

# ETAI12

ETK ECU Flex Adapter, Erni - Samtec  
(12fc - 10fc), 0m136

User Guide

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Product ETA112 R03\_EN – 10.2022

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# 1 About this Document

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## 1.1 Classification of Safety Messages

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The safety messages used here warn of dangers that can lead to personal injury or damage to property:



### **DANGER**

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indicates a hazardous situation with a high risk of death or serious injury if not avoided.



### **WARNING**

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indicates a hazardous situation of medium risk, which could result in death or serious injury if not avoided.



### **CAUTION**

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indicates a hazardous situation of low risk, which may result in minor or moderate injury if not avoided.

### **NOTICE**

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indicates a situation, which may result in damage to property if not avoided.

## 1.2 Presentation of Instructions

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The target to be achieved is defined in the heading. The necessary steps for his are listed in a step-by-step guide:

### **Target definition**

1. Step 1
  2. Step 2
  3. Step 3
- Result

## 1.3 Presentation of Supporting Information

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### **NOTE**

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Contains additional supporting information.

## 2 Basic Safety Notices

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This chapter contains information about the following topics:

- General Safety Information on page 5
- Requirements for Users and Duties for Operators on page 5
- Intended Use on page 5
- Identifications on the Product on page 8
- Taking the Product Back and Recycling on page 8
- CE Declaration of Conformity (European Union) on page 9
- UKCA Declaration of Conformity (Great Britain) on page 9
- RoHS Conformity on page 9

### 2.1 General Safety Information

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Please observe the Product Safety Notices ("ETAS Safety Notice") and the following safety notices to avoid health issues or damage to the device.



#### NOTE

Carefully read the documentation (Product Safety Advice and this User Guide) that belongs to the product prior to the startup.

ETAS GmbH does not assume any liability for damages resulting from improper handling, unintended use or non-observance of the safety precautions.

### 2.2 Requirements for Users and Duties for Operators

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The product may be assembled, operated and maintained only if you have the necessary qualification and experience for this product. Incorrect operation or operation by users without sufficient qualification may lead to injuries or death or property damages.

#### General Safety at Work

The existing regulations for safety at work and accident prevention must be followed. All applicable regulations and statutes regarding operation must be strictly followed when using this product.

### 2.3 Intended Use

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An ETK is an electronic component that is installed in a vehicle control unit (ECU) to read data from the ECU or write data to the ECU.

#### Application Area of the Product

This product was developed and approved for automotive applications. For use in other application areas, please contact your ETAS contact partner.

#### Requirements for Operation

The following requirements are necessary for safe operation of the product:

- Use the product only according to the specifications in the corresponding User Guide. With any deviating operation, the product safety is longer ensured.
- Observe the regulations applicable at the operating location concerning electrical safety as well as the laws and regulations concerning work safety!
- Do not apply any voltages to the connections of the product that do not correspond to the specifications of the respective connection.
- Connect only current circuits with safety extra-low voltage in accordance with EN 61140 (degree of protection III) to the connections of the product.
- The power supply for the product must be safely disconnected from the supply voltage. For example, use a car battery or a suitable lab power supply.
- Use only lab power supplies with double protection to the supply system.
- Ensure that the connections of the power supply are easily accessible.
- The module does not have an operating voltage switch.
  - Switch on the product by connecting the power supply cable with the power supply or by switching on the power supply.
  - Switch off the product by disconnecting it from the power supply or by switching off the power supply.



### **DANGER**

**Connect the power cord only with a vehicle battery or with a lab power supply! A connection to power outlets is prohibited.**

- Route the power cord in such a way that it is protected against abrasion, damages, deformation and kinking. Do not place any objects on the power cord.
- Never apply force to insert a plug into a socket. Ensure that there is no contamination in and on the connection, that the plug fits the socket, and that you correctly aligned the plugs with the connection.
- Do not use the product in a wet or damp environment.
- Do not use the product in potentially explosive atmospheres.
- Keep the surfaces of the product clean and dry.

### **Potential Equalization**



### **CAUTION**

**Danger from inadvertent current flow!**

Depending on the design, the shield of the Ethernet cables can be connected with the housing of the module. Install the products only on components with the same electrical potential or isolate the products from the components.

### **Requirements for the technical State of the Product**

The product is designed in accordance with state-of-the-art technology and recognized safety rules. The product may be operated only in a technically flawless condition and according to the intended purpose and with regard to safety and dangers as stated in the respective product documentation. If the product is not

used according to its intended purpose, the protection of the product may be impaired.

## Maintenance and Cleaning

The product is maintenance-free. Use a lightly moistened, soft, lint-free cloth for cleaning the product. Ensure that no moisture can enter. Never spray cleaning agents directly onto the product. Do not use any sprays, solvents or abrasive cleaners which could damage the product.

## Transport and Installation



### CAUTION

#### **The Product can be damaged or destroyed!**

Some components of the ETK board may be damaged or destroyed by electrostatic discharges. Please keep the ETK in its storage package until it is installed. The board should only be taken from its package, configured, and installed at a workplace that is protected against static discharge.



### CAUTION

During installation and removal, ECU and ETK must be in a de-energized state!



### CAUTION

#### **Risk of short circuiting the internal signals of the Product!**

When you mount the Product, you must ensure that the screws and washers used will not penetrate the Product printed circuit board.



### CAUTION

#### **Differences in case ground potentials can cause high currents to flow through the shields of the cables that connect various system modules.**








Ensure that the module mounting surfaces are at the same electrical potential or insulate the modules from their mounting surfaces.

## Cabling

Use exclusively ETAS cables at the connections of the product! Adhere to the maximum permissible cable lengths! Observe the assignment of the cables to the connectors! Detailed information about cabling is located in the ETK User Guides

## 2.4 Identifications on the Product

The following symbols are used for identifications of the product:

Symbol	Description
	The User Guide must be read prior to the startup of the product!
	Symbol for WEEE, see chapter 2.5 on page 8
	Symbol for CE conformity, see chapter 2.6 on page 9
	Symbol for UKCA conformity, see chapter 2.7 on page 9
	Symbol for China RoHS, see chapter 2.8 on page 9
	Symbol for China RoHS, see chapter 2.8 on page 9
	Symbol for electrostatic sensitive components
XETK-S14.0A	Product designation (example)
F 00K 110 722	Order number of the product (example)
SN: yxxxxxx	Serial number (7-digit), depending on product Serial Number is not available.
XXXX/YY	Product version
ZZZZ	Year of manufacture
ETAS GmbH...	Manufacturer's address

## 2.5 Taking the Product Back and Recycling

The European Union has passed a directive called Waste Electrical and Electronic Equipment, or WEEE for short, to ensure that systems are setup throughout the EU for the collection, treating and recycling of electronic waste. This ensures that the devices are recycled in a resource-saving way representing no danger to health or the environment.



Figure 1: WEEE-Symbol

The WEEE symbol (see Figure 1) on the product or its packaging shows that the product must not be disposed of as residual garbage. The user is obliged to collect the old devices separately and return them to the WEEE take-back system for recycling. The WEEE directive concerns all ETAS devices but not external cables or batteries. For more information on the ETAS GmbH Recycling software, contact the ETAS sales and service locations.



## **2.6 CE Declaration of Conformity (European Union)**

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With the CE mark attached to the product or its packaging, ETAS confirms that the product corresponds to the applicable product-specific European Directives. The CE Declaration of Conformity for the product is available upon request.

## **2.7 UKCA Declaration of Conformity (Great Britain)**

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With the UKCA mark attached to the product or its packaging, ETAS confirms that the product corresponds to the product-specific, applicable standards and directives of Great Britain. The UKCA declaration of conformity for the product is available on request.

## **2.8 RoHS Conformity**

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### **2.8.1 European Union**

The EU Directive 2011/65/EU limits the use of certain dangerous materials for electrical and electronic devices (RoHS conformity).

This product does not contain any of the restricted substances specified in the EU Directive 2011/65/EU or exceeds the maximum concentrations stipulated therein. For individual electronic components used in our products, there are currently no equivalent alternative substances, which is why we make use of the exception 7C-I in Annex III of this Directive.

ETAS confirms that the product corresponds to this directive which is applicable in the European Union.

### **2.8.2 China**

ETAS confirms that the product meets the product-specific applicable guidelines of the China RoHS (Management Methods for Controlling Pollution Caused by Electronic Information Products Regulation) applicable in China with the China RoHS marking affixed to the product or its packaging.

### 3 Introduction

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Adapts ECU with a 10 pin SAMTEC connector to an XETK-S21.0. Supported is JTAG Interface. To increase the signal-noise ratio there is an buffer in the /TRST line supplied by the VDD(Sense) Voltage. The adapter is suitable for 3,3V and 5V JTAG Signals. For 5V the ETAI12 Adapter is required

#### 3.1 View

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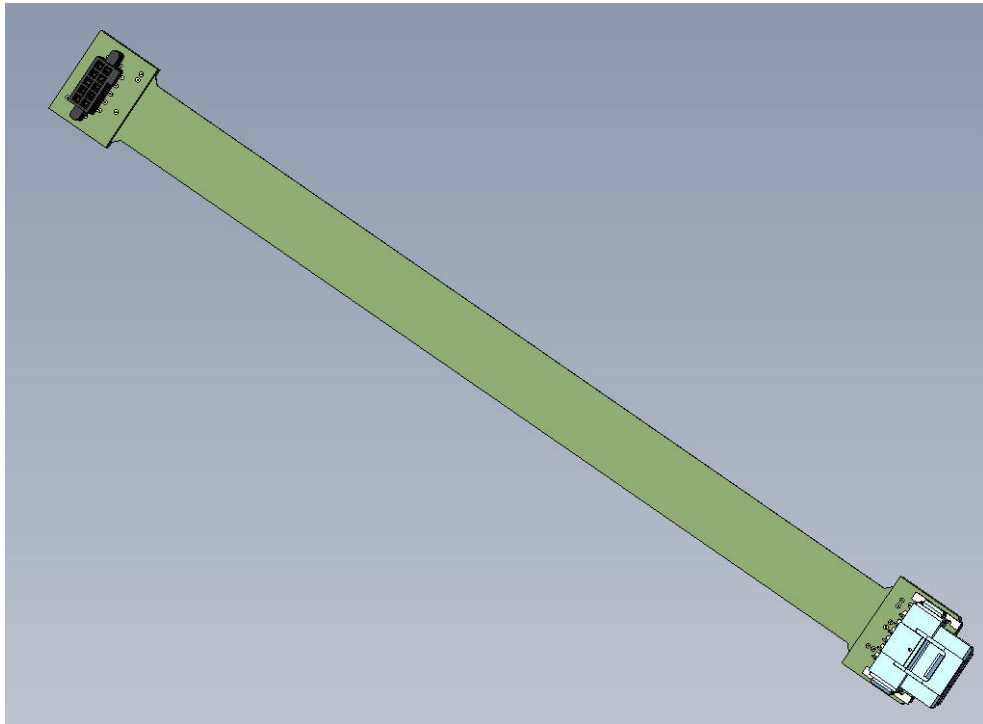


Figure 2: View



#### NOTE

Minimum bending radius for the flex foil is 3mm.

## 4 Technical Data

### 4.1 ECU Connector

In order to be able to use the ETK adapter ETA12 in the ECU, a 10 pin SAMTEC connector (e.g. TFM-105-02-S-D-P) must be available on the ECU.

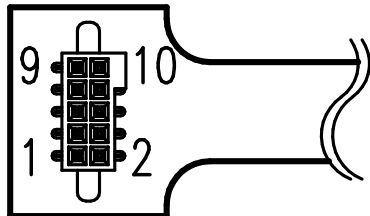


Figure 3: Pin Count

Pin Number	JTAG Mode	DAP Mode
1	GND	GND
2	TCK	DAP0
3	/TRST	/TRST
4	TDO	DAP2
5	TMS	DAP1
6	TDI	-
7	WDGDIS	WDGDIS
8	VDD (Sense)	VDD (Sense)
9	/RESETOUT	/RESETOUT
10	/PORESET	/PORESET

### 4.2 Pin Count for the Connectors

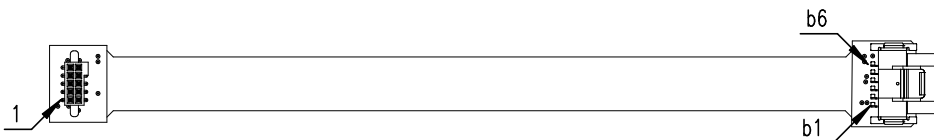


Figure 4: Pin Count for the connectors

### 4.3 Electrical Characteristics for /TRST Signal

#### Supply /TRST Buffer

Signal	Condition	VIHmin	VIHmax
VDD(Sense)	ECU on	3.0V	5.5V

#### /TRST Output Signal

Signal	Condition	VOHmin	VOHmax	VOLmax
/TRST	VDD(Sense)=3V IOH = 4mA	2.34V	VDD(Sense)	0.52V
/TRST	VDD(Sense)=4.5V IOH = 8mA	3.66V	VDD(Sense)	0.52V

## 4.4 Measurement Drawings

Measured in mm

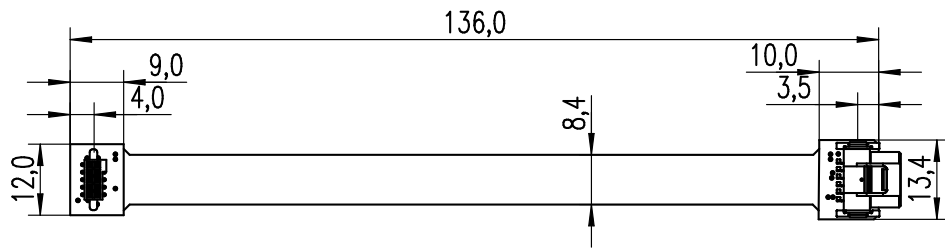


Figure 5: Top View

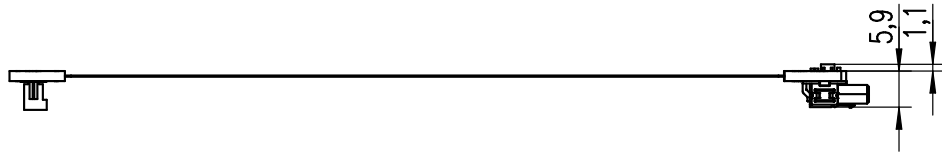


Figure 6: Side View

## 4.5 Temperature Range

Condition	Temperature
Operating Temperature	-40°C - +110°C

## 5 Ordering Information

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<b>Short Name</b>	<b>Order - Number</b>
ETAI12	F 00K 109 671

## 6 Contact Information

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### ETAS Headquarters

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### ETAS Subsidiaries and Technical Support

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

ETAS subsidiaries                      Internet: [www.etas.com/en/contact.php](http://www.etas.com/en/contact.php)  
ETAS technical support                Internet: [www.etas.com/en/hotlines.php](http://www.etas.com/en/hotlines.php)