

ES523 CAN FD Interface Module



The ES523 CAN FD Interface Module is designed to calibrate ECUs and capture measurement data from ECUs and their environment. It provides four CAN and three Ethernet connections and supports the new high-performance CAN FD (CAN with flexible data rate) protocol on all CAN channels.

Time-synchronous acquisition of measurement data

The ES523 module synchronizes all signals that are measured over the CAN and Ethernet channels. This makes the module ideally suited to the task of capturing signals transmitted in short time frames from an ECU via Ethernet through an XETK interface synchronously with CAN and CAN FD signals.

Flexible addition of measurement technology

In addition to ECUs and vehicle buses, the Ethernet measurement modules of the ETAS ES400 and ES600 product families can be connected to the interface module. The measurement modules are then powered via connections built into the Ethernet connectors.

Supported software

The ES523 module is supported by INCA, the ETAS tool for measuring and ECU

calibration, from version 7.1.7 onward and the INCA ODX-LINK and ODX-FLASH add-ons for ECU diagnostics and flash programming from version 1.5.7 onward. In conjunction with the BUSMASTER open-source software tool, the ES523 module can be used to simulate, analyze, and test CAN FD networks. In addition, the ETAS Hardware Service Pack (HSP) supplies firmware updates from version 10.7.0 onward.

Open interface

ETAS' EBI-IP software package enables users to integrate ECU and bus interfaces with third-party applications. The package is available for free from the download center on ETAS' website.

CAN FD

CAN FD (CAN with flexible data rate) is an improved, backward-compatible CAN protocol developed by Bosch. The principal differences to CAN consist in the increased payload data per message from 8 to 64 bytes, the higher transmission speeds of up to 8 Mbit/s, and the longer checksums, which enhance transfer reliability. CAN FD meets the automotive industry's need for higher bandwidth for networks. At the same time, CAN FD nodes can be easily integrated into existing CAN infrastructure.

At a Glance

Four electrically isolated CAN channels with Bosch M-CAN controller

CAN FD allows data to be transmitted at a rate of up to 5 Mbit/s (under laboratory conditions, higher)

XCP, UDS, and KWP protocols supported by CAN FD

Device wake-up via two CAN channels

Three Fast Ethernet ports with integrated power supply for connecting additional ETAS interface or measurement modules

Synchronization of signals captured with the device and the connected ETAS hardware with a time resolution of 1 μ s

Technical Data ES523.1

Item	Characteristics	Features
Size and Weight	Dimensions (HxWxD)	45 x 127 x 160 mm / 1.75 x 5.0 x 6.3 in (housing)
	Weight	0,8 kg / 1.8 lbs
Environment	Temperature range	-40 °C to +70 °C (-40 °F to +158 °F) (operation) -40 °C to +85 °C (-40 °F to +185 °F) (storage)
	Relative humidity	15 % to 95 %, non-condensing
	Electrical isolation	All interfaces are electrically isolated
Power supply	Operating voltage	7 V to 29 V DC
	Power consumption (at 14,4 V)	500 mA typical at 14,4 V (typical, operation) 20 mA typical at 14,4 V (typical, stand-by)
	Power management (Wake-up/Standby)	Power-on/off when Ethernet traffic starts/stops (PC or upstream module on/off), power-on when data traffic on CAN starts
	Protection	Reverse voltage protection, load dump protection
CAN FD / CAN interface	Number of channels	4
	Mode of operation	CAN FD or CAN operation can be configured for each port individually by software
	Protocols	CCP (not on CAN FD), XCP, KWP-on-CAN (ISO 14230/ISO 15765), UDS (ISO 14229/ISO 15765), CAN Monitoring, OBD-on-CAN (ISO 15765-4)
	Maximum baud rate on CAN	1 Mbit/s
	Maximum baud rate on CAN FD	5 Mbit/s (at optimum environmental conditions higher baud rates are possible)
	Transceiver (Physical Layer)	TJA1044G
Ethernet interface	Number of channels	1 upstream channel 3 downstream channels
	Connection and protocols	10/100 Base-T, TCP/IP
	Time synchronization	Time resolution: 1 µs
	Power supply of connected downstream devices	ES4xx and ES6xx measurement modules, maximum 2 A per interface independent of the power supply voltage
Status display	LEDs	Operation, interfaces, synchronization
Compatible hardware	PC / Upstream ETAS Module	Desktop or Laptop-PC with Ethernet port, ES51x, ES592, ES593-D, ES595, and ES600 Network and Interface Modules
	Downstream ETAS Module	ES520, ES590, ES591, ES592, ES593-D, ES595, and ES600 Network and Interface Modules, ES4xx and ES6xx Measurement Modules, ES910 Prototyping and Interface Module, ES930 Multi I/O Module, XETK

Ordering Information

Order Name	Short Name	Order Number
ES523.1 Interface Module (4 x CAN-FD, 3 x Ethernet) Including: Power cable (CBP120.1-2) and Ethernet PC cable (CBE100.1-3)	ES523.1	F-00K-109-522
Accessories¹		
CAN Termination Resistor 2xDSUB	CBCX131-0	F-00K-103-786
CAN, FlexRay and LIN Interface Y-Cable, Lemo 1B FGC - 2xDSUB (8mc-9fc+ 9mc), 2 m	CBCFI100.1-2	F-00K-106-893
CAN Interface Cable, Lemo 1B FGC – 2xDSUB (8mc-9fc+9mc), 2 m	K106	F-00K-001-271

¹ For a complete list of accessories for the ES523 module please refer to www.etas.com/ES523.

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