

ETP6

Power supply for ECU with 1.0 V
microcontroller

User Guide

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ETP6 User Guide R01_EN – 09.2022

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1 About this Document

1.1 Classification of Safety Messages

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



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



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



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

NOTICE

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

1.2 Presentation of Instructions

The target to be achieved is defined in the heading. The necessary steps for this 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



Contains additional supporting information.

2 Basic Safety Notices

2.1 General Safety Information

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

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

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.

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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 2.8.2 on page 9
	Symbol for China RoHS, see chapter 2.8.2 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 page 8) 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)

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)

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

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

ETP6 is a Power Supply for ECU application. Output rating is 1.0 V at 0.5 A with an input voltage range of 4.3 V to 18 V. An ETV Cable is necessary for connecting UBatt. The ETP6 uses a Step-Down Switching Regulator for reducing power dissipation. The Output is Short-Circuit protected.

3.1 View

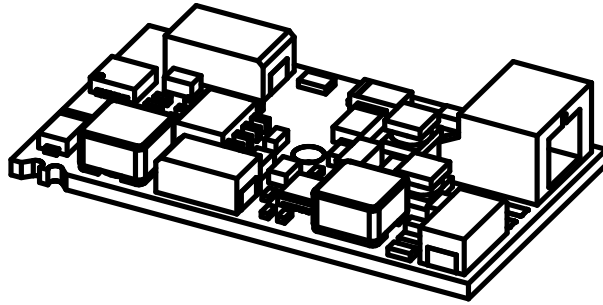


Figure 2: 3D-View

4 Technical Data

4.1 Connectors

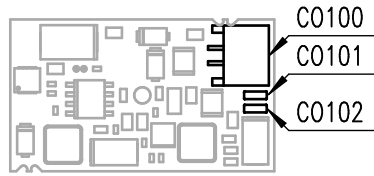


Figure 3: Connector Placement



Figure 4: Pin Ordering CO100

4.1.1 CO100 – Ubatt1 in

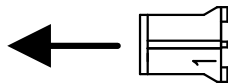


Figure 5: JST PHR-2 Connector

Pin Number	Description
1	UBatt 1
2	GND

4.1.2 CO101 – Ubatt2 in

Connection	Description
Solder pad	UBatt 2

4.1.3 CO102 – Uout

Connection	Description
Solder pad	Uout 1.0 V

4.2 Installation

4.2.1 Permanent Power Supply inside ECU available

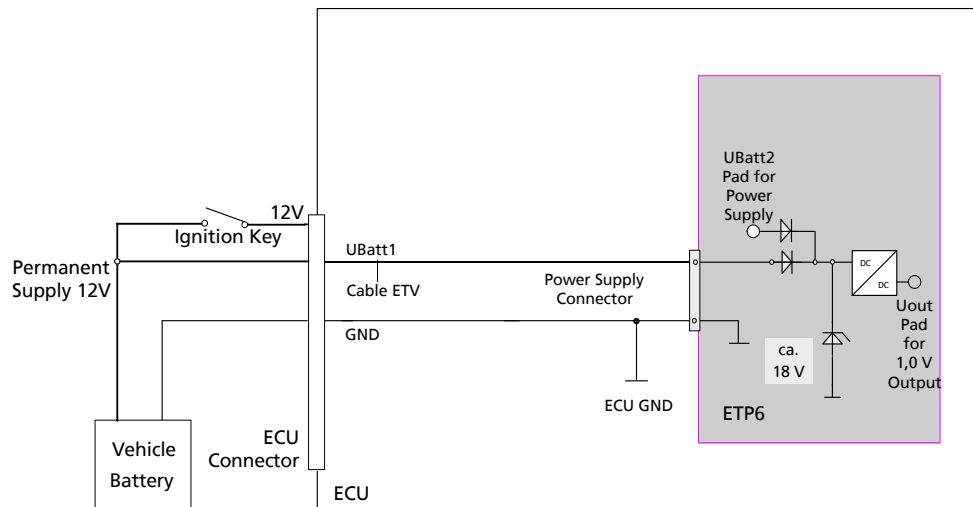


Figure 6: Permanent Power Supply inside ECU available

4.2.2 Permanent Power Supply inside ECU not available

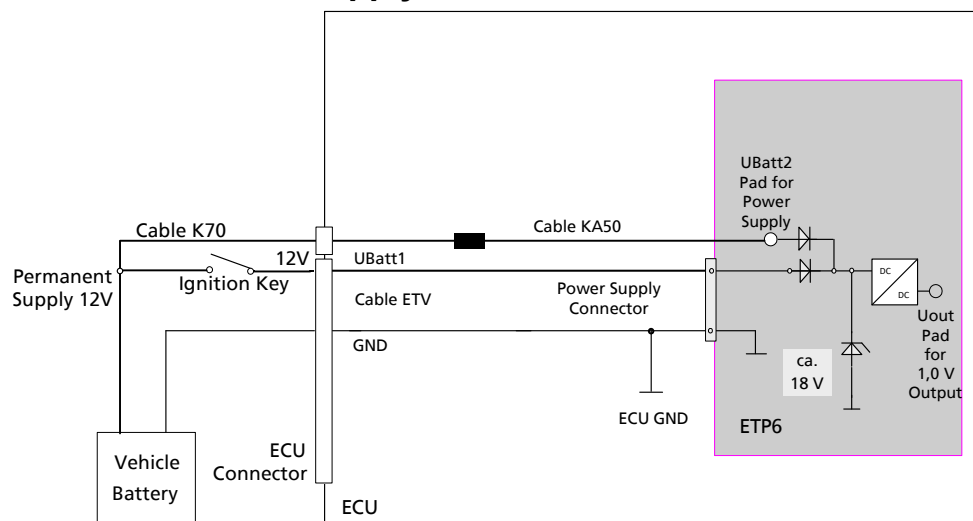


Figure 7: Permanent Power Supply inside ECU not available

4.3 DC Parameters

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Permanent Power Supply (car battery)	Ubatt 1, Ubatt 2		4.3	12	18	V
Standby Current	Istby	Ubatt = 12 V; T = 20 °C; no load	0.1	0.7	1.1	mA
Supply Current	Ibatt	Ubatt = 12 V; T = 20 °C; 500 mA load		62		mA
Uout	Uout	load 0 – 500 mA	0.94	1.00	1.04	V

Parameter	Symbol	Condition	Min	Typ	Max	Unit
I _{out}	I _{out}		0		500	mA
Powerup	t _{up}	U _{batt} 0V ↑ 12 V U _{out} up to 1.0 V		700		μs

**NOTE**

Output is short-circuit protected against GND with auto restart function.

4.4 Mechanical Drawings

Measurements in mm

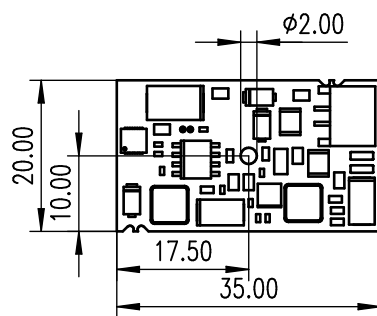


Figure 8: Top View

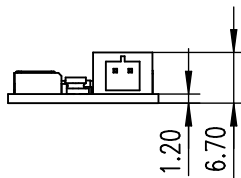


Figure 9: Side View

4.5 Ambient Conditions

Operating Temperature	-40 °C to +110 °C -40 °F to +230 °F
Storage temperature range	0 °C to +50 °C +32 °F to +122 °F
Max. relative humidity (non-condensing)	95%
Max. altitude	5000 m / 16400 ft
Degree of contamination (IEC 60664-1, IEC 61010-1)	2
Protection rating (when closed)	Determined by installation in ECU

5 Ordering Information

Long Name	Short Name	Order - Number
Power supply for ECU with 1.0 V microcontroller	ETP6	F 00K 114 211
ETK Power Supply Cable, JST PHR – open wires (2fc-2c), 0m19	ETV	Y 261 A24 446

6 Contact Information

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ETAS subsidiaries Internet: www.etas.com/en/contact.php
ETAS technical support Internet: www.etas.com/en/hotlines.php