



TERMINATOR X FIRMWARE & SOFTWARE REVISION LOG

Terminator X V3 Software is not compatible with Terminator X V1 or V2 ECU Firmware. To use V3 software with an older ECU version, the ECU and handheld **MUST** be updated to V3 Firmware. Opening a Terminator X V1 or V2 calibration with Terminator X V3 software, will update the calibration from V1 or V2 to V3. A V3 calibration cannot be loaded into a V1 or V2 ECU. A Terminator X V1 or V2 calibration cannot be used in a Terminator X ECU with V3 Firmware.

The 3.5" TSLCD can be used to update the ECU & the Calibration from V1 or V2 to V3 when using Handheld Firmware V3 Build 100 (tslcd35-terx.3.0.100.fwu) or later.

PC Software Version 3 Build 110

- Proper ECU Firmware Version – 3.0 build 110
- Proper 3.5" handheld Version – 3.0 build 100
- Minimum 7" Digital Dash Version – 3.0 build 2
- Minimum Pro Dash Version – V6 build 236

3.5" Handheld Updates:

- Updated wizard files

New Features:

- None

Updated Features:

- Updated reaction time minimum limit to allow for negative reaction times (red lights).
- Updated ASM speed input list to filter out trans speed when racing trans is selected.
- Added additional view only lines to ASM traction graph to give more clarity on when cylinders are being shut off.
- Updated the default TDC tooth on missing tooth wheels to align with common applications.

Software Bug Fixes:

- Fixed bugs with 1d graph axis not displaying properly.
- Fixed bugs that would cause the x axis of 1d tables to get destroyed when using MAP as the axis and having display as PSI selected as the preference.
- Fixed bugs with green trace on tables not redrawing after changing zoom in datalog.
- Fixed bug with zooming on traction ASM graph when using MPH for y axis units.

Firmware Updates:

- Fixed an issue with traction and racing trans channels showing disabled in datalogs.

PC Software Version 3 Build 100

- Proper ECU Firmware Version – 3.0 build 100
- Proper 3.5” handheld Version – 3.0 build 100
- Minimum Pro Dash Version – V6 build 234

3.5” Handheld Updates:

- Wizard updates:
 - Ford 7.3 Godzilla added
 - LT options updated
 - LT4
 - LT2
 - L8T
 - Coyote engine truck firing order added
 - Small cap HEI added
 - Injector options updated and reorganized
 - Added manual trans and 6I80E
 - Renamed LS and LT map sensor options
- General updates
 - Added support for IO channels to gauges
 - Added more descriptive TPS autaset failure information
 - Fixed an error with the C to F conversions
 - Moved transfer to base and added clear learn
 - Added ability to set date and time from handheld via Wizards screen
 - Improved ability to find update files on the SD card
 - Improved version checking to prevent use of logging, tuning, and wizards when minor version (build number) is too old
 - Updated table editors to have a “offset table” option
 - Added new boost control options to advanced tuning

New Features:

- PIN MAP TEST MODE:

- Allows for any output to be turned on to test wiring
- WARNING: misuse of this feature can cause damage to your engine or electronics.



- VIEW ALL CHANNELS:

- New button added to ribbon that brings up every active channel in the ECU at once for monitoring



- ECU UPDATE PROCESS:

- PC software will now offer to automatically download the ECU calibration before starting a firmware update regardless of the ECU version. The calibration will be downloaded and saved to the PC before starting the update if yes is selected.
- If you choose to download the calibration before an ECU update the software will automatically open it after the update completes so you can reload it to the ECU
- The download calibration option can also be accessed by using the sync dropdown and selecting the “Download Config” option
- With the addition of automating calibration download/upload to the ECU update the number of button presses during the process has been streamlined. Please read the dialogs as the wording has changed.

- TRANSMISSION TYPES:

- “Racing” transmission type added
 - Designed for racing style “air/electric” shifters and related trans controls
 - Similar to HP/Dominator but with some restrictions
 - Allows up to 8 speeds of shifter control
 - Allows for 2 spool assist valves
 - Allows for 1 converter charge “dump” valve
 - Does NOT allow for racing style converter lock up control
 - Does NOT allow for Lenco/Liberty style racing transmissions
- Manual Transmission types
 - Added support for Tremec Manual transmissions which means that speedo and reverse lockouts will function properly when used with a matching Holley harness. (Holley part numbers: 558-480, 558-481, and 558-442)
 - Transmissions supported:
 - GM T-56 / F-body / Magnum (17-tooth VSS)
 - FORD T-56 / TREMEC Magnum (12-tooth VSS)
 - TREMEC TKX 5-speed (12-tooth VSS)
- GM 6L80/90E support
 - Support for GM 6L80/90E transmissions when used with matching Holley harness and F5 flash device (Holley Part number: 558-499)
 - NOTES: CAN 2 will be unavailable for anything other than GM trans control when 6L80 is in use.

- NEW BOOST CONTROL OPTIONS

- Open Loop Duty Cycle mode added. Same as found in HP/Dominators
- Dome Control PIDs now have dropdown options available for slow, medium, and fast along with “custom” so you can still adjust them yourself.
- Boost Vs Dome Pressure mode
 - This brand-new mode allows you to select a maximum boost in addition to your target dome pressure value. If the max boost value is exceeded dome pressure will be decreased until boost is below the max boost value.
 - SEE INSTRUCTIONS FOR MORE INFORMATION

- TRACTION CONTROL ICF NOW AVAILABLE

- A newly reconfigured traction control ICF has been added to the ECU. It includes the following traction control types.
 - NEW: Wheel Slip (front vs rear)
 - Time Based (perfect pass)

- Davis Technologies Profiler
 - Davis Technologies TC2
 - Any combination of the above types can be used at the same time
- NEW CLOSED LOOP “ADVANCED” PARAMETERS
 - New page added to closed loop parameters screen
 - New page includes several advanced parameters that can be fine tuned to adjust the transition to and from open loop.
 - New parameters are below, see instructions for more information:
 - Stay closed loop while TPS is above
 - Closed loop AE delay
 - RPM above idle for closed loop while closed throttle
 - Closed loop decel delay while part throttle (>2%) and rich
 - Closed loop decel delay while part throttle (>2%) and lean
- MISCELLANOUS ADDITIONS
 - System ICF:
 - CAN BUS 2 Added to Basic IO screen. Only works with Terminator X MAX. This allows expanded use of Holley CAN products and 3rd party CAN devices.
 - PWM Alternator Support added to Basic IO Screen. When used with a matching Holley harness it allows for direct control of the charging voltage. (Holley part numbers 558-475 and 558-476)
 - A Global Min and Max timing limit has been added to the Ignition Parameters. Delivered ignition timing can never exceed these two values no matter what.
 - Fuel Stoich parameter added to Engine Parameters screen.
 - This is an advanced parameter, do not use this unless you know what stoichiometry is.
 - Staging Output now has a single advanced enable criteria available
 - Fan Output “Engine Running Only” option added and screen re-organized

Updated Features:

- DATA LOG AND MONITOR:
 - You can now search for a channel when in the data monitor and graph file setup screens.
 - You can now hide unused channels in the data monitor and graph file setup screens.
 - You can now sort the channel list alphabetically while in the data monitor and graph file setup screens.
 - Line color is now selectable as part of the channel settings screen (min, max, auto scale dialog)
 - Line color is now saved when a user changes it.
 - Channel settings (color, scaling, etc.) stay with channel when sorted within a layout
 - There is now a “Toggle On/Off” button that will turn all lines on or off in the current data log view
 - There is now a “Reset Setting” button that will change all of the current view’s channel settings back to the channel defaults when pressed.
 - New Lambda and Target lambda channels added to data monitor and data logs
 - Comparison logs can now be toggled off/on by pressing CTRL + S or going to the comparison menu → Show comparison
 - The Diagnostic type parameter has been added under the ECU Configuration screen
- GENERAL VVT IMPROVEMENTS:
 - Added a feed forward and time delay after start parameters to all supported VVT applications
 - Added user control over VVT settings on Gen V LT applications
- UPDATED DIRECT INJECTION CONTROL:
 - Added parameters for number of pump lobes and a fuel pump multiplier parameter.
 - Fuel pump multiplier is used to adjust for oversized fuel pump lobes
 - A separate GDI controller update is required and includes many updates to improve GDI control and the overall user experience. Including oversize fuel lobe support, faster startup times, and more.
- TRANSMISSION UPDATES
 - Added the “Advanced” screen for timing reduction during upshifts (similar to HP/Dominator)
 - NOTE: Time scale is 3.0, which is longer than HEFI
 - ECU Controlled 4 speed Torque Converter Lockup improvements
 - Added new “time in gear before lockup” parameter to the TCC Parameters page
 - It will be used to delay the lock up clutch application after a shift
 - TCC functionality has been updated on 4 speed transmissions to support the newly added parameter (see instructions for more info)

New Applications:

- GEN V LTx
 - Engine support added for:
 - LT4
 - L8T
 - LT2
 - New Fuel System Dropdowns
 - L8T
 - LT2
 - New fuel injector options
 - LT5
 - L8T/LT2
 - L82/L84/L87
 - New VVT subtypes
 - L82/L83/L84 5.3L (renamed from L83)
 - L86/L87 6.2L (renamed from L86)
 - LT4
 - L8T
 - LT2
 - LT5
- Ford 7.3L “Godzilla”

NOTE: Requires #558-474 Godzilla Crank Trigger Module

 - New Ignition types
 - Ford 7.3L Godzilla
 - Custom Ignition: The following combinations will work
 - Ford 58x Godzilla crank ONLY works with Ford 4x (Godzilla) and Single pulse cam options
 - Ford 4x (Godzilla) cam ONLY works with Ford 58x Godzilla crank, 12-1, and 1 pulse/fire crank options
 - New CTS and Oil PSI dropdowns added
 - New OEM Injector data dropdown added (60psi)
 - New VVT engine type and subtype added

Software Updates

- Added tooltips to show hotkeys where appropriate (new shortcuts in bold)
 - **Open Global File Properties (Notes) CTRL**
 - **Show/Hide second Pane = ALT+P**
 - **Base Fuel Table = ALT+F**
 - **Learn Table = ALT+L**
 - **Target AFR Table = ALT+Z**
 - **Accel Enrichment = ALT+A**
 - **Startup Enrichment = ALT+X**
 - **Engine Parameters = ALT+E**
 - **Ignition Parameters = ALT+T**
 - **Spark Table = ALT+S**
 - **Boost Settings = ALT+B**
 - **Nitrous Settings = ALT+N**
 - **Shift Parameters = ALT+C**
 - **DBW Parameters = ALT+D**
 - **IAC Settings = ALT+I**
 - **TPS Autoset = CTRL**
 - **Enable static timing check = CTRL**
 - **Show/hide comparison lines CTRL+S**
 - Toggle Overlay = ALT+O
 - Fill row = R
 - Fill Column = C
 - Fill Selected = F
 - Offset = O
 - Smooth = S
- Renamed and fixed order of Map sensors: All sensor limits and scaling are unchanged, only the name was updated to better reflect user needs
 - Changed "GM LSx MAP" to "Gen III LS1/6 (97-09) 1 Bar" and moved it below "Custom MAP" in the list
 - Changed "PN 12591290 1 Bar" to "PN 12591290/12594942 1 Bar"
 - Changed "PN 12594942 1 Bar" to "Gen IV LS3/7 (2005+) 1 Bar"
 - Changed "PN 12644228 1 Bar" to "Gen V LT 1 Bar"
 - Changed "PN 12592525 2.5 bar" to "PN 12592525 2.5 bar (LS9)"
 - Changed "PN 12644807 3.5 bar" to "PN 12644807 3.5 bar (LT4)"
 - Changed "Chrysler 56041018" to "Chrysler 56041018 1 Bar"
 - Changed "Chrysler 05033224" to "Chrysler 05033224 2 bar"
- A Lambda view check box has been added to Target AFR table. When checked it will use the stoich parameter from the system ICF to convert to a lambda value
- Changing fuel type now offers to update the Target AFR table and also the base fuel table if appropriate
- Changed AFR parameters and channels to show two digits after the decimal. (14.70 vs 14.7)
- The Injector end angle table now has an "advanced" mode that unlocks axis to be user adjustable
- The injector end angle table will now say start angle when used with GDI Controller
- Changed "TPS to start modulation ramp" range from 50-100% to 1-100%
- Added new sensor types
 - Racepak Vacuum sensor
 - AEM 12 position switch
 - MAD Racing Laser Ride Height
- .graph file now also sent when emailing tunes/logs
- Graphs now have option to remember orientation with a right click. This will apply on a per graph basis meaning that each graph will remember its own position.
- Select all button added to the base fuel table. Can be toggled by pressing the empty space in the bottom left corner of the table.
- Added new preference options
 - Log file chunk size. Used to change how large a logfile is before splitting it into separate files. (bigger number is longer log)

- Message timeout
 - Error retries
- Updated the background color on table axis to make highlighting more easily visible
- Added Axis labels to all 1D graphs
- Reduced precision from 3 decimals (1.234) to 1 decimal (1.2) on the fuel flow based advanced tables
- 2d Per Gear advanced tables resized slightly to make numbers easier to read
- Software now more accurately informs users when they open a logfile from another software such as Hp/Dominator or Sniper
- Updating ICFs dialog now defaults to “do not ask again” being checked
- Updated icons on ribbon
- Renamed FIC 1100H to FIC 1200H per vendor request
- Added versioning to .graph files. This means if you try to open your older V1 or V2 graph files the software will automatically convert them.

Software Bug Fixes

- Fixed an issue that would cause tables to turn white or flicker while online.
- Fixed 2nd pane reactivity not working on various screens
- Sensor offsets were always being applied in the sensor ICF even when not shown. We now always show the offset in sensor ICF when it is in use, which is always.
- Fixed an issue offsetting axis values by any amount greater than the difference between adjacent cells. Doing so was causing a runaway condition that led to the axis being blown out to the axis maximum value
- Fixed a bug with autoscaling on the boost vs gear graph that caused it not to update properly.

Firmware Updates:

- Fixed a bug when using Individual Spark timing with Waste Spark ignition types
 - When using custom ignition with waste spark it would use the higher of the two ICT values, now it uses lowest like “canned” ignition types
- Fixed a bug that would cause injector pulse width to go to zero near 100% duty cycle.
- Additional fixes and improvements with DBW to better handle GT500 throttle bodies
- If wideband reads near max lean (>2.3 lambda for .25 seconds) the ECU will now force open loop
- TPS RoC calculation improved to better reject noise. This should make idle “jitter” less likely to cause AE events.
- TCC lock/unlock behavior changes:
 - TCC bug that would cause TCC to unlock during shift fixed
 - TCC lock/unlock is now calculated sequentially with shifts. Meaning that Unlock, shift, lock is now handled as discrete events that require the previous timers to be expired before the next will be commanded