

DSSC

Carputer Startup / Shutdown Controller

INSTALLATION MANUAL



Before you begin:

The DSSC Carputer Startup and Shutdown Controller is an electronic device. Please handle it carefully, and observe safe Electrostatic Discharge procedures when handling this board.

WARNING: You Could Damage this Controller or your Carputer if this unit is not installed properly! Please have an experienced car electronics installer install this product if you are unsure of any the connections.

Dashwerks, Inc. will not be held liable for improper installation, or damage caused to the controller as a result of improper installation. Improper installation will void your product warranty. This controller has been installed in numerous configurations and has been tested with many different types of computers. If these directions are followed closely, your installation will go smoothly.

Tools you'll need:

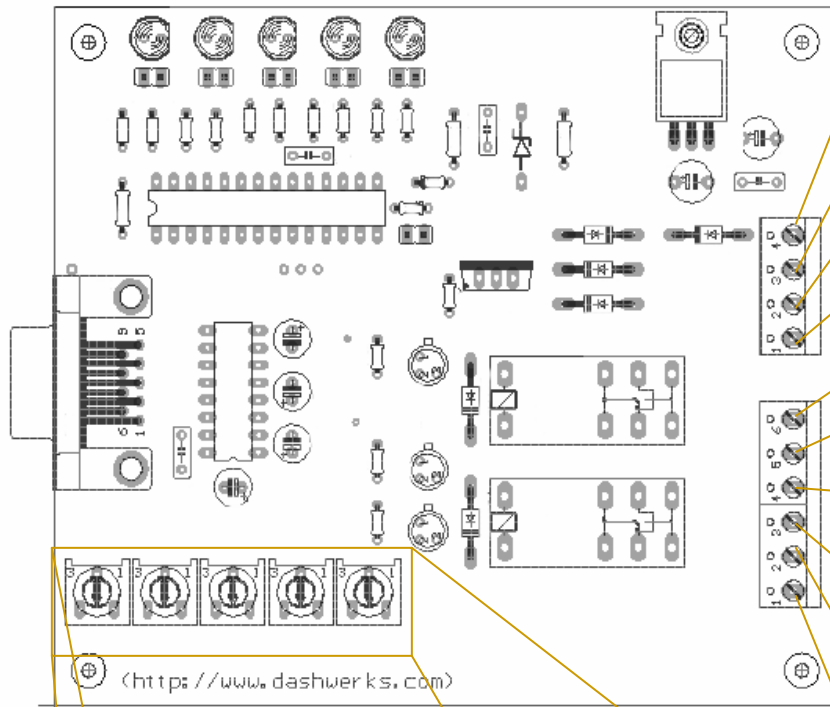
You'll need the following tool(s) before proceeding:

- Small Philips screwdriver (for screw terminal connectors)

Optionally, these tools will help the installation and unit adjustment:

- (optional) Medium Philips screwdriver (for adjusting timing delays)
- (optional) Wire 14–16 Gauge
- (optional) DB9 Serial port cable (Male–Female). This cable is only necessary if you are shutting down your computer via the serial port (ex. Laptops and notebooks).

About the controller:



CB+ — This connector should be connected to an External 30A or 40A Relay. This is a **required** component. This connects to the **yellow** wire of the external relay (pole 87).

Valet — Connect this to an external switch to override the shutdown function. This connection is not required for proper operation.

ACC — Connect this to the Accessory wire of the vehicle.
Required for proper operation.

GND — Ground. Connect to vehicle chassis electrical ground.

No Connection

RC — Connect to **required** external relay. Connection to terminal 85 (coil) of relay. This will connect to the **orange** wire of the external relay.

RA1 — Connect to external device #1. Examples include AMPLifiers, USB Relay controllers, etc. Delay is Controlled by adjusting 2nd blue Adjustment dial (REM1). This connection is not required for operation.

RA2 — Connect to external device #2. Examples include LCDs and Video Displays. Typically used to turn on the LCD after the computer has booted. This connection is not required for proper operation.

RB1 — Connection #1 to ACPI motherboard connector. It does not matter which of the 2 ACPI pins you connect this wire to. Must be different from **RB2** below.

RB2 — Connection #2 to ACPI motherboard connector. Polarity independent. It does not matter which of the 2 ACPI pins you connect to. These two connections are not required for proper operation.

CAUTION!
These components are very fragile. Do not apply downward force. Do not push down hard. Use small screwdriver when adjusting.

↑
Items above with this darker background are **required** for proper operation.

* Your board image may vary slightly.

Installation:

STEP 1:

Connect the YELLOW wire of the off-board relay (pictured below) to the CB+ (top) screw terminal of the DSSC board. This relay terminal is #87.

STEP 2:

Connect the ORANGE wire of the off-board relay (pictured below) to the RC screw terminal of the DSSC board. This relay terminal is #85.

STEP 3:

Connect the RED wire of the off-board relay (pictured right) to your vehicle's +12V. This should be constant power. This wire should always have 12 Volts. These are relay terminals #30 and #86.

STEP 4:

Connect a wire from your vehicle's GROUND (GND) to the GND screw terminal on the DSSC board.

STEP 5:

Connect a wire from your vehicle's ACC line to the ACC or VAL screw terminal on the DSSC board.

STEP 6:

To test the DSSC Board, you should now turn the ignition key of your vehicle to the ACC position. If your DSSC is properly installed, you should hear a series of clicks and see the LEDs light as the board becomes active and begins the timing sequences. After all devices have turned on, you should be able to remove the key from the ignition. You should hear a couple of clicks as the devices are turned off. Finally, you will hear the off-board relay (pictured above) turn off.



If your board is not powering up at this point, please go back to STEP 1 and make sure all connections are correct. If you continue to have problems, please contact technical support at (404) 354-0901.

Controller Indicators and Adjustments

Shutdown Delay Indicator

When lit, this LED indicates that the Controller has signaled the PC to shut-down and is counting down. Once this countdown period is reached, the controller will turn off. It will also turn off all devices attached to it, by killing power to the devices.

External Device #2 Delay Indicator

Adjusting this dial will modify the delay until external device #2 (connected to RA2) is turned **on**. This device will be turned off *immediately* when the car is turned off (ACCessory low / key removed).

External Device #1 Delay Indicator

When illuminated, this LED indicates that a delay is active for this device. When this LED turns off, External Device #1 is activated (RA1 goes high).

Initial Start Delay Indicator

When illuminated, this LED indicates that the Controller has received power is in delay state. Once the delay time has passed, the Controller will begin activating devices. This delay is adjusted by the Initial Start Delay Adjustment (below).

ACPI Delay Indicator

When lit, this LED indicates that the ACPI function is in a delay state.

Delay Adjustment Jumper

When enabled, this jumper allows you to test the timing of your devices without actually enabling them.

Most users will always leave this open (not jumpered).

Initial Start Delay Adjustment

This adjustment can be used to delay the initial operation of the controller. Some vehicles draw power away from accessories when the car is started (ex. Lights, etc.). If necessary, this dial can be adjusted to provide up to 10 seconds of delay to prevent your Carputer from starting before the vehicle's power supply has stabilized. Factory default is 0 seconds. Most users will leave this at factory default.

External Device #1 Delay Adjustment

Adjusting this dial will change the delay until external device #1 (connected to RA1) is turned **on**. This device will be turned off *immediately* when the vehicle ACCessory is turned off (key removed).

External Device #2 Delay Adjustment

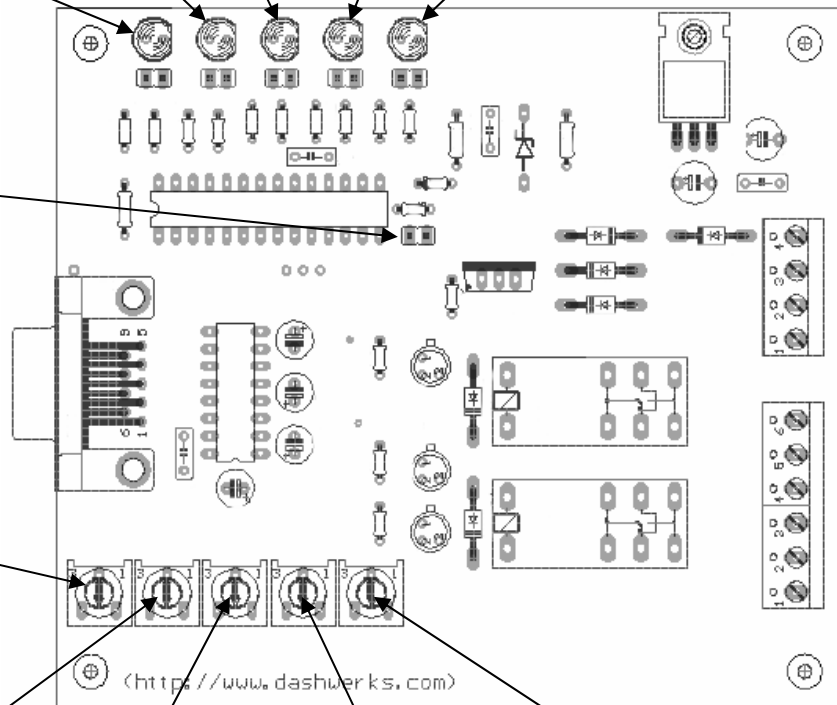
Adjusting this dial will modify the delay until external device #2 (connected to RA2) is turned **on**. This device will be turned off *immediately* when the car is turned off (ACCessory low / key removed).

ACPI Timing Adjustment

Adjusting this dial will modify the delay until the ACPI signal (and Serial port SHUT-DOWN) are activated when the vehicle is turned off. Factory default is 0 seconds.

Shutdown Timing Adjustment

Adjusting this dial will allow you to keep devices powered for up to 20 minutes after the ACCessory line is turned off (key removed from ignition). This delay begins after the ACPI Timing Delay. Factory default is between 15 and 20 seconds.



Serial Port and Remote LED Headers

Remote LED Headers

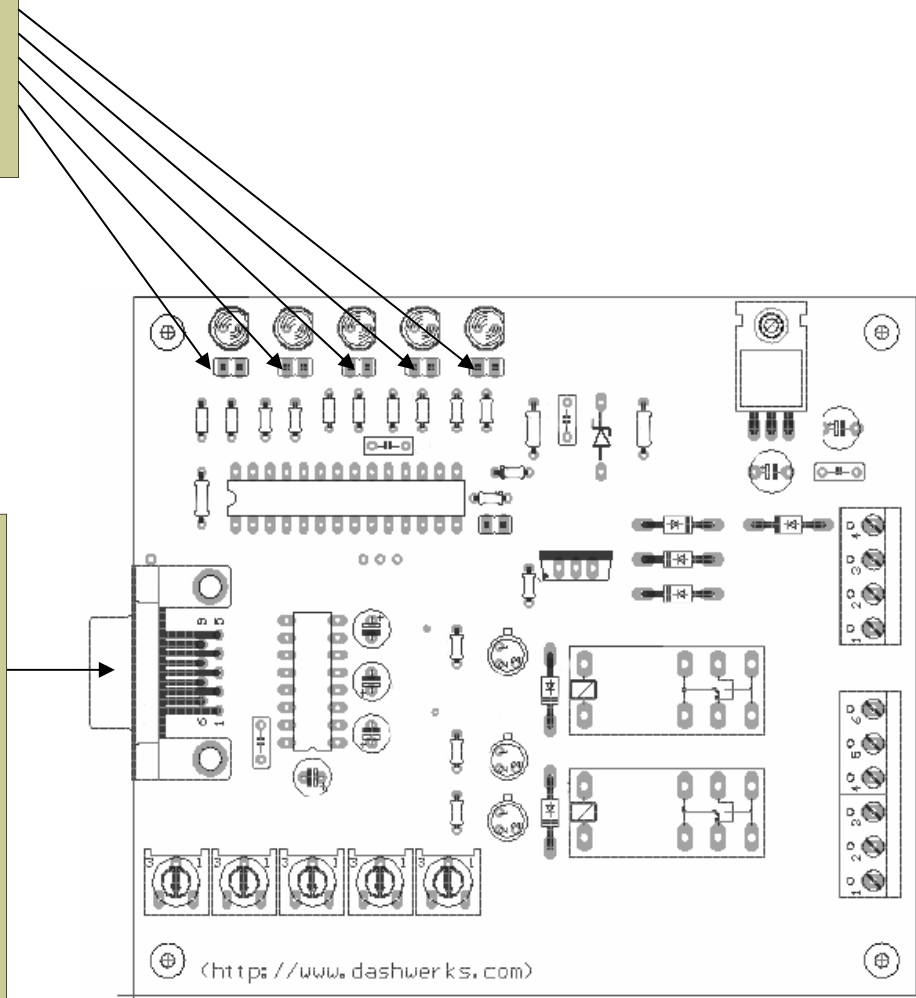
These pins can be used to remotely locate LED indicators. Users that wish to customize their CarPC installation, can do so using these headers. Remote LEDs can be located in the Dashboard, on custom enclosures or consoles.

NOTE: These are NOT Jumpers.

Serial Port Connector

This connector is used with a DB9 extension cable. Connect this port to the CarPC's serial port to enable the shutdown functionality via the Serial Port. A software driver is required for this functionality.

Consult our website (http://www.dashwerks.com/dw_dssc.php) for your specific operating system requirements or contact technical support for more information.



Theory of Operation (factory configuration):

When you first start your vehicle, the DSSC will turn on a master power source (the required external relay). This power source allows your devices to remain powered after you turn the vehicle off.

The DSSC provides a master turn-on delay option. This option is controlled by adjusting the first blue dial on the left, the one labeled MSTR. In some vehicles, this delay may be required due to high vehicle power draw at startup. The engine starter draws massive amounts of power, and this delay is provided to prevent failure during vehicle start. This is set to 0 seconds at the factory.

The DSSC closes 2 contacts (RB1 and RB2) together which simulates the power switch being pressed on your computer/Carputer. This is referred to as an ACPI switch. Most desktop computers / Carputer's manufactured after 1998 are compatible with this and will work perfectly.

The DSSC provides delayed turn-on of 2 external devices. These are connected to RA1 and RA2 (seen on the board). These leads go positive to +12v when activated. They turn "off" immediately when the vehicle ACCessory lead is turned off. The delay that turns these devices ON are the 2nd and 3rd blue dials (respectively, from the left).

When the ACCessory lead of the vehicle is turned off (the key is removed from the ignition), the DSSC will send the word "SHUTDOWN" to the serial port and it will close the contacts of the ACPI switch on the motherboard for 1 second. This can be delayed by adjusting the fourth dial (labeled ACPI).

After the ACPI switch has been toggled, the Shutdown delay begins. This delay is adjusted by the SHDN dial on the DSSC Controller. The delay can range from 0 to 20 minutes. When this delay has elapsed, the DSSC Controller will turn off. When it turns off, it disconnects power to the external power relay.

Serial port connection:

Since some Carputer's don't have an ACPI power switch, the DSSC provides an alternate method of shutting down the computer. When connected to the Carputer's serial port, the DSSC can signal it to shutdown using a software driver. This driver can be downloaded from our website at:

http://www.dashwerks.com/dw_dssc.php

Factory Timing Settings:

The DSSC can be adjusted to factory settings by aligning the black indicators on the timing dials. To adjust the DSSC back to the original factory timing settings perform these steps

Step 1)

Turn all 5 dials to the leftmost position. Each dial should stop. (Note: If the dial turns without stopping, you have damaged the component.)

Step 2)

Do not adjust the first dial. Turn the second dial (from the left) $1/4$ of a turn to the right. When adjusted, this dial should appear similar to the first dial.

Step 3)

Adjust the center dial $1/8$ th of a turn to the right.

Step 4)

Adjust the last dial $1/2$ of a turn to the right. This delay is the main shutdown delay.

Timing adjustment notes:

When adjusting timing dials, it is not necessary to turn them far. They are very sensitive to slight movement. We recommend many small incremental adjustments instead of large sweeping turns.

WARNING: The shutdown delay (the rightmost blue/white dial) will keep any connected devices *on* until the delay has passed. To avoid having a dead car battery, please be sure that your battery can handle the power draw of these devices. In most installations, this could include Amplifiers, LCD Displays, Video Displays, Computers, etc. Most users will be safest with the factory default shutdown delay setting.

Frequently Asked Questions

How do I know if my Carputer / motherboard supports ACPI?

Most motherboards manufactured after 1998 have an ACPI connector on them. ACPI is a BIOS standard that allows you to shutdown and start your computer by pressing a button. It consists of 2 pins on the main board that when connected together send a signal to the board. If the motherboard (Carputer) is *off* and this signal is sent, it will begin it's *startup* procedure. Conversely, if the main board *is* on and this signal is sent, it will begin it's *shutdown* procedure.

The DSSC uses this technology to control turning your Carputer on and off in coordination with your vehicle's ignition.

Disclaimer:

Dashwerks, Inc. makes no warranty of any kind to the fitness of this product in any particular application. This controller has been tested in numerous configurations and when connected properly, will not damage connected peripherals. However, in the event of improper installation, you *could* damage this controller, your Carputer, or even your vehicle's electronics subsystem. Please follow all instructions carefully, and do not proceed if you are unsure of any connections.