

AUTOMOTIVE NEWS

EDITION JUNE 2023



DEAR READERS

The mobility industry is at the center of change more than ever before. Politics and society are demanding solutions for safe, environmentally friendly and sustainable mobility, with alternative drives as well as digitalization and automated driving continuing to gain in importance. Vehicles are becoming more and more powerful and require correspondingly more processing power. This results in new topologies in networking – in terms of energy supply, but also in the distribution of

information. The demands made of vehicle-internal communication with regard to latencies and bandwidths as well as of error-free data transmission are rising accordingly. We are the reliable partner at your side to help you meet current and future challenges in automotive electronics and take new innovative paths. We support you with reliable, use-case-optimized solutions to increase quality and efficiency, not least thanks to scalable, location-independent diagnostics over the entire vehicle life cycle.

Naturally, our newsletter gives you an overview of the further development of our diagnostic and test solutions.

We look forward to engaging in a successful second half of the year with you!

Markus Steffebauer
Head of Product Management



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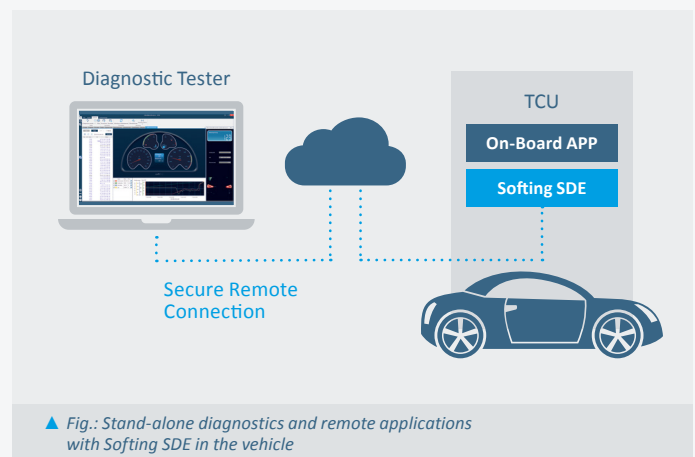
UPCOMING EVENTS

September 12-14, 2023
Indianapolis, IN, USA
**SAE On-Board Diagnostics
Symposium Americas**

September 19-21, 2023
Schaumburg, IL, USA
SAE COMVEC™

SOFTING SDE IN-VEHICLE – DIAGNOSTICS ONE STEP AHEAD!

Diagnostics in the vehicle is much more than just a trend: It enables new applications and thus increased quality with a parallel decrease in costs. The key factor here is that the diagnostic system integrated in test systems is also used for the new use cases – e.g. SOTA, cloud diagnostics, remote engineering. This avoids additional administrative effort; data and configurations can be reused, evaluation methods remain the same. From the outset, Softing SDE was designed for all use cases: in tools, in the cloud, in the vehicle. The high-performance diagnostic system is platform-independent – ideal for efficient diagnostics throughout the entire vehicle life cycle. For in-vehicle use, the same highly optimized ODX runtime data is used as in manufacturing and repair shop testers. Updating ECUs over the air is thus just as easy to implement as a vehicle health state, which entails the continuous reading out of fault memory information. This makes it possible both to monitor a single vehicle as well as safeguard the quality of an entire fleet.



Further information:
automotive.softing.com/sde



SOFTING DTS.MONACO QUICKTEST IDENTIFICATION & FAULT CHECKING WITH DOCUMENTATION

Identifying a test unit as well as reading out the fault memory are time-consuming activities which recur throughout the entire product life cycle. Regardless of whether you are talking HiL, test bench or vehicle – different versions and any fault memory entries have to be acquired and documented every test sequence. Simple, intuitive operation as well as process-secure documentation are of central importance in this.

The Quicktest function integrated in the engineering tester Softing DTS.monaco makes it possible to generate and archive identification and fault reports. The Quicktest supports the identification of devices under test as well as the readout of the fault memory in order to identify possible problems quickly and reliably. The configurable interface element enables worldwide access to various devices under test and

thus efficient test execution regardless of location and time. Recurring activities can be carried out efficiently throughout the entire product life cycle – whether on the ECU, on the test bench or in the vehicle. Process reliability is achieved by the engineering tester using the sequence logic integrated in Softing SDE. Furthermore, Softing DTS.monaco supports the creation and archiving of process-reliable documentation in XML file format. This helps engineers to save valuable time and allows them to focus on important tasks such as analyzing test results. Softing DTS.monaco can be flexibly adapted to multiple test environments and supports a range of protocols and standards to guarantee smooth running of the Quicktest. This is how engineers can be sure that their test agent passes all required tests and has outstanding functionality.

The screenshot displays the Softing DTS.monaco Quicktest interface. The top menu bar includes options like Memory, Programming, Remote Programming, Variant Coding, Quick Test, Remote Quick Test, Identification, Expert diagnostics, Sequences 1, Sequences 2, Untitled, and OBD. The 'Quick Test' tab is active, showing a 'Settings' panel with various configuration options. Below the settings, a table lists ECUs with columns for SG, Protocol, SG Verbindung, Variante, Zeit (m:ss), Anzahl der DTCs, and Status. The 'DTCs (4)' panel shows a list of Diagnostic Trouble Codes (B0002, B0005, P1322, B0200) with their hex values, descriptions, and statuses. The 'Umgebungswerte (3)' panel displays environmental data such as First_Odometer_Value, Last_Odometer_Value, and FaultDetectionCounter. The 'Zusätzliche Daten (0)' panel is currently empty.

Anwender Information

Windows-Benutzer: SLP-IRUABOC
 Firma:
 Telefon:
 Abteilung:
 Kennzeichen:
 Projekt Information:
 DTS-Projekt: Example_Projekt
 VIL: VINPO_EIP
 Werkzeug: DT39
 Werkzeugversion: 9.03.020.20230302.3-beta
 Ausprägung: Standard

Layout: Measurement + Control 1 *
 Diagnostic Control: Service Table
 MainAction
 Layout: Error Memory
 Layout: Programming
 Layout: Variant Coding
 Layout: Quick Test
 Layout: Remote Quick Test
 Diagnostic Control: Quick Test
 Vehicle Info

Vehicle Identification Number
 Odometer
 Number of tested ECUs: 4

ECU	Errors	Link	ECU Variant	Status
BV_ACM	0	LL_ACM_UDS	EV_ACM_001	Tested
BV_ECM	0	LL_ECM_DoIP	EV_ECM_001	Not Tested
BV_FCM	0	LL_FCM_LIFR	FV_FCM_001	Tested
BV_RCM	0	LL_RCM_UDS	EV_RCM_001	Tested

Details for ECU BV_ACM

ECU Identification

Parameter	Value
VIN	Softing_ACU_34830
ECU-SerialNumber	40354724
ECU-SoftwareVersionNumber	5.11.9
CalibrationReleaseGroupCode	REP4836_WQ
SystemSupplierID	4836
Year	2013
Month	3
Day	15

DTCs

DTC	DTC(hex)	Fault Symptom	Status	Status Byte(hex)
B0002	024200	Driver Frontal Stage 2 Deployment Control	OC	0C
B0005	024203	Collapsible Steering Column Deployment Control	OC	0C
P1322	4908	CAN Communication Malfunction	OC	0C
B0200	024800	Roll-Over (Zurück)	OC	0C

Environment Data for DTC B0002 Driver Frontal Stage 2 Deployment Control

Environment Parameter	Value	Unit	RangeInfo	Raw value(hex)
First_Odometer_Value	8.746667e+02	km	Valid	00 14
Last_Odometer_Value	2.080000e+03	km	Valid	01 88
FaultDetectionCounter	4	Counts	Valid	04

Environment Data for DTC B0005 Collapsible Steering Column Deployment Control

Environment Parameter	Value	Unit	RangeInfo	Raw value(hex)
First_Odometer_Value	8.746667e+02	km	Valid	00 14
Last_Odometer_Value	2.080000e+03	km	Valid	01 88
FaultDetectionCounter	4	Counts	Valid	04

▲ Fig.: The Quicktest function enables efficient test execution and documentation



Further information:
automotive.softing.com/dts-monaco



SOFTING TDX DEFYING THE SHORTAGE OF SKILLED WORKERS WITH INTEGRATED REMOTE EXPERT SUPPORT

Modern vehicles are becoming increasingly dynamic thanks to data- and software-driven developments. For some time now, functions have been realized beyond the “vehicle system boundary”. With new vehicle architectures, the maintenance and repair processes of coming vehicle generations are also going to become increasingly complex. They pose immense challenges for both repair shops and mobile service teams. On-site mechanics and technicians are not always absolutely up to date regarding the latest maintenance and repair procedures due to a lack of or inadequate tools, processes and training. The efficient detection and remedying of the causes of faults in vehicles will no longer be possible in future without the right expertise and highly specialized skills. And the acute, ever greater shortage of skilled workers is hardly helpful in this already difficult situation!

Remote expert support is a way of closing the immense gap between what is required and the expertise available locally. It helps to make corporate processes more efficient, establish service-oriented business models in after-sales, avoid costly travel, and thus save considerable time and money. This greatly facilitates cooperation in after-sales when it comes to solving technical problems: Service technicians working on the vehicle can establish virtual contact with specialists to

obtain instructions from afar. The support ensures that possible causes of fault can be found and also remedied more quickly, particularly in the case of more complicated issues. Remote expert support can also help when it comes to making a decision on whether to have something repaired or replaced, and can contribute to a less expensive path being taken thanks to suggestions and advice. Measures such as ECU parameterization or a software update, for which the on-site personnel may not be qualified, can be performed by the remote expert - for safety reasons “supervised” by the service technician. Training sessions and workshops can also be attended directly in a remote form using the diagnostic solution.

Remote expert support is already integrated in the Softing TDX diagnostic tester. What is more, Softing TDX supports service technicians with innovative maintenance and repair processes and sequences as well as additional information such as repair instructions, exploded drawings and videos during repair. These are shown directly in the tool, depending on the individual situation. Due to the rapidly changing conditions, it is essential to keep the after-sales solution up to date at all times. The cloud-based approach guarantees this at all times in Softing TDX.



▲ Fig.: Remote Expert Support integrated in Softing TDX



Further information:
automotive.softing.com/tdx



SMARTPHONES AS VEHICLE COMMUNICATION INTERFACES E/E IN FUTURE VEHICLE MANUFACTURING

The importance of software in vehicles has increased significantly in recent years. The number of lines of code has increased to more than 100 million. Modern vehicle and backend architectures are increasingly converging with IoT architectures already deployed. As a result, more and more established IT standards and technologies are finding their way into vehicle engineering. There are, however, special challenges for the automotive industry due to complex, heterogeneous E/E architectures and different bus systems. Because the type of bus system significantly determines the duration of a software update process. While high-performance on-board systems with proven software update methods can be updated over Ethernet with a data rate of up to 1 GBit/s, the transmission speed for downstream ECUs, e.g. over CAN-FD, is a max. 8 MBit/s. In addition, the corresponding user data rates do not increase linearly with the transmission speed. Software package sizes of future vehicle generations of well over 1 GB thus represent an immense challenge. Many manufacturers are currently testing alternative solutions which allow transmission speeds of 1,000 MBit/s and more. Because, after all, time is money, particularly in vehicle manufacture.

The hardware- and software-based capabilities of a VCI are thus a decisive factor in vehicle manufacture. To be able to process the large software packages and implement powerful software processes in vehicle manufacture, the automotive industry is striving for digitalized manufacturing with a central data source and cloud technologies. In this context, the use of smartphones as vehicle communication interfaces (VCIs) is currently being investigated because smartphones have high-performance CPUs, large working memories, fast hardware interfaces and tried-and-tested wireless data transmission technology. Equipped with peripherals for connection to the existing CAN/FD bus systems as well as interfaces for Automotive Ethernet and DoIP, smartphones can be used to achieve high performance at affordable prices in manufacturing. First implementations by Softing show that it works and that the speed of software updates can be increased considerably in this way.



For more information, please read our specialist article "E/E in Future Vehicle Manufacturing"



Further information:
[automotive.softing.com/
vehicle-manufacturing-of-the-future](https://automotive.softing.com/vehicle-manufacturing-of-the-future)



NEW DIAGNOSTIC INTERFACE VIN|ING 800 UNIVERSAL, ROBUST VCI OVER CAN/FD FOR ALL AREAS OF APPLICATION

The diagnostic interface VIN|ING 800 unites state-of-the-art hardware design for CAN/FD and maximum sturdiness with all-round impact protection at a highly attractive price. For many service applications requiring just one CAN interface, this device is the perfect choice as it provides a lean and at the same time powerful interface from the application to the vehicle. VIN|ING 800 can also be deployed to efficiently solve communication tasks in the engineering of vehicle systems.

The VCI has a CAN Layer 2 API as a programming interface and offers powerful communication mechanisms for lots of CAN applications. Local buffering and preprocessing on the VCI result in high performance and a reduction of time-critical tasks for the PC. The optional D-PDU API as a standardized programming interface provides applications with powerful multi-channel communication mechanisms with vehicle protocols, such as Diagnostics on CAN (ISO 15765) and UDS (ISO 14229). It also allows integration into diagnostic systems in accordance with ISO 22900 (MVCI).

The combination of the VIN|ING 800 with the universal service tester Softing TDX is an optimally coordinated solution. Customer-specific versions, such as alternative labeling and connectors to the vehicle, can be realized on request.



▲ Fig.: The new diagnostic interface VIN|ING 800



Further information:
automotive.softing.com/vining-800

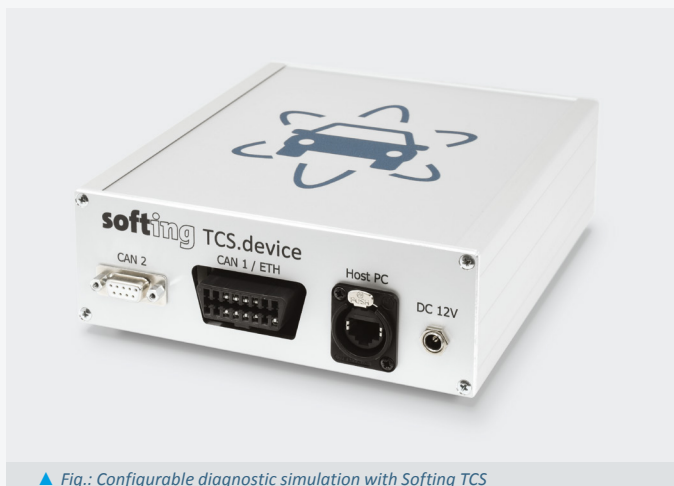


SOFTING TCS TEST THE TESTER – REGRESSION TESTS MADE EASY

Modern vehicles are characterized by a wide range of variants, which are usually manifested by software configurations in combination with varying states of assembly. The number of variants also increases over the life span, as new software versions with changed behavior enter the field. Both of these facts are reflected in diagnostic testers because test routines have to be adapted. The tester has to support all

variants as the customer has these in operation. It therefore has to be ensured that existing functionality in the tester is not compromised by new implementations. The regression test is essential. In practice, however, it is virtually impossible to keep all vehicle variants available in all software variants for testing.

Diagnostic simulation, in which simulation information is stored in files, is the solution. Softing TCS provides this kind of simulation with real communication. Simulation files can be loaded onto the simulation device in the program sequence and started in the context of automating the “tester test”. It is also possible to modify communication parameters and thus to verify the correct behavior of the tester. The simulation files do not require much storage space and are stored centrally. The simplest method is to create them during a regression test by recording a communication trace while a new variant is released in the tester. The trace can be converted into a simulation fully automatically at the push of a button and is then available for regression tests. Manual processing is also possible for special cases.



▲ Fig.: Configurable diagnostic simulation with Softing TCS



Further information:
automotive.softing.com/tcs

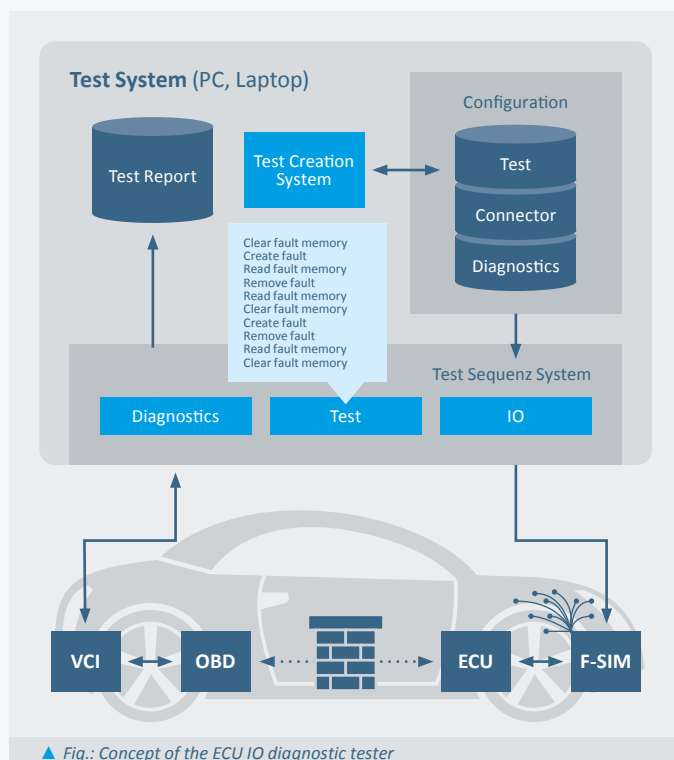
AUTOMATED TEST OF ECU IN- AND OUTPUTS TESTING ECU IO FAULTS SYSTEMATICALLY AND AUTOMATICALLY WITH REPRODUCTION POSSIBLE AT ANY TIME

Current vehicle ECU software includes not only the function software but also extensive components for ECU on-board diagnostics. In turn, this includes the diagnostics of all ECU IO pins in terms of the fault idle, short circuit Ubatt and short circuit ground. Today, verification of complete and correct ECU IO diagnostics is performed either automatically in the HiL area or manually in the vehicle. Both procedures have considerable disadvantages in terms of effort, costs and reproducibility. In a conceptual study, Softing has developed an automated test solution in which a simple configuration is used to create a test of the ECU IO Diagnostics, and then automatically process and document it later. The conceptual study of an ECU IO diagnostic tester consists of:

1. Test creation system
2. Test sequence system (with test, diagnostics and IO module)
3. Fault simulation (F-SIM)
4. Diagnostic VCI (if required)

The test is configured with an easy-to-use interface via which the automated test can also be started. All that is necessary for configuration are the ECU pin assignment (XLSX or XML format) and ECU diagnostic authoring (ODX).

An IO diagnostic tester makes it possible to test ECU IO faults systematically and automatically with reproduction possible at any time. This makes it possible to achieve the necessary quality of diagnostic implementation considerably faster.



▲ Fig.: Concept of the ECU IO diagnostic tester



Further information:
engineering.solutions@softing.com



More Projects:
automotive.softing.com/projects



TELEMATICS IN FLEET MANAGEMENT SOLUTIONS FOR THREE CENTRAL CHALLENGES

It can be a challenge to manage a fleet efficiently and cost-effectively. The integration of the Globalmatix telematics system can solve these problems and considerably simplify the administrative effort. The system makes it possible to overcome three central challenges in fleet management:

1. **Transparency and control:** As the position of all vehicles can be determined in real time, fleet managers always have an overview of the location of the vehicles as well as any movement. And that in turn facilitates active control of the fleet, efficient route planning and optimal use of the vehicles.
2. **Operating costs and fuel consumption:** Driving behavior data can be used to analyze fuel consumption in order to promote resource-saving driving. This lowers the cost of fuel and reduces maintenance and repair costs of parts subject to wear.
3. **Maintenance defects and downtime:** The real-time monitoring of the vehicle state helps in the early detection of maintenance needs and potential damage. This reduces unplanned downtime and improves fleet efficiency.

The telematics solution from Globalmatix ensures fleet managers always have the necessary overview of both small fleets and large fleets



▲ Fig.: Keeping an overview of the entire fleet with the help of vehicle data, GPS signal and the telematics portal GPSgate



Further information:
en.globalmatix.com



TelematiX Day – Information and registration at:
en.globalmatix.com/telematiX-day

with more than 1,000 vehicles, regardless of brand, year of construction and motorization of the vehicles. Fleet management can thus be efficient, inexpensive and simple.

INTERVIEW PAPER STANDARDIZATION AS A QUALITY DRIVER AND EFFICIENCY BOOST IN VEHICLE DIAGNOSTICS

We talked with Prof. Dr.-Ing. Goß, Head of the Institute for Vehicle System and Service Technologies at the Ostfalia University of Applied Sciences, about the current developments in vehicle electronics as well as their impact on diagnostic standardization. The interview paper resulting from this meeting with the industry expert provides valuable insight into practice and shows how standardization in vehicle diagnostics can considerably improve quality and efficiency long term.



Just scan the
QR code to
download the
interview paper!



Further information:
[automotive.softing.com/
interview-standardization](https://automotive.softing.com/interview-standardization)

EXPERTISE WITH TRAINING SESSIONS: DISCOVER OUR EXTENSIVE RANGE OF TRAINING SESSIONS

You quickly want to learn all about vehicle diagnostics, ECU communication, flash programming, or the OTX and ODX standards – without having to spend too much time studying long and dry standards? Our training team will provide you with the necessary knowledge and bring you completely up to date with all the latest technological details in practical training courses & workshops.



Further information
and dates:
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