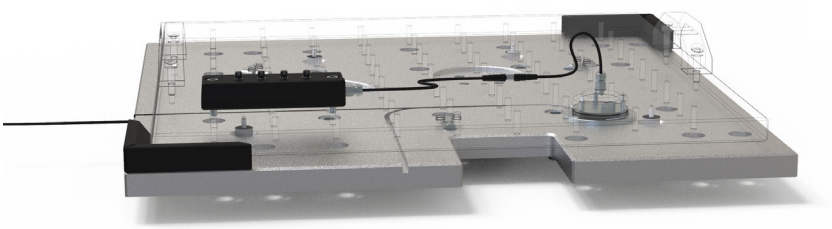
Temperature interface



Original instructions

Product information

Designation	Temperature interface
Product no.	626140-9121-600 626140-9122-600 626140-9134-100 626140-9122-610 626140-9134-110 626140-9134-120 626140-9144-012
Manufacturer	Carl Zeiss 3D Automation GmbH Carl-Zeiss-Straße 27 73431 Aalen Germany www.probes.zeiss.com

Document version

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A new version status will be created if changes are made to the content of this document. The existing version will become invalid and must be replaced by the valid document version.

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1 Introduction

1.1 Warranty and liability

Our General Terms and Conditions of Sale and Delivery always apply. No warranty or liability claims for personal injury or material damage can be accepted if they relate to one or more of the causes given below:

- Improper use of the ZEISS product.
- Incorrect installation, start-up, operation and maintenance of the ZEISS product or use of spare parts not approved by the manufacturer.
- Non-observation of the instructions in these Operating instructions in respect of the different life phases of the ZEISS product.
- Unauthorised structural modifications made to the ZEISS product.

1.2 EU Declaration of Conformity

The Annex includes a Declaration of Conformity that confirms the conformity of the ZEISS product with EU Radio Equipment Directive 2014/53/EU.

It is an EU Declaration of Conformity in accordance with the EU Radio Equipment Directive 2014/53/EU.

We hereby declare that in view of its design and type, and as brought into circulation by us, the ZEISS product described below meets the requirements of EU Directive 2014/53/EU as well as the other EU Directives listed below. If the ZEISS product is modified in a manner not previously agreed with the manufacturer, this declaration loses its validity.

Designation of the ZEISS product. Temperature interface

Additional EU Directives:
- EMC Directive (2014/30/EU)
- RoHS Directive (2011/65/EU)

Applied standards:
- EN 300 330 V2.1.1 (2017-02)
- EN 301 489-1 V2.1.1 (2017-02)
- EN 301 489-3 V2.1.1 (2017-02)
- EN 55032:2015 + AC:2016, Class A
- EN 6100-4-2:2009

Federal Communications Commission

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user´s authority to operate this equipment.

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

1.3 Importance of this Operating instructions

Use of these Operating instructions will ensure that the ZEISS product is used for its intended purpose and operated safely. These Operating instructions are intended for the operating company and all persons performing tasks on the ZEISS product.

For further information, refer also to the following manuals:

– Manual of the coordinate measuring machine, on which the ZEISS product is to be used.

2 Safety

2.1 Safety instructions

The safety instructions in this chapter apply for all persons working on the ZEISS product.

For safe operation, in addition to these Operating instructions, the operating instructions of the CMM must be observed by all persons working on the ZEISS product.

No modifications, additions or conversion work may be carried out on the ZEISS product without the manufacturer's approval.

This also applies to welding work on load-bearing parts. All conversion measures require written permission from the manufacturer.

Parts must be replaced immediately if not in perfect working order. Only genuine spare and expendable parts may be used. If third-party parts are used, it is not possible to guarantee that they have been designed and manufactured to the relevant load and safety requirements.

2.2 Residual risk

The ZEISS product is built in accordance with the state of the art and recognised safety rules. Despite all the design-related safety and protective measures, hazards to persons or damage to system components may still arise due to carelessness or misuse of the ZEISS product.

Only use the ZEISS product:

- For the intended application (see chapter 3.1 "Intended use").
- In a safe and secure technical condition.
- After rectification of any faults that could compromise safety.
- By one person. Additional personnel must not remain near the ZEISS product.

3 Use, function and technical data

3.1 Intended use

The Temperature interface serves as a contact-free interface between the CMM and the pallet that transfers data. This ensures a quick changeover of the pallet including sensors attached to it.

The Temperature interface is designed for the following measuring machines:

CONTURA, ACCURA, PRISMO, PRISMO ultra, XENOS, MICURA, CenterMax, GageMax.

Preconditions for the intended use:

- The ZEISS product may only be operated in a fault-free state. This presupposes the prescribed service and maintenance. Defects that impair safety must be remedied immediately.
- The ZEISS product is intended only for operation indoors in an industrial environment.
- To ensure safe operation, the installation instructions, the local conditions, the correct energy connections and the service and maintenance work must be observed.
- The ZEISS product may only be operated by qualified personnel.
- The ZEISS product must not come into contact with cutting fluid.
- All information in these Operating instructions must be observed.

3.2 System overview

The following modules belong to the system overview:

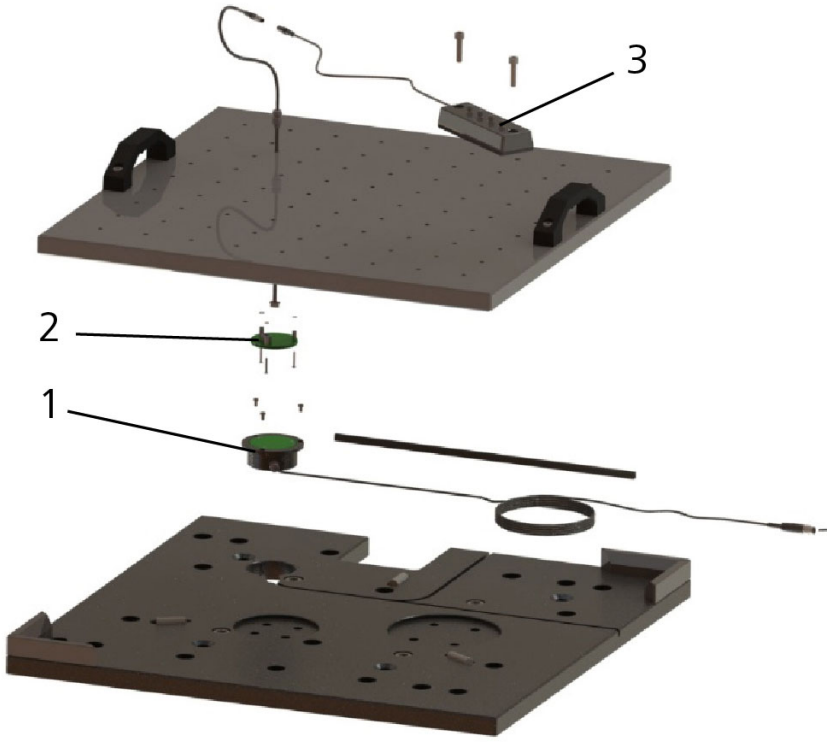


Fig. 1: System overview using the example of a grid pallet

1 Machine interface

2 Pallet interface

3 Distributor box

Fig. 2: System overview using the example of a fixture pallet

1 Machine interface

2 Pallet interface

3 Temperature sensor

3.2.1 Machine interface

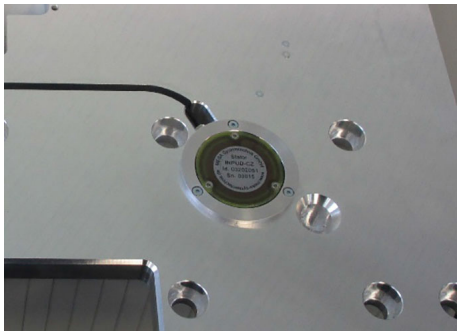


Fig. 3: Machine interface

Machine interface is securely plugged into the base mounting.

3.2.2 Pallet interface

Fig. 4: Pallet interface

Pallet interface is securely plugged into the pallet.

3.2.3 Distributor box (4-way, M5)

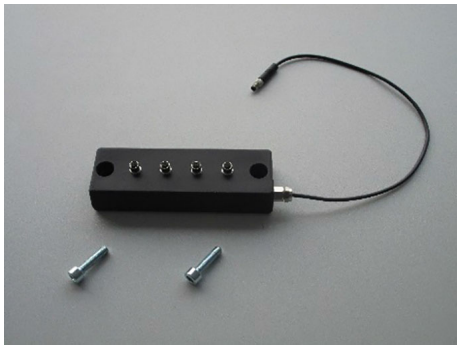


Fig. 5: Distributor box

Up to 4 sensors can be plugged in to the distributor box. The slots can be freely selected, because each sensor has its own network address.

3.2.4 Temperature sensor (mini)

Fig. 6: Temperature sensor (mini)

Temperature sensors are available in four different designs. Straight, angled, magnetic and clamping sensing elements.

- 626140-9141-010 (straight),
- 626140-9141-012 (angled),
- 626140-9141-014 (magnetic) and
- 626140-9141-016 (clamping).

3.2.5 Article overview and accessories

Designation	Article number
Temperature sensor, straight	626140-9141-010
Temperature sensor, angled	626140-9141-012
Temperature sensor, magnetic	626140-9141-014
Temperature sensor, clamping	626140-9141-016
Extension cable 0.25 m	626140-9145-003
Extension cable 0.5 m	626140-9145-005
Extension cable 1.0 m	626140-9145-010
Distributor box (including hexagon socket screws)	626140-9134-100
Pallet interface	626140-9122-600
Machine interface	626140-9121-600
Pallet interface (device)	626140-9122-610
Pallet interface, sensor	626140-9134-120
Option ModBus temperature interface	626140-9144-012

3.3 Function

The Temperature interface is a contact-free transmission system, which transfers both data and energy between pallet and CMM.

In this way, sensors and actuators that are located on the pallet can be supplied with energy and information exchanged between the CMM and pallet. The interface has the advantage that no danger or damage arises due to open pin-contacts and the interface is also resistant to the effects of dirt, water, etc.

The temperature interface can be installed in each of the pallets used, so that if a pallet is changed, temperature measurement and transmission can take place immediately. Pallets without corresponding interfaces can also be used. In this case, no temperature value is determined for compensation and this must take place using other options.

The supply and transfer takes place as soon as the pallet has been correctly positioned on the base mounting.

3.4 Technical data

General	Value
Ambient temperature	5 to +40°C
Storage temperature	0 to +60°C
Relative humidity	40 to 70%

Dimensions	Value
Machine interface (D_a x H)	Approx. 64 x 23 mm
Pallet interface (D_a x H)	Approx. 48 x 15 mm
Distributor box (W x H x D)	Approx. 120 x 23 x 40 mm

Electrical data	Value
Power supply by MCA signal converter	12V DC
Max. electrical power	750 mW

4 Transport and installation

The following documents must also be considered alongside these Operating instructions:

- installation instructions for the coordinate measuring system
- Coordinate measuring system operating instructions

4.1 Transport

The ZEISS product is supplied by the manufacturer in a cardboard box, carefully packed and cushioned.

The cardboard box must be secured on the transport means in such a way that any shifting, tilting, falling or damage is not possible.

4.2 Design

The ambient parameters from the technical data must be heeded when selecting the location for setting up.

If you do not have a fixture pallet, installation of the Temperature interface can be implemented by three groups of personnel.

- Service personnel: Option ModBus temperature interface (626140-9144-012)
- Specialist personnel (electricians): Temperature interface - pallet (626140-9122-600)
- User: Temperature interface - stator (626140-9121-600), temperature interface - 4-way distributor (626140-9134-100) plus all sensors

The fixture pallet is already set up with pallet interface and sensors and can be used directly. To ensure correct functioning, it must be ensured that the MCA signal converter and the machine interface have been installed.

4.2.1 Alignment and setting up

The pallet interface can, provided the Modbus temperature interface option (626140-9144-012) has been installed by the service employee, be plugged in independently by the customer in the pallet. The distributor box and the sensors can also be connected directly and fixed on the pallet. An electrician is required for installation of the pallet interface.

With a fixture pallet, all components are already plugged in and connected. All that is required is for the pallet to be correctly positioned in the base mounting.

4.2.2 Attachment of the pallet interface

The pallet interface can be installed as follows:

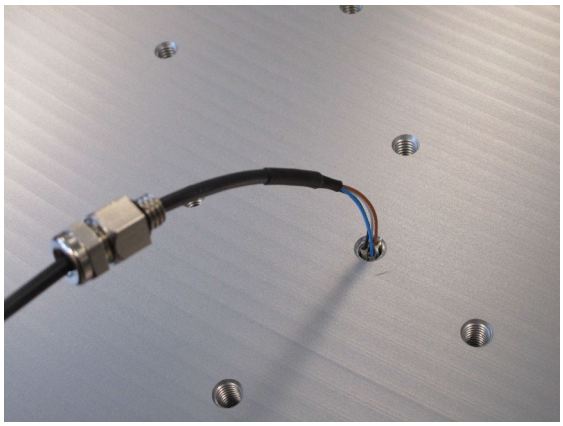


Fig. 7: Routing the M5-cable through the hole

Lead the M5 cable with bare conductors from top to bottom through the pallet hole that is located directly above the recess for the pallet interface as shown in the photograph.

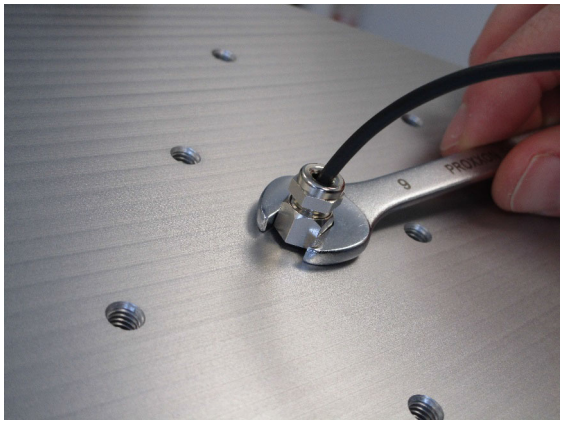
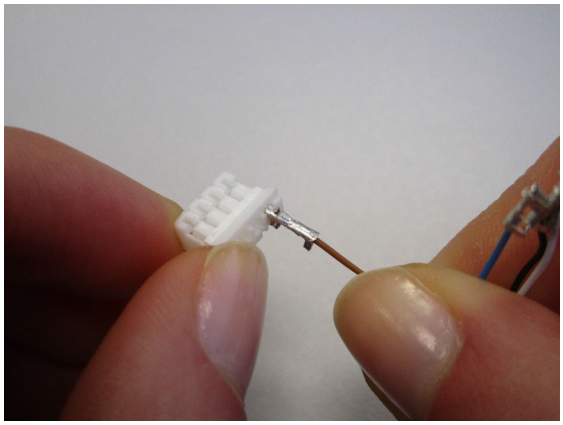


Fig. 8: Securing the M6 cable gland

Screw the M6 cable gland into the threaded hole and tighten by hand.



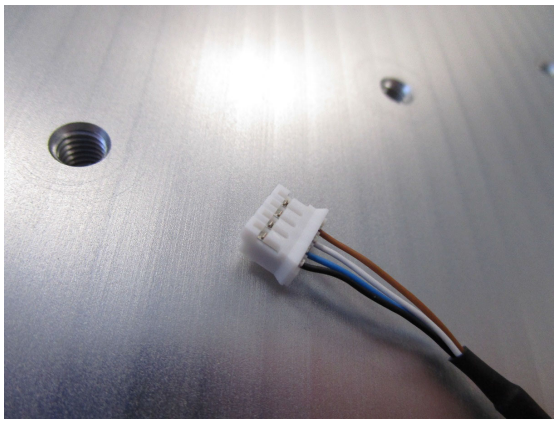


Fig. 9: Inserting the crimp contacts

Push the crimp contacts of the individual conductor into the JST plug casing until they click in place as shown in the photograph. In doing so, observe the correct sequence: brown, white, blue, black (from right to left).

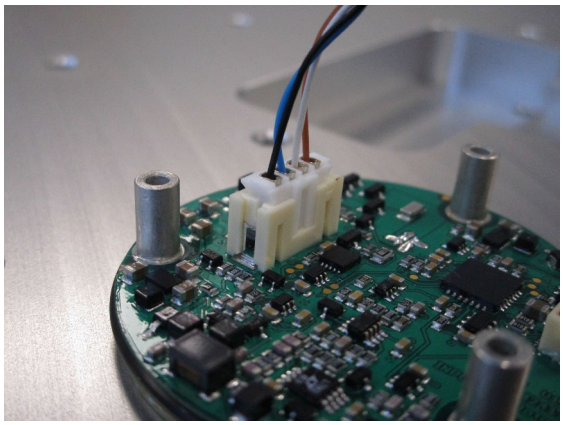


Fig. 10: Plugging in the JST plug

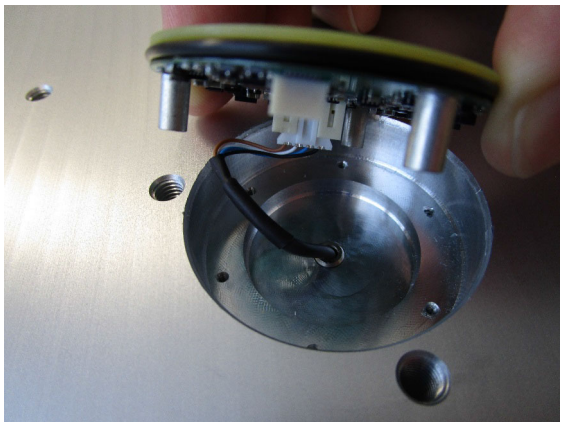


Fig. 11: PCB installation

Plug the JST plug into the PCB and insert the PCB in the recess before pressing in. The PCB must be fixed to the pallet using the supplied M2 screws. In doing so, ensure that the sealing ring is pressed in cleanly and the cables are not kinked. The markings around the recess can be used as an alignment aid.

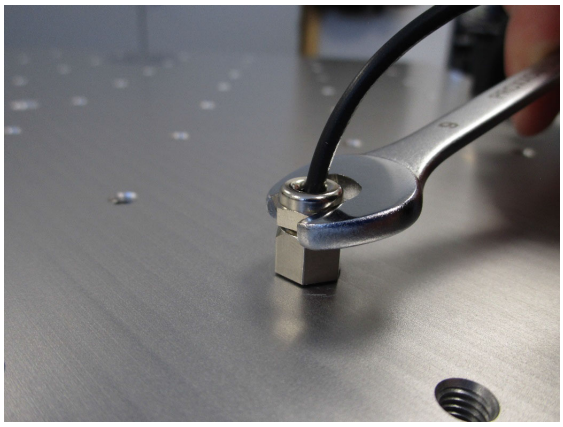


Fig. 12: Tightening the strain-relief

Carefully tighten the strain-relief on the M6 cable gland by hand until the cable is secure against pulling. If necessary, use a second open-ended spanner.

4.2.3 Attachment of the distributor box

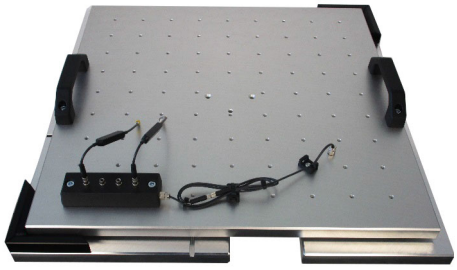


Fig. 13: Grid pallet

The distributor box can be screwed onto the grid pallet in any position using the two M6 screws.

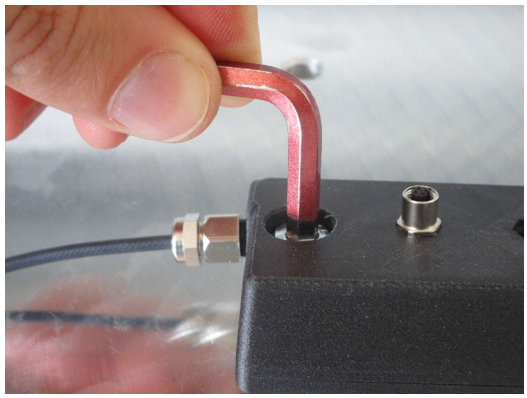


Fig. 14: Securing the distributor box

Tighten the M6 screws by hand using a 5 mm hex-key. Connect the distributor box cable to the M5 socket of the pallet interface.

4.2.4 Attaching the sensors

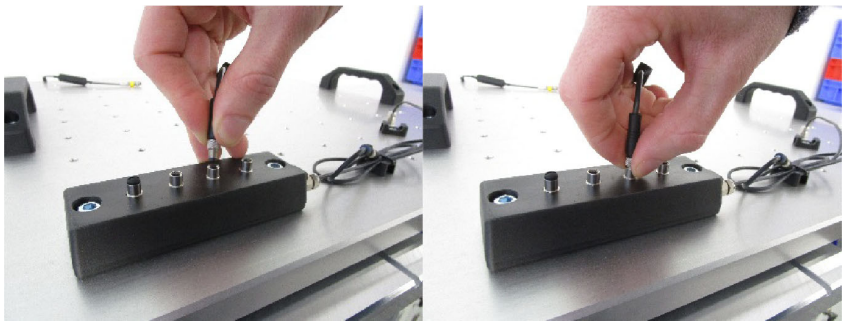


Fig. 15: Connecting the sensors

The sensors can be connected to the four sockets of the distributor box. Remove the protection caps and store safely. The M5 plug of the sensor cable must be inserted into the socket (the socket groove must match the plug lug to ensure fault-free alignment) and then secured using the gland nut.

Fig. 16: Distributor box - protection cap

Unused sockets in the distributor box must be protected against dirt and water using a protection cap.

With the fixture pallet, the distributor box is integrated in the pallet.

4.2.5 Sensor network addresses

If multiple sensors are being used, it must be ensured that they have a unique network address and thus that each address is present only once. The sensor check box (626140-9144-020) can be used for testing and programming of the addresses.

5 Operation

5.1 Switching on

The Temperature interface is switched on as soon as the CMM is switched on and booted up.

5.2 Faults

Errors	Cause/Remedy
Temperature sensor does not produce any data.	1. Check whether a machine interface exists. 2. Check whether the pallet rests neatly in place and whether the surfaces of the data-coupler are clean. 3. Check for cable damage. 4. Either connect only one sensor or check using the optional sensor check box (626140-9144-020) that the temperature sensors used do not have addresses that have been assigned more than once. 5. The temperature sensor can be checked for correct operation using the optional sensor check box.

5.3 Switching off

All modules located on the pallet are switched off as soon as the pallet is lifted.

The machine interface is switched off as soon as the CMM is switched off.

6 Cleaning and Maintenance

Chapter "2 Safety" of these Operating instructions must have been read before cleaning and maintenance tasks are performed.

6.1 Cleaning and care

The ZEISS product must always be maintained in a clean condition. The device must always be kept free of tools, liquids, chips and other foreign substances.

Never wet-clean the ZEISS product.
Basic requirements for all materials:
Dusty parts must be cleaned using a damp cloth, never wipe with a dry cloth! Use a mild solution of soap or detergent in lukewarm water with a soft cloth, sponge or chamois leather.

Used substances and materials must be handled and disposed of correctly, in particular when cleaning with solvents.

Vacuuming of the device is permitted provided the suction nozzle does not cause electrostatic charging and does not come into contact with any parts.

The following are **not** allowed to be used:

- Abrasive agents or sharp/degreasing cleaning agents.
- Hard sponges or brushes.
- Chemicals such as acetone, carbon, carbon tetrachloride, methyl ethyl ketone, paint thinners or alcohol compounds with an alcohol concentration of more than 5%.
- Compressed air for cleaning by blowing out.

6.2 Maintenance

Only use original parts when replacing parts and spare parts.

6.3 Service address

Carl Zeiss 3D Automation GmbH
Carl-Zeiss-Straße 27
73431 Aalen
Germany
Tel. +49-7361-6336-0
Fax +49-7361-6336-29
E-Mail: accessories.metrology.de@zeiss.com

7 Disposal and storage

7.1 Disposal and recycling

Decommissioning and disposal may only be carried out by the manufacturer's specialist personnel, observing the relevant accident prevention regulations. Disposal of individual modules may only be performed by the personnel groups described in chapter 4.2. When disposing of the ZEISS product or individual components, ensure materials are correctly sorted taking into consideration the relevant national and regional waste disposal regulations.

1. Remove the pipes and cables of the electrical and pneumatic energy sources.
2. Remove any loose parts in or on the ZEISS product.
3. Apply the transport locks.

7.2 Notes on storage

If the ZEISS product is put into storage, the storage location must be dry and dust-free. You can find the recommended storage temperature in Table on page 14 under "Technical data" . The ZEISS Product must be standing on a flat and level surface. Unpainted metal surfaces should be protected against rust using an acid-free oil film. The ZEISS Product must be covered.