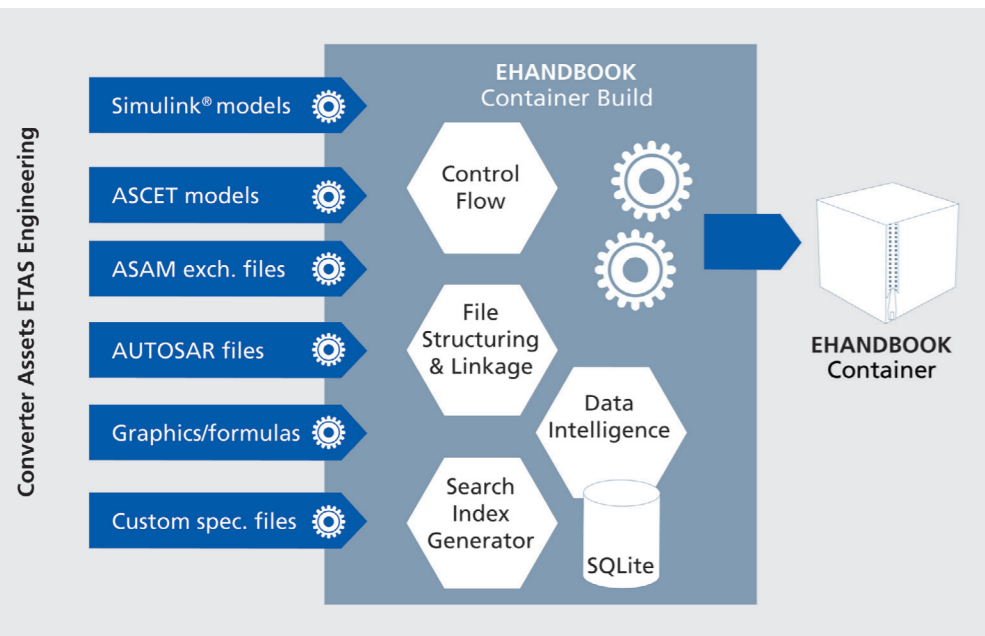


Vehicle system calibration faces a host of new demands, including powertrain electrification, the electrical powering of ancillary components, and intelligent thermal management. To meet these demands, ETAS has developed three new **measurement probes and cables** for the rugged ES400 measurement instruments yielding new application possibilities. With the CBN41x probes it is possible to

directly measure the power consumption of low-voltage components, such as water or oil pumps. Combined with current measurement clamps, the CBN42x series provides data from high-voltage components of electric or hybrid vehicles. CBN43x cables connect sensitive PT 100 temperature probes with the ES400 measurement instruments.

## Easily comprehensible



The rising complexity of electronic control units' (ECU) software is leading to ever-increasing expansion of documentation. The **ETAS EHANDBOOK** offers an interactive documentation solution for ECU software, allowing application specialists to find relevant information faster and comprehend it more easily. Interactive models show dependencies between measurement and calibration factors, including in hierarchically nested models. By the same token, the correlations between functions can be graphically represented. The link to ETAS INCA simplifies the exchange of information. Thus, the EHANDBOOK helps to more quickly understand ECU software and speed up calibrations – and consequently to achieve better results.

## Significantly improved

Even in its third year, the popularity of **BUSMASTER open source software** is still growing as a solution for developing, monitoring, analyzing, and simulating CAN networks, and user numbers are constantly rising. This is no surprise, as the most recent update

focuses exactly on those aspects where the worldwide community has identified potential for improvement. As a result, in addition



to CAN, BUSMASTER now also supports FlexRay and LIN buses. Increased effort was placed on improving usability. The revised menu structures and toolbars – along with more comprehensible icons – make it possible for even more users to efficiently work with BUSMASTER. The open source software is continuously being further refined by the entire community.

The **ETAS DESK-LABCAR** is a new, compact Hardware-in-the-Loop (HiL) system encouraging earlier testing by bringing the testing environment closer to the developer. It is based on the reliable LABCAR-RTPC technology with more than ten years of experience in the market, allowing developers to rely on professional HiL technology at a competitive price. Its compact size also enables HiL testing in environments of limited space, e.g., for frontloading on-desk function testing. With INCA and the ETAS measurement hardware, the measurement and calibration of ECU internal signals is possible.

The comprehensive LABCAR hardware and software is fully scalable when requirements for test systems increase, while allowing the reuse of previously created tests. This ensures investment protection for

challenges of the future, e.g., when new legal requirements emerge, system complexity increases, or the scope of the test changes. ETAS Engineering Services offers additional customer-specific adaptations.

## Early testing



## Simple flashing

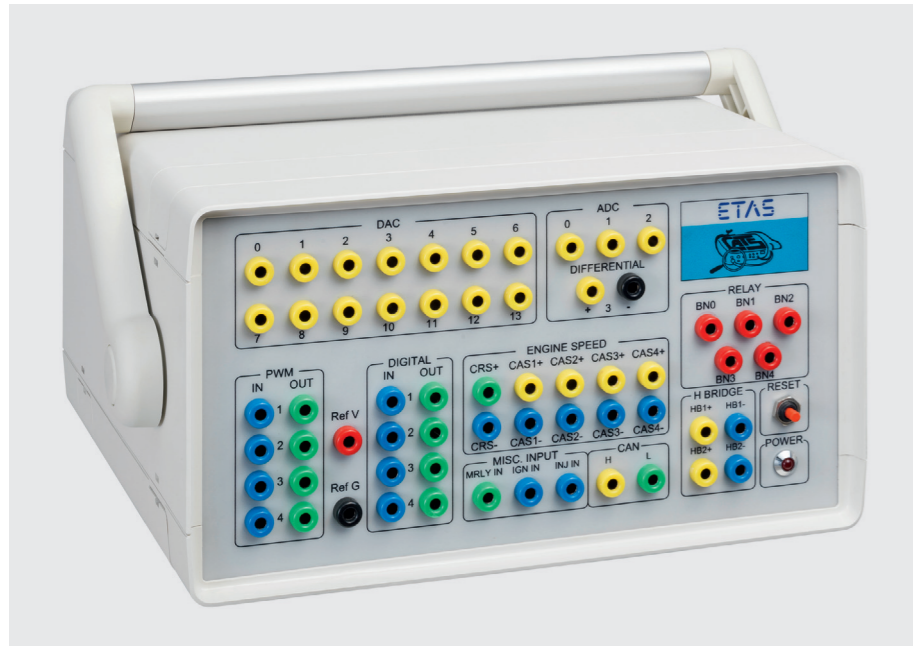
To meet the rising demand for a small, mobile CAN interface unit, for seven years now ETAS has successfully served up its ES581 series which – thanks to its USB port – can operate independent of an external power supply. This model family is now being expanded with the **ES583.1 FlexRay USB Module**. Here as well, the focus was on a quick and simple application. A second internal FlexRay node takes care of synchronizing the buses and thus makes it possible to flash an ECU at your desk – even without an additional FlexRay environment.



**ESS (ECU Signal Stimulator)** is the name of an inexpensive open-loop electronic control unit stimulator from ETAS. It is ideal for areas in which a fully equipped HiL system would be oversized. Various signals, such as crankshaft and camshaft, PWM signals, analog and digital outputs can be supplied. This enables function developers

to quickly and easily test their software in the ECU without having to occupy a HiL test bench. What's more, user-written scripts allow these tests to be reproduced at will, with consistent signal curves. ESS was developed by the affiliated Indian company Robert Bosch Engineering and Business Solutions Limited (RBEI).

## Quick and easy testing



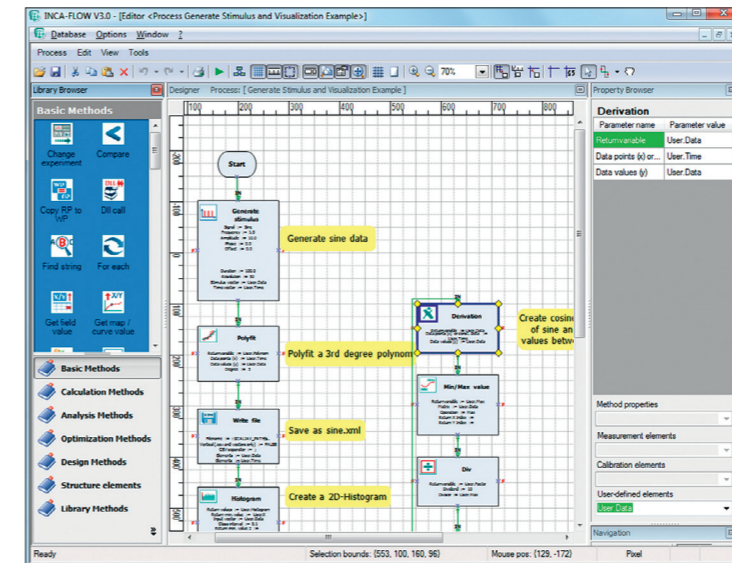
## Officially concluded

The Japanese company JSOL has made a name for itself as a specialist for developing simulation models for electrical machines and their migration to Hardware-in-the-Loop (HiL) systems. This way, complex models can be projected in real time with JMAG\_RT, the add-on for real-time simulation of electric motors. ETAS possesses a strong expertise particularly with regard to conventional powertrains. Manufacturers, engineering service providers, and suppliers will all yield benefits from the **strategic partnership**, which the two companies have now officially concluded in Yokohama. With their simulation models, ETAS and JSOL now cover the entire spectrum – from internal combustion engines to electric vehicles.

## Perfectly automated

**ETAS INCA-FLOW V3.0** is the perfect tool for automating complex calibration tasks. The graphical modeling environment is easy to use and guides you through operational procedures for automating calibration tasks. Effective documentation options simplify knowledge management. This makes it possible to increase long-term

calibration quality – while reducing time and effort. At the same time, new functions permit additional applications for ECU diagnostics, testing, and validation. INCA-FLOW V3.0 is fully integrated into the ETAS INCA product family and features the controllability of all INCA functions, including add-ons.

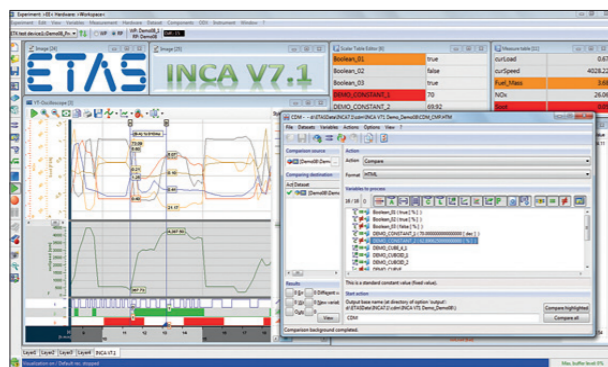


## Simply simulated

Simple simulation without a test bench's rotating components and high-voltage conducting linkages is necessary for efficient and safe testing. This can be realized with the **VHDL model** for the extremely fast ES5340 Electric Drive Simulation Board. Test engineers can simulate an induction machine on the desktop, with no need for extra programming. To allow for validation of the control unit's error detection algorithms, the model can even simulate disruptions, such as a short circuit, that are almost impossible to replicate on test benches.

## Upgrade convincing

It has only been a year since the newest version from the global market leader for calibration software was first made available – and never before have so many users upgraded to a new release so quickly. Above all else, the reason is performance. **ETAS INCA V7.1** utilizes the computing power of up-to-date, multi-core CPUs. Comprehensive ECU applications can be ex-



ecuted with significantly greater speed. Users are also won over by the high-performance oscilloscope with numerous display options. A further key advantage is that data can be compared in the Calibration Data Manager (CDM) during an ongoing experiment. Four service packs have further boosted the functionality of INCA V7.1 since its initial release.

## Effectively supported

With the RH 850, semiconductor manufacturer Renesas has launched a new generation of microcontrollers for electronic control units. The **ETAS ETK-S22** is well suited as a universal interface for RH 850-equipped ECUs. It is supported across the board by ETAS hard-

ware modules, the measurement and calibration tool INCA, as well as the ETAS function and software development tools INTECRIO and ASCET. The ETK-S22 can be operated with voltages ranging between 5 V and 36 V. Thanks to its watertight housing, it can also

be mounted outside of the ECU. High-bandwidth (100 Mbit/s) Ethernet data transmission is possible over long distances – ideal for deployment in laboratory, vehicle, and test bench environments.