

WATT POWER SOLUTIONS

Isis House, Unit 68 Henley Way, ELY, Cambridgeshire CB7 4YJ

Tel: +44 (0) 1353 667117 Fax: +44 (0) 1353 662717

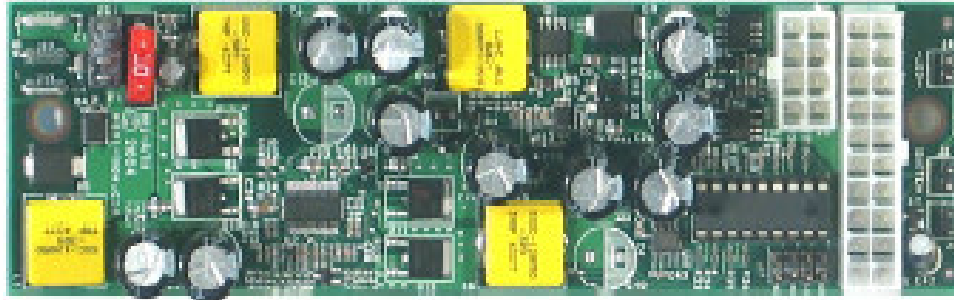
Email: sales@watt-power.co.uk

Web: www.watt-power.co.uk

VAT Reg No: 776 3065 10



WPPS90M1 Automotive Mini-ATX Data Sheet



The WPPS90M1 Mini-ATX is a five-output 90W DC-DC converter at 12V DC and 80W at 24V DC, with an ATX form factor that can operate from an automobile 12v to 24v battery source. 160(L) x 45(W) x <25mm(H) PCB size.

The power supply supports VIA X86 CPU's, PII, PIII and lower powered P4/AMD. All VIA Mini-ITX motherboards

Input Voltage	6V DC to 30V DC	Minimum start up 8V DC.
Input Current	10A	
Efficiency	80 - 90%	

Typical Operation

The device can withstand the wide battery voltage tolerances of between 6V and up to 30V. The Automotive Converter is designed to operate directly from a battery source of an automobile to provide all the required output voltages.

A Mini-Blade fuse will protect against input currents in excess of 10A. To protect against potential battery start up voltages is high as 30V DC an over-voltage protection circuit is built into the supply along with reverse voltage protection. The battery is protected against deep discharge at an 11V threshold.

The Input circuitry controls the timing and sends a signal to the power switch mosfet controlling the motherboard ON/OFF switch based on the status of the ignition key. This circuit provides the switching to the main power line.

Mode of Operation

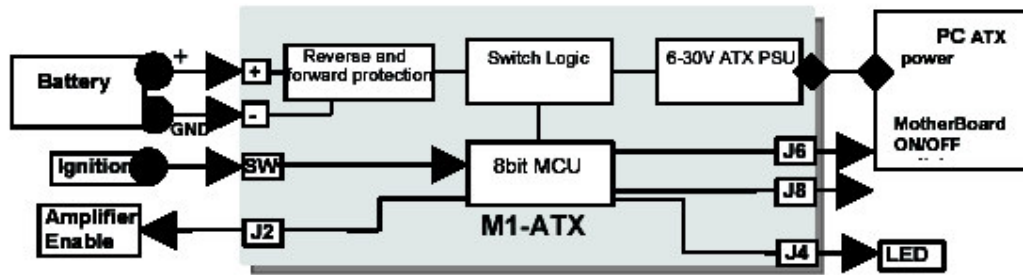
Ignition OFF – Nothing happens. The power supply is waiting for ignition signals

Ignition ON – The PSU waits for 3 seconds then turn on the +5VSB rail. After another 1 second a signal is sent to the motherboard via 2 wires connected to the motherboards ON/OFF pins. The motherboard will turn ON and the system will start booting.

Ignition ON - During driving will keep the computer ON.

Ignition OFF – PSU ON waits for OFFDELAY in seconds (see chart below for various time delays) and then it turns the motherboard OFF by sending a signal to the motherboards ON/OFF switch. The computer will then turn off gracefully. During this time power will be available for the computer to perform shutdown.

Ignition OFF – 5Vsb will still be provided for another HARDOFF seconds (see chart below). In the event where the shutdown is longer than the OFFDELAY, power will be shut down hard, turning off the computers power. If ignition is turned on during this stage, the computer will start again. If HARDOFF is set to NEVER, the PSU always provides 5VSB, therefore the computer can be used in SLEEP mode. During the HARDOFF procedure, the battery levels are constantly monitored to prevent deep discharge situations. When the battery reaches >11V, the PSU will start working again.



Output Characteristics

Nom Voltage	Regulation	O/P Current max	O/P Current peak 60 seconds	Ripple and Noise
+3.3V	+/-1.5%	10A	15.0A	50mV
+5V	+/-1.5%	10A	15.0A	50mV
+12V	+/-1.5%	2A	2.5A	100mV
-12V	+/-10%	0.15A	0.2A	150mV
+5VSB	+/-1.5%	1.5A	2.0A	50mV

20MHZ bandwidth ripple and noise is measure by using 0.1uF CC & 10uF/50V EC bypassed at the output connector.

Regulation shows the % of absolute value of nominal output voltage. Total output power should be 92W maximum. Maximum power drawn from the 5V and +12V rails combined should not exceed 50W. Maximum power at 24V input or at extreme temperatures should be de-rated to 80W

Overshoot at Turn-on/Turn-off

Any overshoot during turn-on/turn-off should be less than +/-5% of the voltage regulation tolerance. No voltage of opposite polarity shall be present on any output during turn-on or turn-off.

Temperature Coefficient

The temperature coefficient of all outputs is +/-0.05% per degree C maximum.

Short Circuit Protection

Short circuit occurring on any output should not cause any damage to the power supply, but will shut it down. The power supply will not automatically recover after the overload is removed. A manual reset is necessary.

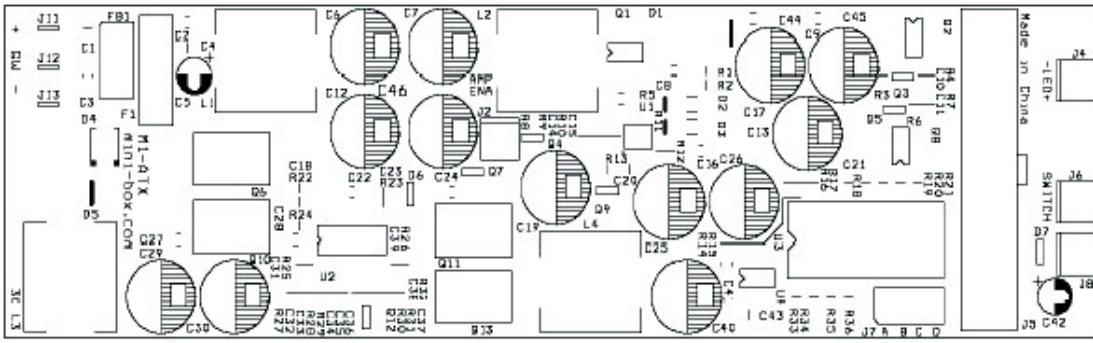
Over Load Protection

An over load protection will be effected when either of the loadings: +3.3V, +5V, +12V, -12V, +5Vsb exceeds +110% to 160%. The power supply will not automatically recover after the over load is removed. A manual reset is necessary.

Multiple Shutdown Options

The PSU has 8 user, selectable, micro-controller driven timing modes. This allows the choice of 8 ignition/shutdown timing schemes. By removing all of the user-selectable jumpers the supply will act as a conventional PSU with no ignition control. Therefore can be used in non-car applications.

Even if the computer is totally OFF, a PC will still consume a few hundred milliwatts, which is needed to monitor PC ON/OFF status. When the computer is in the suspended/sleep mode it will consume even more power , because the RAM needs to be powered at all times. The power consumption in the suspend mode is a few watts. No matter how big your battery, it will eventually drain it in a matter of days.



A B C D MODE OFFDELAY / HARDOFF

- 0 = (traditional PSU mode)
- 1 = 5sec / 45sec
- 2 = 5sec / 2hour (suggested)
- 3 = 5sec / never
- 4 = 30sec / 2hour
- 5 = 30sec / never
- 6 = 30min / never, (taxi mode)
- 7 = 3hour / never, (taxi mode)

Power Input Connectors

- J11** Battery +ve (un-switched battery +ve)
- J12** Ignition (switched battery +ve)
- J13** Battery -ve.

Controls and Settings

- J2** Amp Enable (Controls the amplifier via remote ON/OFF. Opt) (Left Pin RMT, Right Pin GND)
- J6** To motherboard ON/OFF switch.
- J7** User jumper settings (A,B,C,D)
- J8** To external ON/OFF switch. Optional, J8 is in parallel with J6)

Power Output Connectors

- J3** Optional HDD power (not shown above)
- J5** ATX power connector (to motherboard)
- J4** To LED (optional)

When the HARDOFF is set to 'never', the PSU will automatically shut down when the battery voltage is below 11V for more than 1 minute, in order to prevent deep discharge situations.

Safety

Designed to meet the required levels

UL - UL60950; CSA - CSA C22.2 No.60950; TUV - EN60950; CB - IECV60950

Electromagnetic Compatibility (Meets)

Tests for conformance to this requirement will be performed with the host system.

FCC requirements shall comply with the FCC 'Class B' limits.

CE requirements shall conform to the 'Class B' requirements of EN55022 & EN55024 for EMS.

Environment

Operating Temperature -20 to +85 degrees C.

Relative Humidity 10-90% non-condensing.

Shipping and Storage

Temperature range -40 to +125 degrees C

Relative Humidity 5 to 95%, non-condensing.

Reliability

MTBF: 192,000 hours at 55 degrees C.

96,000 at 60 degrees C.

Conclusion

WPPS90M1 comes equipped with ATX, HDD and Floppy cable harness, jumpers, faston connectors and 2 pin cables for motherboard ON/OFF switch. Just connect it to your 12V or 24V car / boat / RV battery and power up your PC.

WPPS90M1 is form factor compatible with all Casetronics Travla and Morex Cubid enclosures.