MEAN WELL

500W Slim Type with PFC Switching Supply

# UHP-500 series

R33100 RoHS | GB4943 | UL60950-1 | EN60950-1 | IEC60950-1

LED Display | Automate | Industrial | Security | Network | Telecom

## Features

- Slim and Low profile (31mm)
- Fanless design,500W convection
- Withstand 300VAC surge input for 5 seconds
- Built-in active PFC function
- 150% peak load capability(100ms)
- -20~+70℃ working temperature
- Protections: Short circuit / Overload / Over voltage / Over temperature
- DC OK active signal and redundant function(option)
- Operating altitude up to 5000 meter (Note.5)
- LED indicator for power on
- 3 years warranty

## Applications

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

## Description

UHP-500 series is a 500W single-output slim type power supply with 31mm of low profile design. Adopting the full range 90~264VAC input, the entire series provides an output voltage line of 4.2V, 5V, 12V, 15V, 24V, 36V and 48V. In addition to the high efficiency up to 95%, that the whole series operates from -20℃ ~ 70℃ under air convection without fan. UHP-500 has the complete protection functions and 5G anti-vibration capability ; It is complied with the international safety regulations such as TUV EN60950-1, UL60950-1 and GB4943. UHP-500 series serves as a high performance power supply solution for various industrial applications.

## Model Encoding

UHP - 500 □ - 5

- 5 — Output Voltage
- □ — Blank / R
- 500 — Rated wattage
- UHP — Series name

| Type | Description | Note |
|---|---|---|
| Blank | Enclosed | In Stock |
| R | Buit-in DC OK active signal and redundant function. | By request |

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SPECIFICATION

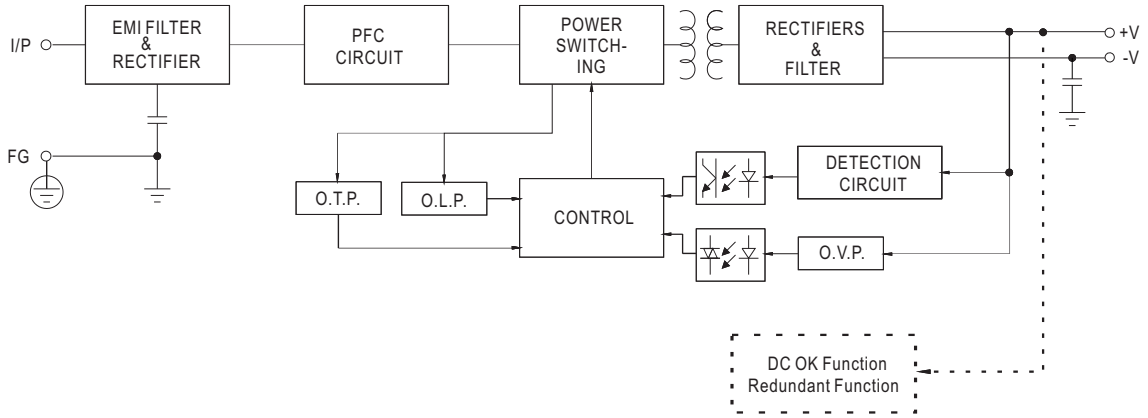
| MODEL | | UHP-500□ -4.2 | UHP-500□ -5 | UHP-500□ -12 | UHP-500□ -15 | UHP-500□ -24 | UHP-500□ -36 | UHP-500□ -48 |
|---|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 4.2V | 5V | 12V | 15V | 24V | 36V | 48V |
| | RATED CURRENT | 80A | 80A | 41.7A | 33.4A | 20.9A | 13.9A | 10.45A |
| | RATED POWER | 336W | 400W | 500.4W | 501W | 501.6W | 500.4W | 501.6W |
| | RIPPLE & NOISE (max.) Note.2 | 200mVp-p | 200mVp-p | 200mVp-p | 200mVp-p | 240mVp-p | 360mVp-p | 360mVp-p |
| | VOLTAGE ADJ. RANGE | 3.6~4.4V | 4.5~5.5V | 11.4~12.6V | 14.3~15.8V | 22.8~25.2V | 34.2~37.8V | 45.6~50.4V |
| | VOLTAGE TOLERANCE Note.3 | ±2.0% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.3% | ±0.3% | ±0.3% | ±0.3% | ±0.3% |
| | LOAD REGULATION | ±1.0% | ±1.0% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| | SETUP, RISE TIME | 1000ms, 50ms/230VAC 1000ms,50ms/115VAC at full load | | | | | | |
| | HOLD UP TIME (Typ.) | 12ms/230VAC 12ms/115VAC | | | | | | |
| INPUT | VOLTAGE RANGE Note.4 | 90 ~ 264VAC 127 ~ 370VDC | | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | | |
| | POWER FACTOR (Typ.) | PF≥0.95/230VAC PF≥0.98/115VAC at full load | | | | | | |
| | EFFICIENCY (Typ.) | 89% | 90% | 94% | 94% | 94.5% | 95% | 95% |
| | AC CURRENT (Typ.) | 4.85A/115VAC 2.6A/230VAC | | | | | | |
| | INRUSH CURRENT (Typ.) | Cold start 30A/115VAC 60A/230VAC | | | | | | |
| | LEAKAGE CURRENT | <0.75mA / 240VAC | | | | | | |
| PROTECTION | OVERLOAD | 110~140% rated output power | | | | | | |
| | | Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | | |
| | OVER VOLTAGE | 4.62 ~ 5.46V | 5.75 ~ 6.75V | 13.2 ~ 15.6V | 16.5 ~ 19.5V | 26.4 ~ 31.2V | 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 | DC OK SIGNAL(Optional) | Contact rating(max.):30Vdc/1A resistive load | | | | | | |
| | REDUNDANT(Optional) | For parallel connection protection:For parallel applications, when one PSU can not work , the another one will be automatically enabled. This can prevent the system crash, and provide the reliability of system | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -30 ~ +70℃ (Refer to "Derating Curve") | | | | | | |
| | WORKING HUMIDITY | 20 ~ 95% RH non-condensing | | | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85℃ , 10 ~ 95% RH non-condensing | | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/℃ (0 ~ 50℃ ) | | | | | | |
| | VIBRATION | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | | |
| SAFETY & EMC (Note.6) | SAFETY STANDARDS | UL60950-1,TUV EN60950-1, CCC GB4943, BSMI CNS14336-1, EAC TP TC 004 approved;Design refer to EN60335-1,EN61558-2-16 | | | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.25KVAC | | | | | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG,O/P-FG:100M Ohms/500VDC/25℃/ 70%RH | | | | | | |
| | EMC EMISSION | Compliance to EN55032,GB/T9254,Class B, EN61000-3-2,-3, BSMI CNS13438, EAC TP TC 020 | | | | | | |
| | EMC IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11;EN61000-6-2 (EN50082-2), heavy industry level ,criterial A,EAC TP TC 020 | | | | | | |
| OTHERS | MTBF | 168K hrs min. MIL-HDBK-217F (25℃) | | | | | | |
| | DIMENSION | 232*81*31mm (L*W*H) | | | | | | |
| | PACKING | 0.905kg; 16pcs/15.48kg/0.82CUFT | | | | | | |

NOTE

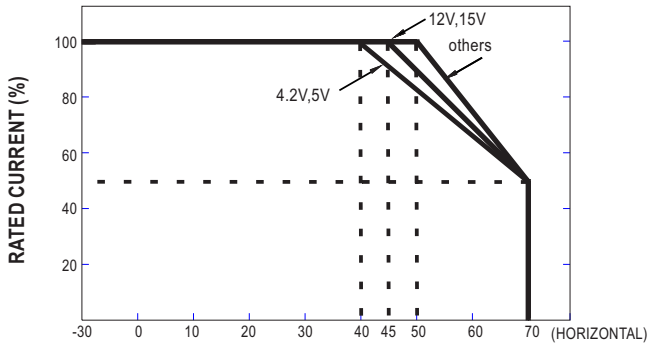
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance :includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltages. Please check the derating curve for more details.
5. The ambient temperature derating of 3.5℃/1000m is needed for operating altitude greater than 2000m(6500ft)
6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)

## ■ Block Diagram

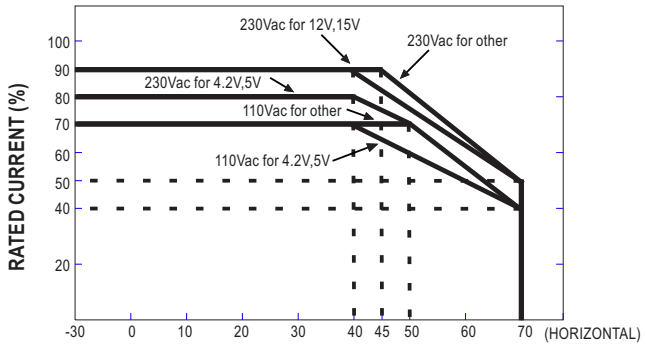
PFC fosc:60KHz
PWM fosc:65KHz~75KHz



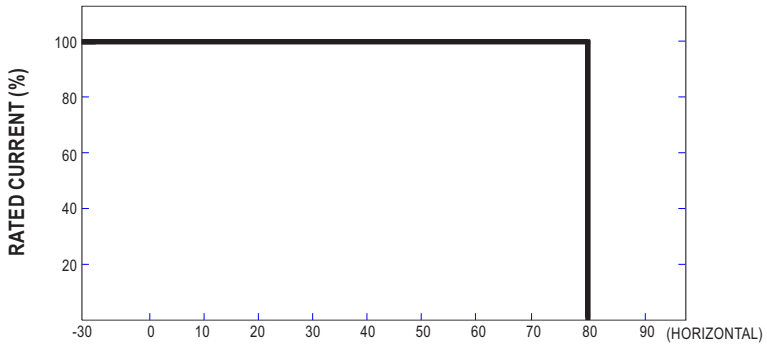

## ■ Derating Curve




AMBIENT TEMPERATURE (℃)

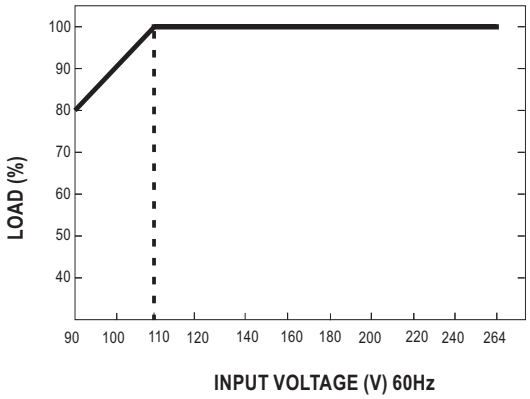



AMBIENT TEMPERATURE WITHOUT ALUMINUM PLATE(℃)




Tcase (℃)

## ■ STATIC CHARACTERISTIC



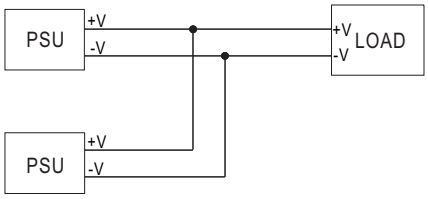

## ■ DC OK Relay Contact

| | |
|---|---|
| Contact Close | PSU turns on/DC ok |
| Contact Open | PSU turns off/DC fail |
| Contact Rating(max.) | 30Vdc/1A resistive load |

## ■ Redundant function

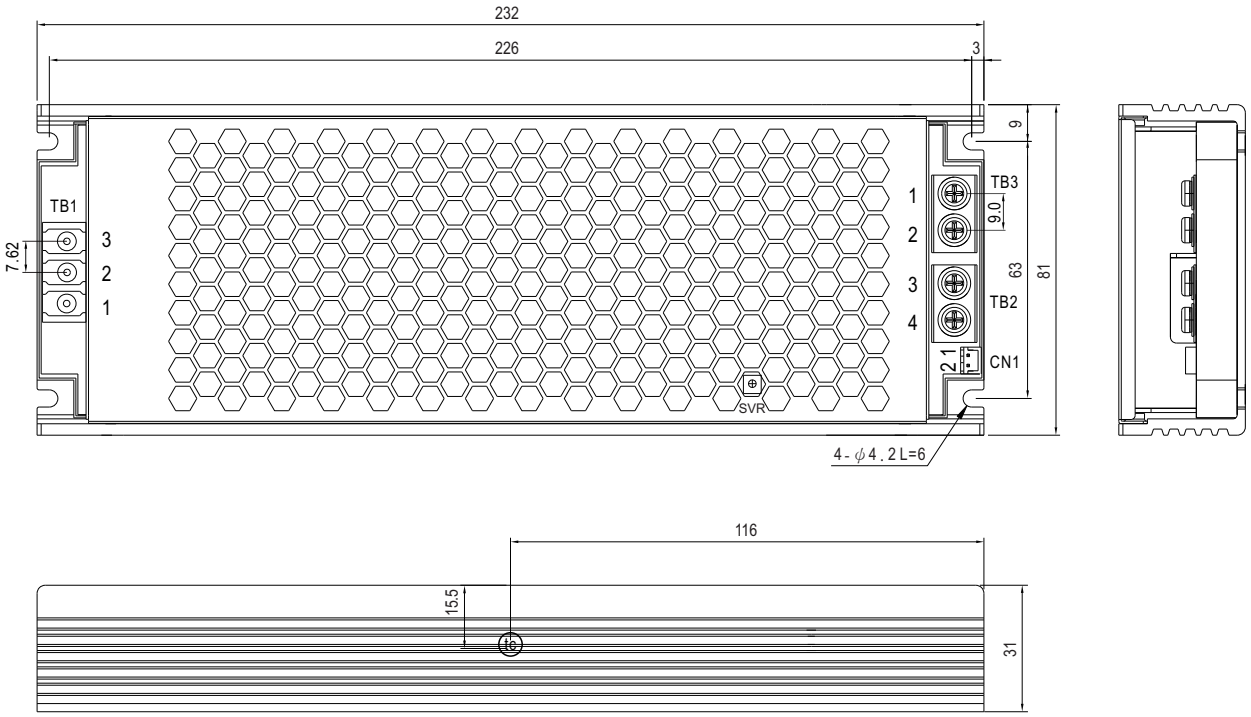
(1) UHP-500R is built-in redundant function and can be connected 2 units in parallel .

(2) When in parallel operation the maximum load should not be greater than the rated power of any PSU.



## ■ Mechanical Specification

CASE NO.:233D Unit:mm




• tc : Max. Case Temperature

AC Input Terminal(TB1) pin NO. Assignment

| Pin No. | Assignment | Terminal | Max mounting torque |
|---|---|---|---|
| 1 | AC/L | (DEGSON) DG28C-B-03P | 5Kgf-cm |
| 2 | AC/N | | |
| 3 | ⏚ | | |

DC Output Terminal(TB2,TB3) pin NO. Assignment

| Pin No. | Assignment | Terminal | Max mounting torque |
|---|---|---|---|
| 1,2 | -V | (MW) MEL-400-02P | 8Kgf-cm |
| 3,4 | +V | | |

DC OK Connector(CN1):JST B2B-PH-K-S or requivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|
| 1 | DC COM1 | JST PHR-2 or requivalent | JST SPH-002T-P0.5S or requivalent |
| 2 | DC COM2 | | |

## ■ Installation

**1.Operate with additional aluminum plate**

In order to meet the"Derating Curve"and the "Static Characteristics" ,UHP-500 series must be installed onto an aluminum plate(or the cabinet of the same size) on the bottom.The size of the suggested aluminum plate is shown as below. And for optimizing thermal performance, the aluminum plate must have an even and smooth surface (or coated with thermal grease), and UHP-500 series must be firmly mounted at the center of the aluminum plate.

unit:mm