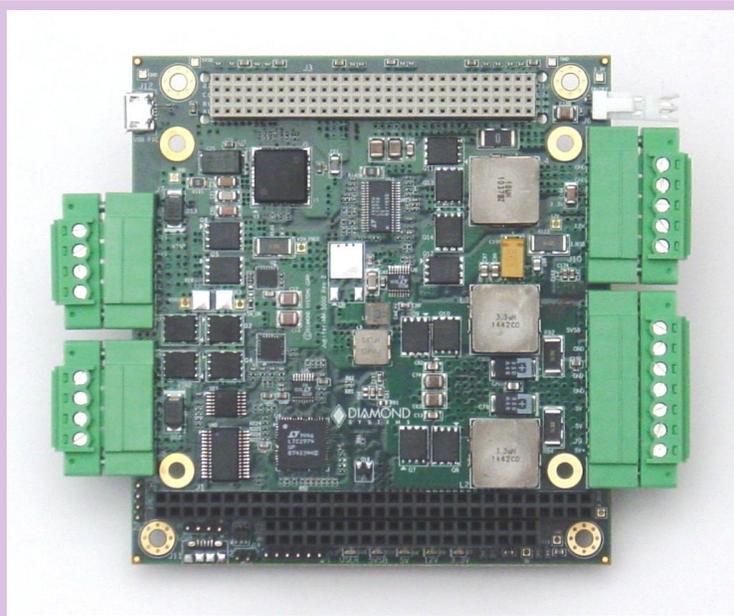


JUPITER-MM-5000

Advanced Technology PC/104-Plus DC/DC Power Supply



Key Features

Jupiter-MM-5000 high-efficiency, high-precision power supplies consist of a PC/104 form factor module with complete DC-DC voltage regulator circuitry, integrated thermal solution, detachable screw terminal block I/O connections, and PC/104 bus connectors. The wide input voltage range of 7 to 34VDC is compatible with industry standard 12V, 24V, and 28V inputs.

The Jupiter-MM-5000 family offers models in two groups; base models with standalone operation, and intelligent models with an on-board microcontroller and management capabilities.

The Jupiter-MM-5000 uses a state of the art design with the latest generation high efficiency components. It delivers efficiency as high as 95 percent, reducing input power requirements as well as heat generation.

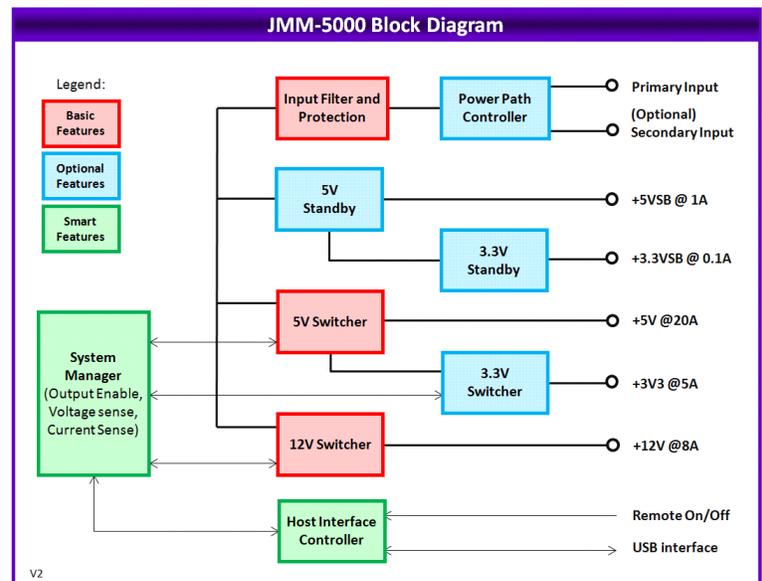
Advanced System Controller

On-board intelligence provides an unsurpassed level of control, monitoring and safety. All features are accessible and configurable via benchtop application software plus a programming library for real-time control.

Rugged Features

Jupiter-MM-5000 was engineered for rugged applications such as automotive or on-vehicle. Extended temperature operation of -40°C to +85°C is tested and guaranteed. Low-profile, surface mount components reduce susceptibility to shock and vibration. I/O connections are made with locking screw terminal blocks for the highest degree of ruggedness.

- ◆ Up to 218W total output power at 25°C
 - +5VDC at 20A maximum
 - +12VDC at 8A maximum
 - +3.3VDC at 5A maximum
 - +5VDC standby option at 1A maximum
 - +3.3VDC standby option at 0.1A maximum
- ◆ Extreme load stability: 0.35% maximum output voltage droop at 5V output, 0-20A load, $V_{IN} = 12V$, $T_A = 25^\circ C$
- ◆ Extremely low ripple: 12mV peak-to-peak at 5V output, 0-20A load, $V_{IN} = 12V$, $T_A = 25^\circ C$
- ◆ High efficiency: 92-94% at 5V output, 0-20A load, $V_{IN} = 12V$, $T_A = 25^\circ C$
- ◆ Excellent transient load response: +/-72mV at 5V output, 25-75% load step, 2.5A/usec ramp rate, $V_{IN} = 24V$, $T_A = 25^\circ C$
- ◆ Extreme temperature stability: +/-0.5% at 5V output, 10A load, $V_{IN} = 24V$, $T_A = -40^\circ C$ to $+85^\circ C$
- ◆ Input protection circuit protects from over/under voltage, reverse polarity, surges, transients, reflected noise
- ◆ Advanced System Controller with:
 - Programmable output voltage adjustment
 - Programmable output sequencing and slew rate
 - Output current limit and short circuit protection
- ◆ Wide input voltage range: +7 to +34VDC input
- ◆ Remote or programmable on/off control
- ◆ Heat sink or heat spreader cooling solutions
- ◆ Dual input option with auto-cutover
- ◆ PC/104 form factor: 3.55" x 3.775" (90mm x 96mm)
- ◆ PC/104 and PC/104-Plus bus connector options
- ◆ -40°C to +85°C (-40°F to +185°F) operating temperature



JUPITER-MM-5000



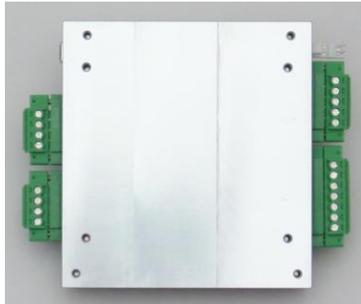
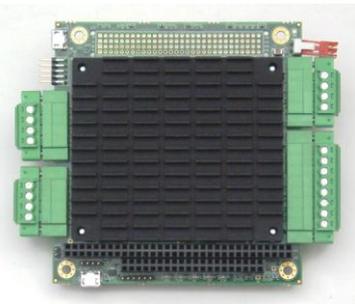
Advanced Technology PC/104-Plus DC/DC Power Supply

Specifications

INPUT	
Input voltage	7 – 34VDC
Input protection	Over / under voltage, reverse polarity, surges, transients, reflected noise
OUTPUT	
Output voltage/current	+5V at 20A maximum +12V at 8A maximum +3.3V at 5A maximum +5V standby at 1A maximum +3.3V standby at 0.1A maximum
Output protection	Current limit and short circuit protection
Load regulation	$\pm 0.8\%$, V_{min} to V_{max} , 0-100% load on all outputs, -40°C to $+85^{\circ}\text{C}$ 0.35% maximum output voltage droop at 5V output, 0-20A load, $V_{IN} = 12\text{V}$, $T_A = 25^{\circ}\text{C}$
Output ripple	44mV peak-to-peak maximum 12mV peak-to-peak at 5V output, 0-20A load, $V_{IN} = 12\text{V}$, $T_A = 25^{\circ}\text{C}$
Efficiency	92-94% at 5V output, 0-20A load, $V_{IN} = 12\text{V}$, $T_A = 25^{\circ}\text{C}$
Transient load response	$\pm 72\text{mV}$ at 5V output, 25-75% load step, 2.5A/usec ramp rate, $V_{IN} = 24\text{V}$, $T_A = 25^{\circ}\text{C}$
Temperature stability	$\pm 0.5\%$ at 5V output, 10A load, $V_{IN} = 24\text{V}$, $T_A = -40^{\circ}\text{C}$ to 85°C
GENERAL	
On / Off	Remote or programmable on/off logic input
Dimensions	PC/104 form factor: 3.55" x 3.775" (90mm x 96mm) not including screw terminals Maximum height .435" (11mm) above PCB top surface
Bus connection options	16-bit stackthrough ISA bus 32-bit PCI bus
Operating temperature	-40°C to $+85^{\circ}\text{C}$ (-40°F to $+185^{\circ}\text{F}$)
Operating humidity	5 to 95% non-condensing
Weight	6.3oz (178.6g) heat sink 8.1oz (229.6g) heat spreader
RoHS	Compliant

Cooling Options

Diamond Systems recommends that JMM-5000 power supplies with heat sinks (below left) be used only in applications with power dissipation of 100W or less. The heat spreader (below right) cooling option can be used for all output loads.



Advanced System Controller

The full featured Jupiter-5000 models include a system controller that offers advanced configuration, control, and monitoring features. The system controller is accessed via a USB port and is accompanied by benchtop configuration software as well as an application library for in-application real-time control.

- Individual supply on/off control for +12V, +5V, +5V standby, +3.3V, and +3.3V standby outputs
- Individual supply output voltage / current monitoring
- Output voltage sequencing and slew rate control
- Output voltage adjustment
- Input voltage monitoring
- Fault handling based on programmable limits with interrupt notification, including supply shutdown in case of overload or other programmed conditions
- Hiccup mode for auto-restart when fault conditions are removed
- Secondary input cutover voltage selection

Programmable Power Cycling

An on-board microcontroller supports programmable power cycling for maximum efficiency in remote or power-sensitive applications. The power-on time and interval between power cycles are fully programmable for any duration from 1 second up to 256 hours.

I/O Connectivity

Jupiter-MM-5000 has six I/O connectors, including up to 4 detachable, locking screw terminal blocks with 14AWG wiring compatibility. The power input is on a 4-position terminal block featuring dual input conductors for increased current capacity. Two terminal blocks supply the output power. All output voltages are also fed to the designated power pins on the PC/104 and PC/104-Plus connectors.

Ordering Information

JMM-5312-xxxy	218 Watt Power Supply, +5V/+12V/+3.3V, standby voltages, advanced system controller
JMM-5012-xxxy	196 Watt Power Supply, +5V/+12V
JMM-5000-xxxy	100 Watt Power Supply, +5V

xx = A for PC/104 model, AP for PC/104-Plus model
y = K for heat sink, H for heatspreader

Customization Options

Several customization and minimum order quantity (MOQ) options are available for the JMM-5012 and JMM-5000 base models including:

- Add 3.3V at 5A output
- Add dual input power connectors with auto-cutover

Contact Diamond Systems for more information.