400 Watts
SMM Series

- EN60601-1, UL60601-1 Approved
- Low Profile for 1U Applications
- Optional Current Share and AC Fail
- Wide Range of Safety-Approved Output Voltages
- Fan Cover and U Channel Versions
- Class B Conducted Emissions
- Optional Molex Connectors

Specification

Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 6.35 A at 90 VAC, full load
Inrush Current	• 35 A peak max (cold start at 240 VAC and full load)
Power Factor	• Meets EN61000-3-2 Class D
Earth Leakage Current	• <300 µA max at 264 VAC
UVLO	• Shut down when 75 VAC < Vin < 85 VAC and turns on when Vin >86 VAC
Input Protection	• Internal 8 A fuse in line and neutral

Output

Output Voltage	• 3.3-48 V. See output table
Output Voltage Trim	• ±5% on V1, adjustable by user
Initial Set Accuracy	• Within 1% of stated output voltage
Minimum Load	• Single output: 1% Dual output (V1): 10%
Start Up Delay	• 2 s max at 120 VAC
Hold Up Time	• 20 ms min at 80% full load
Line Regulation	• <0.5%
Load Regulation	• <±1% (single outputs) <±5% (dual outputs)
Over/Undershoot	• Not to exceed 5% of nominal voltage
Transient Response	• Output voltage recovers to within 1% in less than 2.5 ms for a 50% load change. Peak/dip will not exceed 5% of nominal output
Ripple & Noise	• <1% of nominal output voltage
Overvoltage Protection	• 130% Vnom, recycle input to reset
Overtemperature Protection	• Shuts down at 85 °C, auto recovery
Overload Protection	• 110-140%
Short Circuit Protection	• Indefinite, auto recovery
Remote Sense	• Compensates for up to 0.5 V drop
Remote On/Off	• On = TTL Logic High or Open Off = TTL Logic Low or Short
Current Share	• Optional
Fan Drive	• 12 V at 500 mA

General

Efficiency	• 3.3 & 5 V single output: 70% min All other single output: 80% min Dual outputs: 75% min at 230 VAC, full load
Isolation	• 4000 VAC Input to Output 1500 VAC Input to Ground
Switching Frequency	• 25 kHz for PWM stage, 60 kHz for PFC stage
Power Density	• 6.25 W/In³ based on unit without cover/fan
Signals	• ACF, Current Share, Power Good, Current Monitor
MTBF	• 140 kHrs at 25 ºC per MIL-HDBK-217F

Environmental

Operating Temperature	• -0 °C to +70 °C, derate linearly from 50 °C to 70 ºC at 2.5 % /°C
Cooling	• Minimum 23 CFM airflow required for maximum power output
Operating Humidity	• 5-90% RH, non-condensing
Storage Temperature	• -20 °C to +85 °C
Vibration	• 5 Hz to 50 Hz, acceleration ±7.35 m/s² on 3 axis

EMC & Safety

Emissions	• Meets EN61000-3-2, -3, FCC Part 15 Subject J & CISPR22 Class B conducted
Harmonic Currents	• EN61000-3-2
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria B
Radiated Immunity	• EN61000-4-3, 3 V/m Perf Criteria B
EFT/Burst	• EN61000-4-4, level 2 Perf Criteria B
Surge	• EN61000-4-5, level 3 Perf Criteria B
Conducted Immunity	• EN61000-4-6, 3 V, Perf Criteria B
Safety Approvals	• UL60601-1, EN60601-1, EN60950, UL60950, CSA C22.2 No. 60950-1-03, CSA C22.2 No. 601.1-M90

Models and Ratings

SMM-C

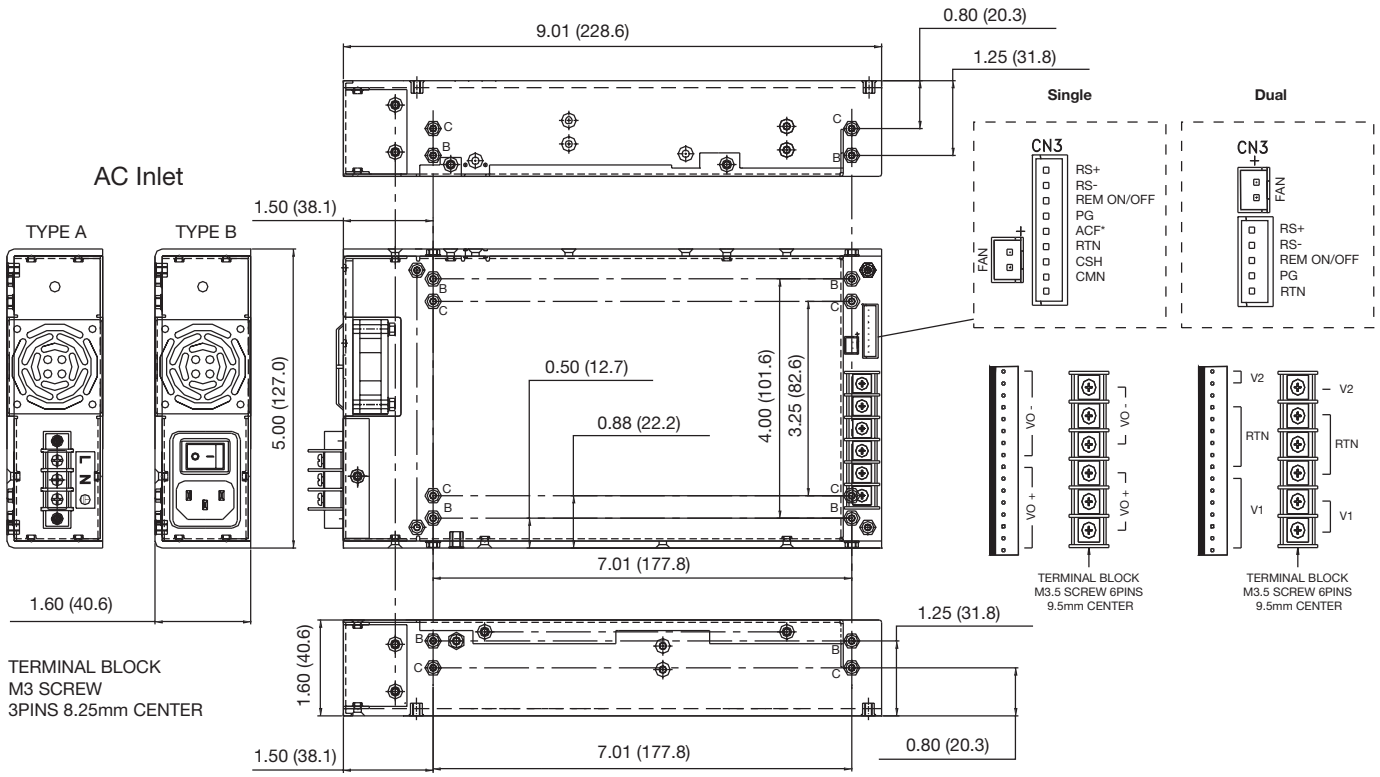
Output Voltage Range[1]	Total Output Power	Output 1 - Maximum Output Current	Output 2 - Maximum Output Current	Model Number[2,3,4]
3.3 V	198 W	60.00 A		SMM400PS03-C
5.0 V	300 W	60.00 A		SMM400PS05-C
12.0 V	400 W	33.34 A		SMM400PS12-C
18.0 V	400 W	22.20 A		SMM400PS18-C
24.0 V	400 W	16.70 A		SMM400PS24-C
36.0 V	400 W	11.10 A		SMM400PS36-C
48.0 V	400 W	8.30 A		SMM400PS48-C
3.3 V / 12.0 V	300 W	40.00 A	25.00 A	SMM400PD21-C
3.3 V / 24.0 V	300 W	40.00 A	12.50 A	SMM400PD22-C
5.0 V / 12.0 V	300 W	40.00 A	25.00 A	SMM400PD23-C
5.0 V / 24.0 V	300 W	40.00 A	12.50 A	SMM400PD24-C
12.0 V / 24.0 V	400 W	25.00 A	12.50 A	SMM400PD25-C

Notes

1. Alternative output voltages available. Contact sales.
2. Standard input is screw terminal. Alternative option is IEC320 (add suffix '-D').
3. Standard output is screw terminal. Alternative is Molex (add suffix '-G').
4. For current share option, add suffix '-I' to model number (remote sense not available).
5. When ordering, please place option suffixes in alphabetical order, e.g. SMM400PS24-CDI

Mechanical Details

All dimensions in inches (mm)
Weight: 2.20 lbs (1.0 kg)
Max Screw Penetration: 0.15 (3.81) on bottom
0.25 (6.35) on sides



Mating Connectors
Signal Connector (Single): JST XHP-9
Signal Connector (Dual): JST XHP-5

Models and Ratings

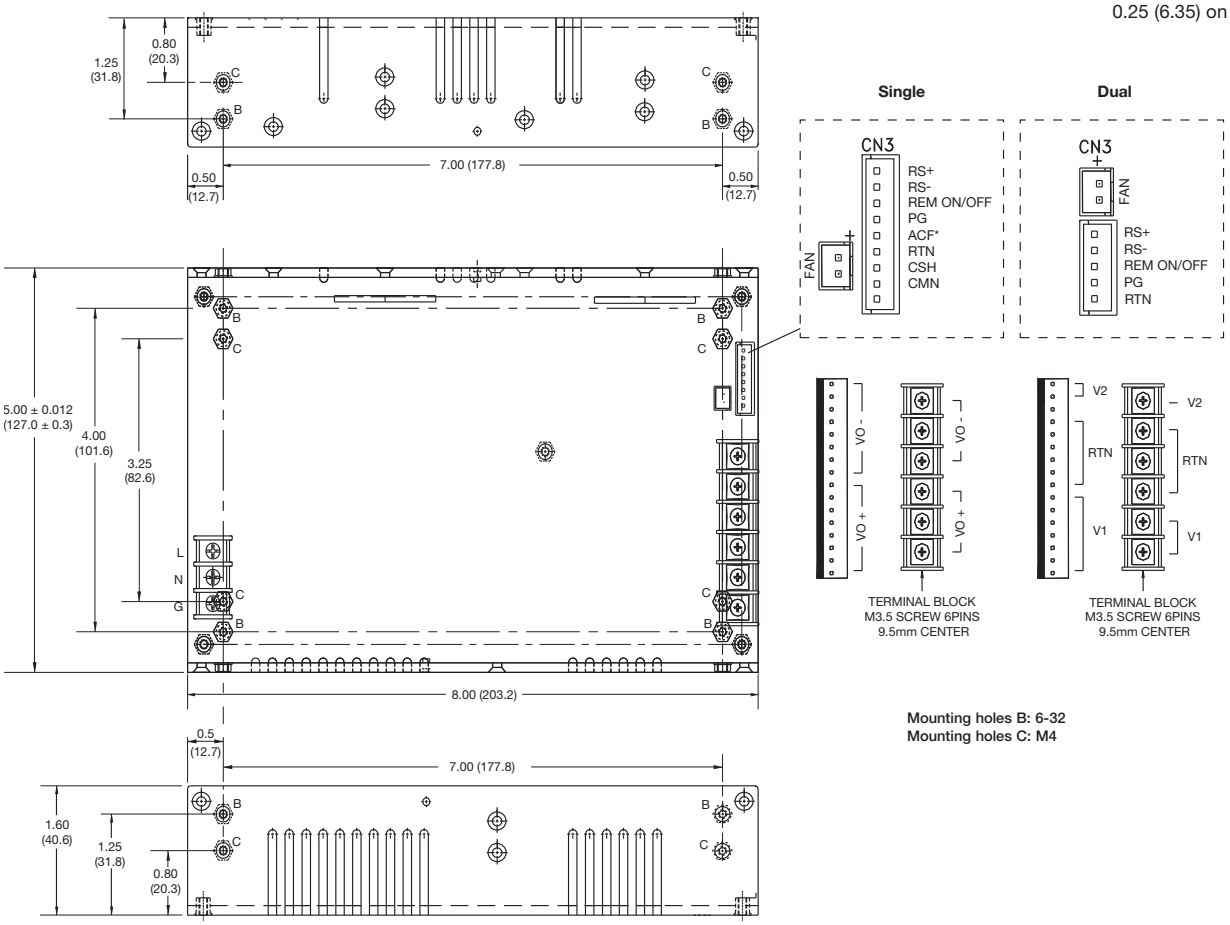
Output Voltage Range[1]	Total Output Power		Output 1 Maximum Output Current		Output 2 Maximum Output Current		Model Number[2,3,4,5]
	Convection	Fan-Cooled	Convection	Fan-Cooled	Convection	Fan-Cooled	
3.3 V	148.5 W	198 W	45.00 A	60.00 A			SMM400PS03
5.0 V	225.0 W	300 W	45.00 A	60.00 A			SMM400PS05
12.0 V	250.0 W	400 W	20.80 A	33.34 A			SMM400PS12
18.0 V	250.0 W	400 W	13.90 A	22.20 A			SMM400PS18
24.0 V	250.0 W	400 W	10.40 A	16.70 A			SMM400PS24
36.0 V	250.0 W	400 W	6.90 A	11.10 A			SMM400PS36
48.0 V	250.0 W	400 W	5.20 A	8.30 A			SMM400PS48
3.3 V / 12.0 V	200.0 W	300 W	30.00 A	40.00 A	16.70 A	25.00 A	SMM400PD21
3.3 V / 24.0 V	200.0 W	300 W	30.00 A	40.00 A	8.30 A	12.50 A	SMM400PD22
5.0 V / 12.0 V	200.0 W	300 W	30.00 A	40.00 A	16.70 A	25.00 A	SMM400PD23
5.0 V / 24.0 V	200.0 W	300 W	30.00 A	40.00 A	8.30 A	12.50 A	SMM400PD24
12.0 V / 24.0 V	250.0 W	400 W	16.70 A	25.00 A	8.30 A	12.50 A	SMM400PD25

Notes

1. Alternative output voltages available. Contact sales.
2. For optional cover, add suffix '-A'.
3. Standard input is screw terminal. Alternative Molex option available (add suffix '-F').
4. Standard output is screw terminal. Alternative is Molex (add suffix '-G').
5. For current share option, add suffix '-I' to model number (remote sense not available).
6. When ordering, please place option suffixes in alphabetical order, e.g. SMM400PS24-GI

Mechanical Details

All dimensions in inches (mm)
Weight: 2.20 lbs (1.0 kg)
Max Screw Penetration: 0.15 (3.81) on bottom
0.25 (6.35) on sides



Mounting holes B: 6-32
Mounting holes C: M4

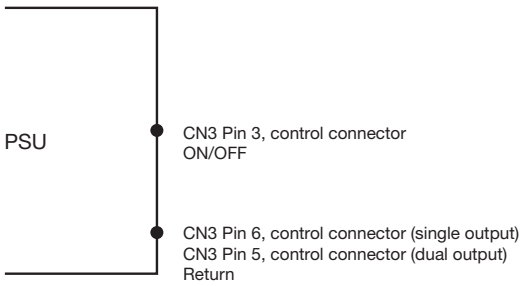
Mating Connectors

Signal Connector (Single): JST XHP-9
Signal Connector (Dual): JST XHP-5
Fan Connector: JST XHP-2

'-F' optional input: Molex No. 09-91-0700
'-G' optional output: Molex No. 09-91-1600

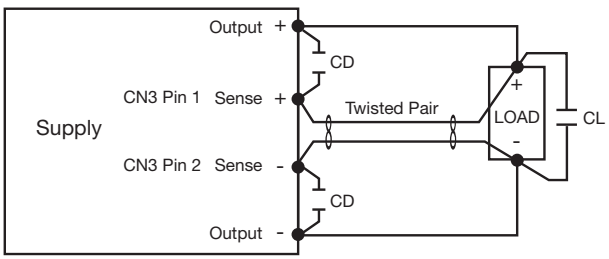
Application Notes

Remote On/Off



Note:
1. Applying <0.3 V or short between pins 5(6) and 3 turns the output OFF.
2. Applying >4.5 V or open circuit between pins 5(6) and 3 turns output ON.

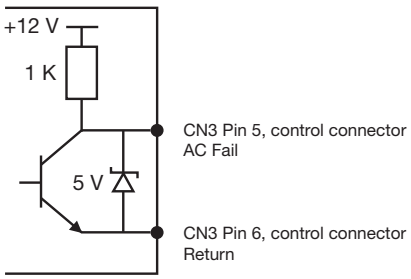
Remote Sense

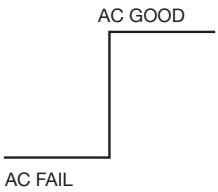


Note:
1. CL is 47 µF electrolytic capacitor.
2. CD is 0.1 µF ceramic capacitor.

Optional AC Fail

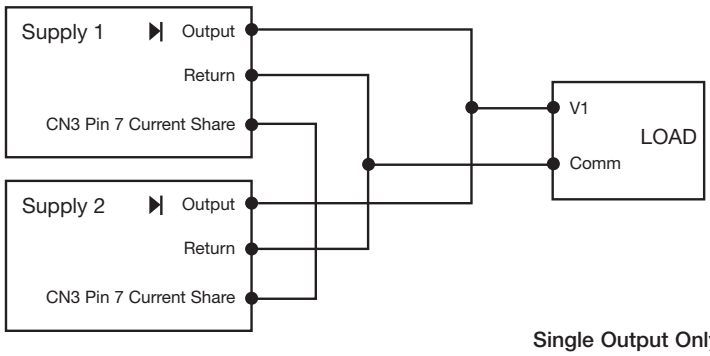
Single Output Only





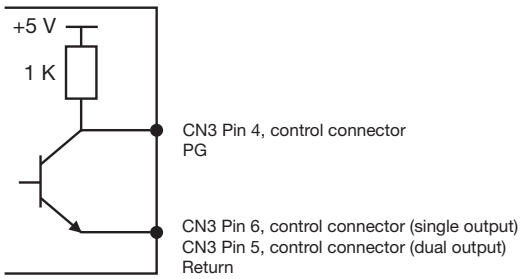
Sink current = 0.5 A

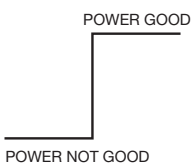
Parallel Connection with Current Share Option



Single Output Only

Power Good





Sink current = 5 mA