

250 Watts

xppower.com 

## CCM250 Series



- Convection Cooled
- 300 W Peak Rating for 500 ms
- Very High Efficiency up to 95%
- Class B Conducted & Radiated Emissions
- 80 - 275 VAC Operation
- IT, Industrial & Medical Safety Approvals
- 3 Year Warranty

## Specification

## Input

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Input Voltage         | • 80-275 VAC (See derating curve)                                            |
| Input Frequency       | • 47-63 Hz                                                                   |
| Input Current         | • 2.4 A typical at 115 VAC, full load<br>1.2 A typical at 230 VAC, full load |
| Inrush Current        | • 30 A max at 230 VAC, cold start (25 °C)                                    |
| Power Factor          | • EN61000-3-2, class A                                                       |
| Earth Leakage Current | • 250 µA at 264 VAC/60 Hz max.                                               |
| Input Protection      | • Internal T5.0 A/250 V fuse in line and neutral                             |

## Output

|                                |                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------|
| Output Voltage                 | • 12-48 VDC (see tables)                                                         |
| Output Voltage Trim            | • ±3% (see Mechanical Details)                                                   |
| Initial Set Accuracy           | • ±0.5% V1, ±5% V2                                                               |
| Minimum Load                   | • No minimum load required                                                       |
| Start Up Delay                 | • 1 s typical                                                                    |
| Start Up Rise Time             | • 50 ms typical                                                                  |
| Hold Up Time                   | • 16 ms min at 115 VAC                                                           |
| Drift                          | • ±0.2% after 20 min warm up                                                     |
| Line Regulation                | • ±0.5% max                                                                      |
| Load Regulation                | • ±1% V1, ±5% V2                                                                 |
| Over/Undershoot                | • 5% typical                                                                     |
| Transient Response             | • 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change |
| Ripple & Noise                 | • 1% pk-pk, 20 MHz bandwidth                                                     |
| Overvoltage Protection         | • 115-140% Vnom, recycle input to reset (V1 only)                                |
| Overload Protection            | • 125-165% Inom V1 only                                                          |
| Short Circuit Protection       | • Continuous trip and restart (Hiccup mode)                                      |
| Temperature Coefficient        | • 0.05%/°C                                                                       |
| Remote On/Off (Inhibit/Enable) | • Uncommitted isolated optocoupler diode, powered diode inhibits V1              |

## General

|                     |                                                                                |
|---------------------|--------------------------------------------------------------------------------|
| Efficiency          | • Up to 95%                                                                    |
| Isolation           | • 4000 VAC Input to Output, 1500 VAC Input to Ground, 500 VAC Output to Ground |
| Switching Frequency | • PFC 30-500 kHz, Boost 25.6 kHz, Main 51.2 kHz                                |
| Signals             | • Power Fail<br>Remote On/Off, 5 V Standby                                     |
| MTBF                | • 365 kHrs to MIL-HDBK-217F at 25°C, GB                                        |

## Environmental

|                       |                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | • -20 °C to +70 °C derate linearly from +50 °C at 2.5%/°C to 50% load at +70 °C. See derating curve and longform datasheet for thermal considerations. (-40 °C consult sales) |
| Cooling               | • Convection cooled                                                                                                                                                           |
| Operating Humidity    | • 95% RH, non-condensing                                                                                                                                                      |
| Storage Temperature   | • -40 °C to +85 °C                                                                                                                                                            |
| Operating Altitude    | • 3000 m                                                                                                                                                                      |
| Shock                 | • 30 g pk, half sine, 6 axes                                                                                                                                                  |
| Vibration             | • 2 g rms, 5 Hz to 500 kHz, 3 axes                                                                                                                                            |

## EMC &amp; Safety

|                               |                                                                                                                                                                                                                                |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low Voltage PSU EMC Emissions | • EN61204-3, high severity level as below<br>• EN55022 level B conducted<br>• EN55022 level B radiated                                                                                                                         |
| Harmonic Currents             | • EN61000-3-2, class A                                                                                                                                                                                                         |
| Voltage Flicker               | • EN61000-3-3                                                                                                                                                                                                                  |
| Radiated Immunity             | • EN61000-4-3, level 3 Perf Criteria A                                                                                                                                                                                         |
| EFT/Burst                     | • EN61000-4-4, level 3 Perf Criteria A                                                                                                                                                                                         |
| Surge                         | • EN61000-4-5, installation class 3 Perf Criteria A                                                                                                                                                                            |
| Conducted Immunity            | • EN61000-4-6, level 3 Perf Criteria A                                                                                                                                                                                         |
| Dips & Interruptions          | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B - 230 VAC. Consult longform datasheet for 115 V operation. |
| Safety Approvals              | • See Safety Approvals (see next page)                                                                                                                                                                                         |
| Equipment Protection Class    | • Class I                                                                                                                                                                                                                      |

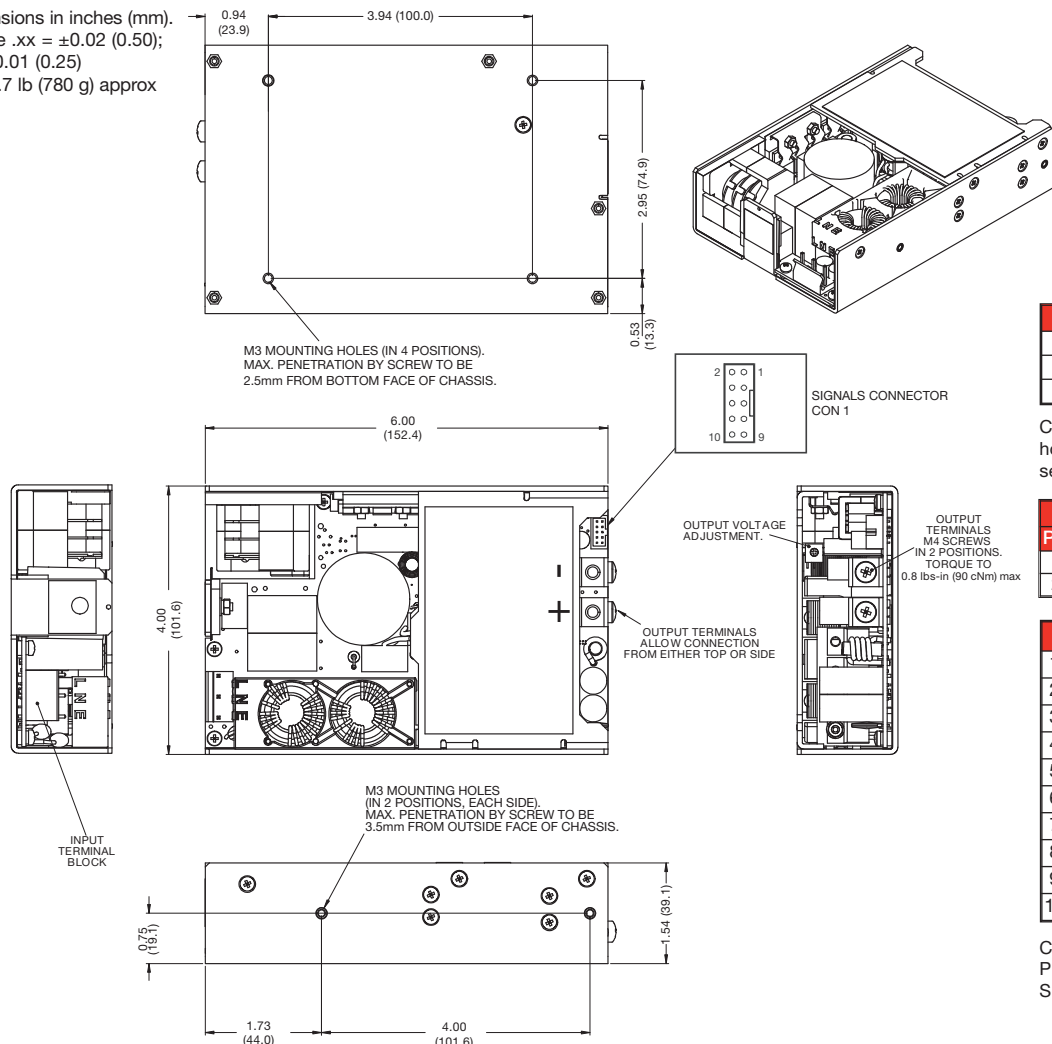
| Output Power |          | Output Voltage V1 | Output Current V1 |          | Standby Supply V2 | Model Number |
|--------------|----------|-------------------|-------------------|----------|-------------------|--------------|
| Nominal      | Peak (1) |                   | Nominal           | Peak (1) |                   |              |
| 250 W        | 300 W    | 12.0 VDC          | 20.8 A            | 25 A     | 5.0 V/0.5 A       | CCM250PS12   |
| 250 W        | 300 W    | 15.0 VDC          | 16.7 A            | 20 A     | 5.0 V/0.5 A       | CCM250PS15   |
| 250 W        | 300 W    | 24.0 VDC          | 10.4 A            | 12.5 A   | 5.0 V/0.5 A       | CCM250PS24   |
| 250 W        | 300 W    | 28.0 VDC          | 8.9 A             | 10.7 A   | 5.0 V/0.5 A       | CCM250PS28   |
| 250 W        | 300 W    | 36.0 VDC          | 6.9 A             | 8.3 A    | 5.0 V/0.5 A       | CCM250PS36   |
| 250 W        | 300 W    | 48.0 VDC          | 5.2 A             | 6.25 A   | 5.0 V/0.5 A       | CCM250PS48   |

**Notes**

1. Peak duration is 500ms max, average power must not exceed 250 W.

**Mechanical Details**

All dimensions in inches (mm).  
Tolerance .xx =  $\pm 0.02$  (0.50);  
.xxx =  $\pm 0.01$  (0.25)  
Weight 1.7 lb (780 g) approx



| Input Connector CON 4 |         |
|-----------------------|---------|
| 1                     | Line    |
| 2                     | Neutral |
| 3                     | Earth   |

CON 4 mates with Molex housing 09-50-1051 and Molex series 5194 crimp terminals.

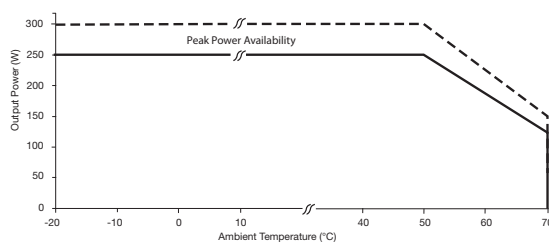
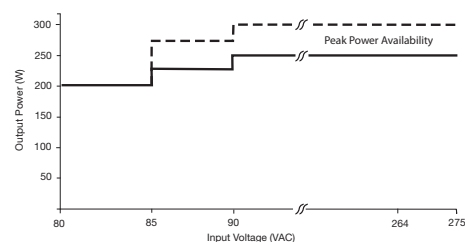
| Output Connector CON 3 |        |
|------------------------|--------|
| Pin                    | Single |
| 1                      | +V1    |
| 2                      | V1 RTN |

| Signals Connector CON 1 |                           |
|-------------------------|---------------------------|
| 1                       | 5 V Standby Return        |
| 2                       | 5 V Standby               |
| 3                       | 5 V Standby Return        |
| 4                       | 5 V Standby               |
| 5                       | 5 V Standby Return        |
| 6                       | 5 V Standby               |
| 7                       | Power Fail (Collector)    |
| 8                       | Power Fail (Emitter)      |
| 9                       | Remote On / Off (Cathode) |
| 10                      | Remote On / Off (Anode)   |

CON 1 mates with JST housing PHDR-10VS with contact SPHD-001T-P0.5

**Notes**

1. At AC switch on the output (V1) may momentarily rise when the unit is disabled using the 5 V standby supply in conjunction with the Remote On/Off function. (See longform datasheet for details)

**Input Voltage & Temperature Derating****Safety Approvals**

IEC60950-1 CB report, CSA 22.2 No. 60950-1, UL60950-1, TUV EN60950-1

IEC60601-1 CB report, CSA 22.2 No. 60601-1, UL60601-1, TUV 60601-1,

TUV IEC61010-1