EMU PRO CHANGELOG

2025-12-08

Client: 226.0 public release
Firmware: 226.0 public release

Firmware:

New features:

- Thermostat control strategy added
- Oil pressure regulator added
- Added SENT source option for position sensors

Fixes:

- CO2 boost vent output is working correctly
- Fixed an issue with fuel film when firing order had assigned more cylinders then the specified cylinders count
- Calibration tables are now visible for temperature sensors when SENT source is selected

Client:

Improvements:

- Desktops and Graph Log tabs now resize when the window is scaled, ensuring all tabs remain visible
- Improved client startup time and overall performance
- Assigned Outputs / Inputs: added support for custom names for outputs and switches
- Assigned Outputs / Inputs: connector pin numbers are now included in exported files
- Smart Grid: improved conflict handling when assigning outputs; hidden outputs no longer cause conflicts

2025-11-10

Client: 225.1 public release
Firmware: 225.1 public release

Firmware:

Fixes:

- Resolved a rare stability issue that, in specific conditions, could result in an ECU restart.

- Restored the “CAN” option in the Fuel Pump Output dropdown (issue introduced in version 225.0-beta).

Client:

New features:

- Copy/Paste tables data from/to Excel (or other spreadsheets)

Changes:

- Added option ”Zoom after selection with double-click”

Fixes:

- Resolved an issue where .CANX files saved from the CANbus Transmit dialog could not be loaded by the ADU/PMU Client (30 characters limit).

2025-11-03

Client: 225.0 beta
Firmware: 225.0 beta

Firmware:

New features:

- Added “Wait for synchronization” parameter for high-pressure pump cranking behavior. When disabled, the pump operates asynchronously before synchronization to build pressure faster if the measured rail pressure is below the startup minimum.
- Added Mini R56 N14 PWM high-pressure fuel pump support
- Added BMW EKP E90 fuel pump support
- Added LIN water pump (Pierburg CWA400) current speed channel
- Expanded firmware diagnostics and monitoring

Improvements:

- Faster engine start - when using the Signal Level secondary trigger pattern, the engine can now synchronize on either the odd or even phase, potentially eliminating one unnecessary crankshaft rotation during startup
- BMW E90/Mini R56 - extended CAN stream
- DSG - improved current gear interpretation
- Added *Bore and stroke* mode for high-pressure pump displacement configuration
- Added *Engine revolutions after delay* channel used in *Cranking Fuel Volume correction* table
- Changed names of *Volumetric efficiency adder* and *Lambda target adder* corrections in VVT strategy

Fixes:

- Disabling *Fuel compression compensation* strategy does not interrupt pump *Control* calculations anymore.
- Paddle shift – *Custom limp activation channel* is ignored now when not used

Client:

New features:

- Added injector preset system providing calibration data for direct injectors measured by Ecumaster.
- Logging presets can now be exported and loaded, making it easier to transfer logging frequencies between projects.

Improvements:

- Smart Grid, Text Log, and Tune Display now show “No data” or “Log off” instead of the generic “?”, providing clearer status reporting
- Reduced Client application startup time.

2025-07-31

Client: 222.0 beta
Firmware: 222.0 beta

Firmware:

New features:

- Added option to select whether Fuel Rail 1 or Fuel Rail 2 is used during cranking
- LIN Wipers added (Ford Fiesta, Toyota Supra MK5, Bosch WDA)
- LIN Water pump added (Pierburg CWA400)
- LIN Alternator diagnostics – “Slave not responding” added
- Added new Gap Detection options in Trigger Primary for engines with a high compression ratio

Improvements:

- Added initialization state for Throttle Position Sensor diagnostics when a SENT-over-CAN sensor is configured. This gives the GDI driver a 2-second startup window to start sending SENT data
- Added initialization state for Accelerator Position Sensor diagnostics when using a Custom Voltage or Custom Value channel.
- Added APS, TPS1 and TPS2 Initialization states to DBW Safety State
- DBW Target Keeping Error is no longer triggered when DBW is disabled due to another error.

- Coolant pressure and crankcase pressure sensor can now be calibrated with sensors up to 10 bar (before limited to 5 bar)
- Switches Activation latching modes renamed
- Coolant fan / Activation / Vehicle speed max – maximum value increased to 500 km/h

Fixes:

- EMU BLACK CAN Stream – Fuel consumption value fixed
- Custom latching switch – state is now visible in Smart Grid panel

Client:

Improvements:

- DBW Tuner now supports throttle position sensors with an inverted (falling) main signal characteristic
- Improved DBW Tuner compatibility with throttle bodies where the limp position is 0%

2025-05-29

Client: 220.1 beta
Firmware: 220.1 beta

Firmware:

New features:

- Cylinder head temperature sensor added
- Wastegate temperature sensor added
- New secondary trigger: “Signal level” for BMW N52

Improvements:

- Nitrous:
  - Separate activation and deactivation delays for fuel and ignition corrections
  - Added PWM jet output control
  - Added ramping for fuel corrections
  - Added activation delay and reactivation delay parameters
- Overrun:
  - Added cylinders cut and DBW target override
  - Added activation delay parameter

    - Improved ignition ramping
- Coolant fans can now be activated in the event of a CLT sensor error
- Gear position sensor – added *tolerance engage factor* parameter
- Cranking start delay is a table now
- Paddle shift – added *Pulse length ramp* mode for Neutral selection for 1-N-2 (motorcycle) gearboxes
- DC motor control – added *Rate max* parameter for limiting the duty cycle rate of change
- DC motor and stepper motor position sensors – sensors can read values below 0% and above 100% for better control at the end of the range
- Vehicle Specific CAN Stream:
    - VW (PQ35) – Launch Control improved
    - VW MQB – Launch Control improved, brake pressure added

Fixes:

- H-bridge PWM – fixed wrong duty cycle that could be generated for one cycle when changing directions
- Fixed SENT error and PULS error state behaviour for the Oil temperature sensor
- PULS sensor is available as a source for the Oil temperature sensor again (an issue introduced in FW 212.0)

Client:

Fixes:

- Fixed the loading of an encrypted project onto a device locked with the same password without typing that password.
- Project Tree – CANbus Transmit Frame: fixed an issue where the “16-bit signed” and “16-bit unsigned” types were swapped in the user interface.

2025-04-18

Client: 219.0 beta
Firmware: 219.0 beta

Firmware:

New features:

- Automatic planetary gearbox: added support for GM 4L60E and GM 4L80E
- Automatic planetary gearbox: added support for torque reduction and blip

- Custom stepper motor: Closed loop mode added
- New primary trigger: Renault 5 - 2*(22-2)
- Custom Outputs and custom switches: added support for user-defined names

Improvements:

- DSG protocol for Seat Leon Cupra III (MQB): RPM matching and torque values improved, Idle RPM target added, clutch status fixed
- Automatic planetary gearbox: more advanced shifting algorithm
- LIN: better performance

Fixes:

- Fixed ignition problems that occur at high RPM and long dwell times in rotary engines
- Custom stepper motor no longer loses steps in certain conditions
- Fixed an issue where the "Trigger Ignition Intervention" channel incorrectly increased with every trailing spark
- Fuel film will not be disabled when staged injection is used and the first rail is switched off
- Automatic planetary gearbox: fixed incorrect ramping of line pressure when shifting from park/neutral
- Automatic planetary gearbox: fixed incorrectly calculated internal and torque converter slip

New OEM CAN Stream:

- Subaru Impreza III (GH) experimental.

Client:

New features:

- Connector pin numbers are now shown in Assigned Inputs/Outputs windows

Fixes:

- Fixed an issue with value conversion in the Fuel Rail 2/3 Injection angle Base table during update. When updating a project from a version below 200, the table values were incorrectly reset to default

Client: 217.0.1 experimental **2025-02-17**

Firmware: 217.0 experimental

Firmware:

New features:

- VVT: Added ‘Duty cycle deadband’ for dual solenoid VANOS
- Support for BMW S55/N55 setups with a high-pressure pump position sensor.

Client:

Improvements:

- Scope graph: added support for BMW S55/N55 setups with a high-pressure pump position sensor.

2025-02-27
Client: 216.1 public release
Firmware: 216.1 public release

Firmware:

Fixes:

- Fixed an issue with USB flash drive logging that caused random log corruption on some EMU PRO units.

2025-02-07
Client: 216.0.2 beta
Firmware: (no changes)

Client:

Improvements:

- Project Tree: Added support for compound/multiplexed streams in .CANX and .DBC file imports
- Project Tree: Added support for units in .DBC file imports
- VE Tuner now supports external lambda controllers and correctly calculates values at table edges.

2025-01-23
Client: 216.0.1 public release
Firmware: (no changes)

Client:

Fixes:

- Removed a misleading warning about the GDI strategy being in a confidential alpha stage. GDI support is public and fully functional since version 216.0.

2025-01-16

Client: 216.0 public release
Firmware: 216.0 public release

Firmware:

Improvements:

- Clarified the structure of Smart Grid elements for high-pressure pumps
- Audi Valvelift System now sets the initial position after engine start
- The default Ignition Latency value has been changed to 40 us for new projects

Fixes:

- Gearbox speed sensors now function correctly (issue introduced in FW 212.0)
- Cranking build pressure minimum setting now operates correctly (issue introduced in FW 215.0)
- Absolute torque values in DSG (PQ35) are now being calculated (issue introduced in FW 212.0)
- Corrected a typo in the Ignition Latency unit

Changes:

- Increased the range of the Air conditioning pressure sensor to 5000 kPa g

2025-01-10

Client: 215.0 release candidate (RC1)
Firmware: 215.0 release candidate (RC1)

Firmware:

New features:

- Added Diagnostics Position Target Override functionality for the Boost EWG actuator.
- Introduced over-max pressure and over-margin pressure protection for GDI high-pressure fuel pumps.

Improvements:

- Fuel Short-term trim: now accepts negative temperatures for *Activation / Engine coolant temperature min*
- Added additional internal protection for high-pressure pump control code to prevent damage if an output is powered more than 300 ms.
- Increased the maximum value for the *Fuel Compression Compensation Target Fuel Volume Offset* Table.
- Behavior for injection exceeding the maximum length window for GDI systems is now adjustable.
- Added *Fuel Volume Bank 1* and *Fuel Volume Bank 2* channels
- Improved DSG protocol for Seat Leon Cupra III

Fixes:

- The USB logger “corrupted logs” issue was corrected (issue introduced in FW 212)
- Fuel Compression Compensation is now correctly initialized before cranking the engine.
- Proper control value is now applied for pump control correction equal to -100%
- Boost EWG actuator duty cycle is set to 0 when the engine is off
- Protection for injection exceeding the maximum length is now supported also for systems with two pumps

Changes:

- The *Fuel Volume* channel now provides the average fuel volume from all cylinders

Client:

Fixed:

- Pressure values are now correctly displayed when loading logs from older firmware versions (below 200.0). This includes the Baro, Pre-throttle, Exhaust, and Wastegate dome pressure sensors.
- The "Sensors / Throttle Position 2 / Source" is now properly initialized to "Analog Input" when converting projects from older firmware versions (below 200.0).

2024-12-30

Client: 214.0 beta
Firmware: 214.0 beta

Firmware:

Changes:

- Simplified High pressure pump configuration: *Delivery angle characteristics*, *PID*

configuration, *Control correction*, *Control adder* and *Fuel correction compensation target fuel volume offset* are always common between Pump 1 and Pump 2

- "Delivery when unpowered" pumps:
  - Terminology change: the *Hold angle* was changed to the *Margin angle*.
  - Scope recording: the scope events now show when the hight-pressure pump output is powered

Fixes:

- Fixed receiving frames for DSG (PQ35) CAN stream.

NOTE: Some features are still in the experimental phase:

- 'CO2 dome pressure target' in Boost / Mode
- 'Automatic planetary' in Gearbox / Type

Client:

Improvements:

- Scope graph:
  - high-pressure pump TDCs are now showing correctly when a reference VVTI camshaft is moving
  - added visualization of *Dead time*, *Delay time*, *Margin angle* and *Hold angle* for high-pressure pumps events

Fixes:

- When opening project files, the engine-off status is properly detected, even if the logging is paused

2024-12-20

Client: 212.0 beta
Firmware: 212.0 beta

Firmware:

New features:

- **Direct injection support** (with GDI Driver)
- **SENT over CAN protocol support** (with GDI Driver)
  - Available as a source for TPS, APS, Pressure sensors (except MAP), Temperature sensors

- Ignition Latency added
- Audi Valve Lift support added
- LIN alternator control – support for Suzuki Jimny IV
- MAF sensor over frequency input

Improvements:

- Added *Injector Pulse Width Effective* channel – used for *Short Pulse Adder* pulse width correction
- Increased accuracy of the Injector *Dead time* table
- Increased accuracy of the *Baro pressure*, *Pre-throttle pressure*, *Exhaust pressure* sensors, Wastegate dome pressure
- Increased *TPS Main Max* Range to 110%
- Injection angle can now be set separately for each fuel rail
- Added *Automatic* mode for Staged injection
- Added *Fuel volume min* parameter for injector configuration

New OEM CAN streams:

- Suzuki Jimny IV
- VW MQB Vehicle and DSG CAN (tested on Seat Leon Cupra III)
- Polaris RZR PRO R

NOTE: Some features are still in the experimental phase:

- 'CO2 dome pressure target' in Boost / Mode
- 'Automatic planetary' in Gearbox / Type

Client:

New features:

- Scope window: “Show raw ignition latency” button added to the toolbar
- Scrollbar added to the Smart Grid panel

Changes:

- The terminology was changed from 'Upgrade firmware' to 'Update firmware' to better reflect that firmware downgrades are also possible.

2024-12-17

Client: 116.2.1 public release
Firmware: 116.2 (no changes)

Client:

Fixes:

- Project Tree: Fixed a project memory corruption when user elements were moved up/down or deleted.

NOTE:

Some firmware features are still in the experimental phase:

- 'CO2 dome pressure target' in Boost / Mode
- 'Automatic planetary' in Gearbox / Type

2024-11-29

Client: 116.2 beta
Firmware: 116.2 beta

Firmware:

New triggers support:

- Lamborghini Gallardo 5.0: 36-1-1-1-1

Improvements:

- Increased memory for user elements (user tables, numbers, etc.) by 10%
- Maximum boost pressure target increased to 10 bar
- Added GPS Speed channel
- Improved the accuracy of the internal event queue

Fixes:

- H-bridges - reinitialization no longer causes a watchdog reset (second fix)
- H-bridges testing – active state is taken into account during testing
- Custom DC motor – duty cycle channel minimum value changed from 0 to -100

NOTE: Some features are still in the experimental phase:

- 'CO2 dome pressure target' in Boost / Mode

- 'Automatic planetary' in Gearbox / Type

Client:

New features:

- Added notifications for experimental features

Improvements:

- Smart Grid – Look and Feel improvements
- Smart Grid – Channels and resources configuration can now be hidden
- Improved display of testing options for Aux, H-Bridge and Digital input resources
- New icon for the Scope panel

2024-10-28

Client: 115.2 experimental
Firmware: 115.2 experimental

Firmware:

Fixes:

- Synced H-bridges initialization do not cause watchdog reset anymore
- Synced H-bridges are initialized correctly for Boost electronic wastegate
- Fixed trailing spark angle precision for Porsche 129/132 and BMW 116 primary triggers

Client:

Fixes:

- Fixed a rare crash that occurred when an invalid value was entered for axis range in the Graph Log
- Resolved Z-axis channel corruption when using a custom user channel

2024-10-23

Client: 115.0 experimental
Firmware: 115.0 experimental

Firmware:

Change:

- H-bridge current limit works correctly now. In previous versions H-bridge current limit was always set to 6.6A

New features:

- Boost - control with CO2 dome pressure over dual actuators mode added
- Automatic planetary gearbox support – added experimental support for Toyota A340 gearbox
- Gear selector – added positions „Low”, „1st”, „2nd”, and „Overdrive disable”
- Rear axle – added group in Drivetrain category with information for automatic gearbox control
- Two synced H-bridges outputs possible for Boost EWG and custom DC motor to increase maximum output current
- Knock detection – two modes: *fixed* and *table* for integrator time constant added
- VIN over OBD2 (menu Tools / Set vehicle VIN…)
- Gearbox input and output speed sensors added
- Gearbox line pressure sensor added
- Oil level sensor added
- PULS oil level and temperature sensor support added
- GPS sensor added
- Native ECUMASTER GPStoCAN support added for sensors: GPS, IMU Accelerometer, IMU Gyroscope and Vehicle speed.
- ECU Delayed turn off
- Corvette C6 CAN Stream
- Nitrous Manifold pressure activation parameters
- Project Tree: Timers added

Improvements:

- Gear selector is moved from Switches to Drivetrain category
- PIT Limiter – added *Max speed error to activate* parameter
- Trailing spark works with 4-stroke and 2-stroke engines
- *Afterstart* and *after start* channels names are unified (to *afterstart*)
- Added belt temp variable for Can-am
- Added *Diagnostic speed max* parameter for Wheel speed sensors
- Added narrowband voltage simulation for OBD2
- H-bridges testing improved

Fixes:

- *ECU Meters Odometer* is working correctly
- *Idle air flow correction* works for values below 0
- *Idle air flow corrections source* channel works correctly now
- Idle Air flow channel is displayed correctly
- Injector duty cycle is calculated correctly for Rotary and 2-stroke engines
- Fixed wideband lambda sensors redout, lambda sensors presence in OBD2
- Steering wheel angle works correctly in Evo X CAN Stream
- Turboshaft speed is now always correctly calculated, even when the CPU load exceeds 100%

Client:

New features:

- Added crosshair in 3D table view
- Tables can now be added as separate panels directly from the Smart Grid
- Enumeration labels are now visible on table axes for certain channels

Improvements:

- Smart Grid state is now correctly preserved when switching between tabs
- Improved sizing of newly added panels
- Added help for resources

Fixes:

- Fixed an issue where the F1 key did not display the help panel
- Fixed a bug causing the Tune Display (floating) to be hidden when dragged off-screen
- Fixed inconsistent history behavior in the Help Panel
- Fixed incorrect behavior when removing rows/columns in tables

2024-08-02

Client: 112.0 experimental
Firmware: 112.0 experimental

Firmware:

New OEM CAN streams:

- Polaris *2023 Turbo RR with Dynamix DX*

2024-07-26

Client: 111.0 experimental
Firmware: 111.0 experimental

Firmware:

New features:

- Support for Ecumaster keyboards: 6x1 and 5x3MT with encoders.
  Note: Detailed documentation is available to help you unlock the full potential of the 5x3MT keyboard: https://www.ecumaster.com/files/EMU_PRO/How-to/How-to_Configure_5x3MT_Keyboard_in_EMU_PRO.pdf

Improvements:

- 200 custom x8 user channels (increased from 100)
- Per-cylinder trims for ignition/fuel in the form of scalar or 2D/3D/4D maps
- Short-term fuel trim PID gains changed from a single value to tables with exhaust flow as an axis

New OEM CAN streams:

- Clio
- Clio 3

New triggers support:

- Audi 135 teeth
- BMW E30 M3 116 teeth
- Porsche 129 teeth
- Porsche 132 teeth

2024-07-24

Client: 110.6 public release
Firmware: 110.6 public release

Firmware:

Fixes:

- Short pulse adder calculation is correct now (an issue introduced in version 103.0)
- *Short pulse adder* and *Dead time* tables have correct axis for *Rail 2* and *Rail 3*

Client:

Improvements:

- The yellow „Make Permanent” status remains visible until the task is completed on the device.

2024-07-18

Client: 110.5 release candidate (RC2)
Firmware: 110.5 release candidate (RC2)

Firmware:

Fixes:

- Low oil pressure protection: Correct state displayed after „Blocked: engine runtime low”
- The trigger system no longer detects engine stop at the beginning of the cranking when the Nominal Teeth Count is small (e.g. 2)

Improvements:

- Low oil pressure protection works also with low pressure switch

2024-07-09

Client: 110.3 release candidate (RC1)
Firmware: 110.3 release candidate (RC1)

Firmware:

Fixes:

- DBW: Spring force duty cycle base channel value is correct now
- VW: Traction control off switch is handled correctly now
- VW: Vehicle speed is sent correctly
- Cranking: prime pulse is now working correctly when the activation is set to 'On first trigger signal'

Client:

Improvements:

- Smart Grid: increased text indent and improved DPI scaling for better readability

Fixes:

- Blip tables for DSG configuration are back visible (an issue introduced in version 110.0)
- 10-bar pressure sensors are configured properly now

2024-04-30

Client: 110.0 beta
Firmware: 110.0 beta

Firmware:

Change:

- **Primary trigger decoder '36-2-1: Mitsubishi EvoX' was changed:**
  - **Prior to firmware version 110.0, the spark was retarded by 10 degrees on two cylinders. After updating the firmware please check:**
    - **base ignition table (Ignition Angle Base)**
    - **per-cylinder corrections (Ignition Correction Per cylinder)**

New features:

- New Rolling Launch Control strategy
- New Cruise Control strategy
- Flex fuel sensor: *Custom value channels* as Source available
- Ignition: Custom correction table added
- New primary trigger decoders:
  - Mitsubishi 3A92 (36-2-1-1)
  - 2*(30-2)

Improvements:

- VW:
  - Cruise control steering wheel buttons support added (removed GRA_Haupschalt, GRA_Recall, GRA_Neu_Setzen from 'DSG/Diagnostics' channel)
  - Custom kickdown switch available
- Nitrous: Negative fuel correction available
- Launch control: Ignition control possible to be disabled

Fixes:

- Correct *Fuel volume* channel value when fuel cut
- *Boost/Target/Corrections* channel has correct value for target limits
- Launch control: *RPM Target base* channel has the correct (non-zero) value

Client:

New features:

- The Graph Log, Smart Grid, Scope and VE Tuner panels can be called directly from the application toolbar

Improvements:

- Smart Grid: Added support for right-clicking
- VE Tuner can automatically resize Bank 2 Volumetric efficiency table

Fixes:

- Fixed a rare issue with the Help Panel not showing content after loading a project or connecting to a device
- A crash has been corrected when loading a log file from a different firmware configuration.

2024-03-28
Client: 103.1 experimental
Firmware: 103.1 experimental

Firmware:

Fixes:

- Values are now correctly assigned to the Project Tree elements. (Corrected a bug where values for Keyboard Buttons and Logical Functions were mistakenly swapped, for example).

2024-03-22
Client: 103.0 experimental
Firmware: 103.0 experimental

Firmware:

New features:

- Added second volumetric efficiency table for independent bank tuning.
- Closed loop fuel pump control
- Accelerator sensor – Digital input, Custom value or custom voltage channel possible as input source.
- The capability to send BT CAN Stream for cooperation with BT module has been added.
- New vehicle CAN Streams:
  - BMW E46
  - BMW E46 M3
  - BMW Z4
  - BMW E90

- Added Custom DC motor strategy.
- Boost control strategy: added support for electronic wastegate with a return spring.
- Five more Custom outputs added (from F to J).
- Idle double PWM valve can be used with outputs other than H-bridge.
- Support for additional trigger wheels:
  - Primary trigger: HONDA J35A8
  - Secondary trigger: HEMI Gen III
  - Secondary trigger: Nissan GTR R35
  - Secondary trigger: generic decoder “Factor sequence”
  - Secondary trigger: generic decoder “Shorter than factor”

Improvements:

- Coolant temperature range extended to 250 degrees C.
- Lambda target range extended to 6.0 (for use with hydrogen).

Fixes:

- 'Invert output' parameters are not displayed anymore when not used.
- Rail count for stage injection was not disabling the unused rails.

Client:

Improvements:

- VE Tuner – modified to handle two Volumetric efficiency tables
- Smart Grid: Values column width now dynamically scales with panel size
- Added support for right-clicking on the empty desktop

Fixes:

- Resolved unit handling for table-related channels in the Graph Log

2024-03-06

Client: 102.0 public release
Firmware: (no changes)

Client:

Fixes:

- Graph log axes grouping works properly with user-defined channels (fixed issue introduced in version 102.0 RC1).
- DPI scaling of 2D tables and device name works properly

Improvements:

- Minor messages content changes in the APS tuner

2024-02-07

Client: 102.0.1 release candidate RC2
Firmware: (no changes)

Client:

Fixes:

- Table axes generation - fixed an issue with minimal and maximal values when using imperial units system
- Pressure sensor calibration and failsafe values now convert properly to imperial units
- 8-bit channels are now always properly logged to the Client (fixed issue introduced in version 102.0 RC1).
- Resolved the out-of-memory error when working with long log files (this is the second fix).
- UI - fixed an issue where two panels remained active when switching between tabs that shared the same panel.

2024-02-01

Client: 102.0 release candidate RC1
Firmware: 102.0 release candidate RC1

Firmware:

Improvements:

- Correct value of 'Idle Air flow Stepper motor Steps' channel
- Cranking fuel volume correction – increased range from 0-250% to 0-2000%
- Value for pressure sensors set correctly when source is *Vehicle specific CAN Stream*
- Changed default axes for e.g. Cranking Volumetric efficiency, Boost Control Pressure Base, … to 'Sensors Throttle 1 position'

Client:

New features:

- Added support for imperial units. To change units system go to *General Options* window.
- Table Editor: Added "*Save File...*" and "*Load File...*" commands. Right-click on the cells and select the desired command from the menu.

Improvements:

- VE Tuner – completely redesigned, now it is available as a panel. Additional data calculation and user experience improvements

Fixes:

- VVT Tuner – 'Primary trigger start tooth' is calculated correctly for VANOS with exchanged outputs
- Resolved out of memory error when working with long log files

2023-11-21

Client: 101.1 experimental
Firmware: 101.1 experimental

Firmware:

Improvements:

- VW Specific CAN stream – brake pressure sensor received from ABS module
- Failsafe value for pressure sensors set correctly when unused
- Value for pressure sensors set correctly when source is *Vehicle specific CAN Stream*

Client:

Fixes:

- A bug that caused some channel values to not display correctly has been corrected (this was a regression in version 101.0).
- Project Tree: CANbus Transmit dialog: Save CANX file button is now properly handle multiple bitfields of the same channel.

2023-10-23

Client: 101.0 experimental
Firmware: 101.0 experimental

Firmware:

New features:

- Boost target based on turbospeed
- Anti lag: fresh air valve support

Improvements:

- Changed default axis for Cranking Volumetric Efficiency
- Gearbox: Changed default values for restore rate in *Rpm matching* and *Blip/Post-shift cylinders cut*

Fixes:

- Gearbox:
  - 'low actuator pressure' error is not generated when Pre-actuator pressure diagnostics is not OK
  - Improved error statuses priorities
  - Gear shift timer is calculated correctly for Down Shift Recovery and Blip Recovery states
  - Shiftec – communication with the module is using the Torque Driver instead of Torque Actual parameter.
  - DBW Target is not changed when Gearbox blip method is set to value other than DBW Target
  - Negative/positive torque TPS threshold channel values are correct now
  - Shiftec – data from the gearbox are handled correctly in IDLE state of the gearbox strategy
- VW/DSG:
  - MDNORM parameter is now being sent correctly over CAN when VW Vehicle CAN stream and DSG gearbox are chosen at one time
  - The torque sent is clamped to the torque max value
  - The torque percent calculations correct when the max torque is above 620Nm for DQ250 or 1240Nm for DQ500.
  - double torque bit is sent correctly for DQ500
  - Fuel usage, dynamic RPM, allow start (starter lock) protocol improvements
  - 'Driver requested torque Base' works correctly when 'Use engine torque base' parameter is chosen
  - Wheel speed and Vehicle speed values fixed when ABS Emulation enabled
- ALS: Fixed strategy behavior when exiting the strategy
- Mazda RX8 – CAN stream fixed
- Toyota GT86/Subaru BRZ – CAN stream fixed

Client:

Improvements:

- The Factor of a CANbus Receive Channel can have seven decimal places, such as 0.0000001, to enable the reception of GPS coordinates

Fixes:

- The improper time offset issue in Graphlog when working with long log files has been resolved
- When adding a row to a table, the content is now interpolated correctly

- The keyboard shortcut 'S' no longer causes crashes in the VE Tuner dialog and the User Table dialog

2023-09-15
Client: 100.0.3 experimental
Firmware: 100.0 experimental

Client:

Fixes:

- Fixed the automatic conversion for projects that use either the Custom Voltage Channel or the Custom Value Channel as a source for sensors. (Starting from firmware 100.0, sensors use the physical value instead of the raw value.)

2023-09-14
Client: 100.0.2 experimental
Firmware: 100.0 experimental

Client:

Fixes:

- Resolved an issue that caused a crash when the 'undefined' channel was used on a table axis."

2023-09-11
Client: 100.0.1 experimental
Firmware: 100.0 experimental

Client:

Fixes:

- Fixed a bug causing a crash when saving a project without a connected USBtoCAN.

2023-09-11
Client: 100.0 experimental
Firmware: 100.0 experimental

Firmware:

New features:

- Password protection

- Idle strategy – added stepper motor support
- Sensors:
  - *Pre-throttle pressure sensor* added
  - *Pre-intercooler* and *Post-intercooler temperature sensor*s added
  - *Exhaust manifold pressure sensor* added
  - Separate brake pressure for front and rear axle
  - Lambda Sensor External controller – custom voltage channel and custom value channel sources added (including CAN bus channels)
  - Added Diagnostic channel for Lambda sensors
  - EGT sensors – custom value channel (including CAN bus channels) source available
  - Turboshaft speed sensor
    - analog input, custom voltage, and custom value channel source available
    - *Turboshaft speed max* channel added
  - Wastegate position sensor – custom voltage channel and custom value channel sources added (including CAN bus channels)
- DSG: parking lock actuator

New OEM CAN streams:

- Mazda RX8
- Toyota GT86/Subaru BRZ

Improvements:

- Fuel Short term trim – added more activation conditions (engine runtime and efficiency load)
- Lotus Evora CAN Stream – TPMS Emulation may be switched off
- Overboost protection – soft fuel cut mode available
- Boost
  - added *State* channel
  - added *Manifold pressure max* parameter
- Traction control - added channels informing about the state of the strategy
- Gearbox, sequential
  - added minimum pre-actuator pressure activation parameter for paddle shift
  - added parameters for limp mode activation for paddle shift
  - added custom limp shift activation condition for paddle shift
  - the actuator is activated only when the paddle is used. When the gear lever is used – blip/torque reduction is performed but the actuator is not activated for the paddle

shift
    - Gear lever shift up activation voltage and Gear lever shift down activation voltage are tables now
- Sensors diagnostics - *custom value too low* and *custom value too high* states added
- Error states for Flex Fuel Diagnostics have values below zero now
- Diagnostic channel for Vehicle speed added
- Calibration for *Gear shift actuator pressure* sensor refreshed 500Hz (not 50Hz)
- *Blocked – autostart interrupted* state for Starter relay has value below zero now

Changes:

- Analog sensors now use the physical value instead of the raw value, when sourced from custom voltage or value channels. Conversion of projects will be done automaticly when loading old project or upgrading the firmware.

Client:

New features:

- Loading password-protected projects onto a device with a matching password without the need to enter the password.
- VE Tuner – added tool to modify VE table using data from a log
- Added the ability to full-size a single panel (F6 or Tab+Space)
- Full support of custom channel colors

Fixes:

- Fixed inconsistent number handling for keyboard layouts requiring shift to input numbers (e.g. Czech or French)
- Resolved the issue of narrow column in the Smart Grid when DPI scaling is applied

2023-09-05

Client: 99.3 public release
Firmware: 99.3 public release

Notes:

– The firmware "99.3 release candidate RC5" has been renamed to "99.3". It is the exact same firmware.

2023-08-28

Client: 99.3 release candidate RC5
Firmware: 99.3 release candidate RC5

Firmware:

Fixes:

- Corrected the dwell time issue during spark cut at high RPM and long base dwell time.
- Resolved ignition intervention problem for Ignition outputs 11 and 12.

2023-08-22

Client: 99.2 release candidate RC4
Firmware: 99.2 release candidate RC4

Firmware:

Fixes:

- *Fuel consumption Total volume* is working correctly
- EMU BLACK CAN Stream
  - *Fuel consumption Total volume* sent correctly
  - *Analog input 5 & 6* sent correctly (10-bit, not 12-bit value)
  - *DSG mode*, *EGT1 & EGT2*, *Pit limiter and Traction control torque reduction*, *starter request* flag sent correctly

2023-08-11

Client: 99.1.1 release candidate RC3
Firmware: 99.1 release candidate RC3

Firmware:

Fixes:

- VVT Switched: hysteresis is working correctly
- Gearbox: *Blip level* channel is updated correctly in all states
- Gearbox: Cable blipper output duty cycle is correct now

Client:

Fixes:

- Fixed a bug that prevented the firmware from being upgraded on the first attempt.
- Fixed a bug with real-time logging that sometimes didn't start after a firmware upgrade.
- DBW Tuner for BMW S65: Fixed a problem that caused a crash if the tuner window was closed right away without doing the tuning

2023-07-13

Client: 99.0 release candidate RC
Firmware: 99.0 release candidate RC

Firmware:

New features:

- Sequential gearbox – Cylinder cut in the post-shift state

Improvements:

- Gearbox Shiftec – ramping during deactivation improved for Post-blip cylinder cut
- RPM Matching – ramping during deactivation improved

Fixes:

- ALS works correctly with Overrun enabled
- Fuel level sensor – filtered value updated correctly when engine running
- Traction control
  - Integrator reset threshold work correctly
  - Inactive states have values below zero now
- RPM limiter – DBW Target is correct now during hard fuel cut
- Lotus CAN stream - clutch status is correct when the DSG gearbox used
- *Short term trim Lambda Target* value is now working correctly for *Lambda Delay* values greater than 980 ms
- Channels from the following two groups are updated correctly: *Fuel Lambda target Corrections* and *Fuel Corrections*

Changes:

- DBW Safety – DBW tracking error is triggered only when the DBW Target is lower than the Throttle position

Client:

Fixes:

- The default Y-axis for each 3D table is now correctly initialized (error introduced in version 96.0)

2023-06-16

Client: 98.2 experimental
Firmware: 98.2 experimental

Firmware:

Fixes:

- *Short term trim Lambda Target* value is now correct – it is now delayed *Fuel Lambda target* by the time defined in *Short term trim Lambda Delay* table.
- *Gearbox state* is now correct when using *Shift finished feedback* parameter with the value *Source disengage*.

2023-06-12

Client: 98.1 experimental
Firmware: 98.1 experimental

Firmware:

Fixes:

- Short term trim value is reset to 0% after the strategy is blocked (issue fixed after it was introduced in version 96.0)

2023-06-07

Client: 98.0.1 experimental
Firmware: 98.0 experimental

Firmware:

New features:

- Manual gearbox – Torque reduction (Flat shift) and blip with RPM matching
- Boost – electronic wastegate control using the built-in H-bridge outputs
- CANbus Keyboards support – Project Tree / Add / CANbus Keyboard. Support for up to 2 keyboards:
  - ECUMASTER - 2x2, 3x2, 4x2, 5x2, 6x2 and 5x3
  - Grayhill CANopen – 2x4, 3x4, 4x2, 5x3 and 5x4

Improvements:

- Enumeration channels such as a ”Trigger Sync state” has now textual representation in the Data Master software
- Gearbox Shiftec:
  - Torque reduction recovery ramp added
  - Post-blip cylinder cut – experimental (can be changed in the future)

Fixes:

- CANbus Receive Channels: Timeout Value is now handled properly

Changes:

- New log file format V24 – Data Master 2023.4 is required to view new log files.

Client:

Improvements:

- VVT Tuner:
  - VANOS - reversed control direction handling
  - VANOS - PID calculation for dual solenoid
  - Basic results validation
- Documentation updated

Changes:

- Trigger Sync state ”Fully synced” renamed to ”Synced” to better describe the behavior in case of NOT using a secondary trigger sensor.

2023-05-26

Client: 96.1 experimental
Firmware: 96.1 experimental

Firmware:

Fixes:

- Engine RPM Limiter: Strategy activation fix.

Client:

Fixes:

- Sensors Fuel temperature: Source='Flex Fuel sensor' is now correctly handled
- Proper project conversion of ”Coolant temperature” bit after changing the name from "Engine coolant temperature".

2023-05-16

Client: 96.0 experimental
Firmware: 96.0 experimental

Firmware:

New features:

- 4D tables and scalar tables. The following tables are automatically converted during the upgrade/load process: Ignition Angle Base, Fuel Lambda target Base, Boost Target Base, DBW Accelerator translation.
- Steering angle sensor – *rate* in [°/s] channel added
- VW Specific CAN stream - ABS, Steering position sensor, Airbag and Gateway emulation added
- Lambda target correction added
- Lambda guard strategy added
- Injector duty cycle protection added

Improvements:

- Negative values are allowed for short pulse adder correction
- When using Wasted Spark and secondary trigger is configured the fueling system is working in full sequence

Changes:

- Fuel correction ramping removed
- Secondary trigger ”N-1” uses the same minimal factor as in EMU BLACK (150%). A project that uses this trigger is automaticly converted to ”Longer than factor 200%”.

Fixes:

- Steering angle sensor
  - *Calibration* channel has a correct value
  - *Value* is now correct for defined offset other than 0°

Client:

New features:

- 4D tables and scalar tables implemented (require firmware 96.0 or later)
- VVT Tuner:
  - Added chart of camshaft position vs duty cycle
  - Detection of minimal duty cycle for VVT work (e.g. in ford Coyote)

Improvements:

- VVT Tuner:
  - Modified Relay algorithm
  - New style of duty cycle and position sliders

Changes:

- Scope Graph: TDC/fuel/knock changed for Wasted Spark ignition method

Fixes:

- Improvements in Client application stability

2023-04-27

Client: 93.0.1 experimental
Firmware: 93.0 experimental

Client:

Improvements:

- Tune Display now supports custom user channels from Project Tree
- Improved look and feel of the application menubar.

Fixes:

- The use of sensor wizards no longer results in data corruption and app crashes.
- Correct values are now consistently displayed for channels in both Smart Grid and Text Log

2023-04-21

Client: 93.0 experimental
Firmware: 93.0 experimental

Firmware:

New features:

- New vehicle CAN streams:
  - Can-Am Maverick 900 Turbo
  - Can-Am Maverick X3 Turbo RR 2021
  - Polaris RZR

Improvements:

- All outputs are now deactivated at the beginning of the shutdown procedure.

Fixes:

- Ignition lock is working correctly with the Idle strategy

Client:

Improvements:

- All ECU memory limits are now properly handled by the Client
- Memory Report window has been expanded
- CANbus Transmit window: Save .CANX File: symbols are now shortened to a maximum 30 characters limit to allow loading to ADU
- Graph Log and Text Log: improved precision for 32-bit channels

Fixes:

- CANbus Transmit: the types for U16 and S16 channels are no longer swapped
- Log files loaded to the Client and then re-saved are no longer being corrupted
- VVT Tuner: increased number of downloaded scope samples

2023-03-31

Client: 92.5 experimental
Firmware: 92.5 experimental

Firmware:

New features:

- Gearbox – Shiftec GCU support
- Evo X (36-2-1) primary trigger decoder

Fixes:

- Project Tree: Numbers: Histeresis operation is now working correctly

Changes:

- Sensors/Gear/Source – *Vehicle Specific CAN Stream* enum value name changed to *Gearbox Strategy* (used for DSG, Shiftec gearbox types)

Client:

Fixes:

- Graph Log: proper range for enumeration channels (e.g. *Fuel Short term trim State*)

2023-03-28

Client: 91.2 Public Release
Firmware: 91.2 Public Release

Firmware:

No changes compared to 91.2

Client:

Fixes:

- Tables / Swap Axes is now moving data corectly
- EMU PRO 8 hardware limitations are now correctly applied in every part of the Client software

2023-03-20

Client: 91.1 release candidate RC
Firmware: 91.1 release candidate RC

Firmware:

Fixes:

- Gearbox – fixed error with not executed torque reduction for up-shift for sequential gearboxes

Client:

New features:

- Limitation for EMU PRO 8 hardware implemented in the Client:
  - A new EMU PRO 8 project can be selected at the start of the application
  - Added “File / Change target device” menu command to change between EMU PRO 8 and EMU PRO 16.

Improvements:

- Undo is working again (regression in version 90.x)
- VVT Tuner: duration of collecting scope depends only on RPM
- DPI scalling fully functional

Fixes:

- VVT Tuner no longer accidentally overwrites the “Primary trigger start tooth” and “Initial teeth angles” settings of other camshafts.
- The Client application no longer crashes when a very old version of OpenGL is used.
- The client application no longer crashes when using the Ctrl+V on the axes of a table.

- Fixed the issue with axes in manual mode not responding properly to changing custom channel properties (factor, offset, signedness...)

Known issue:

- The installer and the main executable file are not digitally signed.

2023-03-07

Client: 91.0 beta
Firmware: 91.0 beta

Firmware:

New features:

- *User latching* switch – *Reset to default* functionality added
- *ESP Off* switch added – now used by Vehicle Specific CAN streams for Lotuses instead of *Traction control off* switch

Improvements:

- *Idle* strategy is blocked when a blip from the gear shift is active
- Cranking safety conditions moved from *DSG* and *Starter output* to the *Cranking* strategy
- Scope - added trigger state “Searching” to scope graphs (denoted by “s” letter)
- Engine RPM is now properly calculated in the trigger state “Searching” (no more RPM spikes in cranking)
- Gearbox:
  - *Blip level* may be treated as minimum DBW Target - *Blip level is DBW target min* parameter added
  - *Strategy transition ignition ramping* for blip added
- DSG:
  - *Gearbox torque loses* channel accuracy improved
  - Park gear engagement safety condition improved

Fixes:

- Coolant fans in “2-speed” mode:

    - *Output slow* initialization fixed
    - *State* is displayed correctly
- *Vehicle Speed* limiter: custom activation condition is working correctly

Client:

Improvements:

- Logging frequencies of Custom (Project Tree) elements are now stored in a project file.
- Graph Log: samples are now properly time-aligned even if channels have a different logging frequency
- Smart Grid: CAN IDs are now displayed in hexadecimal notation (e.g. 0x600)
- Scope Graph:
    - added trigger state “Searching” - denoted by “s” letter
    - additional tooth (for N+1 trigger) are now denoted by “A” letter
    - added “Ctrl+X” shortcut to clear the Scope Graph
    - a corrupted line at the bottom of a camshaft signal is no longer displayed

Fixes:

- The application is now properly checking if a newly created custom element has a unique name across an entire project.
- CANbus Transmit Frame dialog is now displayed with high DPI settings.
- Fixed crash when loading log files from different version than the Client application (internal format increased to V23)
- Tables: Axis Wizard: proper validation of Min / Max values for 32-bit channels.

2023-02-24

Client: 90.3 (Public Release)
Firmware: 90.3 (Public Release)

NOTE: Upgrading from beta firmware version (firmware 86.1 and ealier).

During the upgrade from a beta firmware, all settings will be reset to default. You need to have a project file of your tune saved on your PC. The project file can be obtained from your EMU PRO device using an older version of the software.