

VISION One tool, endless possibilities





- VISION is an innovative, user-friendly, powerful, all-in-one software platform combining ECU flashing, calibration, data acquisition and analysis into a single solution
- VISION offers fully integrated calibration and data acquisition capabilities including signal collation from ECUs and external sources, measurement and real-time calibration of closed-loop control systems plus data time alignment
- User-created custom screen controls and GPS visualizer functionality for enhanced vehicle testing capabilities available from VISION 7.0 onwards.
- VISION 7.0 onwards features a 64-bit architecture that leverages a well-established VISION API and postprocessing features making VISION ready for large data sets and future development challenges
- VISION toolkits provide incremental capability to provide the necessary functionality based on user requirement, from dedicated Data Acquisition and VISION Data Analyzer (VDA) packages to ECU calibration and ultimately the rapid prototyping of module functionality via optional No-Hooks / OnTarget toolkits
- VISION Data Analyzer (VDA) supports ASAM MDF4 for easy recording, sharing and post-analysis of large data sets
- Additional toolkits to provide extra functionality EG Model-Based calibration and extended diagnostics capabilities
- Optional Enhanced Diagnostics Toolkit (EDT) extends VISION's capabilities to include ISO-14229 diagnostic services.





VISION Base Features

- Free of charge to download
- 64-bit architecture
- Configure and acquire data from ATI data acquisition hardware
- View and collect data with functional Data List and Recorder Objects
- Utilize CAN Monitors and CAN Trace Objects available for use with ATI CAN Network Interfaces
- Device Manager to describe and organize hardware components
- Vehicle Manager that makes it easy to create vehicle specific setups

Select the individual Toolkits needed or chose from one of ATI's Toolkit packages that offer popular groups of functionality linked with key dependencies.

The VISION Difference

VISION is a software platform that is responsive to users' dynamic development environments.

ATI's VISION Calibration and Data Acquisition software is modular in design. This provides users with the ability to customize VISION to a desired level of functionality. Toolkit configuration can range from a single toolkit to view and analyze recorded data to a full ECU calibration solution with Rapid Prototyping features. Cost effective packages can easily be created based on end users needs.

VISION can now be enhanced with user created custom screen objects using the Custom Screen Controls functionality. Controls are linked to scripts with support for a variety of languages including C#, Python, VbScript (Excel) or MATLAB M-scripts.

Extended utilities are included with the ATI Tray installed with VISION, such as Remote Dashboard for remote access to VISION and Recorder Catalog to help find relevant recorder files, along with management of VISION API and RP registrations.



Available VISION Functionality

- Live graphical views
- Additional data analysis tools
- Third party device compatibility
- Electronic control unit communication support such as ASAM CCP/XCP and ATI Interfaces
- Importing/Exporting multiple file formats (MATLAB®, MDF, HDF and ASCII)
- API (application program interface)
- OBD II vehicle diagnostics for vehicle comparisons and extensive WWHD PID/DID support available
- J1939 Monitor support
- Compatibility with third party HW devices
- ECU code rapid prototyping
- GPS Visualizer for vehicle data and location tracking
- Advanced Device Memory (ADM) viewer
- Custom Screen Controls



VISION Data Acquisition

A complete DAQ solution, VISION provides powerful yet convenient features for data analysis, data collection and connection to data acquisition devices.

VISION's Project Manager simplifies test setups into a tree structure format, easily allowing the addition, removal, and configuration of measurement devices.

VISION recorders or screens can be tailored in a user definable manner and format to collect, manage, and analyze data.

VISION Data Collection

For data acquisition and analysis, VISION's user configurable screens can be tailored to collect, manage, and analyze values in a wide variety of formats.

Users can select from a collection of customizable objects to display data including strip chart recorders, dials, gauges, and dashboards with full customizable colors, fonts, sizes and visual appearance aspects of each individual object.

Remote Dashboard includes the ability to create and display customized virtual dashboards on secondary displays and other mobile devices connected to the same network to remotely monitor a VISION session.

Remote Dashboard is also capable of automating and executing common functions of the VISION software host environment for convenient, adaptable, location-independent viewing and interaction with key VISION data.

Viewing Features During Collection or Analysis

- Support for Independent sampling rates per channel
- Recording of all data available to VISION including calibration items
- Strip chart display pause while continuing to record data
- Real-time data monitoring
- Tabular, 2D, or 3D display of curves and maps
- Customizable gauges, dials, switches and screen objects
- Specialized views such as Poke, CAN Replay, OBDII, Text Screen Objects
- Live calculated data based on formulas applied to available data items
- Direct to disk MDF file streaming for larger data sets





Data Analysis

ATI's VISION enables comparisons, highlighting or auto detecting of data or events, overlaying, and even partial exporting to save time and maximize throughput.

Users can create Virtual or Calculated channels to enhance information or Layout Templates to expedite set up of similar tasks or tests.

VISION offers still another level of convenience by allowing both analysis and analysis changes while still on-line, without starting or stopping the application to make changes.

VISION's powerful post analysis features include importing/exporting in popular file formats (MATLAB, MDF, HDF and ASCII)

VISION enables the creation of x-y plots to plot one variable against another, and file overlays to view data from several files, simultaneously

VISION Data Analyzer (VDA) is designed to accommodate large data sets made possible by the ASAM MDF4 format.

Users can open MDF4 files in the Data Analyzer using templates and use VDA for post-analysis.

When using the magnifying glass on a recorder or stripchart in VISION, .rec files will open in VISION and MDF files will open in VDA.

Post-Analysis Features

- Support of recorder file overlay for comparisons between different recorder files
- Statistical analysis including: means, peaks, medians, standard deviations, etc. for each channel
- Display trace data in both graphic and tabular form
- Create line and XY plots
- Digital, line and step line modes
- Simultaneous view of multiple graphs
- Create multiple views of the same data set
- Create Templates for quick formatting of data
- Independent or grouped Y-Axis scaling
- Create calculations based on recorded data
- Import/Export other recording file formats
- Export segments of recorded data
- Quick and easy plot navigation and formatting
- Define and review recording event markers in MDF recordings
- Review metadata within MDF data recordings
- Easily remove data items from data graph
- Drag and drop data items between data viewer legends
- Recorder views and controls any available screen
 recorder







Interfacing and Managing DAQ Devices

VISION is a dynamic, evolving software package that adapts to legacy systems or 3rd party tools, making on boarding transitions easy to implement.

VISION offers recording, monitoring and analysis capabilities across a broad range of ATI and 3rd party CAN device data in addition to data from supported electronic control unit (ECU) interfaces.

VISION excels with collaboration enabling easy file conversion to or from VISION for data sharing or, in many cases, use hardware supplied by other vendors.

Compatible DAQ Products

- ATI hardware including ECU interfaces, EMX / EDAQ Data Acquisition modules, DLX datalogger
- ATI Plug and Play Ethernet via the Ethernet EMX, A8, A9 and T1 Ethernet Serial Interfaces
- Third party CAN / CAN-FD interfaces including Kvaser and Vector
- Third party CAN data acquisition device data
- "Monitor and record data directly from ATI serial interfaces / memory emulators, or also with standard ECU XCP and CCP protocols

Calibration and DAQ

VISION provides a wide range of calibration screens including 2D and 3D Calibration Tables - editable key graphical representations of multi-dimensional calibrations.

Editing methods include adjustment formulas, keyboard shortcuts, and automated scripts.

Additional features include the ability to transpose axes, rotate map views, interpolate cells and map slice views both on and off-line.

Once connected to an ECU via a suitable interface, VISION enables all-in-one real-time ECU calibration and data acquisition. Select from ATI hardware or 3rd party interface hardware VISION provides seamless ECU monitoring, calibration and flashing of ECU data.

Available Calibration Functionality

- Off-line calibration without an ECU or on-line with appropriate ECU interface toolkit
- Graphical multi-dimensional calibration viewing
- Multiple calibration data item editing methods:formula bars, drag and drop, manual, and spinners
- Batch processing of calibration changes
- ECU running point display during measurement
- Duration percentage display percentage for each cell of an ECU table or map
- Markable calibratable items to track changes
- Calibration Manager for dynamically comparing, merging or creating calibrations
- Calibration Maturity parameter associated with data items / Track maturity levels of calibration data items
- View/edit ASAM ASAP2/A2L files with A2L Explorerin VISION Tool Suite
- Create/edit/import/export ATI, DCM, A2L, Vector, MATLAB, VAT2000 or ASAM CDF calibration file formats using applicable VISION toolkits







API Scripting to Expand your VISION Application

VISION users requiring task automation, extensive customization or new function creation can benefit from the VISION API in conjunction with Microsoft Excel, MATLAB or free options such as VBScript or Microsoft Visual Studio Express

Extended Software Support

VISION also supports interfaces to several vehicle-oriented standards and third-party software packages essential for applications involved in vehicle electronic control unit development.

This includes the Society of Automotive Engineer (SAE) J1939 standard covering CAN networks for medium and heavy-duty vehicles, plus the on-board diagnostics (OBDII) network.

VISION Software Options

Rapid Prototyping - No-Hooks and OnTarget

- No-Hooks/OnTarget toolkits enable users to perform software-centric rapid code prototyping on production control modules via VISION without requiring access to the ECU source code
- Both No-Hooks/OnTarget toolkits remove the need for high-cost external bypass hardware or expensive (and time consuming) code changes
- Patent-pending No-Hooks technology enables the bypass of variables within an ECU's RAM that are normally viewable or measurable only
- OnTarget builds upon No-Hooks and integrates Mathworks Simulink® models into an existing ECU strategy to extend potential functionality





VISION Hardware Options

Data Acquisition Hardware

Hardware ATI provides a wide range of hardware supported within VISION to create powerful calibration and data acquisition systems. VISION also supports common industry-standard third-party DAQ hardware to enable seamless integration into legacy tool chains.

Measurement Devices Supported

- ATI EMX Analog and Thermocouple DAQ modules
- ATI EDAQAI, EDAQT, and EDAQP DAQ modules
- 3rd Party XCP on CAN
- 3rd Party XCP on Ethernet

Electronic Control Unit Interface Hardware

- VISION supports the majority of ASAM CCP/XCP CAN / CAN-FD interfaces and all ATI CAN / CAN-FD or ECU Serial
 Interfaces
- ATI's ECU Serial Interfaces connect via the control module's AUD, RTD, or JTAG port, while memory emulator products plug directly into a microprocessor socket
- Network communication support includes the ASAM Universal Calibration Protocol (XCP) and CAN Calibration Protocol (CCP) standards plus KWP2000 via K-Line
- Using ASAM standards delivers complete VISION compatibility with any target ECU module regardless of type or manufacturer

ECU Interfaces Supported

- ATI ECU Serial Interfaces
- ATI ECU Memory Emulators
- CCP and XCP via CAN or Ethernet
- KWP2000 via K-Line
- KWP2000 via CAN
- UDS (ISO-14229) on CAN
- OBDII on CAN
- xETK ECU Interfaces

CAN Interfaces Supported

- ATI DLX
- VISION Network Hub and Hub 2
- ATI CANary and CANary FD
- Selected 3rd Party



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