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Package Contents

- 1 – DCA17 Automotive intelligent Triple output DC-DC 180W Power Supply
- 1 – 8 pin power output cable with 2 HDD power
- 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

DCA 17 is designed to power Low to medium power consumption single board computer systems, Peripherals, etc in an automotive and or Battery operated environment.

The output are 5V Stby @ 1A, 5V @ 18A and 12V to 19V @ 90Watts (12V default jumper setting)

DCA17 input is compatible with 12 or 24 Volt battery systems. The power supply ON and OFF sequence is determined by the state of ignition / ON/OFF input. It has the ability to hand shake with SBC's that are equipped with ACPI Handshake signals. Refer to JU2 – position 9 and 10 jumper settings.

The power supply also monitors the Battery voltage to protect the Battery and the loads. The start-up and power down voltages can be changed to suite your battery type and or operating conditions. Refer to JU1- position 4 and 5 jumper settings and operation modes section below.

Stand-by power to load can be maintained during all times by loading the JU1-positiion 6. But, it is not recommended under normal battery operating conditions.

System shutdown delay time can be changed by setting the appropriate jumpers on JU1 – position 1, 2 and 3. Shut down delay is the time from Ignition OFF state to the time system is turned off.

Firmware versions

There are 2 types of firmware are available.

FW-DCX-m48-30 is optimized to power a single board computers with full ATX handshake and peripherals

FW-DCA-m48-20 is optimized to power single board computers with limited ATX handshake signals and for peripherals such as LCD displays, Radios, Modems, printers etc.

Contact factory for customized solution.

Operating Modes

JU2 position 9 and 10 jumper loading determines the operating modes. Refer to JU2 Jumper setting drawing

ATX mode: System power-up and power down sequence is controlled by ON/OFF input (IGN input) pin of the DC-DC. This mode is suitable for ATX compatible systems. In this mode PWR-SW, PS_ON and PG signals are active.

When a valid IGN detected, DC-DC applies 5V STBY voltage to the mother / CPU board , then pulses the PWR-SW input of the Mother/CPU board, Mother board responds by asserting PS_ON signal. DC-DC responds by applying power to the Mother board and asserts the PG signal. This sequence boots up the system.

Sub-ATX mode: System power-up and power down sequence is controlled by ON/OFF input (IGN input) pin of the DC-DC. This mode is suitable for SBC that have limited ATX hand shake signals. In this mode only PWR-SW and PG signals are active. PS_ON signal is **not** active.

When a valid IGN detected, DC-DC applies Power to the Mother board / SBC and asserts the PG signal, then pulses the PWR-SW input of the Mother board / SBC. This sequence boots up the system.

Push Button mode: System power-up and power down sequence is controlled by the Soft ON/OFF Front panel switch on an ATX compatible system. In this mode PWR-SW, PS_ON and PG signals are active.

When a valid IGN detected, DC-DC applies 5V STBY voltage to the mother / CPU board. When the Front panel ON/OFF push button is pressed, Mother board responds by asserting PS_ON signal. DC-DC responds by applying power to the Mother board and asserts the PG signal. This sequence boots up the system.

AT mode: System power-up and power down sequence is controlled by ON/OFF input (IGN input) pin of the DC-DC. This mode is suitable for SBC's and peripherals that does not have any ATX hand shake signals. In this mode PWR-SW, PS_ON and PG signals are **not** active.

When a valid IGN detected, DC-DC applies Power to the SBC / peripherals, and asserts the PG signal.

General wiring guidelines

Use a dedicated #12 AWG or thicker wire to connect the unit to the battery.

Use #18 AWG wire for IGN (on/off) Input.

Note: Do not share power cable with other equipment.

Testing the DC-DC Power supply installation for proper operation in an ACPI implementation

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 only the very first time the power is applied to the DC-DC.)

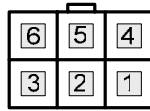
1. Open any application and test for normal operation then close the application.
2. Turn off the computer by turning the ignition switch off. Within 5-10 Sec. the PC should start to go into Standby or shut down mode and the Green status light should go back to the idle/standby blink rate.
4. Wait about 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

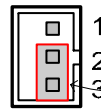
| Pin# | Function | Description |
|------|----------|-----------------------------|
| 1 | GND | Power Ground (Input - BLK) |
| 2 | GND | Power Ground (Input - BLK) |
| 3 | ON/OFF | On/Off or ACC (Input - RED) |

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

Note: RMT function pin is inactive on DCA 17

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) |



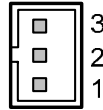
2 +
1 -

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* | Powersupply ON* (input - BLU) |
| 3 | GND | Ground - (BLK) |

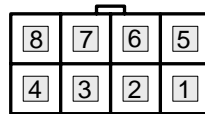


3
2
1

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.

J5 – Output Power connector



Connector type used: Molex: 39-29-3086
Mating connector type: Molex: 39-01-2080

| Pin# | Function | Description |
|------|----------|------------------------------|
| 1 | V1 | +12V to 20V set by JU4 (YEL) |
| 2 | GND | Power Ground (BLK) |
| 3 | GND | Power Ground (BLK) |
| 4 | +5V | +5V Output (RED) |

| Pin# | Function | Description |
|------|----------|------------------------------|
| 5 | V1 | +12V to 20V set by JU4 (YEL) |
| 6 | GND | Power Ground (BLK) |
| 7 | GND | Power Ground (BLK) |
| 8 | +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 # | 1 | 2 | 3 | Psn # | 4 | 5 | Psn # | 6 | | |
| - SD Dely | | | | - Start-UP | | | - Stand-by Power state | | | |
| Time | | | | Voltage | Voltage | 10 | | | | |
| 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 | | 0 0 | - | 20.0V | - | 15.0V | 1 | |
| 1 0 1 | - | 45 Min | | 1 0 | - | 22.0V | - | 18.0V | 1 | |
| 0 1 1 | - | 1 Hr | | 0 1 | - | (24.0V) | - | (21.0V) | 1 | |
| 1 1 1 | - | 2 Hrs | | 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-off State, Operating Voltage selection and Operating Modes

JU-2 Jumper Block

0 = Jumper not Installed
1 = Jumper Installed

| Psn # | 7 | Remote off state | Psn # | 8 | 12V / 24V mode operation | Psn # | 9 | 10 | Operating Mode | |
|-------|---|------------------|-------|---|--------------------------|-------|---|----|----------------|---------|
| 0 | - | After SD Delay | 0 | - | 12V operation | 0 | 0 | - | ATX | |
| 1 | - | Before SD Delay | 1 | - | 24V operation | 1 | 0 | - | PB | |
| | | | | | | | 0 | 1 | - | Sub ATX |
| | | | | | | | 1 | 1 | - | AT |

DCA 17 does not use JU2- position 7 option (Remote off state)

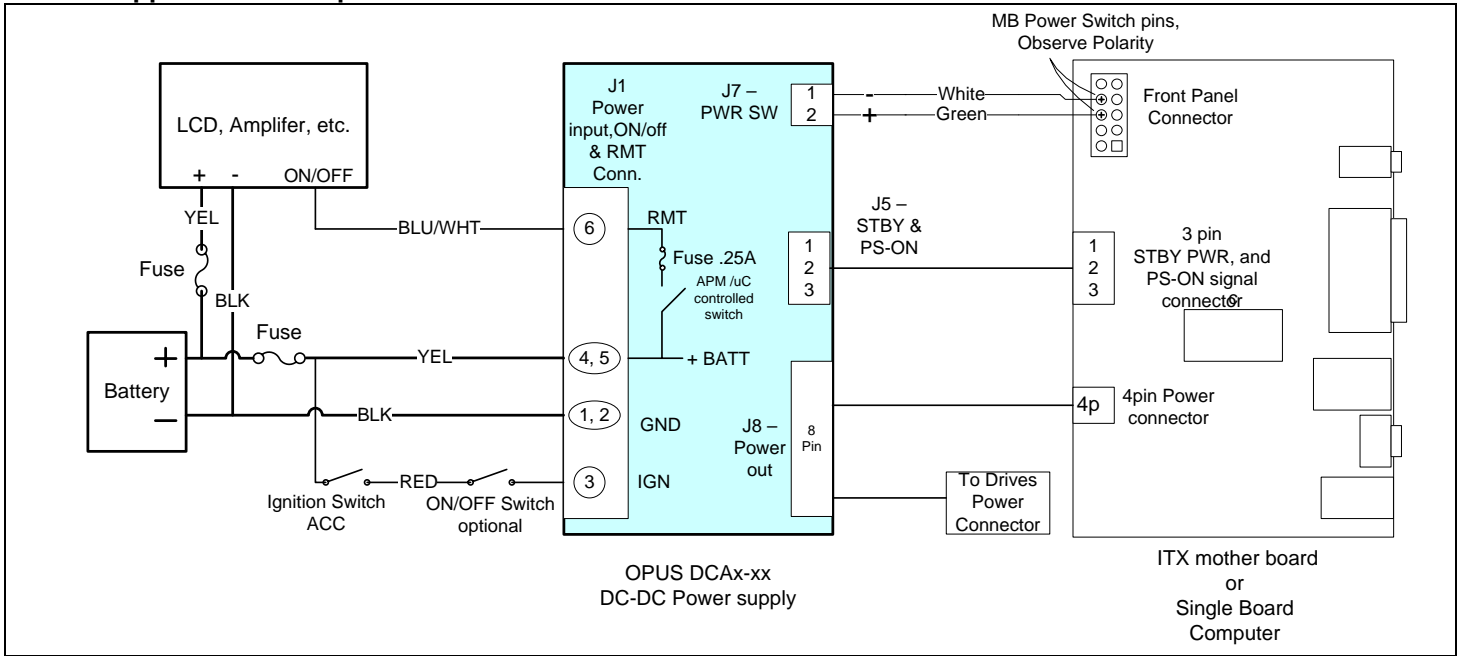
JU4 - Output Voltage Setting Jumpers

| JU Psn | 5V | 2V | 1V | Vx output Voltage |
|--------|----|----|----|-------------------|
| 0 0 0 | - | | | 19V |
| 0 0 1 | - | | | 18V |
| 0 1 0 | - | | | 17V |
| 0 1 1 | - | | | 16V |
| 1 0 0 | - | | | 15V |
| 1 0 1 | - | | | 14V |
| 1 1 0 | - | | | 13V |
| 1 1 1 | - | | | (12V) |

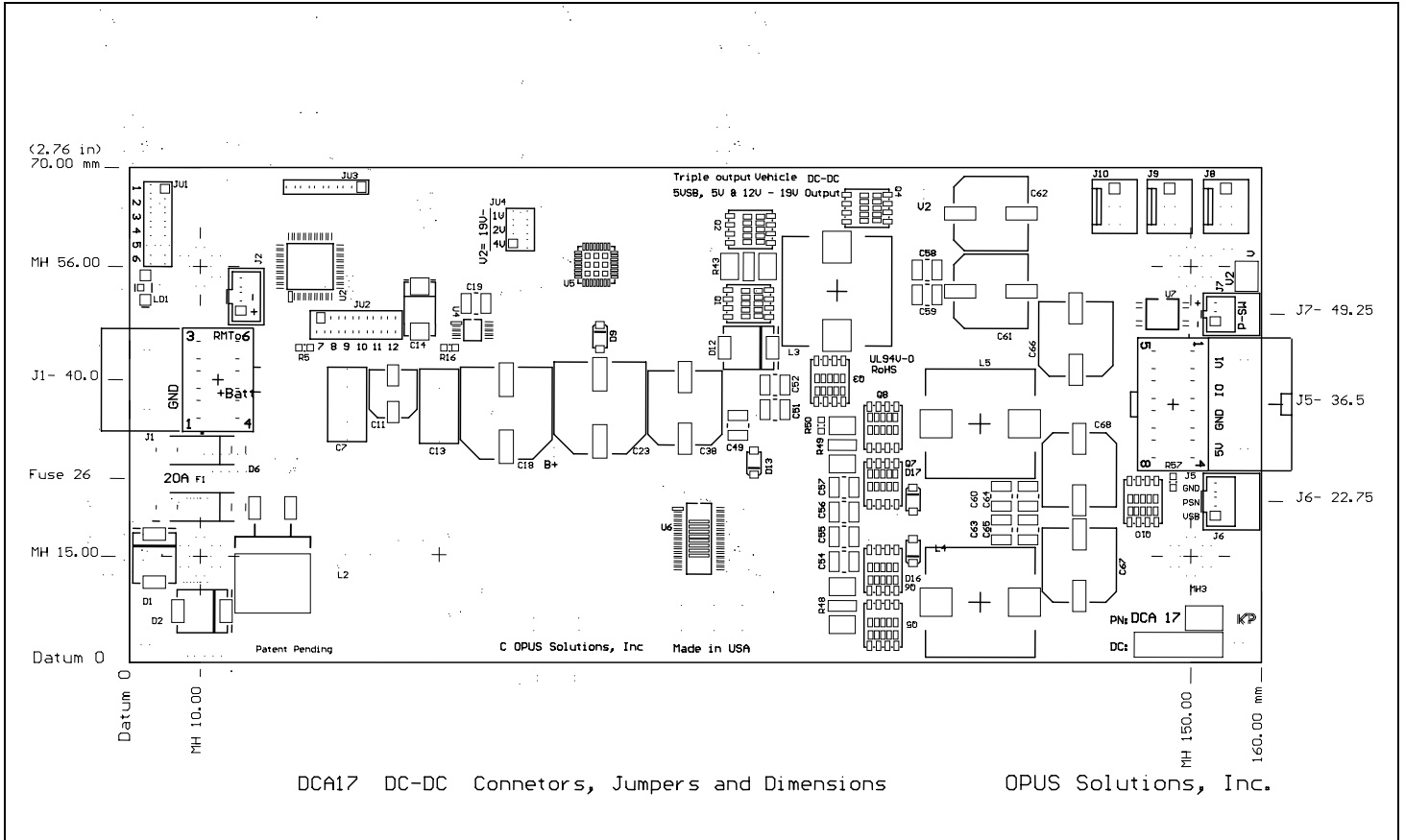
2mm Shorting Jumpers installed (factory default for 12V output)

0 = Jumper not Installed
1 = Jumper Installed

DC-DC Application Example in and ACPI environment



DCX 17 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 Battery voltage is below normal operating range.
(every 10 Sec.) 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