■ Features :

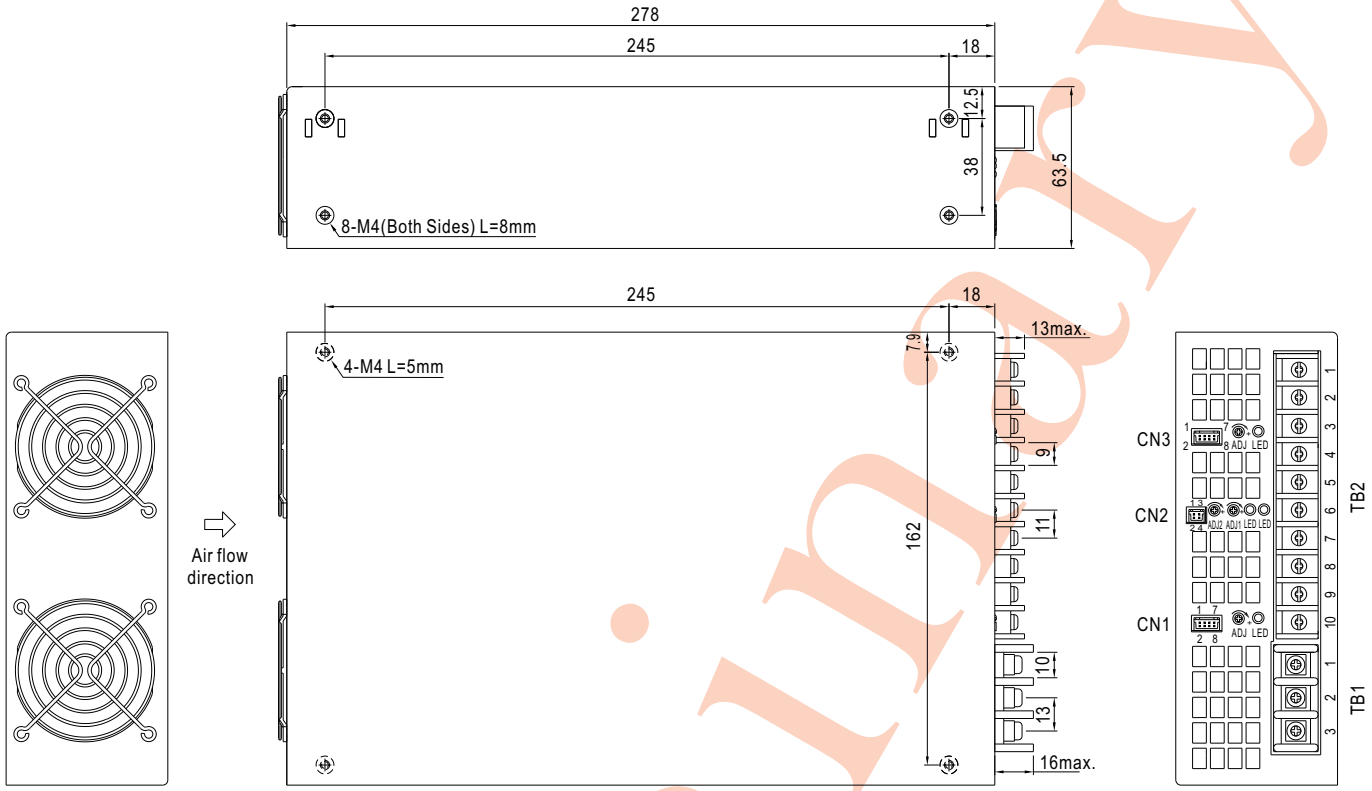
- Universal AC input / Full range
- AC input active surge current limiting
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage/Over temperature
- Forced air cooling by built-in DC Fan
- Built-in remote ON-OFF function for CH3,CH4 and the whole unit
- Isolate output
- Built-in remote sense function(CH3,CH4)
- Built-in external voltage control function(CH3,CH4)
- Built-in output current monitor signal(CH3,CH4)

## SPECIFICATION

| MODEL | | QP-1000 | | | |
|---|---|---|---|---|---|
| OUTPUT | OUTPUT NUMBER | CH1 | CH2 | CH3 | CH4 |
| | DC VOLTAGE | 12V | 5V | 24V | 24V |
| | RATED CURRENT | 8.4A | 6A | 12.5A | 25A |
| | CURRENT RANGE | 0 ~ 8.4A | 0 ~ 6A | 0 ~ 12.5A | 0 ~ 25A |
| | RATED POWER (convection) | 130.8W(max.) | | 300W | 600W |
| | | 1000W(max.) | | | |
| | RIPPLE & NOISE (max.) Note.2 | 120mVp-p | 80mVp-p | 100mVp-p | 200mVp-p |
| | VOLTAGE ADJ. RANGE | 10.8 ~ 13.2V | 4.5 ~ 5.5V | 21.5 ~ 26.5V | 21.5 ~ 26.5V |
| | REMOTE PROGRAMMING (PV) | CH3,CH4 10% ~ 120% adjustable by 0.5 ~ 6VDC external control | | | |
| | VOLTAGE TOLERANCE Note.3 | ±2.0% | ±2.0% | ±1.0% | ±1.0% |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| | LOAD REGULATION | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | SETUP, RISE TIME | 1500ms, 50ms/230VAC 1500ms, 50ms/115VAC at full load | | | |
| | HOLD UP TIME (Typ.) | 16ms/230VAC 16ms/115VAC at full load | | | |
| INPUT | VOLTAGE RANGE Note.5 | 90 ~ 264VAC 127 ~ 370VDC | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | |
| | POWER FACTOR | PF≧0.95/230VAC PF≧0.97/115VAC at full load | | | |
| | EFFICIENCY(Typ.) | 86% | | | |
| | AC CURRENT (Typ.) | 12A/115VAC 6A/230VAC | | | |
| | INRUSH CURRENT (Typ.) | COLD START 25A/115VAC 40A/230VAC | | | |
| | LEAKAGE CURRENT | <2mA / 240VAC | | | |
| PROTECTION | OVERLOAD | 105 ~ 135% rated output power | | | |
| | | CH1, CH2 : Protection type : Shut down o/p voltage, re-power on to recover | | | |
| | | CH3, CH4 : Protection type : Constant current limiting, unit will shut down after 3 sec., re-power on to recover | | | |
| | OVER VOLTAGE | 13.8 ~ 16.2V | 5.75 ~ 6.75V | 30 ~ 34.8V | 30~ 34.8V |
| | | Protection type : Shut down o/p voltage, re-power on to recover | | | |
| | OVER TEMPERATURE | 75℃±5℃ detect on heatsink of power transistors | | | |
| | | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down | | | |
| FUNCTION | REMOTE CONTROL | Turn ON/OFF CH3,CH4 and the whole power supply | | | |
| | | RC+/RC-: Short , Power ON ; RC+/RC-: Open , Power OFF | | | |
| | CURRENT MONITOR | Signal provides an output of 0 ~ 5V which applies over 10 ~ 100% of rated load. | | | |
| | OUTPUT VOLTAGE EXTERNAL CONTROL | Please see the Function Manual | | | |
| ENVIRONMENT | WORKING TEMP. | -20 ~ +70℃ (Refer to output load derating curve) | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85℃, 10 ~ 95% RH | | | |
| | TEMP. COEFFICIENT | ±0.03%/℃ (0 ~ 45℃) | | | |
| | VIBRATION | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes | | | |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS | Design refer to UL60950-1,TUV EN60950-1 | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3KVAC I/P-FG:1.5KVAC 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 EN55022 (CISPR22) | | | |
| | HARMONIC CURRENT | Compliance to EN61000-3-2,-3 | | | |
| | EMS IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61000-6-2, EN61204-3 | | | |
| OTHERS | MTBF | K hrs min. MIL-HDBK-217F (25℃) | | | |
| | DIMENSION | 278*177.8*63.5mm (L*W*H) | | | |
| | PACKING | Kg | | | |
| 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. 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.<br>5. Derating may be needed under low input voltage. Please check the derating curve for more details. | | | | |

## ■ Mechanical Specification

Case No. Unit:mm




AC Input Terminal Pin No. Assignment (TB1)

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

DC Output Terminal Pin No. Assignment (TB2)

| Pin No. | Assignment | Pin No. | Assignment |
|---|---|---|---|
| 1,2 | +V4 | 7 | -V2 |
| 3,4 | -V4 | 8 | +V2 |
| 5 | +V1 | 9 | +V3 |
| 6 | -V1 | 10 | -V3 |

Control Pin No. Assignment(CN1) for CH3: HRS DF11-8DP-2DS or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|---|---|
| 1 | +S | 5 | PV | HRS DF11-8DS or equivalent | HRS DF11-**SC or equivalent |
| 2 | -S | 6 | Im | | |
| 3 | +RC | 7,8 | G | | |
| 4 | PS | | | | |

+S : +Remote Sensing
-S : -Remote Sensing
+RC : +Remote OF/OFF
PS : Reference Voltage Terminal
PV : Voltage Control
Im : Output Current Monitor
G : GND

Control Pin No. Assignment(CN2): HRS DF11-4DP-2DS or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|
| 1 | VCC | HRS DF11-4DS or equivalent | HRS DF11-**SC or equivalent |
| 2 | +RC | | |
| 3,4 | COM | | |

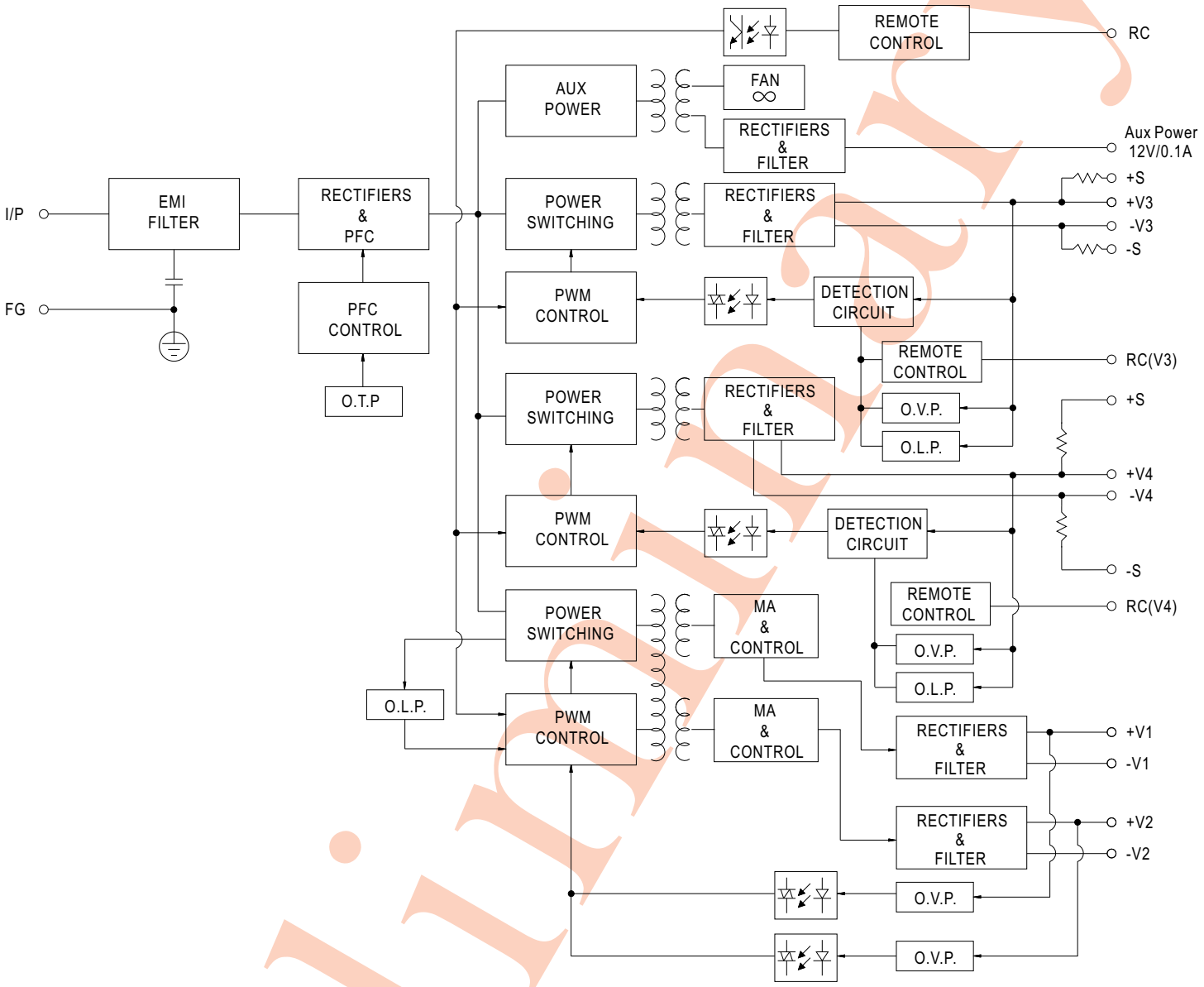
+RC : +Remote OF/OFF
VCC : 12V/0.1A auxiliary output for remote control

Control Pin No. Assignment(CN3) for CH4: HRS DF11-8DP-2DS or equivalent

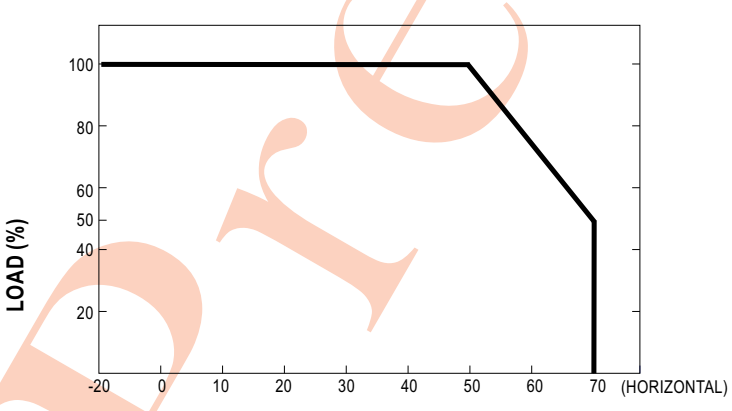
| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|---|---|
| 1 | +S | 5 | PV | HRS DF11-8DS or equivalent | HRS DF11-**SC or equivalent |
| 2 | -S | 6 | Im | | |
| 3 | +RC | 7,8 | G | | |
| 4 | PS | | | | |

+S : +Remote Sensing
-S : -Remote Sensing
+RC : +Remote OF/OFF
PS : Reference Voltage Terminal
PV : Voltage Control
Im : Output Current Monitor
G : GND

## Block Diagram

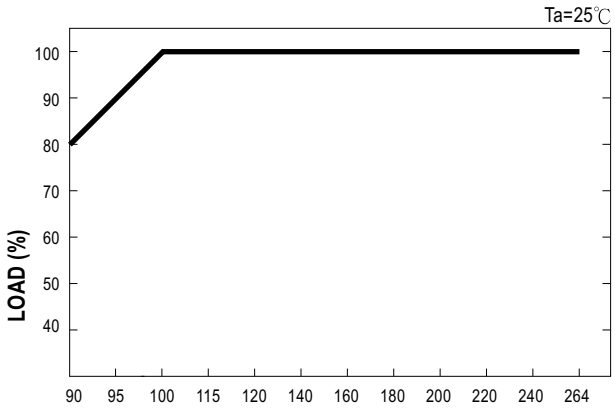



## Derating Curve




AMBIENT TEMPERATURE (℃)

## Output Derating VS Input Voltage



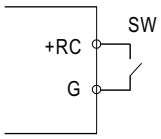

INPUT VOLTAGE (VAC) 60Hz

## ■ Function Manual

### 1.Remote ON/OFF

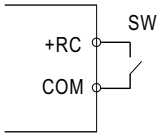
The PSU by using the "Remote ON/OFF" function

A. For CH3 (CN1) or CH4 (CN3)




| Between +RC(pin3) and G(pin7,8) | Output Status |
|---|---|
| SW ON (Short) | ON |
| SW OFF (Open) | OFF |

B. For CH1 ~ CH4 (CN2)




| Between +RC(pin1) and COM(pin2,4) | Output Status |
|---|---|
| SW ON (Short) | ON |
| SW OFF (Open) | OFF |

### 2.External Voltage Control by CH3,CH4