ES891/ES892

FETK ECU and Bus Interface Module

At a glance

- FETK Interface Module of the ES800 Measurement, Calibration, and Prototyping System
- The hardware modules permit transmission of data to a PC or Laptop via Gigabit Ethernet with rates up to the line speed
- Two FETK/Gigabit Ethernet connections, one XETK/Fast Ethernet connection
- One FlexRay interface with two channels (ES891)
- Up to five CAN / CAN FD interfaces
- One LIN interface
- Time synchronous capture of measurement data compliant with IEEE1588 Precision Time Protocol standard
- Robust metal housing (IP44)

The ES891/ES892 ECU and Bus Interface Modules are the key members of the modular ES800 Measurement, Calibration, and Prototyping System. Together, ETAS' ES891/ES892 modules, FETK, and INCA provide a future-proof solution for the validation and calibration of electronic systems in the vehicle and at the test bench.

Area of application

The ES891/ES892 modules record measurement data from ECUs and vehicle buses. They can be used for calibration, diagnostics, and ECU flash programming, or as an interface for prototyping modules. The ES891/ES892 modules, collect the recorded data and can transmit it via Gigabit Ethernet to a PC or laptop at a rate of up to 120 MB/s – in other words, the line speed.

Main functionality

As well as supporting Ethernet, FlexRay, CAN, CAN FD, and LIN vehicle buses, the modules support both ETAS' XETK and its high-performance FETK ECU interfaces. In fact, two FETKs can be connected simultaneously to one ES891/ES892 module. Measurement modules from the ES400 or ES600 product families as well as the ES523, ES592, ES593-D, and ES595 ECU and Bus Interface or theES9xx Prototyping and Bus Interface Modules can connect to the ES891/ES892 modules via Fast Ethernet. The ES891/ES892 modules capture all incoming signals synchronously, achieving time-stamp accuracy of the recorded data of better than one microsecond.

Open and compliant with standards

Thanks to the ES891/ES892 modules, applications can communicate with FETK ECUs via the standardized XCP-on-Ether-

net protocol. ETAS has made C libraries available for complete integration of the ES891/ES892 modules into other tools. The ES891/ES892 modules' time synchronization conforms to the IEEE1588 standard, facilitating easy integration into heterogeneous test setups and automation solutions with a central clock.

Technical Data

Size and weight

Dimensions (HxWxD)	62.8 mm x 215 mm x 230 mm / 2.47 in x 8.46 in x 9.05 in
Weight	2.92 kg / 6.44 lb

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)
Tested for	Mechanical shock, vibration, fall, temperature alteration, according to EN 60068 and ISO 16750
Protection class	IP44
Altitude	Maximum 5000 m / 16.400 ft height above sea level

Power supply

Operating voltage	6 V bis 32 V DC
Power consumption	Typically 2.2 A in operation and 12 mA in standby at 12 V operating voltage
Energy management (Wake-up / standby)	Power-on/off when Ethernet traffic starts/stops (PC or upstream module on/off). Configurable: power-on when CAN / CAN FD / Flexray traffic starts
Protection	Reverse voltage protection up to 32 V, load dump protection

Host interface

Gigabit Ethernet	1x 100/1000Base-T

Device interfaces

Fast Ethernet	1x XETK ECU interface. Alternatively: 1x 10/100Base-T for the connection of measurement and interface modules
Gigabit Ethernet	2x FETK ECU interfaces with host-side XCP-on-Ethernet support. With the help of an adapter cable, ETKs of type ETK-S20 and ETK-S21 can be connected. Alternatively: 2x 10/100/1000Base-T for the connection of measurement and interface modules
Power supply	Of connected ES4xx / ES6xx measurement modules and XETKs
Synchronization	Resolution: 1 µs

Bus interfaces

CAN/CAN FD[1]	5 channels high-speed CAN (2.0 A and 2.0B), transfer of CAN-FD Dataframes up to 64 Byte and rates up to 5 Mbit/s
FlexRay[1] (ES891 only)	1x FlexRay V2.1 interface with 2 channels A and B or one additional internal node for synchronizing the FlexRay bus
LIN	1 channel, LIN V2.2A

Status display

LEDs	Status of operation, interfaces, and synchronization

Compatible hardware

PC / ETAS upstream module	PC with Ethernet port, ES820 Drive Recorder
ETAS downstream modules	ES523, ES592, ES593-D, ES595, ES600.2, and ES88x Network and Interface Modules, ES4xx and ES6xx Measurement Modules, ES910.3 Prototyping and Interface Module, ES930 Multi-I/O Module as well as the XETK- and BR-XETK (with CBEB105 BroadR-Reach Media Converter)

Support by software

ETAS INCA	INCA V7.2 and up

[1] When the FlexRay interface of the ES891 module is not used, the ES891 module provides five CAN / CAN FD channels also.

Info A complete overview of ordering information and accessories for the ES820 module is available at www.etas.com/ES800. Further information can be obtained from your ETAS contact partner.