THUNDER MAX

ThunderMax Software & Firmware Updates

v.051712

TMax Tuner Software - Version 2012.0.9 (Throttle-By-Wire)
SmartLink IV Software – Version 2011.4.7 or Later

TMax Tuner Software Only:
Forced Firmware Update to V2.4 For Throttle-By-Wire Units

a. The *TMax Tuner* software will automatically initiate a firmware upgrade to V2.4 when linked to a ThunderMax TBW module (Throttle-By-Wire). This process will take just under 20 minutes to complete and incorporates several new features and functions. Upon completion of the firmware upgrade, the system will now operate in TMaxII software mode. This will be identified by a blue background in the software's monitor screen.

b. If the TMax system is older, all earlier maps from TMaxI will open in TMaxII (blue screen) and can still be opened in earlier software. No special action is required for maps originally saved using earlier software.

> **If you have a later map and want to save it for use in earlier software, a command is supplied to do this.**
>
> The command for "saving" a map in the TMaxI format for customer support is found here:
>
> **Main Menu→File→Save As TMaxI Compatible Map**
>
> This command will save the file so that it can be opened normally in pre-2012.0.8 software.

c. The primary objective is to encourage customers to perform a system update. The V2.4 firmware update provides many valuable features, performance improvements and diagnostics over older firmware functions:

- New Cruise Diagnostics to mirror techniques in O.E. module when trouble shooting system as per H-D Diagnostic Manual
- Injector fault diagnostics
- New TAC (Throttle Actuation Control) Status Monitor
- Cruise Status Monitor
- Closed loop correction limit increased to be equal on both cylinders
- Fix for closed loop issue when negative corrections on rear cylinder are present
- Displays multi gear display monitor on accessory H-D Speedo or Gauge Face device.
- Added RPM and Heat Temperatures logs

- Small change in idle control on decel (slightly quicker letdown)
- Adds compatibility for latest H-D P&A Speedo cruise lamp function

TMax Tuner Software Only:
Rider Programming Mode For Throttle-By-Wire Units

This new feature allows for storing up to 5 additional base maps in the module which can be accessed and loaded without hooking up to a PC. In addition, there will be access to *(1)* adjust Speedo Cal to synch with GPS true speed and correct any discrepancy in gauge display speed, *(2)* lowering or raising idle speed, *(3)* clearing all stored learned fuel adjustments and *(4)* ability to reload running map, all without the need for a PC.

Please see the YouTube video on the TMax website for specific instructions required to utilize these functions.

Links for the demo of the new Rider Programming Mode and instructional video are provided here:

Rider Programming Mode 1: http://bit.ly/HEmwEI

Rider Programming Mode 2: http://bit.ly/HAeMXU

TMax Tuner Software Only:
Rider Programming Mode – Reserved Map Library Position #6 For Throttle-By-Wire

In the Rider Programming Mode, the Map Library feature will reserve Library Position #6 as a copy of the "Current Running Map" which was last loaded by the user via the software.
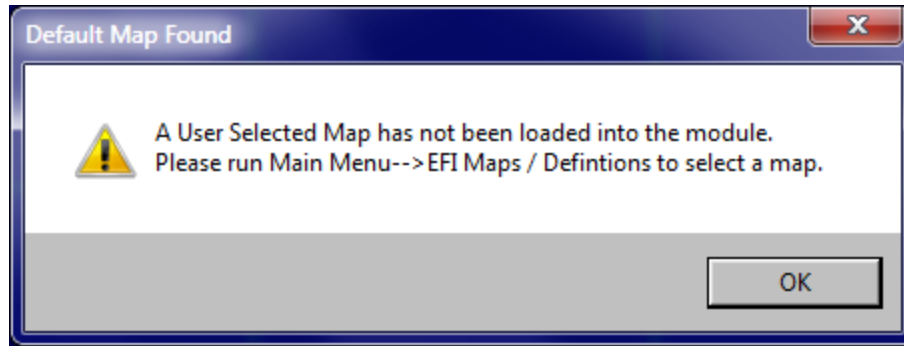
Any time the software "writes" a map to the module it "saves" this map into Library Position #6.
This allows the user to "re-write" the last map, should it be required (example: Using the library to set another map to the running position). This allows the user to return to the last map written by setting library position #6 to the running position, without connecting to a PC. This feature can be helpful in assisting those who accidently install batteries backwards, or who encounter other serious electrical failures that could corrupt a base map file.

TMax Tuner & SmartLink IV Software:
Recognition of Shipping (Default) BaseMap

A small yet important percentage of support calls are based around dealers or users not understanding the need to load a specific map calibration into the ThunderMax module for each specific motorcycle. The software will now recognize this and issue a warning to the user that the module has the shipping default BaseMap in the running position (example: TMaxDefMapXXXXXX.tbw). NOTE: This will only be valid on "newly shipped" modules.

Default Map Found

⚠ A User Selected Map has not been loaded into the module.
Please run Main Menu-->EFI Maps / Defintions to select a map.

OK

Until the ThunderMax module has the default map overwritten by a *User Selected Map*, this message will appear EVERY time a link is made through the software.

TMax Tuner & SmartLink IV Software:
New TMax Control Center Functions - Diagnostic Monitor Log

There is a selection in the tool bar for a new tool called the Diagnostic Monitor Log. This will help you monitor the entire system live, scanning and sampling for any possible mechanical, sensor problem or other issues that may exist on the motorcycle. *Dealers/Tuners - We encourage that you utilize this feature to monitor your next install so that you can observe how it works and help gauge the system's tune stability.*

TMax Tuner & SmartLink IV Software:
New Gauges - AFR Front Deviation, AFR Rear Deviation, AFR Front Target Deviation, and AFR Rear Target Deviation

 These gauges can be used to watch AFR stabilization of either "live" monitoring or replaying monitor logs. The displayed values are simple 0-14.7. **Normal values will be 0-0.3 when engine is "happily" idling.** Throttle Transitions can cause much greater AFR deviation (as expected) but under steady state throttle, the deviations should be under 0.5. The target deviation allows examination of how "well" the tune is keeping on the target. Also this deviation can help detect "slight mis-fires" as they are represented by large values (+1.0) for short moments during steady state runs (idle). Helpful in diagnosing a large variety of mechanical problems, air leaks, faulty spark plugs and many other conditions.

 If you have any questions about this feature please forward them to support@thunder-max.com.

TMax Tuner & SmartLink IV Software:
Ignition Timing vs. Engine Temp

This tuning map is now available for all users in all software platforms. It should be the primary "go to" map to reduce spark knock or pinging in standard engine combinations or engine parts that are a good match to the data base map. With known engine combinations, the assumption should always be that the ignition map curves are trusted and that any spark knock or ping is either a fuel pressure problem or it's indicative that the entire map may be too advanced for a specific engine combination. This map allows simple changes relative to engine temperature by simply moving ALL points up or down.

This map can also be used to ADVANCE Timing for those looking for additional power or additional economy (until ping/detonation is experienced).

TMax Tuner Software Only*:
Module Service Data
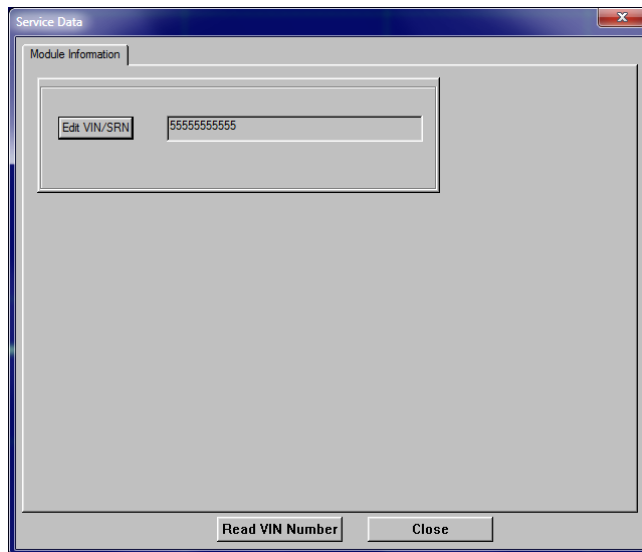
The Module Service Data Dialog is for inserting the vehicle VIN number into the TMax module. The harley scanner will now recognize the proper VIN in TBW production firmware to allow an H-D dealer tech to read the VIN of the vehicle to allow service to ABS module with the O.E. or TMax module installed.

*BETA Firmware Available by Request for SML IV For GEN II models: If you are using an H-D Accessory Speedo/Tach which requires VIN number installed and enable the 1-6th gear indicator, you can request beta firmware via support@thunder-max.com

TMax Tuner & SmartLink IV Software:
AutoMapping Archiving

When AutoMapping is performed and you would like to see the previous maps **with learned fuel offsets**, it is saved in two locations on your computer system.

First location:
C:\Users\Public\Documents\Thunder Heart\TMaxI_Tuner\Basemaps\TMaxII_Tuner
All AutoMapped files are kept for the life of the system in this location.

Second location:
C:\Users\Public\Documents\Thunder Heart\TMaxI_Tuner\SupportDataFiles
The latest 6 AutoMapped files are kept for Support Requests. Older files are purged.
The AutoMapped maps in this location are automatically sent with the support requests.
This will provide much improved "history" of offsets and the results of running AutoMap feature in the software.

TMax Tuner & SmartLink IV Software:
BaseMap Cross Referencing for "Updated Maps"

If an earlier version map is opened, the software now more effectively locates the "Updated" map.
The date in the name of the map is ignored and the "new" map is located which has the same base name.

TMax Tuner & SmartLink IV Software:
BaseMap History of Updates Includes Old Map

Map notes in the Base Map listing for each map now show the previous map # which was updated. All new map update history does and will show the previous map number.

This is most useful internally for performing map updates so that tuners or user can quickly identify older map files.

TMax Tuner & SmartLink IV Software:
Map Updates

New maps are now available in all platforms, after updating your software. Use the map update feature to obtain all of the latest additions to the library – these will automatically download through the internet.

A variety of SML IV maps have been updated with revised warm up A/F strategies. These will resolve any running anomalies experienced with cold start or during engine warm up and will improve latent heat starts.

All TMax Tuner maps have new strategies for transient fuel conditions for even greater throttle response improvements over the O.E. system; spark timing tuning has more latitude for corrections based on engine temperature.

SmartLink IV Software:
New V-Rod Platform

New Firmware is available for V-Rod engines; you must use software version 2011.4.7. Fuel pages for front and rear cylinder are now expanded to 12,032 RPM's. New and revised maps are updated to provide more stable performance in a wider variety of engine configurations. Idle speed Auto Tuning can be locked out to stabilize engines with oversize throttle bodies that may leak excessive air around the throttle blade.

TMax Tuner Software:
ACR Functionality (Automatic Compression Releases)

In Basic Settings, tuners will be able to adjust the dwell time of the H-D automatic compression releases (ACR'S) on 103, 110 and other large displacement engines equipped with them. This will allow the user to optimize the

cranking-starting event when high compression and or aftermarket cams are employed in the engine. A value of (0) means the ACR's are disabled, 1-4 increases dwell of closure to blow off compression to assist higher compression engines.

Note - This feature **is not available** in Gen II modules, engines with low compression or wide duration camshafts equipped with ACR's some engine configurations may find improved starting with 1 or both ACR's disabled by unplugging them.