

Technical support: Email: tsupport@opussolutions.com

Tel: 949-305-4200

Package Contents

- 1 - DCX3.120 Automotive ATX/ITX & AT intelligent DC-DC120W Power Supply
- 1 - 20 pin ATX power cable with 2 HDD power and 1 FDD power connectors.
- 1 - 2 pin power switch cable.
- 1 - 6 pin DC input main power and IGN pigtail cable.
- 1 - Quick User guide (the one you are reading)

General Information

DCX3-120 is designed to power LOW power consumption motherboards and single board computers eg: Intel Pentium-M, AMD mobile XP, VIA C3, VIA Eden or Transmeta based computer board system. Motherboards must be ATX 2.01 and ACPI compliant or AT. Compatible with 12 or 24 Volt battery system. The Computer ON and OFF sequence is determined by the state of ignition or ON/OFF switch input, JU2-9 jumper loading and J6-pin 2- pin 3 jumpers.

Operating Modes

- Mode 1: System ON/OFF controlled by ON/OFF input pin (J1 – pin 3).
ATX mode, with ON/OFF input connected to Ignition switch ACC point or to an ON/OFF switch to battery (JU2 – position 9 jumper must be removed if it was installed and remove the shorting jumper on J6 between pins 2 and 3 if it was installed)
- Mode 2: System ON/OFF controlled by Front panel soft ON/OFF push button switch.
ATX mode, with ON/OFF input (J1-pin 3) connected to battery along with +Batt leads (J1 – pins 4, 5) and JU2 – position 9 jumper must be installed. J7, the 2 pin power switch cable Not used in this mode
- Mode 3: System ON/OFF controlled by ON/OFF input pin (J1 – pin 3).
AT mode, (Short pins 2 and 3 of J6 with a shorting jumper). In this mode Systems handshaking is disabled.

Note: Modes are determined with-in 3 sec of initial power connection to the DC-DC.

General wiring guidelines

Use a dedicated #12 AWG or thicker wire to connect the unit to the battery.
 Use #18 AWG wire for on/off input.
 Note: Do not share power cable with other equipment.

Testing the PC with DC-DC Power supply installed for proper operation

Power-up the computer by Turning the Ignition switch on (starting the vehicle) or toggling the switch on. The Green Status LED should light up constantly and the computer should power up normally.

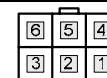
(Note: After connecting the power connector to the power supply, wait for DC-DC to blink twice before turning on the IGN/ ON-OFF switch input. This procedure is required every time the power is applied to the DC-DC main power (yellow) leads.)

1. Open any application and test for normal operation then close the application.
2. Turn off the computer by turning the ignition switch off. Within 5-10 Sec. the PC should start to go into Standby or shut down mode and the Green status light should go back to the idle/standby blink rate.
4. Wait about 10 seconds and Turn on the Ignition switch again. The computer should power up normally.
5. Open an application for Standby mode testing. Use the application as you would normally.
6. Turn off the computer by turning the ignition switch off. The computer should go into Standby, Hibernate or Shut down mode, as configured in the operating system.
7. Repeat steps 4 to 6 for all applications that are used in your computer.

Note: All applications software must be checked for proper Standby mode operation.
 If any application has problem going into Standby mode then the operating system must be configured for Shutdown

DC-DC power supply Connectors

J1 - Input Power, On/Off and Remote connector



Connector type used: Molex: 39-30-1060
 Mating connector type: Molex: 39-01-2060

Pin#	Function	Description
1	GND	Power Ground (Input - BLK)
2	GND	Power Ground (Input - BLK)
3	ON/OFF	On/Off or ACC (Input - RED)

Pin#	Function	Description
4	+BATT	Battery (Input - YEL)
5	+BATT	Battery (Input - YEL)
6	RMT	Remote On/Off (Output - BLU)

RMT - This output can be used to turn ON/OFF the remote devices such as Audio amplifier, External DVD, Camera, monitor, etc. Remote turn ON delay is set by JU2 – 7 & 8 jumper positions.

J11 – External / Remote LED connector

Pin#	Function	Description
1	LED+	To External LED Anode - output
2	LED-	To LED Cathode - output
3	OB LED-	On Board LED Cathode - input



Connector type used: JST: B/S 3B-PH-K-S
 Mating connector type: JST: PHR-3

Factory Default Setting: Pin 2 and Pin 3 are shorted with shorting jumper for on board LED

To connect External LED: Remove shorting jumper and Connect Anode of external LED to pin 1 and cathode to pin 2

J7 – Power-Switch connector

Pin#	Function	Description
1	PWR-SW-	Power-Switch - (Output - WHT)
2	PWR-SW+	Power-Switch + (Output - GRN)



Connector type used: JST: B/S 2B-PH-K-S
 Mating connector type: JST: PHR-2

Connect to Motherboard or SBC power switch pins. OBSERVE pin polarity for proper operation

J6 – PS-ON* signal and Stand-by Power connector

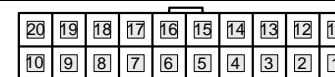
Pin#	Function	Description
1	5V STBY	+5V Stand-by power (output - PUR)
2	PS-ON*	Power supply ON* (Input - BLU)
3	GND	Ground - (BLK)



Connector type used: JST: B/S 3B-PH-K-S
 Mating connector type: JST: PHR-3

Factory default is ATX mode operation. For AT mode operation: Short Pin 2 to pin 3 with a 2mm shorting jumper.

J9 – ATX Power connector



Connector type used: Molex: 39-28-1203
 Mating connector type: Molex: 39-01-2200

Pin#	Function	Description
1	+3.3V	+3.3V (Output - ORN)
2	+3.3V	+3.3V (Output - ORN)
3	GND	Power Ground (Return - BLK)
4	+5V	+5V (Output - RED)
5	GND	Power Ground (Return - BLK)
6	+5V	+5V (Output - RED)
7	GND	Power Ground (Return - BLK)
8	PWR-GD	Power-Good (Output - GRY)
9	+5V STBY	+5V Stand-by (Output - PUR)
10	+12V	+12V (Output - YEL)

Pin#	Function	Description
11	+3.3V	+3.3V (Output - ORN)
12	-12V	-12V (Output - BLU)
13	GND	Power Ground (Return - BLK)
14	PS-ON*	Power supply-ON (Input - GRN)
15	GND	Power Ground (Return - BLK)
16	GND	Power Ground (Return - BLK)
17	GND	Power Ground (Return - BLK)
18	nc	No connection
19	+5V	+5V (Output - RED)
20	+5V	+5V (Output - RED)

JU1 – Shut down delay, Start-up & Shut-Dn Voltages, and Stby-On Jumpers

JU-1 Jumper Block

2mm Shorting Jumper installed

0 = Jumper not Installed
1 = Jumper Installed

Shut Down Delay (SD) Jumpers			Start-UP & Shut-Down Voltage Jumpers			Stand-by Power ON/OFF Jumper	
Psn #	SD Delay Time	Psn #	Start-UP Voltage	Shut-Down Voltage	Psn #	Stand-by Power state	
0 0 0	- (10 Sec)	0 0	- 10.5V	- 7.0V	0	0 - Stand-by Pwr OFF	
1 0 0	- 5 Min	1 0	- 11.0V	- 9.0V	0	1 - Stand-by Pwr ON	
0 1 0	- 10 Min	0 1	- (12.5V)	- (10.5V)	0		
1 1 0	- 15 Min	1 1	- 13.5V	- 12.0V	0		
0 0 1	- 30 Min						
1 0 1	- 45 Min	0 0	- 20.0V	- 15.0V	1		
0 1 1	- 1 Hr	1 0	- 22.0V	- 18.0V	1		
1 1 1	- 2 Hrs	0 1	- (24.0V)	- (21.0V)	1		
		1 1	- 25.0V	- 22.0V	1		

If Stand-by Jumper is installed, then, Stand-by voltage is maintained after Power down. Required for Stand-by mode operation only. Stand-by power is removed if the battery voltage goes below Shut-Down voltage.

JU2 – Remote-On delays, Push-Button Mode and 24V mode Jumpers

JU-2 Jumper Block

2mm Shorting Jumper installed

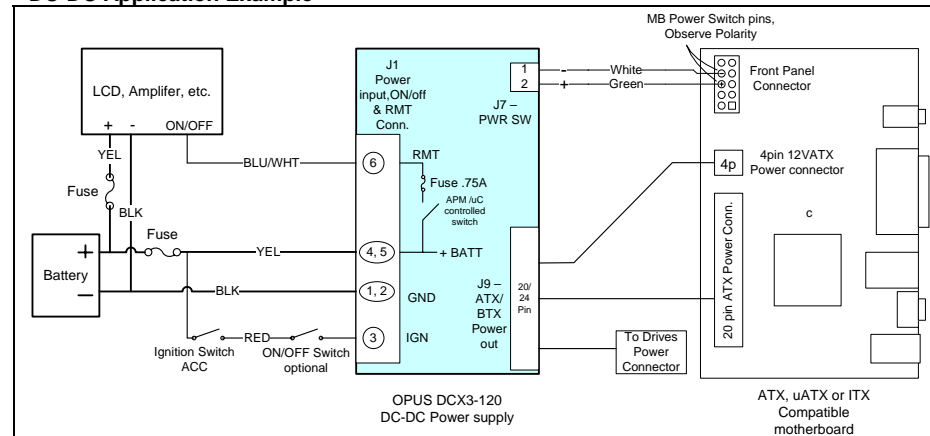
0 = Jumper not Installed
1 = Jumper Installed

Remote 1 ON Delay Jumpers			IGN/ Push Button mode operation		12V / 24V mode operation	
Psn #	ON Delay Time	OFF State	Psn #	IGN/ Push Button mode operation	Psn #	12V / 24V mode operation
0 0	- 1sec	Before SD Delay	0	- IGN mode operation	0	- 12V operation
1 0	- 1Sec	After SD Delay	1	- Push Btn Mode operation	1	- 24V operation
0 1	- 10Sec	Before SD Delay				
1 1	- 20Sec	Before SD Delay				

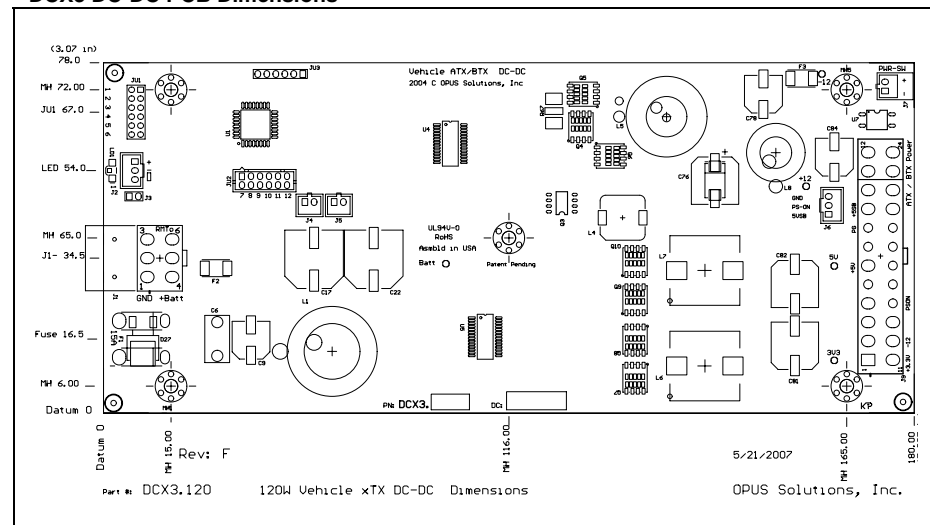
Recommended Installation Steps

- Step 1. Configure DC-DC JU1 jumpers. STBY-ON and Start-up and shut down voltages. Install OPUS DC-DC in the system.
 - Step 2. Configure ATX/ ITX motherboard BIOS: Turn off AC power loss auto restart, ACPI: S3, Push btn: Instant off.
 - Step 3. Configure operating system: Power-down, hibernate or Stand-by mode.
 - Step 4. Test the PC for proper operation. If all passes then, configure the DC-DC shut down delay jumpers if required.
- Suggestion: Configure and test system with a standard AC- DC ATX power supply first. Then switch over to OPUS DC-DC power supply.

DC-DC Application Example



DCX3 DC-DC PCB Dimensions



Trouble shooting guide

Computer does not turn on?

Check to make sure that battery and ON-OFF pins are connected to DC-DC Power Supply connector.

Computer does not turn off when the ignition is turned off!

Check the Green LED state

Interpreting the Green Status LED light flashing

0.1 sec ON and 5 Sec OFF Approx.: DC-DC power supply is in Idle or stand-by state.

On constantly The PC is powered and the PC should be operating.

Error Flashes Reason

1 Flash
(every 10 Sec.) Battery voltage is below normal operating range.
Voltage set by JU1 – 4, 5

2 Flashes The computer power up sequence failed. Reasons:

- Check the wiring of the two wire power-switch cable from power supply connector J9 to power switch pins on the ATX motherboard. If connected properly check the polarity of the power switch pins, may be reversed.
- Check ATX mother board bios settings.
- Locked up motherboard or software crash.
- Faulty DC-DC power supply.

3 Flashes Power supply output voltages are out of normal voltage range. Reasons:

- Power supply output is over loaded or shorted.
- Faulty DC-DC power supply.

4 Flashes Power down, stand-by or hibernate sequence failed. Reasons:

- Check the wiring of the two wire power-switch cable from power supply connector J9 to power switch pins on the ATX motherboard. If connected properly check the polarity of the power switch pins, may be reversed.
- Check ATX motherboard bios settings.
- Check if ACPI function is enabled in the power management BIOS setup. Make sure ACPI drivers are installed in the operating system.
- Check if application is compatible with ACPI mode of operation.
- Locked up motherboard or software crash
- Faulty DC-DC power supply