

INHECO Heated Lid

Heated Lid
Part No.: 8900033

► **User's Manual**

INHECO Industrial Heating and Cooling GmbH reserves the right to modify their products for quality improvement. Please note that such modifications may not be documented in this manual.

This manual and the information herein have been assembled with due diligence.

INHECO GmbH does not assume liability for any misprints or cases of damage resulting from misprints in this manual. If there are any uncertainties, please feel free to contact sales@inheco.com. → How to contact INHECO, page 5.

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1 IMPORTANT NOTES

1.1. General Information



Read the user instructions completely. The manual explains how to operate and handle the Heated Lid (8900033). In case manual instructions are not followed, injury or product damage cannot be excluded.

Missing or insufficient knowledge of the manual leads to loss of liability against INHECO GmbH.

This manual is part of the Heated Lid and must be retained until the device is disposed and must be passed on with the Heated Lid when the device is taken over on to a new user.

The Heated Lid meets the acknowledged rules of technology and comply with today's standards.

Manual instructions must be followed in order to ensure safe handling of the device.

Security-related warnings in this manual are classified into three hazard levels:

- The signal word **WARNING** indicates hazards which – without precautionary measures – can result in serious injury or even death.
- The signal word **CAUTION** indicates hazards which – without precautionary measures – can result in minor to moderate injuries
- The signal word **NOTE** stands for general precautionary measures that are to be observed to avoid damaging the device when using it.
- The signal word **NOTICE** stands for the general measures that help using the device.

Contact INHECO in case there are any uncertainties of how to operate or how to handle the Heated Lid.

Your opinion about this manual provides us with valuable insights on how we can improve this document. Please do not hesitate to direct your comments to sales@inheco.com, → How to contact INHECO, page 5.

1.2. Explanation of symbols

Symbol	Explanation
	Potential danger of serious injury or death → signal word WARNING or CAUTION indicate the severity.
	Caution: Potential danger of hot surface.
·	Bullet points indicate steps of instructions.
-	Hyphens refer to enumerations.
→	Arrows indicate: "refer to" and are mostly an active link

1.3. Explanation of Abbreviations

The document uses the following terms	
°C	Degree Celsius
Hz	Hertz [1/s]
Iac	Alternating Current
I _{dc}	Direct Current
K	Kelvin
kg	Kilogram
rhu	relative humidity
TEC	Thermo- Electric- Cooler (Thermoelectric Module)
Uac	Alternating Voltage
U _{dc}	Direct Voltage
W	Watt
ALP	Automated Labware Positioners from Beckman Coulter
IVD	In Vitro Diagnostic
FDA	Food and Drug Administration
MTC	Multi TEC Control controls up to 6 INHECO devices individually
STC	Single TEC Control controls 1 INHECO device
Offset	The difference between the set temperature and actual value once the temperature is stable
PT100	PT100 is a Resistive-Temperature-Detector (RTD). This sensor increases its resistance with increasing temperature.
Set Point	The desired process value programmed into a controller

1.4. Warranty

The warranty period starts on the date of shipment. Any damage caused by operating the Heated Lid outside the specifications and guidelines leads to the loss of warranty. Broken seals on INHECO lead to the loss of warranty as well.

INHECO will only accept parts / devices for return that do not pose a threat to the health of our staff. In particular, the devices may not have been used in Biosafety Level 3 and 4 environments, or have been exposed to radioactive or radiation materials. → Decontamination and Cleaning, page 16ff.

Devices exposed to Biosafety level 3 and 4 Environments or radioactive materials are not accepted by INHECO for return.

1.5. How to contact INHECO

INHECO GmbH	
Address	Fraunhoferstr. 11 82152 Martinsried Germany
Telephone - Sales	+49 89 899593 120
Telephone - Techhotline	+49 89 899593 120
Fax	+49 89 899593 499
E-Mail - Sales	sales@inheco.com
E-Mail - Technical -Hotline	techhotline@inheco.com
Website	www.inheco.com

Technical Support & Trouble Shooting Instructions:

<http://www.inheco.com/service/technical-support.html>

2 PRODUCT DESCRIPTION

2.1. Intended Use

The INHECO Heated Lid is an ideal add-on to avoid condensation on lids / sealed plates, to increase heating rates and to improve temperature uniformity. The Heated Lid can be used in combination with all INHECO heating /cooling and shaking devices (with shaking only limited use).

Power supply, temperature setting and control of the Heated Lid device is performed through an INHECO TEC Control Unit, please refer to the separate TEC Control Manual.

The Heated Lid can be ordered with two types of precise temperature/rpm controllers with integrated power supply (MTC or STC). The unit is a plug-and-play high performance heating device with CE and UL certification. It is mainly used on robotic platforms and systems in LabAutomation.

The Heated Lid is designed specifically for use in Life Science and In Vitro Diagnostics. It is prepared for easy integration into IVD applications, but the final IVD validation has to be performed by the first marketer (IVD application).

When using the Heated Lid in a Biosafety Laboratory Environment, the user is responsible for labeling the devices according to the WHO Laboratory Biosafety Manual (ISBN 92 4154650 6) and for operating the devices according to this Biosafety Manual.

The Heated Lid must be used exclusively by laboratory professionals trained in laboratory techniques with labautomation systems and having studied the instructions for use of this instrument as well as the instructions of the workstation the device is used in.

2.2. Scope of Delivery

Before initial operation, make sure that the shipment of your unit and its scope of supply is complete and no parts are damaged.

In case of parcel or product damages, make photos of the damaged boxes and products and email them to techhotline@inheco.com immediately. Transportation damages must be reported to INHECO within 7 days of delivery. The following components should be included in each shipment:

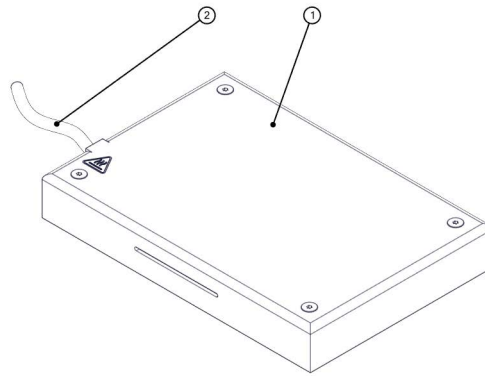


Fig.1: Components

(1) Heated Lid incl. Sub-D-Connector Cable (2)

The Sub-D-Connector Cable is already connected with the Thermoshake and it also needs to be connected to the Black Slot Module installed inside the TEC Control Unit (MTC or STC). → Initial Operation, page 12.

2.3. Functional Elements

The functional element of the Heated Lid is the temperature controlled contact surface. The device has to be controlled via a TEC Control Unit (MTC or a STC).

2.4. Labels

The identification label with part number and serial number also contains important technical indications. The electrical specification on the label must meet your local situation. The label is placed on the top of the Heated Lid. The identification label must not be removed. If it has become illegible or falls off, it has to be replaced by a new identification label. New labels can be ordered at INHECO. In case the label is missing and you do not know the part number and serial number, they can also be read out with the software (MTC/STC Demo Tool) which can be downloaded from INHECO' login section on www.inheco.com. → Trouble Shooting and Support, page 15f.

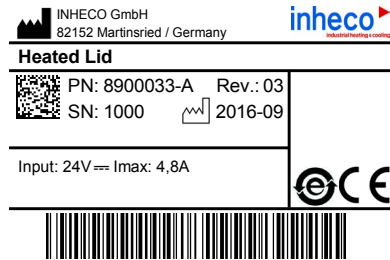


Fig.2: Product labels on the device

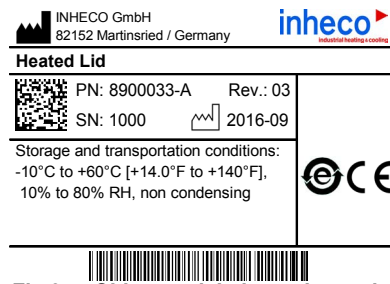


Fig.3: Shipment labels on the package



Fig.4: Label on instrument

2.5. Technical Data Heated Lid

Technical Data incl. Dimensions	
Input voltage / max. current	24Vdc / 4.8 A
Temperature range	ambient to + 115°C [ambient to +239°F]
Temperature range ambient	15°C to +32°C [+59°F to 89.6°F]
Sensor type	two PT100
Outer dimensions for Length x width x height in mm	134 x 91 x 19
Weight incl. cord	approx. 0.55 kg [1.2 lbs]
Heating capacity	100 Watt

Environmental Conditions		
Tolerable relative humidity	Operation	30-80% relative (non condensing)
	Transportation and storage	10-80% relative (non condensing)
Temperature	Operation	+15°C to +32°C [+59°F to 90°F]
	Transportation and storage	-10°C to + 60°C (+14°F to 140°F), non condensing

3 SAFETY INSTRUCTIONS

3.1. Product-specific Risks



WARNING

Follow the safety instructions given below in order to avoid danger for user and device.

General

- The main power switch of the TEC Control Unit (STC / MTC) must always be accessible.
- The Heated Lid ("the device") hardly requires any maintenance, except Cleaning → page 16f.
- The device has to be placed on the labware in an upright position.
- Do not exceed minimum or maximum ambient temperature and humidity conditions during operation or storage of the Heated Lid → Technical Data, page 9.
- The device must not be used in environments with risk of explosion.
- The device is for indoor use only.



Burning Hazard:

- Device can burn your skin. Even after switching off the TEC Control unit, the connected device can still be hot and could seriously burn your skin as the material's temperature can reach up to +115°C [+239°F]. It takes a while to cool down after the device has been used.

Electrical Shock:

- The device must not be used if the device itself or the power cable shows visible signs of damage.
- You can suffer an electric shock and injuries, if Heated Lid is not connected properly or if you do not disconnect the device from the TEC Control Unit (STC / MTC) outlet before opening the housing.
- Never connect or remove the power plug with wet hands.
- Original power cable provided by INHECO has to be used to guarantee safe and proper operation.
- The wall power outlet for the TEC Control Unit (STC / MTC) must have a ground earth connection (Safety Class 1).
- Where an ungrounded receptacle is encountered, a qualified electrician must replace it with a properly (PE) grounded receptacle in accordance with the local electrical code. Make sure that the electrical specification on the identification label at the side panel of the device meets your local situation. → Labels, page 8.

Biosafety Laboratory Environment

- When using the devices in a Biosafety Laboratory Environment, the user is responsible for labeling it according to the WHO Laboratory Biosafety Manual (ISBN 92 4154650 6) and for operating the devices in accordance to this WHO Laboratory Biosafety Manual.

3.2. Technical Alterations

- Do not alter the product. Any modification or change which is not approved by INHECO leads to the loss of warranty. Broken seals on INHECO devices lead to the loss of warranty as well.
- Use only original parts provided by INHECO. Parts provided by other suppliers can impair the functionality of the device.
- Damages due to the use of non-original parts are excluded from INHECO's liability.

3.3. Malfunctions

- In case of a malfunction, switch off and disconnect the device immediately. Make sure to inform the authorized person in charge.
- Make sure that the malfunctioning device is not accidentally re-installed and used before the malfunction is effectively eliminated. → Trouble Shooting and Support, page 15ff.

4 HARDWARE INSTALLATION




4.1. Scope of Supply

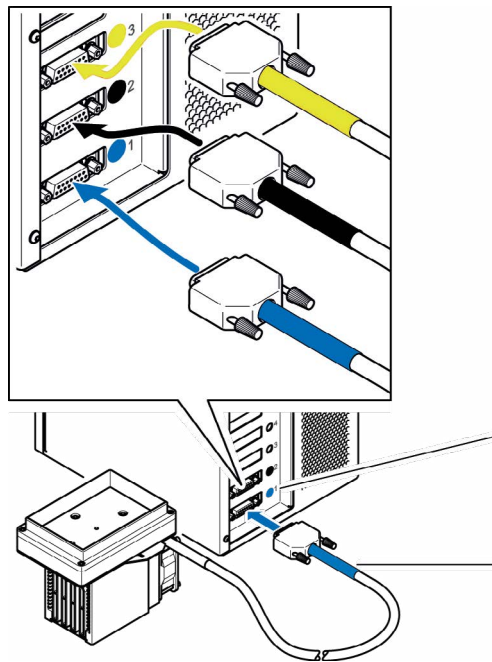
Before initial operation, make sure that the shipment of your unit is complete and neither packaging nor parts are damaged → Scope of Supply, chapter 2.2.

4.2. Initial Operation

4.2.1. How to connect device to the MTC / STC

In order to connect an INHECO heating/cooling/shaking device, the TEC Control Unit has to be equipped with the corresponding Slot Module. There are blue, black, and red Slot Modules available. The following table shows the appropriate Slot Module for each heating/cooling/shaking device.

Product	Color		Article No.	Heating/cooling/shaking Unit
Blue Slot Module	blue		2400128	CPAC
Black Slot Module	black		2400125	CPAC HT 2-Tec, HeatPAC, Heated Lid, Teleshake 95, Thermoshake,
Yellow Slot Module	yellow		2400211	Thermoshake AC, Thermoshake AC 180, Teleshake AC, Teleshake 95 AC



For clear identification, all Slot Modules and connectors are marked in blue, black or red.

When connecting a new device, the color code has to be strictly respected.

In case of wrong connection, interaction will not be possible and an error message will be issued

The color coding of the Slot Modules is visible from the outside through small round windows.

At the connectors, the sleeve must be marked in the same color as the Slot Module.

Fig.5: Connecting a heating/cooling/shaking device (image shows CPAC)

- Disconnect the power cord of the TEC Control Unit.
- Connect the heating/cooling/shaking device to the appropriate Slot Module and lock the connector. The Heated Lid must be connected to a Black Slot Module.
- Connect the power cord of the TEC Control Unit.
- Switch the TEC Control Unit on: The touch-screen display of the TEC Control Unit shows the name (or abbreviation) of the currently connected device. When multiple devices are installed, you can switch between the devices by touching the arrow left or arrow right button of the touch screen.

NOTE

Never plug in or plug out a device while the Controller is running. Always turn off the Controller before disconnecting or connecting a device.

4.3. Labware Use

The Heated Lid fits to all plates, tubes, racks etc. used on INHECOs heating/cooling & shaking units.

NOTE

As the temperature can be selected up to +115°C [+239°F] check whether your labware is suited for the selected temperature. If the temperature is too high for the material of your labware, the labware might get squashy or even melt.

5 SOFTWARE INSTALLATION

INHECO offers a software called Demo Tool to provide limited functional control (also possible via touchscreen of the MTC/STC) and the opportunity to send manually entered firmware commands to the devices.

We recommend to contact your workstation provider for integration (including software integration) of the MTC/STC with devices into your workstation.

6 DAILY USAGE

The devices can be operated by touch-screen at the front panel of the MTC/STC, by the Demo Tool software delivered by INHECO or by the software of your liquid handling workstation. The INHECO Demo Tool software and the touch-screen allow programming basic temperature and shaking sequences. More complex control sequences can be performed with the software of your robotic platform provider or if you write your own software based on our Firmware Command Set and DLL.

For more information consult the following documents:

- for touch-screen operation: MTC/STC Manual
- for software operation: Demo Tool Manual
- for firmware commands: MTC/STC Firmware Command Set

These documents can be downloaded from INHECO' login section on **www.inheco.com**.

- Place the heated lid on top of the labware.
- Start Temperature.

NOTE

Do not operate the Heated Lid in an ambient temperature of more than 32°C (90°F). Otherwise the devices may not work properly or may even get damaged.



WARNING

Device can burn your skin. Even after switching off the TEC Control Unit, the connected device can still be hot and could seriously burn your skin as the material's temperature can reach up to +115°C [+239°F]. It takes a while to cool down after the device has been used.

7 MAINTENANCE

7.1. Software Updates

For updates of the Demo Tool Software, contact: sales@inheco.com → How to contact INHECO, page 5.

7.2. Trouble-Shooting & Support

In case of an operation failure follow the trouble-shooting instructions of this chapter. INHECO needs the below mentioned information to help you to troubleshooting the reason for the operation failure.

Provide the following when contacting INHECO for support:

- INHECO product number of the device (shown on device label)
- INHECO product name of the device (shown on device label)
- INHECO serial number of the device (shown on device label or via software)
- Detailed error description
- Error code report (generated with software “MTC/STC Demo Tool”)
- Information about setup of device:
 - integrated in workstation
 - controlled by MTC or STC (incl. part number and serial number)
 - controlled by workstation software or INHECO software

Serial numbers are shown on the device labels of the TEC Control Unit and connected devices, but you can also read them out by using INHECO’s software “MTC/STC Demo Tool” (Demo Tool). The Demo Tool must also be used to generate the above mentioned report of error codes for the TEC Control Unit and all connected devices → Manual Demotool.

Based on the above information, INHECO’s Techhotline decides about the requirement of a return. → Return for Repair only with RMA Number, page 17.

7.2.1. Installation of the Software “MTC/STC Demo Tool”

The Demo Tool is stored on the USB flash drive which comes with each control unit (MTC/STC). It can also be downloaded from INHECO’ customer login area at our website in the Multi / Single TEC Control General Information section. In this section you will also find the Demo Tool Manual with detailed instructions of the software.

Download the MTC/STC Demo Tool and the DLL file into the same folder. Both files must be saved **into the same folder, otherwise it is impossible to run the Demo Tool.**

7.2.2. Serial Numbers via Demo Tool

Start the Demo Tool and click on the button “find MTC” (or “find STC”). The software scans all com ports and subsequently displays the connected MTC/STC as well as connected devices.

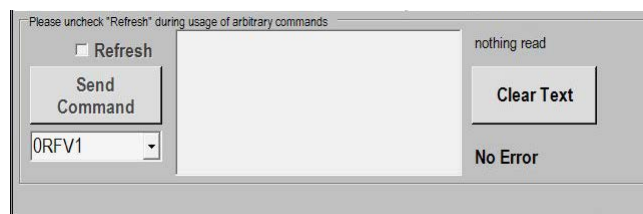


Fig.6: Command section of User Interface

- Make sure the Refresh Box is unchecked (as in fig. 6)
- Enter your command into the command field. (overwrite the last command written in this field e.g. 0RFV1).
- Select button “Send Command”
- Enter following Commands:
 - for MTC/STC Mainboard serial number: 0RFV2
 - for Slot Module serial number: xRFV2 (x=slotID: 1-6)
 - for external connected device: RSNx (x=slotID: 1-6)

7.2.3. Error Code Report generated with “MTC/STC Demo Tool”

- Start the Demo Tool
- Click on the button “find MTC” (or “find STC”).
The software scans all com ports and subsequently displays the connected MTC/STC as well as connected device.
- Click on the button “report error codes”.
An additional window appears in which all error codes are displayed. Email a screenshot of this window along with all other required information to techhotline@inheco.com.

7.3. Cleaning



CAUTION

Before **cleaning** the Heated Lid, disconnect the power and make sure that the temperature of the Heated Lid assembly at the heating plate is below +50°C.

The contact surface should be cleaned regularly to ensure optimum heat transfer to the disposable. Always clean the contact surface if there has been a spillage. Use the cloth dipped in 50:50 water / isopropanol solution and make sure that no deposits are left on the surface. Care should be exercised to prevent water from running inside the device.

Do not use aggressive cleaning fluids such as acetone, or abrasive cleaners.

The plastic frame of the Heated Lid can be cleaned with a cloth dipped in water or methanol. No part of the body should be immersed in the solvents. Do not use aggressive cleaning fluids such as acetone or abrasive cleaners.

Please check with INHECO any cleaning method that is not mentioned in it his paragraph to prevent damage to the Heated Lid.

7.4. Decontamination

Decontamination is required before return of a device to INHECO in case it has been exposed to human or animal blood/fluid/tissue or has been exposed to biological, or chemical materials.

The surface decontamination should include a wipe-down of the housing surface with a decontaminating solution. A solution of 70% alcohol, bleach (5%-12%) or Microside SQ can be used where effective for the respective target material (organism). Otherwise the appropriate decontamination method and solution to eliminate any risk must be applied. Fumigation (e.g. with toxic formaldehyde or ethylene oxide gas) might be required if decontamination of inaccessible areas is needed but ensure to take precautions when using toxic gases or fluids for decontamination.

NOTICE

Contact INHECO if you are not sure whether the used decontamination method or solution could damage the device or its surface material.

NOTE

In case of **decontamination with gas**, make sure that no liquid enters inside the device because the device is still powered on. As ventilation is needed for an effective decontamination with gas.

7.5. Calibration / Verification

A calibration of the device is not necessary.

7.6. Return for Repair only with RMA Number

INHECO devices must be repaired by INHECO only. Parts must not be exchanged by the user. Exchange of parts or broken seals will lead to the loss of warranty. Spare Parts must be ordered from INHECO.

INHECO only accepts decontaminated devices for repair, firmware update, maintenance etc., in case the devices were exposed to blood, to other body fluids or tissues, to biological or chemical materials.

→ Decontamination and Cleaning, page 16ff.

Devices which were exposed to biosafety level 3 and 4 environments or radioactive materials are not accepted by INHECO for return.

Ask techhotline@inheco.com or visit www.inheco.com/service/returns-rma.html for the return procedure before you return a device to INHECO. Do not return any devices without INHECO's RMA number. INHECO's RMA number must be shown on the outside of the return package. Returns without RMA number are not being processed by INHECO.

Devices should ideally be returned in the original packaging. If not possible, make sure that devices are sufficiently protected and cannot move within the package to avoid transportation damage.

7.7. Transportation and Storage

It is recommended to keep the original packaging. INHECO device should be shipped and stored in their original packaging with all accessories. Adhere to required environmental conditions for transportation and storage → Technical Data, page 9.

7.8. Shut Down and Disposal

The device has to be disposed of in accordance with environmental and biosafety directives. You have to arrange for correct electric waste disposal following actual safety regulations for your country.

All INHECO devices are RoHS and WEEE compliant.

8 ACCESSORIES

8.1. Multi TEC Control (MTC) / Single TEC Control (STC)

Product Name	Description	Part Number
Multi TEC Control	controls up to 6 INHECO devices individually	8900030
Single TEC Control	controls 1 INHECO device	8900031

8.2. Slot Modules

Product Name	Description	Part Number
Black Slot Module	connects CPAC HT 2-TEC, HeatPAC, Teleshake 95, Thermoshake, Heated Lid with MTC/STC	2400125

8.3. Miscellaneous

EC - Declaration of Conformity

in accordance with Directive 93/68/EEC (CE), 2014/30/EU (EMC), 2014/35/EU (LVD) and 2011/65/EU (RoHS II)

Product: Single TEC Control (STC), Single TEC Control Compact (STCC),
Multi TEC Control (MTC), Multi TEC Control Compact (MTCC)
(with Slots 2400125+2400128+2400211+2400205)
connected with corresponding devices:
CPAC Microplate, CPAC Ultraflat, Thermoshake or Teleshake, HeatPAC, Heated Lid

Part No: 8900029, 8900030, 8900031, 8900036, 8900033
7000163, 7000168, 7000179, 7000190, 7000166, 7100136, 7100146, 7100144, 7100160,
7100161, 7900046, 7100150, 7100151

Standards (Safety): EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019
EN 61010-2-010:2014
EN 61010-2-101:2017

Standards (EMC): EN 55011:2016
EN 61326-1:2013
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 61000-4-2:2009
EN 61000-4-3:2006 A1:2009 A2: 2010
EN 61000-4-4:2004 A1:2010
EN 61000-4-5: 2006
EN 61000-4-6:2009
EN 61000-4-8:2010
EN 61000-4-11:2004

This product complies with the essential requirements of the Low Voltage Directive (LVD) and Electromagnetic Compatibility (EMC) directive, when used for its intended use.

International Standards For international standards please see UL certificate U8 046515 0033 Rev.00,
U8 046515 0034 Rev.00 and U8 046515 0037 Rev. 01

Download UL certificat: <http://www.inheco.com/service/certificates.html>

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82152 Martinsried
Germany