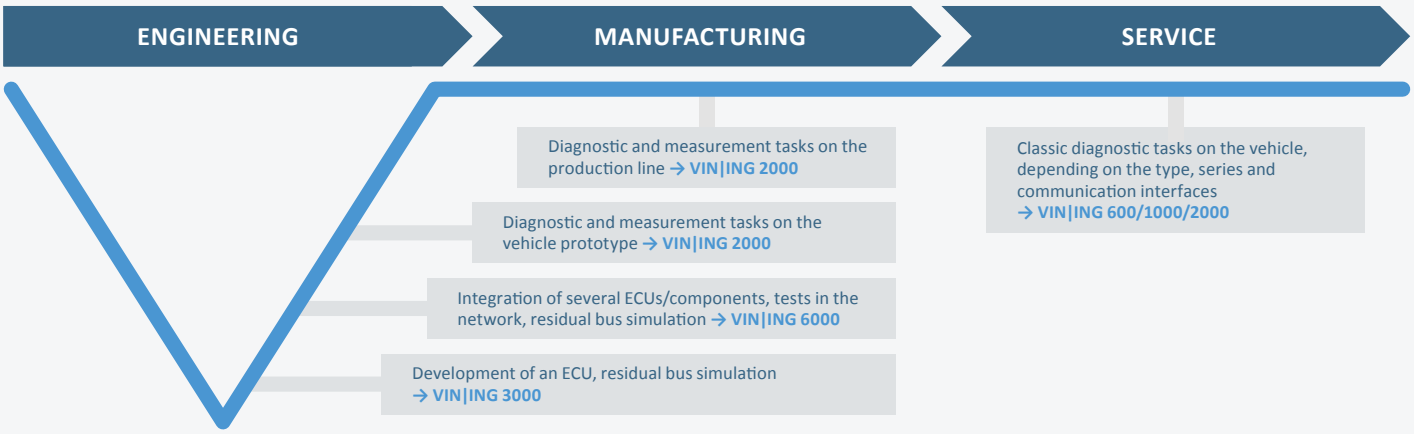
ONE SOLUTION.
MANY FORM FACTORS.

The VIN|ING-VCIs for Innovative Communication Concepts.

The interfaces of the VINING family cover all applications which require communication with one or more ECUs. At the beginning of the vehicle life cycle, the residual bus simulation as well as measurement tasks and data logging are typically required alongside classic diagnostic tasks. With hardware and software exactly tailored to the particular task, innovative communication concepts can be implemented cost-effectively in the development and production of individual vehicle components as well as vehicles. In after-sales service, the VCIs are used with a TDX repair shop tester from Softing or a customized application. For engineering tasks, however, VINING-VCIs are often used with Softing DTS or automation solutions.



TYPICAL APPLICATION AREAS IN THE VEHICLE LIFE CYCLE

DIAGNOSTICS

Once of the core tasks of a VCI is the reliable and high-performance implementation of diagnostic communication between a host PC and the ECUs of a vehicle. For current vehicle systems, this usually takes place via UDS on the CAN bus or with DoIP via the Ethernet interface. Customer-specific versions and the K-line are also relevant in after-sales service. Protocol handling in the VCI ensures fast response times and reliable real-time behavior regardless of the PC operating system.

The standardized D-PDU API (ISO 22900-2) and the Pass Thru API (SAE J2534) are used as an interface to a diagnostic server or directly to a diagnostic application.

BUS ANALYSIS AND DATA LOGGING

Bus communication often takes place directly on the Layer2 level with hex messages. Monitoring takes place for example to validate communication or record it (data logging). Furthermore, stimulation triggers dedicated ECU behavior.

MEASURING BUS MESSAGES

In many cases, individual physical variables can be transferred directly from ECU communication into the test system. Conversion takes place using formal data descriptions, such as CANdb, FIBEX or Autosar System XML.

If ECU-internal or time-synchronous physical variables are to be evaluated, this usually takes place using the XCP protocol (eXtended Calibration Protocol). The physical variables are parameterized and interpreted using the A2L format (ASAM MCD-2MC).

RESIDUAL BUS SIMULATION

In engineering, it is often the case that relevant ECUs are not available for correct system functioning. These have to be simulated in terms of their bus behavior, which is achieved by cyclically sending a message on the bus without changing a signal (static residual bus simulation) or as dynamic residual bus simulation with automatically changing values.

THE VIN|ING FAMILY

VINING 600 and VINING 1000 were the first two interfaces of the VINING family to be launched for classic diagnostic tasks. In the case of mobile applications, the communication between a diagnostic application and a vehicle with Ethernet access can be realized with VINING 600 as a WLAN-Ethernet bridge with Diagnostics over Internet Protocol (DoIP).

VINING 1000 is a compact and universal VCI with a USB interface to the host and CAN and K-line to the vehicle. Due to the combination of sturdiness, compact design and attractive price, this VCI is the perfect choice for use in the manufacturing and after-sales service environment.

VINING 2000 is a further high-performance VCI. With its compact design and WLAN, LAN and USB as interfaces to the host system as well as CAN/FD, K-line and Ethernet to the vehicle, VINING 2000 is particularly well suited for future-proof manufacturing and after-sales service applications as well as in road tests.

Along with diagnostic and measurement tasks on vehicle bus systems, the two premium VCIs VINING 3000 and VINING 6000 support the residual bus simulation as well as the data logging and are thus the ideal equipment for engineering, the test environment and manufacturing. The modular system means the device can be configured to suit the particular use case, resulting in maximum flexibility.

VIN|ING 600

AREAS OF APPLICATION

- Flexible vehicle access for applications with DoIP
- Measurement data recording in road tests via diagnosis
- Diagnostic applications in service
- Fast and reliable flash programming

BENEFITS

- Cost-effective thanks to specific product orientation
- User-friendly thanks to sturdy, compact design with integrated diagnostic connector
- Flexible thanks to controllable activation line
- Broad light band for clearly visible status information
- Security thanks to all necessary type approvals

VIN|ING 2000

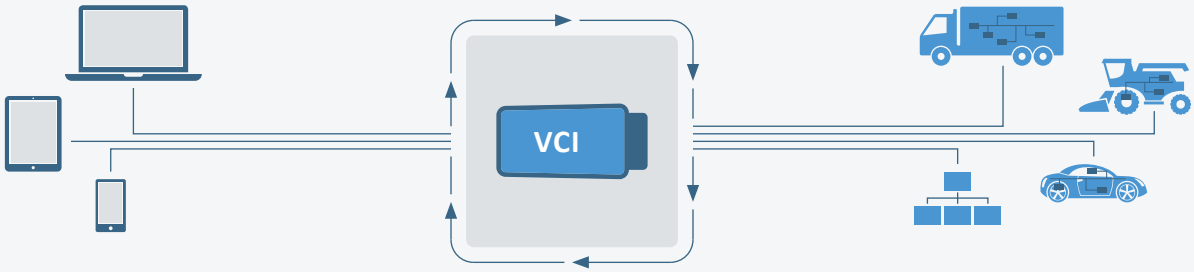
AREAS OF APPLICATION

- Universal use in manufacturing and after-sales service
- Combination of diagnostic and measurement tasks
- Fast and reliable flash programming
- Test and validation
- Diagnostic tests and data logging in road tests
- Option: stand-alone and remote applications with integration of a diagnostic runtime system (Softing SDE)

BENEFITS

- Reliable time response thanks to data preprocessing and protocol handling in the interface
- Compact design with integrated diagnostic connector
- Maximum WLAN security thanks to enterprise authentication with certificates
- Flexible and kink-resistant USB and LAN cables with magnetic fastening

VEHICLE COMMUNICATION INTERFACE



VIN|ING 1000

AREAS OF APPLICATION

- Universal use in manufacturing and after-sales service
- Fast and reliable flash programming
- Test and validation

BENEFITS

- Reliable protocol handling in the interface
- State-of-the-art, cost-effective standard VCI
- Multiple vehicle interfaces with a compact design
- Sturdy aluminum housing with protective caps

VIN|ING 3000/6000

AREAS OF APPLICATION

- Universal VCI for engineering, the test environment and manufacturing
- Diagnostic tests and data logging in road tests
- Diagnostics and residual bus simulation
- Measurement tasks and bus analysis with the Vehicle Communication Framework (VCF)
- Integration of customer applications in the interface with Softing VCF

BENEFITS

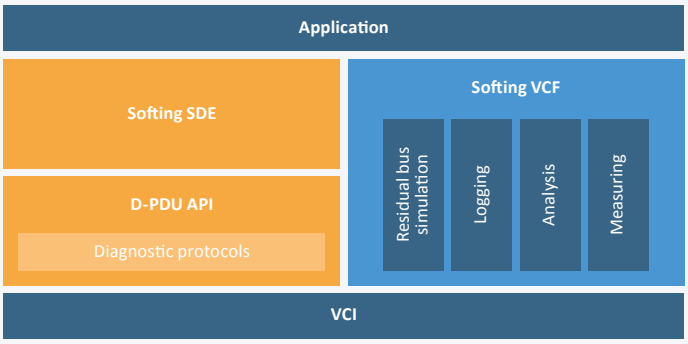
- Modular communication platform for up to 2 or alternatively 6 plug-in modules
- Flexible combination of all standard vehicle interfaces
- Integration of new functions and interfaces with FPGA „software“
- Sturdy aluminum housing with protective caps

For more information:
automotive.softing.com/en/vining-family

DIAGNOSTIC AND ON-BOARD COMMUNICATION WITH A VCI

Softing SDE (Smart Diagnostic Engine) is a high-performance runtime system which interprets and runs both simple diagnostic services and complex, automated diagnostic sequences. Softing SDE, which is used modularly and independent of a specific platform, is based on the Softing Diagnostic Base System and uses the standardized diagnostic formats ODX and OTX and extends these with a function-oriented, easy-to-use Smart Diagnostic API.

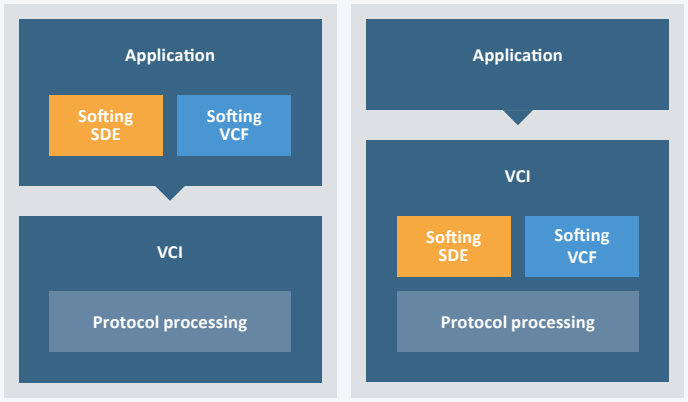
Softing VCF (Vehicle Communication Framework) enables virtually all functions required in the on-board communication of vehicles. This is how residual bus simulation can be implemented for one or more control units for ECU communication in the test environment. Measuring using bus communication enables the acquisition and analysis of the messages and signals available on the bus. Furthermore, internal ECU measurement data can be acquired via the mechanisms defined in the XCP protocol.



Diagnostic and on-board communication can be combined with each other thanks to the fact that Softing SDE and Softing VCF are used from one application. Frequently required combinations of diagnostic tasks and measurement of signals on the vehicle buses or with residual bus simulation are thus convenient and efficient to implement.

FLEXIBILITY THROUGH MODULAR PRODUCT APPROACH

Softing SDE and Softing VCF can be run either on the host PC or on the VCI. With VINING 2000, 3000 and 6000, classic applications can be represented with a direct coupling of host PC and VCI. However, the modular product approach also allows remote applications with a decoupling of the tester system from VCI and vehicle. With OTX sequences being run on the VINING in stand-alone use, entire diagnostic tasks can be processed independently and without a connection to a host system. This makes it possible to realize applications, such as independent programming solutions, actuator diagnostics and other control tasks, simply and at a reasonable price.



VIN|ING PRODUCT MATRIX		VIN|ING 600	VIN|ING 1000	VIN|ING 2000	VIN|ING 3000/6000
INTERFACES TO THE HOST PC					
WLAN IEEE 802.11 b/g/n		●			
WLAN IEEE 802.11 a/b/g/n/h				●	
Ethernet 100 BaseTX				● [1]	
Ethernet 1000 BaseTX					●
USB 2.0 high speed			●	●	● [1]
PHYSICAL INTERFACES TO THE VEHICLE/ECU					
Ethernet für DoIP		1		1	1–2 [2]
BroadR Reach					1–2 [2]
Classic CAN			1–2	2	2–10 [2]
CAN FD			1–2 [1]	2	2–10 [2]
Bus physic CAN high speed			1–2	2	2–10 [2]
Bus physic CAN fault tolerant			1		2–10 [2]
Bus physic CAN single wire					2–10 [2]
K/L-Line			1–2	2	2–10 [1 2]
LIN			1 [1 3]		2–10 [1 2 3]
SENT					2–10 [1 2 3]
Vehicle connection	D-SUB connector		●		●
	Connector integrated in housing (ISO 15031-3)	●		●	
SOFTWARE					
Diagnostics (D-PDU API/ISO 22900-2)		●	●	●	●
Diagnostics (Pass Thru API/SAE J2534)		●	●	●	●
Diagnostic sequences stand-alone and remote (Softing SDE on the VCI)				●	●
Measuring, data logging (Softing VCF)				●	●
Residual bus simulation (Softing VCF)					●

1 In preparation | 2 Depending on the number of plug-in modules | 3 Alternative to K-Line

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