

# Assembly Instructions

## CyBio QuadPrint HQ



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For a proper and safe use of this product follow the instructions. Keep the operating manual for future reference.

General Information           <http://www.analytik-jena.com>

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# 1 General

## 1.1 Notes

This document contains information about the setup and operation of the device CyBio QuadPrint and provides the operating personnel with the necessary know-how for the safe handling of the device.

The supplier documentation for the label printer and the label applicator is provided with the device and is also available on the website of the manufacturer cab Produkt-technik.

### Conventions

Instructions for actions occurring in chronological order are numbered and combined into action units.

Warnings are indicated by a warning triangle and a signal word. The type, source and consequences of the hazard are stated together with notes on preventing the hazard.

Elements of the control and analysis program are indicated as follows:

- Program terms are in bold (e.g., the **System** menu).
- Menu items are separated by vertical lines (e.g., **System | Device**).

### Symbols and signal words used in this manual

The user manual uses the following symbols and signal words to indicate hazards or instructions. These warnings are always placed before an action.



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### WARNING

Indicates a potentially hazardous situation which can cause death or very serious (possibly permanent) injury.

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### CAUTION

Indicates a potentially hazardous situation which can cause slight or minor injuries.

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### NOTICE

Provides information on potential material or environmental damage.

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### 1.1.1 Scope

These instructions apply for

Name	CyBio QuadPrint HQ
	
Type key	30-5004-025-26

**Table 1** Scope of these instructions

## 1.2 Intended use (purpose)

The operator is responsible to use of the device as intended.

The CyBio QuadPrint barcode labeling device has been designed for the automatic processing of labware in chemical and biological laboratories. In the field of medicine and diagnostics its use is limited to research.

The labware that can be processed with the device are microplates in ANSI/SLAS format, including deep-well and rigid full-skirted PCR plates. It is not possible to process flexible full-skirted PCR plates and half-skirted PCR plates with this device.

We recommend processing only empty or sealed filled labware.

The basic functions are the automatic printing of barcode labels and the attachment of labels on labware items which are transferred by an automated transport system or a robot to an access module for this purpose.

It is not permitted to manually transfer the labware to the access module for labeling purposes.

Please observe the following:

- The device must only be operated by qualified and trained personnel.
- The device must only be used in accordance with this manual. This applies in particular to the adherence to the connection values, conditions of use and notes on the maintenance, transport, and disposal.
- The safety instructions in this manual must be observed.

It is not permissible

- to operate this equipment in a medical laboratory,
- to work with explosive substances in this device,
- to operate this device in an explosive environment.
- to smoke or use a naked flame at the installation location.

As regards the safe handling of dangerous substances (radioactive, infectious, toxic, corrosive, combustible, and other hazardous substances), the owner/operator will be responsible in accordance with applicable laws and guidelines.



The same applies in terms of compliance with environmental protection rules (e. g. for disposal of reagents and consumables).

The device may only be used for the processes described in the user manual. Only the specified use is regarded to be the intended use. Using the device for any other purpose may compromise the safety of the user and the device.

### 1.3 Standards and directives

The device was manufactured according to the currently applicable generally recognized codes of practice and the generally accepted safety-related regulations. The relevant safety and health requirements of the applicable laws, standards and regulations were applied during the construction of the device.

#### EU directives

The device is regulated by the directive 2006/42/EG and is considered an unfinished machine. This means that the safety requirements are specified in the declaration of incorporation.

Furthermore, the following applies in this context: The unfinished machine may only be put into operation if it has been determined that the machine or installation into which the unfinished machine is to be incorporated complies with the provisions of the directive 2006/42/EG and that a corresponding declaration of conformity in accordance with annex II, part 1, section A has been issued.

The device meets the requirements of the directives 2014/30/EU and 2011/65/EU.

Any information regarding safety corresponds to the currently valid regulations of the European Union. Other specific national laws and regulations must be observed.

Guard all hazard zones described in this manual for the safe integration of the device into a machine or installation as far as possible from unintentional access. Preferably, use a separating protective device to do this.

## 2 Safety instructions

### 2.1 General

For your own safety and to ensure error-free and safe operation of the device, please read this chapter carefully before commissioning.

Screen

Observe all safety instructions listed in these instructions, as well as all messages and instructions displayed by the control and analysis software on the monitor.

Besides the safety instructions in these instructions and the local safety regulations that apply to the operation of the device, the general applicable regulations regarding accident prevention, occupational health and safety and environmental protection have to be observed and complied with.

### 2.2 Safety markings

The warning labels and safety symbols attached to the device are part of the device and must be strictly observed.



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#### CAUTION

**Risk of incorrect handling resulting in personal injury and material damage due to missing warning labels!**

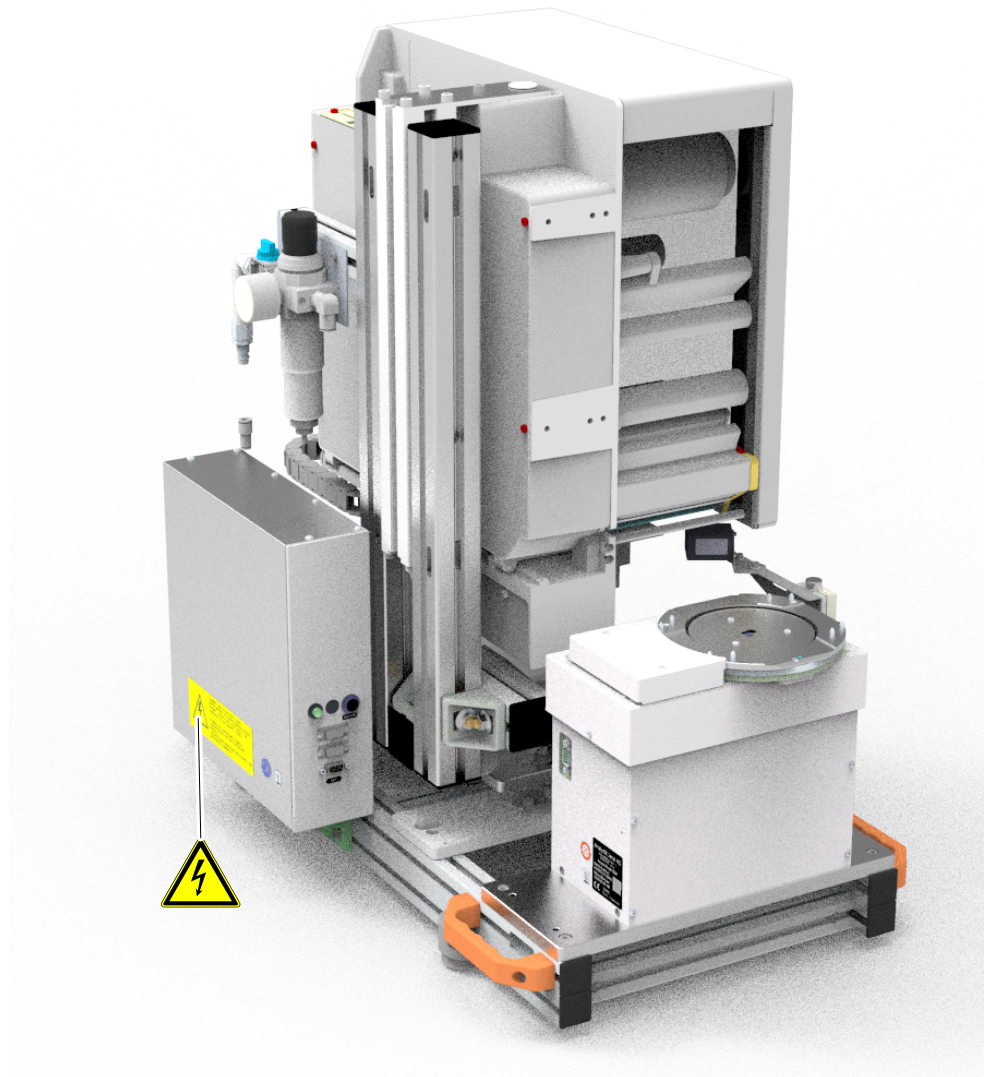
Do not remove any warning labels or safety symbols!

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Before switching on the device, check that the warning labels and safety symbols are complete and intact.


Do not put the device into operation if warning labels or safety symbols are missing or damaged.

Damaged or missing warning labels or safety symbols must be replaced immediately.



**Fig. 1 Safety markings on the CyBio QuadPrint HQ**

The following symbols are attached to the device:

Icon	Meaning	Comment
	Dangerous electrical voltage warning!	<p>Never open the device!</p> <p>All repairs must be performed by qualified personnel only!</p> <p>Only replace defective fuses with fuses of the specified type!</p>



Icon	Meaning	Comment
	Hand injuries warning	Warning of crushing injuries from moving device components (label applicator)
		

Table 2 Warning symbols

## 2.3 Danger areas and protective devices

### 2.3.1 Hazard zones and warning labels

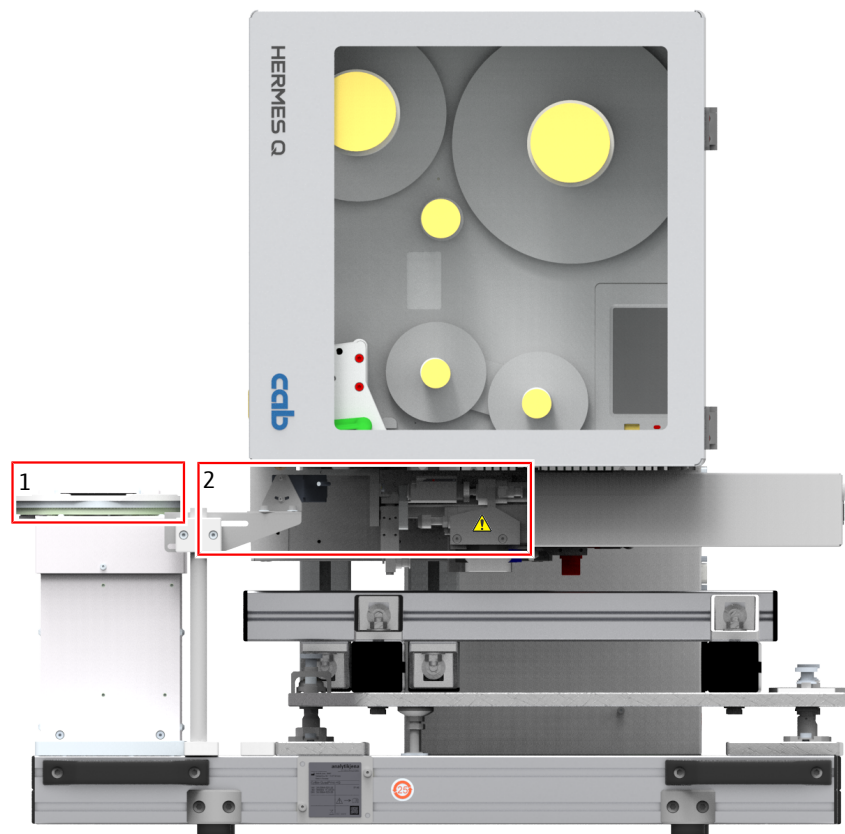


Fig. 2 Hazard zones

- 1 Range of movement of the turn-lift module
- 2 Range of movement of the label applicator

Note the following:

- Guard the hazard zone from unintentional access as far as possible, preferably by means of a separating protective device.
- Always correct any incorrect movement with the aid of the PC. Incorrect handling and operation can result in material damage and personal injury.
- Ensure proper compressed-air connection.
- In addition, keep in mind that the printer (or parts of it – the print head in particular) can heat up during printing (approx. 50 °C); for this reason, do not touch it (during operation) and only carry out material change or removal after the printer has cooled down.
- Always close the housing of the printer before operation. When the housing is open, it is possible to access the print head which puts the operator at risk and may result in injuries. The printer's cover must only be opened to carry out one of the following installation or maintenance tasks:
  - Setting up the printer
  - Replacing the label roll or the transfer ribbon
  - Troubleshooting
- If the applicator is running, moving components are accessible. This particularly applies to the area in which the applicator is moved back and forth between its basic position and the labeling position. During operation, do not reach into this area and keep hair, loose clothing and jewelry away from this area. When working in this area, shut off the compressed-air supply.

## 2.4 Requirements for the operating personnel

The device may only be operated by trained specialist personnel instructed in technical safety. The operating personnel must have read and understood the operating instructions.

The personal protective equipment must be worn to operate or service the device.

The operating personnel must be familiar with the dangers arising from the substances used.

## 2.5 Device-specific safety instructions

The system must be installed by the service personnel of the manufacturer or duly trained and authorized expert personnel under any circumstances.

Do not use aggressive substances of a type that may compromise the stable performance of the system

Before connecting to the mains, check the electrical requirements of the device.

Observe prescribed maintenance intervals!

Only use the accessory items, consumables and spare parts specified in this document or provided or recommended by the manufacturer!

### 2.5.1 Safety instructions for operation

The operator of the device must ensure that the device is in sound condition before each use. This applies especially after any modification or adaptation of the device or any repair.

Do not operate the system with defective safety devices or with improperly installed safety and protection devices.

Do not remove, modify or disable any safety and protection devices during operation.

Ensure easy access to the main power switch, as well as to any emergency shutdown systems and locks at all times during operation.

Ensure that all ventilation devices on the device are in proper functional condition. Covered ventilation grates or slots, etc. can result in malfunctions or device damage.

Only operate the device when connected to a power socket with grounding conductor. The grounding conductor must not be interrupted (e.g., when using a voltage regulating transformer). Only use extension cables equipped with grounding conductors!

When replacing the power cable, ensure that the new power cable has the proper dimensions for the intended operating voltage (see technical data).

Do not insert any objects into any device openings, and ensure that no liquid can get into the device through openings or joints.

Do not short-circuit the device fuses and only use fuses corresponding to the information in these instructions when replacing these.

## 2.5.2 Safety instructions: Transport

Only transport the device and its components in the original packaging! Ensure that all transport locks and safety devices have been fitted and that the device components are fully emptied and decontaminated if applicable.

## 2.5.3 Safety instructions – maintenance and service

Service and repairs and work for the commissioning or dismantling the device for transport must only be carried out by authorized service personnel!

The operator may only carry out the tasks listed in the chapter "Maintenance and care".

Only carry out maintenance and service work on the device when it is switched off. Disconnect the power cord from the mains socket beforehand.

## 2.6 Safety instructions

### 2.6.1 Handling hazardous substances

Even with intended use there is a risk of health damage when handling hazardous substances. The operator is solely responsible for the compliance with all safety requirements to protect individuals and property when handling radioactive, infectious, toxic, caustic, flammable and other hazardous substances.

- Control the handling of hazardous substances in accordance with the safety category of the lab, the details in the safety data sheets of the respective substances, the manufacturer recommendations for use and additional national and international regulations (WHO, "Laboratory Biosafety Manual").
- Wear personal protective equipment when working with the device.
- Observe all notices on the cleaning and decontamination of the device.

## 2.6.2 Chemical resistance

Aggressive substances may damage the device. Although the materials used are resistant to most of the commonly used substances, material damage from aggressive substances cannot be completely excluded.

- Before using any aggressive substances (e.g., bases, acids or organic solutions): Check that the materials with direct contact to these substances are resistant.
- When in doubt, consult the manufacturer.

### Prohibited substances

Hydrofluoric acid (HF/hydrofluoric acid)

Highly concentrated acids

Cleaning powder

Paint thinner

Naphtha (crude gasoline)

Gasoline

Acetone

Cleaning spray

Ozone

- Substances not listed in this table are not necessarily suitable.
- Do not use solvents (thinners), aggressive detergents, flammable liquids or caustic alkaline solutions for cleaning. These can lead to damage to the housing components.

Disinfection method	Disinfectant	Can be used for
Wipe disinfection	Incidin Liquid (ECOLAB)	– Housing parts – Accessories

Table 3 Permissible disinfection methods and disinfectants

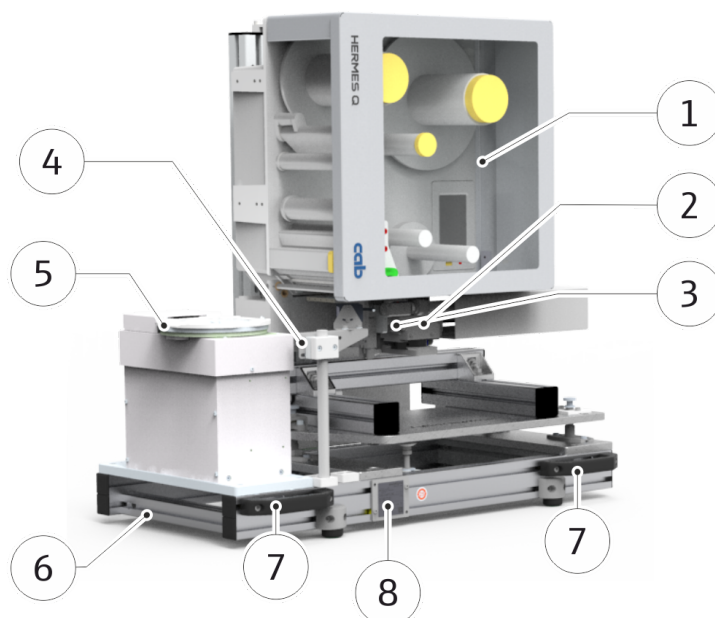
## 2.7 Behavior during emergencies

Emergency or dangerous situation:

- ▶ Switch off main switch
- ▶ Unplug power cord

### 3 Technical description

#### 3.1 Layout



**Fig. 3 Design of the CyBio QuadPrint HQ**

- |                    |  |
|--------------------|--|
| 1 Printer          | 2 Touchscreen display                        |
| 3 Label applicator | 4 Opticon NLV 3101 barcode reader (optional) |
| 5 Turn-Lift module | 6 Basic frame                                |
| 7 Handles          | 8 Type plate                                 |

The CyBio QuadPrint HQ is a device for printing labels with 1D/2D barcodes, text or other information with subsequent labeling of microplates. Labels can be applied to all four sides of the microplates.

The label height is automatically adjusted to the microplate type via the Turn-Lift module. The printing process settings are made via the CyBio QuadPrint Studio control software. (→ "Software "CyBio PrintStudio" 41)

##### 3.1.1 Type plate

The type plate contains this information:

- Manufacturer specifications
- Product designations (type designation, trade name)
- Identification data (model, serial number)
- Year of manufacture



### 3.1.2 Barcode/label printer



#### NOTICE

Observe the associated documentation of the manufacturer.

The barcode/label printer is used to print the barcodes/labels using the thermal printing method.

The printer is connected directly to the mains socket via its mains connection socket. For control, the printer is connected to the control module via its interface.

### 3.1.3 Turn-Lift module



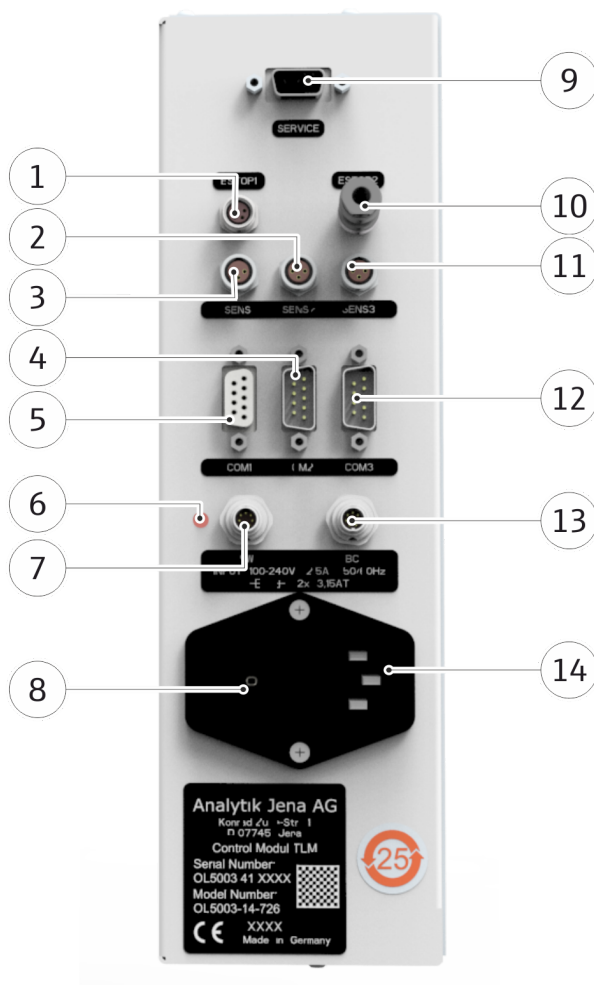
**Fig. 4 Turn-lift module with control unit**

The turn-lift module can perform 2 types of movement.

- Turn: The tray turns the microplate.
- Lift: The tray lifts the microplate to a height specified in the software.

Function:

1. The microplate to be labeled is placed on the tray by a robot or by an automatic transport system.
2. The tray with the microplate is turned and lifted in accordance with the stored configuration.
3. The positioned microplate is labeled by the label applicator.
4. The labeled microplate is removed from the tray by a robot or by an automatic transport system.



**Fig. 5 Lift-turn module control unit, connection terminals**

- |   |  |
|---|--|
| <p>1 ESTOP1<br/>Integration into an external safety circuit</p> <p>2 SENS1<br/>Sensor connection</p> <p>3 COM1<br/>RS232 interface</p> <p>4 SW<br/>Switching output</p> <p>5 SERVICE<br/>Service interface</p> <p>6 SENS3<br/>Sensor connection</p> <p>7 BC<br/>Barcode reader connection</p> | <p>8 SENS2<br/>Sensor connection</p> <p>9 COM2<br/>RS-232 cascade, not used</p> <p>10 Status LED (service)</p> <p>11 Main switch turn-lift module</p> <p>12 ESTOP2<br/>External safety circuit (forwarding or termination)</p> <p>13 COM3<br/>RS-232 cascade, not used</p> <p>14 Mains connection socket</p> |
|---|--|

### 3.1.4 Barcode reader

The barcode reader is used to capture the data of the label attached to the micro plates. It is checked whether the label is error-free and legible, and whether it corresponds to the desired presetting. If the barcode is OK, the information can be stored in a database and will then be available to other applications.

A signal tone confirms the successful reading process of the barcode reader.

### 3.1.5 Ram applicator



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#### NOTICE

Observe the information in the corresponding documentation provided by the manufacturer. In particular, read the safety instructions that must be observed when operating the label applicator.

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The label applicator removes the labels from the printer.

After the label applicator has picked up a label, it moves into the labeling position.

The label is then attached to the specified position on the microplate.

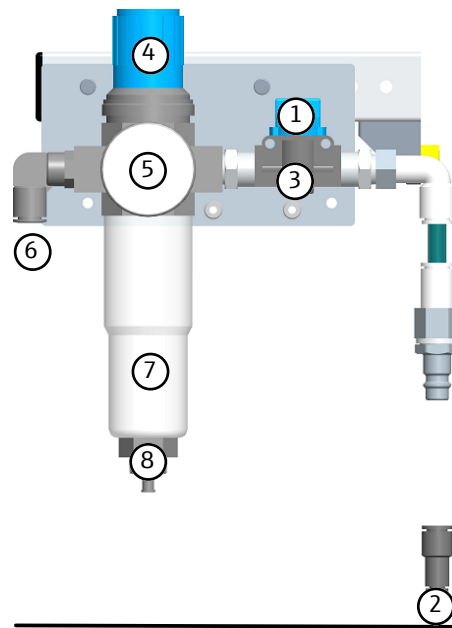
The transport lock must be released before putting the device into service. For this purpose, customer service removes the cover and moves the end position as far to the right as required for the label applicator to reach all microplates in all positions.

### 3.1.6 Compressed air control unit

The ram applicator on the CyBio QuadPrint is moved with filtered compressed air.

A compressed air control unit attached to the rear is used to set or monitor the required compressed air. Observe the following:

- The compressed air can be switched on or off via the shut-off valve (1).
- The required pressure is set with the filter regulator knob (4).
- Any condensate that occurs is collected in the condensate collector (7). The condensate collector must be emptied at regular intervals (8).



**Fig. 6 Compressed air control unit**

- |                        |                                    |
|------------------------|------------------------------------|
| 1 Shut-off valve       | 2 Compressed air power supply line |
| 3 Filter               | 4 Filter regulator knob            |
| 5 Manometer            | 6 Line to the ram applicator       |
| 7 Condensate collector | 8 Drain plug for condensate        |

## 3.2 Functionality

- A microplate is placed on the turn-lift module by an automated transport system or by a robot. To ensure error-free and safe operation, the microplate must lie flat on the contact surface of the access module. The edge of the plate must be positioned within the pins of the access module.
- The module turns the side of the microplate that needs to be labeled toward the label applicator and lifts the microplate to the position that was configured.
- The label applicator takes the printed label from the barcode/label printer.
- The label is pressed onto the microplate via the lifting motion of the applicator and adheres to it.
- After contact with the microplate, the applicator moves back to its original position.
- The barcode reader reads the barcode or label information and stores it in the control software.
- A robot removes the microplate from the turn-lift module.

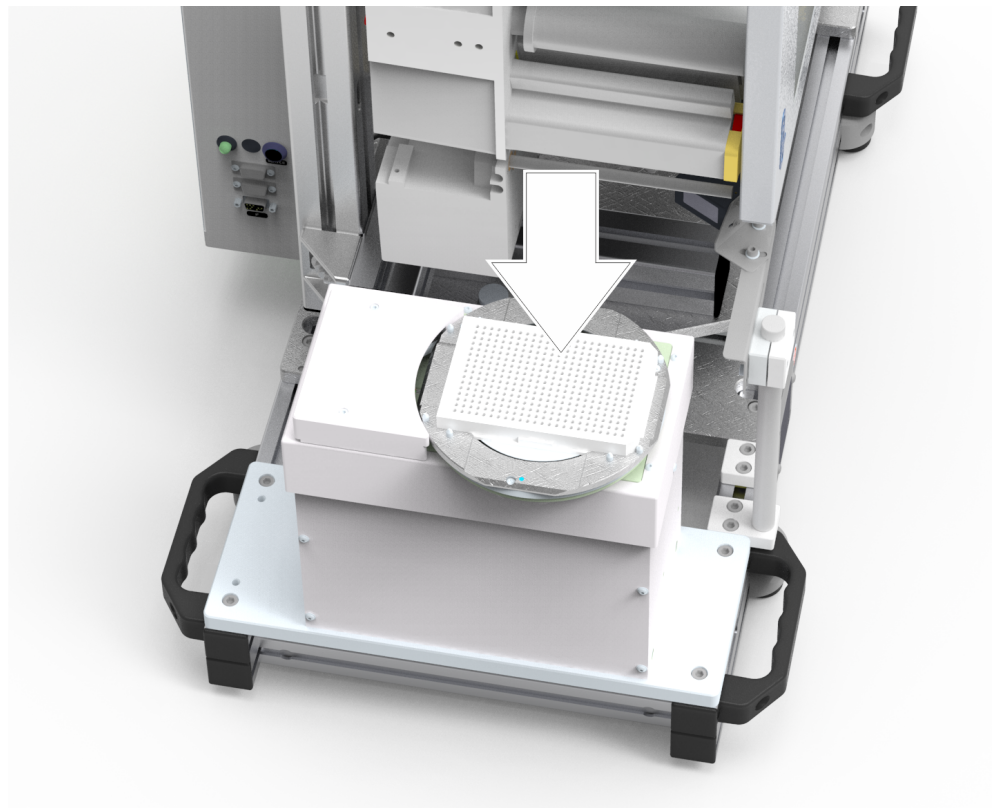


Fig. 7 Turn-lift module with microplate

## 4 Commissioning

### 4.1 Location requirements

Installation conditions	<p>The following requirements are placed on the climatic conditions in the operating room:</p> <ul style="list-style-type: none"><li>■ Temperature range: +15 °C to +35 °C</li><li>■ Permissible relative humidity: ≤ 75% at 30 °C, non-condensing</li></ul> <p>The atmosphere of the operating room should be as low in dust as possible and free from draft and aggressive vapors. Smoking is prohibited in the operating room of the device.</p> <p>Observe the following notes regarding the installation site of the device:</p> <ul style="list-style-type: none"><li>■ The floor of the operating room must be stable, level, dry and vibration-free.</li><li>■ Do not install the device in the direct vicinity of doors and windows nor near sources of electromagnetic interference.</li><li>■ Avoid direct sunlight and radiation from heaters onto the device. If necessary, provide air conditioning.</li><li>■ Always ensure free accessibility of the device and make sure that the ventilation slots are not obstructed by other equipment or installations.</li></ul>
Spatial requirements	<p>The spatial requirement is based on the device configuration and the dimensions of other devices or the transport system used for micro plates.</p> <p>For the exact dimensions of the device, refer to the chapter "Technical data". Sufficient space should also be provided for possible add-on devices and a PC, monitor and printer.</p>
Power supply	<p>If the grounding conductors are interrupted, there is risk of fatal injury due to electric shock!</p> <p>Never connect the mains plug of the device to a socket without a protective ground contact! Ensure that the protection is not rendered ineffective by extension cords without protective ground contact or by the use of an adjustable transformer.</p> <p>Operating the device with a different mains voltage or frequency as specified on the type plate can result in the destruction of the device.</p> <p>Make sure that the mains data in the operating room match the data on the type plate of the device! In case of deviating data, the device must not be put into operation!</p> <p>The CyBio QuadPrint or the barcode/label printer is operated on single-phase alternating current. The devices have a wide-range power supply and operate in the voltage range 100-240 VAC (±10%) at a frequency of 50/60 Hz.</p> <p>Make sure to observe the information on the type plate of the device components and do not connect the devices to a supply voltage other than the one stated on the type plate.</p>
Compressed air supply	<p>Compressed air with a pressure of at least 6 bar (0.6 MPa; 87 Psi) must be provided by the customer for the ram applicator and the rotary drive. Ensure sufficient air volume flow.</p> <p>The pressure relief valve at the connection point of the CyBio QuadPrint is used to set an operating pressure of 5.3...5 bar (0.53...0.55 MPa; 77...80 Psi).</p>

## 4.2 Initial commissioning and configuration

Because of the complexity of the device and to ensure its proper functioning, all installation, commissioning and configuration work must be carried out by the manufacturer's customer service personnel or duly authorized expert technicians.


Commissioning essentially includes:


- Installation and adjustment of the device components
- Connecting all cables and plugging in the supply cables
- Software installation and configuration
- Device induction

Check for integrity, completeness and compliance with the packing list as you unpack the product shipment.

After setting up the device, customer service will test the proper functioning of the device and provide documented proof of successful testing.

## 4.3 Re-commissioning

After unforeseeable failure of the CyBio QuadPrint, re-commissioning can be performed by the operator. Make sure beforehand that it is possible to re-commission the machine without risk. For this purpose, observe the section (→ "Safety instructions"  10).

If error messages occur, observe the instructions in chapter (→ "Troubleshooting"  26).

## 5 Operation



### NOTICE

Please also observe the documentation of the cab Hermes Q barcode/label printer and the 4114 label applicator for operation of the CyBio QuadPrint. Supplier documentation

### 5.1 Switching on



### CAUTION

**Risk of injury and risk of damage to the device caused by incorrect connections and incorrect compressed-air supply**

- Before switching on the device, verify that all media are properly connected and that all connections are undamaged!
- Only operate the device with a correctly configured compressed-air supply.



### CAUTION

**Risk of injury caused by not assembling the protective cover!**

- Verify that the protective covers are firmly fitted to the device.

#### **Proceed as follows to switch on the CyBio QuadPrint:**

- ▶ Verify that the compressed air is correctly connected to the barcode/label printer.
- ▶ Verify that the number of labels and the quantity of the transfer ribbon inside the barcode/label printer is sufficient. If necessary, insert a new roll of labels and/or transfer ribbon (refer to the documentation provided with the barcode/label printer).
- ▶ Switch on the compressed air at the compressed-air supply.
- ▶ Press the arrow with the green background on the touch screen display of the barcode/label printer to start a synchronization process. After completing the synchronization process, manually remove any blank labels. Repeat this step.
- ▶ Check if the barcode/label printer display shows an error message. If necessary, correct the error and delete the error message by pressing the button with the red background.
- ▶ Close the printer's cover.
  - ⚠ CAUTION! When the cover is open, there is a risk of burns when handling the device. The printer (and especially the print head) will get as hot as 50 °C when the device is running.
- ▶ Press the button with the yellow background to set off the applicator arm 2 to 3 times.
- ▶ Launch the control software on the connected PC.



## 5.2 Inserting microplates

An automatic transport system or a robot handles the microplates and places them onto the turn-lift module or removes them from there. (→ "Functionality" 21)

You can use the control software to configure the direction into which the microplates are pointing when they are placed into the device.

Operating CyBio QuadPrint with the control software

To operate the CyBio QuadPrint with the control software, observe the explanations in the annex (→ "Software "CyBio PrintStudio"" 41).

## 5.3 Switching off

Switch off the CyBio QuadPrint as follows:

- ▶ Wait until all processes on the CyBio QuadPrint or any add-on devices have been terminated by the control software.
- ▶ Turn the mains switch of the barcode/label printer to position "0".
- ▶ Disconnect the compressed air supply.

# 6 Troubleshooting

## 6.1 General information on troubleshooting



### NOTICE

Error messages of the device (displayed on the touchscreen) alter the user to the cause and potential remedy.

Malfunctions are usually indicated:

- by the control software
- on the control panel of the printer

If the malfunctions are obviously caused by the operator or by insufficient compressed air supply, work with the device can be continued after the fault has been eliminated.

If malfunctions occur, check all possible sources of error.





If any problems persist after this check or if there are other malfunctions that are not described, notify the manufacturer's customer service or the authorized service partner.

## 6.2 Behavior after fault reports

It is possible for the user to solve the following problems by themselves. If these issues occur more frequently or the fault is not described in this section, please contact the manufacturer's customer service or an authorized service partner.

Only correct such faults which are clearly caused by incorrect operation and if you are authorized to correct such fault.

Never carry out any unauthorized interventions on the control software!

	Simple fault that can be corrected immediately	Serious fault
Example	Microplate (missing or inserted in the wrong place)	Device failure
Note/Caution	 NOTICE! Certain defects on the devices can be corrected while the devices are switched on.	 WARNING! Touching voltage-carrying device components can result in injury or death!
Prerequisites	The program on the device is completed! 	The device is disconnected from the mains! 
	The corresponding warnings in the chapter "Hazard areas and protective devices" have been considered! The corresponding warnings in the chapter "Manual operation" have been considered!	The power cord has been pulled out of the mains socket! The device is secured against unintentional reactivation during the troubleshooting process!

	Simple fault that can be corrected immediately	Serious fault
Steps	<ul style="list-style-type: none"> <li>■ Follow the instructions of the device program.</li> <li>■ Fix the condition causing the fault.</li> <li>■ If possible, resume the device program after that.</li> </ul>	<ul style="list-style-type: none"> <li>■ Switch of the device(s) mains switch and unplug the power cord from the mains socket.</li> <li>■ Where applicable, notify the responsible manager and affected specialist personnel.</li> <li>■ Eliminate the cause of the fault.</li> <li>■ Establish the defined initial state of the device program (e.g. place the microplate on the lift-turn module or remove it from the lift-turn module).</li> <li>■ Put the device back into operation.</li> <li>■ If it is not possible to eliminate the fault, contact the manufacturer's customer service or an authorized service partner.</li> </ul>

# 7 Maintenance

## 7.1 Safety instructions



---

### NOTICE

#### **Important information!**

Before starting any work, read the instructions in the main "Safety instructions" chapter.

---



### DANGER

#### **Touching live components may result in serious injury or death!**

Switch off the devices and disconnect the power cables from the mains socket before all maintenance and servicing work!

Secure the devices against unintentional reactivation!

The operator is prohibited from carrying out maintenance and servicing work on live devices!

Maintenance, adjustment work and repairs on live devices may be carried out only by a qualified electrician.

---



### CAUTION

#### **Damage to health due to contact with hazardous chemical biological substances.**

Before starting maintenance or cleaning work, inform yourself about the substances used on the device and their hazard potential.

If necessary, take suitable protective measures (e.g. wear personal protective equipment).

---



### NOTICE

#### **If the maintenance and servicing instructions are not observed, damage may be caused to the device.**

Please observe the instructions in the documentation provided by the manufacturers of the system components!

---

## 7.2 Maintenance schedule

The table below lists the maintenance and servicing tasks to be carried out with the corresponding time intervals.

Maintenance task	Interval	Remark
Clean the device, especially the printing area	Weekly	Remove dust and paper residues with a soft brush
Clean barcode/label printer	Monthly	Observe the instructions in the barcode/label printer documentation (chapter "Cleaning").
Empty condensate collector	Monthly	
Check compressed air connections for tight fit and leaks	Monthly	
Check the electrical connection for tight fit	Every six months	
Check the fastening screws of all moving parts for tight fit	Every six months	
Check electrical components and cables, protective conductor test	Every six months	By qualified electrician

**Table 4** Maintenance schedule

## 7.3 Maintenance instructions

### 7.3.1 Cleaning the device

Use a soft cloth dipped in mild soap solution or disinfectant solution to clean the device housing.

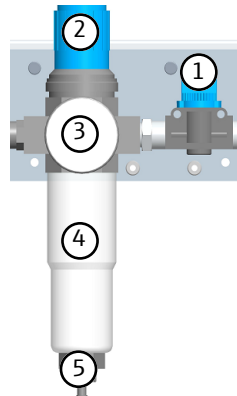
Never use cleaning powder, paint thinners or solvents like petrol or acetone to clean the device! These can corrode the housing surface.

For cleaning the device and any accessories which may only be cleaned by wipe disinfection, use a lint-free cloth with a cleaning agent / disinfectant recommended by WHO guidelines and not excluded in this manual (e.g., Incidin Liquid produced by the company: ECOLAB).

Spraying the device with disinfectant spray or similar can be dangerous and is prohibited for this reason. Sprays contain gases which may ignite.

Contamination and natural wear of assemblies leads to higher stress on the device and thus to a higher probability of device failure. Check for signs of wear on assemblies under mechanical strain and have these replaced when necessary.

### 7.3.2 Checking compressed air



**Fig. 8 Compressed air control unit**

- |                             |  |
|-----------------------------|--|
| 1 Shut-off valve            | 2 Filter regulator knob for adjusting the pressure |
| 3 Manometer                 | 4 Condensate collector                             |
| 5 Drain plug for condensate |  |

Check the operating pressure on the manometer (*item 3* )

If necessary, adjust the operating pressure as follows:

- Pull out the filter regulator knob (*item 2*) slightly upwards to release the lock.
- Filter regulator knob: Clockwise rotation increases the operating pressure, counter-clockwise rotation decreases the operating pressure.
- Press the filter regulator knob down until it engages noticeably.

#### Draining condensate

After a longer period of operation, condensate may accumulate in the condensate collector (*item 4*).

This is how you can drain condensate:

- End all processes on the CyBio QuadPrint and switch off the device via the mains switch.
- Close the shut-off valve (1).
- Loosen the condensate drain plug (5)
- Drain the condensate.
- Close the condensate drain plug.
- Switch the compressed air back on using the shut-off-valve.
- Check the operating pressure on the manometer.

### 7.3.3 Changing label roll/transfer ribbon

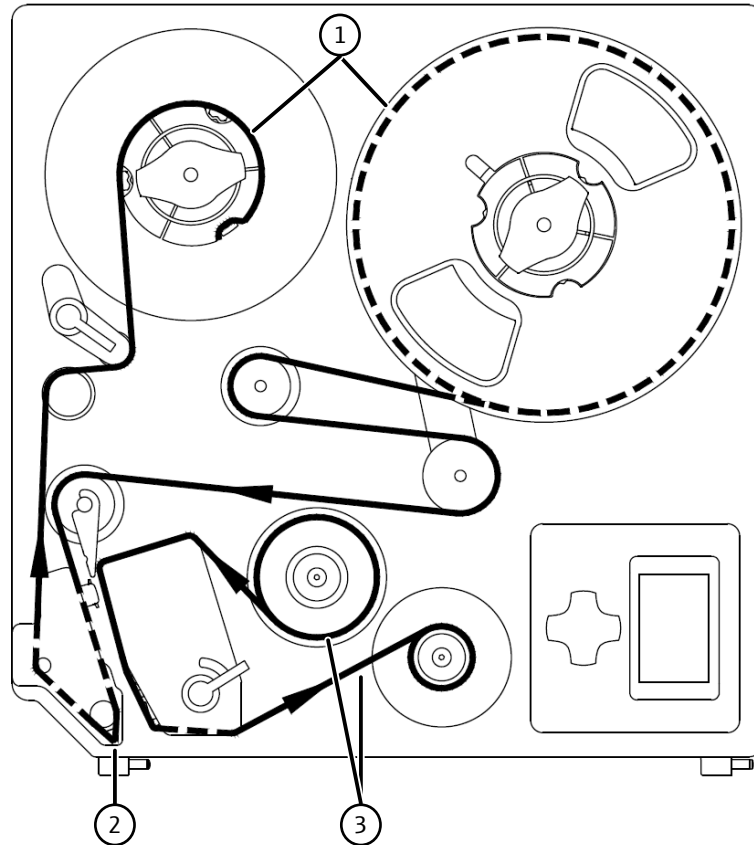


#### WARNING

##### Hot print head!

Verify that the print head has cooled down!

- Switching off all modules of the CyBio QuadPrint
- Replacing the label roll Supplier documentation
- Switching on all modules of the CyBio QuadPrint



**Fig. 9 Replacing the label roll and the transfer ribbon**

1 Label roll (wound on the outside)

2 Attention: Route the label roll underneath the peel-off edge.

3 Transfer ribbon (coated on the inside)

## 8 Transport and storage

### 8.1 Transport

To prepare the system for transport, proceed as follows:

- ▶ Shut down the device.
- ▶ Remove all power cables from the mains sockets and from the device.
- ▶ Remove all other cables from the rear of the device.
- ▶ Attach transport locks and secure all moving parts with cable ties or adhesive tape. Please also observe the information in the manufacturer's documentation from cab. Supplier documentation
- ▶ Only use the original packaging for transport. Contact your service partner for this if necessary.
- ▶ Include protective PE material as padding for the device in the original packaging.



#### Tip

**Use the handles to lift.**

If this is not observed: Damage to the device.

- Only lift the device with the provided handles.

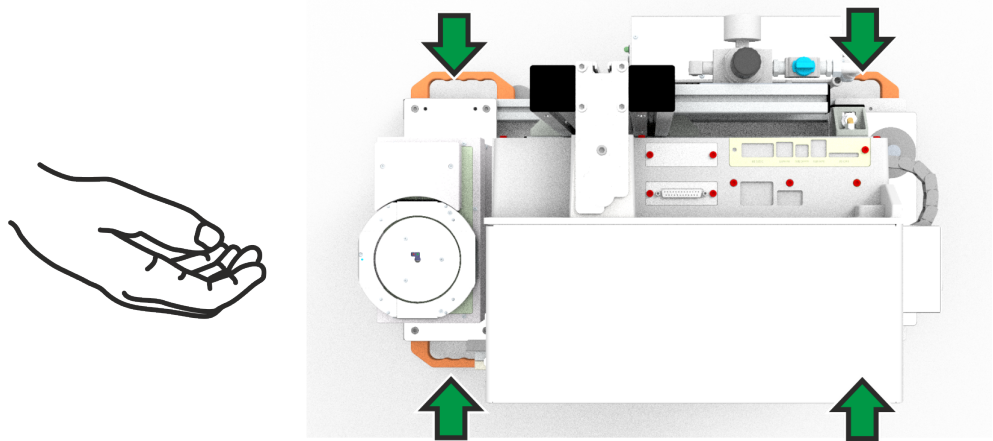


Fig. 10 QuadPrint HQ: Use the handles.



#### NOTICE

The transport is carried out by the manufacturer's service or by the service partners authorized by the manufacturer.





---

## CAUTION

Material damage to the device or components!

Environmental influences, impact and condensation can destroy individual components!

Protect all components of the device against environmental stresses, impacts and condensation during transport by taking appropriate measures!

Intermediate storage of the device outdoors is not permitted!

---

## 8.2 Storage

If the device is not installed immediately after delivery or not required for prolonged periods, it should be stored in its original packaging.

The following requirements are placed on the climatic conditions in the storage room of the device:

- Temperature range: -10 °C to +50 °C

permissible relative humidity: ≤ 85% at 30 °C, non-condensing

## 9 Putting the device out of operation

If the device is not required for a longer period of time, shut the device down as follows:

- Exit any running process on the device.
- Exit the control software.
- Shut down the corresponding control PC and switch it off.
- Switch off all device components via the power switch:
  - Hermes Q label printer
- Disconnect the RS-232 control cable from the CyBio QuadPrint.
- Switch the compressed-air supply off.
- Remove the printing foil from the barcode/label printer (see the printer documentation for this). Supplier documentation
- Check whether there is still a label on the label applicator. Remove this, if necessary.
- Clean and decontaminate the device, if necessary.
- Protect the device from dust.

## 10 Disposal

At the end of its useful life, the device or its components must be disposed of in accordance with the legal regulations. The responsibility rests with the owner of the device.

## 11 Accessories, spare parts, consumables

### 11.1 Consumables and wearing parts

Name	Part number	Supplier/manufacturer
Printer head Hermes Q4 600 dpi	5977380.001	cab
DR4 printing roller	5954180.001	cab
ZR4 feed roller	5961298.001	cab

**Table 5 Wearing parts**

Name	Part number	Supplier/manufacturer
Labels 66.0 x 7.0 mm, label spacing 14 mm, DMSO-resistant (7,500 pcs/roll)	5705409	cab
Labels 66.0 x 5.5 mm, label spacing 14 mm, DMSO-resistant (8,000 pcs/roll)	5705597	cab
Transfer foil 360 m	5556662	cab

**Table 6 Consumables**

### 11.2 Accessories

Name	Part number	Use
Compressor Jun-Air (oil-free, 230 V)	OL3803-22-130	Compressed air source
Compressor Jun-Air (oil-free, 115 V)	OL3803-22-131	Compressed air source

### 11.3 Spare parts

Component	Supplier/manufacturer	Reference
Hermes Q4 printer	cab	Supplier documentation
4114 linear applicator	cab	Service instructions with spare parts list: Supplier documentation
NLV 3101 barcode reader	Opticon	-

**Table 7 Device component spare parts list**

## 12 Technical data

### Configuration overview

Type

CyBio QuadPrint HQ



Illustration number

30-5004-025-26

Label printer

HERMES Q4 (cab)

Label applicator

4114 (cab) linear applicator

Barcode reader

NLV 3101 (Opticon)

Access module

Turn-lift module 30-5003-480-25

### Operating data

Labware that can be used

- Microplates in ANSI/SLAS format, including deep-well and rigid full-skirted PCR plates
- No flexible full-skirted or half-skirted PCR plates
- Empty or sealed
- Labware height:  $\geq 8$  mm
- Skirt height without fringe (are to be labeled):  $\geq 6.5$  mm

Application class

Table unit,  
sealed and maintained rooms

Protection class

I

Protection type

IP00

General safety (MRL 2006/42/EG)

DIN EN ISO 12100

Electrical safety for laboratory devices  
(NSRL 2014/35/EU)

DIN EN 61010-1

Electromagnetic  
compatibility  
(EMV-RL 2014/30/EU)DIN EN 61326-1  
Group 1 device  
Class A device

Operating voltage

100–240 VAC; ( $\pm 10$  %, 2.5 A max.); 50/60 Hz

Power consumption (total)

&lt;600 VA

Noise emission

&lt;70 db(A)

Control interface

RS-232 Sub-D, 9-pin

Compressed-air supply

0.6 MPa (6 bar / 87 psi)

<b>Operating data</b>	
Consumption	Approx. 20 l/min Note: If multiple devices are connected to a common connection line with the CyBio QuadPrint HQ, a compressed-air reservoir is recommended for continuous supply. The applicator is sensitive to fluctuating compressed-air supply.
Operating pressure (at the maintenance unit)	0.53–0.55 MPa (5.3–5.5 bar / 77–80 psi)
Dimensions and weight	
Width x height x depth	732.5 x 726 x 424.2 mm
Mass	50.83 kg
<b>HERMES Q4 barcode/label printer</b>	
Print resolution	600 dpi
Technical data	Supplier documentation
<b>4114 linear applicator</b>	
Technical data	Supplier documentation
<b>Barcode reader</b>	
Technical data	Supplier documentation
<b>Operation, storage and transport conditions</b>	
Operation	
Permissible ambient temperature	+15 °C to +35 °C
Permissible relative humidity	≤75 % at 30 °C, non-condensing
Maximum operating altitude above sea level	2000 m
Storage and transport	
Permissible ambient temperature	-10 °C to +50 °C
Permissible relative humidity	≤85 % at 30 °C, non-condensing
Miscellaneous	
Installation location	Stable, horizontal, dry, free from vibration

**Table 8** Operation, storage and transport conditions

# Glossary

## ANSI/SLAS

---



Standard created by the "Society for Laboratory Automation and Screening". Here, normally reference is made to the standards (formerly SBS standards) for the standardization of Labware dimensions. Footprint: 127.76 x 85.48 mm ( $\pm 0.5$  mm); Source: <https://www.slas.org/education/ansi-slas-microplate-standards/>

## Turn-Lift module

---

Access module for SLAS-compliant labware The plate holder can rotate and raise/lower. The module is used to position labware for labeling.

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## 13 Appendices

### 13.1 Software "CyBio PrintStudio"

The "CyBio PrintStudio" software is described in a separate document and can be requested from the manufacturer under this number: OL9502-40-002BLxxx (xxx: language / version)

### 13.2 Supplier documentation

HERMES Q Installation instructions

HERMES Q spare parts list

411x applicator installation instructions

411x applicator service manual and spare parts list (for S/N 9741 and lower)

411x applicator service manual and spare parts list (for S/N 9742 and higher)

Manual NLV3101-SR 2012.11.04\_01

CE NLV 3101