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DISS 6 Hardware

Digital image scanning system for scanning electron microscopes (SEM)

User manual
Document version: 2.0
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Translation of German original

point electronic

Important Anybody working with/on the device has to have read and understood the relevant parts of this document.

Access The staff working with the device has to have constant access to this document to prevent handling errors and guarantee trouble-free operation.

Reproduction

Notice Every endeavor has been made to make sure that the information contained in this document is complete and correct at the printing date. This document describes all units and functions known of at the current point of time.

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Product information

Product: Digital image scanning system, 6th generation
Description: Digital image scanning system for scanning electron microscopes (SEM)
Name: PE-DISS6
Manufacturer: point electronic GmbH

Table of contents

1 Introduction

Chapter overview

Purpose This chapter contains information to simplify working with this document.

Contents This chapter contains the following information:

User groups of this document

Operators "Operators" are persons with right of disposal over the device using this right for purchase or other purposes.

Technical staff "Technical staff" are those persons that the operators entrust with tasks related to use and operation. Technical staff are trained by the operators to carry out their assigned tasks and are informed on the potential hazards that may arise due to improper handling.

Technical staff need to undergo a training by point electronic GmbH or a partner company of point electronic GmbH covering the following topics:

- Handling of the connected SEM
- Areas of application and operation of the device and the associated software
- Handling the connected peripherals
- Basic maintenance tasks and troubleshooting

Service technicians "Service technicians" are staff members whose specialist training, knowledge and experience as well as familiarity with the relevant safety regulations mean they are able to assess the tasks they have been entrusted with and anticipate potential hazards.

Service technicians may be:

- Employees of point electronic GmbH or
- Employees of partner companies of point electronic GmbH

Structure of this document

Composition This document is composed of chapters which are organized by technical aspects.

Numbering The chapters are numbered with Arabic numerals. Chapters may be composed of sections. Sections are numbered as second numbering level (e. g. 3.1). Sections are used to structure large chapters into sub-chapters.

All pages of this document are numbered consecutively.

Overviews Each chapter and section contains an overview detailing contents and page numbers. This allows for direct access to a topic and independent use of single parts of this document.

Related information Related information within this document is marked by the note “Continuation next page …” resp. “... continuation:”. Please pay attention to the completeness of the information when copying parts of this document.

Cross references The content of this document is structured by topics. If further information on one topic may be found elsewhere in the user guide, the relevant chapter and page are pointed out.

Representations in this document

Illustrations

Illustrations used in this document do not always contain all details or special cases. They only represent the relevant information.

Menu functions

In this document, the various menu functions are presented as follows:

Finding a menu point: File > Open

Keyboard shortcuts

Frequently used functions and instructions may be activated by using certain key combinations. These are presented as follows:

Keyboard shortcut	Representation
Key	[Ctrl]
Key combination	[Ctrl]+[Alt]

Inputs and outputs

Certain recurring symbols or descriptions are used to symbolize possible screen inputs and outputs. These are used as follows:

Inputs and outputs	Representation
Buttons	**Button**
Dialog window	Dialog window
Elements of the user interface	GUI element

Mouse functions

The following table explains the concepts used in this document to describe the handling of the mouse:

Concept	Explanation
Click	Singular pressing of the left mouse button.
Double-click	Quick double pressing of the left mouse button.
Right-click	Singular pressing of the right mouse button.
Pressed mouse button	Left or right mouse button is kept pressed during a process.
Drag & Drop	"Drag & Drop" Click on an element of the user interface, drag the element with pressed mouse button to another position, drop the element to this position.

Continuation next page …

… Continuation: Representations in this document

Icons The following icons are used to mark certain information visually:

Icon	Meaning
	Notice For example:  The selected parameter will not be inserted in the parameter order.
	Reference to another part of this guidebook For example:  see “Cross references” on page 6
	Use of a tool For example:  Screwdriver TX 10

Notes Important notes are marked as follows:

NOTICE

Mind the notices in this document!

Notes explain relations that even for expert users might not be evident at first glance.

The neglect of a note is no direct security risk. However, it can lead to disturbances in the operating procedure.

Identification of the warning notices

Purpose

This document includes warning notices that may lead to serious consequences if disregarded. Warning notices are not only listed in the “Safety regulations” chapter, but especially in places where hazards for people, equipment and operation may arise.

Identification of warnings

There are three classes of warnings. These classes are indicated by specific signal words and colors. They include the following:

Signal word	Meaning
⚠ DANGER	Warning notice, which if disregarded will probably or very likely result in death or serious injury.
⚠ WARNING	Warning notice, which if disregarded may result in serious injury, permanent damage to health or serious property loss.
⚠ CAUTION	Warning notice, which if disregarded may result in injury or property loss including financial losses due to operational impairment.

2 Safety regulations

Chapter overview

Purpose This chapter contains safety information relating to the protection of persons as well as safe and fault-free operation. All user groups of the hardware and software must be aware of and follow these safety provisions.

Contents This chapter contains the following information:

Introduction

Reliable and safe operation

The reliable and safe operation of the device depends on carefully implementing the operating, setup and maintenance tasks.

Observance of the safety instructions

Always observe and follow the safety instructions and accompanying code of conduct when handling the device and the software. Always point out the instructions and code of conduct to staff working with the hardware and software.

Generally applicable safety regulations (such as accident prevention and environmental protection regulations, etc.) must also be observed.

Consequences arising from failure to observe the safety instructions

Failure to observe the safety instructions can result in death or serious injury of personnel and damage or destruction of the hardware components.

Basic hazards

Definition

The device meets the current state of the art as well as the applicable safety regulations. The device has been tested at the manufacturer's site and is delivered in a state safe for operation.

Basic hazards are residual risks that may arise despite proper and safety-conscious use of the device.

⚠ DANGER

Risk of death by electrocution!

Body contact with live parts may lead to death or serious injuries.

- Turn off the mains voltage before any works on the device.
- Secure the device against unintentional restart.
- Works on the device may only be executed by service technicians.
- Never operate the device when the mains cable is damaged.

⚠ WARNING

Risk of injury due to improper use!

Improper use of the device may lead to injury.

- Always protect the device from extreme heat (excessive sun exposure, close proximity to open fire or heating equipment) during operation and storage.
- Avoid hard impacts that might damage parts of the device.

Staff and qualifications

Permissions

Works on/with the device may only be performed by technical staff and/or service technicians (see “User groups of this document” on page 5).

Note the legally prescribed minimum age for personnel.

Only qualified electricians or technical staff under guidance and supervision of a qualified electrician may perform works on electrical components of the device in accordance with the electrotechnical regulations.

Staff undergoing training or instructions or persons taking part in general vocational training programs may only operate the device under the continuous supervision of technical staff.

Responsibility of the operating company

Condition of the device and/or overall system

The operating company shall ensure that all safety and the protective devices are fully functional at all times. This equipment should therefore be checked periodically for functionality and completeness.

This applies to the device as single component as well as the overall system into which the device is integrated as a subcomponent.

Internal measures to avoid hazards

The operating company must be aware of the applicable industrial safety regulations and use a risk assessment to determine any additional hazards that may arise from the special working conditions at the device's site of operation. Internal instructions for avoiding the identified hazards should then be drawn up.

Throughout the entire operating period of the device, the operating company must examine and determine whether the supplied operating instructions comply with the current status of applicable regulations.

Staff

Regarding the staff authorized or trained by the operating company, the operating company carries the following responsibilities:

- The necessary training and instruction of staff must be guaranteed.
- The powers and responsibilities of staff for installation, operation, maintenance and service must be clearly defined and documented.
- This document must be kept in the immediate surroundings of the device and must be readily accessible to staff.

Working in a safety-conscious manner

Accident prevention and environmental protection

In addition to the information in this document, also note the generally applicable statutory and other binding regulations relating to accident prevention and environmental protection.

This may include, for example:

- dealing with hazardous substances
- wearing the necessary and prescribed personal protective clothing
- observance of and compliance with all national and regional industrial safety regulations
- observance of and compliance with all internal working, operating and safety regulations

Content of this document

Prior to operation, all staff members assigned to work on the device must have read and understood the relevant parts of this document, especially the chapter “Safety regulations”.

Modifications and alterations

No unauthorized modifications

Any unauthorized modifications to the device exclude any liability by the manufacturer for resulting damage and consequences.

Do not perform any modifications, additions and/or alterations to the device without written authorization from point electronic GmbH.

Spare parts and accessories

Spare parts and accessories must comply with the technical requirements specified by point electronic GmbH and its suppliers. Whenever original parts are used, compliance is given.

No modifications of the software

No modifications to the software must be made or commissioned to third parties. The software may not be deleted, decrypted or decompiled in full or in part.

If changes to the software are necessary, please contact point electronic GmbH.

Maintenance work

Implementation

High reliability as well as low maintenance costs of the device may be achieved through careful implementation of the maintenance schedule and regular monitoring over the entire operational lifetime.

Compliance with regulations

When performing maintenance work, it is essential to observe the following:

- applicable accident prevention regulations,
- applicable environmental protection regulations and
- safety instructions for maintenance work.

Only perform maintenance work if:

- you are authorized to do so and
- the device is turned off and secured against unintentional restart.

Before getting started

Before you begin maintenance work, please make sure that:

- the device is de-energized and disconnected from the power supply and
- the power supply may not be re-established unintentionally as long as the maintenance work lasts.

Works during operation

In any case, the operating company or the personnel employed by it must check based on the specific local conditions that the specified work may be performed during operation without endangering anybody.

Continuation next page …

… Continuation: Maintenance work

Electrical equipment

Regularly check the electrical equipment of the device. Immediately rectify defects (such as loose cable connections and/or faulty cables).

Damaged or faulty cables may only be replaced by cables that match the requirements stipulated by point electronic GmbH and/or its suppliers!

Check that the surfaces of all electrical equipment parts are dry and free of oil, grease, deposits and corrosion.

Only use voltage-insulated tools!

Do not place any tools or working materials on the conductive surfaces of components.

Device fuses

Faulty fuses may only be replaced by fuses that match the requirements (specifications and ratings) stipulated by point electronic GmbH!

Faulty fuses may not be repaired or bypassed, but must be replaced by fuses of the same type.

Cleaning

Suitable cleaning products

Only use cleaning products approved by point electronic GmbH.

All cleaning products used by the customer should be checked with point electronic GmbH or the respective supplier to ensure they are compatible with the materials and colors used.

Unsuitable cleaning agents

Do not clean the device with:

- scratchy, aggressive, solvent-containing or benzine-containing cleaning agents,
- pressured air, high-pressure cleaner or other kinds of cleaning machine.

Cleaning equipment

Use lint-free cleaning cloths/wipes for cleaning the device.

After cleaning

After cleaning, make sure that:

- cables, ports and fittings are free of oil and/or cleaning agents and
- cables, wires, connectors and electrical components are dry.

Environmental protection

Recyclable materials When performing maintenance work, ensure that reusable materials are recycled.

Disposal Electrical and electronic waste may constitute a hazard to health and environment when disposed off improperly. Ac-cording to WEEE (Waste Electrical and Electronic Equipment Directive) 2012/19/EU, electrical and electronic waste may not be disposed off as general domestic waste but must be handed in at specific collection points or sent back to the manufacturer.

Check with your local environmental protection agency for the prescribed disposal options for commercially used electronic waste.

Only hire waste disposal companies that are approved by the national and regional authorities.

3 System overview

Chapter overview

Purpose This chapter describes the device. It contains information on the use, scope of delivery, equipment, structure and function.

Contents This chapter contains the following information:

Intended use

Purpose

The device and software are exclusively intended for the acquisition and management of digital image data.

Operation

The device may only be operated in a technically perfect condition and as intended, in compliance with the user manual and under consideration of safety and potential hazards. Malfunctions, in particular those that may impair safety, should be rectified immediately.

If the device shows damages or defects that compromise operational safety, this must immediately be reported to the operations center, and the device must not be put into operation.

Operation and maintenance of the device may only be performed by technical staff and service technicians (see “User groups of this document” on page 5). The valid safety and accident prevention regulations must be observed.

Compliance with regulations

All operating, maintenance, setup and service measures prescribed by the manufacturer must be complied with.

Additional information

In addition to this document, the generally applicable, legal and other binding regulations and legislation and environmental protection instructions must be adhered to.

Improper use

Any use not authorized by the manufacturer is not permissible and may lead to injury or property damage.

point electronic GmbH does not accept liability for damage arising from improper use of the device.

In particular, improper use includes:

- operation in explosive environments
- operation in an environment that does not meet the stipulated requirements
  see “Operating conditions” on page 50
- operation with opened device housing
- modifications and/or additions that impair the performance
- exchanging components with unauthorized components

Scope of delivery

The following equipment is part of device's scope of delivery:

- mains cable
- USB cable
- set of connecting cables for scan and video
- USB stick with software, documentation and driver

Optional equipment

The delivered equipment depends on the order details. It includes:

- Multi-Channel Signal Amplifier (MICS)
- Systems for electrical analysis in the SEM

System requirements

Computer system

The following table contains information on the minimum requirements of the computer system:

Component	Requirement
Computer	IBM-compatible from Core i3 Recommendation: Core i5
Operating system	From Windows 10 (32/64 Bit)
RAM	8 GB
Graphics	Resolution at least 1280×1024 pixel, true color Recommended resolution: 1920×1200 pixel
Interfaces	At least one free USB 2.0 or USB 3.0 slot Optional: one free LAN slot (RJ-45) for TCP/IP connection
Periphery	Mouse with scroll wheel

Structure

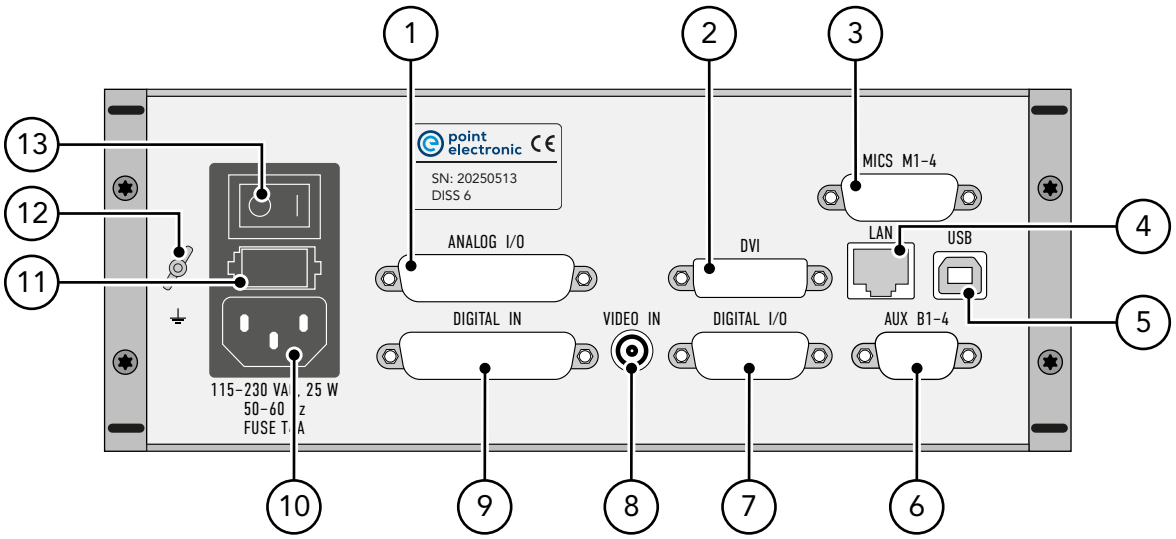
Front The following figure shows the front of the device with its components:

The following table contains information on the components on the front:

No.	Component
1	Touch-sensitive display shows status and system information in the following switchable categories: – **Status:** Status information on the current scan – **Option:** Overview of the installed modules/options and the size of the pixel map – **Info:** Overview of current parameter values – **TCP:** Overview of the network parameters – **DVI:** Information on the DVI output with options for switching the resolution and signal source

Continuation next page …

Back The following figure shows the back of the device with its components:



The following table contains information on the components on the back:

No.	Component
1	ANALOG I/O – port for analog inputs and outputs – type: 25 pin, D-Sub, plug (male) **Analog outputs** – amplitude: max. ±12 V – output offset: ±2 V **Analog inputs** – max. ±5 V – ±0.5 V (with gain = 0 dB) – gain: –22 … +26 dB – input offset: ±1.25 V pinout: page 40
2	DVI – port – type: DVI-I (dual link), socket (female)
3	MICS M1-4 (optional) – input port for Multi-Channel Signal Amplifier (4 channels) – max. ±5 V – ±0.5 V (with gain = 1x) – gain: 1 … 1800x – input offset: ±1.25 V – type: 15 pin, D-Sub, socket (female) pinout: page 45

Continuation next page …

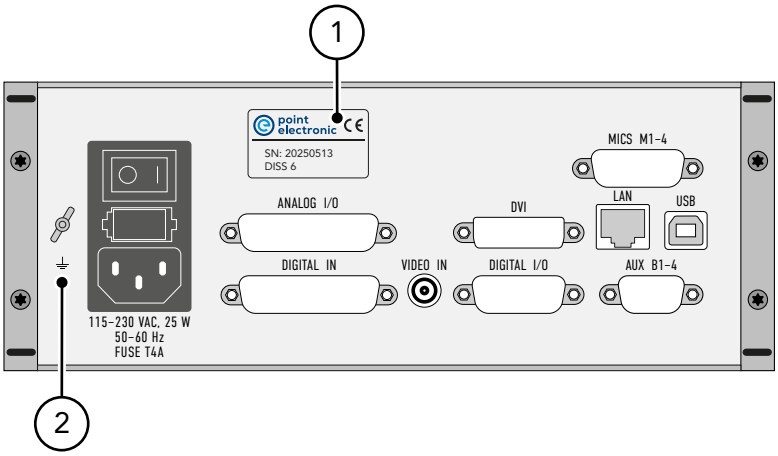
… Continuation: Structure

No.	Component
4	LAN – port for TCP/IP control interface – transmission of commands and data – type: RJ-45, socket (female)
5	USB – port for USB control interface – transmission of commands and data – type: USB type B, socket (female)
6	AUX B1-4 – port for additional analog inputs (fast) – multiplexed inputs (A or B simultaneous) – max. ±5 V – ±0.5 V (with gain = 0 dB) – gain: –22 … +26 dB – input offset: ±1.25 V – type: 9 pin, D-Sub, plug (male) pinout: page 44
7	DIGITAL I/O – port for digital inputs and outputs – input: 3.3/5 V TTL – output: 5 V TTL – type: 15 pin, D-Sub, socket (female) pinout: page 43
8	VIDEO IN – video input for composite video (PAL) – type: cinch, socket (female)
9	DIGITAL IN – video counter inputs 1 … 12 – 3.3/5 V TTL – type: 25 pin, D-Sub, socket (female) pinout: page 42
10	Mains voltage connector – 115 … 230 V AC, 25 W, 50 … 60 Hz – type: C14, male
11	Fuses – 2 pieces – replaceable – type: T4A
12	Grounding connector
13	On/off switch

Device labeling

Markings on the device

The following figure shows the markings on the back of the device:



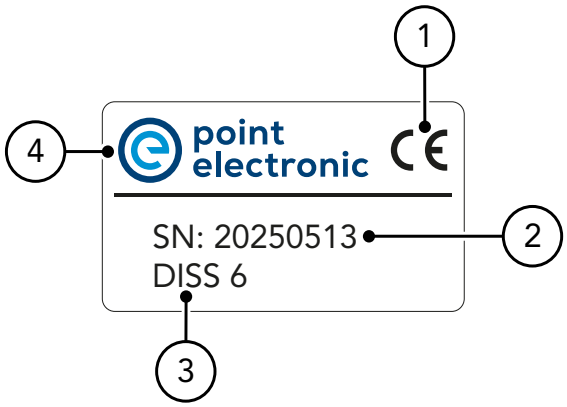
The following table contains information on the markings on the back of the device:

No.	Component
1	Identification plate
2	Grounding marking

Continuation next page …

Identification plate

The following figure shows the identification plate with its components:



The following table contains information on the components of the identification plate:

No.	Component
1	CE marking
2	Serial number
3	Device designation
4	Manufacturer identification

4 Installation and configuration

Chapter overview

Purpose This chapter contains information and instructions on installation and configuration of the device.

Contents This chapter contains the following information:

Configuring the inputs and outputs

Description On the carrier board of the device, the inputs and outputs of the device are adjusted to the requirements of the connected SEM.

⚠ DANGER

Risk of death by electrocution!

Body contact with live parts may lead to death or serious injuries as well as the destruction or damaging of components.

– Prior to the configuration of inputs and outputs, please make sure that the device is de-energized and secured against unintentional starting (restart).

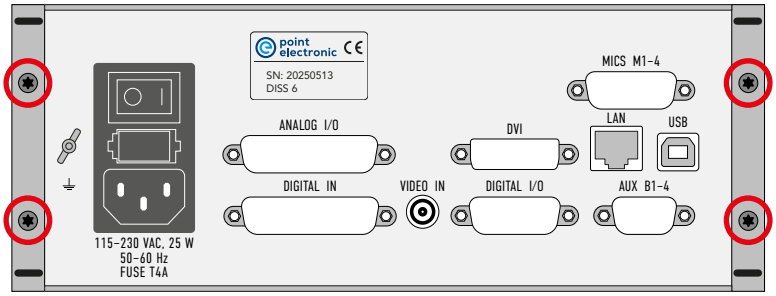
Before getting started Complete the following steps before configuring the inputs and outputs of the device:

1. Switch off the device.
2. Remove the mains cable.
3. Remove all connected cables from the device.

Steps Complete the following steps to configure the inputs and outputs of the device:

1. Remove the 4 screws (TORX TX 10) on the back of the device.

   screwdriver TX 10



2. Push back the upper casing cover.

Continuation next page …

3. Configure the inputs and outputs.

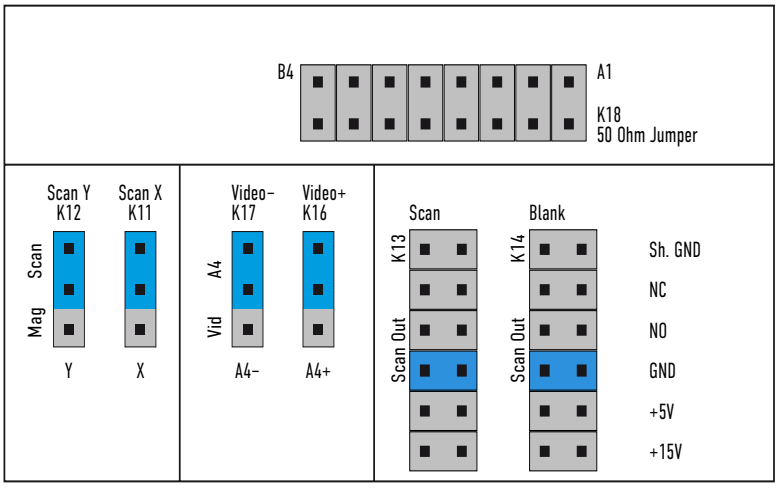
   see “Connector strips and assignment” on page 34

   see “Configurations for K13 and K14” on page 34
4. Close the casing cover.
5. Attach the 4 screws (TORX TX 10) on the back of the DISS 6 Hardware.

   screwdriver TX 10

Connector strips and assignment

The following figure shows the distribution of the connector strips and their standard assignment:



The following table contains information on function and assignment of the connector strips:

Connector strip	Function	Assignment
K18	Terminating resistor for signal inputs A1 … A4 and B1 … B4	Jumper closed = terminated with 50 Ω
K11, K12	Type of scan output	– Scan (standard) = fixed configured signal level – Mag = signal level adjustable with DAC
K16, K17	Type of signal input A4	– A4 (standard) = analog signal – Vid: configuration for composite video (PAL)
K13, K14	Configuration of outputs “ext. Scan” and “ext. Blank”	– K13 = signal for ext. Scan – K14 = signal for ext. Blank

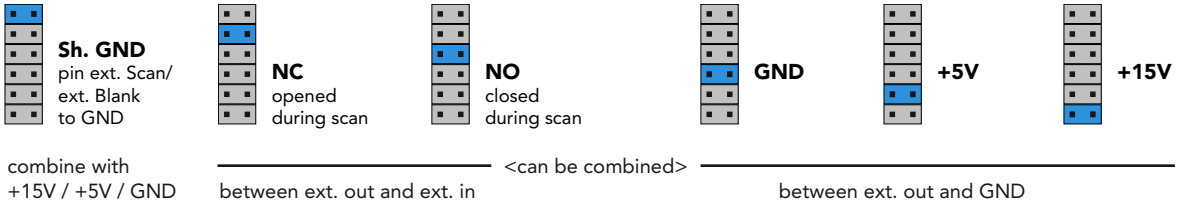
Configurations for K13 and K14

The digital outputs “ext. Scan” and “ext. Blank” are potential-free relay outputs destined for switching the SEM to external beam control. They must be adapted to the

Continuation next page …

requirements of the SEM using the K13 and K14 connector strips.

The following figure shows the possible configurations of the “ext. Scan” and “ext. Blank” outputs on the connector strips K13 and K14:



Positioning

Installation site

Please make sure that the installation site adheres to the stipulated operating conditions.

see “Operating conditions” on page 50

Position the device on a level non-slip working surface.

NOTICE

Always ensure accessibility!

When positioning the device, please ensure that on-off switch and all connectors are accessible without obstructions.

Installing

Requirements

Before installing the device, please make sure that the following requirements are met:

- The inputs and outputs of the device are configured to meet the requirements of the SEM.
  see “Configuring the inputs and outputs” on page 33
- The device computer to be connected is equipped with a USB 2.0 or USB 3.0 interface. If this is not the case, a USB plug-in card must be installed. The system requirements must be observed for the driver installation.
  see “System requirements” on page 26
- The DISS 6 software is installed on the device computer to be connected.

Before getting started

Complete the following steps to prepare the installation of the device:

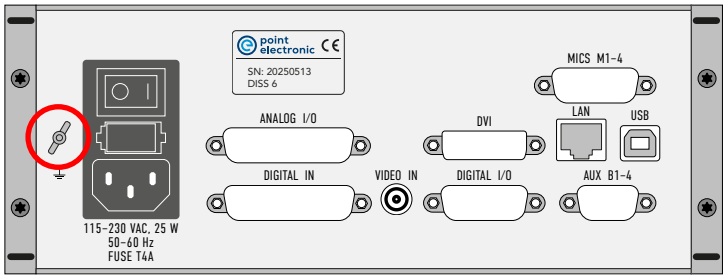
NOTICE

Mind the device connectors!

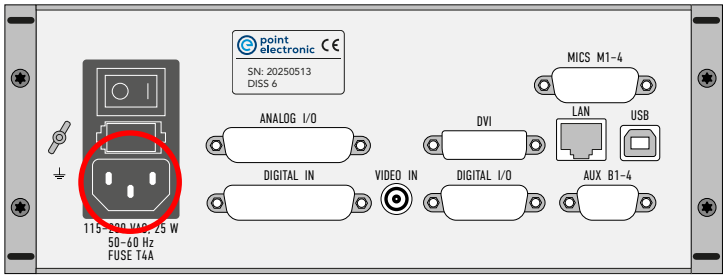
When connecting the device, please refer to the description of the unit’s backside.

see “Back” on page 28

1. Connect the grounding to the device.



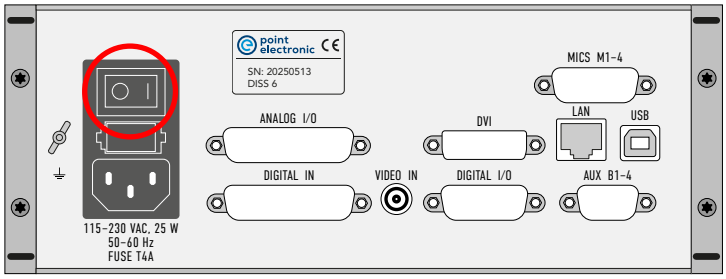
2. Connect the device to the supply voltage.



3. Start the device computer.

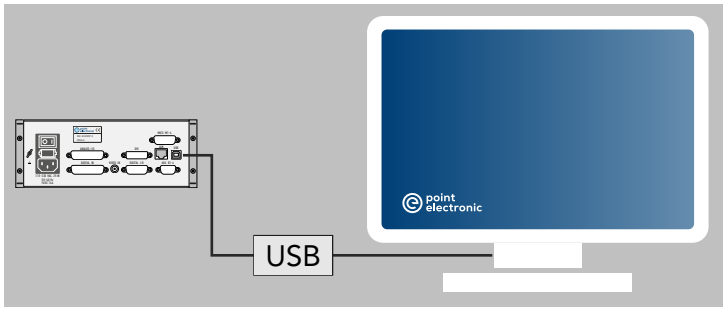
Continuation next page …

4. Switch on the device.



Steps Complete the following steps to completely install the device:

1. Use a USB cable to connect the device to the device computer's USB port.



→ A dialog window with a prompt to install the driver will appear on the screen.

2. Use the automatic search to find the driver on the device computer.
3. Connect the device to the SEM.

   ⚠ **Mind the pinouts of the inputs and outputs!**

   see „5 Pinouts of the inputs and outputs" from page 39
4. Optional: Connect the device to the MICS.
5. Optional: Establish a connection for the camera's synchronization signals.
6. Optional: Establish a TCP/IP connection between the device computer and the SEM computer in order to transfer the microscope parameters.

Functional test After complete installation of the DISS 6 Hardware, a functional test may be carried out independent from the SEM. For this, the x and/or y deflecting voltage are assigned to the inputs for analog image signals. An image acquisition provides an optical gray wedge for X or Y direction.

5 Pinouts of the inputs and outputs

Chapter overview

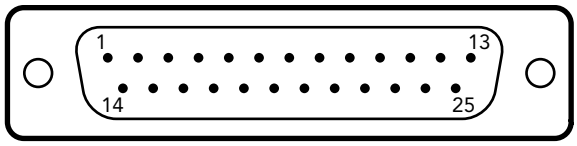
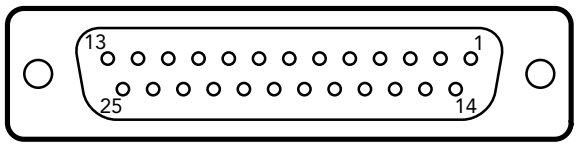
Purpose This chapter describes the pinouts of the particular inputs and outputs.

Contents This chapter contains the following information:

Analog I/O

Type 25 pin, D-Sub, plug (male)

Numbering The following table contains information on the numbering of the connections for the respective shape:

Shape	Numbering (view from outside)
Plug	
Socket	

Assignment The following table contains information on the assignment of the connection numbers:

No.	Assignment
1	Scan Y out
2	Scan X out
3	Ext. scan out
4	Ext. blank out
5	Image signal A1+
6	Image signal A1–
7	Image signal A2+
8	Image signal A2–
9	Image signal A3+
10	Image signal A3–
11	Image signal A4+
12	Image signal A4–
13	Not connected
14	Scan Y in
15	Scan X in
16	Ext. scan in
17	Ext. blank in

Continuation next page …

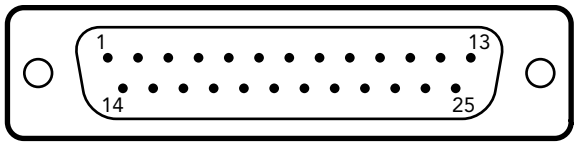
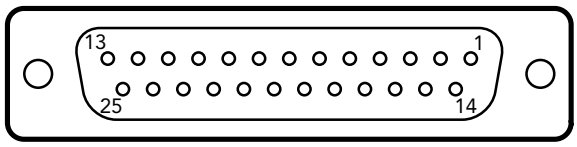
… Continuation: Analog I/O

No.	Assignment
18…24	GND
25	Not connected
Housing	Shield

Digital in

Type 25 pin, D-Sub, socket (female)

Numbering The following table contains information on the numbering of the connections for the respective shape:

Shape	Numbering (view from outside)
Plug	
Socket	

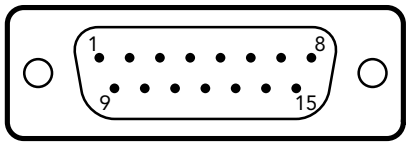
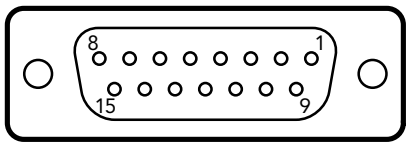
Assignment The following table contains information on the assignment of the connection numbers:

No.	Assignment
1	X 1
2	X 2
3	X 3
4	X 4
5	X 5
6	X 6
7	X 7
8	X 8
9	X 9
10	X 10
11	X 11
12	X 12
13	Not connected
14…25	GND
Housing	Shield

Digital I/O

Type 15 pin, D-Sub, socket (female)

Numbering The following table contains information on the numbering of the connections for the respective shape:

Shape	Numbering (view from outside)
Plug	
Socket	

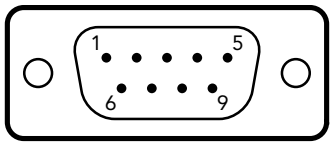
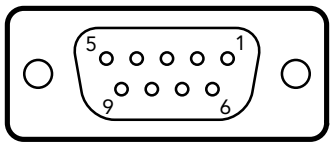
Assignment The following table contains information on the assignment of the connection numbers:

No.	Assignment	Type
1	Pixel clock	output: 5 V TTL
2	Line clock	output: 5 V TTL
3	Frame clock	output: 5 V TTL
4	Hold clock	output: 5 V TTL
5	Ext. scan	output: 5 V TTL
6	Ext. blank	output: 5 V TTL
7	Beam blanker	
8	Lock-In ref out	
9	GND	
10	GND	
11	Pixel sync	input: 3.3/5 V TTL
12	Line sync	input: 3.3/5 V TTL
13	Frame sync	input: 3.3/5 V TTL
14	Hold sync	input: 3.3/5 V TTL
15	Spare I/O	
Housing	Shield	

AUX B1-4

Type 9 pin, D-Sub, plug (male)

Numbering The following table contains information on the numbering of the connections for the respective shape:

Shape	Numbering (view from outside)
Plug	
Socket	

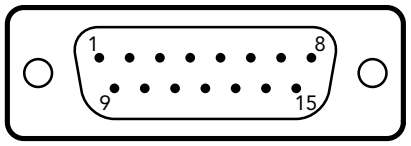
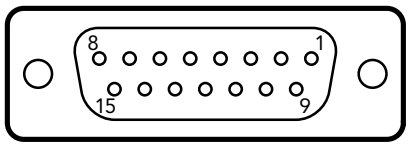
Assignment The following table contains information on the assignment of the connection numbers:

No.	Assignment
1	Image signal B1+
2	Image signal B2+
3	Image signal B3+
4	Image signal B4+
5	GND
6	Image signal B1–
7	Image signal B2–
8	Image signal B3–
9	Image signal B4–
Housing	Shield

Mics M1-4

Type 15 pin, D-Sub, socket (female)

Numbering The following table contains information on the numbering of the connections for the respective shape:

Shape	Numbering (view from outside)
Plug	
Shape	

Assignment The following table contains information on the assignment of the connection numbers:

No.	Assignment
1	A+
2	B+
3	C+
4	D+
5	GND
6	+3 V
7	GND
8	+60 V detector BIAS
9	A–
10	B–
11	C–
12	D–
13	GND
14	–3 V
15	GND
Housing	Shield

6 Maintenance

Chapter overview

Purpose This chapter contains instructions on the maintenance of the device.

Contents This chapter contains the following information:

Replacing the fuses

Position of the fuses

The fuses are located at the back of the device.

see “Back” on page 28

DANGER

Risk of death by electrocution!

Body contact with live parts may lead to death or serious injuries as well as the destruction or damaging of components.

– Prior to the replacement of the fuses, please make sure that the device is de-energized and secured against unintentional starting (restart).

Before getting started

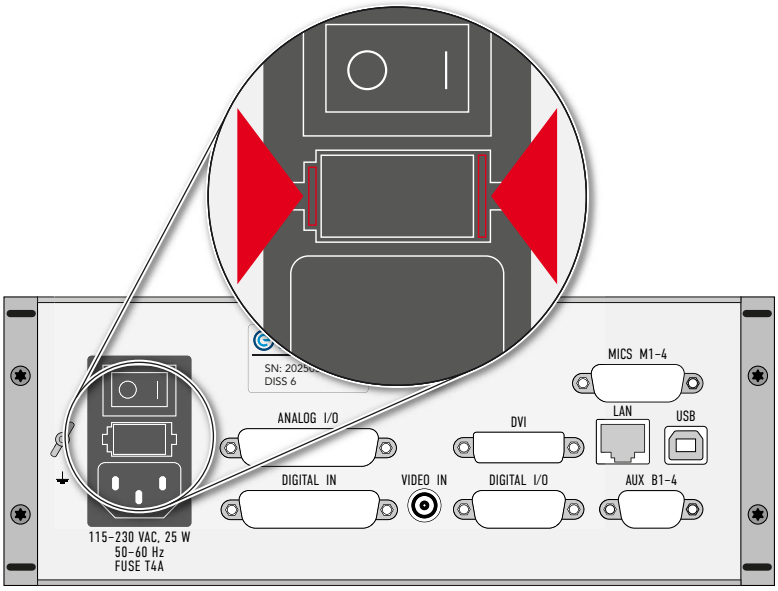
Complete the following steps before replacing the fuses of the device:

1. Switch off the device.
2. Remove the mains cable.
3. Remove all connected cables from the device.

Continuation next page …

Steps Complete the following steps to replace the fuses of the device:

1. Pinch the locking tongues of the fuse holder and pull the fuse holder from the slot.



2. Replace the fuse or the fuses.

   ⚠ **Only use type T4A fuses!**

3. Push the fuse holder into the slot until the locking tongues snap in.

7 Specifications

Chapter overview

Purpose This chapter lists the specifications of the device.

Contents This chapter contains the following information:

Operating conditions

The following table contains information on the operating conditions of the device:

Site of operation	– indoor – controlled electromagnetic environment
Ambient air	– average air pressure (approx. 1 bar) – dry – free of dust
Ambient temperature	5 … 40 °C
Humidity	max. 80 % (at 31 °C, non-condensing)
Altitude	max. 2,000 m

Device specifications

Electrical safety

The following table contains information on electrical safety:

Protection class	I
Protection type	IP20
Overvoltage category	II
Contamination level	1

Power supply

The following table contains information on the specifications of the power supply:

Supply voltage	115 … 230 V AC
Frequency	50 … 60 Hz
Power consumption	max. 25 W
Fluctuation of the supply voltage	max. ±10%

Fuses

The following table contains information on the fuses:

Number	2 pc. (replaceable)
Type	T4A
Rating	4 A slow blowing

Dimensions and weight

The following table contains information on the dimensions and weights:

Height	90 mm
Width	290 mm
Depth	235 mm
Weight	approx. 3.4 kg

point electronic

CE

EC-Declaration Of Conformity (Nr 19-2) (V1.1)

according to EC-Directive 2014/30/EC (electromagnetic compatibility) issued 26. 02.2014

For the below given Product is Hereby declared that it conforms to the essential requirements set out in community harmonization legislation:

Electromagnetic Compatibility Directive 2014/30/EU of 14 October 2014

Manufacturer: point electronic GmbH
Erich-Neuß-Weg 15
06120 Halle/Saale
Germany

Declare under sole responsibility for issuing this declaration of conformity in relation to the following product:

Product: digital image scanning system 6th generation
Name: PE-DISS6
Description: digital image acquisition system and active scan control for scanning electron microscopes

It also conforms with the provisions of the following EC directives:

- Low-Voltage-Directive 2014/35/EC issued 26.02. 2014
- RoHS-Directive 2011/65/EC issued 08.06.2011
- Ecodesign-Directive (ERP) 2009/125/EC issued 21.10.2009

The following relevant harmonized standards were applied:

- IEC 61010-1:2010
  (Safety requirements for electrical equipment for measurement, control, and laboratory use)
- IEC 61326-1:2012
  (Electrical equipment for measurement, control and laboratory use - EMC requirements)

Date/place of issue: Halle/Saale den 19.12.2019
Name of Person: Christoph Sichting
position in company: Managing Director point electronic GmbH

Unterschrift:

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