



■ Features

- 5"×3" miniature size
- Universal input 80 ~ 264VAC
- Built-in active PFC function
- EMI Class B for both Class I (with FG) and Class II (without FG) configuration
- 250W convection, 400W force air
- No load power consumption < 0.5W
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in 12V/0.5A FAN supply Standby 5V@1A with fan , 0.6A without fan
- Built-in remote sense function
- Output 18V available (optional)
- 3 years warranty

■ Applications

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

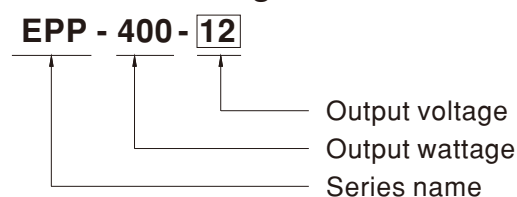
■ Description

EPP-400 is a 400W highly reliable green PCB type power supply with a high power density on the 5" by 3" footprint. It accepts 80~264VAC input and offers various output voltages between 12V and 48V.

The working efficiency is up to 94% and the extremely low no load power consumption is down below 0.5W.

EPP-400 is able to be used for both Class I (with FG) and Class II (no FG) system design. EPP-400 is equipped with complete protection functions; it is complied with the international safety regulations such as TUV EN60950-1, UL60950-1 and IEC60950-1. EPP-400 series serves as a high price-to-performance power supply solution for various industrial applications.

■ Model Encoding



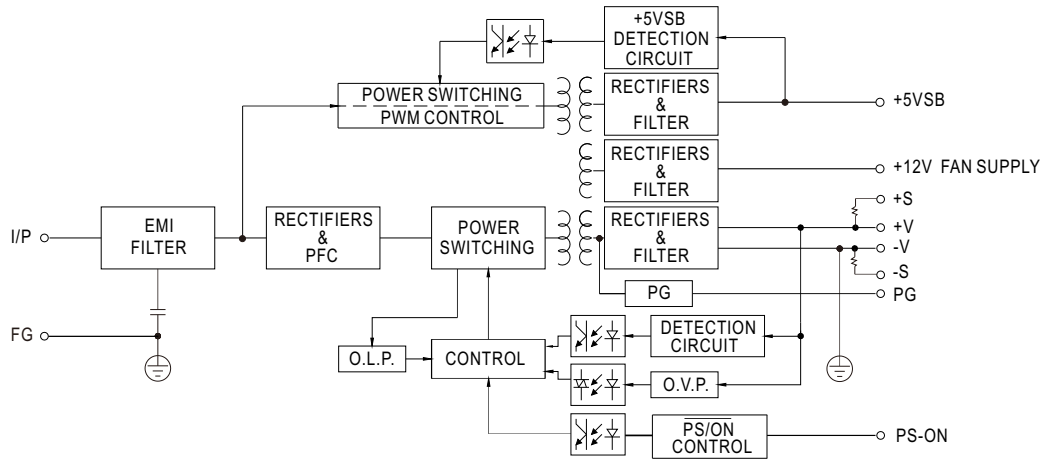
SPECIFICATION

| MODEL | | EPP-400-12 | EPP-400-15 | EPP-400-18 | EPP-400-24 | EPP-400-27 | EPP-400-36 | EPP-400-48 | |
|---------------------|---|--|--------------|--------------|--------------|--------------|--------------|--------------|--------|
| OUTPUT | DC VOLTAGE | 12V | 15V | 18V | 24V | 27V | 36V | 48V | |
| | CURRENT | 25CFM | 33.3A | 26.7A | 22.3A | 16.7A | 14.9A | 11.2A | 8.4A |
| | | Convection | 20.8A | 16.7A | 13.9A | 10.5A | 9.3A | 7A | 5.3A |
| | RATED POWER | 25CFM | 399.6W | 400.5W | 401.4W | 400.8W | 402.3W | 403.2W | 403.2W |
| | | Convection | 249.6W | 250.5W | 250.2W | 252W | 251.1W | 252W | 254.4W |
| | RIPPLE & NOISE (max.) <small>Note.2</small> | 120mVp-p | 150mVp-p | 180mVp-p | 200mVp-p | 200mVp-p | 250mVp-p | 250mVp-p | |
| | VOLTAGE ADJ. RANGE(MAIN OUTPUT) | 11.4~12.6V | 14.3~15.8V | 17.1~18.9V | 22.8~25.2V | 25.6 ~ 28.4V | 34.2 ~37.8V | 45.6 ~50.4V | |
| | VOLTAGE TOLERANCE <small>Note.3</small> | ±3.0% | ±3.0% | ±3.0% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | |
| | LOAD REGULATION | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | |
| SETUP, RISE TIME | 1000ms, 30ms/230VAC 1500ms, 30ms/115VAC at full load | | | | | | | | |
| HOLD UP TIME (Typ.) | 16ms/230VAC 12ms/115VAC at full load | | | | | | | | |
| INPUT | VOLTAGE RANGE <small>Note.4</small> | 80 ~ 264VAC 113 ~ 370VDC | | | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | | | |
| | POWER FACTOR | PF>0.94/230VAC PF>0.98/115VAC at full load | | | | | | | |
| | EFFICIENCY (Typ.) | 91.5% | 92% | 92% | 93% | 93.5% | 93% | 94% | |
| | AC CURRENT (Typ.) | 4.2A/115VAC 2.1A/230VAC | | | | | | | |
| | INRUSH CURRENT (Typ.) | COLD START 40A/115VAC 80A/230VAC | | | | | | | |
| | LEAKAGE CURRENT | <0.75mA / 240VAC | | | | | | | |
| PROTECTION | OVERLOAD | 105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | | | |
| | OVER VOLTAGE | 13.2 ~ 15.6V | 16.5 ~ 19.5V | 16.5 ~ 19.5V | 26.4 ~ 31.2V | 29.7 ~ 35.1V | 39.6 ~ 46.8V | 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, recovers automatically after temperature goes down | | | | | | | | |
| FUNCTION | 5V STANDBY | 5VSB : 5V@0.6A without fan, 1A with fan 25CFM ; tolerance ±2%, ripple : 120mVp-p(max.) | | | | | | | |
| | FAN SUPPLY | 12V@0.5A for driving a fan ; tolerance ±10% | | | | | | | |
| | PS-ON INPUT SIGNAL | Power on: PS-ON = "Hi" or " > 2 ~ 5V"; Power off: PS-ON = "Low" or " < 0 ~ 0.5V" | | | | | | | |
| | POWER GOOD / POWER FAIL | 500ms>PG>10ms ; The TTL signal goes high with 10ms to 500ms delay after power set up ; The TTL signal goes low at least 1ms before Vo below 90% of rated value | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -30 ~ +70°C (Refer to "Derating Curve") | | | | | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85°C, 10 ~ 95% RH | | | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/°C (0 ~ 50°C) | | | | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | | | |
| | OPERATING ALTITUDE <small>Note.5</small> | 5000 meters | | | | | | | |

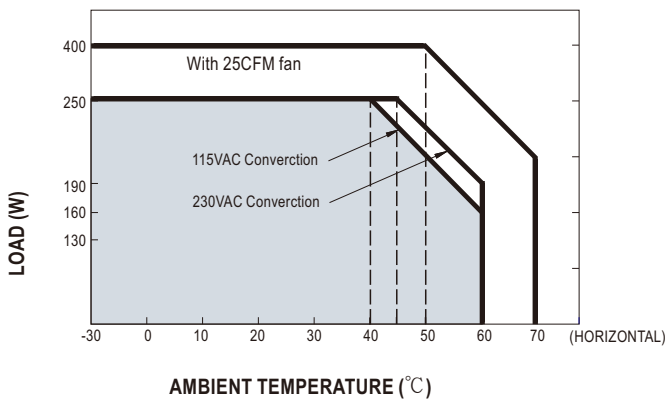
| | | | | | |
|--------------------------------|---|--|--|--|--|
| SAFETY & EMC (Note 6) | SAFETY STANDARDS | UL60950-1, TUV EN60950-1, IEC60950-1 approved | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC | | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG:100M Ohms / 500VDC / 25°C / 70% RH | | | |
| | EMC EMISSION | Parameter | Standard | Test Level / Note | |
| | | Conducted | EN55022 (CISPR22) | Class B | |
| | | Radiated | EN55022 (CISPR22) | Class B | |
| | | Harmonic Current | EN61000-3-2 | Class A | |
| | | Voltage Flicker | EN61000-3-3 | ----- | |
| | EMC IMMUNITY | EN55024 , EN60601-1-2 | | | |
| | | Parameter | Standard | Test Level / Note | |
| | | ESD | EN61000-4-2 | Level 4, 15KV air ; Level 4, 8KV contact | |
| | | Radiated | EN61000-4-3 | Level 3 | |
| | | EFT / Burst | EN61000-4-4 | Level 3 | |
| Surge | | EN61000-4-5 | Level 3, 2KV/Line-FG ; 1KV/Line-Line | | |
| Conducted | | EN61000-4-6 | Level 3 | | |
| Magnetic Field | | EN61000-4-8 | Level 4 | | |
| Voltage Dips and Interruptions | | EN61000-4-11 | 100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods | | |
| OTHERS | MTBF | 194.1Khrs min. MIL-HDBK-217F (25°C) | | | |
| | DIMENSION | 127*76.2*35mm (L*W*H) | | | |
| | PACKING | 0.39Kg; 36pcs/15Kg/1.03CUFT | | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature.</p> <p>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>5. The ambient temperature derating of 2.5°C / 1000m is needed for operating altitude greater than 2000m(6500ft).</p> <p>6. The power supply is considered a component which will be installed into a final equipment. All the Class I (with FG) EMC test are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The Class II (without FG) EMC test is been executed by mounting the unit on a 130mm*86.6mm metal plate with 1mm of thickness. 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 http://www.meanwell.com)</p> | | | | |

■ Block Diagram

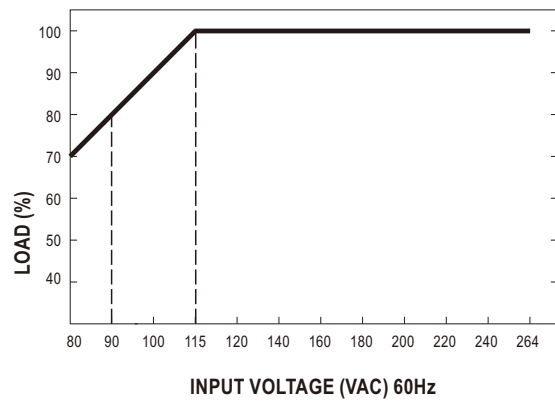
PFC fosc : 90KHz
PWM fosc : 100KHz



■ Derating Curve

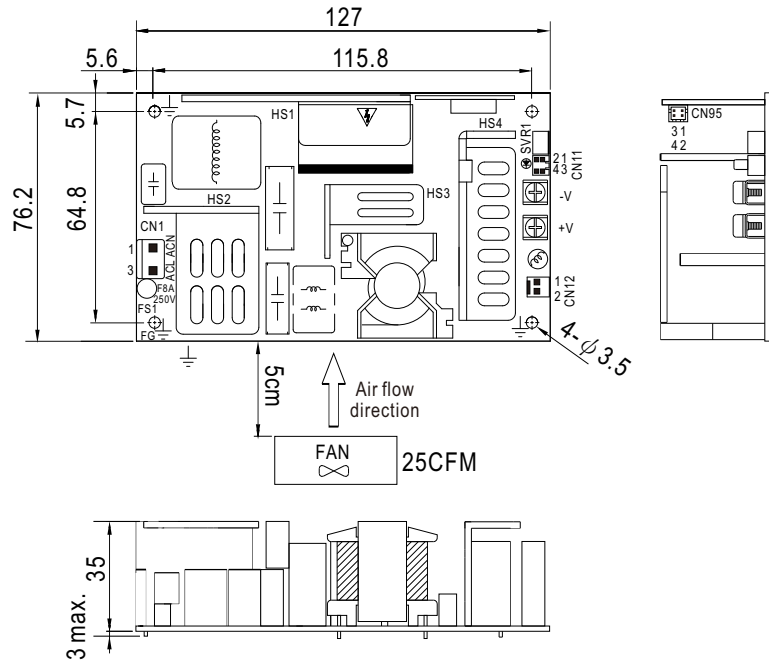


■ Output Derating VS Input Voltage



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 | | |

Function Connector(CN11): TKP DH2I-2X2 or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|-----------------------|-------------------|
| 1 | -S | TKP DH2 or equivalent | TKP or equivalent |
| 2 | +S | | |
| 3 | DC COM | | |
| 4 | PG | | |

DC Output Connector (CN2,CN3)

| Pin No. | Assignment | Output Terminals |
|---------|------------|---|
| CN2 | -V | M4 Pan HD screw in 2 positions Torque to 8 lbs-in(90cNm)max. |
| CN3 | +V | |

Function Connector(CN95): TKP DH2L-2X2 or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|-----------------------|-------------------|
| 1 | 5VSB | TKP DH2 or equivalent | TKP or equivalent |
| 2,4 | DC COM | | |
| 3 | PS-ON | | |

⏏ Grounding Required

⚠ HS1,HS2,HS3,HS4 can not be shorted

FAN Connector(CN12) : TKP 8812-2 or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|------------------------|------------------------|
| 1 | DC COM | TKP 2502 or equivalent | TKP 8811 or equivalent |
| 2 | +12V | | |

⊗ Note: When the input voltage is 230VAC the model delivers EMI Class B for both conducted emission and radiated emission for the power supply. When the input voltage is AC110VAC the model delivers EMI Class B for conducted emission and Class A for radiated emission for the power supply. It delivers Class A for conduced emission and radiated emission, when configured into Class II (without FG) system.

Installation Manual

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