Welcome to Flux

Thanks for purchasing the ultimate performance upgrade. Our Bluetooth Flux module to give you tools and features to connect with your car, control its performance, measure that performance, and diagnose problems… all wirelessly through your Windows PDA. We want you to have maximum fun with your car — and provide you with ways to further enhance the performance, inter-activity, and security of your vehicle. *Welcome to Unichip Flux.*

What is Flux?

Flux is the most comprehensive vehicle interface tool available. Using Bluetooth wireless communication framework, Flux puts unequalled control and interaction at your fingertips.

Flux controls your Unichip computer and enables you to measure, record, play, and export vehicle performance calculations, monitor and log engine parameters, scan, read and clear Digital Trouble Codes (DTC's) data from your vehicle's onboard diagnosis system, and adds a Valet mode and anti-theft Immobilizer… wirelessly!

Guide Overview

This User Guide walks you through Flux's features and screens, explains their functionality, and includes a glossary of key terms and concepts so you receive the maximum benefit and enjoyment from this unique tool.

Safety

High performance driving is a sport which, like any sport, has appropriate and inappropriate venues and should not be performed on public streets.

Flux functionality provides an intuitive interface and is designed to maximize your safety while allowing you to enjoy your vehicle. User interface actions are designed to preclude any requirement for you to "click" anything on your PDA while the vehicle is in motion; NEVER TYPE, CLICK, OR OTHERWISE ATTEMPT TO ACTIVELY INTERFACE WITH YOUR PDA WHILE YOUR VEHICLE IS IN MOTION.

Please read the User Guide Description of each screen's functionality before using your Flux unit in your car. Before attempting any of the modules in your vehicle, understand the required actions and expected results so you don't find yourself trying to "read" instructions on the PDA for the first time.

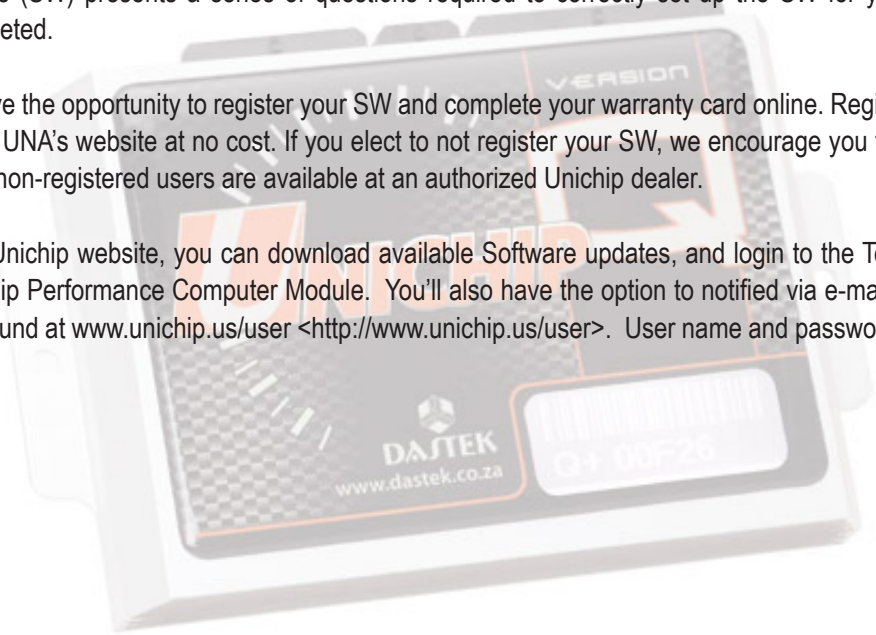
UNA is not liable for damage to your vehicle nor to any other vehicle or property, nor for any injury to any person resulting from the installation or use of Flux or the Unichip. Please drive safely.

Initialization and Registration

On initial launch, your Flux Software (SW) presents a series of questions required to correctly set up the SW for your vehicle. Flux will not function until the initialization process has been completed.

During SW initialization, you also have the opportunity to register your SW and complete your warranty card online. Registration is free and registered users receive full access to Flux SW updates from UNA's website at no cost. If you elect to not register your SW, we encourage you to complete and mail in your warranty card. Firmware (FW) and SW updates for non-registered users are available at an authorized Unichip dealer.

Once you have registered with the Unichip website, you can download available Software updates, and login to the Technical Forum for questions regarding the Flux Power Display and/or the Unichip Performance Computer Module. You'll also have the option to notified via e-mail if new software is available for download. The Unichip/Flux User Site can be found at www.unichip.us/user <http://www.unichip.us/user>. User name and password will be emailed to you upon completion & confirmation of registration.



Hardware

Unichip Module and Harness. Your Flux kit includes the necessary hardware and SW to link your Bluetooth (BT) PDA or BT PDA cell phone to both the Unichip computer and your vehicle. The Flux Receiver (FR) is a sealed, self-contained component containing both the BT antenna and a multiple microprocessor circuit board responsible for handling the communication interface. The supplied wiring harness connects your FR to the Unichip Plug-n-Play (PnP) harness's Comm connection. The Flux SW CD self-extracts and downloads the required SW onto your PC and configures that data to run on your PDA.

The FR has no On/Off switch and functions with your vehicle's ignition switch; shortly after the ignition switch is turned off, the FR's green LED blinks once every five seconds indicating the FR is in a reduced power Sleep Mode. When the ignition switch is in either the *On* or *Accessory* position, the FR enters the Awake Mode and the green LED steady illumination or rapid flashing indicates normal performance.

Hardware

PDA operations

PDA screen. Your PDA is a key component in Flux, and understanding its operations is important. Flux runs within MS Pocket PC 2003 and MS Mobile 5.0 operating systems, but the way those OS's are implemented varies between PDA manufacturers.

PDA's are amazing little devices, but too often people think of them as miniature PC's which they are not. PDA's operate in different environments than PC's, and they have FAR less capability they superficially appear similar.

Flux is a relatively large program and performs best with clear PDA buffers. Flux performance can be impacted if other programs are running "in the background" or allow your PDA's buffers to fill. To maximize performance, ensure to exit as many PDA applications as possible before using Flux.

Unlike your PC, your PDA doesn't necessarily "close" applications when you click the close "x." Clicking on your PDA's Task Manager button or icon displays any programs running in the background. For improved PDA performance (regardless of which program is in use) open the Task Manager and close any programs the PDA will allow you to close (Today, Settings, and ActiveSync won't close).

Your PDA also lacks some typical PC administrative tools and, as a result, fragmentation and data accumulation are a bigger concern. Periodically hard restarting your PDA accomplishes some important house keeping tasks which improve performance. Refer to you PDA owner's manual for proper hard start procedures and recommendations about data backup.

If Flux runs slowly or abnormally, try as many of the following actions as required to restore normal operation…

- Close all other applications running on the PDA. Remember to check the Task Manager
- Close Flux and start the program again
- Hard reset your PDA in accordance with the owner's manual.

Check your PDA's Backlight and Power settings to prevent inadvertent shut down during Flux operations. From your PDA desktop, navigate to Settings/System/Backlight to adjust these settings.

System Requirements

PC

To initialize and load Flux into your PDA, the Flux SW CD requires a PC running either Windows XP or Windows Vista. Your PDA must have communication with your PC to download Flux from into the PDA after launching the program on your PC. To register and update your Flux online, your PC must have internet connectivity.

PDA

Flux runs in a BT capable PDA or BT PDA cell phone running either Windows Pocket PC 2003 or Windows Mobile 5.0. Flux does not run on Windows Smart Phones that lack “tap to select” functionality.

Installation

Flux Hardware Installation

Your FR connects via the included wiring harness to the PnP harness at the connection labeled “Comm.” Refer to the instructions included with your Flux unit to ensure a functional and durable installation.

Because BT signals will not transmit through metal, the FR should not be mounted where it will be completely enclosed by either metal or wiring from your vehicle, and should be positioned such that it will not be exposed to water.

Normal Power up LED sequence

When you turn your vehicle ignition key to either the “On” or “Aux” position, electrical power is applied to the FR and it automatically performs a 1-second self-diagnostic Built-in-Test (BIT). Successful BIT completion indicates the FR is functioning normally. Unless you experience abnormal performance from your FR, there is no requirement to monitor the BIT, and the BIT can not be performed manually.
During the BIT, the red LED initially illuminates for approximately 0.5 seconds and then extinguishes. When the red LED goes out, the green LED illuminates either steady or begins flashing rapidly. Once the green LED illuminates and the red LED extinguishes the BIT is complete. If the red LED never extinguishes, or if it illuminates again after extinguishes (without a power cycle) the FR may be inoperative.

Flux Software Installation

The Flux initialization SW automatically launches when you insert the CD into your PC; simply follow the on screen directions to complete the installation. When the SW opens, you will see two options to ensure the correct SW for your PDA’s OS is loaded. Select either *“Version for Pocket PC 2003” of “Version for Windows Mobile 5.0”* as appropriate for the version of SW running in your PDA. The Flux SW installs in a unique folder on your PC’s C: drive, and it should be allowed to install there so any future updates download correctly.

Launching Flux

After installing the SW into your PDA and the FR into your vehicle, simply click the PDA’s Start menu and click the icon to launch Flux. If the Unichip Icon is not on your PDA’s start menu, navigate to the Programs folder and launch Flux from there.

Pairing your PDA

The first time you launch Flux, you must pair your PDA's BT to the FR. To do so, take your PDA out to your vehicle and turn the ignition key to the "On" position. Click on the Comm Status Antenna in the Flux Gutter to navigate directly to the Home/Utilities/Communication page. "Check" the Enable Communication box at the bottom left side of the display area and PDA will automatically turn on BT (if not already on) and will begin searching for transmitting BT devices.

For a detailed description of Communication Status indications and procedures, refer to the Utilities/Communication page.

If your PDA is not already paired with another serial BT device

If no other serial BT devices are transmitting within range of your PDA, your PDA will automatically pair with the FR and within a few seconds, you will see the red Antenna change to yellow and then green indicating communication is established.

If the Flux antenna does not go green within approximately 10 seconds, the BT settings on the PDA may not be set up to establish a connection with a new device. To check those settings, exit Flux, and navigate to Start/Settings/Connections/Bluetooth.

- On the Bluetooth General screen, check that Bluetooth status is On; if the status is Off, Click the blue Turn On box and verify the status changes to On. Most PDA's have a blue LED which flashes whenever Bluetooth is turned on.
- Next, click on Bluetooth Manager at the bottom of the display. Then click on Active Connections.
- If a shortcut for Flux is displayed, click on it to display the available services, then click on New and scroll down to Explore a Bluetooth device.
- Your PDA will now scan the area for any transmitting Bluetooth devices and will display any it finds.
- Tap on Flux and the display will change to indicate the available connection services.
- Click Next and Finish to create a shortcut

If your PDA is already paired with another serial BT device

Your PDA's BT can detect and display multiple devices when it searches, but the PDA's serial port can only connect to a single device at a time. If you already have the serial port connected to another device, you may have to break that link to establish a connection with the FR. If your PDA is already connected to another serial device, the quickest way to break the connection is to switch off that device. Your PDA will then be able to connect to the FR by selecting the Gutter Antenna and checking the Enable Communication box.

If your PDA cannot pair with the FR

If this dialog box appears, something is preventing the BT link from establishing. Refer to the Utilities/Communication page for trouble shooting assistance.

Navigation Basics

The Flux Gutter contains common buttons on all screens to ease navigation.

 Unichip logo — Clicking the Unichip logo returns you to the Flux Home page from any other screen.

 Help Button — Clicking the red circle with the white question mark launches an alphabetical Help menu listing.

 Communication Status Icon — The “Antenna” symbol changes colors and number of displayed “radio waves” to indicate communication signal strength in real time.

Data Logging “L” — At the base of the Antenna, a green letter “L” appears as a reminder any time Data Logging is running.

 Exit button — Displayed only on the Home page, the Exit button closes the program. From any point in the SW, you can close Flux by clicking the Unichip Logo and then the Exit button.

 Back Button — Replaces the Exit button on all navigable pages except the Home Page and returns you to the previous page.

 OK button — On data entry screens, the Back button is replaced by an OK button. Clicking the OK button returns you to the navigation page you are entering data for.

Bluetooth Communication

® Bluetooth (BT) communication has no line-of-sight limitations, but is range limited and cannot transmit through metal enclosures. As long as neither the PDA nor the FR are completely enclosed by metal, and are not completely surrounded by electrical wiring, expect good communication anytime the PDA is within approximately 25-feet of your vehicle (remember the ignition switch must be in either the Accessory or On position).

The Gutter comm symbol illuminates grey, green, yellow, or red to indicate status. When the symbol is green, a strong BT link is established and you should expect standard performance from your PDA. If the symbol is yellow, Comm has been interrupted and the SW is attempting to reestablish the link; expect degraded PDA performance whenever the symbol is yellow. If the light is red, Comm has been lost. If the light is grey, Comm is disabled. During normal operations, you should rarely if ever experience a comm break unless your PDA is shut down or your vehicle's ignition key is switched off (even momentarily).

- If your comm status changes more than very occasionally during normal use without cycling the vehicle's ignition key or turning off the PDA,, verify all of the electrical connections between the FR and PnP harness are secure and the FR is mounted securely mounted so that it isn't moving during driving. If the connections are tight and the FR is securely mounted, try moving the FR to a different location and ensure it is not enclosed by metal or electrical wiring.

If comm is interrupted, Flux automatically attempts to re-acquisition. If a connection is not reestablished within approximately five seconds, a dialog box opens asking if you want Flux to continue attempting to connect; if you click "Yes," Flux will reattempt the connection for five seconds and the sequence will repeat. If you click "No," Flux will disable the PDA's BT communication and enter an offline operating mode.

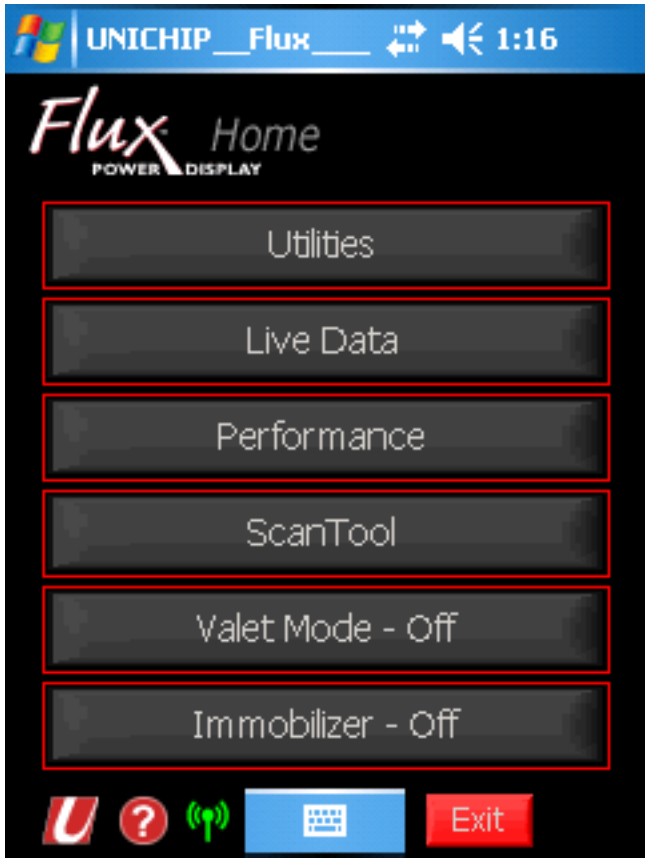
- Clicking "No" on the dialog box removes the check mark from the Enable Communication box on the Comm Setup page. Before communication can be reestablished, that box must be rechecked manually.

Functionality

This section helps you use Flux's advanced functionality to acquire data, use security and performance functions, and change your engine calibrations.

Launching Flux

Select the Unichip Logo Icon from your PDA's start menu to launch the software (SW). After a splash screen, the Home Page automatically appears.



Functionality

Flux Home Page

Home allows you to navigate to the Utilities page, Live Data display, Performance calculations and displays, Scan Tool, and enable or disable the Valet and Immobilizer modes.

Additionally, you can use the Gutter (universal navigation) Icons to view current communication status, and navigate to the Comm Setup page to change settings and access the Help menu.

The Exit button in the Gutter on the Home page is the only correct way to close the SW.

- From any point in the SW, the quickest way to close the SW is by clicking on the Unichip Logo to return to the Home page and then click the Exit button.
- Closing Flux by switching off PDA power may produce extended BT re-acquisition times when power is again switched on.

Functionality

Utilities

Utilities navigates you to the Utilities page where you can modify the SW's Communication options, change the Unichip's Performance Map Selection, personalize Immobilizer, adjust Flux for variations in your vehicle, change the look of the display, and see the information and serial numbers for your hardware and software.

Functionality

Live Data

Live Data navigates you to the Live Data page where you can select various engine or vehicle parameters for real time display.

Functionality

Performance

Performance navigates you to the Performance page where you can measure acceleration, calculate and display engine horsepower and torque curves on a virtual dyno, data log vehicle operating parameters, or run a lap timer.

Functionality

Scan Tool

Scan Tool allows you to display, interpret, record, export, and clear OBD II codes generated by your vehicle's engine control unit and systems.

Functionality

Valet Mode

Valet Mode generates an RPM limiter which prevents the engine from generating full power. Turing off Valet Mode restores normal engine operation.

- Valet Mode settings are stored in Map Set 4, and if you have a valid valet map loaded in your Unichip, you will see only four Map choices when you selected the Performance Map Option on the Utilities page. If you have both an Immobilizer and a Valet map loaded, you will see only three Map choices.

The Valet Mode button indicates the FR setting, and has three possible display modes… Valet Mode - ?, Valet Mode - On and Valet Mode - Off.

- Valet Mode - ? — Indicates the PDA is not communicating with the FR so the actual Valet Mode is unknown. The actual Valet Mode may be On or Off, and when communication is established, the current value will be displayed. The Valet Mode option may only be changed when communication is established.

- Valet Mode - On — When Valet Mode is on, the button turns red, the button label reflects "On," and engine RPM is limited. When the PDA is communicating with the FR, clicking the button turns Valet Mode off.

    1. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Valet Mode is activated.

- Valet Mode - Off — When Valet Mode is off, the button turns grey, the button label reflects "Off," and the engine operates in its normal rpm range. When the PDA is communicating with the FR, clicking the button turns on Valet Mode.

1. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Valet Mode is deactivated.

Note that on some vehicles Valet Mode may generate a Check Engine Light (CEL), depending upon how long the engine is pushed into the Valet Mode RPM Limiter. You can read and clear the CEL and OBD II codes in the Scan Tool utility.

Functionality

Immobilizer Mode

Depending upon your specific application, Immobilizer Mode prevents your vehicle's engine from starting or being driven. Similar to a Windows PC security screen saver, Immobilizer Mode prevents anyone from starting or driving your vehicle without both your PDA and the proper password.

To preclude inadvertently stranding yourself, ensure you read and understand the Immobilizer section before enabling this mode.

Immobilizer Mode can be personalized and can be set up to function with or without out a PIN. Without a PIN, simply turning the ignition key on, turning on the PDA, launching Flux, and selecting the red Immobilizer - On button turns off Immobilizer Mode.

- Immobilizer Mode settings are stored in Map Set 5, and if you have a valid immobilizer map loaded in your Unichip, you will see only four Map choices when you selected the Performance Map Option on the Utilities page. If you have both an Immobilizer and a Valet map loaded, you will see only three Map choices.

The Immobilizer Mode button indicates the FR setting, and has three possible display modes… Immobilizer Mode - ?, Immobilizer Mode - On and Immobilizer Mode - Off.

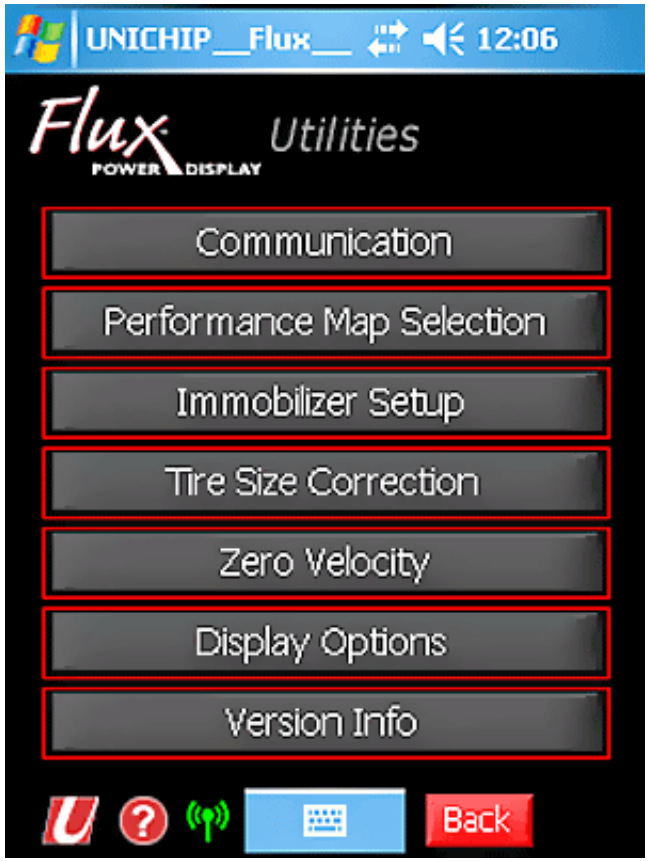
Immobilizer Mode - ? — Indicates the PDA is not communicating with the FR so the actual Immobilizer Mode is unknown. The actual Immobilizer Mode may be On or Off, and when communication is established, the current value will be displayed. The Immobilizer Mode option may only be changed when communication is established.

Immobilizer Mode - On — Whenever the Immobilizer Mode is on, the button turns red, the button

label reflects ”On,” and engine is prevented from either starting or accelerating. When the PDA is communicating with the FR, clicking the button will turn Immobilizer Mode off. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Immobilizer Mode is activated.

Immobilizer Mode - Off — Whenever the Immobilizer Mode is off, the button turns grey, the button label reflects “Off,” and the engine starts and operates in its normal rpm range. When the PDA is communicating with the FR, clicking the button turns on Immobilizer Mode. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Immobilizer Mode is deactivated.

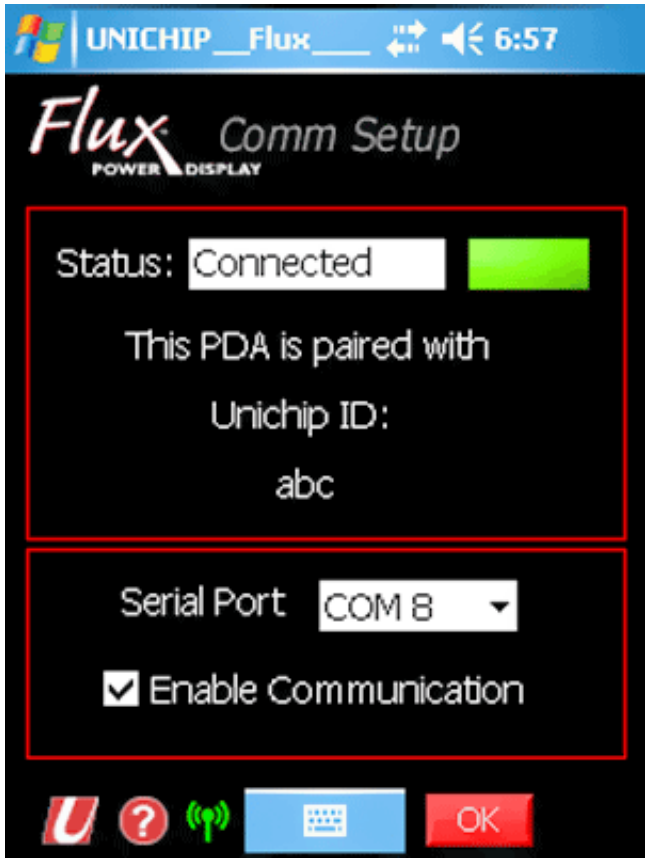
Note that on some vehicles Immobilizer Mode may generate a CEL. You can read and clear the CEL and OBD II codes in the Scan Tool utility.



Utilities

Utilities allows you to Flux's communication setup, change the Unichip's Performance Map Selection, customize the Immobilizer Mode, adjust Flux for variations in your vehicle, change Flux's display look, and view the Version Information and serial numbers for your hardware and software.

The Zero Velocity button is for a future release and is currently inoperative.



Utilities

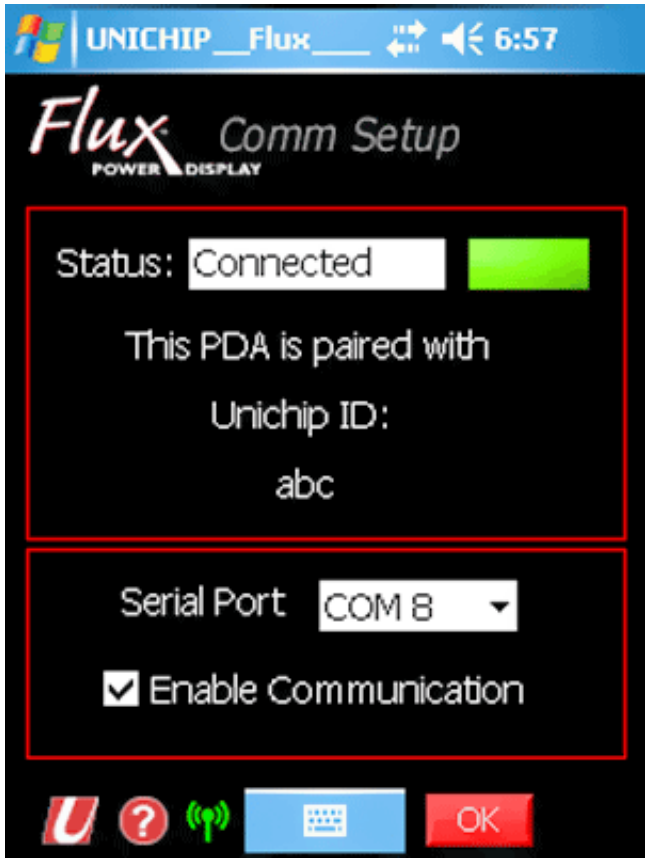
Communication

Status Icon and Setup

Located in the Gutter, the Communication Status Icon (Antenna) provides a real time indication of the BT communication link between your PDA and the FR in your car.

The Antenna has four basic states, each of which has a corresponding color and number of "radio waves."

- Grey antenna symbol with two pairs of radio waves — indicates PDA Communication is disabled.
- Red antenna symbol with no radio waves — indicates PDA communication is enabled, but the PDA is not currently communicating with any other device.
- Yellow antenna symbol with one pair of radio waves — indicates PDA communication is enabled and a BT connection with the FR is established.
- Green antenna symbol with two pairs of radio waves — indicates PDA communication is enabled and a BT connection with the FR, the Unichip and OEM ECU is established.

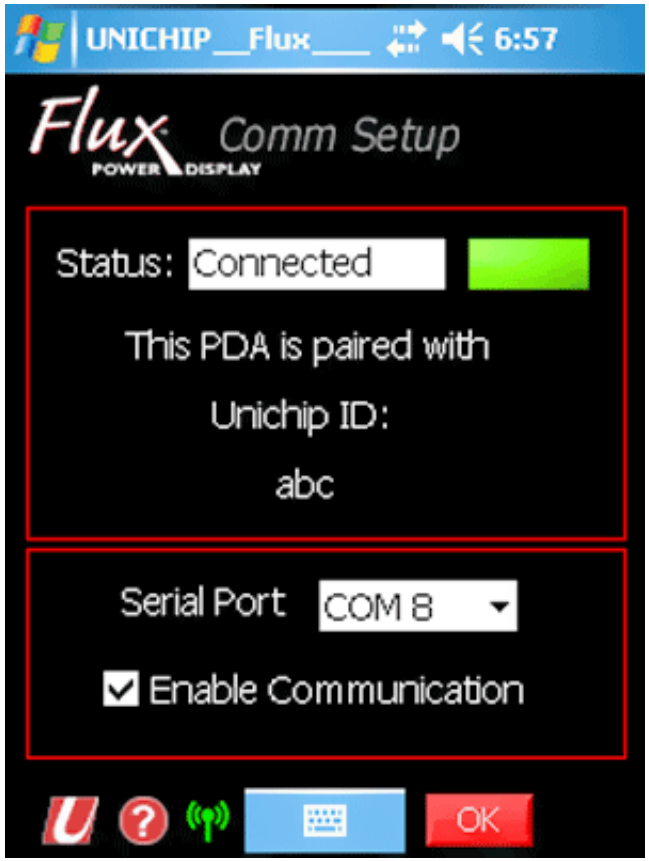


From any location within the Flux SW, clicking on the antenna navigates you directly to the Home/Utility/Communications.

- If the Enable Communication box is checked and the vehicle ignition switch is on and the Antenna never moves past Grey or Red, verify the PDA's BT settings are correct.
- The Comm Setup Page displays the PDA's communication settings and status in two boxes. In the top box, the current communication status is displayed in both text and with a light. These indications mirror the status displayed by the Gutter Antenna.
- Disabled and a red light indicate PDA BT communication is disabled.
- Searching and a red light indicate PDA BT communication is enabled but no communication links are established.
- Connecting and a yellow light indicate PDA BT communication is enabled and a link is established with the FR.
- Connected and a green light indicate PDA BT communication is enabled and a link is established with the FR, the Unichip, and the OEM ECU.

Immediately below the current status indication is FR serial number with which your PDA is paired. Note that this is the only FR your PDA will communicate with.

In the lower Comm Setup page box, a pull down menu displaying the various serial ports your PDA has is displayed. The Flux SW should automatically detect and select the serial port.



Immediately below the serial port pull down window is an Enable Communication "Check box." Whenever this box becomes unchecked, you must navigate to this page and check it again to establish communication.

- To use the Flux SW in an active communication mode — talking to the FR and car — this box must be checked. If you have this box checked, the SW will not progress past this page until the BT connection is established.
- To use the Flux SW without an active communication link, this box which must be un-checked. Without a check in this box, the SW is fully navigable (with the exception of the Immobilizer and Map selection options) and can display data for review or export data to your PC.

If communication is enabled, but no signal is detected within approximately 5 seconds, a dialog box pops up asking if you want to continue trying to detect another BT device or disable communication. Occasionally, you may see this popup once or twice during normal connection attempts, but most often it's the PDA's way of telling you the Enable Communication box is not checked and the PDA isn't trying to talk. Click the Gutter Antenna to navigate to the Comm Setup page and verify your PDA's settings.

Utilities

Communication

Bluetooth

Bluetooth (BT) is a short-range radio frequency communication scheme designed to replace cables and wires. In Flux, it is the link between your BT PDA or BT PDA cell phone and the FR which is, in turn, the entry point into your vehicle's data stream and into the Unichip. BT communication requires two BT devices which are paired or linked together on the same frequency; for Flux, these two devices are the FR and your PDA.

Bluetooth Operations

BT communication is range limited and can not transmit through solid metal enclosures, but establishes very quick links, is non-line-of-sight dependent, and works well in short range, high bandwidth applications.

Range — expect your Flux PDA to connect to the FR within about 25-feet of your car anytime both devices are turned on and properly configured.

FR Positioning — As long as the FR is not completely enclosed in metal or by heavy bundles of wiring, positioning is relatively unimportant. Generally any place in the engine compartment or under the dashboard that is acceptable from an environmental perspective (not exposed to water or high temperatures) is fine.

Encryption

During initialization of every communication process, your FR requires a password from your PDA before it will connect. This password is an important part of the anti-tamper protection because it prevents any unauthorized "snooping" of your FR in which other passwords and data can be extracted or changed.

The password is coded during manufacturing and is printed on a sticker on the Flux CD case included with your kit. Do not lose this number should you ever need to reenter the password to establish communication with your FR.

Troubleshooting

Anytime your PDA is paired with the FR and Flux is running, the program attempts to communicate with its FR, so—assuming the FR and the PDA are not completely enclosed by metal or wiring—non-communication indicates (1) the PDA is not paired, (2) the PDA is out of range, (3) or your PDA comm port is set incorrectly. Josh

- Complete Titan - 3/4 Feb testing on Jeremy's Armada
- 350z - Available from Josh's buddy. MY06 so we can do Flux and get a Rev-up tune
- Cooper S
- Demo full download & function
- Dam-pot tested; production decision & approval - successfully tested; approval for 1/3-potted Calvin needs to make
- Build & document FR adapter cables - Create BOM, build 30 looms

FR problems

Whenever the FR is connected to the Unichip Plug-and-Play (PnP) harness, the PnP harness is connected to the vehicle ECU, and the ignition key is on, the green LED on the FR should be illuminated steady or flashing rapidly.

If the green LED is off — the FR is not receiving power and you should check all of the connections.

If the FR's red LED is illuminated — the FR has an internal malfunction and you should contact your authorized Unichip seller.

PDA problems

BT turned off — If the blue LED on your PDA is not flashing and/or the BT symbol on the PDA's home page has a red line through it, the PDA's BT communication is disabled. To enable BT communications, select Start/Settings/Connections/Bluetooth to navigate to the Bluetooth General screen. To turn on BT, select the "Turn on" button and verify that the graphic changes to Bluetooth is ON. The PDA's blue LED should begin flashing and the red line through the BT symbol on the home page should go away.

PDA does not pair with FR — If the PDA will not discover the FR, select Start/Settings/Connections/Bluetooth and select the Accessibility tab. Ensure there are check marks in the "Allow other devices to connect" and in the "Other devices can discover me" options.

PDA paired to another device — To break an existing pairing, select Start/Settings/Connections/ Bluetooth and click on "Use the Bluetooth Manager to set connections" option at the bottom. Select the Active Connections tab to view your PDA's current connections.

Utilities

Performance Map Selection

The Performance Map Selection drop down window allows you to select from the Unichip's five performance map sets. These map sets can be downloaded at your authorized Unichip dealer, custom created by a certified UCT, or downloaded from the Unichip website for registered users. Performance Map Sets are custom-built ignition timing, fuel (and boost if applicable) curves used by the Unichip to modify engine performance at over 74,000 load and speed conditions.

Immobilizer Mode and Valet Mode data, if loaded, are stored in Map 5 and Map 4. Since the data for those functions is not a "performance map" per se, the corresponding Map number will be blanked on the Performance Map Selection pull down whenever those maps are loaded.

Standard Calibration Sets

The Unichip shipped with your kit, unless otherwise specified, was shipped with a standard calibration set for your vehicle; that standard calibration set includes -

Map 1 - Map sets for a stock vehicle and mid-grade fuel
Map 2 - Map sets for a stock vehicle and preimum-grade fuel
Map 3 - Map sets for a stock vehicle and low-grade fuel
Map 4 - Map sets for the immobilizer
Map 5 - Map sets for the Valet mode.

With an update programmed for release in 2007, you will be able to download new calibrations of your choice into the various Unichip Map positions and selected them via the Select Active Map pull-down; that update is free and can be updated when its available. Until then, the Map Sets in the Unichip can only be changed by an authorized Unichip dealer or Unichip Custom Tuner.

Utilities

Performance Map Selection

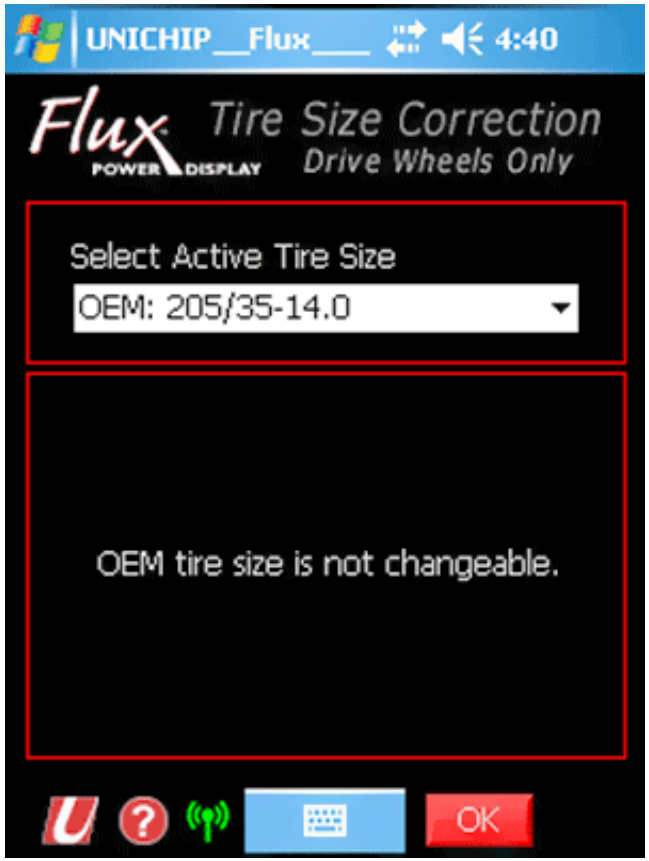
To change a Performance Map

- Turn you vehicle's ignition key to the On position with the engine off.
- Verify a Gutter Antenna is green.
- Navigate to Utilities/Performance Map Selection
- The top Active Map window shows Map currently running in the Unichip.
- The lower Select Active Map pull down window is where you select the desired new Map
- Click the pull down arrow for the Select Active Map window and highlight the desired Map.
    1. Selecting the Map in the lower window commands the Unichip to switch to that Map; appearance of that Map number in the upper window is confirmation the Unichip has change has been made.

Utilities

Tire Size Correction

Tire Size Correction allows you to properly calibrate your vehicle and measure performance. Only your vehicle's driven wheels are relevant to this calibration; if you have a 4WD vehicle, only your front tire size is important to Flux measurements. The pull-down options allow you to accept the OEM specified tire sizes your vehicle was delivered with, enter your aftermarket tires and wheel data from the sidewall, or enter data actually measured from your tires.



Utilities

Tire Size Correction

Selecting your tire size

OEM is the default value and uses your vehicle's factory default driven tire size settings in all calculations. If you have OEM size tires and wheels on your vehicle, even if they are not the OEM parts, you can leave this as the selected option.

Utilities

Tire Size Correction

Selecting tire size

Installed allows you to specify the size of your aftermarket or upgraded tires and wheels. When you select Installed, pull-down menus appear to enter the data from your sidewalls. Generally, entering the side wall tire size is adequate data for the calculations, but differences between manufacturers can mean, however, that one 255/40-17 isn't necessarily the same size as another 255/40-17.

If your vehicle's tires and wheels are the same size as the OEM tires and wheels it was delivered with, using the Installed option will not improve performance measurement accuracy, and although more convenient Installed is not as accurate as Manual.

Utilities

Tire Size Correction

Selecting your tire size

Manual is the most accurate method for entering tire and wheel data. When you select Manual, a single window appears for you to enter your vehicle's actual tire circumference. Grab a tape measure and measure the tire's circumference around the center of the tread and type the data into Flux.

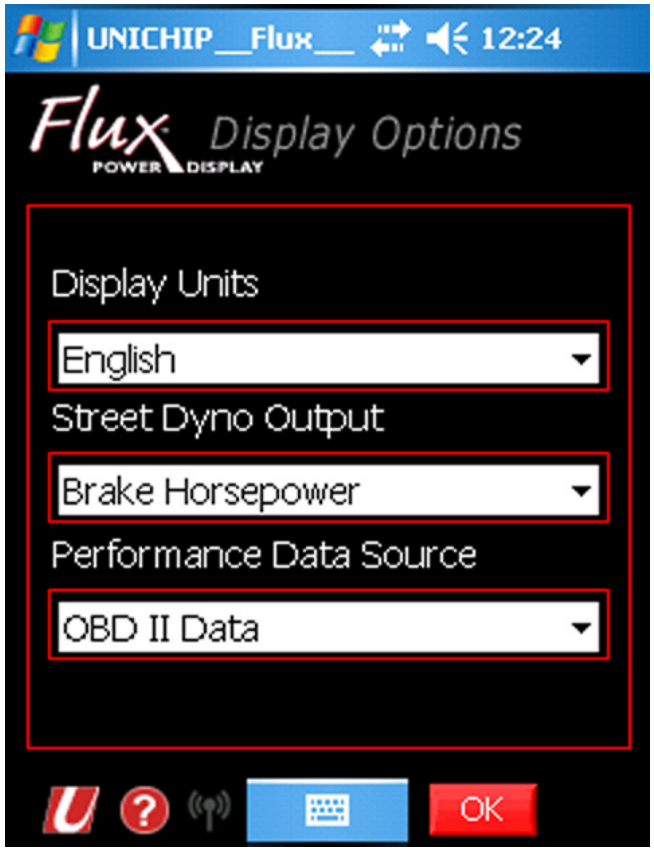
Manufacturing differences between companies or even tire models within a particular company equate to variances between the size calculated from the sidewall indicated tire size and actual size. These variations equate to erroneous calculated speed readout on the Unichip. Measuring your drive tire's circumference and manually entering the value will produce the most accurate road speed data.

Ensure the tire is inflated properly before measuring it.

Utilities

Zero Velocity

ZVEL is a future release growth feature. Online registers will be able to download this and any other SW updates at no cost from the internet as soon as they are available.



Utilities

Display Options

Display Options allows you can specify the display units for your Flux display.

Selecting English or SI from the Display Units pull down globally selects whether Flux calculates and displays all data English or SI units. All data except the Drag Strip's ¼-mile distance will switch to your selected option.

Selecting Brake Horsepower, Wheel Horspower, or Street Horsepower from the Street Dyno Output allows you to calculate and display your vehicle's power and torque data and curves at the flywheel, at the drive wheel, or the true power accelerating it.

Selecting OBDII Data or Accelerometer Data from the Performance Data Source pull down allows you to base your either on angular wheeel accleration from the vehicle's ECU or from the accelerometer in the FR.

Note: The acclerometer feature is not functional in Flux v1.0 but the hardware is installed and fully functional within the FR. The accelerometer based performance option will be enabled in v1.0 and will be a free internet download to registered Flux users when released.

Utilities

Version Information

Version Information navigates you to the Version Information page where you can check the version number of the Flux SW currently loaded in your PDA and the serial numbers for your Unichip computer, FR and PnP harness.

Flux Live Data

Live Data display's your car's inner workings and performance in real time. The display provides both a normalized analog and digital readout of any of the available display options.

If Live Data shows engine rpm, custom programmable shift lights can be displayed across the top of the screen.

Live Data display smoothness and accuracy is significantly impacted by running background Data Logging. If the Live Data analog and digital displays respond slowly to changes or appear jittery, look next to the Gutter Antenna for the Data Log "L" graphic. Turning off Data Logging will return the Live Data display to normal performance.

Flux Live Data

Features

Analog Display

Like your vehicle's tachometer, Flux's analog display consists of a normalized "clock" with minimum value positioned at six o'clock and maximum positioned at three o'clock.

Analog Display — the analog display's tick marks change to white to indicate the selected data's relative value between the minimum and maximum.

Digital Display — in the center of the analog display, the current data value is displayed digitally.

Tattletale — below the Analog Display's minimum value position, a digital tattletale shows the maximum value for that parameter since the tattletale was last reset.

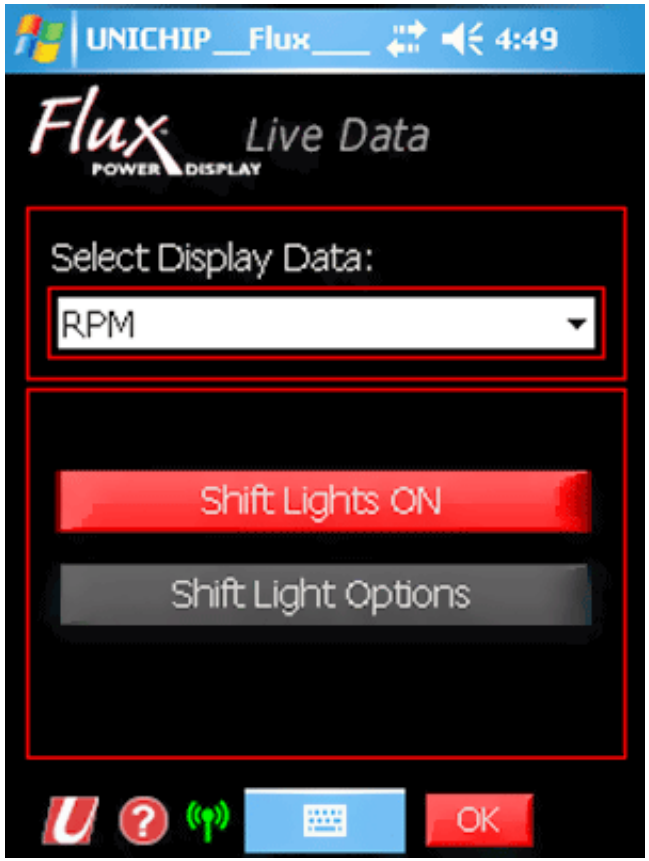
- Each parameter has a separate tattletale and its value and reset corresponds only to the displayed parameter
- A parameter's tattletale only records when that parameter is the Live Data display
- Tattletale vales are maintained between power cycles
- To reset the tattletale, push the "Reset" button.

Flux Live Data

Features

Digital Display

The digital display is a constant, near real-time display of the selected vehicle parameter. Expect data latency when running Data Log in the background, especially when logging multiple channels. The digital and analog displays always display the same parameter.

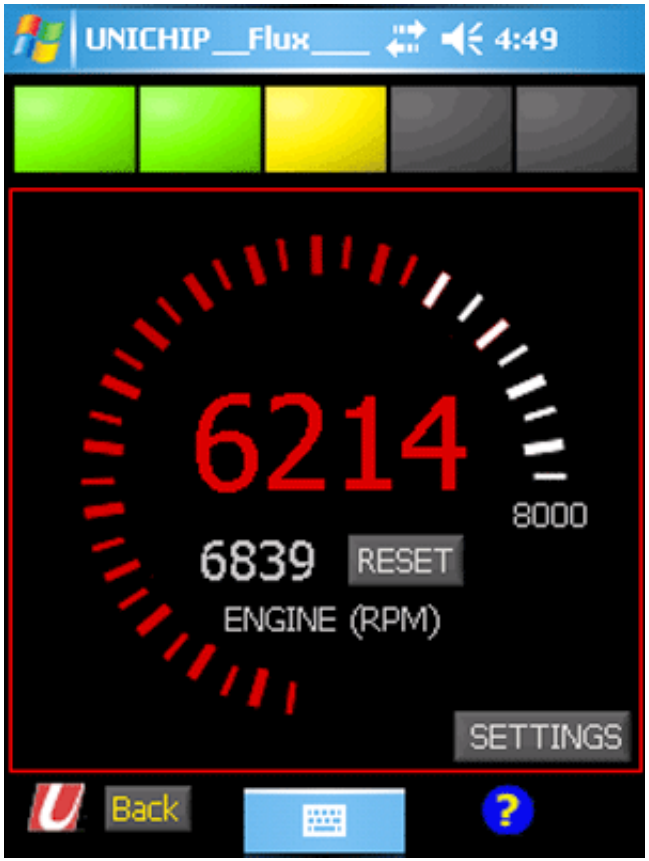


Flux Live Data

Features

Parameter Selector

Displayable parameters are selectable via the Parameter Selection Pull-Down Window and vary by application since not all vehicles support all parameters; Flux automatically selects the available parameters for your vehicle. Any Live Data selectable parameter can also be recorded on the Data Log screen.



Flux Live Data

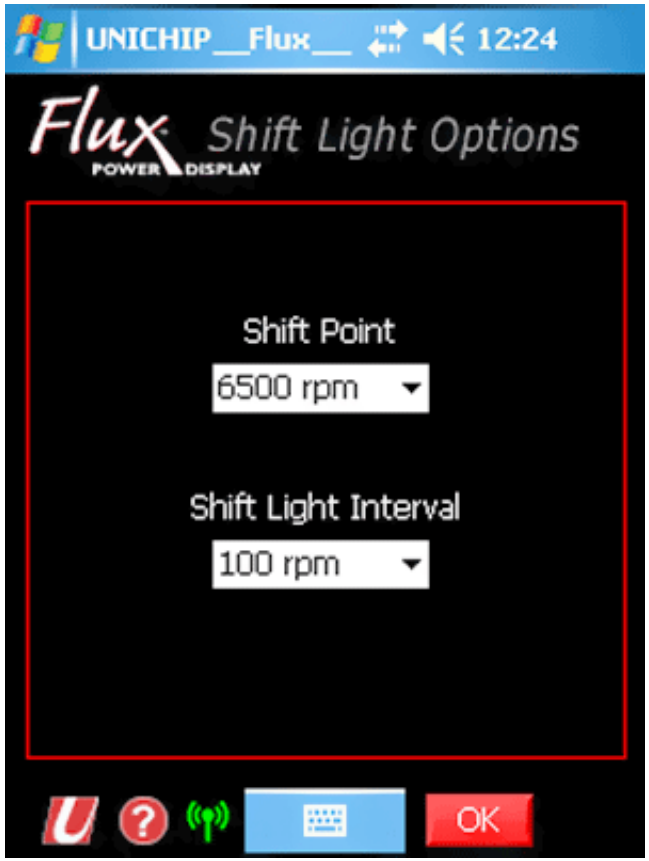
Features

Shift Lights

Shift lights may be displayed on the Live Data Display whenever Engine rpm is selected for the main display. The shift lights are programmed and selected for display via an option in the Settings button.

- Shift lights are disabled for automatic transmission applications.

Five shift lights — two green, two amber, and one red — illuminate sequentially to assist you shift at the ideal time. When the red light illuminates, all five lights flash until the shift occurs or rpm decreases.



Flux Live Data

Features

Setting Your Shift Lights

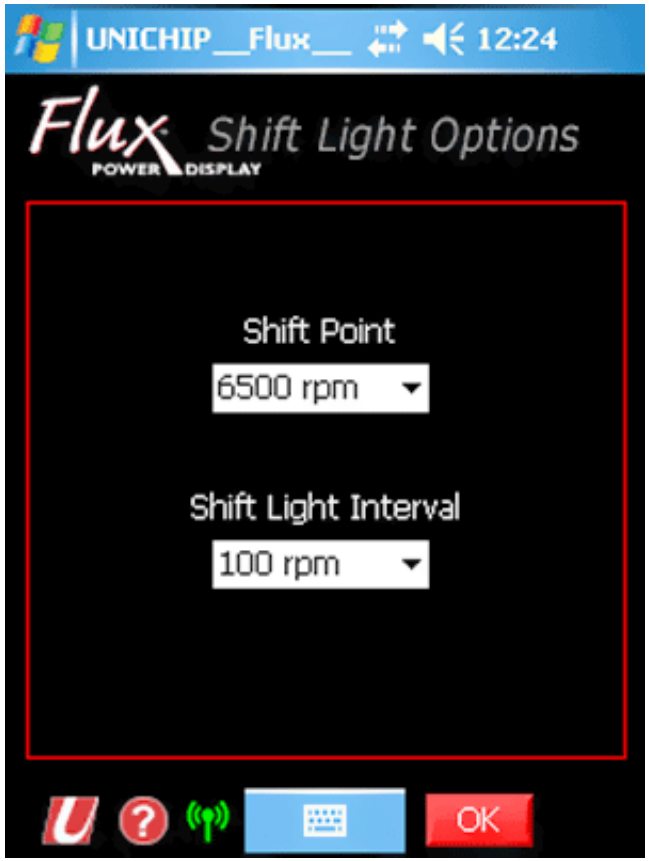
Generally, optimum acceleration results from shifting just prior to reaching the rev limiter and properly calibrated shift lights assist you to do that more precisely by accounting for your reaction time.

To set your shift lights, navigate to Live Data and click the Settings button. Select a gear from the window on the top of the screen, and then select an appropriate Shift Point and Shift Light Interval from the drop-down menus. Select “OK” to save.

Since vehicles accelerate faster in lower gears, less driver reaction lead-time is required as the gears get progressively higher. As a starting point, try the factory settings of 200-rpm below red line as the shift point and 100-rpm shift light interval and shift when the lights flash. Modify the lights for your personal reaction time gear by gear until shifting at the light indicated points allows you to begin your shift an instant before the engine hits the rev limiter.

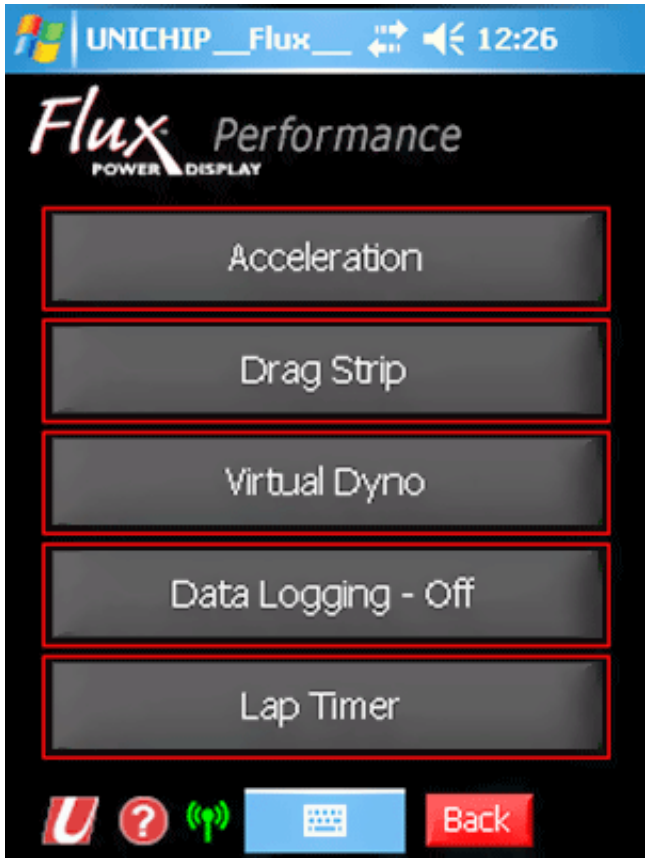
The Live Data rpm tattletale is a useful aid to setting up your shift lights.

- Program your shift lights as desired for first gear
- Return to the Live Data display, and reset the tattletale.
- Accelerate in first gear until the red shift light illuminates and shift immediately.
- Decelerate and look at the tattletale displayed maximum value; if that value is red line rpm ± 100, the selected shift is properly set. If the tattletale value is more than ± 100-rpm, raise or lower your previous shift point in the opposite direction to more accurately compensate for your reaction time.
- Repeat the test until you’re comfortably shifting at the time when the red shift light illuminates



and the tattletale maximum is at red line.

- Repeat the procedure for each gear remembering that although your reaction time remains constant, the speed at which the engine accelerates decreases as the gears get higher so the required lead time correspondingly decreases.



Flux Performance

Performance measures various types of performance including 0–60 mph and 0–100 mph times, Virtual Drag Strip, calculate and display engine power, data log vehicle performance data, and record times with a lap timer. All data collected on the Performance Pages can be displayed, recorded, and exported back to your PC for manipulation in Excel.

Acceleration, Drag Strip, and Virtual Dyno performance pages are all designed to allow you to SAFELY measure your vehicle's performance. No interface with the PDA is required during and performance measurement; complete all set up actions prior to selecting the Start button, and the PDA will automatically display the results when the vehicle slows to below 10 mph after completing the measurement.

Flux Performance

Acceleration

Acceleration accurately measures vehicle acceleration performance from 0–60 mph or 0–100 mph without tying to work a stopwatch or read the speedometer. Up to five runs can be saved and exported to Excel on your PDA or PC. The results can alternatively be displayed in SI equivalents.

Flux Performance

Acceleration

Page Features

Start button — Starts the run. The Start button will not highlight until the vehicle is stationary; when you click the Start button, Flux assumes the next motion is the beginning of the run and the clock begins counting.

Data display window — Shows the last run data

Delete Run button — Permanently deletes the selected Saved Run.

Save button — Saves the New Run data into the next available location in the saved data file. If you try to save a new file and already have five files, you will be prompted to select an existing file to delete asking if you want to overwrite one of the saved files.

Export button — Exports all results data from the Saved Runs window to Excel. Selecting Export opens a pop-up window showing the file name where the data is being saved appears; click OK to continue.

Save button — Saves the New Run data into the next available location in the saved data file. If you try to save a new file and already have five files, you will be prompted to select an existing file to delete asking if you want to overwrite one of the saved files.

Performance option window — Allows you to select the desired performance measurement

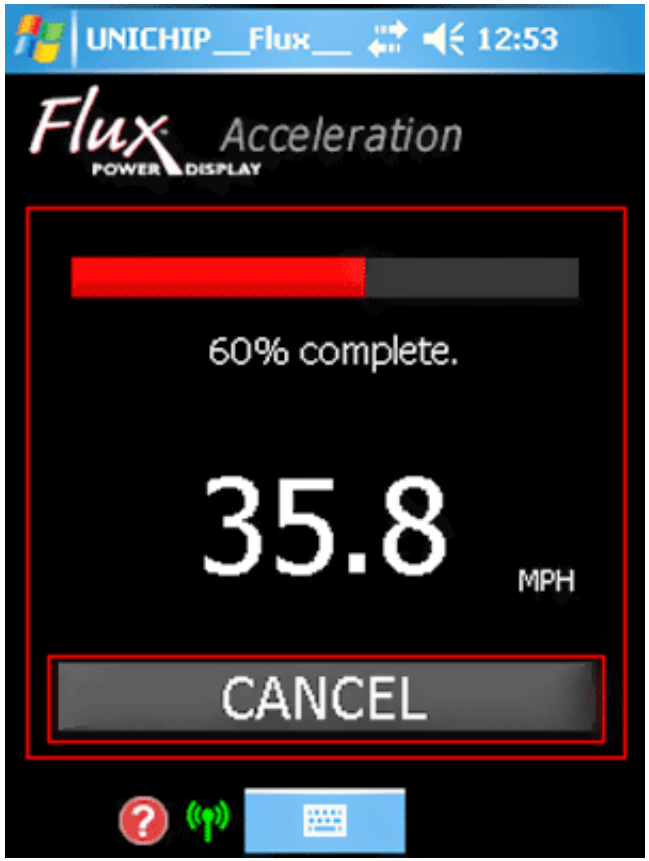
Flux Performance

Acceleration

Performing a 0–60 mph Acceleration run

- Find a suitable location and properly warm up the vehicle
- Navigate to Performance/Acceleration
- Select New 0–60 Run

- Decelerate to 0.0 mph on the PDA display and click the Start button
- After you click the Start button, it re-labels to become the Cancel button
- The run automatically terminates if no motion is detected within 10 seconds of clicking the Start button



- Accelerate as quickly as possible to 60 mph
- As you accelerate, a red progress bar shows the percentage completed
- Use your vehicle's speedometer not the PDA speed display as your primary reference
- The PDA speed indication may differ by several mph from your vehicle's speedometer. If you have non-OEM size tires and have entered tire size data in the Utilities/Tire Size Correction, the PDA displayed speed is more accurate than the vehicle speedometer

- At 60 mph, BRAKE will flash indicating the run is complete and you should slow down.
- If you choose to abort the run prior to completion, click the Cancel |button
- After the vehicle slows to less than 10 mph, the display automatically returns to the Acceleration page and the calculated 0–60 time is displayed in the New Run Window.

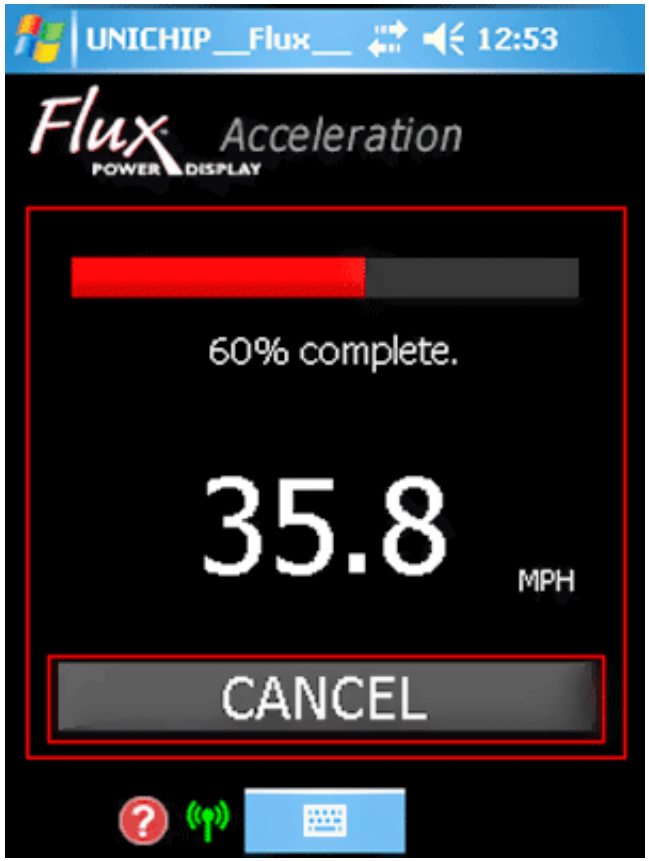
Flux Performance

Acceleration

Performing a 0–100 mph Acceleration run

- Find a suitable location and properly warm up the vehicle
- Navigate to Performance/Acceleration
- Select New 0–100 Run

- Decelerate to 0.0 mph on the PDA display and click the Start button
- After you click the Start button, it re-labels to become the Cancel button
- The run automatically terminates if no motion is detected within 10-seconds of clicking the Start button



- Accelerate as quickly as possible to 100 mph
- As you accelerate, a red progress bar shows your relative progress to completion
- Use your vehicle's speedometer not the PDA speed display as your primary reference
- The PDA speed indication may differ by several mph from your vehicle's speedometer. If you have non-OEM size tires and have entered tire size data in the Utilities/Tire Size Correction, the PDA displayed speed is more accurate than the vehicle speedometer

- When you reach 100 mph, BRAKE will flash indicating the run is complete and you should slow down.
- If you choose to abort the run prior to completion, click the Cancel button
- After the vehicle slows to less than 10 mph, the display automatically returns to the Acceleration page and the calculated 0–100 time is displayed in the New Run Window.

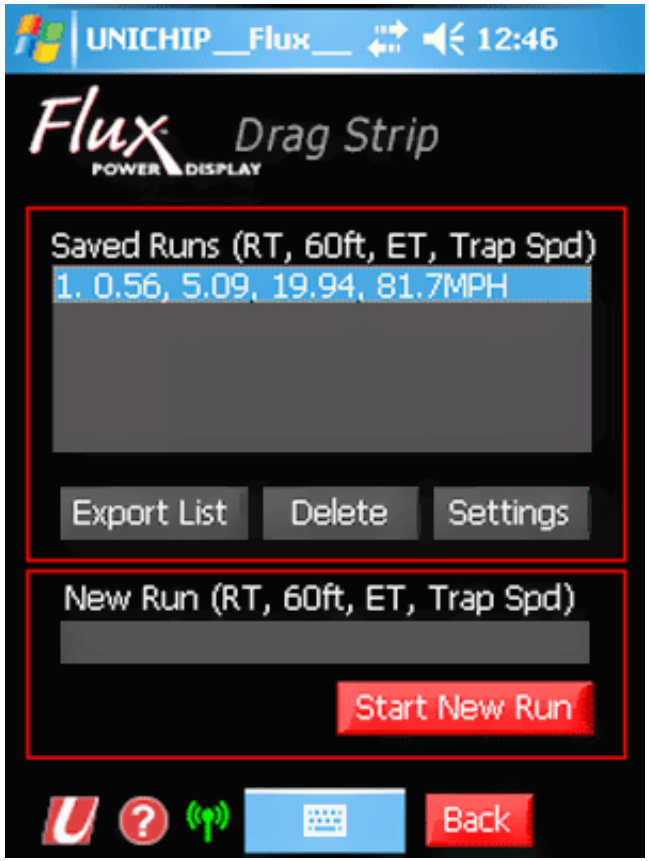
Flux Performance

Acceleration

Tips for obtaining best Flux performance

To obtain consistent, accurate data…

- Have the vehicle positioned to begin the run immediately after hitting the Start button
- Unless safety dictates, do not decelerate until the BRAKES display appears
- Road slope and prevailing wind have an impact on times and speeds. Averaging runs conducted in both directions under the same conditions should account for everything except wind gusts.



Flux Performance

Drag Strip

Virtual Drag Strip allows you to run on a simulated drag strip from a Christmas tree launch using either sportsman or pro light sequences. The simulation features staging, random starter "button" times, and accurate red light indications and provides reaction time, 60-foot time, elapsed time (ET) and trap speed for each run.

Up to six runs can be recorded and can also be exported to Excel on your PDA or PC. The results can alternatively be displayed in English or SI equivalents.

Flux Performance

Drag Strip

Page features

Upper window

Saved Runs data display — displays Reaction Time, 60-foot time, Elapsed Time and Trap Speed for up to five saved drag strip runs.

Export List Button — saves all data in the Data Display Window to the file specified in the dialog box which pops up.

- Data is saved in a unique Unichip folder in your PDA's My Documents folder
- Data is saved as a .txt file.

Delete Button — deletes highlighted run from the Saved Runs data window

- Before the highlighted data is deleted, a dialog box asking for confirmation appears. Click OK to delete the data or click Cancel to abort and maintain the data in the Saved Runs display

Settings Button — allows you to choose between a Sportsman style Christmas tree and a professional style Christmas tree.

Lower window

New Run data window — displays the Reaction Time, 60-foot time, Elapsed Time and Trap Speed of the just completed run.

Start New Run button — opens the Virtual Drag Strip page.

Flux Performance

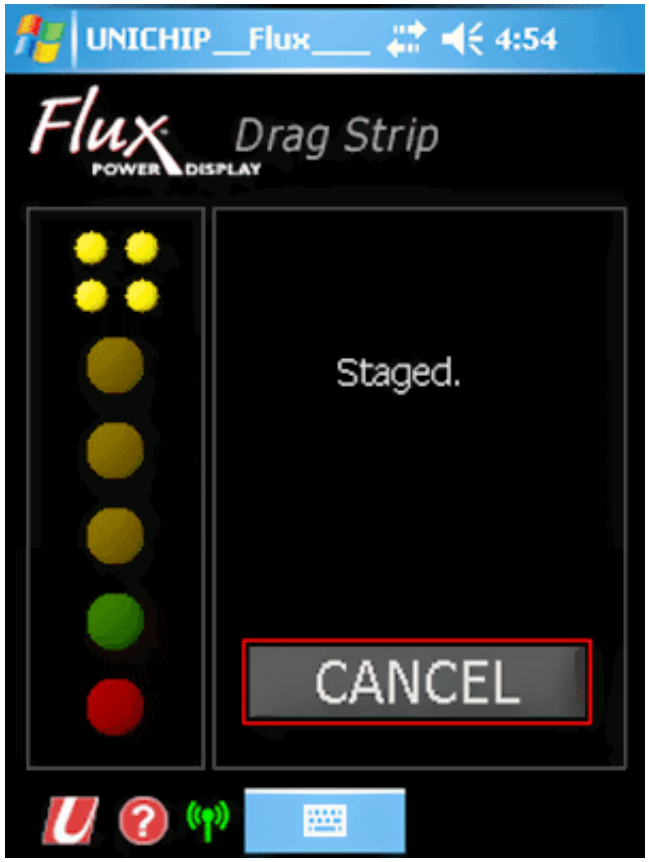
Drag Strip

To perform a simulated drag strip run…

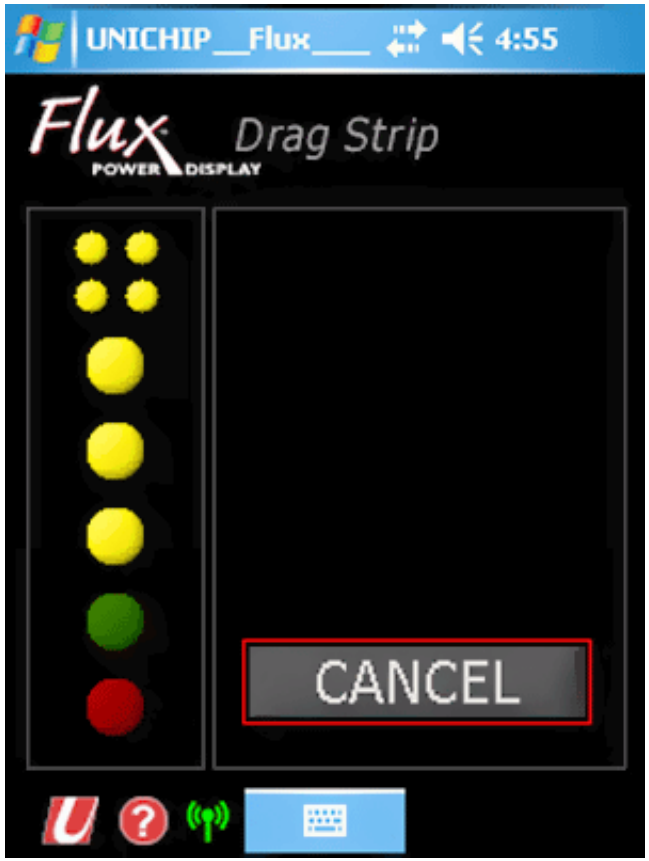
- Navigate to Performance/Drag Strip
- Select the desired light sequence via the Settings button
- Click the Start New Run button
- Position the vehicle to safely perform the run
- When ready to begin, click Start to begin

Note: The Start button initiates a 45-second timer during which the run must begin. If the timer expires before vehicle motion begins, a Run Timed Out pop-up appears and the run is terminated. Click OK to continue and the process will reset. As long as the vehicle starts moving within the 45-seconds, the program waits until the ¼-mile is completed regardless of time.

- Slowly move forward to pre-stage
    1. You are in the right lane and the lights on the right side of the Christmas tree indicate your vehicle's position
    1. Your opponent stages randomly as soon as you select Start
    1. Slowly roll the car forward until the pre-staged lights on your side illuminate then stop. The distance between pre-stage and staged is a few feet, so move slowly and precisely.



- Slowly move forward to stage
    1. When you're ready to stage, again slowly roll the car forward until the staged lights also illuminate, and then stop the car.
    1. Moving forward after your staged light illuminates a red light.



- Start your run when the Christmas tree's green light illuminates
    1. The "starter" randomly starts the tree between one and three seconds after both vehicles stage.

- A red progress bar displays distance covered down the ¼-mile

- Upon completing the ¼-mile, BRAKE flashes in bold red letters indicating you have passed the finish line and should slow down.

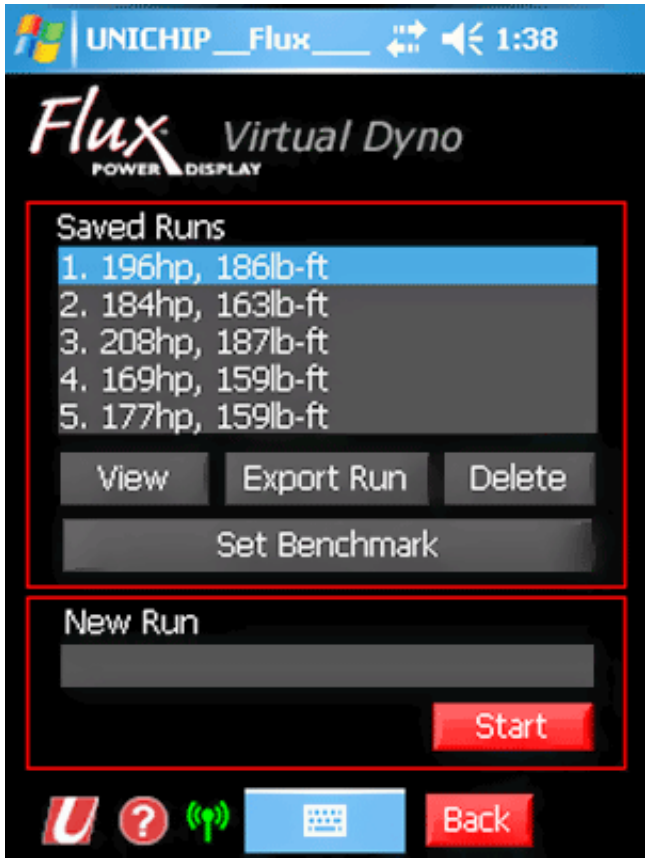
- Decelerate to a stop and the run results automatically display in the New Run window.

Flux Performance

Drag Strip

Tips for obtaining best Flux performance…

- Position the vehicle to begin the run immediately after hitting the start button.
- Unless safety dictates, do not decelerate until the BRAKES display appears.
- As with any drag strip, realize track slope and prevailing wind have an impact on times and speeds



Flux Performance

Virtual Dyno

Virtual Dyno allows you to accurately calculate your engine's bhp and torque, read peak values for each, display both graphically and plot any saved pull against a stored benchmark. Up to six pulls can be recorded and can also be exported to Excel on your PDA or PC. The results can alternatively be displayed in English or SI units.

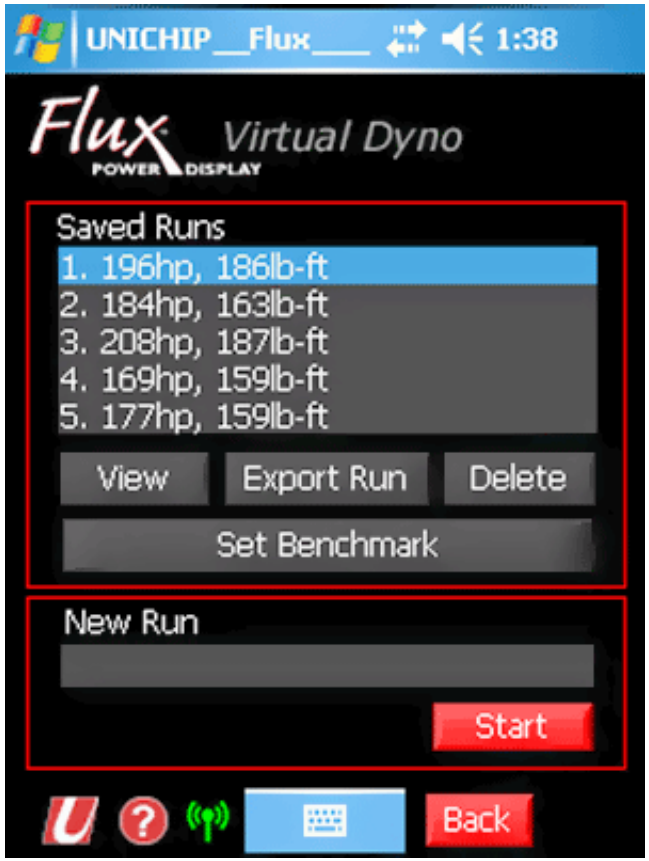
Power and Torque numbers

Flux calculates your vehicle's horsepower and torque numbers at the street, at the wheels, or at the flywheel as selected on the Display Options page. Once the values for a specific run have been calculated, they can not be changed to another equilivant; e.g. if you have selected Street numbers for a run, those numbers can not subsequently be converted/viewed as Brake power and torque numbers.

Street power and torque - net values accelerating your vehicle and are the lowest but most accurate of the three options. Street numbers do not correct for aerodynamic or drive train losses and are the net "Neutonian" numbers accelerating your vehicle.

Wheel power and torque - are corrected for aerodynamic losses and generally equivilant to dynos displays. Wheel numbers assume your vehicle is aerodynamicly stock perspective and will be slighly off if it has large aerodynamic modifications or you run with windows or an open sun roof.

Brake power and torque - are corrected for both aerodynamic and drive train losses and are an estimate of your engine's power and torque at the flywheel. Brake numbers are the largest but the least accurate of the three options.



Flux Performance

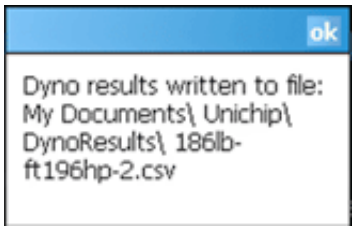
Virtual Dyno

Page features

Upper window

Saved Runs data window — Displays peak bhp and torque values for up to twelve saved runs are displayed in the order saved; when more than five runs are saved, a scroll bar will automatically appear so you can view all saved runs.

View button — Opens the dyno chart display with the Saved Runs highlighted run as the graphed current run.



Export Run — Exports all results data from the Saved Runs window to Excel. Selecting Export opens a pop-up window showing the file name where the data is being saved appears; click OK to continue.

Delete button — Permanently deletes the highlighted Saved Run window data.

Set Benchmark button — Declares the highlighted run as the benchmark. The benchmark can be displayed along with any other saved run on the Dyno Graph for comparison.

Lower window

New Run data window — Displays peak horsepower and torque from the just completed run after the data display criterion has been met.

Start button — Opens the Virtual Dyno run page.

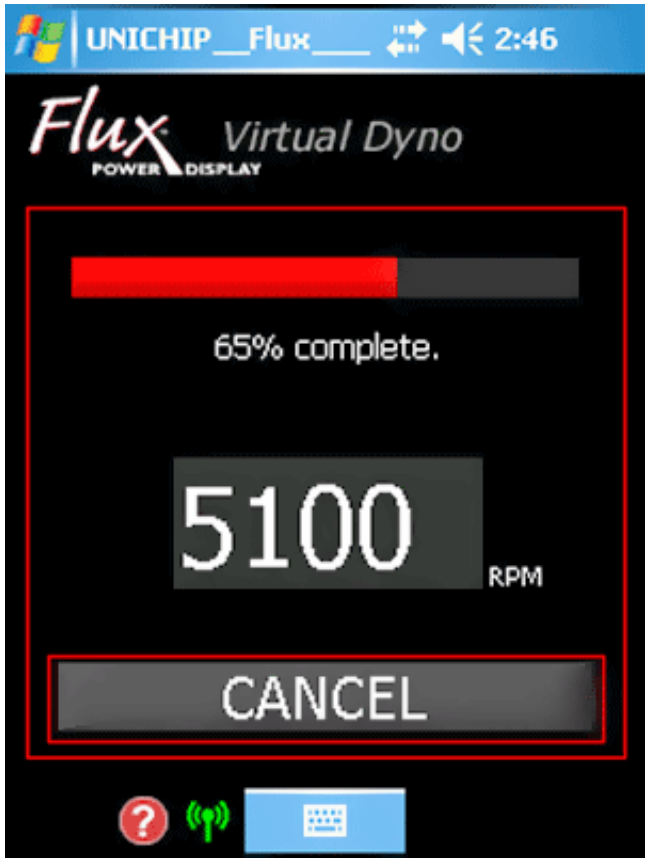
Flux Performance

Virtual Dyno

Performing Virtual Dyno runs

To perform a Virtual Dyno run…

- Navigate to the Performance/Virtual Dyno
- Click the Start New Run button in the lower window to open the Virtual Dyno run page
- Position the vehicle suitably to safely perform the run
    1. The run must start within 30 seconds after clicking the Start button. If engine rpm doesn't increase above 2,000 within that time period, the run terminates.
- When the vehicle is correctly positioned, hit the Start button

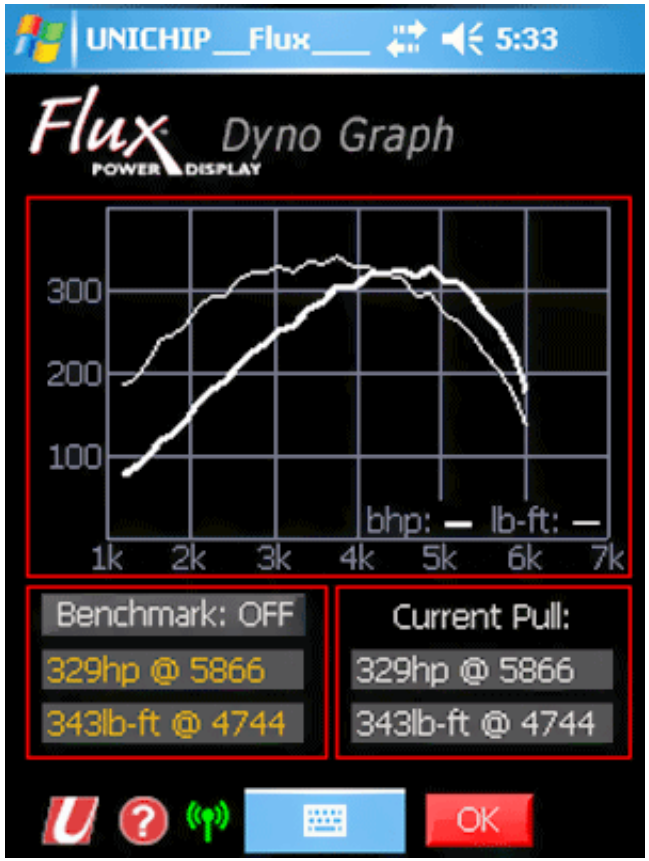


Manual transmission vehicles

- Without using more than half throttle, accelerate and shift into the gear indicated on the Flux screen.
    1. The run automatically starts when rpm exceeds 1500 so use care to not accelerate beyond ~1200–1400 rpm before reaching the target gear.
- When you are in the target gear, smoothly press the accelerator fully so that it is on the floor by ~1800 rpm.
    1. Performing a dyno pull will feel very different than doing a drag strip run or 0-60 acceleration. Most vehicles accelerate very slowly at low rpm which is normal but will feel “wrong.” The numbers will be correct if you just put the pedal on the floor and leave it there until redline.
- With the accelerator fully on the floor, accelerate the vehicle to red line.
    1. Note: Less than full throttle produce artificially low power figures.

Automatic transmission vehicles

- Street Dyno pulls must be done in a single gear which can be challenging because most automatic transmissions, by design, downshift when you command a high load at low rpm. The Street Dyno function is enabled, but the transmission’s torque converter variable slip and sensitivity to transmission oil temperature make the results inconsistent and - potentially - dramatically inaccurate.



- Decelerate to a stop and the result automatically displays on a dyno graph
    1. Click OK to return to the main Virtual Dyno screen

Flux Performance

Virtual Dyno

Tips for obtaining accurate data

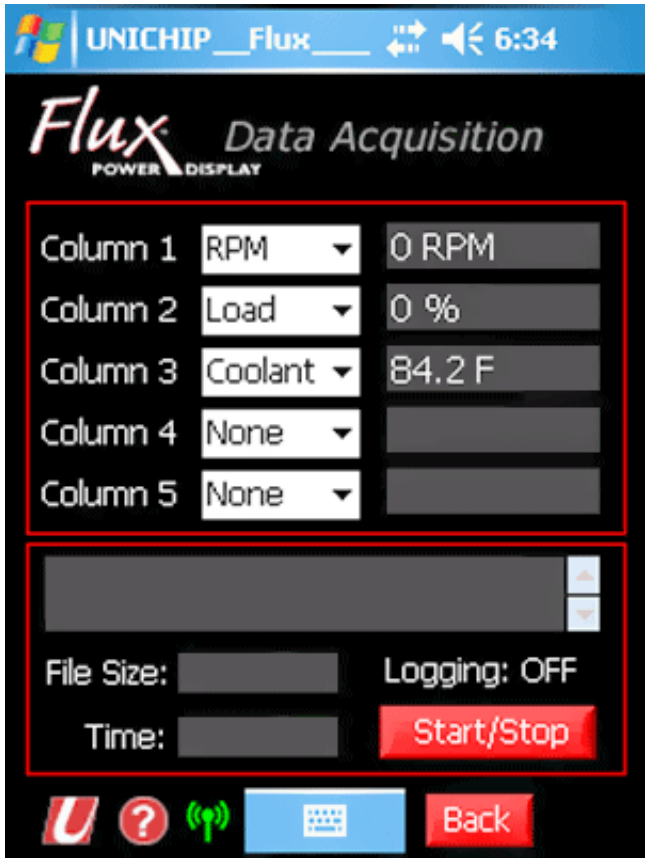
- Position the vehicle so you can begin the run immediately after hitting the Start.
- Unless safety dictates, do not stop the run until the BRAKES display appears.
- Tires
    1. If the vehicle is equipped with non-OEM sized tires, ensure the correct data is entered into Utilities/Tire Size Correction
    2. Ensure tire air pressures are set in accordance with the OEM's recommendations
- Ensure the engine and drive train are at normal operating temperatures
- Avoid wheel spin during the dyno run
- Once pressing it down, hold the accelerator firmly on the floor all the way until red line
- Perform runs as close to the OE curb weight value as possible and perform your runs with ½ tank of fuel. Too much weight produces artificially low bhp/torque numbers while too little weight produces artificially high numbers.
- Environmental considerations:
    1. Road surface slope, hills, dips, or other deviations from a flat surface will affect results so find the flattest section of track available.
    2. To minimize road slope and prevailing wind impact on calculations, consider doing pairs of runs over the same section of course in opposite directions and averaging the results.
- The calculations assume all windows and the sun roof (if equipped) are closed. Large aftermarket aerodynamic modifications (wings, splitters, wide fender flares, etc…) will also effect the calculations and tend to produce lower high rpm power numbers.
- Air conditioning reduces engine power and will produce artificially low bhp/torque numbers.
- Performing the dyno pulls in other than second gear will produce artificially high (lower gear) or artificially low (higher gear) power numbers.

Note: OEM power quotations assume SAE, DIN, or JIN standard day conditions equating to approximately sea level and 59° F (15° C). If your runs are done under warmer conditions and/or higher-pressure altitudes, expect lower than quoted power values; the higher above sea level or the hotter the day, the greater the deviation.

Flux Performance

Data Logger

Data Logger monitors and records various engine and vehicle parameters. Up to five channels can be monitored and recorded for more than 60 minutes. Recorded data can be exported to Excel on your PDA or PC. Data can alternatively be displayed in English or SI units.



Flux Performance

Data Logger

Page Features

Upper window

Parameter Selection Pull Down Windows — Provides a list of the available parameters to data log for your vehicle.

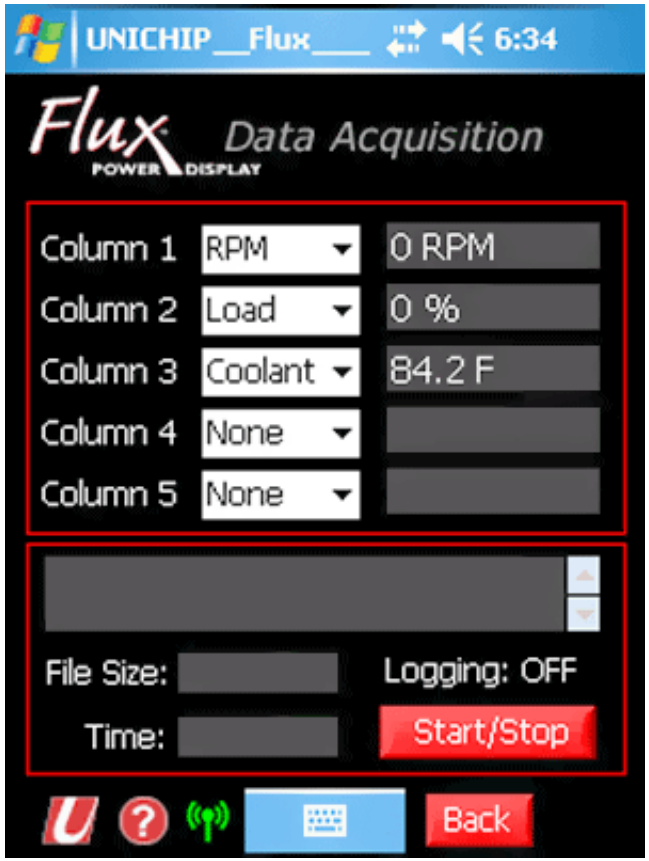
- Data options are mutually exclusive and can only be displayed in a single window.
- To change parameter display order, first remove the parameter from the window it was previously selected in and it will become an option for the new target window.
- All selected/displayed parameters will be recorded, and if you want to improve logging performance you should remove any non-desired parameter from the list by replacing it with the "None" option.
    1. None is the only option which can be displayed in multiple windows.
- Exported data is displayed in the same order as it is displayed in the PDA parameter list

Current Data Display Window — The current value for any selected parameter is displayed as a digital value in the current data display window.

- Parameter data can be displayed in either English or SI units.

Lower window

Main window — Shows the location where the current data logging session is being recorded.



- Data Logging files are exported as .csv files
- Data Logging files are exported to a unique Unichip folder in My Documents

File Size window — Indicates the size of the data log file currently being saved.

Start/Stop button — Starts a data logging session if one is not running and stops a data logging session if one is running.

- Once started, a data logging session continues until the Start/Stop button is selected to terminate the session, PDA power is cycled, or BT communication is lost.
- Data logging significantly decreases reduces data response time. If data logging is not required, turning off data logging will improve overall Flux performance.

Logging graphic — The logging graphic just above the Start/Stop button indicates OFF if logging is not active and ON if there is a session running.

- The data logging "L" graphic also appears beside the Gutter Antenna whenever a data logging session is active

Data Logging "L" — Whenever background data logging is happening, a small green "L" symbol appears next to the Gutter Antenna as a reminder that functionality may be slowed down as a result of processor workload.

Flux Performance

Data Logger

Tips for logging good data

- Flux Data Logger extracts selected data from the vehicles communication bus and is subject to that bus's bandwidth capability. Many vehicles have relatively limited bandwidth.
- In addition to lower fidelity from the Data Logger, multiple channel data logging reduces the update rate for the Live Data display and results in a "jumpy" display.
- Optimum data logging is obtained by logging the minimum parameters to accomplish the task.
- The greater the number of channels logged, the lower the fidelity of each channel; data density can be as low as 1 Hz per channel when all five channels are recorded.
- When completing data logging, selecting the Stop button will improve Flux display performance by reducing the processor load.

Flux Performance

Lap Timer

Lap Timer navigates you to a fully functional split lap timer page that is a fully functional split lap timer. You can measure total elapsed time as well as individual split times for specific laps.

Flux Performance

Lap Timer

Features

Start/Split button — When the Lap Timer is stopped, the Start button starts the clock. When Lap Timer is running, the Start/Split button records a split/lap time that is automatically displayed in the next higher number lap window. The total time in the main window continues to track total elapsed time when split/lap times are recorded.

- Lap Timer only functions when Flux is running; if you exit the Flux, timing is terminated.

Stop button — Stops the clock at the current running time.

Zero button — Has no function when the clock is running; when the clock is stopped, zeros all values in the split/lap windows and the main elapsed time window.

Total time window — Records the total elapsed time to the hundredths of a second between hitting the Start button and the Stop button.

Lap time windows — Each time the Start/Split button is hit while the clock is running, the time since the Split button's last selection is displayed in the next lap window. The first time you hit the Start/Split button with the clock running, the time is recorded in Lap 1, the second time as Lap 2, the third time as Lap 3, etc… Up to 600 split times can be recorded.

Lap Count scroll arrows — Whenever more than six split times exist, red scroll arrow appears to scroll through all recorded times

Data Display — After hitting the Start/Split button, time is displayed in the following format: MM.SS.SS.

For example… 2' 14.86"

Flux Scan Tool

Page Features

Scan Tool provides the ability to scan for DTC's, lookup the description for those codes, read Freeze Frame Data, export DTC's, descriptions, and Freeze Frame Data and clear all DTC's.

Flux Scan Tool

Windows and Buttons

Active Codes Window — displays Active DTC's

Pending Codes Window — displays Pending DTC's

Lookup buttons — displays a description of the highlighted DTC in the corresponding window

Scan button — queries the vehicle for both Active DTC's and Pending DTC's

Freeze Frame button — displays any existing Freeze Frame Data for a highlighted DTC

Clear Codes button — erases all Active DTC's and Pending DTC's

Export button — saves the highlighted DTC along with its description and any Freeze Frame Data to the specified file.

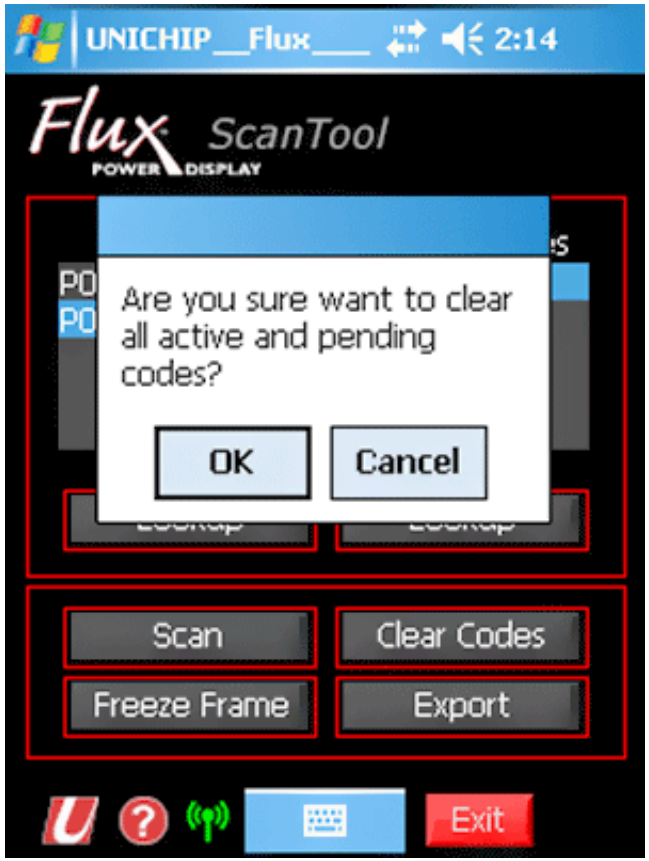
Flux Scan Tool

Using Flux Scan Tool

Your PDA must be communicating with the FR to use Scan Tool.

To scan for codes:

- Turn the vehicle's ignition key to the On position. The engine can be running or stopped.
- Verify a green Antenna
- Navigate to Home/Utilities/Scan Tool
- Flux Scan Tool automatically scans for codes when you select the page
    1. If the scan does not automatically begin, click the Scan button
- Any Active and Pending Codes will appear in their respective window. If no codes are present, each window display No Codes.

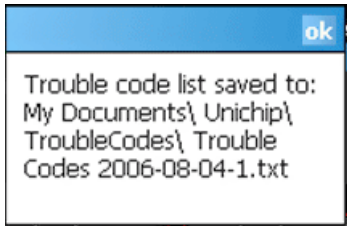


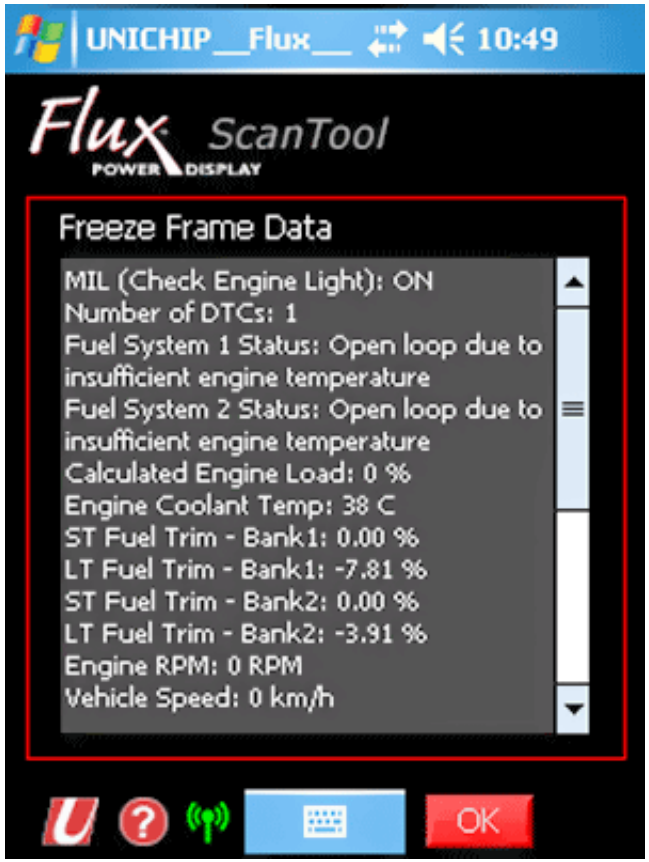
Flux Scan Tool

To clear codes:

- The vehicle's key must be in the On position and the engine must be stopped.
- Click the Clear Codes button.
- When the dialog box opens, click OK to clear the codes and close the box.

1. There is no way to retrieve cleared codes.
1. If a code immediately returns after selecting the Clear Codes button, the fault still exists and it is being reported again.





Flux Scan Tool

To export codes:

- Click Export and a dialog box will appear with the file name for the exported data.
- Exported data is saved as a .txt file in a unique Unichip folder in My Documents

To freeze frame data:

- Freeze frame data is exported independently from DTC data
- From the freeze frame display, click Export and a dialog box appears with the file name for the exported data
- Exported data is saved as a .txt file in a unique Unichip folder in My Documents

Flux Scan Tool

Tips for optimum performance

Although Scan Tool works with the ignition key in the On position with the engine stopped, not all codes will be displayed and most codes will not reappear until the engine is running even though the exist.

Flux Scan Tool

Understanding OBD II Codes, Check Engine Lights and Digital Trouble Codes

Scan Tool gives you a window into your vehicle's brain, as OBD II Codes are coded responses to developing problems or failures. Whenever certain problems are detected during engine operations, Digital Trouble Codes (DTC's) are generated to document what happened and when. These codes are stored and may be downloaded for review and are a major diagnostic tool used in vehicle repair. Some DTC's produce Check Engine Lights (CEL's) while others will not. Each DTC has an alphanumeric designation and a description, and some of the codes are generic to all applications while others contain proprietary information specific to that particular manufacturer or vehicle. Frequently, proprietary DTC's do not generate CEL's while generic DTC's do.

Whenever a CEL appears, the car believes a fault exists. If you clear a CEL and the same DTC reappears, that fault most probably exists and should be addressed.

DTC's, however, are different in that they require a lower "confidence" to be generated. Typically, DTC's appear for minor malfunctions that may or may not represent significant problems. The ECU monitors cycles and logs any and all DTC's that occur during those cycles. Each type of vehicle has an event threshold differentiating "true" faults from random faults. If a fault occurs more frequently than the threshold limit, a DTC is generated; if the fault occurs less frequently than the threshold limit, nothing is recorded.

DTC's are grouped into four categories:

- B-Codes are associated with doors, air bags, headlights and other body components.
- C-Codes are associated with steering, brakes and other chassis components
- P-Codes are power train codes associated with the engine and transmission.
- U-Codes are related to intra-computer communications

Note: If a DTC reappears after selecting Clear Codes, the problem still exists. Existing P-Codes may only immediately reappear is the engine is running

Clear Codes electronically erases all Active codes and Pending codes within the ECU. Clearing Codes does not affect any other data within the ECU like fuel trims, and will not adversely your vehicle. However, once the codes are cleared they (and any associated freeze frame data) are gone and cannot be subsequently reviewed.

Valet Mode

Valet Mode electronically limits your vehicle's engine RPM to prevent abuse. Valet Mode is either On or Off and has no settings or options. To use Valet Mode, navigate to Home and click the Valet Mode button.

Valet Mode button is an indicator of the FR setting, and has three possible display modes… Valet Mode - ?, Valet Mode - On, and Valet Mode - Off.

Valet Mode - ? — Indicates the PDA is not communicating with the FR so the actual Valet Mode is unknown. The actual Valet Mode may be On or Off, and when communication is established, the current value will be displayed. The Valet Mode option may only be changed when communication is established.

Valet Mode - On — Whenever the Valet Mode is on, the button turns red, the button label reflects "On," and engine rpm is limited. When the PDA is communicating with the FR, clicking the button will turn Valet Mode off. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Valet Mode is activated.

Valet Mode - Off — Whenever the Valet Mode is off, the button turns grey, the button label reflects "Off," and the engine operates in its normal rpm range. When the PDA is communicating with the FR, clicking the button turns on Valet Mode. To preclude inadvertent activation, the vehicle ignition key must be cycled to off before the Valet Mode is deactivated.

Note that on some vehicles Valet Mode may generate a check engine light (CEL), depending upon how long the engine is pushed into the Valet Mode RPM Limiter. You can read and clear the CEL and OBD II codes in the Scan Tool utility.

Valet Mode settings are stored in Map Set 4, and if you have a valid valet map loaded in your Unichip, you will see only four Map choices when you select the Performance Map Option on the Utilities page. If you have both an Immobilizer and a Valet map loaded, you will see only three Map choices.

Immobilizer

Immobilizer Mode functions like a screen saver for your vehicle — with the Immobilizer on, the vehicle will not start.

Immobilizer Mode can be personalized, and can be set up to function with or without out a PIN.

- Without a PIN, simply turning the ignition key on, launching Flux, and selecting the red Immobilizer - On button turns off Immobilizer Mode.
- With a PIN, after turning on the ignition key, launching Flux, and selecting the red Immobilizer - On button, a PIN entry screen appears. Enter the PIN to deactivate Immobilizer Mode.

When the Immobilizer Mode is active, you have access to many but not all Flux screens. Although the Antenna may be green, no data will transfer between the FR and your PDA until turn off Immobilizer Mode.

Note: If you are unable to provide the correct password (forgotten password, PDA battery dies, PDA breaks, PDA left at home, etc…) the vehicle will not start with the Unichip installed. There is no way to reset the vehicle other than removing the Unichip. Removing the Unichip will immediately allow the vehicle to start normally.

Immobilizer

Setting up Immobilizer Mode

To preclude inadvertent immobilizations, your Flux SW arrives with Immobilizer Mode turned off, and a standard PIN of FLUX.

Although Immobilizer Mode may only be turned On and Off while in communication with the FR, you may access and change Immobilizer Mode settings with any communication state. Changes made Immobilizer Mode Setup are effective immediately upon entry.

To personalize Immobilizer Mode…

- Select Home/Utilities/Immobilizer Setup

Once you set a PIN, Flux will not access Immobilizer Setup without that PIN.

1. Use the Flux Enter Immobilizer Settings button, not the PDA's keyboard enter button.
1. After entering your PIN, or if you have not previously entered a PIN, you will proceed to Immobilizer Setup.

- PIN setup
    1. Enter an identical PIN in both PIN setup entry windows.
        a. There is no minimum or maximum length for the PIN, and any combination of keyboard characters is acceptable.
        b. The PIN is case sensitive.

- PIN Hint

1. If desired, enter a clue to help you remember your PIN. This hint is available on the PDA whenever Immobilizer Mode is active.
   a. This field appears exactly as entered on the Immobilizer PIN entry page.
1. Entering the actual PIN allows anyone to read the PIN and turn off the Immobilizer.
1. Check the Display PIN Hint option to show the PIN Hint button on the PIN entry page.
1. If this box is unchecked, the PIN Hint button will display on the PIN entry page even if you have entered the clue in the correct field.

Immobilizer

Page Features

Required Password for Deactivation check box — Checking this box makes PIN entry mandatory. If this option is unchecked, Immobilizer Mode will be functional but will not require a valid PIN to be turned off.

Enter Password window — Use the PDA keypad to enter the desired alphanumeric value you want to use as your password.

To create a new PIN, you must enter identical values in both the PIN entry and re-entry windows. When both Password entry windows contain an identical passwords, a “Password Saved” pop-up opens. Click the OK button to close the pop-up, and then OK to continue.

- Although the cursor moves as you enter text, nothing will appear in the text window as you enter the values.
- Use the Flux Save Password button not the PDA keyboard enter button to save the data.
- Enter the PIN into both windows before clicking the Save Password button
- There is no minimum or maximum length for your PIN
- Any combination of alphanumeric digits may be used for your PIN
- Passwords are case sensitive.

Immobilizer

Page Features

Password Hint Settings — Allows you to enter a hint which can be accessed from the Immobilizer PIN entry page.

- Use the PDA keyboard to enter your hint into the window in the center of the page.
- There is no size limit to your hint.
- This field appears exactly as entered on the Immobilizer PIN entry page.
- Entering the actual PIN allows anyone to read the PIN and turn off the Immobilizer.

Checking the Display Password Hint Option box displays a Password Hint button on the Immobilizer password entry page while leaving the option box unchecked removes that button.

- Selecting Save Password Hint saves the hint and automatically return you to the Immobilizer Setup page.

Immobilizer

Turning Immobilizer Mode On

Note: If you are unable to provide the correct password (forgotten password, PDA battery dies, PDA breaks, PDA left at home, etc…) the vehicle will not start with the Unichip installed. There is no way to reset the vehicle other than removing the Unichip. Removing the Unichip will immediately allow the vehicle to start normally.

- Turn the vehicle ignition key to the On position.
    1. The engine can either be idling or can be off.
- Navigate to Home.
- Verify the Gutter Antenna is green
    1. Immobilizer Mode can not be changed without FR communication
- Select the grey Immobilizer Mode - Off button.
    1. The grey button will turn red and the button label will change to Immobilizer - On
- The red button is confirmation Immobilizer Mode is on, and when the ignition key is next placed to the Off position, Immobilizer Mode will be active and prevent the engine from starting or accelerating.
    1. To preclude inadvertent stalling, Immobilizer Mode will not be active until the engine is turned off after the mode has been selected. If the engine is idling when you turn Immobilizer Mode, the engine will not stall.

Immobilizer

Turning Immobilizer Mode Off

Note: If you are unable to provide the correct password (forgotten password, PDA battery dies, PDA breaks, PDA left at home, etc…) the vehicle will not start with the Unichip installed. There is no way to reset the vehicle other than removing the Unichip. Removing the Unichip will immediately allow the vehicle to start normally

- Turn the vehicle ignition key to the On position.
- Navigate to Home.
- Verify the Gutter Antenna is green
    1. Immobilizer Mode can not be changed without FR communication
- Without the Require Password for Deactivation option checked
    1. Click the red Immobilizer Mode - On button.
    1. The button will turn grey and the label will change to Immobilizer Mode - Off
- With the Require Password for Deactivation option checked
    1. Click the red Immobilizer Mode - On button
    1. Enter your PIN
        a. Use the Flux enter button, not the PDA keyboard enter button
    1. The button will turn grey and the label will change to Immobilizer Mode - Off.

Glossary

60-foot — The amount of time between illumination of the Christmas tree's green light until the vehicle has traveled sixty feet. 60-foot time is a good general indication of how quickly the vehicle left the start line.

Antenna — The BT Communication Status icon displayed in the Gutter on all Flux screens. The antenna changes colors and displays a different number of "radio waves" to indicate the current communication status between your PDA and the FR.

Awake Mode — is the FR's full power, normal operating state. The FR is Awake anytime its paired PDA is communicating with it. Awake Mode can be verified by the flickering illumination of the FR's LED

Benchmark — One dyno run can be set as a benchmark against which other runs can be compared. The benchmark is highlighted on the Saved Runs data window and can be displayed graphically along with any other run in the Dyno Chart window.

Bluetooth — is a short-range radio frequency communication scheme designed to replace cables and wires. In Flux, it is the link between your BT PDA or BT PDA cell phone and the FR which is, in turn, the entry point into your vehicle's data stream and into the Unichip.

Calibration — A complete set of data comprising the instructions (maps) used by the ECU to control the engine.

Christmas tree — Drag racers use an automatic sequenced light post called a Christmas tree to start their runs. The tree features lights to indicate pre-staged and staged position, have yellow sequence lights, green start lights, and red lights to indicate a premature start. Two light sequences are used…

- Sportsman tree sequence (also called a Full Tree) — after each participant is staged and the starter pushes the button, each amber light illuminates in sequence with a 0.5 second delay between them and the green light illuminates 0.5 seconds after the third amber.
- Professional tree sequence — after each participant is staged and the starter pushes the button, all three amber lights illuminate simultaneously and the green light illuminates 0.4 seconds later.

Display Criteria — Performance results are not displayed until the vehicle has slowed to less than 10 mph and throttle position is less than 10%.

Engine Control Unit (ECU) — A computer which monitors and uses environmental, current engine state data, and commanded engine state data to correctly control engine performance. Sometimes called a Powertrain Control Module (PCM) or Engine Control Module (ECM) depending upon manufacturer and what that specific module actually controls.

Engine Map and Engine Map Sets — The control data stored within the ECU is frequently referred to as a "map" because it looks like a mountain range graphed. A map generally addresses a single engine control aspect such as timing, fueling, or boost. Individual maps are combined into map set to form a complete "calibration."

ET — Elapsed time is the length of time between illumination of the Christmas Tree's green light and when the vehicle completes the ¼-mile distance.

Firmware — The data that resides within the FR that controls the functions of its various components. Unlike most devices, your FR's FW is updated "in the field" by you as the user.

- Your Flux FW can be updated whenever a new version is available by downloading the latest data from the Flux download site into your PDA and then uploading the new software into your FR.

Gutter — The display region present along the bottom of all Flux pages containing Navigation, Communication Status, and Help icons.

Horsepower — The work produced by an engine; it is how much work the engine performs over time. Flux calculates flywheel horsepower, and displays calculated data in either bhp or Watts depending upon your selection of English or SI units.

- Horsepower can either by calculated at the flywheel (which is what OEM's quote in their marketing material, and what some dynos will display), at the drive wheels (which is what most dynos typically display), or as a net value relative to the real world. Flux calculates and can display any of the values as desired.
- *MANY* factors (including individual vehicle tolerances, altitude, temperature, fuel quality, engine tune, tire pressure, number of passengers in the vehicle, road grade, among others) influence calculated bhp. The important thing is not how big the number is, but rather

Map — A complete set of data for controlling a specific engine function like fueling or timing. Maps for three functions (Fuel, Timing, and Boost) are combined with specific individual control functions to for a calibration set . Your Unichip contains up to five calibration sets.

OEM — An abbreviation for Original Equipment Manufacturer, which generally refers to either the actual manufacturer or to the parts which were originally delivered with the vehicle.

PnP — The Unichip Plug-n-Play harness is the prefabricated loom connecting the Unichip to your vehicle. The FR connects to the PnP's Comm connection.

Registered User — Registering and completing your Unichip purchase with Unichip of North America, Inc. provides you access to the latest SW updates and calibrations developed by Unichip to download into your PDA and your Unichip.

Sleep Mode — The reduced power, standby mode the FR enters whenever it's paired PDA is not communicating with it. In this mode, the FR maintains all of its information, and listens for communication and a command to wake up. Sleep Mode can be verified by a steady illumination of the FR's LED and is a slightly more

significant electrical drain.

SI — Flux provides data outputs in metric units (Systeme International)

Software — Flux SW resides within your PDA, presents your graphic interface and export functionality, performs all of the various calculations, and communicates with the FR according to the protocols in place to work with the specific firmware contained within the FR.

- Your Flux SW can be updated whenever a new version is available by downloading the latest data from the Flux download site into your PDA and then uploading the new firmware into your FR.

Tire Dimensions — To use the installed Tire Size correction option, record and enter the following information from the vehicle's tire sidewall markings…

- Tread Width is the first set of three numbers before the slash… 255/40ZR-17
- Aspect Ratio is the second set of two numbers immediately after the slash… 255/40ZR-17.. Aspect Ratio is the hight of the tire's side wall compated to the width of it's case expressed in percentage.
- Rim Diameter is the last two numbers after the dash… 255/40ZR-17

Torque — The force produced by an engine; it is literally how much force the flywheel experiences at a given instant. Flux calculates flywheel torque, and displays calculated data in either lb-ft or N-m depending upon your selection of English or SI units.

Trap Speed — The vehicle's average speed through the final 66-feet of the ¼-mile which is typically the fastest speed during a nominal run.

Unichip Certified Tuner (UCT) — Specially qualified dyno facilities with training and equipment that can develop new calibrations from scratch.

Vehicle Parameters

Absolute TPS — Absolute Throttle Position is a scaled measurement of the position of the throttle that is the commanded load from 0–100%. TPS reflects your gas pedal input, not what the engine is currently doing. Typically, OEM manufacturing tolerances mean the displayed values will be between 20%–90%.

Acceleration — Shows vehicle acceleration in "g's." Not supported by many vehicles.

Boost — Is a measurement of air pressure on forced induction engines, and is typically measures the amount of pressure above atmospheric pressure rather than total pressure. Boost is displayed in either psi or Bar depending upon your selection of English or SI units. Boost is not supported by most vehicles.

Coolant Temperature — Is the current engine coolant temperature. Excessively high or low engine temperatures cause the ECU to compensate by adding or

subtracting fuel to cool or heat the combustion chamber to an optimum condition.

EGT — Exhaust Gas Temperature; typically only used on Turbocharged applications, EGT is the measurement of the exhaust temperature either entering or exiting the turbocharger depending on application. EGT is not supported by most applications.

Fuel Economy Average — Display the calculated average fuel economy in mpg.

Fuel Economy Instantaneous — Displays the calculated current condition fuel economy in mpg.

Fuel System Status B1 or B2 — Federal law requires all gasoline engines operate in a closed loop control scheme with a 14.7:1 Air/Fuel ratio for most of their operating range. This state is displayed by either Open Loop or Closed Loop in the fuel system status value for cylinder bank one (B1) and cylinder bank 2 (B2 for engines with more than four cylinders).

- Open Loop — Most engines enter an Open Loop control mode above approximately 75% load, although the specific value varies from model to model. In open loop operation, Lambda exceeds the sensor's ability to measure variance so the ECU disregards the sensor and sets Lambda from a pre-determined table. Typically Open Loop Lambda values are much richer than Closed Loop values.
- Closed Loop — The engine control mode during partial load conditions for all OBD II compliant vehicles. In Closed Loop, the ECU monitors Lambda to ensure the ratio is the federally mandated 14.7:1 standard. If the ratio is other than 14.7:1, the ECU adds or subtracts fuel to correct back to 14.7:1. If the ECU not add or subtract sufficient fuel to correct Lambda, a lean or rich DTC is generated which in turn triggers a CEL. All OBD II vehicles operate in Closed Loop for at least a portion of their load range.

IAT — Inlet Air Temperature is a measurement of air temperature after it has entered the intake system. Typically IAT will be above ambient OAT at partial load conditions, but will drop to near ambient at full load.

Ignition Timing Cyl#1 — Shows the total ignition advance the OEM ECU is running at the current load and speed. Note that this is the OEM value and does not include any additions or subtractions the Unichip is running.

Lambda — Is the ratio of air to fuel in the engine's exhaust. The chemically ideal—or stoichiometric—ratio is 14.7:1 and is mandated (by US Federal law) for all gasoline engines whenever they are in Closed Loop operation. Numerically lower numbers like 11.5:1 are richer and up to a point produce more power than stoichiometric mixtures.

Load — In the context of engine operation and control, load is how hard the engine is being commanded to work. From a control perspective, the engine exists within a table much like an Excel spreadsheet and one axis of that spreadsheet is load from a minimum value of 0% or idle to a maximum value of 100% or full load. The

other axis is speed; note that load is not related to speed and any load can exist at any speed.

Long Term Fuel Trim — Is the average of the previously accumulated short-term fuel trims being applied by the OEM ECU. Most vehicles have several long term fuel trim regions across the rpm and load spectrum. On six, eight, ten, or twelve cylinder engines, fuel trims are typically shown for Bank 1 and Bank 2 which correspond to a group of cylinders paired into a common exhaust pipe… i.e. one pipe of a dual exhaust system.

MAF Air Flow — Display the relative amount of air flowing through the air sensor from a minimum to a maximum value.

MIL Status — Shows the status of the Malfunction Indicator Light (aka the CEL) as either On or Off.

RPM — Engine rotational speed in revolutions per minute.

Speed — In the context of engine operation and control, speed is how fast the engine is turning… or rpm. From a control perspective, the engine exists within a table much like an Excel spreadsheet and one of axis of that spreadsheet is speed from a minimum of idle to a maximum or red line. The other axis is load; note that speed is not tied to load and any speed can exist at any load.

Short Term Fuel Trim — Is the real time fuel the ECU is adding or subtracting to correct Lambda. Short term fuel trims respond very quickly as load and RPM change. Most vehicles have several short term fuel trim regions across the rpm and load spectrum. On six, eight, ten, or twelve cylinder engines, fuel trims are typically shown for Bank 1 and Bank 2 which correspond to a group of cylinders paired into a common exhaust pipe… i.e. one pipe of a dual exhaust system.

Performance Calculations

Curb weight — Curb weight is the vehicle's weight with all standard equipment and fluids but not passengers or additional items in the car. Flux uses curb weight in its performance calculations but assumes the fuel tank is half full and total passenger weight is 195 pounds (88.5 kg).

Tire Size Data — Flux uses tire size data in its bhp calculations. The calculations are based upon the OEM tire size unless you enter a different value.

ZVel (Zero Velocity) — ZVel is a calibration Flux performs to compensate for accelerometer production FR installation variances to generate more accurate performance data.

DTC Codes and Information

Active Code — Active Codes are detected DTC's the OEM ECU has determined to be valid, current problems with the vehicle. An active code may or may not produce a CEL and may or may not have associated freeze frame data.

CEL — Check Engine Light which may say "Check Engine," "Service Engine," or may be a graphic depicting an engine depending upon your vehicle. The light

illuminates steady in conjunction with OBD II system DTC's to indicate an engine problem requiring driver attention. The light illuminates flashing to indicate engine detonation. CEL is sometimes referred to as an MIL for Malfunction Indicator Light.

Freeze Frame Data — Freeze frame data is a listing of the parameters which existed when a DTC was generated and are useful for troubleshooting vehicle problems. Not all DTC's have associated freeze frame data.

OBD II Code — On Board Diagnostics II is standardized fault detection and reporting, engine control, and exhaust emissions system mandated for all road going vehicles in the US since 1996. This system provides the DTC's (digital fault codes) that determine component failure and illuminates the CEL whenever the faults warrant immediate attention.

Pending Code — Pending codes are detected DTC's the OEM ECU has identified as possible problems but which have not yet occurred with sufficient regularity to warrant attention. They may be random occurrences or may represent a developing problem.

Scan — Scanning the vehicle is an active process of querying for DTC's and current system status.