

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



WPPS80C Automotive Mini-ATX Data Sheet



The WPPS80C Mini-ATX is a true six-output 80W DC-DC converter with an ITX form factor that can operate from an automobile 13.8v battery source. 170(L) x 90(W) x 41(H) mm enclosure. 2 x Hard Disc drives, 2 x Floppy Disc Drives and + 5v for fans / signals. Optional 20 way output cable, can increase this to 4 x Hard Disc drives and 4 x Floppy Disc drives.

Input Voltage	10.8V DC to 26V DC (+/- 5%)
Input Current	9A at 12V DC
Efficiency	80%

Typical Operation

As a typical car voltage is between 13.4V and 14.5V DC, a regulated 12V supply is necessary to operate an ITX/ATX DC-DC converter. The device can withstand the wide battery voltage tolerances of between 7V and up to 20V. The Automotive Converter is designed to operate directly from a battery source of an automobile to provide all the required output voltages.

The input is protected from reverse polarity protection, in case the power leads are accidentally reverse connected. A Polyfuse will protect against currents in excess of 9A. To protect against potential battery start up voltages is high as 18-20V DC an over-voltage protection circuit is built into the supply.

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. When used alone, it can switch currents in excess of 20A.

The PS-ON input circuit triggers the motherboard ON/OFF switch for soft start/stop sequences. The PS-ON is activated 5 seconds after the ignition circuit is switched ON and 10 seconds after it is switched OFF. The Automotive Converter will not operate if the ignition is OFF. When the ignition is switched on, the input sequencer waits for 3-4 seconds then turns on the 12V rail, allowing the battery to reach a stable output voltage. After 1 second the micro chip controller sends the ON signal to the motherboard via the two Red and Black wires which connect to the motherboard ON/OFF pins. The motherboard will then turn ON and the system should start booting.

With the ignition OFF the Automotive Converter waits for about 5 seconds and begins to turn the motherboard OFF, by sending a signal to the motherboard ON/OFF switch. Your computer will turn off gracefully with the built in shutdown procedure. Power will be available for a further 45 seconds. In the event of a shutdown process being left hanging, the power will be shutdown hard, turning off the computer to prevent battery drain.

Output Characteristics

Nom Voltage	Regulation	O/P Current min	O/P Current max	Ripple and Noise
+3.3V	+/- 5%	0A	5.0A	50mV
+5V	+/-5%	0A	5.0A	60mV
+12V	+/-5%	0A	2.5A	120mV
-5V	+/-5%	0A	0.2A	50mV
-12V	+/-5%	0A	0.1A	120mV
+5Vsb	+/-5%	0A	1.0A	60mV

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 80W maximum.

Cross regulation is measured at 25% to 100% maximum load.

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.

Over Voltage Protection

Nominal voltage	Over voltage range from	Over voltage range to
+3.3V DC	+3.7 V DC	+4.1 V DC
+5 V DC	+5.6 V DC	+6.5 V DC
+12V DC	+13.3V DC	+14.3V DC

The power supply will not be automatically recovered after the over voltage fault being removed. A manual power reset is necessary.

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

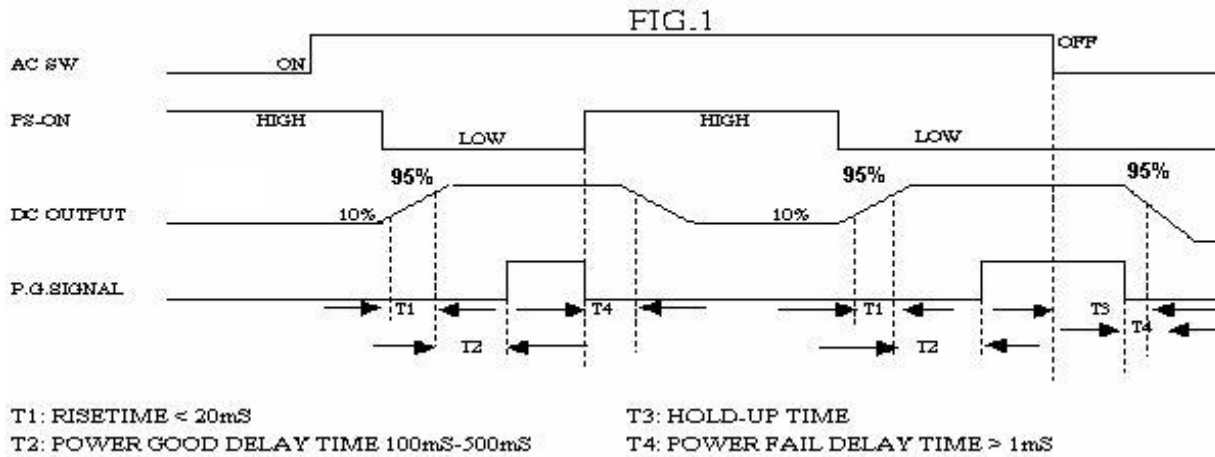
An over load protection will be effected when either of the loadings: +3.3V, +5V, +12V, -5V, -12V, +5Vsb exceeds +110% to 160%. The power supply will not automatically recover after the over load is removed. A manual reset is necessary.

Rise Time

After turn-on, less than 16mS will be needed for the rise of +5V output voltage (measured from 10% point to 95% point on the waveform) to reach its peak.

Power Good signal

After power-on with nominal DC input, there may be a turn-on delay (between 100mS to 500mS) before the Power Good Signal is issued. Which occurs before the +5V output reaches its minimum sense level of 4.75V. When turned off, the Power Good Signal shall go to a lower level for at least 1mS before +5v falls under the regulation limit as described earlier.



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 0-40 degrees C.

Relative Humidity 10-90% non-condensing.

Shipping and Storage

Temperature range -40 to +70 degrees C

Relative Humidity 5 to 95%, non-condensing.

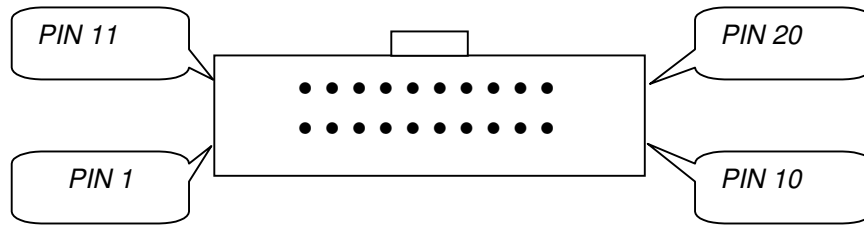
Burn-In Test

100% burn-in tested at maximum load under 40 degrees C (+/-5 degrees C).

Reliability

MFBF: 80,000 hours minimum. Maximum load at 25 deg C ambient temperature

Pin assignment Flex ATX main power supply connector

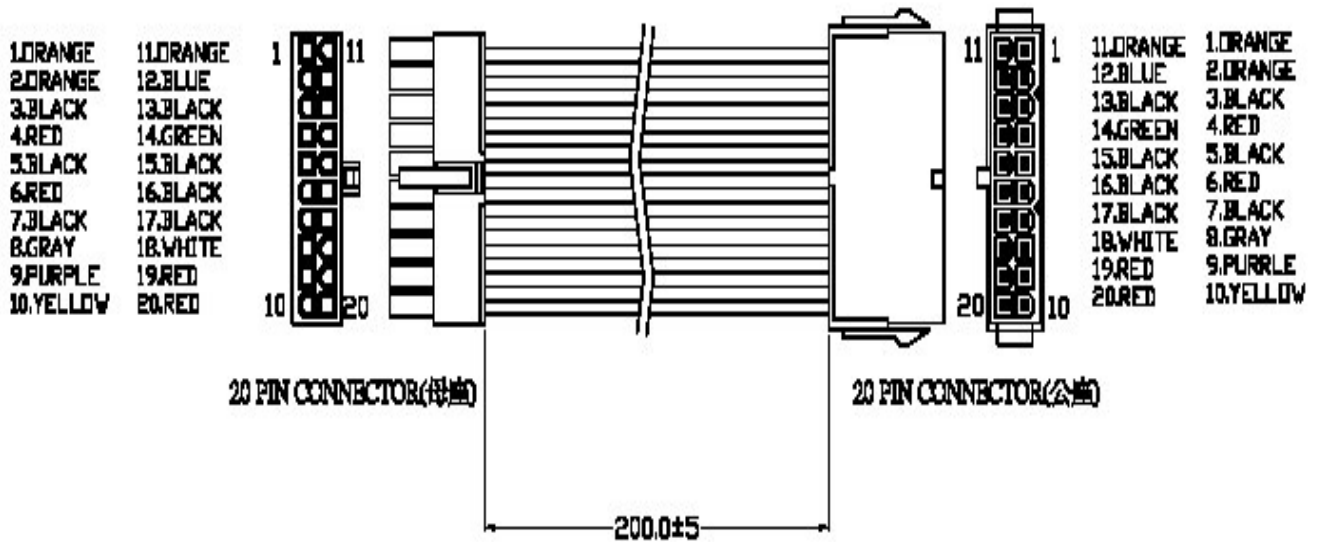


Pin	Signal	Wire	
1	+3.3 VDC	Orange	20AWG
2	+3.3 VDC	Orange	20AWG
3	COM	Black	20AWG
4	+5 VDC	Red	20AWG
5	COM	Black	20AWG
6	+5 VDC	Red	20AWG
7	COM	Black	20AWG
8	POK	Grey	22AWG
9	+5 VSB	Purple	22AWG
10	+12 VDC	Yellow	20AWG

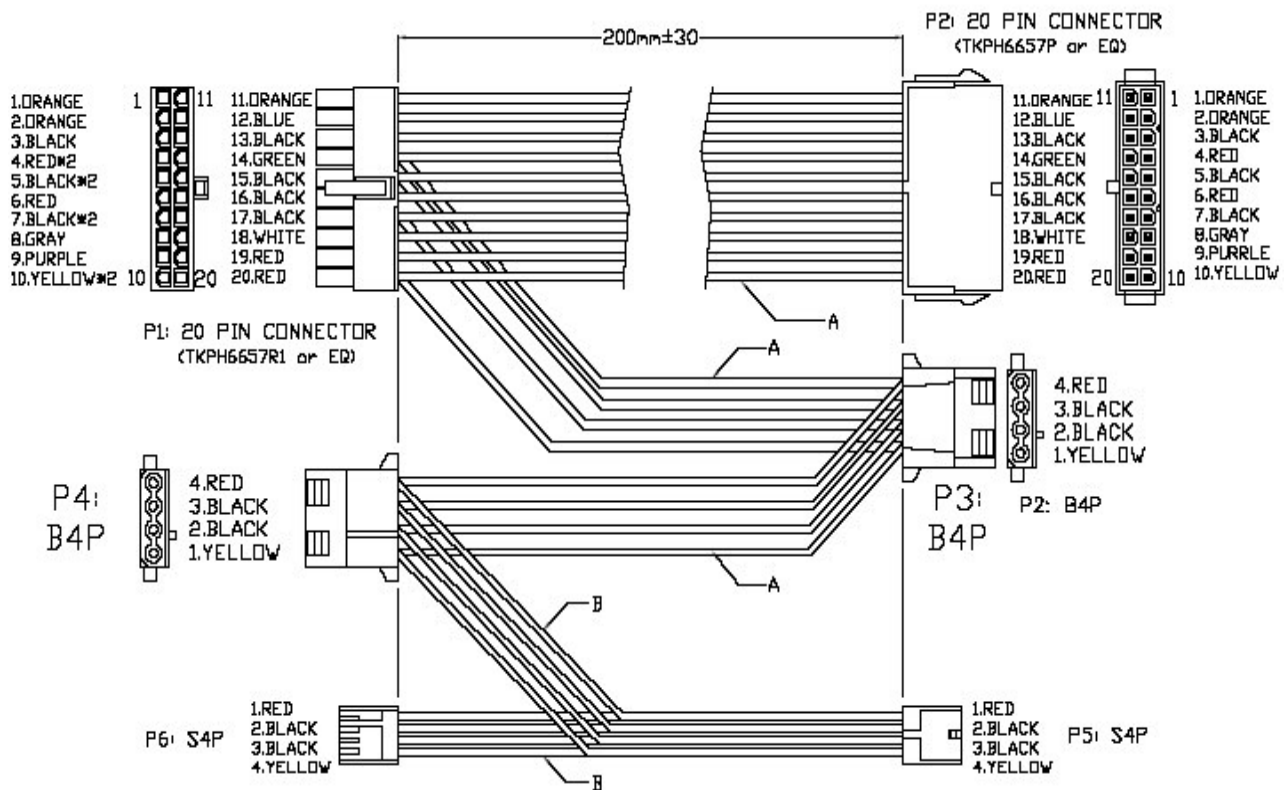
Pin	Signal	Wire	
11	+3.3V VDC	Orange	20AWG
12	-12 VDC	Blue	22AWG
13	COM	Black	20AWG
14	PS-ON	Green	22AWG
15	COM	Black	20AWG
16	COM	Black	20AWG
17	COM	Black	20AWG
18	-5 VDC	White	20AWG
19	+5 VDC	Red	20AWG
20	+5 VDC	Red	20AWG

Input Connector	White	Black		
5.25" Drive x 2	Red	Black	Black	Red
3.5" Drive x 2	Red	Black	Black	Red
5V Fan	Red	Black		

WPPS80 OPC 20-20 way Connector (A487)



WPPS80 DC4 OPC 20-20 WAY Cable (X75)



INSTALLATION GUIDE

WPPS80C AUTOMOTIVE Mini-ATX

- 1) **M3 fixing screws should not penetrate inside of the enclosure further than 2mm.** If this is not adhered to then they may interfere with the active components of the printed circuit board and cause serious damage. Warranty will be invalid should damage occur.
- 2) The WPPS80C has three input cables that require installation to the ignition system.
RED cable is the +12V output wired through the ignition switch, which controls the motherboard ON/OFF.
BLACK is GROUND to the -ve (negative) side of the battery.
WHITE is wired directly onto the +ve (positive) side of the battery.
It is important at this stage that the correct polarity is doubly checked before switching on any power. Blue / Yellow Faston Crimp Connectors can be used to clip to the existing wires. You will find these enclosed with the power supply. Use a half loop so as not to stress the cables and connectors.
- 3) Hook up to the motherboard ON/OFF switch using the longer 2way connector (Red and Orange cables). This connects to the PS-ON of the motherboard. Polarity is not important. Consult motherboard manual for location.
- 4) Connect the 20-way, Hard and Floppy disc drives to the motherboard as standard. Should more Floppy and Hard disc connectors be required, purchase WPPS80 DC4 Output Cable Harness, as shown on the data sheet. The 2-way connector (Red and Black cables) is an auxiliary 5v supply for fans or signals as required.
- 5) Turn on the car ignition and in a few seconds your motherboard should power up.
- 6) If the motherboard is not turning ON, check the input cables. Measure the voltage on the un-switched **RED** cable and you should have 12V even if your car is switched OFF. If you do not see the 12V then check your car fuse system.

WPPS80C Auto Mechanical Fixings

M3 screws must not penetrate further than 2mm inside the enclosure

