

ES5371.1 Carrier Board for ES4435 Load Boards

User's Guide



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1 Introduction

This User's Guide describes the ES5371.1 Carrier Board for ES443x Load Boards.



CAUTION!

Some components of the ES5371.1 Carrier Board for ES443x Load Boards may be damaged or even destroyed by static discharge. Leave the board in its transport package until you want to install it. The ES5371.1 Carrier Board for ES443x Load Boards should only be taken from its package, configured and installed at a working place that is protected against static discharge.

This chapter contains information on the following topics:

- "Features" on page 6
- "Basic Safety Instructions" on page 8
- "Identifications on the Product" on page 11
 - "CE Marking" on page 11
 - "RoHS Conformity" on page 11
- "Taking the Product Back and Recycling" on page 12
- "About This Manual" on page 13

1.1 Features

The ES5371.1 Carrier Board for ES443x Load Boards is used to accommodate ETAS ES443x Load Boards.

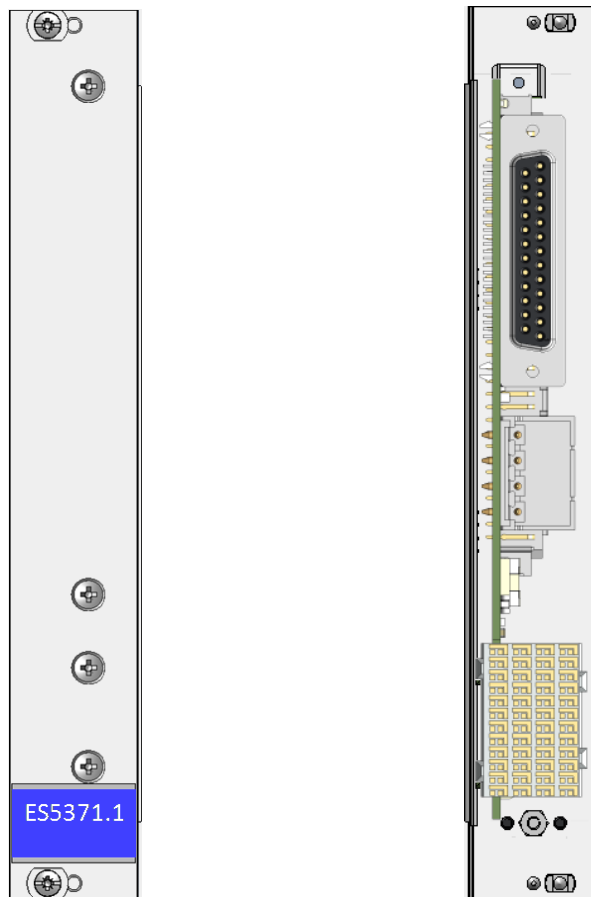


Fig. 1-1 Front Panel and Rear of the ES5371.1

The ES5371.1 Carrier Board for ES443x Load Boards comes without a Load Board. The adapter is shown as it is delivered in Fig. 1-2.

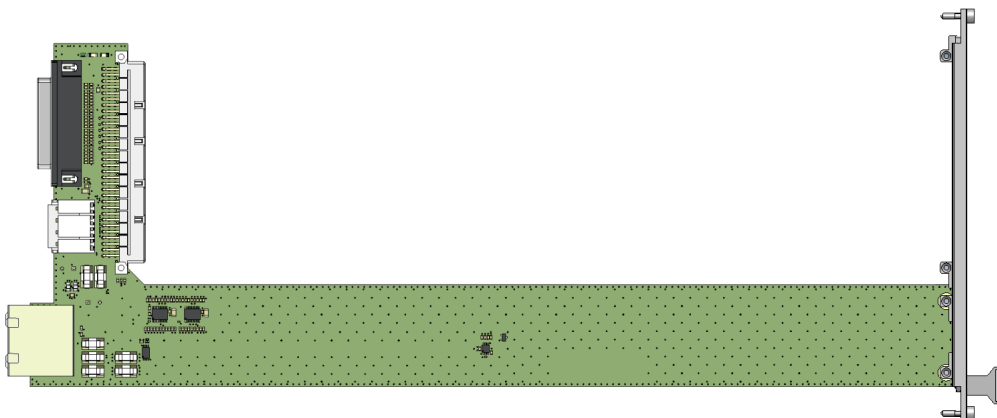


Fig. 1-2 ES5371.1 Carrier Board for ES443x Load Boards (View from the Side)

Fig. 1-3 shows the ES5371.1 Carrier Board for ES443x Load Boards holding an ES4435.1 Current Source Load Board (ETAS order number F-00K-106-163).

For more details on the ES4435.1 Current Source Load Board, please refer to the "ES4435.1 Current Source Load Board – User’s Guide".

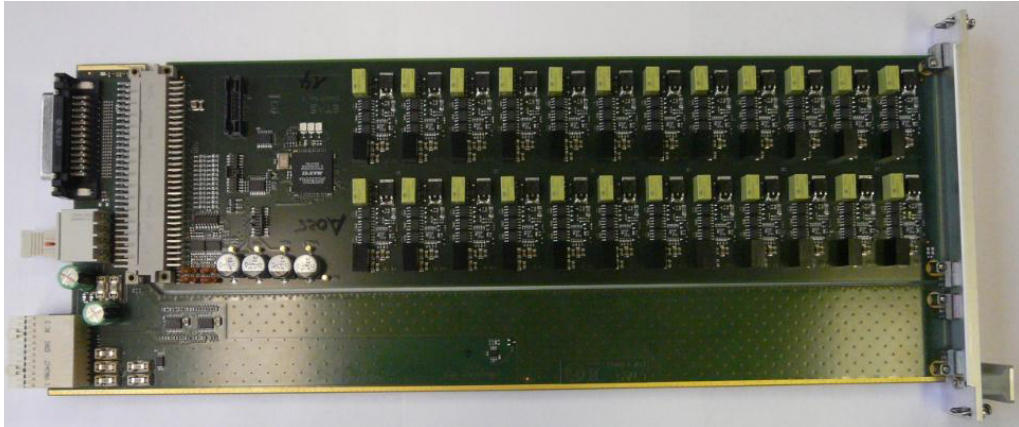


Fig. 1-3 ES5371.1 Carrier Board for ES443x Load Boards (with ES4435.1)



CAUTION!

The ES5371.1 Carrier Board for ES443x Load Boards is only designed to be used with ETAS ES443x Load Boards. Installing boards not supported can lead to the ES5371.1, ES5300.1-A/B Housing and/or the non-supported board being damaged!

The function units of the ES5371.1 Carrier Board for ES443x Load Boards are shown in the following block diagram:

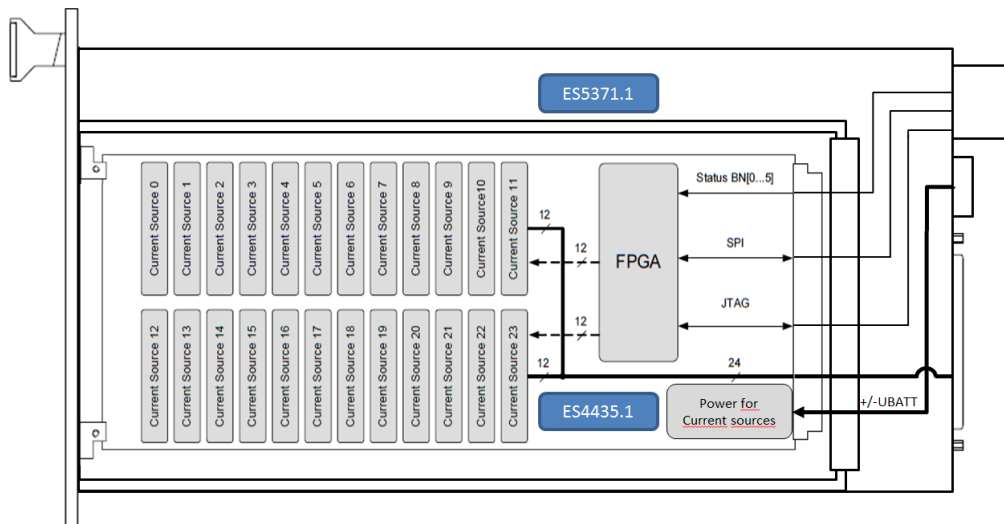


Fig. 1-4 Block Diagram of the ES5371.1 Holding an ES4435.1.

The signal I/O lines of the ES443x boards are routed over the 25-pin D-Sub connector. The WAGO PicoMAX 5.0 female connector can be used to apply the +UBatt or –UBatt voltages. The status of the signals BN[0...5], SPI and JTAG is routed between the ES5371.1 and the ES443x board via the interface and then to the ES5300.1-A backplane connector.



CAUTION!

The ES5371.1 Carrier Board for ES443x Load Boards is not protected against the polarity of the UBatt voltages being mistaken!

To protect the UBatt voltage, there are two fuses on the ES5371.1. The ES4435.1 Current Source Load Board is protected against the polarity of the UBatt voltage being mistaken.

1.2 Basic Safety Instructions

Please adhere to the safety instructions in this manual to avoid injury to yourself and others as well as damage to the device.

1.2.1 Labeling of Safety Instructions

The safety instructions contained in this manual are shown with the standard danger symbol shown below:



The following safety instructions are used. They provide extremely important information. Please read this information carefully.



CAUTION!

indicates a low-risk danger which could result in minor or less serious injury or damage if not avoided.



WARNING!

indicates a possible medium-risk danger which could lead to serious or even fatal injuries if not avoided.



DANGER!

indicates a high-risk, immediate danger which could lead to serious or even fatal injuries if not avoided.

1.2.2 General Safety Information

Please read the following safety instructions to avoid injury to yourself and others as well as damage to the device.

Note

Please read this User's Guide carefully before using the product.

ETAS GmbH cannot be made liable for damage which is caused by incorrect use and handling and not adhering to the safety instructions.

1.2.3 Transport and Installation

Please take the following precautionary measures to avoid hardware being damaged by static discharge:



CAUTION!

Some components of the ES5371.1 Carrier Board for ES443x Load Boards may be damaged or even destroyed by static discharge. Leave the board in its transport package until you want to install it. The ES5371.1 Carrier Board for ES443x Load Boards should only be taken from its package, configured and installed at a working place that is protected against static discharge.

1.2.4 Connecting/Removing Devices

Please take the following precautionary measures to avoid any injuries and damage to hardware:

- Do not apply any voltages to the ports of the ES5371.1 Carrier Board for ES443x Load Boards which do not correspond to the specifications of the relevant port.
- Do not connect or disconnect any devices while the ES5300.1-A Housing or external devices are powered on.
First, power off the ES5300.1-A Housing by shutting down the real-time PC and using the on/off switch on the back of the device, and detach all power plugs.
- When inserting any connectors, please make sure they are absolutely straight and that none of the pins are bent.

1.2.5 Requirements made of the User and Obligations of the Operator

Make sure you only assemble, operate and maintain the product if you have the relevant qualification for and experience with this product. Incorrect usage or operation by users without an appropriate qualification can lead to serious or even fatal injuries as well as damage to property.

General Occupational Health and Safety

The existing regulations on occupational health and safety as well as accident prevention must be adhered to.

1.2.6 Correct Use

The ES5371.1 Carrier Board for ES443x Load Boards is a plug-in board for the ES5300 System Housing for accommodating ES443x Load Boards.

The ES5371.1 consists of:

- One slot for holding ES443x boards,
- One SPI and one JTAG interface to the ES5300 System Housing for configuring the ES443x board,
- One output interface to the ECU,
- One digital interface for signals to the battery node control,
- One supply voltage of the ES443x board

and

- One interface for the battery voltage.
 - The simulation of the vehicle battery itself is not a component part of the ES5300 System Housing and cannot be integrated here.

The ES5371.1 may only be installed and operated in an ES5300 System Housing.

The ES5371.1 in an ES5300 System Housing is intended to be used as follows

- In industrial lab facilities or at industrial workplaces,
- As a hardware interface for ECUs in a Hardware-in-the-Loop test system,
- In conjunction with ETAS software which supports the ES5300 System Housing,
- As an interface together with software programs that serve the standardized, documented and open APIs of ETAS software products.

The ES5371.1 is not intended to be used

- In a vehicle on the road,
- As part of a life support system,
- As part of a medical application,
- In applications in which misuse can lead to injury or damage,
- In environments with conditions outside the specified ranges (see "Environmental Conditions" on page 27),
- With signal conditioning working outside the specified ranges (see "Voltages, Currents and Power Consumption" on page 27).

Demands made of Operation

The following requirements are made to ensure safe operation:

- Only use the product in accordance with the specifications in the relevant User's Guide. Product safety is not guaranteed if the device is used other than intended.
- Observe all applicable regulations on site concerning electrical safety as well as the rules and regulations on occupational health and safety!
- Never use the product in a wet or damp environment.
- Never use the product in areas subject to explosions.
- Make sure you keep the surface of the product clean and dry.





Demands made re the Technical State of the Product

This state-of-the-art product adheres to all recognized safety-related regulations. The product must only be used if it is in full working order, with the relevant personal only using the device as it was intended, taking all security issues and

risks into account as well as taking into consideration the relevant documentation at all times. If the product is not used correctly, the protection of the product may be impaired.

1.3 Identifications on the Product

The following symbols are used for identifying the product:

Symbol	Description
	Before using the product, carefully read the user's guide!
	Identification for CE (see "CE Marking" on page 11)
	Identification for China RoHS (see "RoHS Conformity" on page 11)
	Identification for WEEE directive (see "Taking the Product Back and Recycling" on page 12)

Observe the information in chapter "Technical Data" on page 27.

1.4 CE Marking

ETAS confirms that the product meets the product-specific applicable European Directives with the CE marking affixed to the product or its packaging. The CE Declaration of Conformity for the product is available upon request.

1.5 RoHS Conformity

1.5.1 European Union

The EU Directive 2002/95/EU limits the use of certain dangerous materials for electrical and electronic devices (RoHS conformity).

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

1.5.2 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.

The concluding chapter "ETAS Contacts" gives you information about the international ETAS sales and service branch offices.

1.6 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 set up throughout the EU for the collection, treatment 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.



Fig. 1-5 WEEE Symbol

The WEEE symbol 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 Program, contact the ETAS sales and service locations (see "ETAS Contact Addresses" on page 29).

1.7 About This Manual

This manual consists of the following chapters:

- "Introduction" on page 5
This chapter
- "Features and Functions" on page 15
This chapter describes the features and functions of the components of the ES5371.1 Carrier Board for ES443x Load Boards.
- "Pin Assignment and Connections" on page 21
This section describes the various connectors of the ES5371.1 Carrier Board for ES443x Load Boards.
- "Technical Data" on page 27
This chapter contains the technical data on the ES5371.1 Carrier Board for ES443x Load Boards.

1.7.1 Using This Manual

Representation of Information

All activities to be carried out by the user are shown in what we call a "Use-Case" format, i.e. the target to be achieved is defined briefly in the title and the individual steps necessary to achieve this target are then listed. The information is displayed as follows:

Target definition

Any introductory information...

- Step 1
Possibly an explanation of step 1...
- Step 2
Possibly an explanation of step 2...

Any concluding remarks...

Concrete example:

To create a new file

If you want to create a new file, no other file may be open.

- Select **File** → **New**.
The "Create file" dialog box appears.
- Enter a name for the file in the "File name" field.
The file name must not exceed 8 characters.
- Click **OK**.

The new file is created and saved under the name specified. You can now work with the file.

Typographic Conventions

The following typographic conventions are used:

Select File → Open .	Menu commands are shown in boldface/blue.
Click OK .	Buttons are shown in boldface/blue.
Press <ENTER>.	Keyboard commands are shown in angled brackets in block capitals.
The "Open File" dialog box appears.	Names of program windows, dialog boxes, fields etc. are shown in quotation marks.
Select the file <code>setup.exe</code> .	Text in drop-down lists, program code, as well as path and file names are shown in the <code>Courier</code> font.
A conversion between the file types logical and arithmetic is <i>not</i> possible.	Content markings and newly introduced terms are shown in <i>italics</i> .

Important notes for the user are shown as follows:

Note

Important note for the user.

2 Features and Functions

This chapter describes the features and functions of the components of the ES5371.1 Carrier Board for ES443x Load Boards.

- "Power Supply" on page 15
- "Fuses" on page 16
- "Assembling the ES443x Load Boards" on page 17
 - "Assembling the ES5371.1 in the ES5300.1-A Housing" on page 18
 - "Inserting the ES5371.1 into the Slot" on page 19

2.1 Power Supply

Power is supplied to the ES5371.1 Carrier Board for ES443x Load Boards and accommodated load boards via the backplane of the ES5300.1-A. The CO402 connector (see Fig. 2-1) is responsible for the electrical connection.

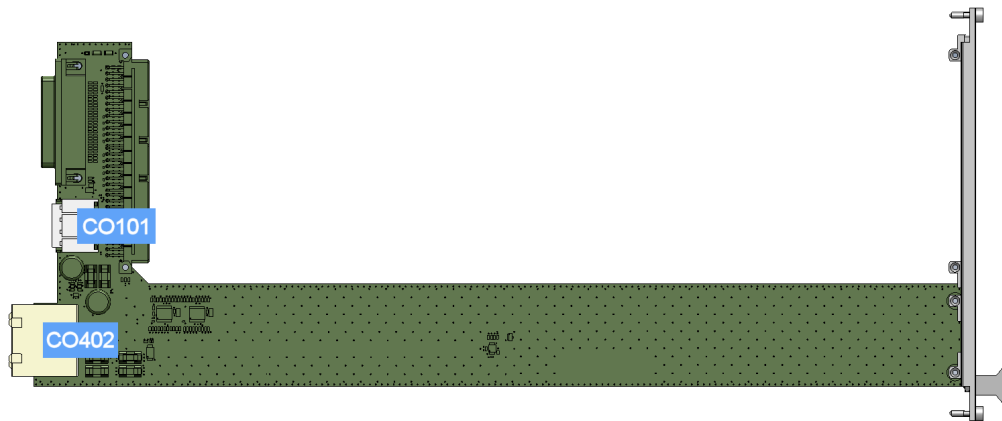


Fig. 2-1 Connections to the Power Supply

The battery voltages of the load circuits for the ES443x Load Boards are supplied via CO101 and have to be connected separately.

2.2 Fuses

There are five fuses on the ES5371.1 Carrier Board for ES443x Load Boards to protect the backplane voltages. The battery voltage is protected using two separate fuses.

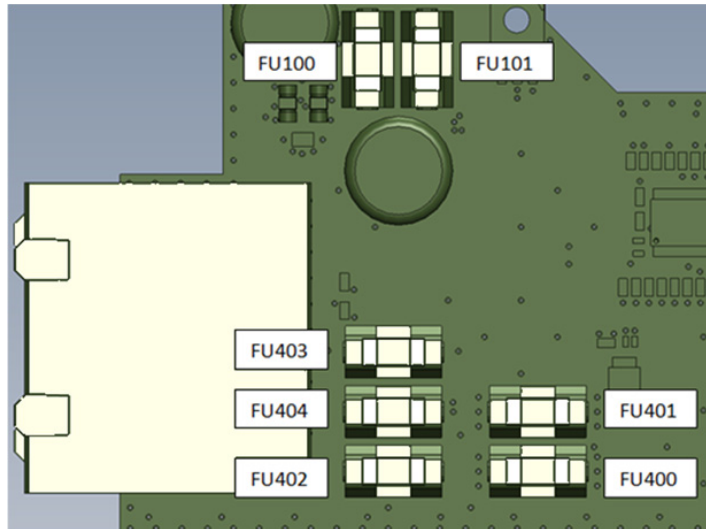


Fig. 2-2 Fuse Positions

Fuse	Type	Specification	Protection of (voltage)
FU100	NANO2® Slo-Blo®Fuse 452/454 Series	T 5 A	Positive battery voltage
FU101	NANO2® Slo-Blo®Fuse e 452/454 Series	T 5 A	Negative battery voltage
FU400	NANO2® Slo-Blo®Fuse 452/454 Series	T 3 A	VCC12 (+12V)
FU401	NANO2® Slo-Blo®Fuse 452/454 Series	T 3 A	VCC3_3 (+3.3V)
FU402	NANO2® Slo-Blo®Fuse 452/454 Series	T 3 A	VCC5 (+5V)
FU403	NANO2® Slo-Blo®Fuse 452/454 Series	T 1.5 A	+24V (prepared)
FU404	NANO2® Slo-Blo®Fuse 452/454 Series	T 0.5 A	VSS12 (-12V)

Tab. 2-1 Fuses



CAUTION!

Not observing the fuse specifications can lead to overcurrents, short-circuits and fire. Only use fuses which correspond to the specifications listed in Tab. 2-1! Never bridge faulty fuses!

**CAUTION!**

Fuses can only be exchanged when the ES5371.1 has been removed!

2.3 Assembling the ES443x Load Boards

The ES4435.1 Current Source Load Board is used below as an example of how to assemble a load board.

Before the ES4435.1 can be assembled on the ES5371.1, the front panel of the ES4435.1 has to be removed.

- Remove the front panel of the ES4435.1 by loosening the assembly bracket from the board (see Fig. 2-3 – loosening the screws shown in a green box).
- Remove the front panel (in the direction of the red arrow).
- The ES5371.1 comes with two assembly brackets with screws. Assemble the new assembly brackets on the ES4435.1 as shown in Fig. 2-3.

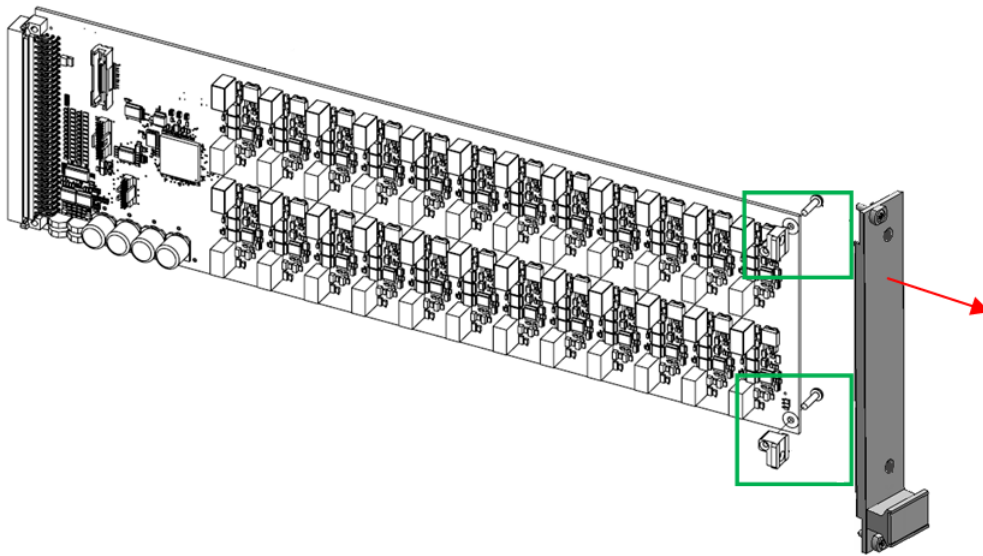


Fig. 2-3 Removing the Front Panel of the ES4435.1

**CAUTION!**

Ensure you have ESD-compliant conditions to avoid damage to the electronic components of the ES4435.1.

**CAUTION!**

Ensure that the mechanical stress on all components is as low as possible. Screws should only be tightened as if they were "hand-screwed".

- Remove the front panel of the ES5371.1 by untightening the rounded head screws.
- Carefully slide the ES4435.1 into the ES5371.1 (see Fig. 2-4; in the direction of the red arrow).

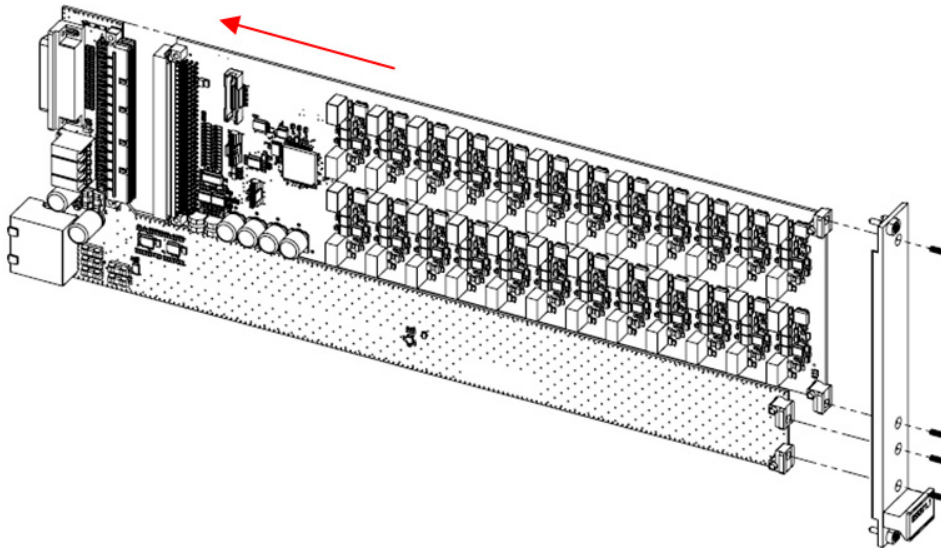


Fig. 2-4 Assembling the ES4435.1 in the ES5371.1

- Fix the front panel to the ES4435.1 and ES5371.1 with four Phillips screws M2.5 x 6.



CAUTION!

Ensure the boards are aligned correctly so that no connector pins can be bent. The ES4435.1 and ES5371.1 assembly brackets should be aligned before you assemble any front panels.

2.3.1 Assembling the ES5371.1 in the ES5300.1-A Housing



CAUTION!

Some components of the ES5371.1 Carrier Board for ES443x Load Boards may be damaged or even destroyed by static discharge. Leave the board in its transport package until you want to install it. The ES5371.1 Carrier Board for ES443x Load Boards should only be taken from its package, configured and installed at a working place that is protected against static discharge.



CAUTION!

Do not install any boards while the ES5100.1 Desktop Housing is powered on.

- Before you start, ensure you have ESD-compliant conditions at your workplace.

2.3.2 Inserting the ES5371.1 into the Slot

**CAUTION!**

Before assembling the ES5371.1 in the ES5300.1-A Housing, please ensure that the Load Board is correctly assembled in the ES5371.1!

- Shut down the Real-Time PC and disconnect the power supply to the ES5300.1-A Housing by switching it off on the back of the device.
- Wait a few minutes until the components (capacitors etc.) have discharged.
- Position the ES5371.1 (gripping plate on the front panel must be pointing down!) into the top and bottom rail of the slot and insert it slightly.
- Carefully slide in the carrier board until the backplane connector of the ES5371.1 is completely plugged in to the backplane socket.

**CAUTION!**

When sliding in the board, please make sure there are no cables in the way – if necessary, pull the cords into the front door area.

- Secure the carrier board by tightly screwing on the slot bracket.

**CAUTION!**

The circulation of air within the ES5300.1-A Housing can only be ensured if all free slots are covered with front panels. If not, overtemperature can be the result, activating the overtemperature protection of the ES5300.1-A.

Ensure you cover all free slots with front panels!

3 Pin Assignment and Connections

This section describes the various connectors of the ES5371.1 Carrier Board for ES443x Load Boards.

- "Backplane Connector (CO402)" on page 21
- "D-Sub25 (CO100)" on page 23
- "Battery Voltages (CO101)" on page 24
- "Connectors for ES443x Load Boards (CO200)" on page 25

3.1 Backplane Connector (CO402)

Type: ERNI ERMet ZD Right Angle Female Connector 4 Pair (4-12)
(Part Number 973099)

Mating connector (in ES5300): ERNI ERMet ZD Vertical Male Connector 4 Pair (4-12) (Part No. 973096)

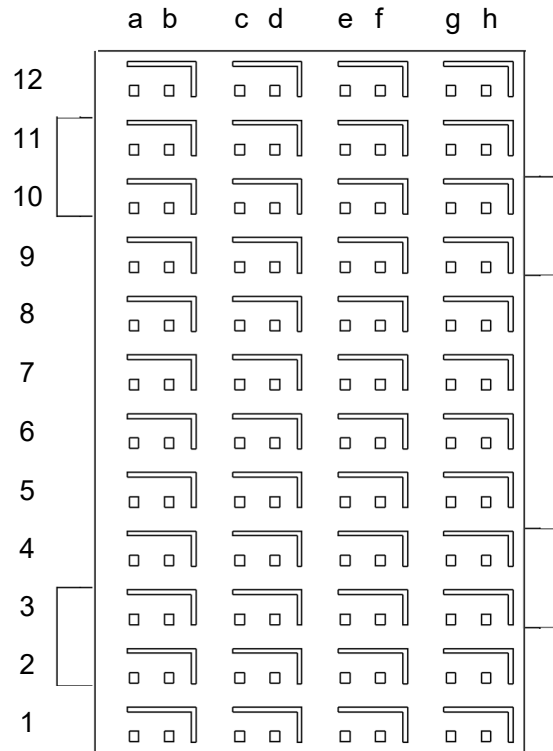


Fig. 3-1 Connector to the Backplane of the ES5300.1-A (Plug-In Side)

The pin assignment is as follows:

	a	b	c	d	e	f	g	h
12	BN_4	BN_5	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
12-Shield	GND		GND		GND		GND	
11	SPI_CS_A_n	SPI_CS_B_n	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
11-Shield	GND		GND		GND		GND	
10	SPI_CLK	SPI_MOSI	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
10-Shield	GND		GND		GND		GND	
9	SPI_MISO	PCIE_WAKEn	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
9-Shield	GND		GND		GND		GND	
8	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
8-Shield	GND		GND		GND		GND	
7	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
7-Shield	GND		GND		GND		GND	
6	PCIE_JTAG_TDI	PCIE_JTAG_TCK	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
6-Shield	GND		GND		GND		GND	
5	PCIE_JTAG_TMS	PCIE_JTAG_TDO	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
5-Shield	GND		GND		GND		GND	
4	BN_2	BN_3	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
4-Shield	GND		GND		GND		GND	
3	BN_0	BN_1	PCIE_SMBCLK	PCIE_SMBDAT	n.c.	n.c.	VCC24	VCC24
3-Shield	VCC3_3		VCC3_3		VCC3_3		VCC3_3	
2	n.c.	n.c.	n.c.	PCIE_PERSTn	VCC5	VCC3_3	VSS12	VSS12
2-Shield	VCC12		VCC12		VCC12		VCC12	
1	VCC12	VCC12	VCC12	VCC12	VCC5	VCC5	VCC3_3	VCC3_3
1-Shield	VCC12		VCC12		VCC12		VCC12	

3.2 D-Sub25 (CO100)



CAUTION!

For details of the permissible voltages and currents, please refer to the specifications in "Voltages, Currents and Power Consumption" on page 27.

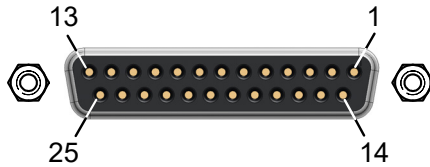


Fig. 3-2 D-Sub25 Port for Signals

Pin	Signal	Pin	Signal
1	Current Source 0	14	Current Source 13
2	Current Source 1	15	Current Source 14
3	Current Source 2	16	Current Source 15
4	Current Source 3	17	Current Source 16
5	Current Source 4	18	Current Source 17
6	Current Source 5	19	Current Source 18
7	Current Source 6	20	Current Source 19
8	Current Source 7	21	Current Source 20
9	Current Source 8	22	Current Source 21
10	Current Source 9	23	Current Source 22
11	Current Source 10	24	Current Source 23
12	Current Source 11	25	-UBatt
13	Current Source 12		

Tab. 3-1 Pin Assignment for ES4435.1 Assembly

3.3 Battery Voltages (CO101)

Plug (on board): WAGO picoMAX® (Item No. 2092-1424)

Female connector (provided): WAGO picoMAX® (Item No. 2092-1104)

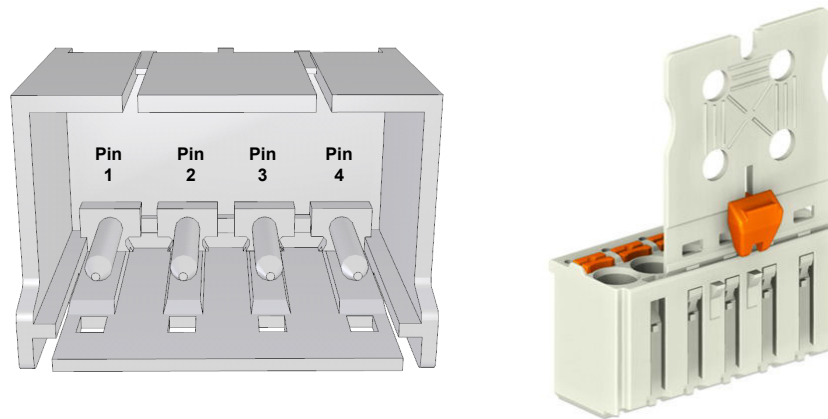


Fig. 3-3 Plug on ES5371.1 (Left) and Female Connector with Gripping Plate (Right)

Pin	Signal
1	+UBatt
2	+UBatt
3	-UBatt
4	-UBatt

Tab. 3-2 CO101 Pin Assignment



CAUTION!

The ES5371.1 Carrier Board for ES443x Load Boards is not protected against the polarity of the UBatt voltage being mistaken. There are two fuses for protecting the UBatt voltage on the ES5371.1. The ES4435.1 Current Source Load Board is protected against the polarity of the UBatt voltage being mistaken.

The female connector is specified for wire cross-sections of 0.2 - 2.5 mm². Flexible/rigid wires with/without wire ferrules can be used. Please make sure you heed the assembly recommendations of the manufacturer, WAGO.

Note

When removing the female connector, first push in the orange platelet of the gripping plate (against the direction of tensile force) toward the plug!

3.4 Connectors for ES443x Load Boards (CO200)

The CO200 connector is the electrical interface between the ES5371.1 Carrier Board for ES443x Load Boards and the ES443x.1 Load Boards.

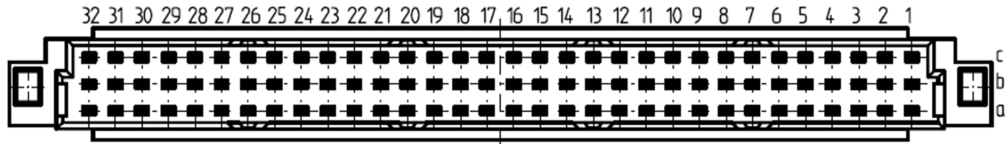


Fig. 3-4 CO200 Pin Assignment



CAUTION!

The "CO200" can only be used with ES443x.y products by ETAS.

Pin	Signal	Pin	Signal	Pin	Signal
A1	-UBatt	B1	-UBatt	C1	-UBatt
A2	-UBatt	B2	-UBatt	C2	-UBatt
A3	-UBatt	B3	-UBatt	C3	-UBatt
A4	-UBatt	B4	-UBatt	C4	-UBatt
A5	+UBatt	B5	+UBatt	C5	+UBatt
A6	+UBatt	B6	+UBatt	C6	+UBatt
A7	+UBatt	B7	+UBatt	C7	+UBatt
A8	+UBatt	B8	+UBatt	C8	+UBatt
A9	Status BN 5	B9	Status BN 5	C9	Status BN 5
A10	Status BN 4	B10	Status BN 4	C10	Status BN 4
A11	Status BN 3	B11	Status BN 3	C11	Status BN 3
A12	Status BN 2	B12	Status BN 2	C12	Status BN 2
A13	Status BN 1	B13	Status BN 1	C13	Status BN 1
A14	Status BN 0	B14	Status BN 0	C14	Status BN 0
A15	Load_21	B15	Load_22	C15	Load_23
A16	Load_18	B16	Load_19	C16	Load_20
A17	Load_15	B17	Load_16	C17	Load_17
A18	Load_12	B18	Load_13	C18	Load_14
A19	Load_9	B19	Load_10	C19	Load_11
A20	Load_6	B20	Load_7	C20	Load_8
A21	Load_3	B21	Load_4	C21	Load_5
A22	Load_0	B22	Load_1	C22	Load_2
A23	GND	B23	GND	C23	Load_24
A24	GND	B24	GND	C24	GND
A25	JTAG_TMS	B25	GND	C25	GND
A26	JTAG_TDI	B26	JTAG_TDO	C26	JTAG_TCK
A27	n_CS0	B27	n_CS1	C27	GND
A28	Not assigned	B28	Not assigned	C28	Not assigned
A29	Not assigned	B29	Not assigned	C29	Not assigned
A30	SPI MISO	B30	SPI MOSI	C30	SPI CLK
A31	VCC5V	B31	VCC24V	C31	VCC3,3V
A32	VDD12V	B32	GND	C32	VSS-12V

Tab. 3-3 CO200 Pin Assignment

4 Technical Data

This chapter contains the technical data on the ES5371.1 Carrier Board for ES443x Load Boards.

Voltages, Currents and Power Consumption

Maximum voltage at inputs and outputs (CO100)	60 V
Maximum current per individual contact of the input/output connector (CO100)	1 A
Maximum total current over the input/output connector (CO100)	5 A
Maximum permissible power consumption from backplane	
12 V	25 W
5 V	4 W
3.3 V	8 W
Maximum voltage at the input (CO101)	60 V
Maximum current per individual contact of the input connector (CO101)	2.5 A
Maximum total current over input connector (CO101)	5 A

Environmental Conditions

Ambient temperature during operation	+5 °C to +40 °C (+41 °F to +104 °F)
Relative humidity	0 to 95% (non-condensing)
Ambient temperature during storage	-20 °C to +85 °C (-4 °F to +185 °F)
Relative humidity	0 to 95% (non-condensing)

Physical Dimensions

Height	4 U
Width	5 HP

4.1 Fulfilled Standards and Norms

The ES5352.1 Signal Conditioning Board complies with the following standards and norms:

Standard	Testing
EN 61326	Electrical equipment for measurement, control and laboratory use EMC requirements
EN 61000-6-2	Interference immunity (industrial environment)
EN 61000-6-4	Emissions (industrial environments)

The board is only designed for use in industrial environments compliant with IEC 61326-1. Avoid any possible radio interference when using the module outside industrial environments with additional shielding measures!



WARNING!

This is a Class-A device. This device can cause radio interference in residential environments. In this case, the operator can be required to take appropriate measures.

5 **ETAS Contact Addresses**

ETAS HQ

ETAS GmbH

Borsigstraße 24

70469 Stuttgart

Germany

Phone: +49 711 3423-0

Fax: +49 711 3423-2106

WWW: www.etas.com

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 WWW: www.etas.com/en/contact.php

ETAS technical support WWW: www.etas.com/en/hotlines.php

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