



Dimension

| L | W | H | |
|------|-------|----------|------|
| 278 | 177.8 | 63.5(2U) | mm |
| 10.9 | 7 | 2.5 (2U) | inch |



■ Features

- AC input 180~264VAC
- Built-in active PFC function
- High efficiency up to 93%
- Forced air cooling by built-in DC fans
- Output voltage / current programmable
- Active current sharing up to 9000W(2+1)
- Built-in remote ON-OFF control / auxiliary power / power OK signal
- Protections: Short circuit / Overload / Over voltage / Over temperature / Fan failure
- Conformal coating
- 5 years warranty

■ Applications

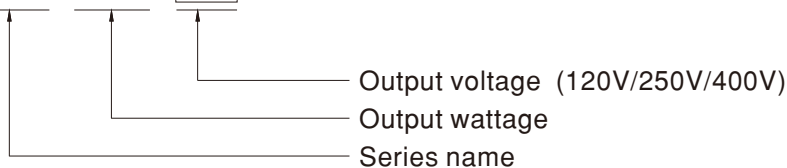
- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- UV curing equipment
- Fish lamp
- Burn-in facility

■ Description

CSP-3000 is a 3KW single output enclosed type AC/DC power supply. This series operates for 180~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in fan with fan speed control, working for the temperature up to 65°C. Moreover, CSP-3000 provides vast design flexibility by equipping various built-in functions such as the output programming, active current sharing, remote ON-OFF control, auxiliary power, etc.

■ Model Encoding / Order Information

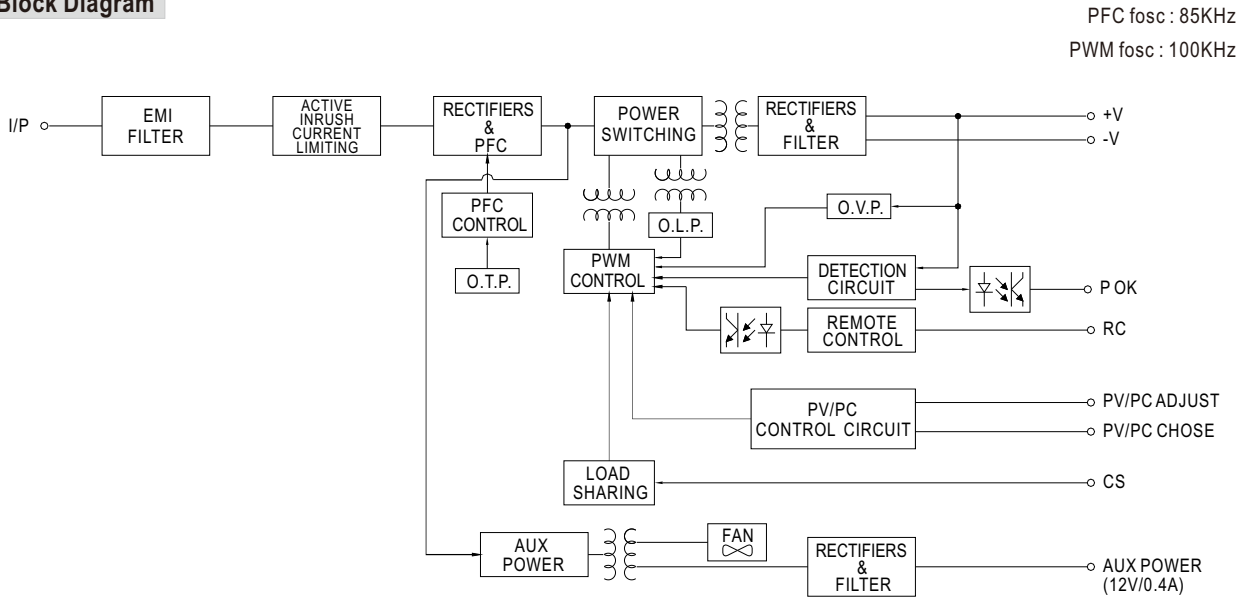
CSP - 3000 - 250



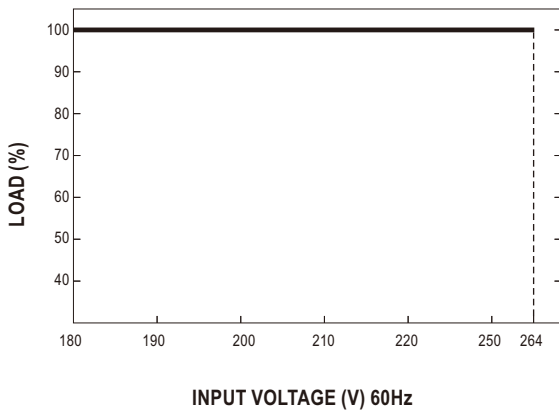
SPECIFICATION

| MODEL | | CSP-3000-120 | CSP-3000-250 | CSP-3000-400 | |
|--------------------------------|---|--|------------------|--|--|
| OUTPUT | DC VOLTAGE | 120V | 250V | 400V | |
| | RATED CURRENT | 25A | 12A | 7.5A | |
| | CURRENT RANGE | 0 ~ 25A | 0 ~ 12A | 0 ~ 7.5A | |
| | RATED POWER | 3000W | 3000W | 3000W | |
| | RIPPLE & NOISE (max.) Note.2 | 800mVp-p | 1000mVp-p | 1200mVp-p | |
| | CONSTANT CURRENT REGION | 90 ~ 120V | 125 ~ 250V | 200 ~ 400V | |
| | VOLTAGE TOLERANCE Note.3 | ±1.0% | ±1.0% | ±1.0% | |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | |
| | LOAD REGULATION | ±0.5% | ±0.5% | ±0.5% | |
| | SETUP, RISE TIME | 1000ms, 80ms / 230VAC at full load | | | |
| HOLD UP TIME (Typ.) | 10ms at full load | | | | |
| INPUT | VOLTAGE RANGE Note.4 | 180 ~ 264VAC 254 ~ 370VDC | | | |
| | FREQUENCY RANGE | 47~63Hz | | | |
| | POWER FACTOR (Typ.) | PF ≥ 0.95 / 230VAC at full load | | | |
| | EFFICIENCY (Typ.) | 92% | 92.5% | 93% | |
| | AC CURRENT (Typ.) | 20A/180VAC 16A/230VAC | | | |
| | INRUSH CURRENT (Typ.) | Cold start 60A/230VAC | | | |
| | LEAKAGE CURRENT | <0.3mA / 240VAC | | | |
| PROTECTION | SHORT CIRCUIT | Shut down and latch off o/p voltage, re-power on to recover | | | |
| | OVER CURRENT | 105 ~ 120% rated output power User adjustable continuous constant current limiting or constant current limiting with delay shutdown after 3 seconds, re-power on to recover (Please refer to the Function Manual) | | | |
| | OVER VOLTAGE | 127 ~ 150V | 265 ~ 315V | 420 ~ 500V | |
| | | Protection type : Shut down o/p voltage, re-power on to recover | | | |
| OVER TEMPERATURE | Shut down o/p voltage, recovers automatically after temperature goes down or re-power on to recover | | | | |
| FUNCTION | OUTPUT VOLTAGE PROGRAMMABLE(PV) | Please refer to the Function Manual. | | | |
| | OUTPUT CONSTANT CURRENT PROGRAMMABLE(PC) | Please refer to the Function Manual. | | | |
| | CURRENT SHARING | Please refer to the Function Manual. | | | |
| | AUXILIARY POWER(AUX) | 12V@0.4A | | | |
| | REMOTE ON-OFF CONTROL | Please refer to the Function Manual | | | |
| | ALARM SIGNAL OUTPUT | Power OK signal. Please refer to the Function Manual | | | |
| ENVIRONMENT | WORKING TEMP. | -20 ~ +65°C (Refer to "Derating Curve") | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85°C, 10 ~ 95% RH non-condensing | | | |
| | TEMP. COEFFICIENT | ±0.05%/°C (0 ~ 50°C) | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | |
| SAFETY & EMC (Note 5) | SAFETY STANDARDS | UL62368-1, Dekra seal EN62368-1, EAC TP TC004, GB4943.1 | | | |
| | 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 | Parameter | Standard | Test Level / Note | |
| | | Conducted | EN55032(CISPR32) | Class A | |
| | | Radiated | EN55032(CISPR32) | Class A | |
| | | Harmonic Current | EN61000-3-2 | ----- | |
| | Voltage Flicker | EN61000-3-3 | ----- | | |
| | EN55024 ,EN61000-6-2 | | | | |
| | EMC IMMUNITY | Parameter | Standard | Test Level / Note | |
| | | ESD | EN61000-4-2 | Level 3, 8KV air ; Level 2, 4KV contact | |
| | | Radiated | EN61000-4-3 | Level 3 | |
| | | EFT / Burst | EN61000-4-4 | Level 3 | |
| | | Surge | EN61000-4-5 | Level 3, 2KV/Line-Earth ; Level 2, 1KV/Line-Line | |
| Conducted | | EN61000-4-6 | Level 3 | | |
| Magnetic Field | | EN61000-4-8 | Level 4 | | |
| Voltage Dips and Interruptions | EN61000-4-11 | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods | | | |
| OTHERS | MTBF | 223.8K hrs min. Telcordia SR-332 (Bellcore) ; 75.1K hrs min. MIL-HDBK-217F (25°C) | | | |
| | DIMENSION | 278*177.8*63.5mm (L*W*H) | | | |
| | PACKING | 4Kg; 4pcs/16Kg/1.81CUFT | | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. In the PV Mode: 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. Turn off the output when input voltage is less than 160VAC.</p> <p>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 720mm*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 http://www.meanwell.com)</p> <p>6. 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).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | | |

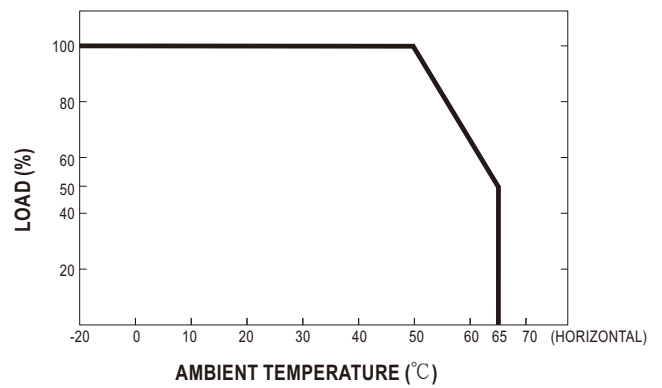
Block Diagram



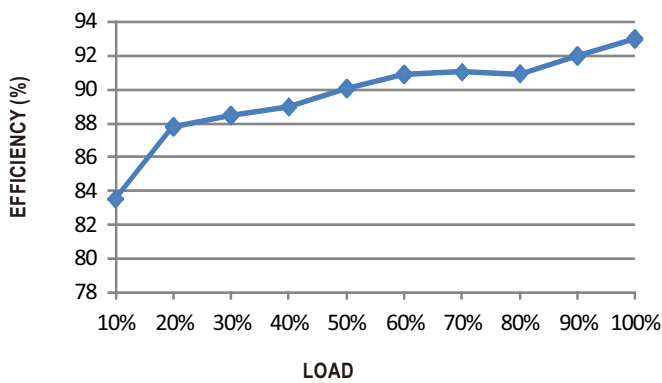
Static Characteristics



Derating Curve



Efficiency vs Load (400V Model)

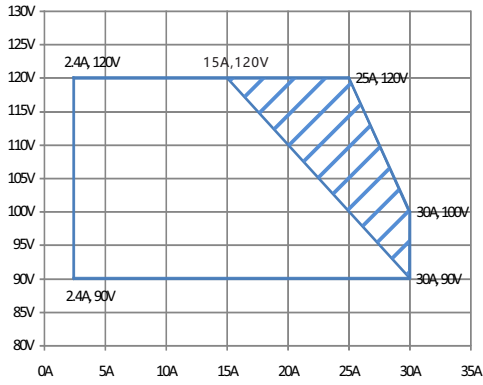


※ The curve above is measured at 230VAC.

DRIVING METHODS OF LED MODULE

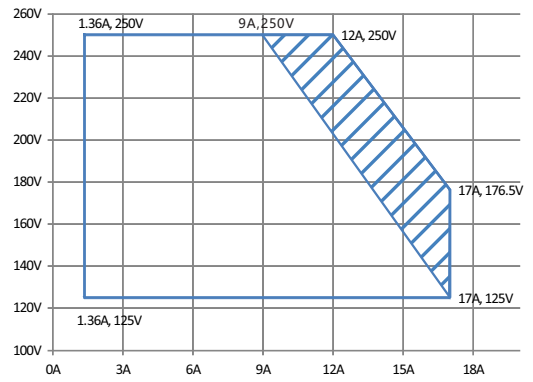
※ I-V Operating Area(for PC mode only)

◎ CSP-3000-120



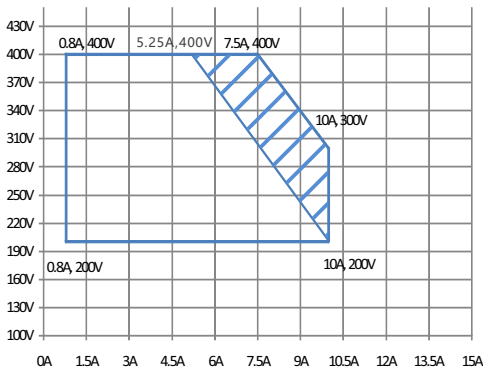
Recommended High Performance Region Allowed Operational Region

◎ CSP-3000-250



Recommended High Performance Region Allowed Operational Region

◎ CSP-3000-400



Recommended High Performance Region Allowed Operational Region

■ Function Manual

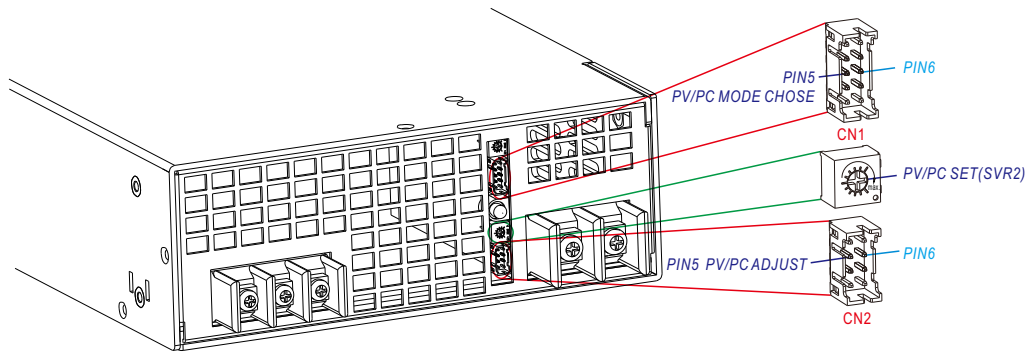
1. Output Voltage/Current Programming

※ Mode Setting

CN1:

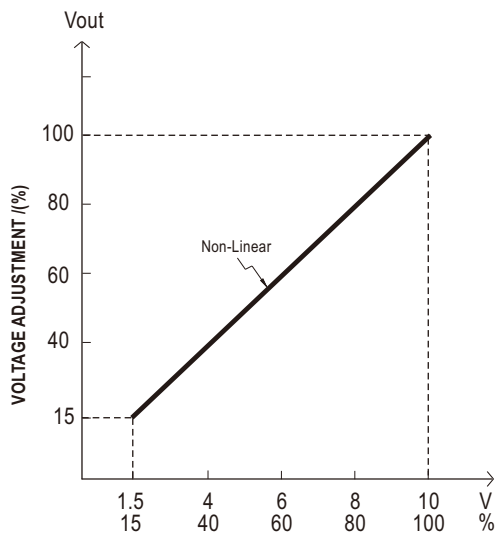
| | CONDITION | MODE | FUNCTION |
|-----------|-----------|---------|----------------------------|
| PIN5/PIN6 | SHORT | PV MODE | Output Voltage Programming |
| | OPEN | PC MODE | Output Current Programming |

※ The factory default settings: PV mode output max voltage pin5/pin6 short by jumper cap.
When pull out the jumper cap, the default settings: PC mode output max constant current.

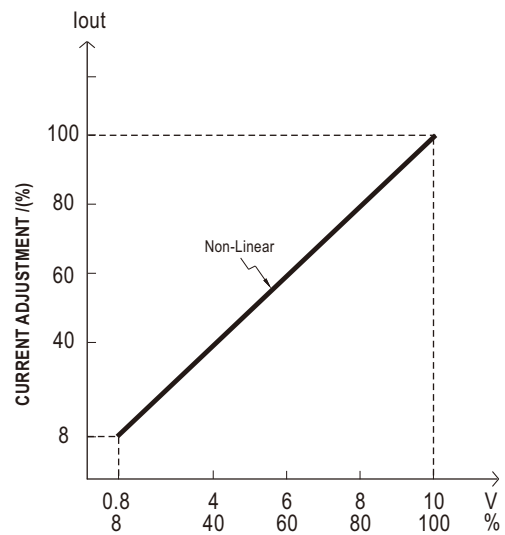


※ PV/PC Set adjustment

- ⊙ Adjust the resistance(SVR2) can set output voltage or constant current point, the adjusting range is 20%-100% of max voltage or max constant current point.
- ⊙ In the CN2, pin5/pin6 access external 10V voltage signal or 500-1KHz PWM signal can adjust the output voltage or constant current point. CN2: PIN5/PIN6 needs to operate with a 10V sinking signal or PWM signal, Max. sink current 1mA.



PIN5/PIN6 ACCESS TO EXTERNAL VOLTAGE SIGNALS(DC/PWM)

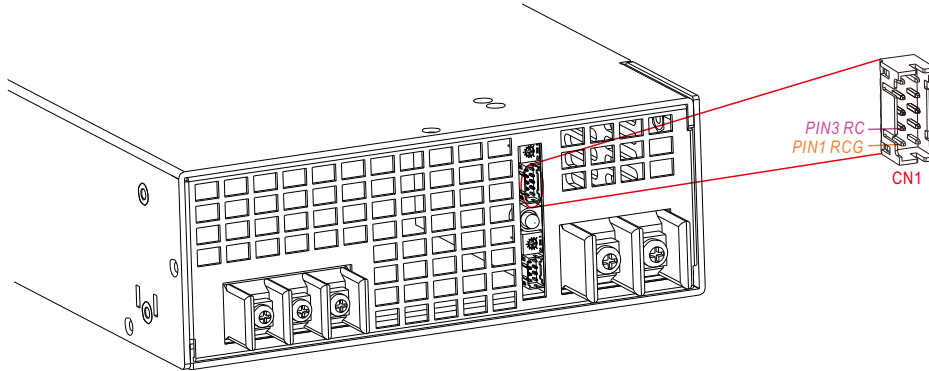


PIN5/PIN6 ACCESS TO EXTERNAL VOLTAGE SIGNALS(DC/PWM)

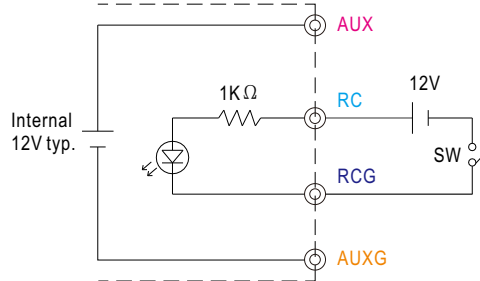
| MODEL | 120V | 250V | 400V |
|----------|-----------------|-------------------|-----------------|
| PV range | 18 ~ 120V(max.) | 37.5 ~ 250V(max.) | 60 ~ 400V(max.) |
| PC range | 2.4 ~ 30A(max.) | 1.4~ 17A(max.) | 0.8 ~ 10A(max.) |

2.Remote ON-OFF

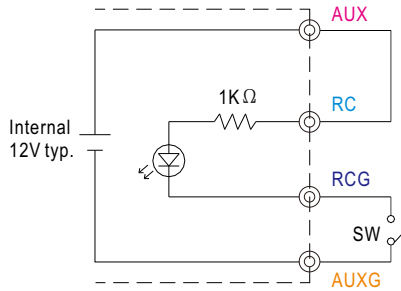
※ Remote ON-OFF is activated by the configuration with respect to CN1 as shown in the following diagram.



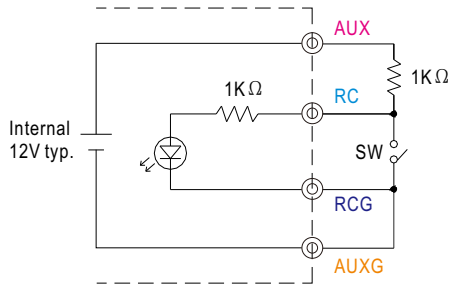
Example 2.2(A): Using external voltage source



Example 2.2(B): Using internal 12V auxiliary output



Example 2.2(C): Using internal 12V auxiliary output

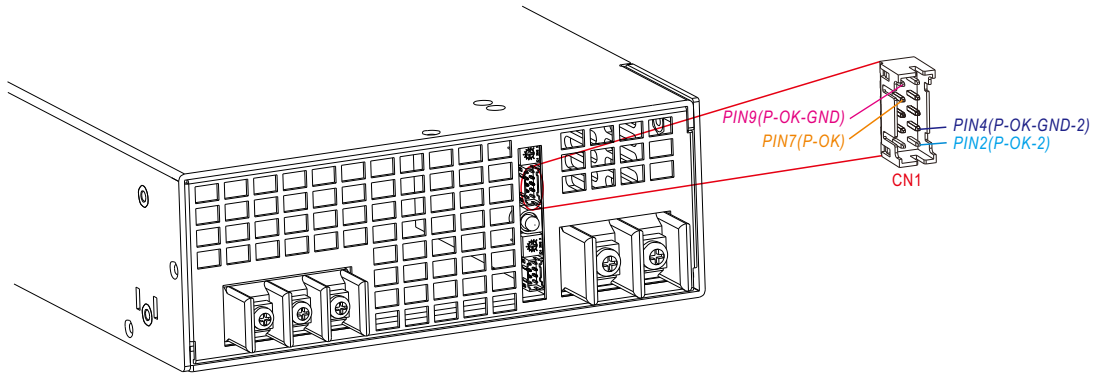


© Connection Method

| | | Example 2.2(A) | Example 2.2(B) | Example 2.2(C) |
|----------|-------------------------|-----------------|-----------------|-----------------|
| SW Logic | Power supply output ON | SW Open(open) | SW Open(open) | SW Close(short) |
| | Power supply output OFF | SW Close(short) | SW Close(short) | SW Open(open) |

3. Alarm Signal Output

※ Alarm signal is sent out through "P OK" & "P OK GND" and P OK2 & P OK GND2 pins on CN1. Please acknowledge an external voltage source is required for this function.



| Function | Description | Output of alarm(P OK, Relay Contact) | Output of alarm(P OK2, TTL Signal) |
|----------|---|--|---|
| P OK | The signal is "Low" when the power supply is above 80% of the rated output voltage, or, say, Power OK | Low (0.5V max at 500mA) | Low (0.5V max at 10mA) |
| | The signal turns to be "High" when the power supply is under 80% of the rated output voltage, or, say, Power Fail | High or open (External applied voltage, 500mA max.) | High or open (External applied voltage, 10mA max.) |

Table 3.1 Explanation of alarm

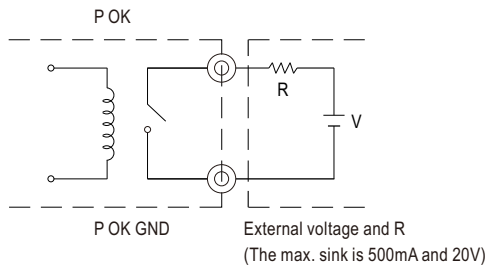


Fig. 3.2 Internal circuit of P OK (Relay, total is 10W)

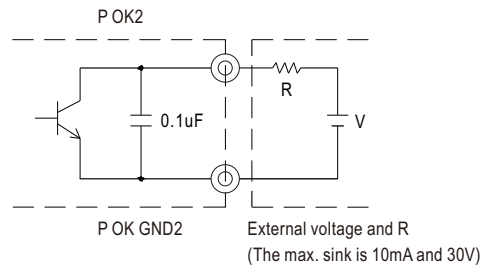


Fig. 3.3 Internal circuit of P OK2 (Open collector method)

4. Select Overload Protection Type

- Insert the shorting connector on CN1 that is shown in Fig 4.1, the Overload Protection Type will be "constant current limiting with delay shutdown after 3 seconds, re-power on to recover". This is the factory default.
- Remove the shorting connector on CN1 that is shown in Fig 4.2, the Overload Protection Type will be "continuous constant current limiting".

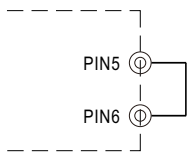


Fig. 4.1 Insert the CN1
Overload Protection Type : constant current limiting with delay shutdown after 3 seconds

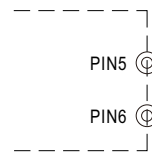


Fig. 4.2 Remove the CN1
Overload Protection Type : constant current limiting

5. Current Sharing

CSP-3000 has the built-in active current sharing function and can be connected in parallel, up to 3 units, to provide higher output power as exhibited below :

※ The power supplies should be paralleled using short and large diameter wiring and then connected to the load.

※ Difference of output voltages among parallel units should be less than 0.2V(Can Fine tune by SVR1).

※ The total output current must not exceed the value determined by the following equation:

$$\text{Maximum output current at parallel operation} = (\text{Rated current per unit}) \times (\text{Number of unit}) \times 0.9$$

※ When out current < (50% rate current) × (Number of unit),

the current shared among units may not be fully balanced.

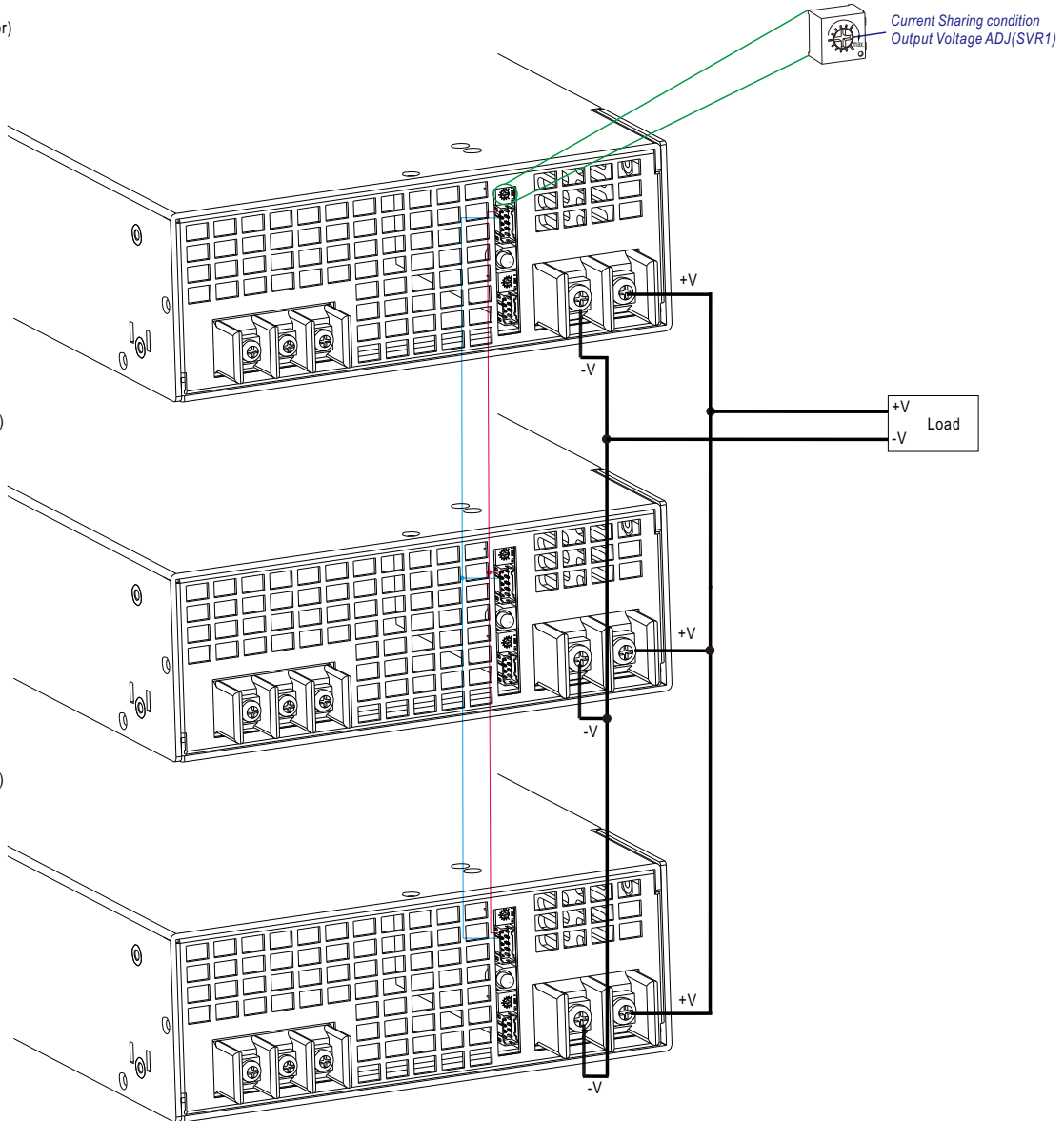
◎ CS+/CS- on CN1 are connected mutually in parallel(Note: CS+/CS- do not reverse connection).

◎ Under parallel operation, the "PV/PC" function is not available.

No.1(Master)

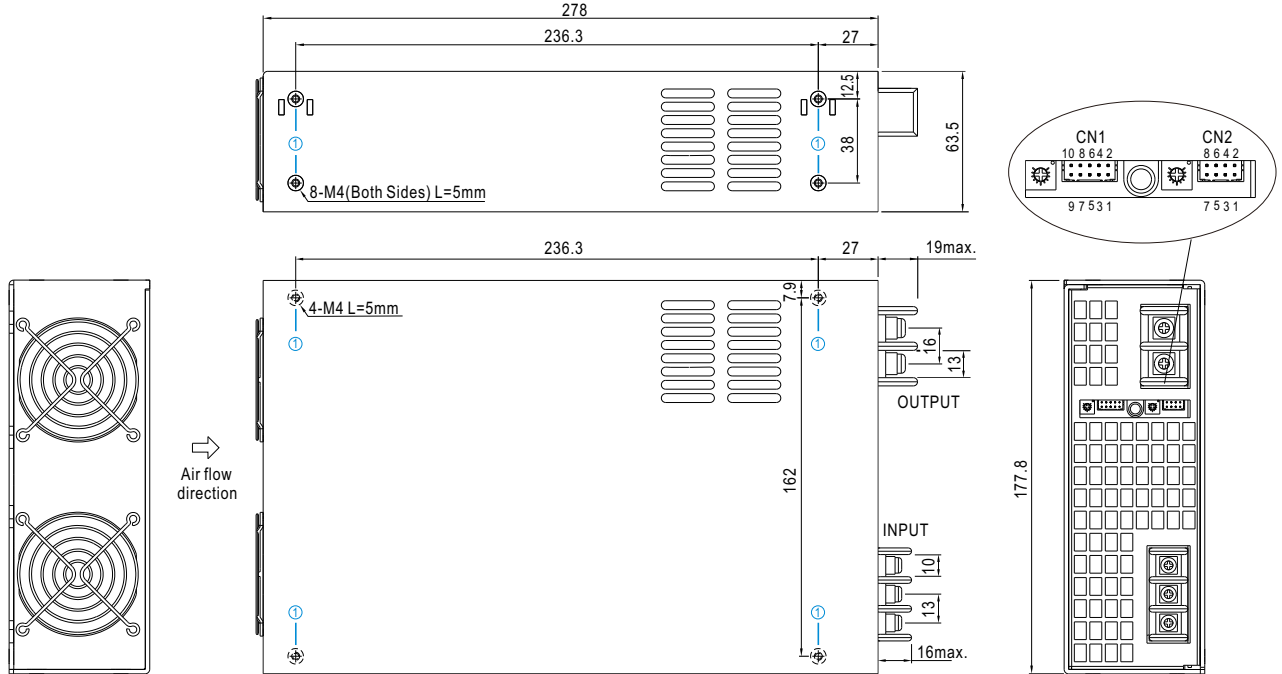
No.2(Slave)

No.3(Slave)



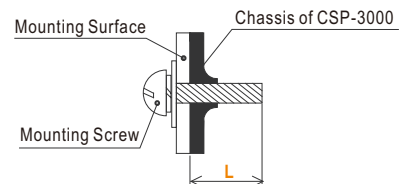
Mechanical Specification

Case No.982B Unit:mm

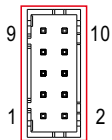


Mounting Instruction

| Hole No. | Recommended Screw Size | MAX. Penetration Depth L | Recommended mounting torque |
|----------|------------------------|--------------------------|-----------------------------|
| ① | M4 | 5mm | 7~10Kgf-cm |



Control Pin No. Assignment (CN1) : HRS DF11-10DP-2DS or equivalent

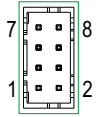


| | |
|----------------|-----------------------------|
| Mating Housing | HRS DF11-10DS or equivalent |
| Terminal | HRS DF11-**SC or equivalent |

© CN1 are connected internally.

| Pin No. | Function | Description |
|---------|------------|--------------------------------|
| 1 | RCG | Remote ON-OFF Ground |
| 2 | P-OK-2 | Power OK Signal(TTL Signal) |
| 3 | RC | Remote ON-OFF |
| 4 | P-OK-GND-2 | Power OK Ground |
| 5 | GND | PV/PC Mode Choose Ground |
| 6 | Mode | PV/PC Mode Choose |
| 7 | P-OK | Power OK Signal(Relay Contact) |
| 8 | CS+ | Current Sharing Signal+ |
| 9 | P-OK GND | Power OK Ground |
| 10 | CS- | Current Sharing Signal- |

※Control Pin No. Assignment (CN2) : HRS DF11-8DP-2DS or equivalent



| | |
|----------------|----------------------------|
| Mating Housing | HRS DF11-8DS or equivalent |
| Terminal | HRS DF11-8SC or equivalent |

| Pin No. | Function | Description |
|---------|----------|----------------------|
| 1 | 12V AUXG | Auxiliary output GND |
| 2 | 12V AUX+ | Auxiliary output+ |
| 3 | NC | |
| 4 | NC | |
| 5 | PV/PC+ | PV/PC adjust+ |
| 6 | PV/PC- | PV/PC adjust- |
| 7 | NC | |
| 8 | NC | |

Note: NC pins, please keep open circuit and do not connect to other pins/signals.

※LED status indication

| LED | LED Signal | Description |
|---|------------|---|
| Green LED normal | | Power supply working normally |
| Green LED slow flash (Cycle 1.4S) | | Standby power supply (Remote off) |
| Red LED of flash (Cycle 200mS) | | Power OVP, output voltage too low |
| Red LED slow flash (Cycle 1.4S) | | NTC fault, power OTP, temperature switch action |
| Red LED normal | | Power fan fault |
| Red LED of flash (Cycle 200mS) Green LED of flash | | Line fault, CN2 pin 7/8 signal abnormal |

※AC Input Terminal Pin No. Assignment

| Pin No. | Assignment | Diagram | Maximum mounting torque |
|---------|------------|---------|-------------------------|
| 1 | AC/L | | 18Kgf-cm |
| 2 | AC/N | | |
| 3 | FG \perp | | |

※DC Output Terminal Pin No. Assignment

| Pin No. | Assignment | Diagram | Maximum mounting torque |
|---------|------------|---------|-------------------------|
| 1 | V- | | 18Kgf-cm |
| 2 | V+ | | |

■ Installation Manual

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