

First, a review of the basics:

- The module can only be programmed when it is powered up, which usually means it must be installed in the car and the ignition must be on.
- Before attempting to program it, verify the ECT module LED is blinking. If it does not blink, the module is either bad or it is not receiving +5v power. The LED should *always* blink.
- When you transmit a text file to the module the LED should light steadily for as long as the data is transmitting from the PC to the module. If the LED does not light, you are not transmitting data (most likely) or the programming cable is bad (rare).
- When the text file transmission is complete the LED should go out for a second, then make 2 slow one-second blinks. If the LED does anything else there was an error in the text file transmission.

Troubleshooting procedure:

Perform these steps with the ECT module powered up. Have the programming cable and your computer ready but not connected to the module until told to do so.

1. Is the ECT module LED blinking?

- a. Yes – continue to next step
- b. No – ECT module is not powered or it's bad. Module must be powered up (installed in car with ignition ON) in order to program it. If the module is installed and ignition is ON, verify power source is 5 volts DC. If the module was ever connected to 12 volts DC it's fried.

2. Plug the programming cable into the computer and the ECT module and then start your Terminal Client software. Do not send a text file at this time. Verify your communication session is set up for the correct serial port (the one the programming cable is connected to) and the communication parameters are correct (9600 baud, 8 data bits, 1 stop bit, no parity). To eliminate any questions about the software setup it would best if you used the sample Hyperterminal session file available from modifry.com (it is part of the zip file download available on the ECT Installation page). Check the LED on the ECT Module.

Is the LED still blinking normally?

- a. Yes – continue to next step
- b. No, it's on steady – This means your Terminal software is transmitting data when it should be idle, or you have connected the programming cable to the wrong serial port (one that's in use by another program). You must correct this before proceeding.

3. Type random keys on the keyboard and watch the LED on the ECT module. It should flash with every keystroke (in addition to the regular blinking). If you hold a key down or type very quickly the LED will blink more often and may appear to be lit all the time.

Does the LED flash with every keystroke?

- a. Yes – continue to next step
- b. No – Data is not reaching the ECT module. See "Checking Data Transmission" on the next page.

4. Using the Terminal Client software, transmit the text file to the ECT module and observe the LED. It should light steadily for as long as the data is transmitting from the PC to the module.
Once the data stops, what does the LED do?
 - a. It goes out for a second, then makes 2 slow one-second blinks, then goes back to the “normal” blinking – This is correct operation and indicates you have successfully re-programmed the module.
 - b. The LED immediately goes back to the “normal” blinking – This means the data was not transmitted in the correct format (baud rate, parity etc). Check your Terminal Software settings to be sure they are set for 9600 baud, 8 data bits, 1 stop bit, no parity.
 - c. The LED goes out then blinks 5 times real fast – This means the text file has incorrect values for the voltage levels. Check the text file and verify the values in the brackets [] are correct. AP1 values must be 3 characters. AP2 values must be 4 characters.

Checking Data Transmission

If step 3 failed then data is not reaching the ECT module and you need to verify the computer serial port and Terminal software are transmitting data. There are a couple ways to do this and I suggest you start with the “headphone test” as it’s the easiest. If you do not have an audio headset you can try the “loop-back test”.

Headphone test: You do not need the ECT module for this test, just the programming cable, your computer and a regular set of headphones with a 3.5mm plug on the end, like used for MP3 players. Do not use a cell phone mic/earphone for this test.

Prepare for the test - open the Terminal software, start the session, connect the programming cable to the PC serial port, and get ready to send a text file. If using Hyperterminal the best procedure is to highlight the text file (do not double-click it) and then all you have to do is press the <Enter> key when you’re ready to send the file.

Put the headphones on and hold the 3.5mm plug up against the programming cable pins like shown here. You want the 2 pins on the programming cable to touch the tip and center ring of the headphone plug. It’s OK to hold them with your fingers – the voltage is so low it’s harmless (less than a 9v battery).

When you’re ready, send the text file. You should hear a fast clicking or buzzing sound in the headphones. It should last as long as the text file is transmitting. If you don’t hear it, either the programming cable is bad (rare) or the software is not transmitting data (more likely). See “Checking Flow Control” on the next page for more information.



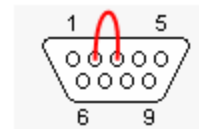
Loop-back test: In order for the test to work you must be able to short together pins 2 and 3 on the DB9 connector of the computer serial port. This will cause any data sent out of the port (on pin 3) to be received by the port on pin 2. This is a common test used to check serial interfaces, called a "loop-back" test because it "loops" the data back to the receive pin.

If the ECT module is new enough (2009 or newer) you may be able to do this test with the programming cable supplied with the module, as the new cables have pins 2 and 3 internally

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connected together to make this test easier. If your cable is older or you're not sure if it has 2 & 3 connected you can short the pins with a paper clip or screw driver and do the test. Note - you CANNOT hurt the computer or serial adapter by shorting the wrong pins together. RS-232 specifications require the circuitry withstand a permanent short from any pin to any other pin, so you will not break anything by trying this test, even if you make a few mistakes along the way.

Connect Pins 2 & 3



Computer Connector

Loop-back Test Procedure:

1. Open your terminal software (HyperTerminal if you have it) but leave the computer serial port (or adapter serial port) disconnected (not plugged in). If you are using a USB to serial adapter the USB end must be plugged into your computer - it's just the DB9 side that is left open for the first part of this test.

2. Type on the keyboard and watch the screen

Do you see the text you type appear on the screen?

- a. Yes – That's OK, it means the "Echo characters locally" option in the Terminal Client is turned on. Now short out pins 2 and 3 on the serial port connector (or plug in the programming cable if it's a recent one) and type on the keyboard again. Now you should see each key appear twice. If you typed "test" you should see "tteesstt" on the screen.
- b. No – That's OK, it means the "Echo characters locally" option in the Terminal Client is turned off. Now short out pins 2 and 3 on the serial port connector (or plug in the ECT programming cable if it's a recent one) and type on the keyboard again. Now you should see each key you type appear on the screen. If you typed "test" you should see "test" on the screen.

3. Did you see the text appear on the screen as described above in a or b?

- a. Yes – It sounds like the serial port is working, but this test does not verify the port settings are correct (9600 baud, 8 data bits, 1 stop bit, no parity). Verify the settings and try to program the ECT module again.
- b. No – There is still something wrong with your software setup because it is not transmitting data. See "Checking Flow Control" below for more information.

Checking Flow Control - If the serial port does not transmit data the Terminal Client is probably set up for "Flow Control", an option that uses pins 4,6,7, and 8 to signal when it's OK to transmit data. Since the ECT module does not use these pins your Terminal Client must have Flow Control turned off. The sample HyperTerminal session file provided on the ECT Installation page at modify.com has Flow Control set to "none" (turned off), but if you are using a different session or other software you will need to disable all Flow Control settings before proceeding. Unfortunately I can't provide specific help on using other software so you will have to determine the correct settings on your own. Once you disable Flow Control you should be able to pass the Loop-back Test described above.