |
|                          | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 | 20 ~ 90% RH non-condensing                                                                                    |              |              |              |              |
|                          | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 | -40 ~ +85℃, 10 ~ 95% RH                                                                                       |              |              |              |              |
|                          | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 | ± 0.03%/℃ (0 ~ 50℃)                                                                                           |              |              |              |              |
|                          | OPERATING ALTITUDE Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                 | 5000 meters                                                                                                   |              |              |              |              |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                 | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes                                                  |              |              |              |              |
| SAFETY & EMC<br>(Note 5) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 | UL62368-1, TUV EN62368-1, IEC62368-1, EAC TP TC 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:100M Ohms / 500VDC / 25℃ / 70% RH                                                             |              |              |              |              |
|                          | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 | Compliance to EN55032 (CISPR32) Class B, EN61000-3-2,-3, EAC TP TC 020                                        |              |              |              |              |
|                          | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 | Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, heavy industry level, criteria A, EAC TP TC 020 |              |              |              |              |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 | 653.5Khrs min.      MIL-HDBK-217F (25℃)                                                                       |              |              |              |              |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                 | 101.6*50.8*29mm (L*W*H)                                                                                       |              |              |              |              |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 | 0.15Kg; 72pcs/11.8Kg/0.82CUFT                                                                                 |              |              |              |              |
| 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. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>5. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. 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.” (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )<br>6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft). |                                                                 |                                                                                                               |              |              |              |              |

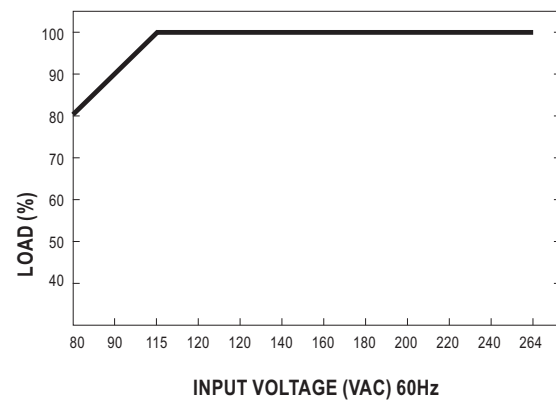
### Block Diagram



### Derating Curve

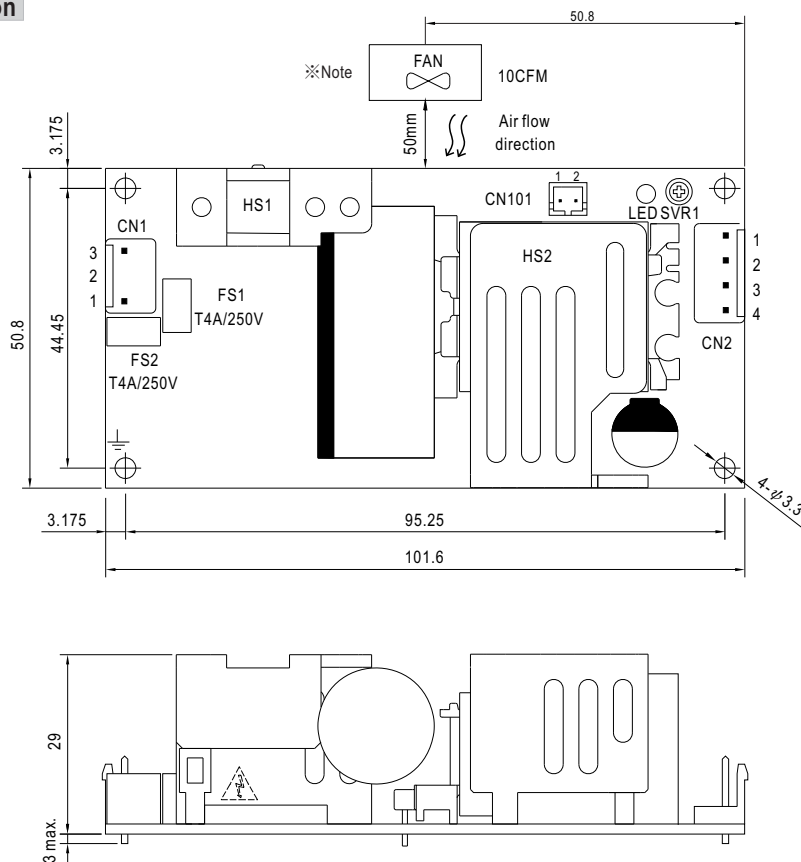


### Output Derating VS Input Voltage



## Mechanical Specification

Unit:mm



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       |                       |                                |

⏏ : Grounding required



- 1.HS1,HS2 cannot be shorted.
- 2.HS1 must have safety isolation distance with system case.

DC Output Connector (CN2) : JST B4P-VH or equivalent

| Pin No. | Assignment | Mating Housing        | Terminal                       |
|---------|------------|-----------------------|--------------------------------|
| 1,2     | +V         | JST VHR or equivalent | JST SVH-21T-P1.1 or equivalent |
| 3,4     | -V         |                       |                                |

FAN Connector(CN101) : JST B2B-PH-K-S or equivalent

| Pin No. | Assignment | Mating Housing          | Terminal                         |
|---------|------------|-------------------------|----------------------------------|
| 1       | DC COM     | JST PHR-2 or equivalent | JST SPH-002T-P0.5S or equivalent |
| 2       | +12V       |                         |                                  |

※Note : 1. The FAN SUPPLY is designed to serve as the source of the additive external fan for the cooling of the power supply, enabling the full load delivery and assuring the best life span of the product. Please do not use this FAN SUPPLY to drive other devices.

2.The PCB type(Blank type)model delivers EMI Class B for both conducted emission and radiated emission for the power supply, when configured into either Class I (with FG) or Class II (without FG) system.

## Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>