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## CSS280 SERIES USER MANUAL

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### **General Safety Instructions**

This is an open type switch mode power supply for use in applications meeting Pollution Degree 2 environment. A suitable mechanical and fire enclosure must be provided by the end use equipment for shock hazard protection, fire protection and protection from hazardous energy levels.



READ SAFETY INSTRUCTIONS carefully before working on the unit.



HIGH VOLTAGE WARNING: Dangerous voltages are present in the power supply.

1. Do not install, test or operate this unit near water and do not spill any liquid on it.
2. Do not operate this unit unless it is in a secure position.

This unit must be installed and put into service by authorized competent personnel only who are fully conversant with the hazards of AC line operated equipment and with the particular dangers associated with switch mode power supplies.

The output power taken from the power supply must not exceed the rating stated on the power supply label. Refer to typical rating on power supply label for product's real output.

In case of defect, this unit must be returned to the manufacturer.

### **Safety Agency Certifications** (Refer to Engineering Considerations in reports)

UL/CSA 60601-1 and IEC/EN 60601-1  
EMC should be evaluated to IEC/EN 60601-1-2 in the final system.  
UL/CSA 60950-1 2nd Edition and IEC/EN 60950-1:2006+A11+A1+A12+A2  
CE marked in accordance with Low Voltage Directive and RoHS2

### **Environmental Specifications**

Storage and Transportation: -20°C to 85°C, 10% to 95%RH  
Operating: 70°C max ambient, IPX0, Continuous, Class I, NOT evaluated as AP/APG equipment.

### **Input Rating**

100-240 VAC, 3.5 A, 50/60 Hz

## **Output Rating**

Model	Output Voltage	Maximum Current Convection	Maximum Power Convection	Maximum Current Forced Air	Maximum Power Forced Air
CSS280-12	12V	17.5A	210W	23.33A	280W
CSS280-24	24V	8.75A	210W	11.66A	280W
CSS280-28	28V	7.5A	210W	10A	280W
CSS280-48	48V	4.375A	210W	5.83A	280W
CSS280-54	54V	3.88A	210W	5.18A	280W

## **Connections**

### CN1: Input Connector

Mates with JST housing VAR-2, terminals SVA-41T-P1.1; 20-18 AWG

- Pin 1 AC Line
- Pin 2 AC Neutral

### CN2: Fan Supply Connector

Mates with JST housing XHP-2, terminals: SXH-001T-P0.6; 28-22 AWG

- Pin 1 0V Fan (Common)
- Pin 2 +12V Fan

### CN3: Main Output Connector – Terminal Block type (no suffix on model part number)

4 position terminal block 8.25mm pitch

- Pin 1 0V Output (Common)
- Pin 2 0V Output (Common)
- Pin 3 +V Output
- Pin 4 +V Output

### CN3: Main Output Connector – JST type (/J suffix on model part number)

Mates with JST housing VHR-8N, terminals SVH-21T-P1.1; 22-18 AWG or SVH-41T-P1.1 20-16AWG

- Pin 1 0V Output (Common)
- Pin 2 0V Output (Common)
- Pin 3 0V Output (Common)
- Pin 4 0V Output (Common)
- Pin 5 +V Output
- Pin 6 +V Output
- Pin 7 +V Output
- Pin 8 +V Output

### CN3: Main Output Connector – Molex Mini Fit type (/M suffix on model part number)

Mates with Molex housing 39-28-1123, terminals 0039000039; 24-18 AWG

- Pin 1 +V Output
- Pin 2 +V Output
- Pin 3 +V Output
- Pin 4 0V Output (Common)
- Pin 5 0V Output (Common)
- Pin 6 0V Output (Common)
- Pin 7 +V Output
- Pin 8 +V Output
- Pin 9 +V Output
- Pin 10 0V Output (Common)
- Pin 11 0V Output (Common)
- Pin 12 0V Output (Common)

CN4: Remote on/off and Standby Output Connector  
 Mates with JST housing XHP-4, terminals SXH-001T-P0.6; 28-22 AWG

- Pin 1 0V Output (Common)
- Pin 2 +5Vsb
- Pin 3 Remote On/Off
- Pin 4 0V Output (Common)

**5Vsb (StandBy Output)**

The 5Vsb is always “ON”, even when the power supply inhibit is activated. The 5Vsb return is via 0V Output (Common) terminal.

**12V Fan Output**

Connect to CN2.

**Remote On/Off**

The CSS280 can be remotely turned on or off with or closed contact.

- Output inhibited (OFF) Short CN4 pin 3 to pin 4 or  $0V < V_{ext} < 1V$
- Output enabled (ON) Open circuit (floating) or  $3.5 < V_{ext} < 5.15V$

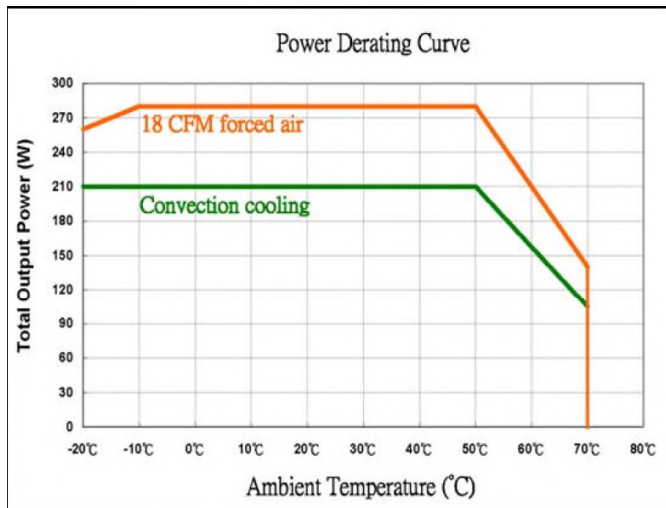
The Remote On/Off return is via the 0V Output (Common) terminal (pin 4) on CN4

**Output Potentiometer**

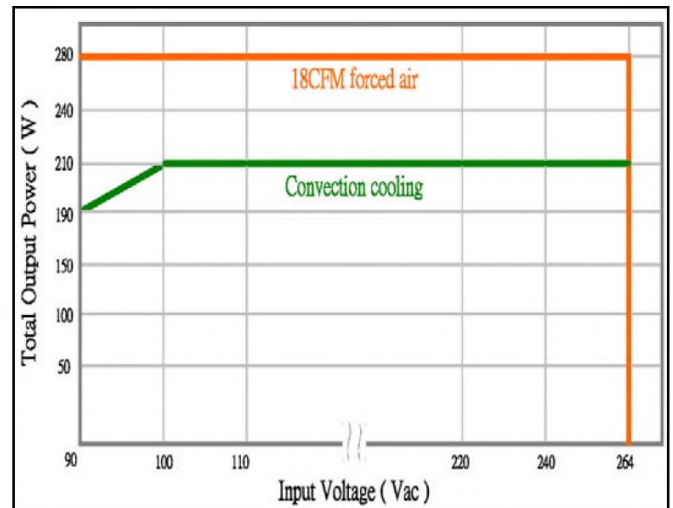
The output potentiometer is fitted for factory adjustment only.

**Operating Temperature and Cooling**

Please refer to the following charts.

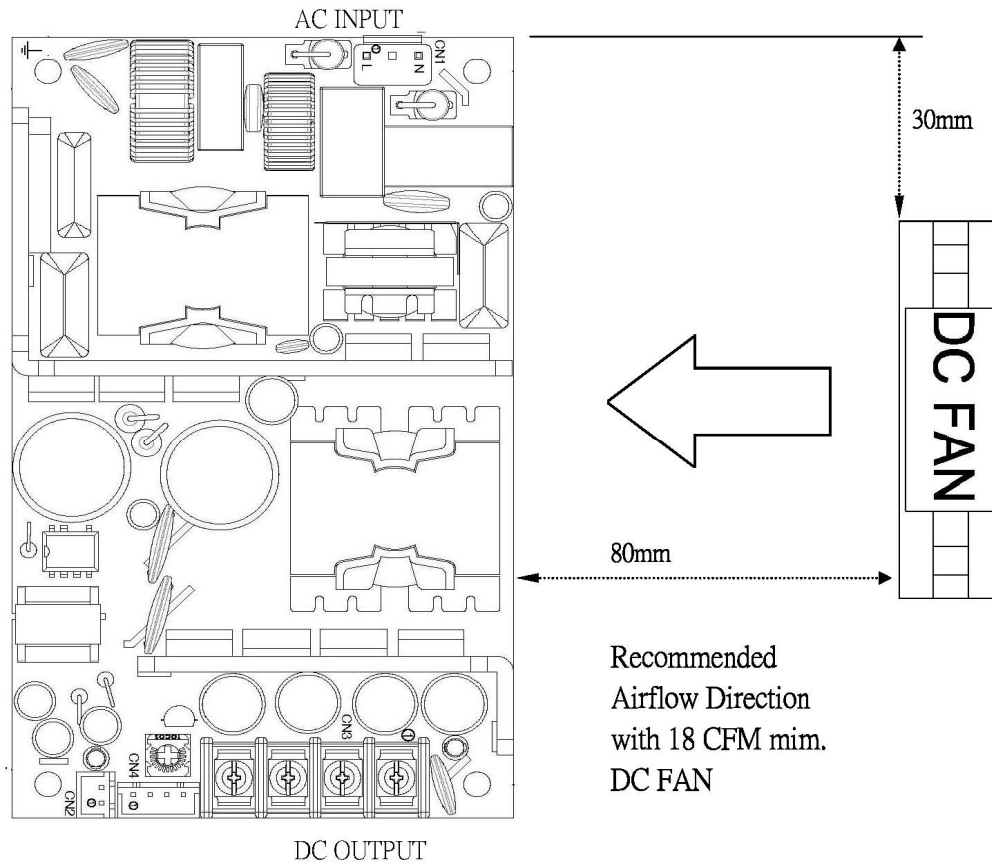


Derate linearly 2.5% per °C from 51 to 70°C  
 280W derate linearly 0.72% per °C from -10 to -20°C



Convection cooling total output 210W  
 Derate linearly 1% per Vac from 100 to 90Vac

The recommended direction and position of the external fan should be as follows..



### **Dielectric Withstand (hipot)**

Before applying a test voltage, ensure the following connections are jumpered:

Primary to Secondary	4,000VAC*	L to N, + Output to – Output, Outputs to Ground
Primary to Ground	1,500VAC	
Secondary to Ground	1,500VAC	

\*This test is not possible with Y capacitors fitted to the unit as damage to these capacitors will occur.

**Grounding points & Orientation**

The CSS280 is a Class I product. When installing the CSS280, fixing points A & B must be securely connected to a protective earth in the final system assembly for optimum performance. See outline drawings for location.

For correct thermal performance, mount unit horizontally with connectors facing upwards. See outline drawings.

**Outline Drawings**

