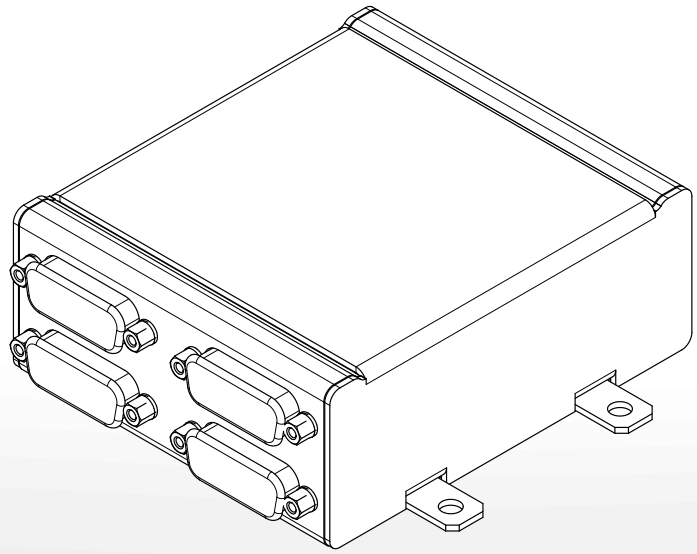
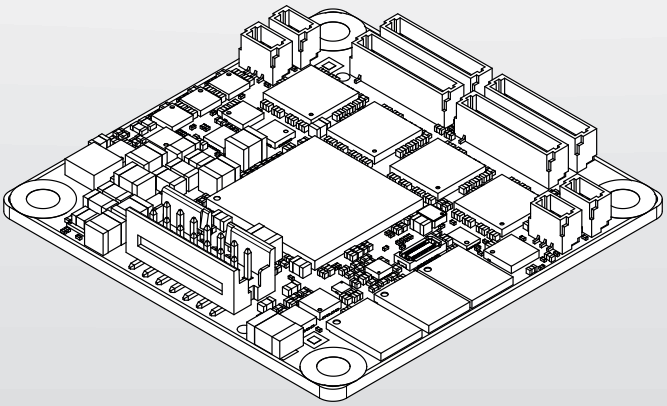
HEIDENHAIN





MKV 1630, MKV 9630

Mounting Instructions

English (en)
10/2024

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1 Basic information

This chapter contains information about the product and the Mounting Instructions.

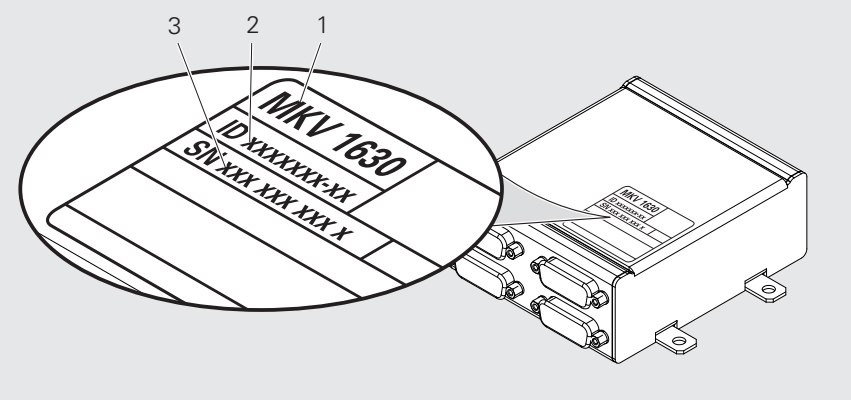
1.1 Validity of the documentation

These Mounting Instructions apply to products of the MKV 1630, MKV 9630 series.

- Before using the documentation, check whether the documentation and product model match

The designation of the product is printed on the ID label.

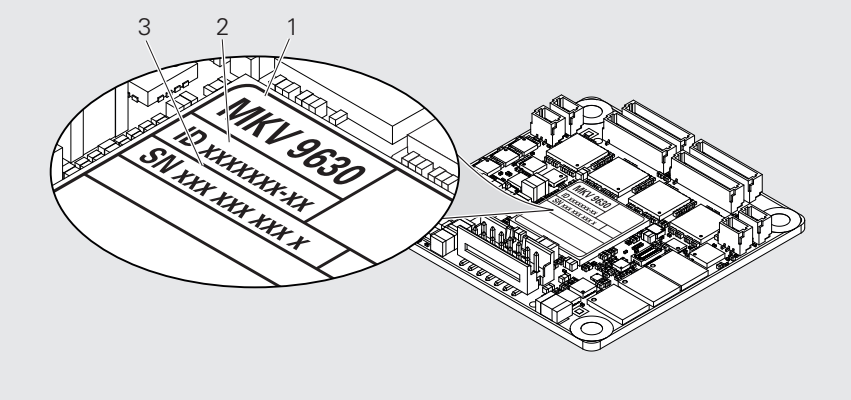
ID label of MKV 1630



ID label with legend

1 Product name
2 Part number (ID)
3 Serial number (SN)

ID label of MKV 9630



ID label with legend

1 Product name
2 Part number (ID)
3 Serial number (SN)

1.2 Target groups of the Mounting Instructions

The Mounting Instructions must be read and observed by every person who performs any of the following tasks:

- Design
- Mounting
- Removal

1.3 Notes on reading the documentation

⚠ WARNING

Fatal accidents, personal injury or property damage caused by non-compliance with the documentation!

Failure to comply with the documentation may result in fatal accidents, personal injury or property damage.

- ▶ Read the documentation carefully from beginning to end
- ▶ Keep the documentation for future reference

The following table lists the various parts of the documentation in their order of reading priority.

Document type	Description
Addendum	An Addendum supplements or supersedes the corresponding contents of the Operating Instructions and, if applicable, of the Mounting Instructions. If an Addendum is included in the shipment, it has the highest priority for reading. All other documentation content retains its validity.
Operating Instructions	The Operating Instructions contain all of the information and safety instructions for the proper and intended operation of the device. The Operating Instructions (English language version) are included in delivery and can also be downloaded in other languages from **www.heidenhain.com/documentation**. The Operating Instructions must be read prior to commissioning the product. The Operating Instructions have the second highest priority for reading.
Mounting Instructions	The Mounting Instructions contain all the information and safety precautions needed for the proper mounting and installation of a product. The Mounting Instructions are not included in delivery and must be downloaded from **www.heidenhain.com/documentation**. The Mounting Instructions have the third highest priority for reading.

Have you found any errors or would you like to suggest changes?

We are continuously striving to improve our documentation for you. Please help us by sending your suggestions to the following e-mail address:

userdoc@heidenhain.de

1.4 Symbols and fonts used for marking text

In these instructions the following symbols and fonts are used for marking text:

Format	Meaning
▶ ...	Identifies an action and the result of this action
> ...	Example: ▶ Tilt the shipping brace to remove it **(c)** > The shipping brace has been removed now
■ ...	Identifies an item of a list
■ ...	Example: ■ Solid contaminants: class 3 ■ Max. pressure dew point: class 4
Bold	Identifies elements in figures and illustrations, such as positions, dimensions and worksteps Example: **S** marks the beginning of the measuring length **(ML)**.

1.5 Notes in this documentation

Safety precautions

Precautionary statements warn of hazards in handling the product and provide information on their prevention. Precautionary statements are classified by hazard severity and divided into the following groups:

⚠ DANGER

Danger indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **will result in death or severe injury.**

⚠ WARNING

Warning indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in death or serious injury**.

⚠ CAUTION

Caution indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in minor or moderate injury.**

NOTICE

Notice indicates danger to material or data. If you do not follow the avoidance instructions, the hazard **could result in property damage**.

Informational notes

Informational notes ensure reliable and efficient operation of the product. Informational notes are divided into the following groups:

The information symbol indicates a **tip**.
A tip provides important additional or supplementary information.

The book symbol indicates a **cross reference**.
A cross reference leads to external documentation, for example: further documentation from HEIDENHAIN or another supplier.

1.6 Units and tolerances

Unless otherwise specified, the dimensions stated in these Mounting Instructions are given in millimeters.

Unless otherwise specified, the tolerances stated in these Mounting Instructions conform to ISO 8015 and ISO 2768 standards.

mm
Tolerancing ISO 8015
ISO 2768:1989-mH
≤ 6 mm: ±0.2 mm

2 Safety

This chapter provides important safety information needed for the proper mounting and installation of the product.

2.1 Personnel qualification

Mounting, initial configuration and removal must be conducted by a qualified specialist under compliance with local safety regulations.

2.2 General safety precautions

⚠ WARNING

Danger of electric shock due to connection to unsuitable downstream electronics!

If you connect unsuitable downstream electronics to the product, fatal accidents or severe personal injuries can occur.

- Connect the product only to downstream electronics whose supply voltage comes from PELV systems

⚠ WARNING

Live plug connections!

If you disengage plug connections while the equipment is under power, this may result in fatal accidents or severe personal injury.

- Do not engage or disengage any connecting elements while the product is under power

⚠ WARNING

Risk of injury from damaged or worn components!

Safety functions can fail if damaged or worn components are installed. Failed safety functions can result in death or serious injury.

- Inspect the component for damage.
- Do not use any damaged or worn components
- In case of replacement, repair the thread
- Use new screws, spring pins and nuts
- Secure screws and nuts with suitable material-bonding anti-rotation lock

⚠ WARNING

Uncontrolled axis movements!

Incorrect configuration of the MKV can cause uncontrolled movements of the machine axes.

- Configure the MKV accurately and set the values correctly
- Check the position data for plausibility

NOTICE

Property damage due to mechanical stress!

- Do not drop the product or subject it to major vibration
- Do not expose the product to mechanical stress
- Do not change the physical structure of the product

NOTICE

Property damage due to electrical stress!

- Do not engage or disengage any connecting elements while the product is under power
- Do not touch the contacts of the plug connections

NOTICE

Electrostatic discharge (ESD)!

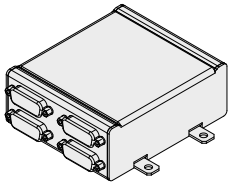
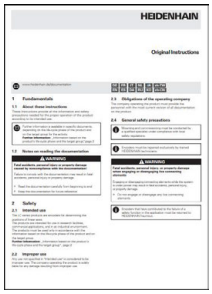
This product contains electrostatic sensitive components that can be destroyed by electrostatic discharge (ESD).

- It is essential to observe the safety precautions for handling ESD-sensitive components
- Never touch connector pins without ensuring proper grounding
- Wear a grounded ESD wristband when handling the connections of the product

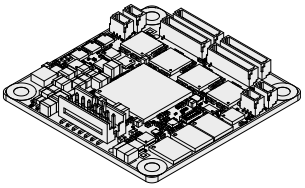
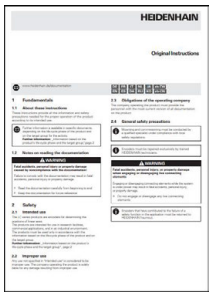
3 Items supplied and accessories

This chapter contains information on the items supplied and the available accessories of the product.

3.1 Included in delivery with the MKV 1630

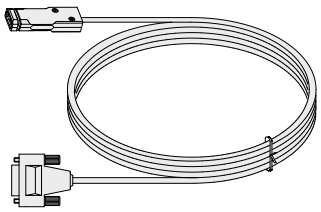
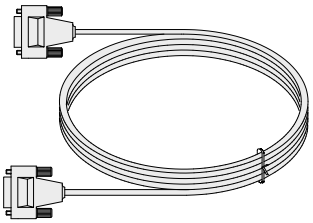
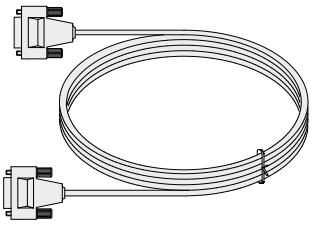
Component	Figure
Multi-head processing unit (MKV) with housing	
Operating Instructions	

3.2 Included in delivery with the MKV 9630

Component	Figure
Multi-head processing unit (MKV) as a circuit board	
Operating Instructions	

3.3 Mounting accessories

The following accessories can be obtained separately from HEIDENHAIN.

Designation	ID	Figure
Adapter cable for MKV 9630	1415475-15	
Adapter cable for MKV 1630	517673-02	
Adapter cable for MKV 1630 (alternative)	1402916-58	

4 Mounting

This chapter describes the mounting prerequisites, different mounting variants, and all other tasks necessary when mounting.

4.1 Prerequisites and notes

Before mounting the multi-head processing unit, you must first mount all encoders that will be connected to the unit.

Ensure sure that all encoders are mounted correctly.

Refer to the mounting instructions for each encoder.

- **www.heidenhain.com/documentation**
- Enter the encoder ID

NOTICE

Property damage resulting from severe contamination or liquids!

The product is not protected against the ingress of severe contamination or liquids, and an electrical short-circuit can occur.

- If necessary, protect the product by attaching a protective metal sheet or something similar

In order to avoid signal interferences, observe the minimum clearance from sources of interference.

For more information on sources of interference, refer to the **Interfaces of HEIDENHAIN Encoders** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1078628**

4.2 Mounting the housing of the MKV 1630

4.2.1 Notes on mounting the housing

4.2.2 Materials and tools

For this task, the following materials and tools are needed:

Included in delivery

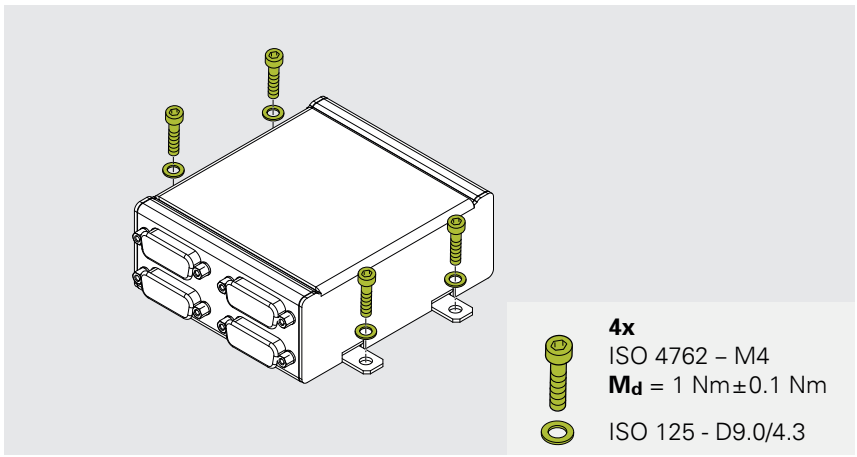
- 1 hexagonal nut (ISO 4032 – M5)
- 2 washers (ISO 7090 A2/140HV)
- 1 tooth lock washer

To be provided separately

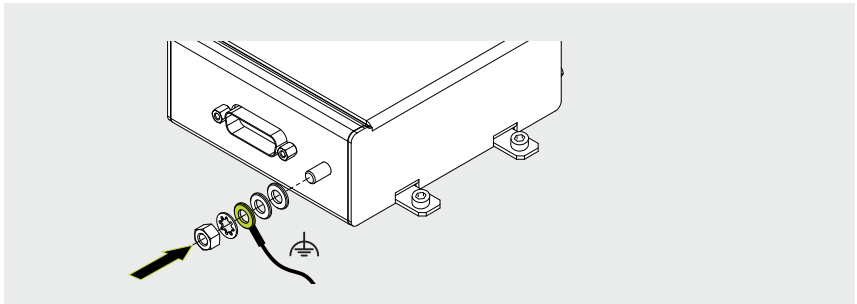
- 4 screws (ISO 4762 – M4)
- 4 washers (ISO 125 – D9.0/4.3)
- 1 grounding cable with eye at one end
- Torque wrench (3 mm hexagon socket and 6 mm hexagon head)

4.2.3 Mounting the housing

- Attach the housing and tighten the screws using the specified torque



- Ground the housing



- Connect the scanning heads

  Next step: "Connecting the scanning heads", Page 15

4.3 Mounting the MKV 9630 board

4.3.1 Notes on mounting the board

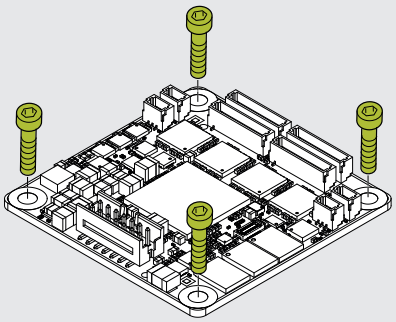
4.3.2 Materials and tools

For this task, the following materials and tools are needed:

Included in delivery	To be provided separately
	■ 4 screws (ISO 4762 – M4) ■ 4 washers (ISO 125 – D9.0/4.3) ■ 1 grounding cable with eye at one end ■ Conductive housing ■ Torque wrench (hexagon socket for 3 mm)

4.3.3 Mounting the board

▶ Attach the board and tighten the screws using the specified torque



4x
ISO 4762 – M4
M_d = 1 Nm±0.1 Nm

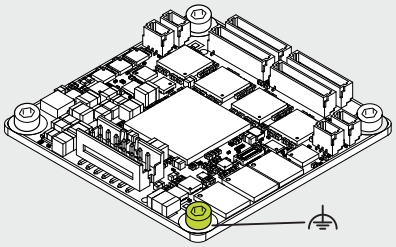
ISO 125 - D9.0/4.3

NOTICE

Property damage due to insufficient grounding

Insufficient grounding between the product and the machine damages the product and shortens its service life.

▶ Ensure that the resistance between the product and the machine is < 1 Ω
▶ Attach conductive housing
▶ Ground the product sufficiently

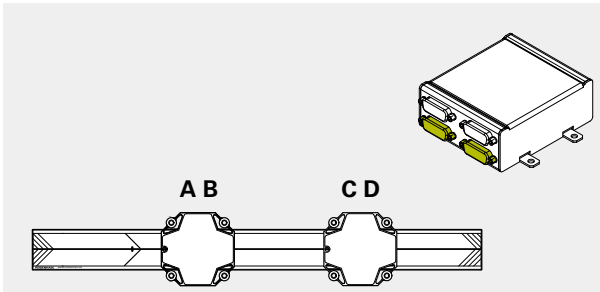
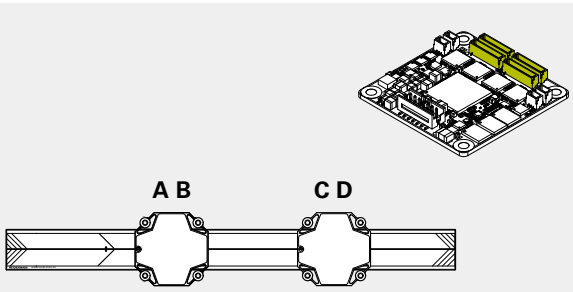
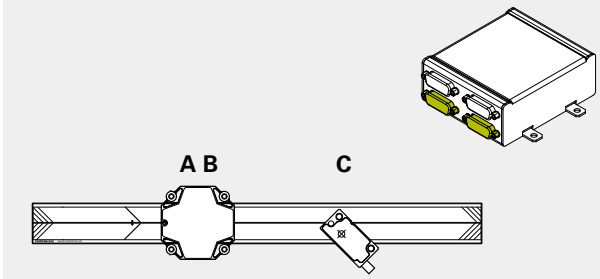
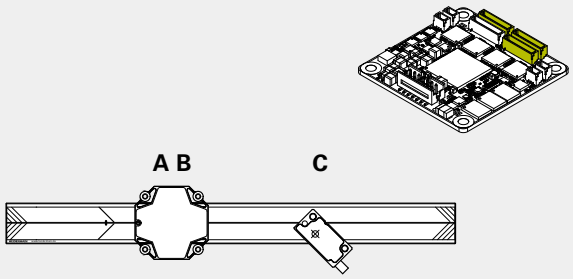
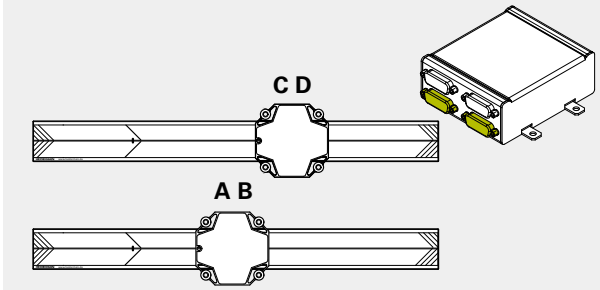
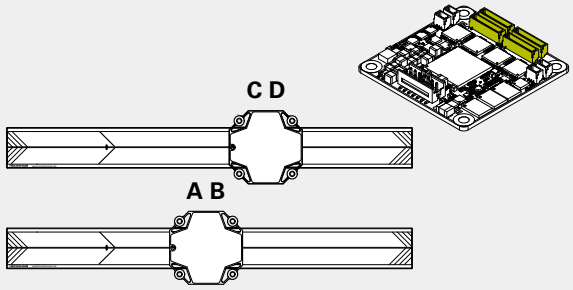
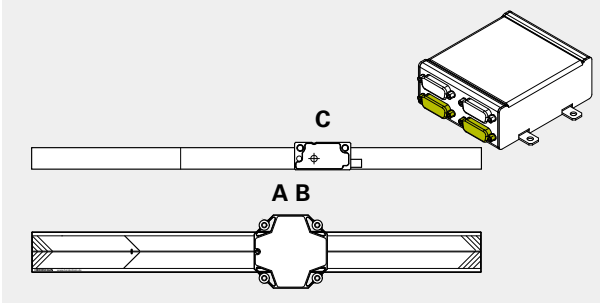
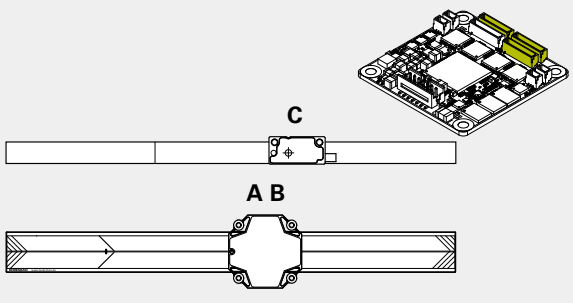


▶ Connect the scanning heads

Next step: "Connecting the scanning heads", Page 15

4.4 Connecting the scanning heads

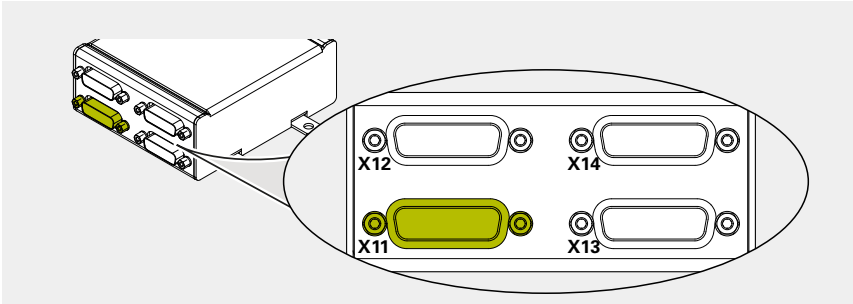
4.4.1 Mounting situations

	Connection to MKV 1630	Connection to MKV 9630
Mounting situation 1		
	1–1630 **Page 16**	1–9630 **Page 16**
Mounting situation 2		
	2–1630 **Page 17**	2–9630 **Page 17**
Mounting situation 3		
	3–1630 **Page 18**	3–9630 **Page 18**
Mounting situation 4		
	4–1630 **Page 19**	4–9630 **Page 19**

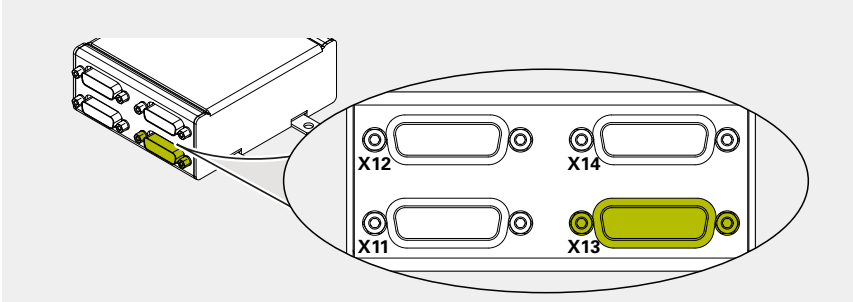
4.4.2 Mounting situation 1-1630

Connecting the scanning heads (1-1630)

- Connect the AB scanning head as shown



- Connect the CD scanning head as shown



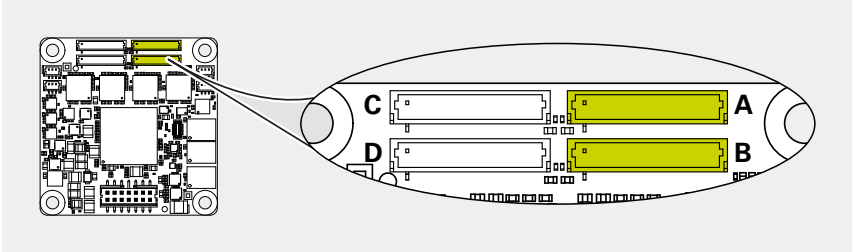
- Measure the resistance
  Next step: "Continuity check", Page 23

4.4.3 Mounting situation 1-9630

Connecting the scanning heads (1-9630)

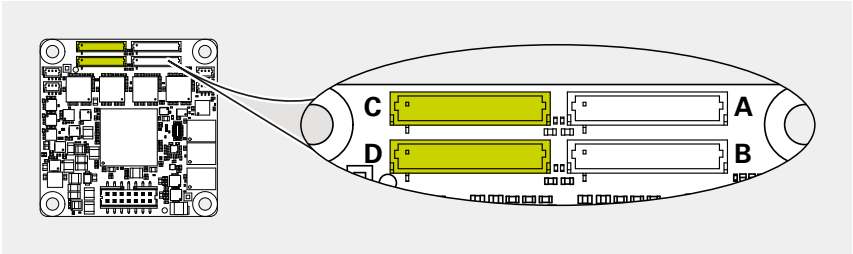
- Connect the AB scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.



- Connect the CD scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.

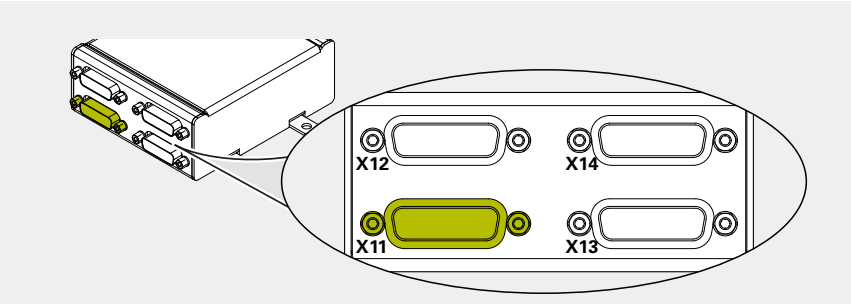


- Measure the resistance
  Next step: "Continuity check", Page 23

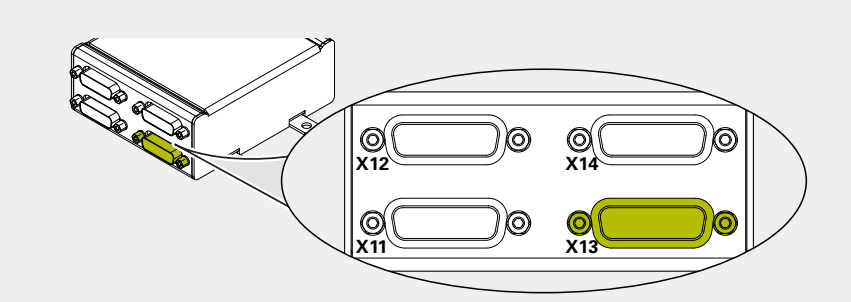
4.4.4 Mounting situation 2-1630

Connecting the scanning heads (2-1630)

- Connect the AB scanning head as shown



- Connect the C scanning head as shown



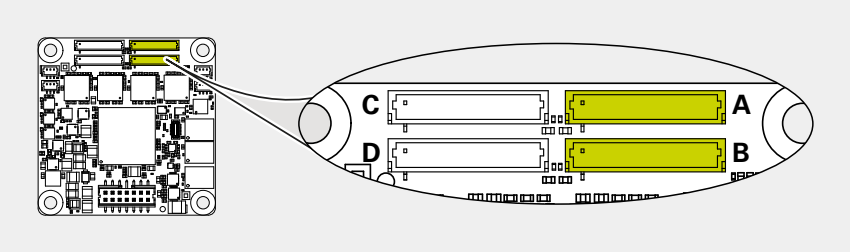
- Measure the resistance
  Next step: "Continuity check", Page 23

4.4.5 Mounting situation 2-9630

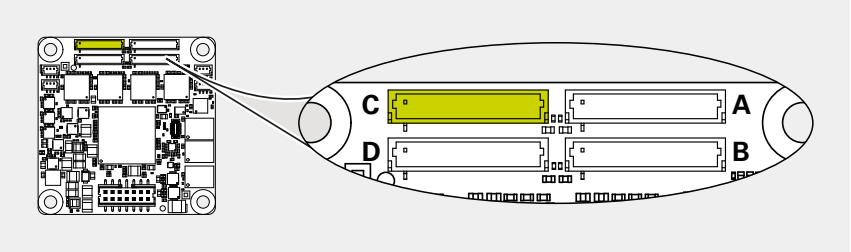
Connecting the scanning heads (2-9630)

- Connect the AB scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.



- Connect the C scanning head as shown

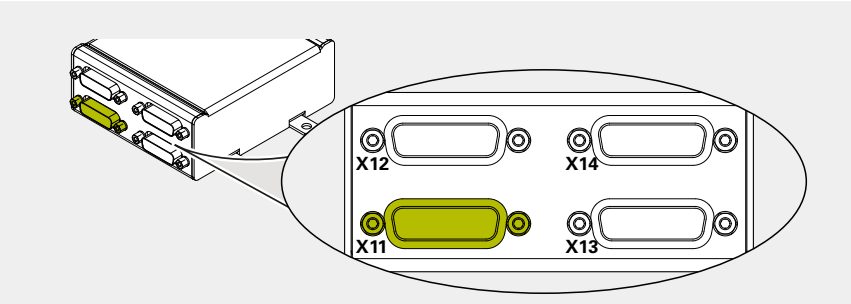


- Measure the resistance
  Next step: "Continuity check", Page 23

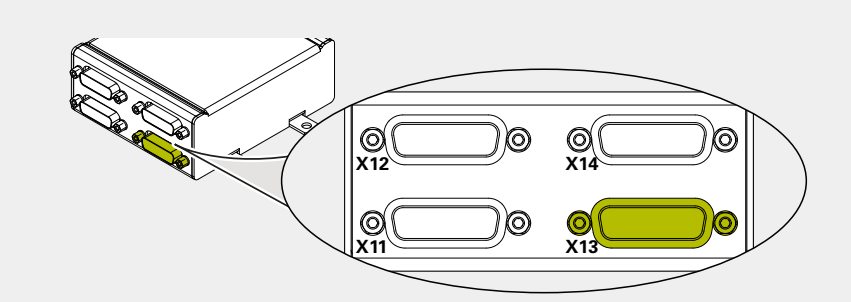
4.4.6 Mounting situation 3-1630

Connecting the scanning heads (3-1630)

- Connect the AB scanning head as shown



- Connect the CD scanning head as shown



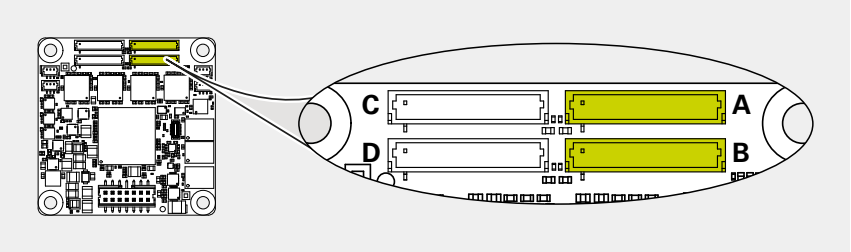
- Measure the resistance
  Next step: "Continuity check", Page 23

4.4.7 Mounting situation 3-9630

Connecting the scanning heads (3-9630)

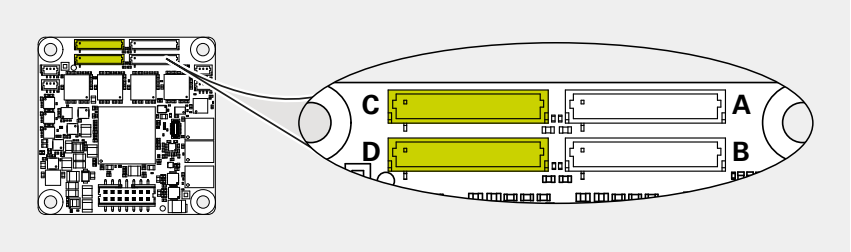
- Connect the AB scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.



- Connect the CD scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.

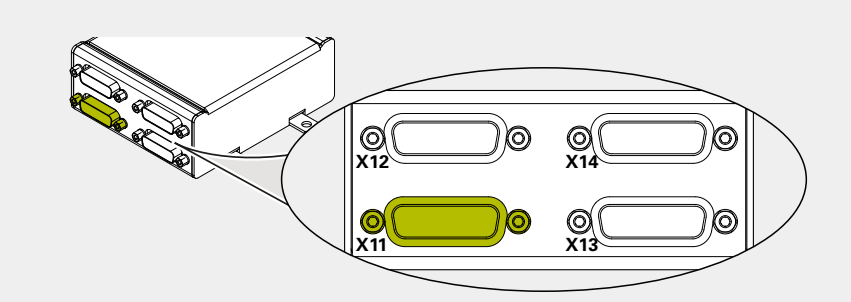


- Measure the resistance
  Next step: "Continuity check", Page 23

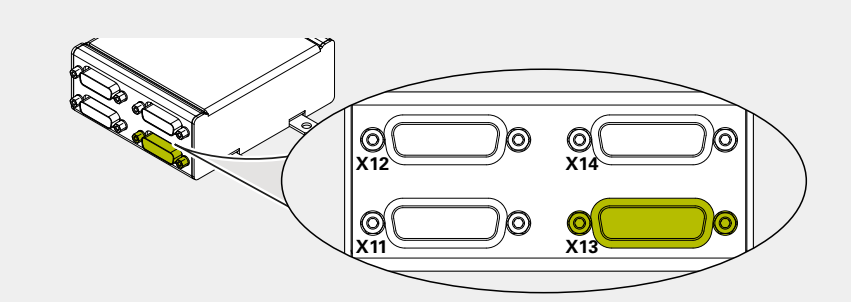
4.4.8 Mounting situation 4-1630

Connecting the scanning heads (4-1630)

- Connect the AB scanning head as shown



- Connect the C scanning head as shown



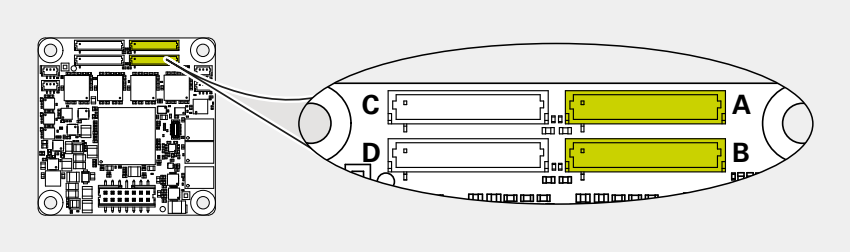
- Measure the resistance
  Next step: "Continuity check", Page 23

4.4.9 Mounting situation 4-9630

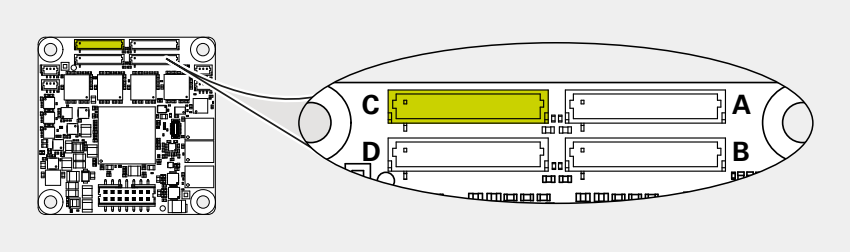
Connecting the scanning heads (4-9630)

- Connect the AB scanning head as shown

> Plug the connector with more wires into socket A or C, and the connector with fewer wires into B or D.



- Connect the C scanning head as shown



- Measure the resistance
  Next step: "Continuity check", Page 23

4.5 Connecting the MKV unit to a PWM 21

Materials and tools

For this mounting step, the following materials and tools are needed:

Included in delivery	To be provided separately
	■ Adapter cable for MKV 9630 (1415475-15) ■ Adapter cable for MKV 1630 (517673-02) ■ Adapter cable (alternative) for MKV 1630 (1402916-58)

4.5.1 Connecting the MKV unit to a PWM 21

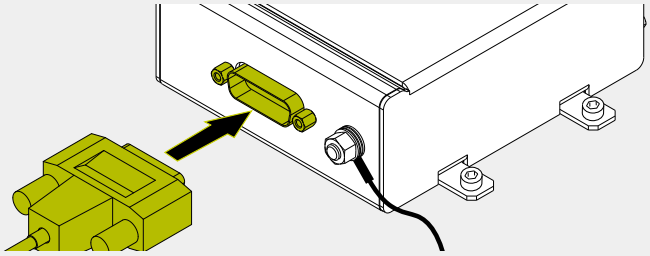
⚠ WARNING

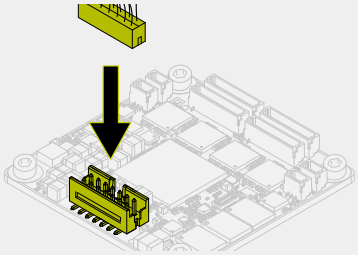
Danger of electric shock due to plug connections under voltage!

Connecting and disconnecting live cables and plug connections in the equipment can result in death or serious injury.

- Only connect and disconnect cables and plug connections when no current is flowing through them
- Disconnect the downstream electronics from power before connecting the product
- For cables without connectors, pay attention to the pin layout

Connect the MKV unit to a PWM 21 as shown





- ▶ Adjust the scanning heads and configure the multi-head processing unit
  Next step: "Adjustment, diagnostics and configuration", Page 22

For more information on the cable characteristics and cable routing, refer to the **Cables and Connectors** brochure.

- ▶ **www.heidenhain.com/documentation**
- ▶ Enter the document ID **1206103**

For more information on the pin layouts, refer to the **Cables and Connectors** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1206103**

For more information on sources of interference, refer to the **Interfaces of HEIDENHAIN Encoders** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1078628**

5 Adjustment, diagnostics and configuration

This chapter describes how adjustment and diagnosis of the scanning heads and the configuration of the multi-head processing unit are performed using the PWM 21 and the Adjusting and Testing Software (ATS).

5.1 Requirements and notes

The PWM 21 testing device together with the Adjusting and Testing Software (ATS) serves for the diagnosis and adjustment of HEIDENHAIN encoders.

It consists of the following components:

- PWM 21
- ATS software, special version SV24, with integrated local encoder database for automatic encoder identification

The ATS software is available for download free of charge from **www.heidenhain.com/service/downloads/software/**.

For more information, refer to the **Exposed Linear Encoders** brochure and the ENDAT 3 APPLICATION NOTE.

- **www.heidenhain.com/documentation**
- Enter the document IDs **208960** and **1389793**

For more information, see the associated Adjusting and Testing Software documentation.

- **www.heidenhain.com/documentation**
- Enter the document ID **543734**

You can adjust and perform diagnostics on the product with default settings or with user-defined settings.

For information about adjustment and diagnostics with default settings, see "Connecting the encoder using its ID".

For information about adjustment and diagnostics with user-defined settings, see "Connecting the encoder manually".

5.2 Continuity check

Materials and tools

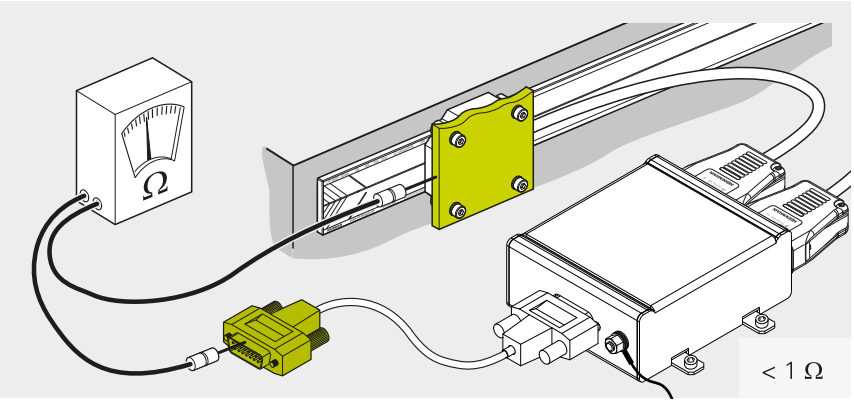
For this mounting step, the following materials and tools are needed:

Included in delivery	To be provided separately
	■ Resistance measuring device

5.2.1 Measuring the electrical resistance

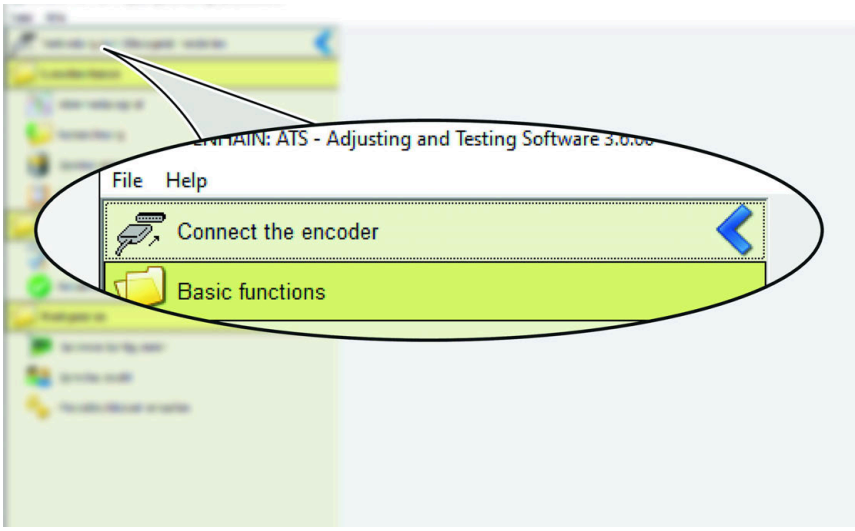
- Check the electrical resistance between each connector housing and the machine

> The electrical resistance between the connector housing and the machine must be < 1 Ω.



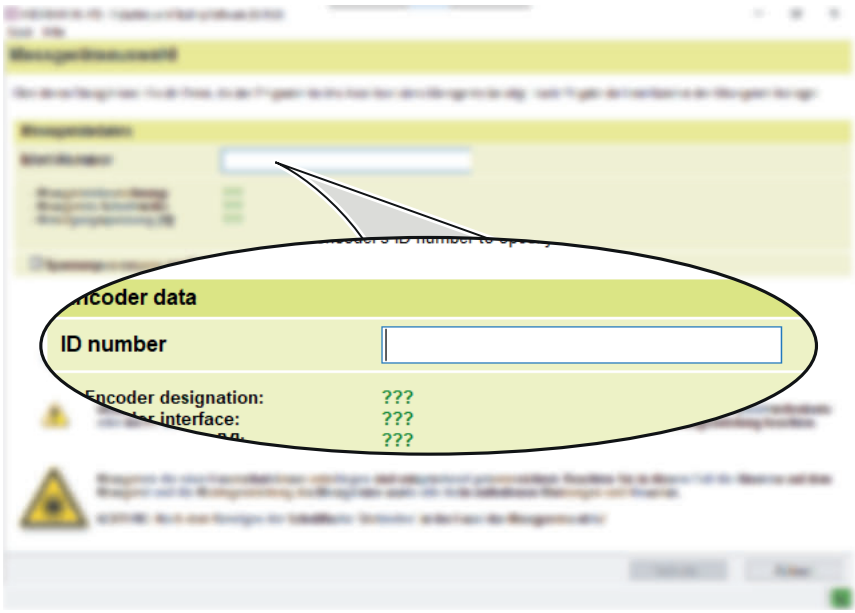
5.3 Connecting the MKV using its ID

- Double-click **Connect the encoder** in the function menu
- > The **Encoder selection** dialog opens



Function menu

- ▶ Enter the MKV ID in the **ID number** field
- > The determined MKV parameters are shown in the **Encoder data** field.
- ▶ Click **Connect**
- > The connection to the encoder is established.
- > The **Function menu** is displayed.



Encoder selection dialog

5.4 Using the mounting wizard

The mounting wizard must be used for each scanning head.

The following scanning heads can be adjusted directly through the MKV:

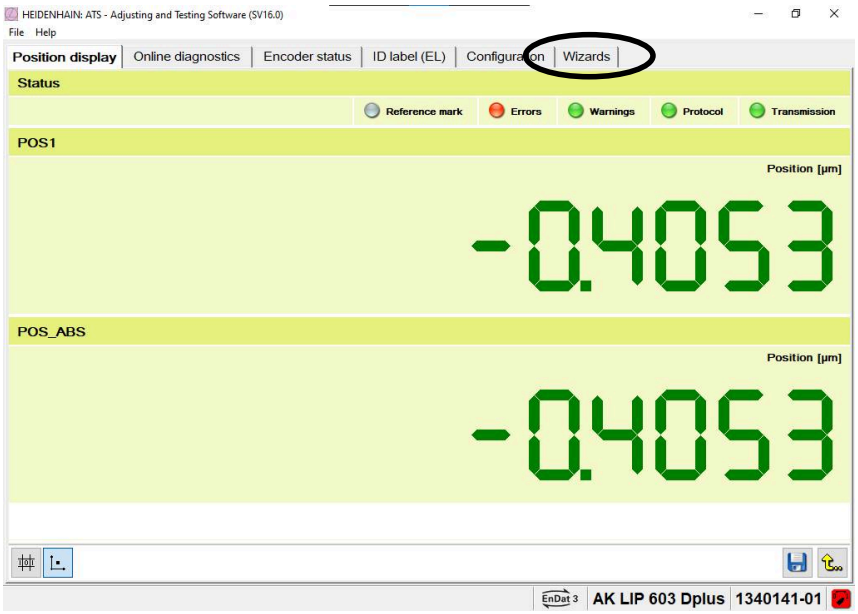
- LIP 608
- LIP 608 D*plus*
- LIP 609 D*plus*

> For other encoders, read the mounting instructions included with the scanning head and only then connect them to the MKV.

5.4.1 Using the mounting wizard

▶ Click the **Wizards** tab

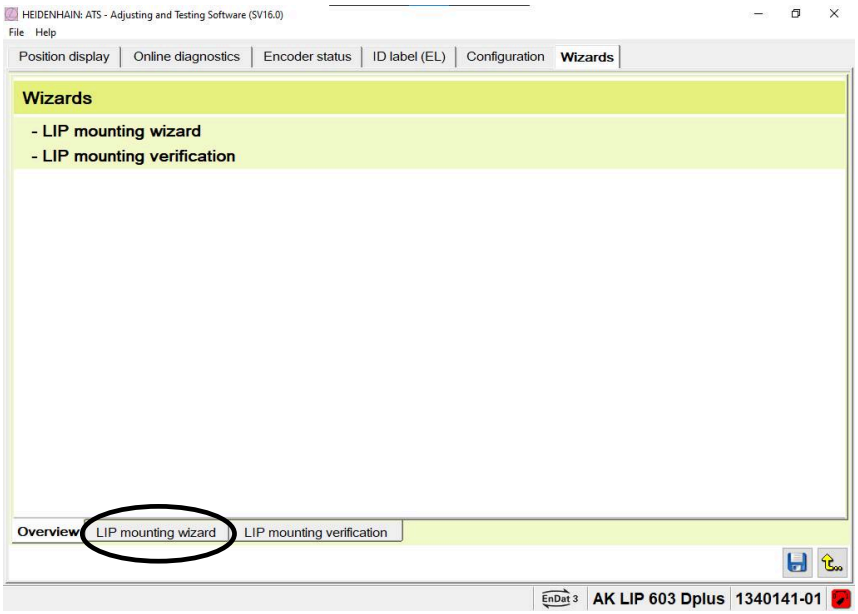
> The **Wizards** selection is displayed.



Position display tab

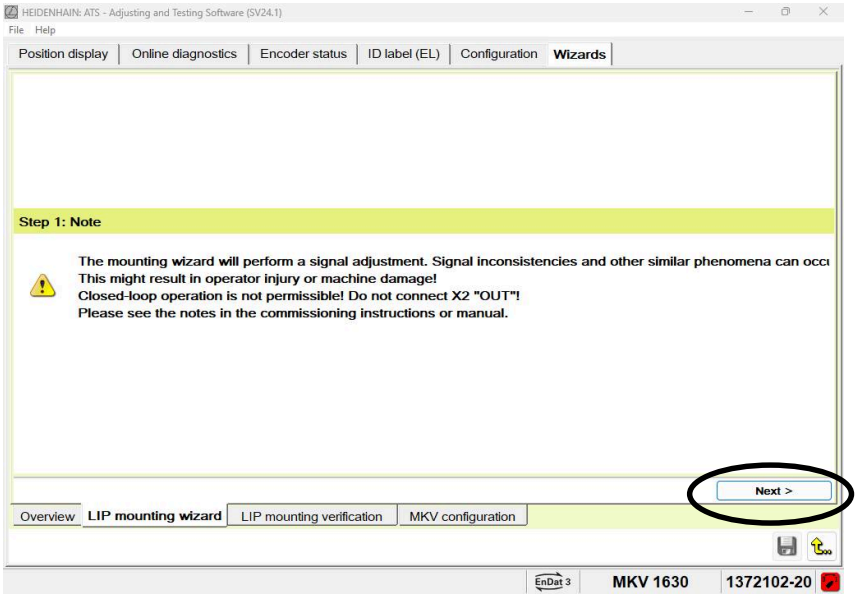
▶ Click the **LIP mounting wizard** tab on the bottom

> The message **Step 1: Note** is displayed.



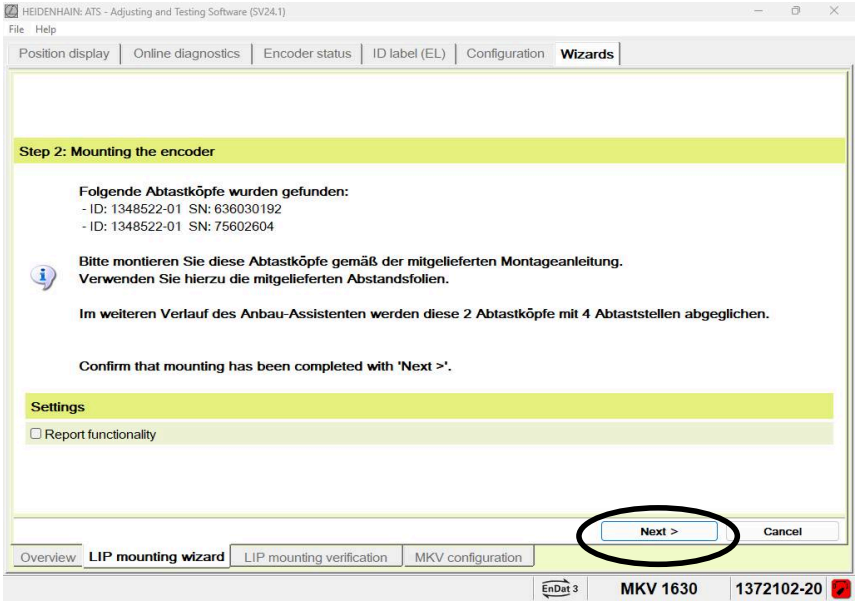
Selection of **Wizards** with the **Wizards** message

- ▶ Click **Next >**
- > The **Step 2: Mounting the encoder** dialog appears.



Wizards tab with **Step 1: Note** message

- ▶ Click **Next**
- > The message **The encoder will be reset to its factory settings** is displayed.

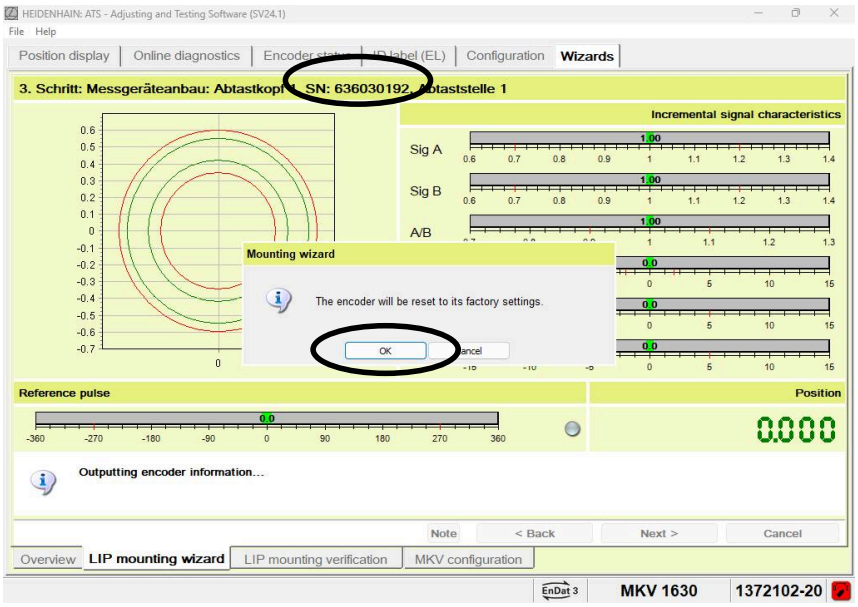


Wizards tab with **Step 2: Mounting the encoder** message

Adjusting the scanning head

The serial number of the scanning head to be adjusted can be read in the top line.

- ▶ Click **OK**
- > The encoder is reset to the factory default settings.

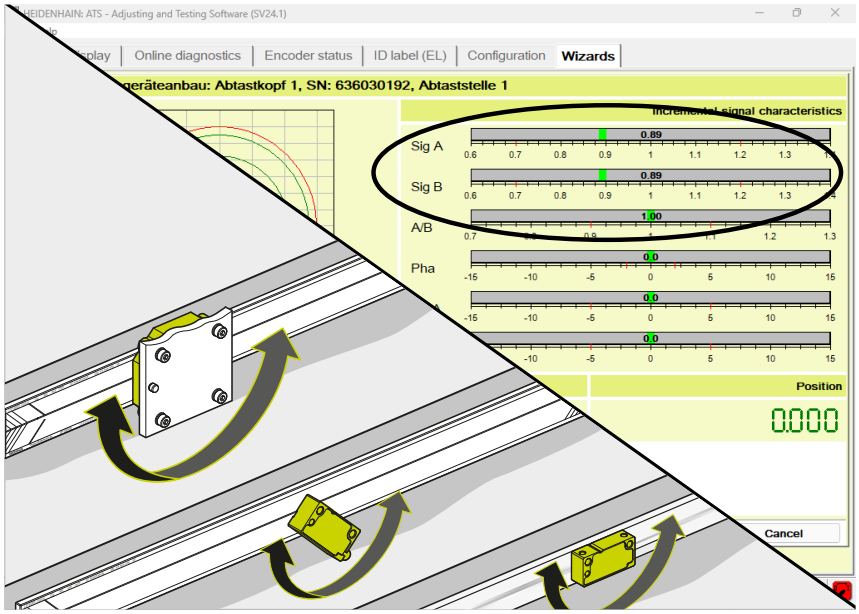


Wizards tab with **Factory default setting** message

Perform Moiré alignment.

- ▶ Rotate the scanning head to set the maximum possible signal (Sig A, Sig B)

- Perform the alignment at standstill
- Do not perform the alignment at the reference mark



Moiré alignment

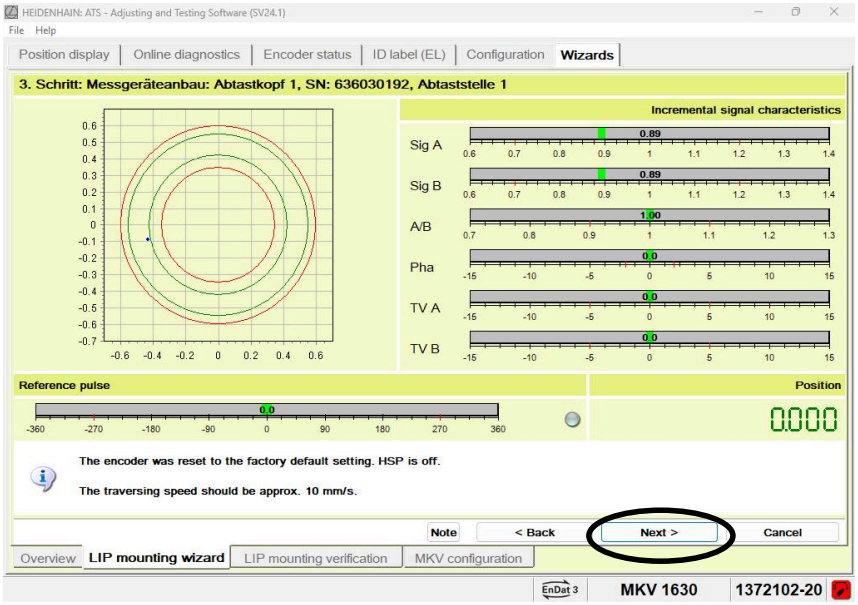
- Traverse the scanning head with 10 mm/s

> Please note the information about adjusting the scanning head in the encoder's mounting instructions.

> The blue dot must be within the green circles.

- Click **Next**

> The message **Step 4: Adjusting** is displayed.



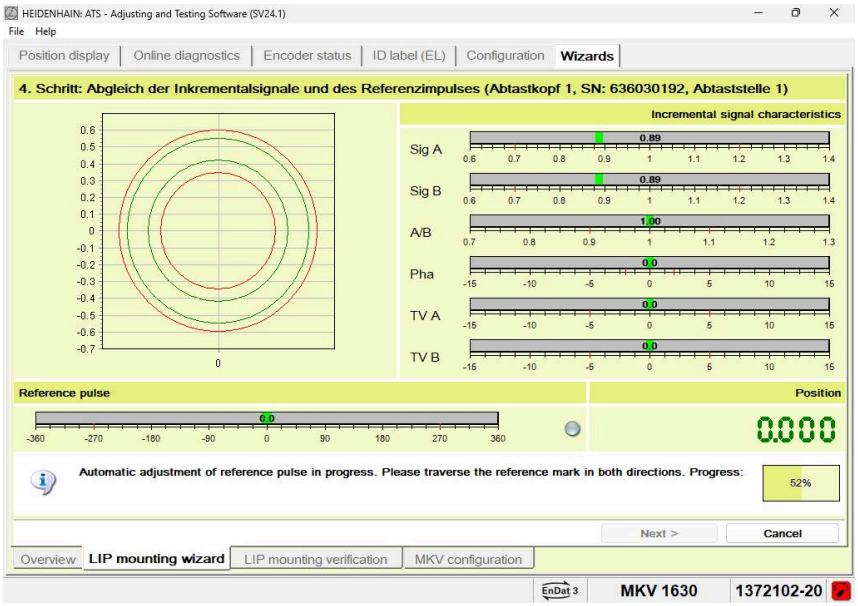
Wizards tab with **Step 3: Mounting the encoder (active measurement of scanning position 1)** message

- For all scanning positions of a scanning head, adjust the reference mark and the main track until the progress for each scanning position reaches 100 %.

> The reference marks and incremental track of the scanning head have now been adjusted.

> If another scanning head needs to be adjusted, the mounting wizard jumps to **Adjust the scanning head**.

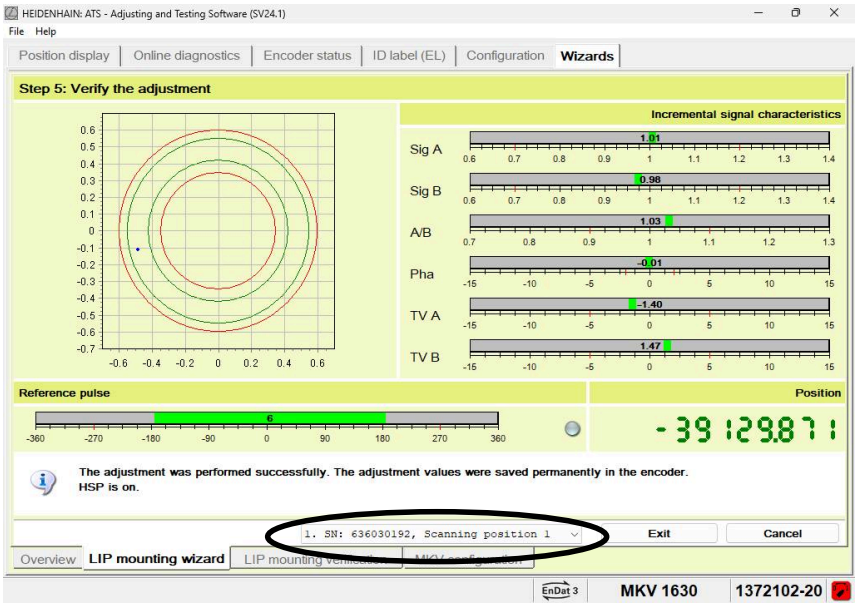
> When all scanning heads have been adjusted, the mounting wizard jumps to **Verify the adjustment**.



Wizards tab with **Step 4: Adjusting the incremental signals and the reference pulse** message

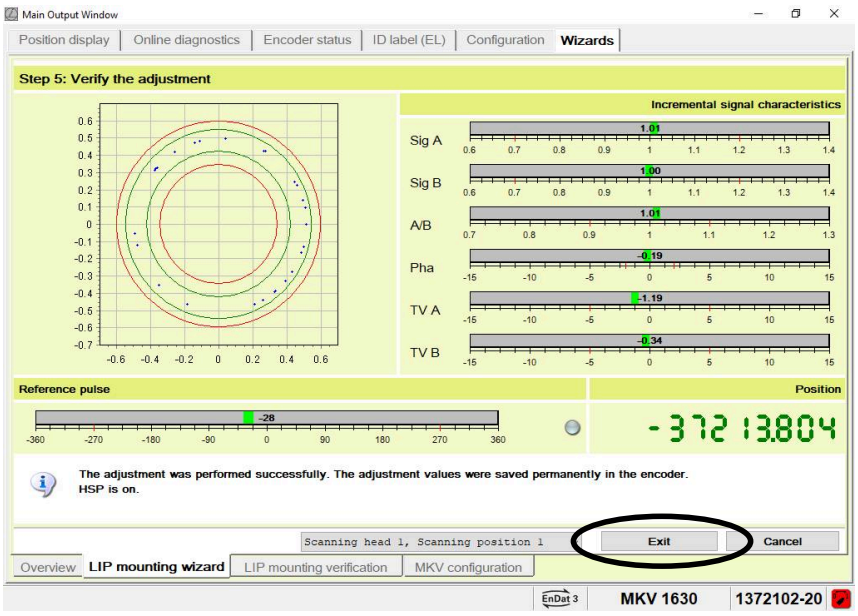
Verifying the adjustment

- ▶ Select **Scanning position**
- > The signals of the selected scanning position are displayed.



Wizards tab with **Step 5: Verify the adjustment** message

- ▶ If other supported scanning heads are mounted, Step 3 is automatically started for the next scanning head
- ▶ If the mounting wizard was used for all scanning heads, click **Exit**
- > The adjustment was successfully concluded.



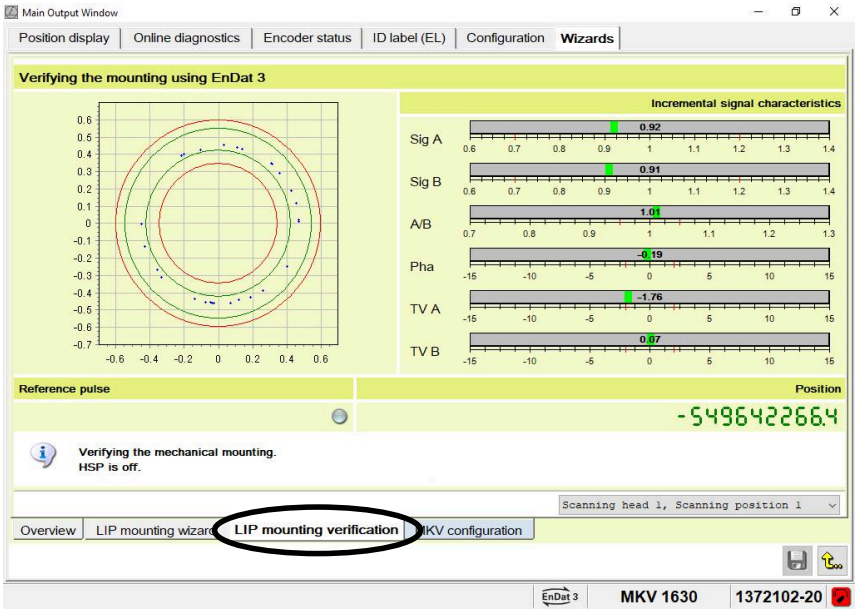
Wizards tab with **Step 5: Verify the adjustment** message

5.5 Checking the mounting

Mounting must be checked for each scanning head.

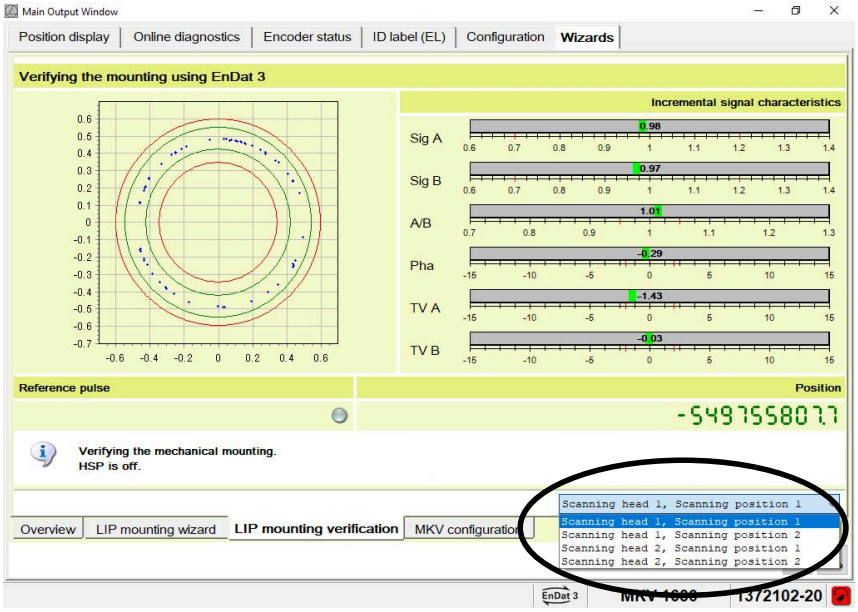
5.5.1 Checking the mounting

- ▶ Click the **LIP mounting verification** tab
- > The **Verifying the mounting using EnDat 3** dialog appears.



Wizards tab

- ▶ Select **Scanning position**
- > The signals of the selected scanning position are displayed.

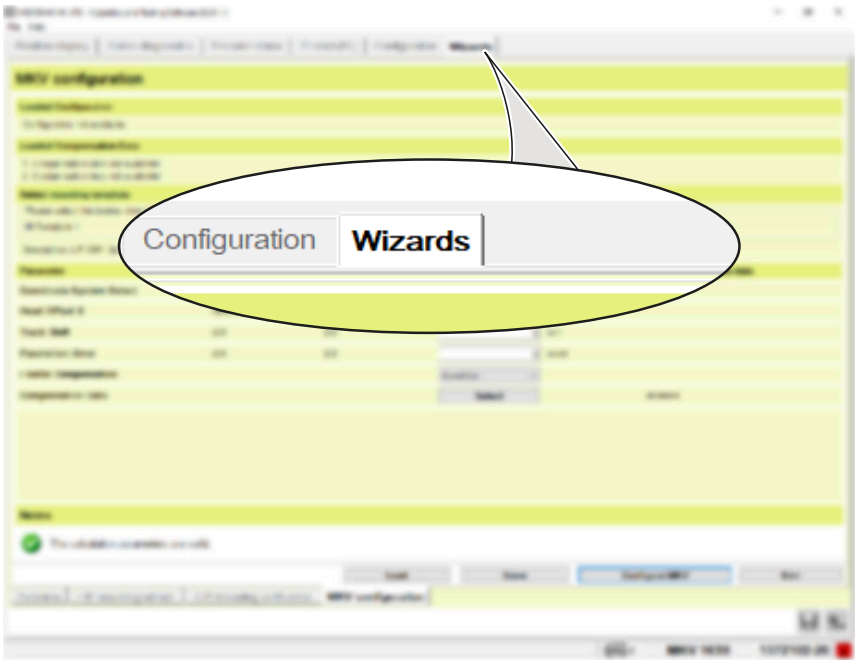


Wizards tab with the **Verifying the mounting using EnDat 3** dialog

5.6 Configuring the multi-head processing unit

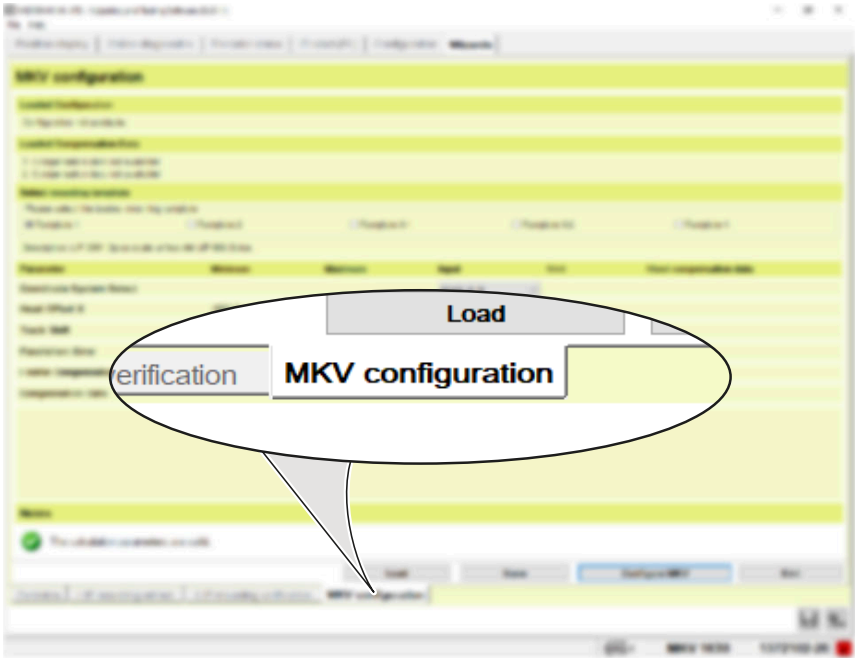
5.6.1 Opening the configuration wizard

- Open the **Wizards** tab



Wizards tab

- Open the **MKV configuration** tab

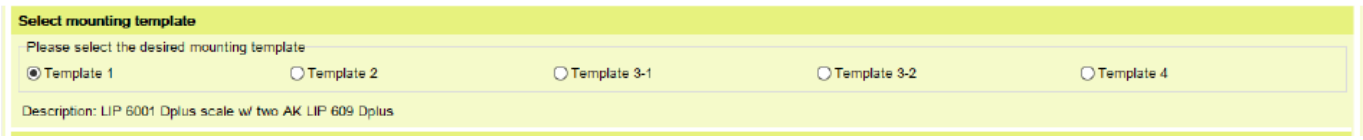


MKV configuration tab

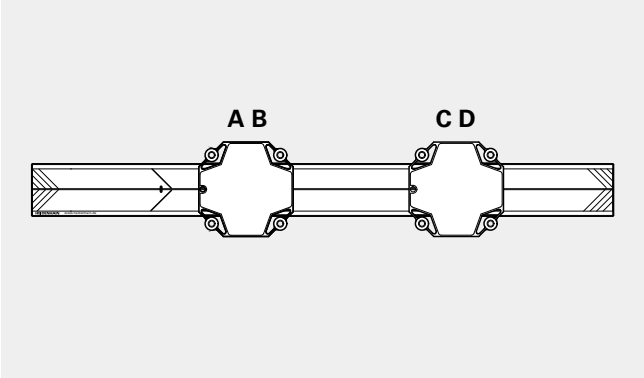
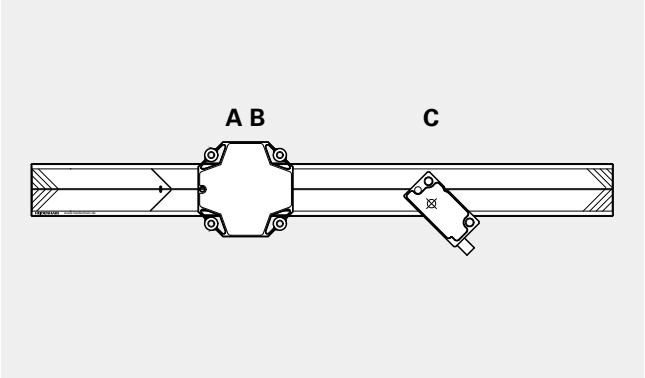
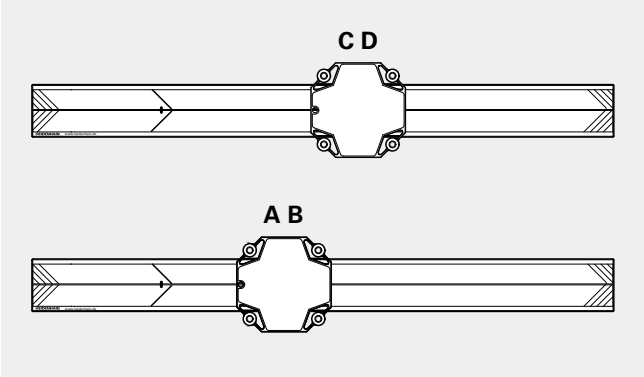
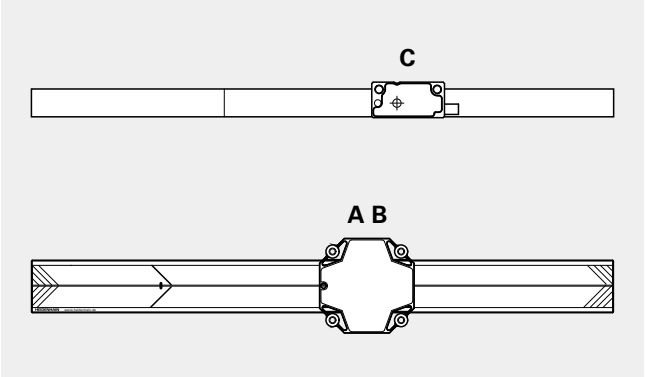
5.6.2 Selecting the mounting situation

The mounting situation determines the values that are ascertained for configuration of the MKV unit.

- Select the mounting situation in the **configuration wizard**



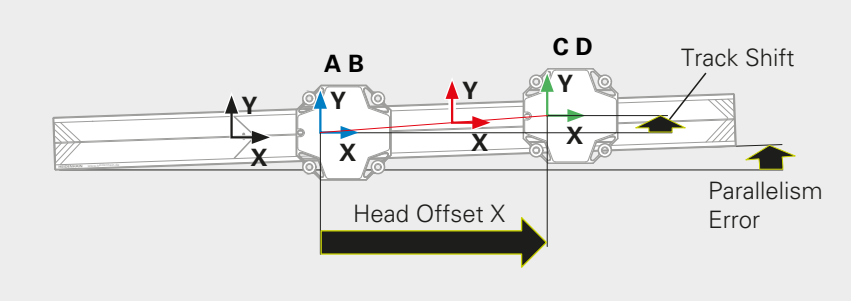
Mounting situations

Mounting situation **1**	Mounting situation **2**
	
Page 33	**Page 34**
Mounting situation **3 (3-1, 3-2)**	Mounting situation **4**
	
Page 35	**Page 37**

5.6.3 Configuring mounting situation 1

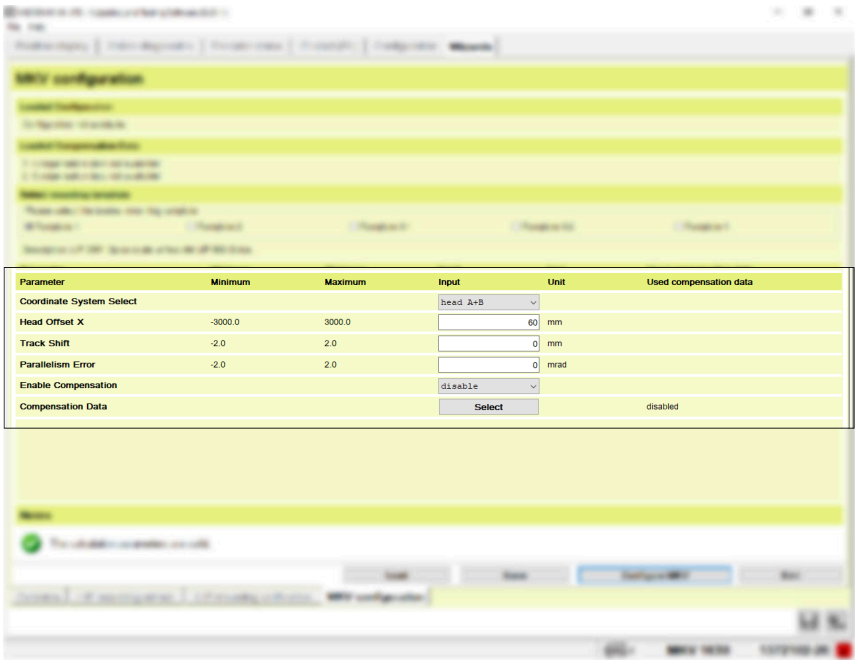
For initial setup of the MKV, use the nominal dimensions in the dimension drawing.
To increase accuracy, the following values must be determined, for example by using a reference encoder.

- Enter nominal dimensions or ascertained values for
  - **Head Offset X**
  - **Track Shift**
  - **Parallelism Error**



Representation of the values to be determined

- Enter values in the **MKV configuration**

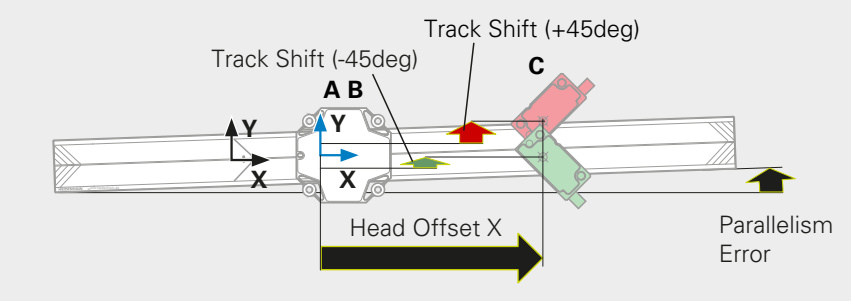


MKV configuration

5.6.4 Configuring mounting situation 2

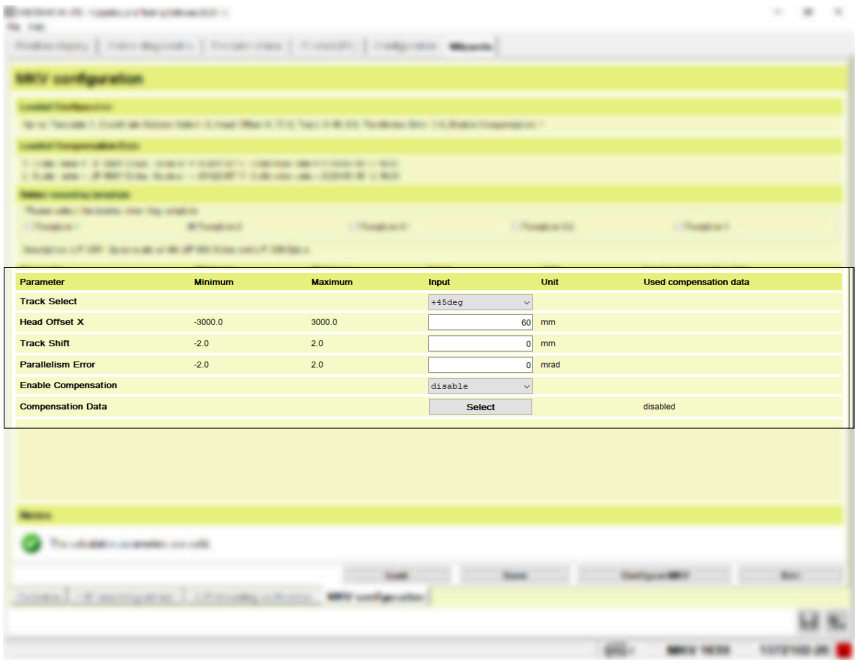
For initial setup of the MKV, use the nominal dimensions in the dimension drawing.
To increase accuracy, the following values must be determined, for example by using a reference encoder.

- Enter nominal dimensions or ascertained values for
  - **Head Offset X**
  - **Track Shift**
  - **Parallelism Error**



Representation of the values to be determined

- Enter values in the **MKV configuration**



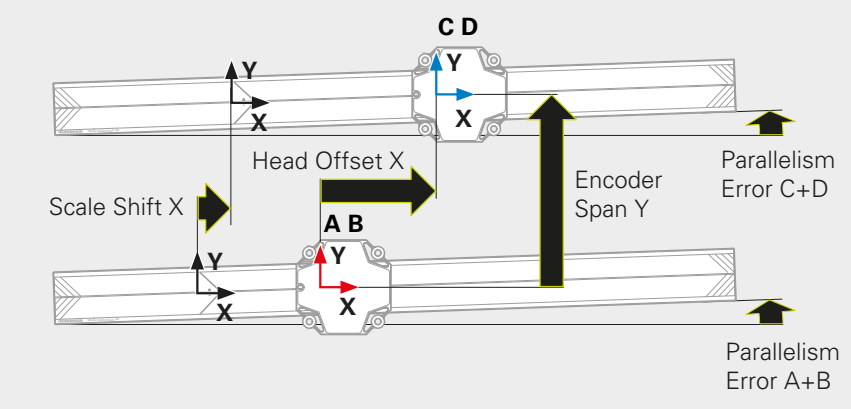
MKV configuration

5.6.5 Configuring mounting situation 3

Measurement method 3-1

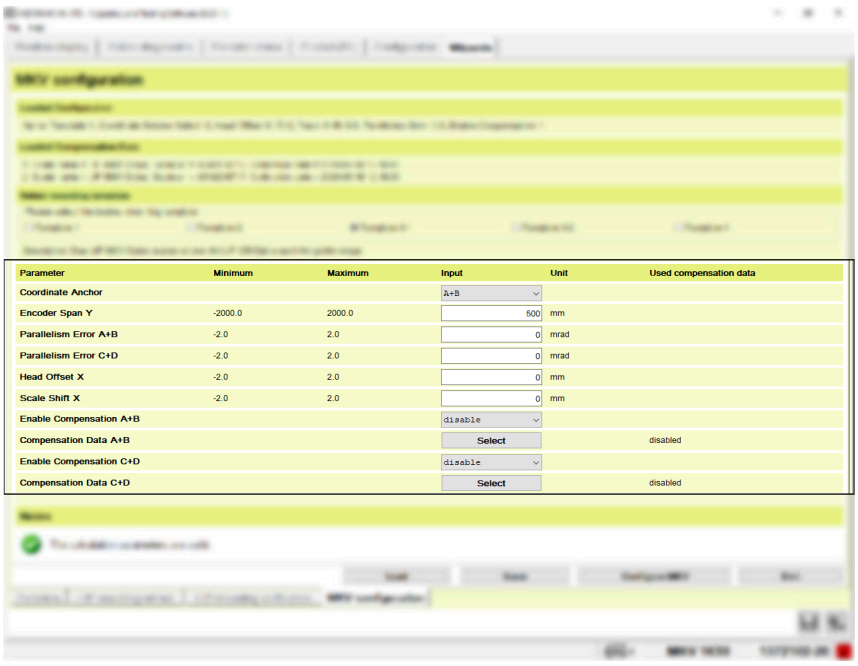
For initial setup of the MKV, use the nominal dimensions in the dimension drawing.
To increase accuracy, the following values must be determined, for example by using a reference encoder.

- Enter nominal dimensions or ascertained values for
  - **Head Offset X**
  - **Scale Shift X**
  - **Encoder Span Y**
  - **Parallelism Error A+B**
  - **Parallelism Error C+D**



Representation of the values to be determined

- Enter values in the **MKV configuration**



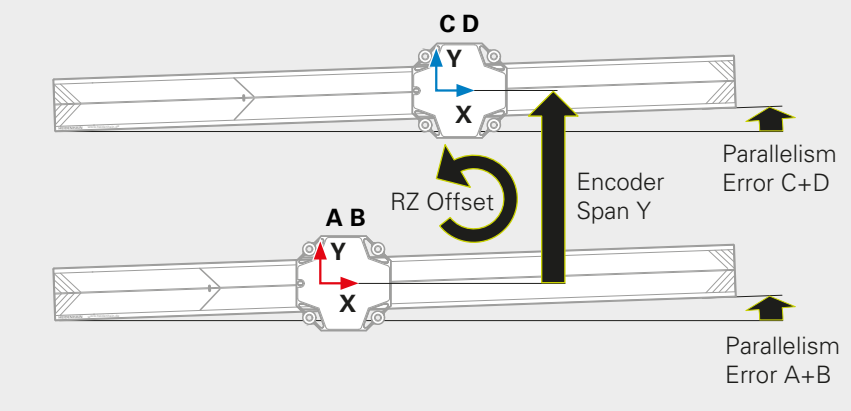
Parameter	Minimum	Maximum	Input	Unit	Used compensation data
Coordinate Anchor			A+B		
Encoder Span Y	-2000.0	2000.0	500	mm	
Parallelism Error A+B	-2.0	2.0	0	mrad	
Parallelism Error C+D	-2.0	2.0	0	mrad	
Head Offset X	-2.0	2.0	0	mm	
Scale Shift X	-2.0	2.0	0	mm	
Enable Compensation A+B			disable		
Compensation Data A+B			Select		disabled
Enable Compensation C+D			disable		
Compensation Data C+D			Select		disabled

MKV configuration

Measurement method 3-2

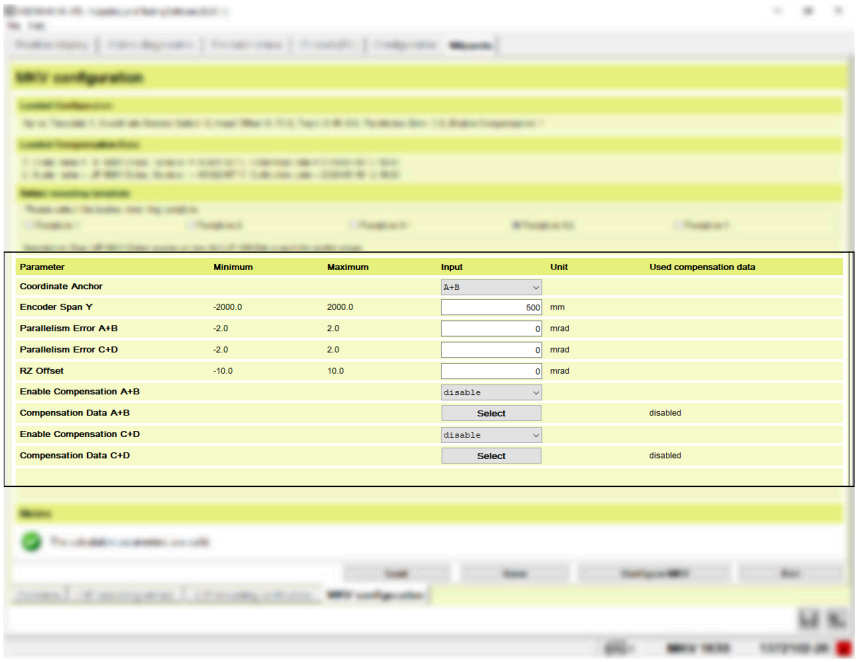
For initial setup of the MKV, use the nominal dimensions in the dimension drawing.
To increase accuracy, the following values must be determined, for example by using a reference encoder.

- Enter nominal dimensions or ascertained values for
  - **Encoder Span Y**
  - **RZ Offset**
  - **Parallelism Error A+B**
  - **Parallelism Error C+D**



Representation of the values to be determined

- Enter values in the **MKV configuration**



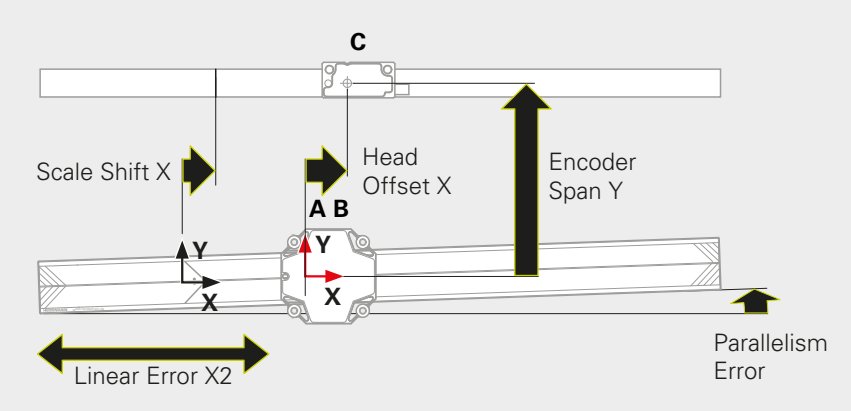
Parameter	Minimum	Maximum	Input	Unit	Used compensation data
Coordinate Anchor			A+B		
Encoder Span Y	-2000.0	2000.0	500	mm	
Parallelism Error A+B	-2.0	2.0	0	mrad	
Parallelism Error C+D	-2.0	2.0	0	mrad	
RZ Offset	-10.0	10.0	0	mrad	
Enable Compensation A+B			disable		
Compensation Data A+B			Select		disabled
Enable Compensation C+D			disable		
Compensation Data C+D			Select		disabled

MKV configuration

5.6.6 Configuring mounting situation 4

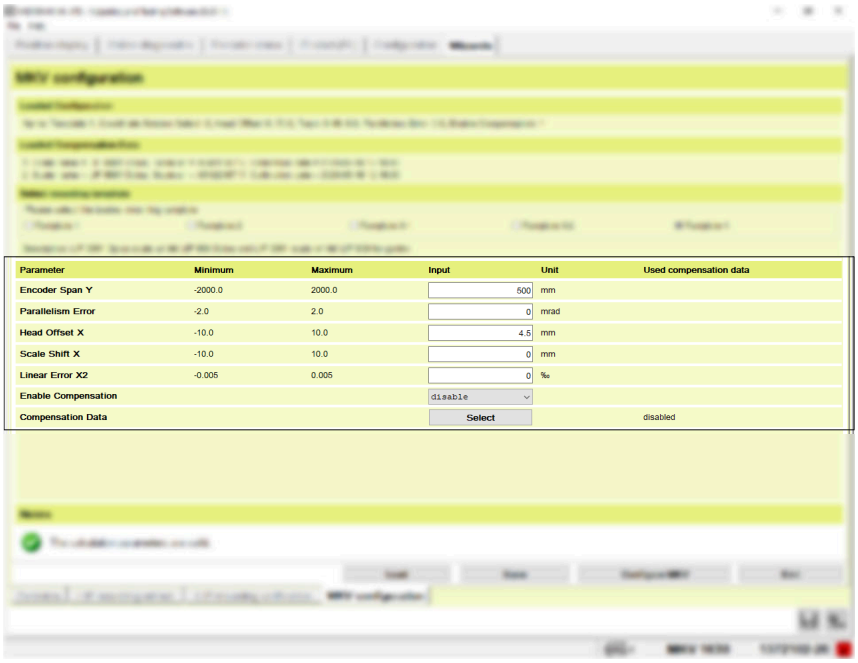
For initial setup of the MKV, use the nominal dimensions in the dimension drawing.
To increase accuracy, the following values must be determined, for example by using a reference encoder.

- Enter nominal dimensions or ascertained values for
  - **Head Offset X**
  - **Scale Shift X**
  - **Encoder Span Y**
  - **Parallelism Error**
  - **Linear Error X2**



Representation of the values to be determined

- Enter values in the **MKV configuration**

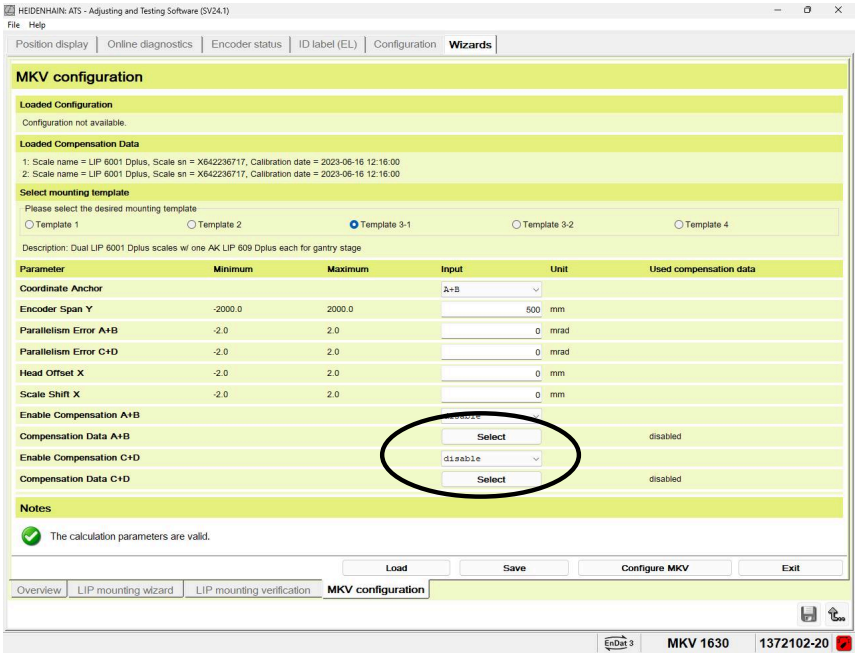


MKV configuration

5.6.7 Loading compensation data

Compensation data

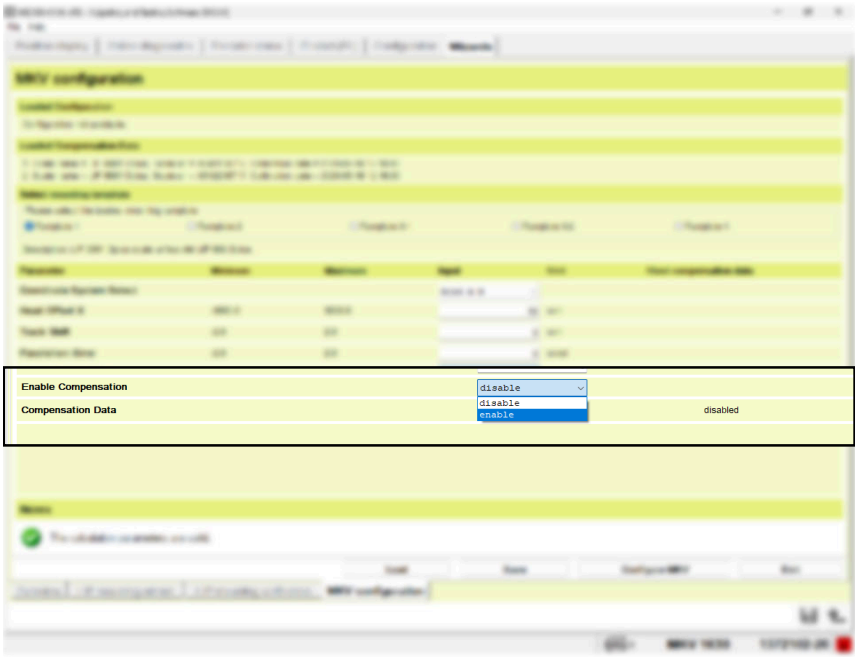
- ▶ Click **Select**
- > The file explorer appears.
- ▶ Select the file path of the compensation data
- ▶ Click **Open**



Wizards tab with **MKV configuration** dialog

Compensation

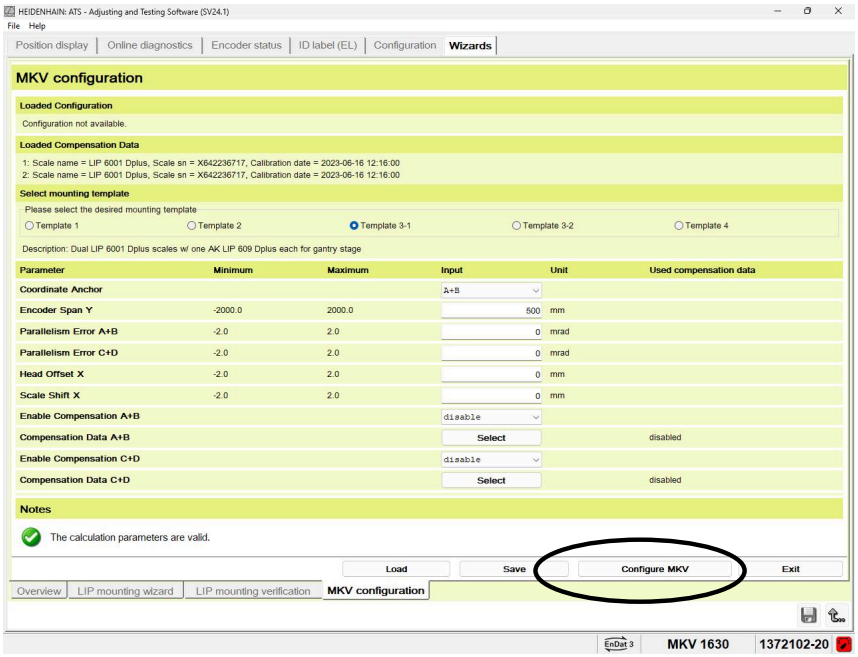
- ▶ In the selection menu, choose whether to activate compensation data



Wizards tab with **MKV configuration** dialog

5.6.8 Uploading the configuration to the MKV

- ▶ Click **Configure MKV**
- > The configuration wizard performs the calculation
- > The **MKV was configured successfully** message appears
- ▶ If the **Failed to configure the MKV** message appears, repeat the procedure



- ▶ After configuring, perform a plausibility check for the position data

6 Final steps

6.1 Connecting the MKV with the downstream electronics

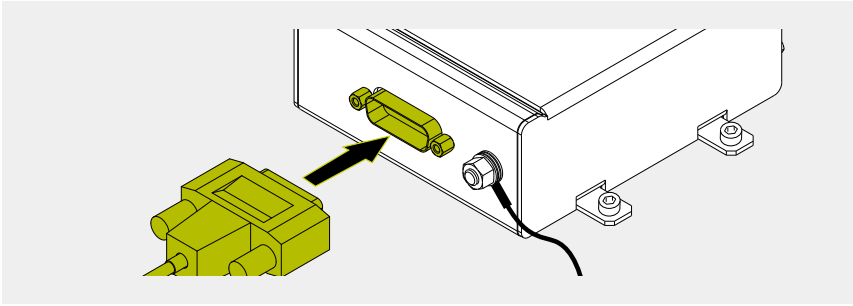
⚠ WARNING

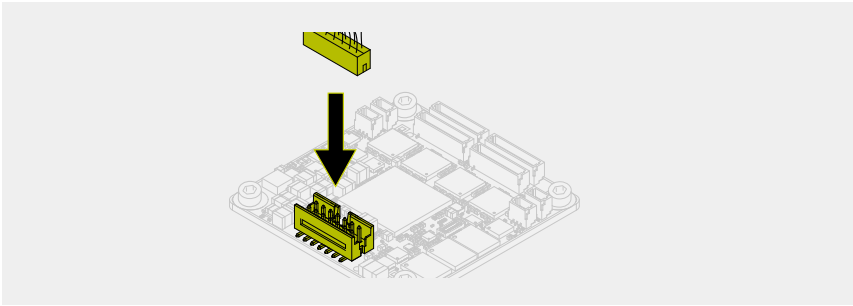
Danger of electric shock due to plug connections under voltage!

Connecting and disconnecting live cables and plug connections in the equipment can result in death or serious injury.

- Only connect and disconnect cables and plug connections when no current is flowing through them
- Disconnect the downstream electronics from power before connecting the product
- For cables without connectors, pay attention to the pin layout

- Route the connecting cables of the scanning heads correctly
- Route the connecting cables of the MKV correctly
- Connect the MKV unit to the downstream electronics as shown





- Adjust the scanning heads and configure the multi-head processing unit
  Next step: "Adjustment, diagnostics and configuration", Page 22

For more information on the cable characteristics and cable routing, refer to the **Cables and Connectors** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1206103**

For more information on the pin layouts, refer to the **Cables and Connectors** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1206103**

For more information on sources of interference, refer to the **Interfaces of HEIDENHAIN Encoders** brochure.

- **www.heidenhain.com/documentation**
- Enter the document ID **1078628**

7 Removal

This chapter describes the disassembly of the product.

7.1 Safety precautions regarding removal

⚠ WARNING

Live plug connections!

If you disengage plug connections while the equipment is under power, this may result in fatal accidents or severe personal injury.

- Do not engage or disengage any connecting elements while the product is under power

⚠ WARNING

Moving machine parts!

Risk of injury due to moving machine parts depending on the installation location and the application

- Observe all of the machine manufacturer's notes on working on the machine, e.g., always disconnect the machine from the power supply

7.2 Removing the device

- Disconnect the product from the downstream electronics
- Remove the connecting cables of the scanning heads
- Remove the product in the reversed sequence of mounting
  Further information: "Mounting", Page 12

8 Specifications

MKV 1630, MKV 9630 specifications

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