

USER'S MANUAL

CAR PC



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CHAPTER 1) Your New Mobile Computing Solutions Car PC

1-1 What's in the Box and How it Works

1. One 4m/13' blue and black wire with a barrel connector on each end. This wire is for providing power to a stand alone touch screen monitor, like a Lilliput 629, EBY-701, or Xenarc 700-TSV. It is not for use with in dash monitors that are motorized or have amplifiers. Simply connect one end of the monitor's power input and the other end into the 12V power output on the PC. It is located directly under the six pin input/output harness. See the port diagrams section for more information.
2. The 5m/17' yellow and green 18AWG wire with barrel plug on one end. Simply insert the barrel plug into the DVD drive power input port. Run the line back to the PC, it can be cut to length. Then connect the yellow (+) to the yellow wire and the green (-) to the green wire.
3. Motherboard users guide – The users guide will give you all the relevant information to make changes to you system, recommended for advanced users only.
4. Motherboard Drivers Disc – you will need this to install the VGA and sound drivers. We also suggest that you install the My Guard diagnostic software. The disc also includes a fully functional copy of PC-cillin anti-virus.
5. Six pieces each of male and female crimp on quick connectors. Use these connectors for making the connections on the six pin input/output harness.
6. The male six pin harness connects to the female six pin connector on the case to provide power to the PC as well as to the DVD drive and amp (for the remote turn signal)
7. Master driver disk which contains this users guide, wiring diagram, and device drivers like Bluetooth, GPS, OBD II controllers, and touch screen drivers.
8. Two extra jumpers to adjust the timing delay on the power supply. See section 10-1

1-2 Tools Required for Installation

1. Basic computer and vehicular wiring knowledge
2. Voltmeter
3. Trim removal tool
4. Drill
5. Screwdriver
6. Wire strippers
7. Wire crimper
8. Wire ties
9. Electrical tape
10. Marking pen

CHAPTER 2) MOUNTING THE CAR PC: DOS AND DON'TS

2-1 How to Mount the Car PC

The computer can be mounted horizontally, vertically, on an angle, right side up or upside down. Some **precautions** should be taken, however:

✓ **DO** mount it in an area that will receive ventilation.

✗ **Do NOT mount it in the spare tire area or behind any panels.** If mounting it under the seat, make sure the wires are secure and will not get pinched when the seat is moved.

✗ **Do NOT mount it in any area that will become moist at anytime.** Make sure that you securely mount the computer to prevent it from bouncing around when you drive.

✓ **DO make sure you know what is behind the unit before you start drilling.**

Note: If you are using Velcro to attach the car PC, make sure you clean the back of the case with rubbing alcohol to remove any dirt or grease so the Velcro will adhere firmly to the computer.

CHAPTER 3) WIRING YOUR MOBILE COMPUTING SOLUTIONS CAR PC

3-1 Wiring Intro

As with aftermarket stereo installations, we suggest you keep the power and sound wires as far away from each other as possible. Any wire that carries power should **ALWAYS** be fused. It is also recommended that you label each end of the cables that you run. For example: USB for DVD, USB for hub, GPS receiver to hub, etc. It is easy to remember while you are doing it, but you may not remember down the road which USB wire is for what device or where it goes. Spending a few minutes to label each wire will save you a lot of wasted time and headaches later.

3-2 Wiring

3-2.1 **Red Wire** – Your constant power should be taken directly from the battery or from an auxiliary fuse location with a minimum of 15A of dedicated power. **Do not use any kind of cigarette lighter plug.** Your constant power should come directly from the battery using 12 or 14 AWG wire. This line should have a 15A fuse in line as close to the battery as possible. When running the constant power line, **do not** insert the in line fuse or connect it to the battery until the computer is properly grounded and all of the connections have been made.

3-2.2 **White Wire**— Accessory or ignition wire.

3-2.2.1 OPTION 1 Use a voltmeter to locate a circuit that does not have power when the vehicle is off, but does have power when the vehicle is turned on. This line should be 18 AWG wire and run to the white wire on the PC. This line should be fused at 5A even if it comes from a fuse protected line. It will protect the original circuit if you ever have a short in the line.

3-2.2.2 OPTION 2 Run a second wire from the battery, fused at 5A, with 18AWG wire to a toggle switch and then to the white wire of the PC. Throwing the toggle switch will simulate turning the vehicle on or off.

3-2.3 **Black Wire**— This is the ground wire. Run a 12 or 14AWG wire from the black wire on the PC to the chassis of the vehicle. Test the grounding point you have chosen with a voltmeter to be sure that it is a proper ground. **You cannot ground to a painted surface; it must be bare metal.** If you get noticeable engine noise you may have a bad ground or ground loop.

3-2.4 **Blue Wire**— This is the remote on wire. Connect this line to your amps remote on input, if you are using an amp. This line will be on a five

second delay to prevent popping from the speakers while Windows™ loads.

3-2.5 **Yellow Wire** – This provides +5V to power the DVD player. **Do NOT apply power to this wire as it is an output only.** Connect this wire to the yellow wire on the DVD power extension cable.

3-2.6 **Green Wire** – Provides a ground wire for the +5V line (yellow). Connect this wire to the green wire on the DVD power extension cable.

3-3 **!!!WARNING!!!** If you are not planning to use the amp remote turn on, or the +5V and its ground, you must take care to properly terminate these lines, so that no bare wire is exposed. Failing to do so can cause a short circuit which may cause hardware failure that is not covered under warranty.

3-4 **Adding Valet/Emergency Power Switch** - We suggest you run the constant power through a toggle switch. The switch should be put in line between the battery and the PC and rated for 15A at 12VDC. Turning this switch off will prevent the PC from coming on. Also, turning this switch off and on will serve as an emergency reset switch if the PC ever freezes while in use.

Chapter 4) Loading Drivers and Software

4-1 Loading Drivers—Please note if you have ordered a PC from us with Windows already installed you will find that Windows has already been activated and all of the motherboard drivers are installed. You will also find that all of the peripheral hardware drivers (GPS, touch screen, WIFI) have been installed with the exception of the Bluetooth drivers.

4-2 Loading Software (Windows OS) Your Car PC has been configured to automatically boot from the USB DVD drive. Just turn your PC on, insert your Windows disc and follow the normal installation procedure.

You must install and configure your GPS and touch screen drives before installing and configuring your Bluetooth drivers due to the way the Bluetooth configures the virtual COM ports. For specific information regarding the GPS and touch screen drivers, see chapters 6 & 8.

We have provided all of the drivers for our hardware on a single full sized CD for your convenience. We also include the manufacturers original driver discs, where applicable, as back ups, should your master driver disc become lost or damaged. **Please note that slot loading DVD drives are NOT compatible with mini-CD's.**

Chapter 5) Sound

5-1 Running Sound from Your Car PC—There are three primary ways to run the sound from your car PC to your existing speakers. Each one has its advantages and disadvantages.

OPTION 1: FM Modulator – Simply plug it into the line out port on the Car PC, just like you would plug it into an iPod™ headphone jack.

👍 **Advantages** – Quick, cheap and easy and works with any radio and makes use of existing amp and wiring.

👎 **Disadvantages** – Not the best quality sound, but FM Modulators have come a long way.

OPTION 2: Auxiliary Input – Use the Aux input/MP3 jack on your head unit.

👍 **Advantages** – Very low cost and simple to do, it allows you to use existing sound system without any modifications and you can keep your existing AM/FM radio.

👎 **Disadvantages** – Not every head unit has an Aux input

OPTION 3: Use an aftermarket amplifier with or without a USB Surround Sound Card.

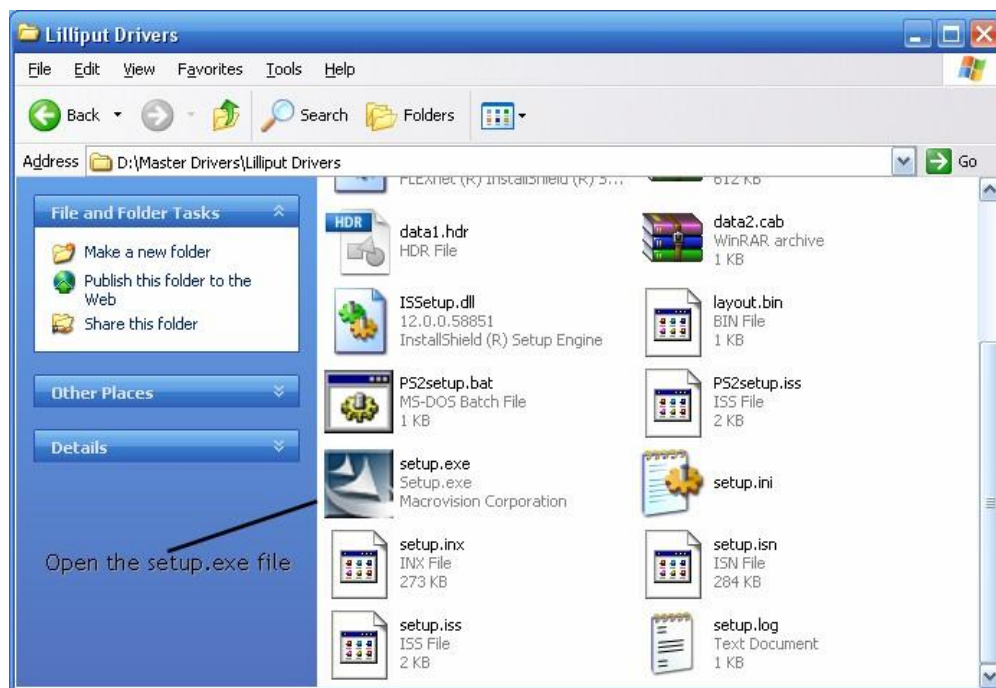
👍 **Advantages** – Excellent quality sound and allows you to eliminate your existing radio/head unit and run the PC sound exclusively through the touch screen and computer, using a USB surround sound card will also give you independent control of each channel (front, rear, and sub). Also, the built in sound card is eight bits. The external sound cards are 24 bits and will increase the quality of the sound dramatically.

👎 **Disadvantages** – Most expensive and complex installation and requires running speaker and amp power wires.

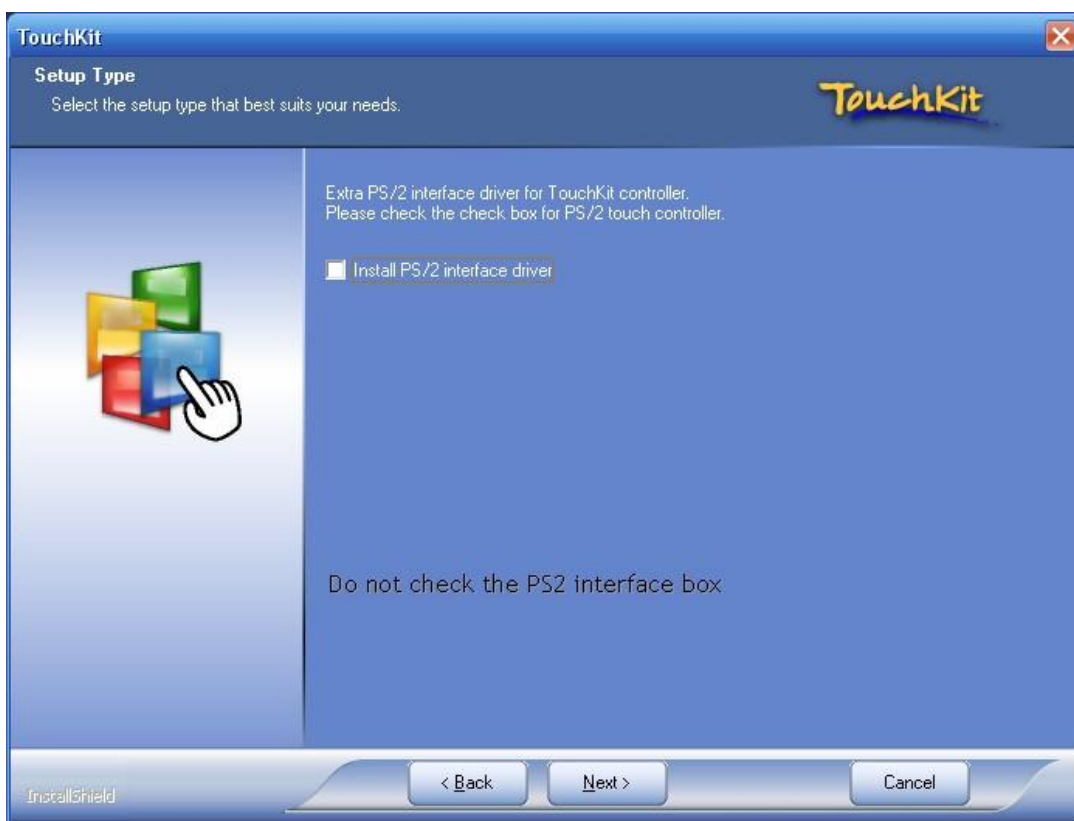
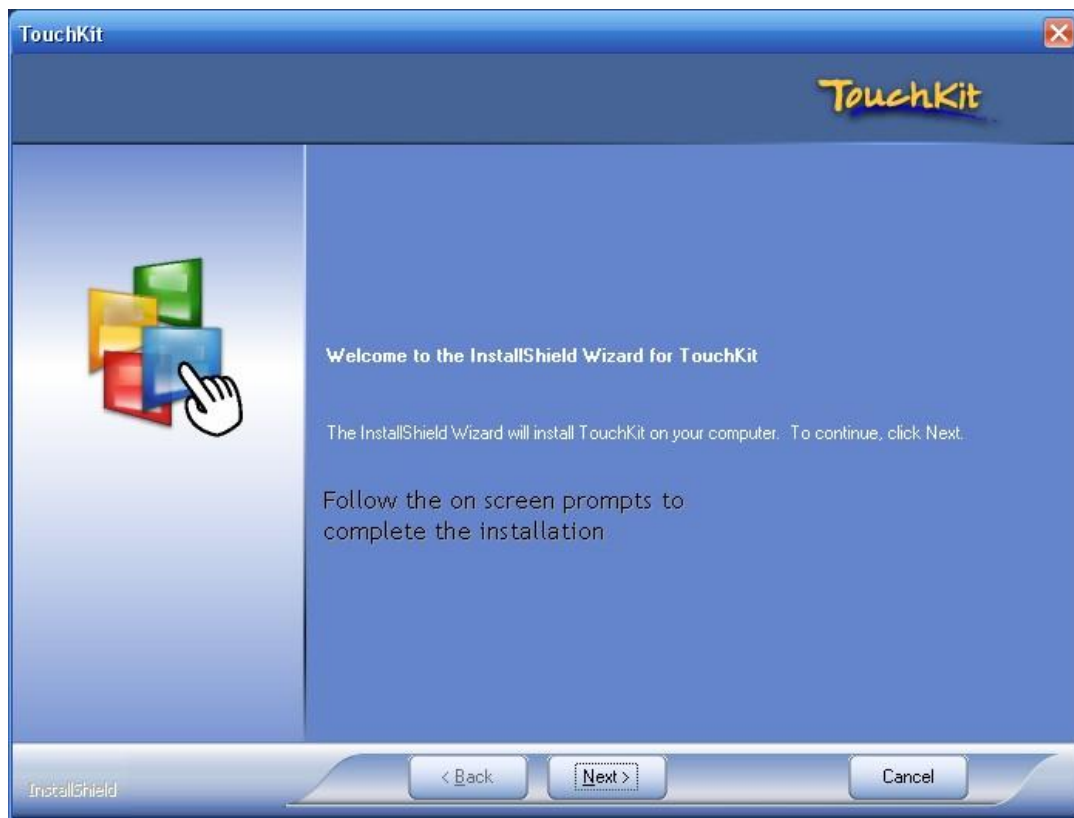
CHAPTER 6) TOUCH SCREEN

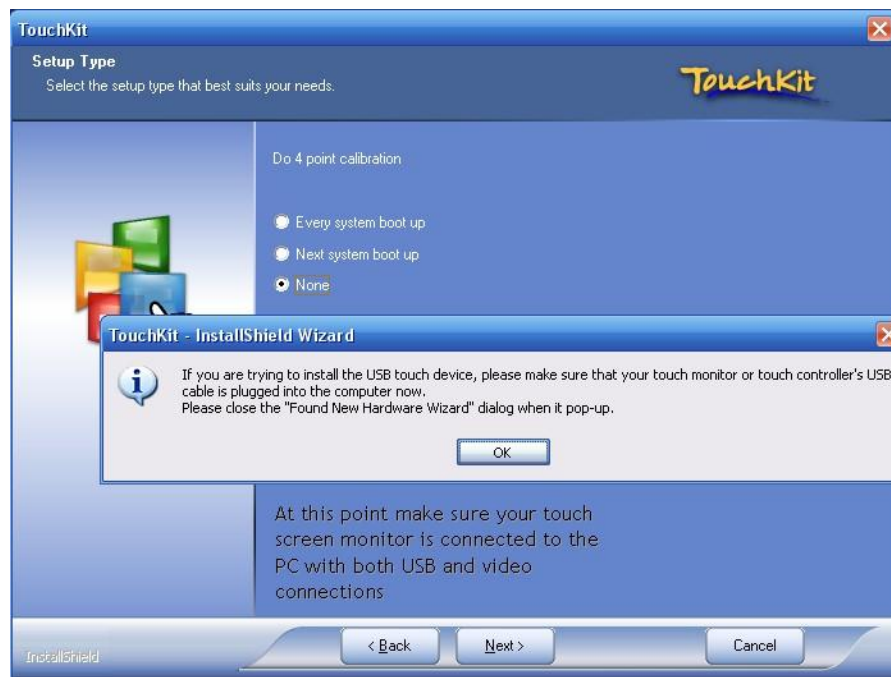
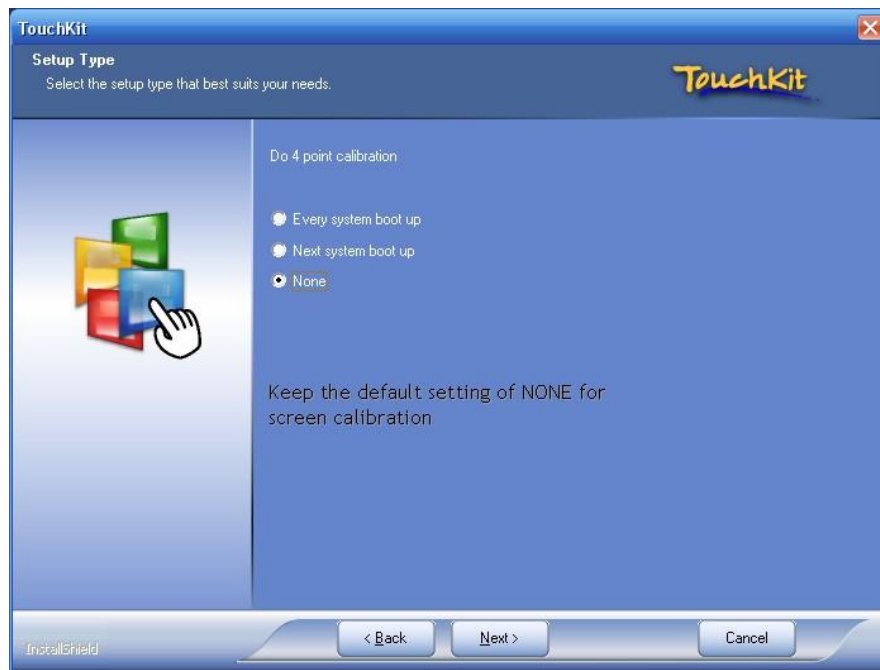
6-1 Screen Protector—We suggest you apply the screen protector as soon as you open the monitor and remove it from the shrink wrap. You must start with a totally clean screen. Any dirt on the screen will be magnified after the protector is applied. If the screen has any dust or is dirty use the included cloth to clean the screen. Do NOT use Windex, or other glass cleaners. Following the directions on the protector film, remove the protective cover using the white tag. Apply the film starting in one corner and working your way out. Use the enclosed plastic spreader or a credit card to push the bubbles out as you apply the film to the screen. After the film is applied, remove the top protective cover using the yellow tab. If the screen protector becomes dirty, you can clean it with a damp cloth or remove it from the screen and wash it with warm water. To avoid water stains, use a hair dryer on low to dry the protector.

6-2 Drivers



The driver for the touch screen monitor is located on the Master Drivers disk provided with your Car PC.

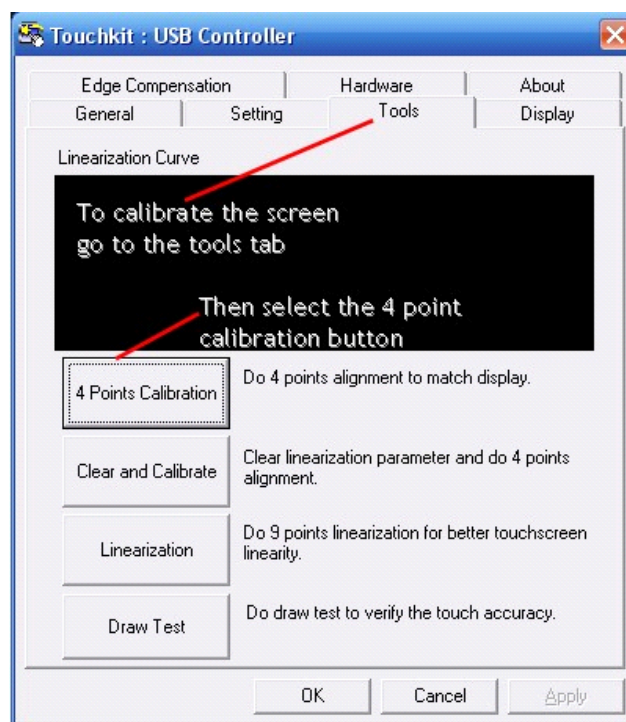






6-3 Calibration

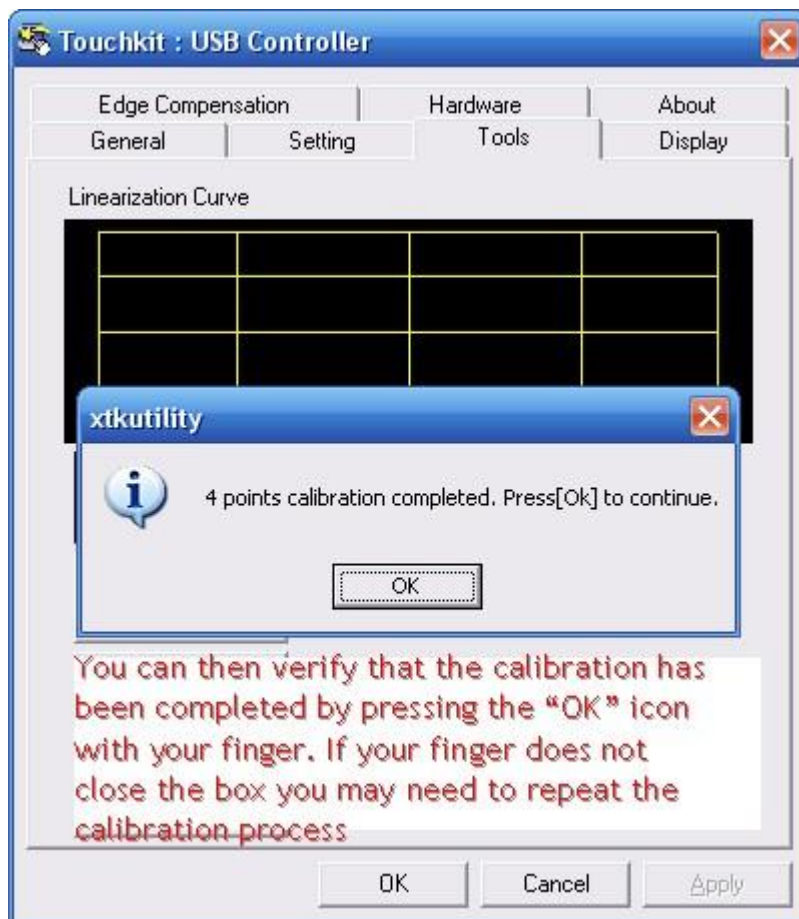
Before you can use the touch screen for the first time you need to calibrate it. Using a mouse, open the touch kit program from the desktop icon or the Start button, and follow the instructions below.



You will then see the following screen

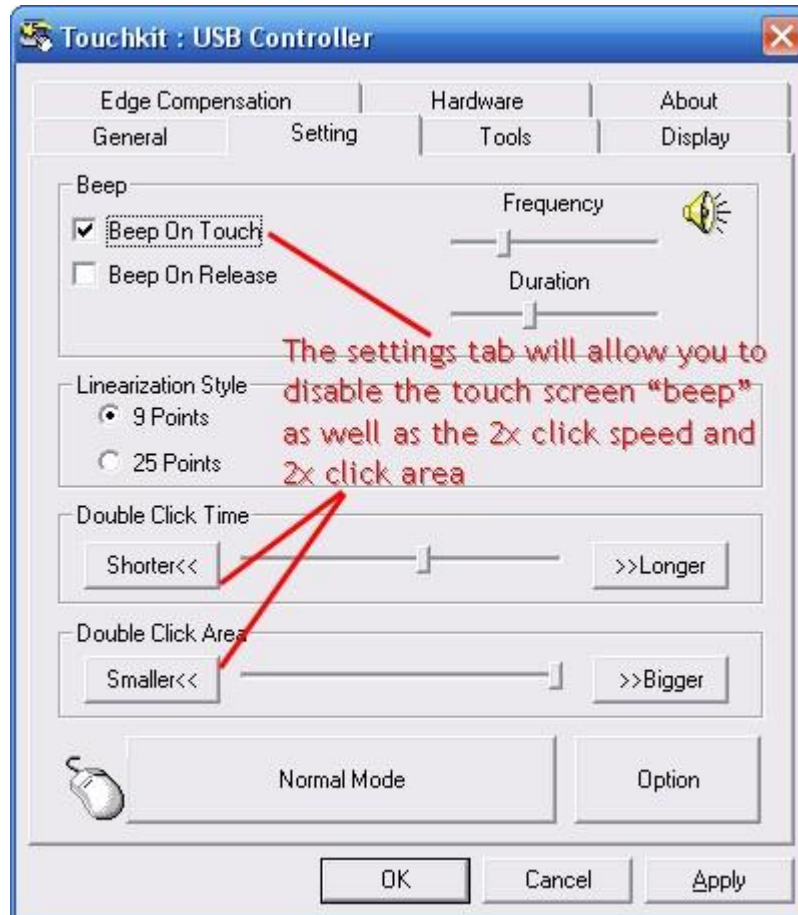
Please touch each 'X' until it stops blinking.

Touch and hold the "X" until it beeps and moves.
The "X" will then move to each corner of the screen. Repeat the touch and hold process 4 times to calibrate the screen. For the most accurate calibration touch the "X" inside of the circle



6-4 Disabling the Touch Screen 'Beep'

Once your screen is set up and working correctly you can disable the beeping noise that happens when ever you touch the screen, it can get annoying quickly. Open the touch kit program and go to the settings tab. You can also adjust the frequency (pitch) of the beep as well as the duration off the beep in the same settings tab.



6-4 Other Adjustments

If you find the touch screen unresponsive to a double click touch to open a folder, you need to adjust the speed. Go to Start > Control Panel > Mouse Options > Buttons. Adjusting the double click speed of the mouse will adjust the double click speed of the screen as well.

6-5 Automatic Power On

It is possible to have some Lilliput screens, including the 629, automatically power on with the PC. To set the automatic power on feature, the PC needs to be on and the monitor must be in VGA mode. Using the remote control, slowly push 588998 and you will come to the factory programming mode.

Chapter 7) DVD Player

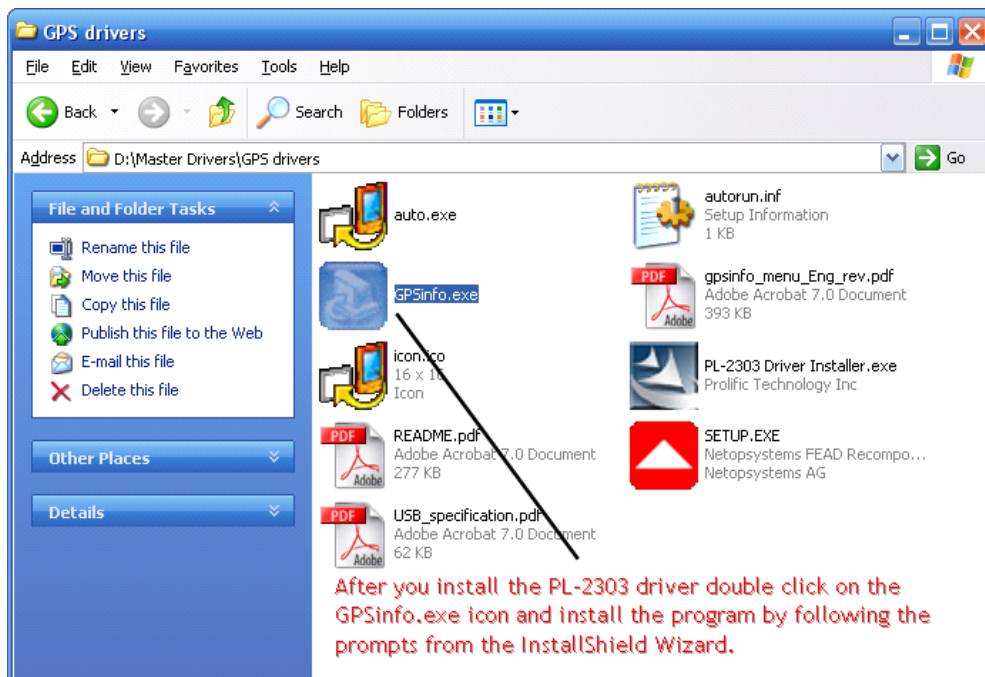
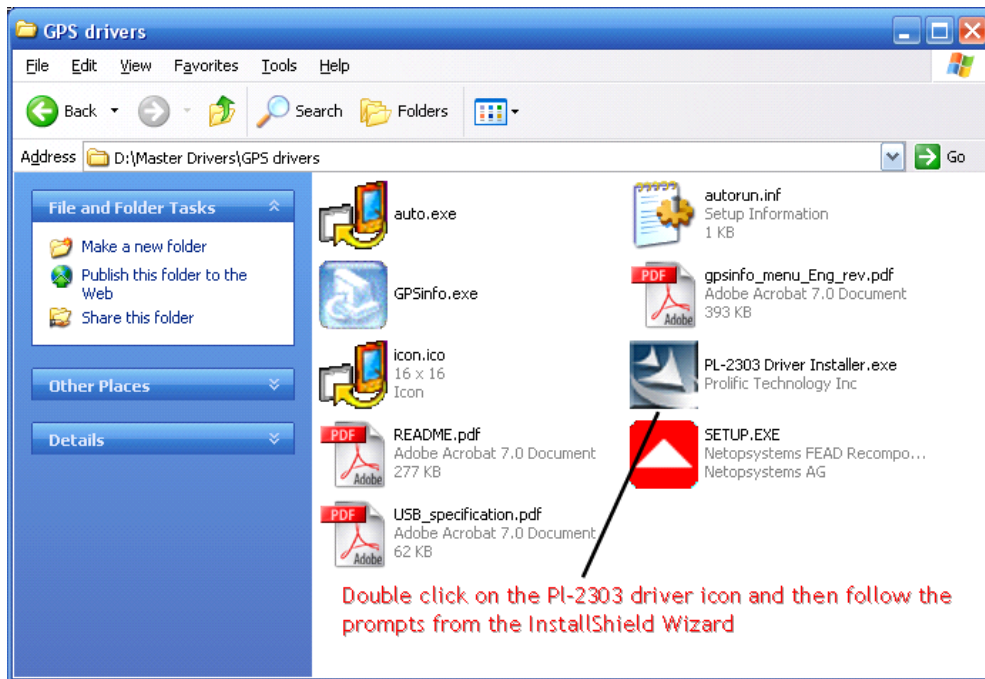
7-1 Installing the DVD Player

- No drivers are required.
- No additional power is required when using the 12" USB cable.
- To provide supplemental power to the DVD drive, use the green and yellow line set and attach the end with the barrel connector to the DVD drive and the other end to the PC as described in the wiring section.
- If the drive is mounted more than 24"/60cm from the PC and active/repeating USB cable is required for proper data signal transmission.
- The drive can be mounted horizontally or vertically, but care should be taken to prevent the drive from moving while it is playing a disc.
- Slot loading drives do not work with mini-CDs. Use only full sized CDs.
- **Only plug the DVD drive into a USB port on the motherboard (USB ports 1 and 2). Do not use the ports above the motherboard for the DVD drive.**
- DVD drives run on +5V, never apply +12V to the drive.

Chapter 8) GLOBAL POSITIONING SYSTEM SOFTWARE

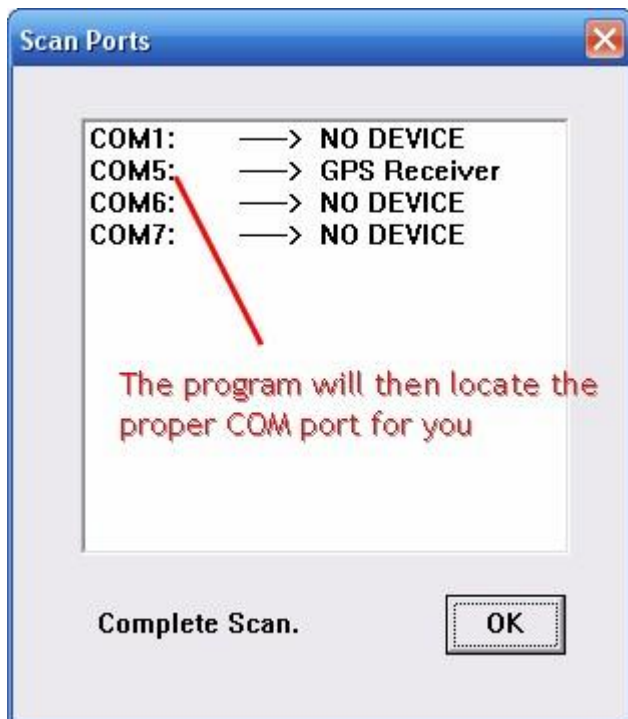
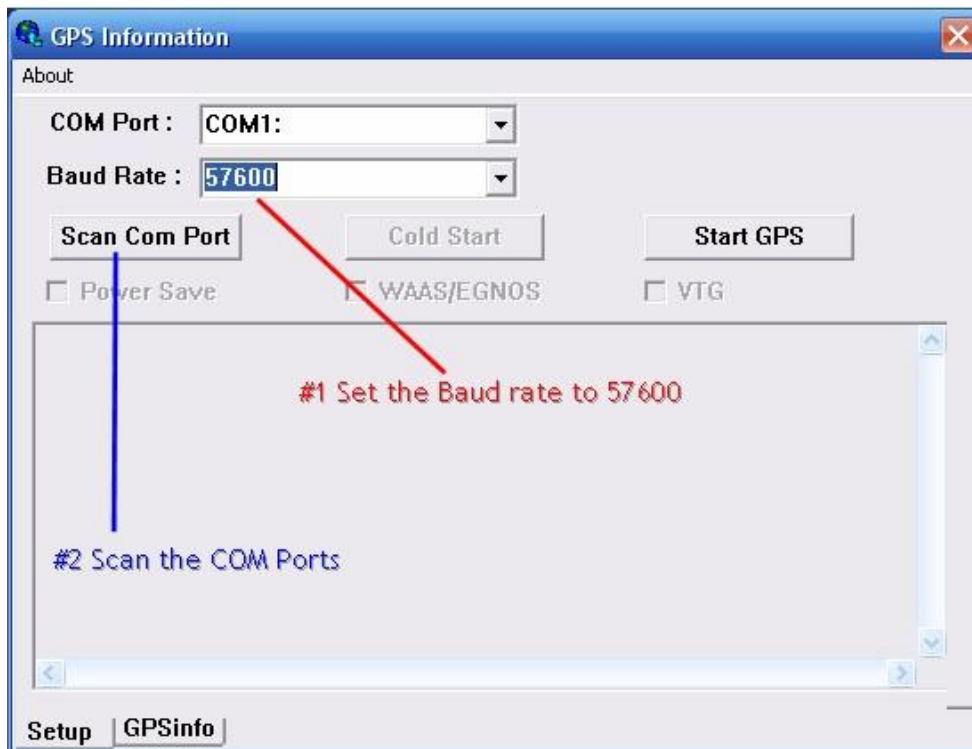
8-1 Installing GPS Drivers

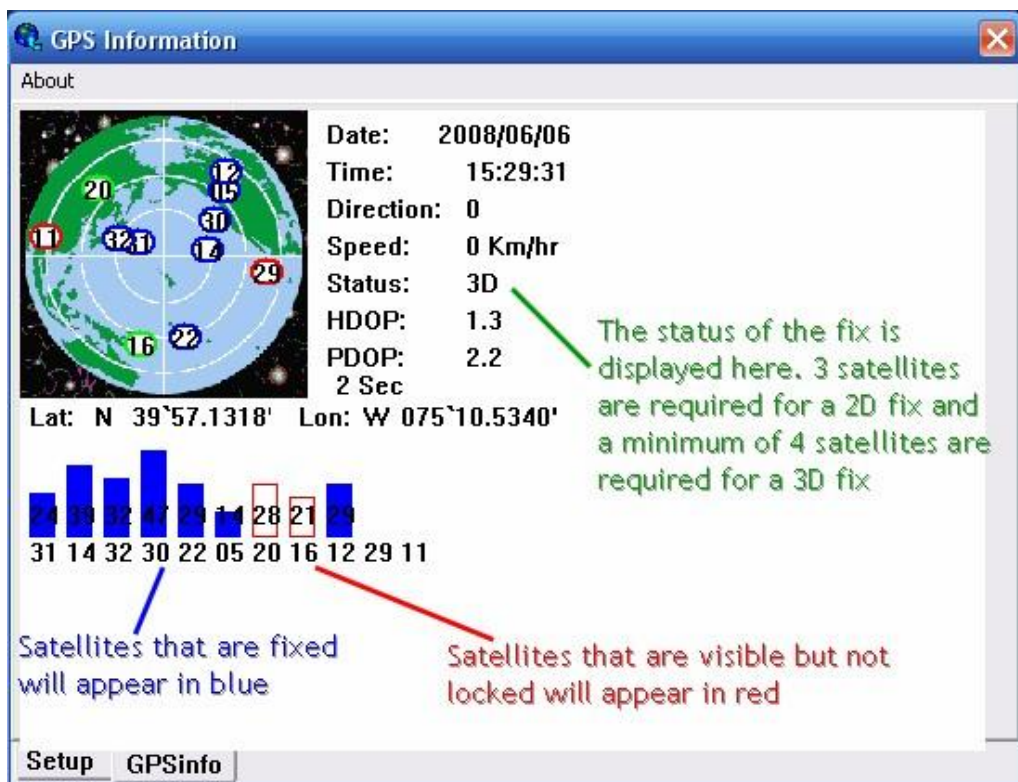
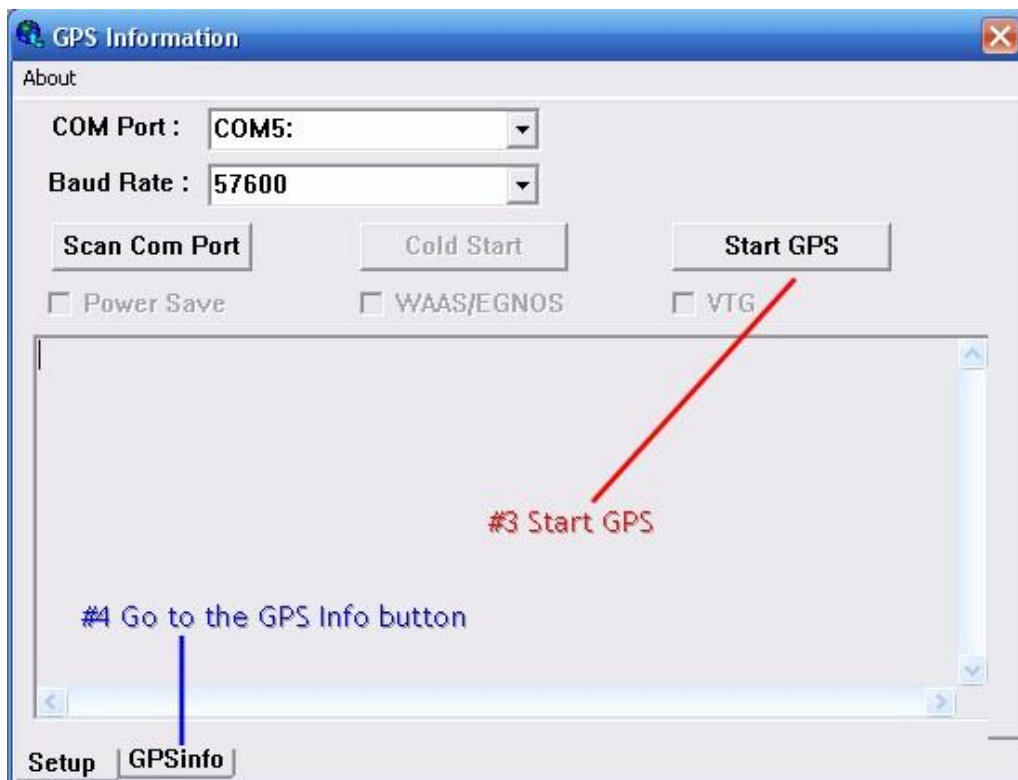
With your Master Driver disk inserted in your drive open the GPS driver folder and follow the directions below.



8-2 Using the GPSinfo Program

The GPSinfo program is not required for use, but it is a useful tool to confirm the settings and status of the GPS receiver. Open the GPSinfo program using the desktop shortcut that was created when the program was installed and follow the instructions below.





NOTE: When checking for a fix be sure that the receiver has clear line of sight to the sky. **It may not work indoors.**

After you have confirmed the GPS receiver is functioning correctly you can take the information (such as COM port number and Baud Rate) and input that information into your GPS navigation program. Additional information that you may need for proper configuration of your GPS software is below.

Device Type: NMEA

MFG: Generic

Interface Type: USB

NOTES:

Please note it is important to close the GPSinfo program prior to trying to obtain a fix with your mapping software. The receiver can't provide information to two programs at the same time.

*Disconnecting and reconnecting the GPS receiver while the PC is running may result in the receiver being assigned to a different COM port. If this happens, the entire configuration process must be followed again and the settings changed.

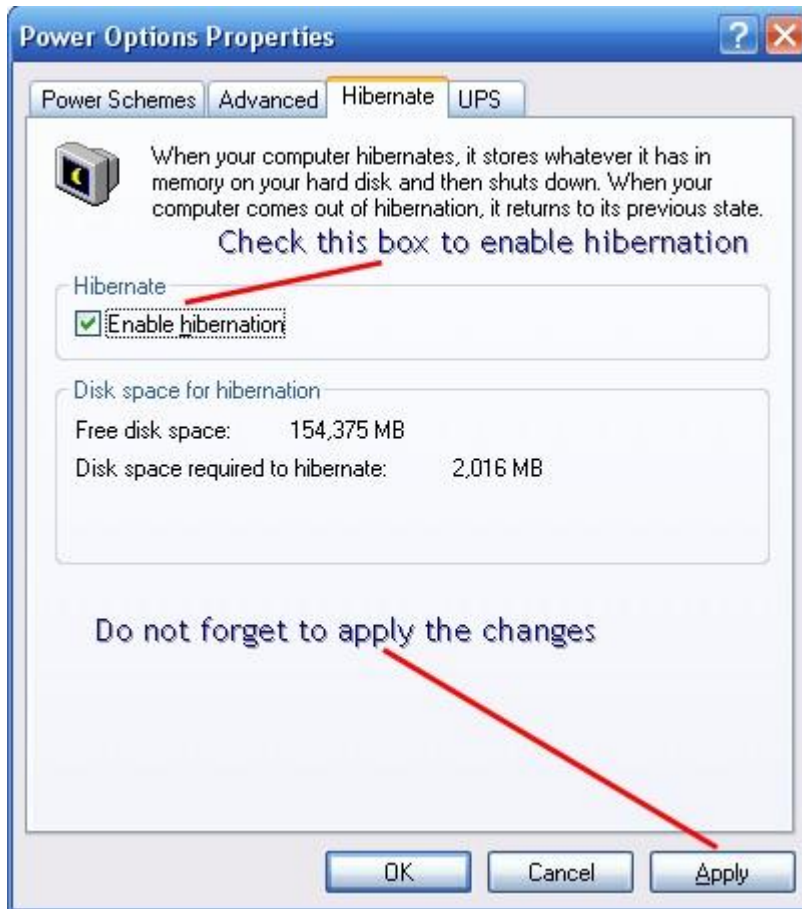
**If you need to unplug the receiver for any reason, do so while the PC is off. Be sure to plug the receiver back into the same USB port before turning the PC back to avoid repeating the configuration process.

***Some GPS software applications will not recognize the receiver if it is on a COM port lower than 10, including Centrafuse™. If your receiver gets installed on a lower port you can test it within your software to see if it works. If not, you will need to rearrange your USB plugs to obtain a COM port lower than the limit set within your software.

****SiRF III receivers are very strong; however the signal reception may be effected by some high end metallic window tint films. If you want to install the GPS receiver in the rear deck, we suggest you test the performance prior to mounting the unit. The dashboard area is the ideal mounting location; however the receivers will often work in other areas of the car, including under the dash pad. However this will vary from vehicle to vehicle. You should always test the desired location prior to finalizing the install. One quick and easy way to verify if your chosen mounting location will be able to obtain satellite data is to install the GPSinfo program on a laptop and check, as described above, if you can obtain a fix.

CHAPTER 9) POWER SETTINGS

Power Settings



Set the PC to hibernate, do not use standby. To enable hibernate, go to Start > Control Panel > Power Options > Hibernation, and enable hibernation and apply it.



Then go to advanced and set the computer to hibernate 'when the power button is pushed'. Apply these settings and exit the power settings. Your car PC will now go into hibernation 30 seconds after the car is turned off. It will remain in hibernation for two hours, at which time it will shut down.

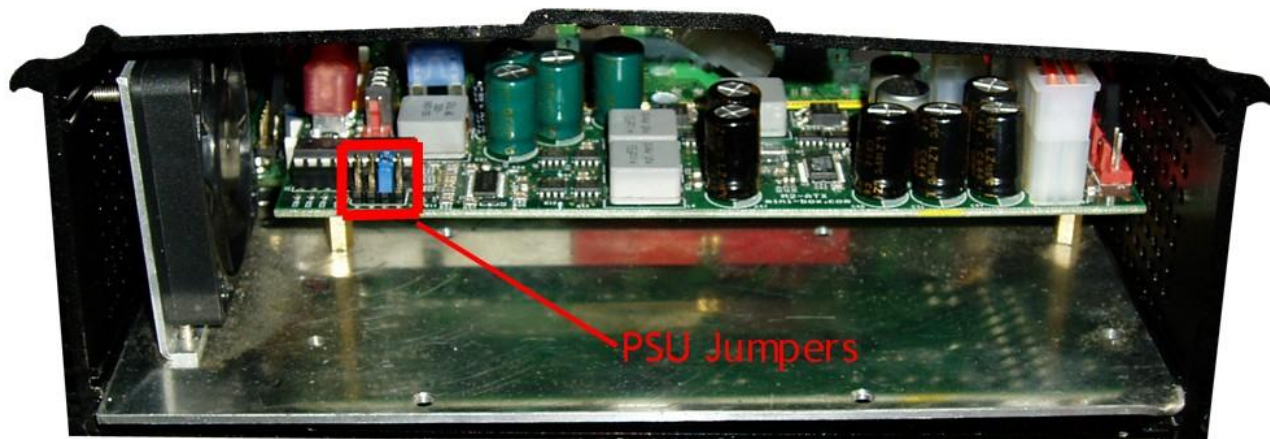
Turning the PC off through Windows

You can also shut down the computer via the Windows start button. The PC will start normally the next time the vehicle is started. Please note if you shut the computer down via the start button, the key must be turned past the ACC position, towards the off position for at least 30 seconds, and then back to the on position to make the computer restart.

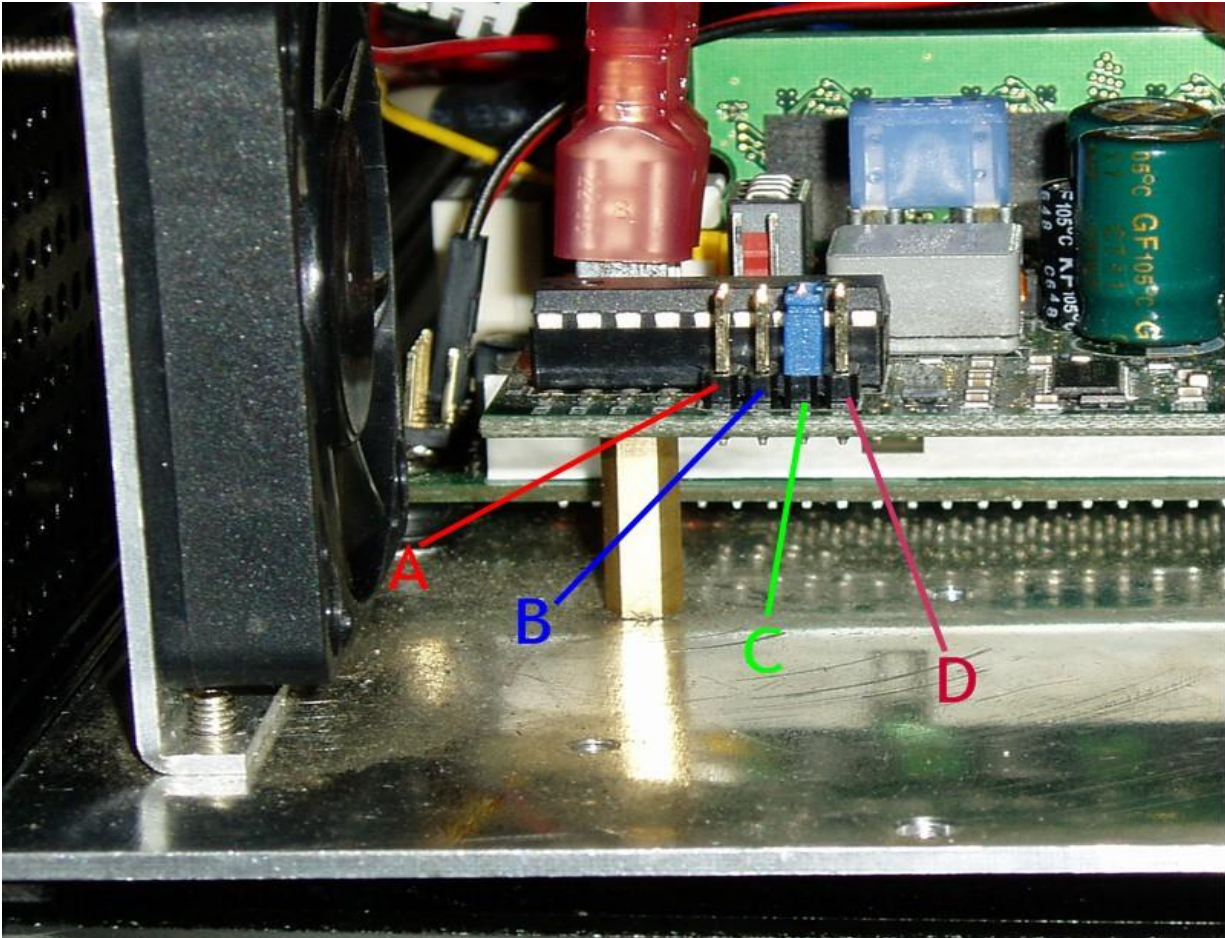
CHAPTER 10) POWER SUPPLY SETTINGS

10-1 Changing Power Supply Jumper Settings

The soft off/hard off shutdown delay can be changed to suit your needs, see the table below. Changing this setting is a very simple process. Start by removing the four screws from the left end cap, which is the one without any ports or wiring connections.



After you remove the end cap on the left side of the power supply you will see the four sets of jumper pins, which are highlighted in red above and marked as A, B, C, D.



A	B	C	D	Mode	Off/delay	Hard off
O	O	O	O	0	Traditional PSU	Acc power line not required
J	O	O	O	1	5 seconds	45 seconds
O	J	O	O	2	5 seconds	2 hours
J	J	O	O	3	5 seconds	Never
O	O	J	O	4	30 seconds	2 hours
J	O	J	O	5	30 seconds	Never
O	J	J	O	6	30 minutes	Never
J	J	J	O	7	3 hours	Never

NOTE: When you select 'Never' as the hard off delay, the power supply will constantly monitor your battery level. When your battery voltage drops below 11V for more than one minute the computer will automatically shut down. The car PC will only restart after the battery voltage is 12V. **Using 'Never' is not suggested.** It will start to condition your battery to a lower voltage and will shorten the life of the battery.

Please note the factory default jumper setting of "C" or 30 seconds off delay and two hour hard off is highlighted in yellow above

**FOR MORE INFORMATION REGARDING MOTHERBOARDS AND SETTINGS SEE
ENCLOSED FACTORY USER MANUALS**

WARRANTY – HARDWARE

In the event of a problem with Mobile Computing Solutions hardware or distributed software, please take the following steps:

1. Read hardware and software manuals and support material. Your problem may be quickly addressed and solved by doing so.
2. Write down all of the steps that led to the problem. Keep a log of all of the steps you take setting up the hardware and software.
3. Completely describe the problem or question. The more information you provide the faster and more accurately we will be able to help you resolve your problem.

IN THE EVENT THAT YOU MUST RETURN DAMAGED GOODS TO US, TAKE NOTE OF THE FOLLOWING:

Contact returns@mo-co-so.com with a description of the problem and your contact information. At this point, you will be issued an RMA number.

Send the damaged goods back to us in the original box with at least 2 inches of padding on the bottom of the box, 1 inch on the top of the box and 1.5 inches on the sides of the box.

Any carrier can be used, but we strongly suggest using a method/carrier that offers tracking and insurance. A private carrier like UPS or FedEx is strongly preferred, since they offer tracking and insurance, the USPS is notoriously difficult when it comes to settling claims, and can often take several months to do so; often the USPS is more expensive as well. We are not responsible for lost or further damaged goods.

TURNAROUND TIME FOR REPAIRS:

Under normal circumstances, we will repair and ship your damaged product within three working days. However, in extreme cases it can take up to 21 days to return the item to you. If your repair time will exceed three working days you will be promptly notified by email or phone.

FEES ASSOCIATED WITH RETURNED ITEMS:

If you return something that was not defective you will be charged a fee of \$15 to cover labor and testing costs. You will also be responsible for the cost of shipping the item back from us to you.

If the cause of the damage is from improper electrical connections or misuse/abuse or exposure to water you can opt to have us repair the unit that will be determined after inspection or have the goods shipped back to you at your expense.

If the warranty seal has been broken you can pay to have the repairs performed by MCS or have the unit shipped back to you at your own expense.

Warranty- Mobile Computing Solutions (MCS) warrants to the original end-user purchaser for a period of **ninety days** from the date of original purchase that the MCS product(s) purchased will be free from defect in material and workmanship. During the warranty period MCS will, at its option, either repair or replace products that prove to be defective in material or workmanship. This warranty shall terminate and be of no further effect at the time the product is (1) damaged by extraneous cause such as moisture, water, lightning, etc. or operated at temperatures outside the specified range (2) the warranty seal on the right side of the case is broken (3) the product is improperly installed; (4) repaired by someone other than MCS; or (5) used in a manner or purpose for which the product was not intended.

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