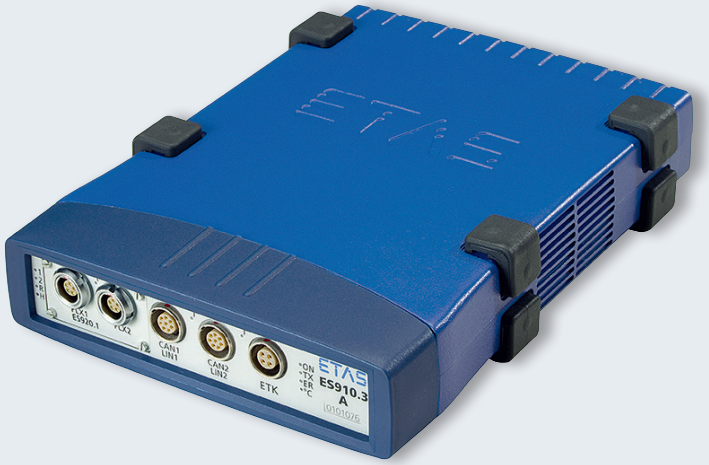
ES910.3

Prototyping and Interface Module



The ETAS ES910 Module delivers high computing power on the basis of the PowerQUICC™ MPC8548 processor. Its compact design supplies a wide variety of interfaces for access to control units, vehicle buses, and measuring instruments. The base module provides the interfaces ETAS ETK, XETK/Ethernet, LIN, and CAN. As needed, it can be expanded via FlexRay nodes with two channels (ETAS ES920, image) or two CAN and/or CAN-FD interfaces (ETAS ES921 or ETAS ES922). The ES910 module is connected via a Gigabit Ethernet interface to the development tool or calibration tool on the host PC.

Rapid prototyping

The ES910 module facilitates the validation of prototype implementations for the software components of new open-loop control, closed-loop control, and diagnostic functions under realistic ambient conditions. The individual components are either coded manually in C, or are generated using AUTOSAR-compatible tools, MATLAB®/Simulink®, or ETAS ASCET-MD (Modeling and Design). The ES910 module is configured with the prototyping environment ETAS INTECRIO or ETAS ASCET-RP (Rapid Prototyping). INTECRIO makes it possible to combine software components from discrete functions that were developed using different tools. In the ETAS ASCET software development environment, the ES910 module can be configured directly with ASCET-RP. In INTECRIO or ASCET Experiment, the user can access during runtime the module being executed by the ES910 module. An AUTOSAR/OSEK-compatible RTA real-time operating system is integrated into the ES910 module for prototyping new functions approximating the reality of the control units.

The ETAS ETK, XETK/Ethernet, FlexRay, CAN, CAN-FD and LIN interfaces facilitate using a development control unit to synchronize sub-applications (bypass experiment) computed on the ES910 module. The proprietary ETK interface meets high real-time constraints, while XETK/Ethernet and CAN support the open XCP protocol for less demanding bypass purposes.

For signal output and decentralized acquisition of ambient measurement data, the ES910 module can be connected to the ETAS ES930 Multi-I/O modules, micro measuring modules from the ETAS ES400 Family,

At a glance

Multifunctional deployment for development of control units, calibration, and test-bench automation units

Integrated into ETAS INCA, INTECRIO, and ASCET-RP

High computing power

Control-unit and bus interfaces: ETAS ETK, XETK/Ethernet, 2x CAN, 2x LIN

Optional: FlexRay nodes with 2 FlexRay channels or 2x CAN interfaces or 2x CAN-FD interfaces

Compatible with ETK, XETK, XCP-on-Ethernet, and XCP-on-CAN bypass

Implementation- and service-based ETK bypass

Compatible for connection to ETAS ES930 Multi-I/O modules, ES400 micro measurement modules , and ES63x Lambda Modules for prototyping applications

Support for EtherCAT® and iLinkRT™ test-bench automation interfaces

and Lambda Meters of the ETAS ES63x Series.

Calibration in vehicles and on the test bench

ETAS INCA and INCA-EIP (Experimental Target Integration Package) enable calibration of the prototypes for new closed-loop control algorithms directly on the ES910 module. Moreover, INCA can implement the ES910 module for calibration, for acquiring control-unit and bus signals, for flash programming, and for diagnostics (CAN and CAN-FD). The ES910 module supports automated calibration on the test bench as a component of solutions tailored to customer needs. In combination with the ETAS INCA-MCE (Measurement and Calibration Embedded) engineering solution, the ES910 module ensures the rapid exchange of measured values and calibration variables between the control unit and the test bench's automation unit. The ES910 module converts and transfers data between the control unit and the test bench. The automation unit and the ES910 module communicate in real time with the help of EtherCAT® or iLinkRT™ protocols. With the aid of the ES910 module, measurement and calibration applications can be implemented with very short cycle times.

Technical data

Characteristic	Property	Description
Size and weight	Dimensions (H/W/D)	36 x 126 x 160 mm
	Weight	Approx. 850 g
Environment	Temperature range	-40 °C to +50 °C / -40 °F to +122 °F (operational)
Power supply	Input voltage	6 V to 32 V DC
	Power draw	14 W (typical) / 20 W (maximum)
	Standby power	< 25 mA
Host interface	Ethernet	10/100/1000 Base-T
Simulation target	Central processing unit	NXP PowerQUICC™ III MPC8548 with 800 MHz clock rate and double-precision floating-point arithmetic
Memory	RAM	512 MB DDR2 (400 MHz clock rate)
	Flash	64 MB
	NVRAM	128 KB
Control-unit and bus interfaces	ETK	1 channel, operating mode for ETAS-made memory emulator (ETK): Basic, Compatibility, Advanced; ETK bypass method: bypass hook or service-based (SBB V2)
	XETK	1 channel, bypass possible parallel to measurement and calibration
	LIN	2 channels, LIN V2.0
	CAN	2 channels, high-speed (up to 1 Mbaud) or low-speed Optional: ES921 CAN module with 2 additional CAN channels
	CAN-FD (optional)	ES922 CAN-FD module with 2 additional CAN-FD channels
	FlexRay (optional)	ES920 FlexRay module with 1 FlexRay node with 2 channels
Other interfaces	ES400 interface	Connection of ES930 Multi-I/O modules, ES400 micro measurement modules, and ES63x Lambda Modules for rapid prototyping applications
	Service port	Wake-up control, manual trigger, digital output as extension (3 channels, optional[1])
Support from ETAS software[2]	INTECRIO, INCA-EIP, ODX-LINK, Hardware Service Pack (HSP)	

[1] Please contact your local representative at ETAS Sales if you are interested in this configuration.

[2] For information regarding compatible versions, please contact your local ETAS representative.

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