

HettCube 200 / 200 R
HettCube 400 / 400 R
HettCube 600 / 600 R



HettCube 600 / 600 R



HettCube 400 / 400 R



HettCube 200 / 200 R

(EN) Operating Instructions

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EC Declaration of conformity

of the manufacturer

Andreas Hettich GmbH & Co. KG • Föhrenstraße 12 • D-78532 Tuttlingen • Germany

We hereby declare under our sole responsibility that the designated device and its accessories, which are listed in the technical documentation for this device and whose conformity has been assessed together with the device, conform to the Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits.

Type of device:

Incubator / cooled incubator

Type designation:

HettCube 200 / 200 R, HettCube 400 / 400 R, HettCube 600 / 600 R

The conformity evaluation process was performed in accordance with appendix IV of Directive 2006/95/EC.

Applied standards and directives:

According to the list of applied standards and valid directives which is part of the product documentation.

Tuttlingen, 2013-01-24



H. Eberle
Manager



Hettich
LAB TECHNOLOGY

Standards and regulations which apply to this device

The device is a high-end technical product. It is subject to extensive testing and certification procedures according to the following standards and regulations in their respectively valid version:

Electrical and mechanical safety for design and final testing:

Standard series: IEC 61010 (conform to standards of DIN EN 61010)

- IEC 61010-1 "Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements" (Pollution Degree 2, Installation Category II)
- IEC 61010-2-010 "Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials"
- IEC 61010-2-101 "Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment"

Electromagnetic Compatibility:

- EN 61326-1 "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements"

European directives applied for conformity assessment procedures:

- Low voltage directive 2006/95/EC
"directive related to electrical equipment designed for use within certain voltage limits".
EC conformity assessment procedure according to annex IV "Internal Production Control".

Further partly applicable European directives:

- EMC directive 2004/108/EC

Certified quality management system according to

- ISO 9001 "Quality management systems – Requirements"

Environmental management system according to

- ISO 14001 "Environmental management systems - Requirements with guidance for use"

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1 Intended use

This device is an incubator.

The incubator is used for cultivating micro-organisms (e.g. bacteria, fungi) and is used in microbiology labs. It is used for medical tests (e.g. to verify bacteria in patient samples) and non-medical tests (e.g. to verify bacteria in food or drinking water).

The incubator is only intended for this purpose.

Another use or one which goes beyond this, is considered to be non-intended. The company Andreas Hettich GmbH & Co. KG is not liable for damage resulting from this.

Observing all information in the operating instructions and complying with the measures described therein is also a part of the intended use.

2 Residual risks

The device is built according to the state-of-the-art and the recognized safety regulations. If used and handled improperly, there could be life-threatening danger to the user or third parties, or the device could be impaired or there could be other property damage. The device is only to be used for its intended purpose and only when it is in safe working condition.

Disturbances that can interfere with the safety are to be immediately rectified.

3 Technical specifications

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 200				
Type	62000	62000-01	62000-03	62000-04	62000-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.025 kWh	0.04 kWh			
Inner volume	150 l				
Ambient conditions (EN / IEC 61010-1) – Set-up site – Altitude – Ambient temperature – Humidity – Excess-voltage category (IEC 60364-4-443) – Pollution degree	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing). II 2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity					
Type of protection (EN 60529)	IP 20				
Temperatures – Temperature range – Temperature setting precision – Temperature deviation over time at 37°C – Spatial temperature deviation at 37°C – Spatial temperature deviation at 25°C – Recovery time (after 30 s with door open) at set temperature of 37°C	1 K above the ambient temperature up to 65°C ²⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 3 min				
Noise level	≤ 42 dB(A)	≤ 42 dB(A)			
Interior dimensions B x D x H	535 x 690 x 420 mm				
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall) B x D ¹⁾ x H	710 x 825 x 970 mm				
Weight	approx. 94 kg	approx. 104 kg			
Maximum load per standard feed	50 kg				
Maximum total load	80 kg				

1) plus 60 mm door handle

2) lowest settable temperature 20°C.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.
The data applies to devices with standard equipment.

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 400				
Type	64000	64000-01	64000-03	64000-04	64000-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.038 kWh	0.05 kWh			
Inner volume	310 l				
Ambient conditions (EN / IEC 61010-1)	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing).				
– Set-up site					
– Altitude					
– Ambient temperature					
– Humidity					
– Excess-voltage category (IEC 60364-4-443)	II				
– Pollution degree	2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity					
Type of protection (EN 60529)	IP 20				
Temperatures	1 K above the ambient temperature up to 65°C ²⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 4.5 min				
– Temperature range					
– Temperature setting precision					
– Temperature deviation over time at 37°C					
– Spatial temperature deviation at 37°C					
– Spatial temperature deviation at 25°C					
– Recovery time (after 30 s with door open) at set temperature of 37°C					
Noise level	≤ 41 dB(A)	≤ 42 dB(A)			
Interior dimensions	535 x 690 x 850 mm				
B x D x H					
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall)	710 x 825 x 1425 mm				
B x D ¹⁾ x H					
Weight	approx. 113 kg	approx. 123 kg			
Maximum load per standard feed	50 kg				
Maximum total load	100 kg				

1) plus 60 mm door handle

2) lowest settable temperature 20°C.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.
The data applies to devices with standard equipment.

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 600				
Type	66000	66000-01	66000-03	66000-04	66000-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.049 kWh	0.06 kWh			
Inner volume	520 l				
Ambient conditions (EN / IEC 61010-1) – Set-up site – Altitude – Ambient temperature – Humidity – Excess-voltage category (IEC 60364-4-443) – Pollution degree	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing). II 2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity	EN / IEC 61326-2-6, Class B				
Type of protection (EN 60529)	IP 20				
Temperatures – Temperature range – Temperature setting precision – Temperature deviation over time at 37°C – Spatial temperature deviation at 37°C – Spatial temperature deviation at 25°C – Recovery time (after 30 s with door open) at set temperature of 37°C	1 K above the ambient temperature up to 65°C ²⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 5.5 min				
Noise level	≤ 41 dB(A)	≤ 42 dB(A)			
Interior dimensions B x D x H	535 x 690 x 1415 mm				
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall) B x D ¹⁾ x H	710 x 825 x 1990 mm				
Weight	approx. 162 kg	approx. 172 kg			
Maximum load per standard feed	50 kg				
Maximum total load	120 kg				

1) plus 60 mm door handle

2) lowest settable temperature 20°C.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.
The data applies to devices with standard equipment.

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 200 R				
Type	62005	62005-01	62005-03	62005-04	62005-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.025 kWh	0.04 kWh			
Cooling medium	R 134a (Contains fluorinated greenhouse gases documented by the Kyoto Protocol)				
Amount of refrigerant	160 g				
Global-warming potential (GWP)	1300				
Inner volume	150 l				
Ambient conditions (EN / IEC 61010-1) – Set-up site – Altitude – Ambient temperature – Humidity – Excess-voltage category (IEC 60364-4-443) – Pollution degree	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing). II 2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity					
Type of protection (EN 60529)	IP 20				
Temperatures – Temperature range – Temperature setting precision – Temperature deviation over time at 37°C – Spatial temperature deviation at 37°C – Spatial temperature deviation at 25°C – Recovery time (after 30 s with door open) at set temperature of 37°C	0°C to 65°C ³⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 3 min				
Noise level	≤ 44 dB(A)				
Interior dimensions B x D x H	535 x 690 x 420 mm				
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall) B x D ¹⁾ x H	710 x 825 x 970 mm				
Weight	approx. 108 kg	approx. 118 kg			
Maximum load per standard feed	50 kg				
Maximum total load	80 kg				

1) plus 60 mm door handle

3) lowest settable temperature -5°C. Reaching a temperature < 0°C depends on the ambient conditions, however.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.
The data applies to devices with standard equipment.

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 400 R				
Type	64005	64005-01	64005-03	64005-04	64005-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.038 kWh	0.05 kWh			
Cooling medium	R 134a (Contains fluorinated greenhouse gases documented by the Kyoto Protocol)				
Amount of refrigerant	160 g				
Global-warming potential (GWP)	1300				
Inner volume	310 l				
Ambient conditions (EN / IEC 61010-1) – Set-up site – Altitude – Ambient temperature – Humidity – Excess-voltage category (IEC 60364-4-443) – Pollution degree	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing). II 2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity					
Type of protection (EN 60529)	IP 20				
Temperatures – Temperature range – Temperature setting precision – Temperature deviation over time at 37°C – Spatial temperature deviation at 37°C – Spatial temperature deviation at 25°C – Recovery time (after 30 s with door open) at set temperature of 37°C	0°C to 65°C ³⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 4.5 min				
Noise level	≤ 44 dB(A)				
Interior dimensions B x D x H	535 x 690 x 850 mm				
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall) B x D ¹⁾ x H	710 x 825 x 1425 mm				
Weight	approx. 127 kg	approx. 137 kg			
Maximum load per standard feed	50 kg				
Maximum total load	100 kg				

1) plus 60 mm door handle

3) lowest settable temperature -5°C. Reaching a temperature $< 0^\circ\text{C}$ depends on the ambient conditions, however.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.

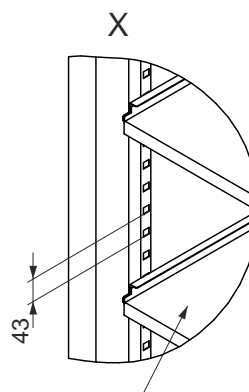
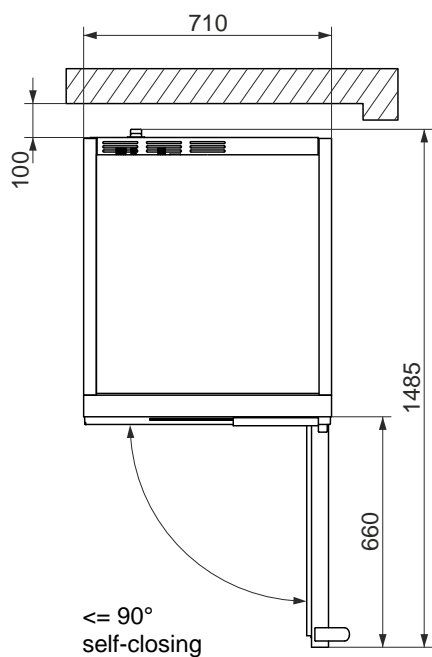
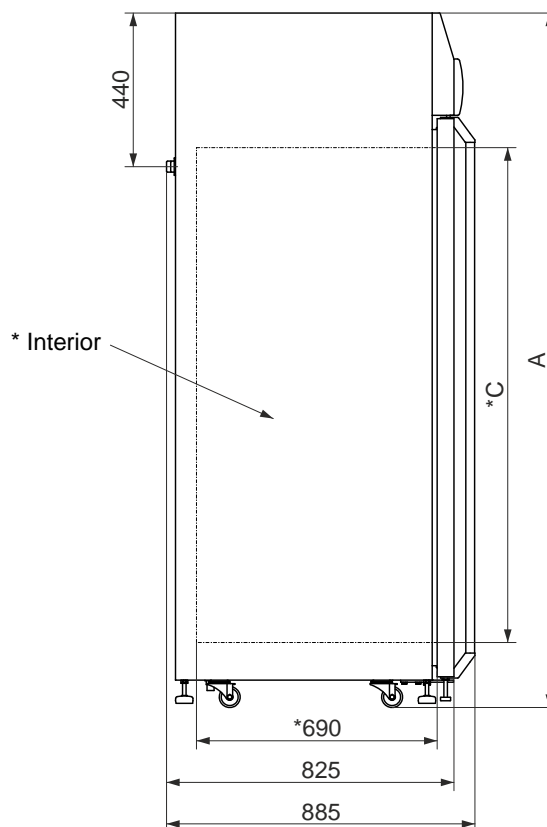
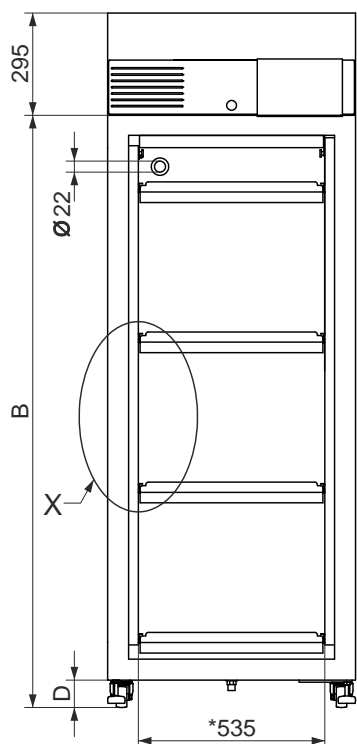
The data applies to devices with standard equipment.

Manufacturer	Andreas Hettich GmbH & Co. KG, D-78532 Tuttlingen				
Model	HettCube 600 R				
Type	66005	66005-01	66005-03	66005-04	66005-05
Mains voltage (± 10%)	220 - 240 V 1~	120 V 1~	110 V 1~	100 V 1~	127 V 1~
Mains frequency	50 - 60 Hz				
Connected load	480 VA	450 VA			
Current consumption	2 A	---			
Energy consumption at 37°C	0.049 kWh	0.06 kWh			
Cooling medium	R 134a (Contains fluorinated greenhouse gases documented by the Kyoto Protocol)				
Amount of refrigerant	160 g				
Global-warming potential (GWP)	1300				
Inner volume	520 l				
Ambient conditions (EN / IEC 61010-1) – Set-up site – Altitude – Ambient temperature – Humidity – Excess-voltage category (IEC 60364-4-443) – Pollution degree	Indoors only Up to 2000 m above sea level 16°C to 35°C Maximum relative humidity 75% (non-condensing). II 2				
Device protection class	I				
Not suitable for use in explosion-endangered areas.					
EMV	EN / IEC 61326-2-6, Class B				
Emitted interference, Interference immunity					
Type of protection (EN 60529)	IP 20				
Temperatures – Temperature range – Temperature setting precision – Temperature deviation over time at 37°C – Spatial temperature deviation at 37°C – Spatial temperature deviation at 25°C – Recovery time (after 30 s with door open) at set temperature of 37°C	0°C to 65°C ³⁾ 0,1°C ± 0,1 K ± 0,2 K ± 0,1 K ≤ 5.5 min				
Noise level	≤ 44 dB(A)				
Interior dimensions B x D x H	535 x 690 x 1415 mm				
Exterior dimensions (including adjusting feet and feedthrough (Ø 22 mm) on the rear wall) B x D ¹⁾ x H	710 x 825 x 1990 mm				
Weight	approx. 173 kg	approx. 183 kg			
Maximum load per standard feed	50 kg				
Maximum total load	120 kg				

1) plus 60 mm door handle

3) lowest settable temperature -5°C. Reaching a temperature < 0°C depends on the ambient conditions, however.

All temperature data was measured at an ambient temperature of 22°C and according to DIN 12880:2007-05.
The data applies to devices with standard equipment.



Number of engagement positions (E)
Max. number of standard slide-in modules (F)

	HettCube 200 / 200 R	HettCube 400 / 400 R	HettCube 600 / 600 R
A	970 mm	1425 mm	1990 mm
B	705 mm	1135 mm	1700 mm
C	420 mm	850 mm	1415 mm
D	min. 56 mm	min. 80 mm	min. 80 mm
E	8	18	31
F	4	9	16

4 Notes on safety



No claim of warranty will be considered by the manufacturer unless ALL instructions in this manual have been followed.



- **The incubator may only be operated when it is set up correctly (see "Set-up" chapter).**
- **The door of the device may only be locked if no one is inside the device.**

- **Before commissioning the incubator, the operating instructions are to be read and observed. Only those persons who have read and understood the operating instructions may operate the device.**
- Along with the operating instructions and the legal regulations on accident prevention, you should also follow the recognised professional regulations for working in a safe and professional manner. These operating instructions should be read in conjunction with any other instructions concerning accident prevention and environmental protection based on the national regulations of the country where the device is to be used.
- The incubator is built according to the state-of-the-art and is reliable. It could pose a danger to the user or third parties, however, if it is not used by trained personnel or improperly or not as intended.
- The guidelines for laboratories (BGI 850-0) are to be observed for the device operation and the set-up site.
- To avoid damage due to condensate, when changing from a cold to a warm room, the incubator must warm up for at least 3 hours in the warm room before it may be connected to the mains.
- The incubator must not be operated outside.
- The incubator may not be operated in potentially explosive areas.
- It is forbidden to put flammable or explosive materials or materials which react together with high energy in the incubator.
- The user must inform himself about the potential health hazards which can be posed by the used sample material, and, if necessary, take appropriate measures to rule out such hazards.
- Do not step or lean on the floor of the interior, the slide-in modules and drawers or the door.
- The bottom of the interior must not be used as a storage shelf.
- The sample material should not be placed outside of the defined utilized space. See the chapter "Definition of the utilized space". The specified temperature data refer to the defined utilized space.
- Repairs must only be carried out by personnel authorised to do so by the manufacturer.
- Only original spare parts and original accessories licensed by the Andreas Hettich GmbH & Co. KG company are allowed to be utilised.
- The following safety regulations apply:
EN / IEC 61010-1 and EN / IEC 61010-2-010 as well as their national deviations.
- The safety and reliability of the incubator are only guaranteed if:
 - the incubator is operated according to the operating instructions.
 - the electrical installation at the set-up site of the incubator meets the requirements of the EN / IEC regulations.

5 Symbol meanings



Symbol on the device:

Attention, general hazard area.

Before using the device, make sure you read the operating instructions and observe the safety information!



Symbol in this document:

Attention, general hazard area.

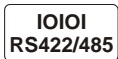
This symbol refers to safety relevant warnings and indicates possibly dangerous situations.

The non-adherence to these warnings can lead to material damage and injury to personal.



Symbol on the device and in this document:

Beware of biohazard.



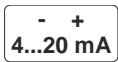
Symbol on the device:

Interface RS422/485 (only for device with interface RS422/485).



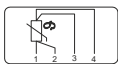
Symbol on the device and in this document:

Floating alarm output.



Symbol on the device and in this document.

Analogue output for independent temperature measurement in the interior.



Symbol on the device and in this document.

4-pin output for independent temperature measurement in the interior.



Symbol in this document:

This symbol refers to important circumstances.



Symbol on the device and in this document:

Symbol for the separate collection of electric and electronic devices according to the guideline 2002/96/EG (WEEE). The device belongs to Group 8 (medical devices).

Applies in the countries of the European Union, as well as in Norway and Switzerland.

6 Scope of delivery

- 1 connecting cable 2.5m (4.0 m for Switzerland, Great Britain)
- 2 key
 - 1 plug for feedthrough on the rear wall
- 2 standard slide-in modules, order no. 60001 (HettCube 200 / 200 R)
- 3 standard slide-in modules, order no. 60001 (HettCube 400 / 400 R)
- 4 standard slide-in modules, order no. 60001 (HettCube 600 / 600 R)
- 1 copy of operating instructions

7 Transport and storage

The device may only be stored in closed and dry rooms.

When the device is transported and stored, the following ambient conditions must be complied with:

- Ambient temperature -20°C to $+60^{\circ}\text{C}$
- Relative humidity: 20% to 80%, non-condensing

8 Unpacking the device



The device must not be lifted and transported by the door handle or the door. A pallet truck must be used for lifting and transporting it.

- Remove the packaging bands.
- Remove the box and packing material.
- Lift the device at the front and remove the front part of the pallet.
- Lift the device at the rear and remove the rear part of the pallet.

9 Set-up



The device may only be set up and connected by authorized, skilled personnel.

The device must not be lifted and transported by the door handle or the door. A pallet truck must be used for lifting and transporting it.

When choosing the set-up site, take the weight of the device and its load into account. See the chapter "Technical data".

The set-up site must not be directly exposed to sunlight or be located near heat sources.

Ventilation openings may not be blocked. A ventilation distance of 100 mm must be kept around the ventilation slots or openings.

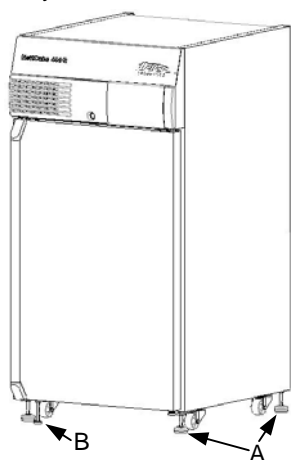
To avoid damage due to condensate, when changing from a cold to a warm room, the incubator must warm up for at least 3 hours in the warm room before it may be connected to the mains.



If needed, Customer Service can mount the door hinges on the other side.

- Remove the packaging. See the chapter "Unpacking the device".
- Set up and level the device stably on a flat, non-flammable surface.

Only for HettCube 400 / 400 R and HettCube 600 / 600 R devices:



- Screw the 4 adjusting feet (A) so far downward until they touch the floor and the rollers are completely relieved.
- Align the device horizontally by twisting the adjusting feet (A).
- Screw the hexagon nuts of the adjusting feet (A) upward and tighten to secure the adjusting feet (A).
- Screw the adjusting foot (B) on the door downward until it is approx. 7 mm above the floor to keep the device from tipping. Screw the hexagon nuts upward and tighten to secure the adjusting foot (B).

For HettCube 200 / 200 R device only:

Align the device horizontally by twisting the levelling elements screwed into the device feet.



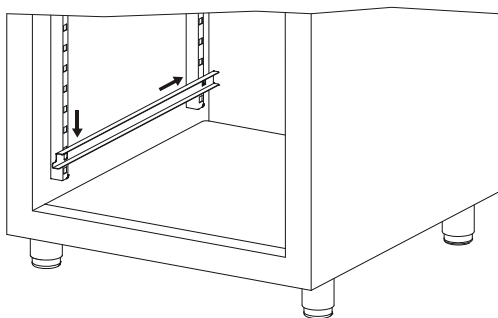
2 of the HettCube 200 / 200 R devices may be stacked on top of each other.

The upper device has to be fixed with the stack kit (order number 60009) onto the lower device and additionally secured against tipping.

- If need be, adjust the height of the support rails for the standard slide-in modules (see chapter "Adjusting the support rails for the standard slide-in modules" or insert the slide-in modules and drawers with telescope pull-out (see chapter "Inserting the slide-in modules and drawers with telescope pull-out").

10 Adjusting the support rails for the standard slide-in modules

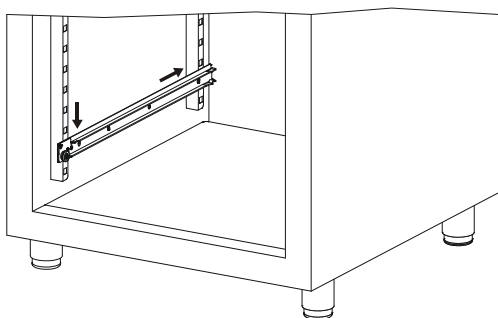
The standard slide-in modules are held by support rails.



- **Inserting the support rails:**
Push the support rails into the rear latching rail at the desired height and then engage in the front latching rail.
- **Removing the support rails:**
Disengage the support rails upward and out of the front latching rail and then pull out toward the front from the rear latching rail.

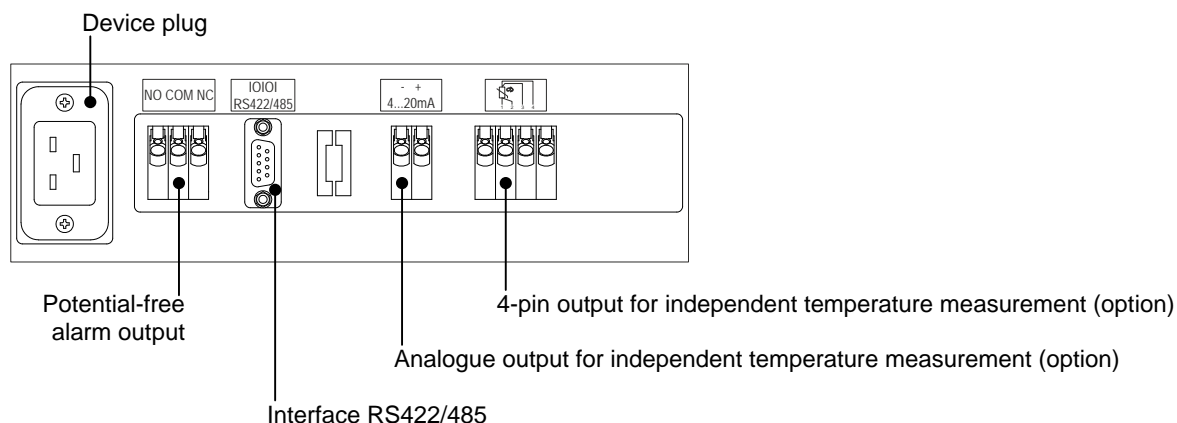
11 Inserting the slide-in modules and drawers with telescope pull-out

Before inserting the slide-in modules and drawers (available as accessories), the support rails with telescope pull-outs included in delivery must be inserted.



- **Inserting the support rails:**
Push the support rails into the rear latching rail at the desired height and then engage in the front latching rail.
- **Removing the support rails:**
Disengage the support rails upward and out of the front latching rail and then pull out toward the front from the rear latching rail.
- **Inserting the slide-in modules and drawers:**
Lift the slide-in module or drawer at the front by approx. 45° and guide both rollers of the slide-in module or drawer in the left and right support rail. Push the slide-in module or drawer horizontally toward the rear.
- **Removing the slide-in modules and drawers:**
Pull the slide-in module or drawer out to the stop. Then lift at the front by approx. 45° and lift out both rollers of the slide-in module or drawer from the left and right support rails.

12 Commissioning



- As needed, connect the interface adapter to the RS422/485 interface of the device with the RS422/485 connecting cable and connect to the PC with the USB interface cable.
- As needed, connect the potential-free alarm output (see chapter "Potential-free alarm output").
- Device with analogue output for independent temperature measurement:
As needed, connect the analogue output (see chapter "Analogue output for independent temperature measurement in the interior").
- Device with 4-pin output for independent temperature measurement:
As needed, connect the 4-pin output (see chapter "4-pin output for independent temperature measurement in the interior").
- Check whether the mains voltage agrees with the specification on the name plate.
- Connect the device to a standardized mains socket with the connecting cable. The connected load can be found in the "Technical data" chapter.



The connecting cable must be freely accessible at all times in order to be able to disconnect the device from the mains.

- Press the main switch . The display will light up.
- Adjust the temperature. See the chapter "Setting the temperature".
- If necessary, set the temperature monitor. See the chapter "Temperature monitor".

13 Interface

The device is equipped with an RS422/485 interface.

The RS422/485 interface is labelled with the  symbol.

A PC can be connected to this interface. The device can be controlled and data queried with the PC. A program required for this is available upon request.

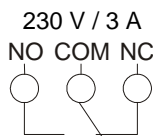



As an option, converters are available for USB or Ethernet.

14 Potential-free alarm output



The floating alarm output may only be connected by authorized, skilled personnel.



The floating alarm output is labelled with the  symbol.

The potential-free alarm output switches when a malfunction occurs (collective alarm).

An in-house alarm system can be connected to this floating alarm output.

15 Feedthrough with screw plug

The device has a feedthrough on the rear side with a diameter \varnothing 22 mm.

Through this opening, cables from external measuring systems can be fed into the interior.



After feeding through the cable, the feedthrough must be sealed with the foam plug included in delivery to prevent temperature deviations in the interior.

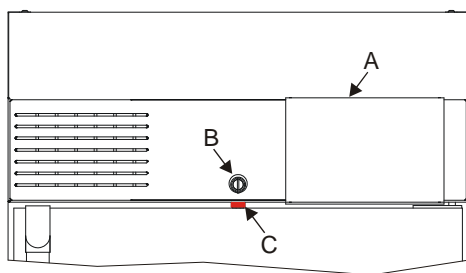
If the feedthrough is not used, this must be sealed with the screw plug.

16 Door lock

To prevent the device from being operated and to prevent the door from being opened by unauthorized personnel, the device can be locked. Individual cylinder locks are used. If the keys are lost, the cylinder lock must be replaced.



Before locking, make sure that no one is inside the device.



- Push the cover (A) to the right.
- Stick the key in the lock (B).
- Turn the key counter-clockwise to lock the device. Once the device is locked, the red bolt (C) is visible.
- Turn the key clockwise to unlock the device. The red bolt (C) will no longer be visible.

17 Definition of the utilized space

The utilized space is defined to be the centre of the interior.

Utilized space dimensions:

$$\text{Width}_{\text{utilized space}} = 0.9 \times \text{Width}_{\text{interior}}$$

$$\text{Height}_{\text{utilized space}} = 0.9 \times \text{Height}_{\text{interior}}$$

$$\text{Depth}_{\text{utilized space}} = 0.8 \times \text{Depth}_{\text{interior}}$$

Utilized space volume:

$$V_{\text{utilized space}} = \text{Width}_{\text{utilized space}} \times \text{Height}_{\text{utilized space}} \times \text{Depth}_{\text{utilized space}}$$

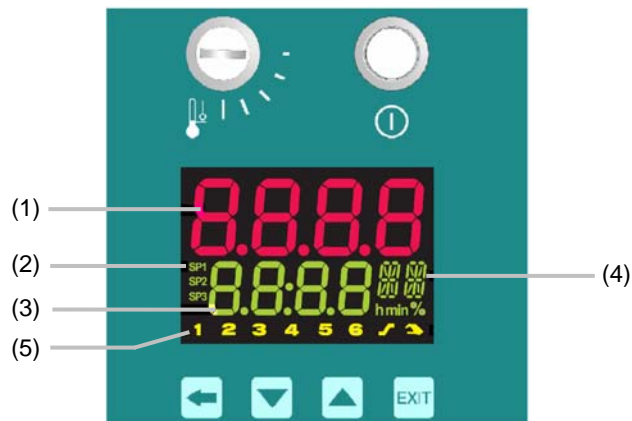
18 Loading



The maximum load per standard slide-in module is 50 kg.
The maximum load per slide-in module or drawer with telescope pull-out is 40 kg.

Load the device so that the sample material is only within the utilized space and make sure there is sufficient air circulation inside the device. This is complied with due to the fact that the sample containers don't project over the edges of the standard slide-in modules.

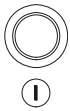
19 Operating and display elements



19.1 Display

- (1) Actual temperature value (displayed in red)
- (2) Active setpoint (factory setting: SP1)
- (3) Temperature setpoint, parameter symbols, menu symbols (green display)
- (4) Temperature unit (°C, °F)
- (5) Status display. The operating state of the device is displayed.
 - 1 Door is open (door contact switch).
 - 2 Over-temperature (temperature monitor).
 - 3 Heater is active.
 - 4 Cooling system is active.
 - 5 Not assigned.
 - 6 Temperature alarm
 - Program function is active.
 - Manual mode (function can't be activated)

19.2 Operating elements



Main switch



Temperature monitor



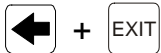
- Calling the menus.



- Setting the temperature, program and parameters .
If the ▼ or ▲ key is kept pressed, the value is increased or decreased with increasing speed.



- Closing the menus.
- Switch off acoustic alarm.



- Start or end program.

20 Setting the temperature



If the temperature value is changed, the temperature monitor might have to be adjusted. See the chapter "Temperature monitor".

For cooled incubators, a temperature can be set between -5°C and 65°C in steps of 0.1°C. Reaching a temperature < 0°C depends on the ambient conditions, however.

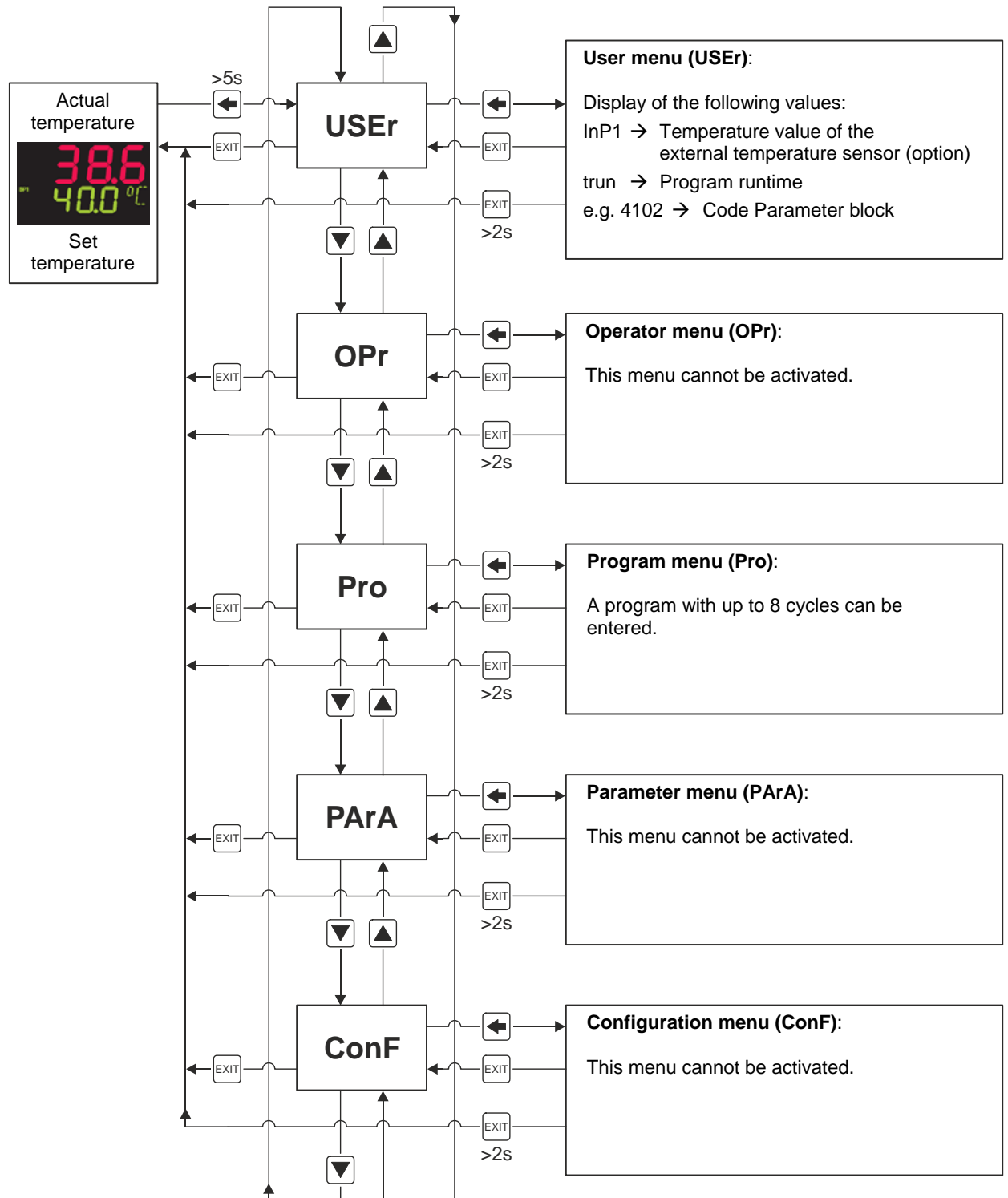
For incubators, a temperature can be set between 20°C and 65°C in steps of 0.1°C. However, the temperature is controlled only in the range from 1 K above the ambient temperature to 65°C.

- Set the desired temperature with the ▼ and ▲ keys. The setting is stored after 2 seconds automatically.

21 Menu overview

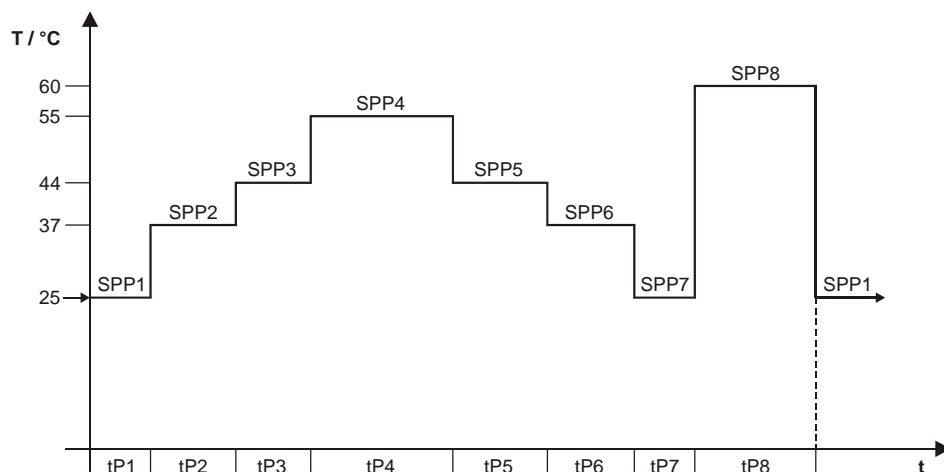
The parameters for setting the device can be found in different menus.

 If no key is pressed for 180 seconds, or if the **EXIT** key was pressed for longer than 2 seconds, the actual and set temperatures are displayed again.



22 Programming

A program can be entered where a maximum of 8 cycles with different temperatures can be strung together. For each cycle, a temperature (SPP1 to SPP8) and a cycle time (tP1 to tP8) have to be set. After the last cycle, the program starts again from the beginning.



SPP1 to SPP8: Temperature, adjustable in steps of 0.1°C. Adjustable from -5°C to 65°C (HettCube R models) and from 20°C to 65°C (HettCube models).

tP1 to tP8: Cycle time, adjustable between 1 hour (00:01) and 99 days and 23 hours (99:23), in steps of 1 hour.



It is also possible to configure the device so that the cycle time can be set between 1 minute to 99 hours and 59 minutes in steps of 1 minute. If necessary, notify Customer Service.

22.1 Entering the program



If not all 8 cycles are required, the time 00:00 must be set in the cycle after the last used cycle.

Entering parameters can be cancelled at any time by pressing the **EXIT** key. In this case, the settings are not stored.

If no key is pressed for 180 seconds, or if the **EXIT** key was pressed for longer than 2 seconds, the actual and set temperatures are displayed again.

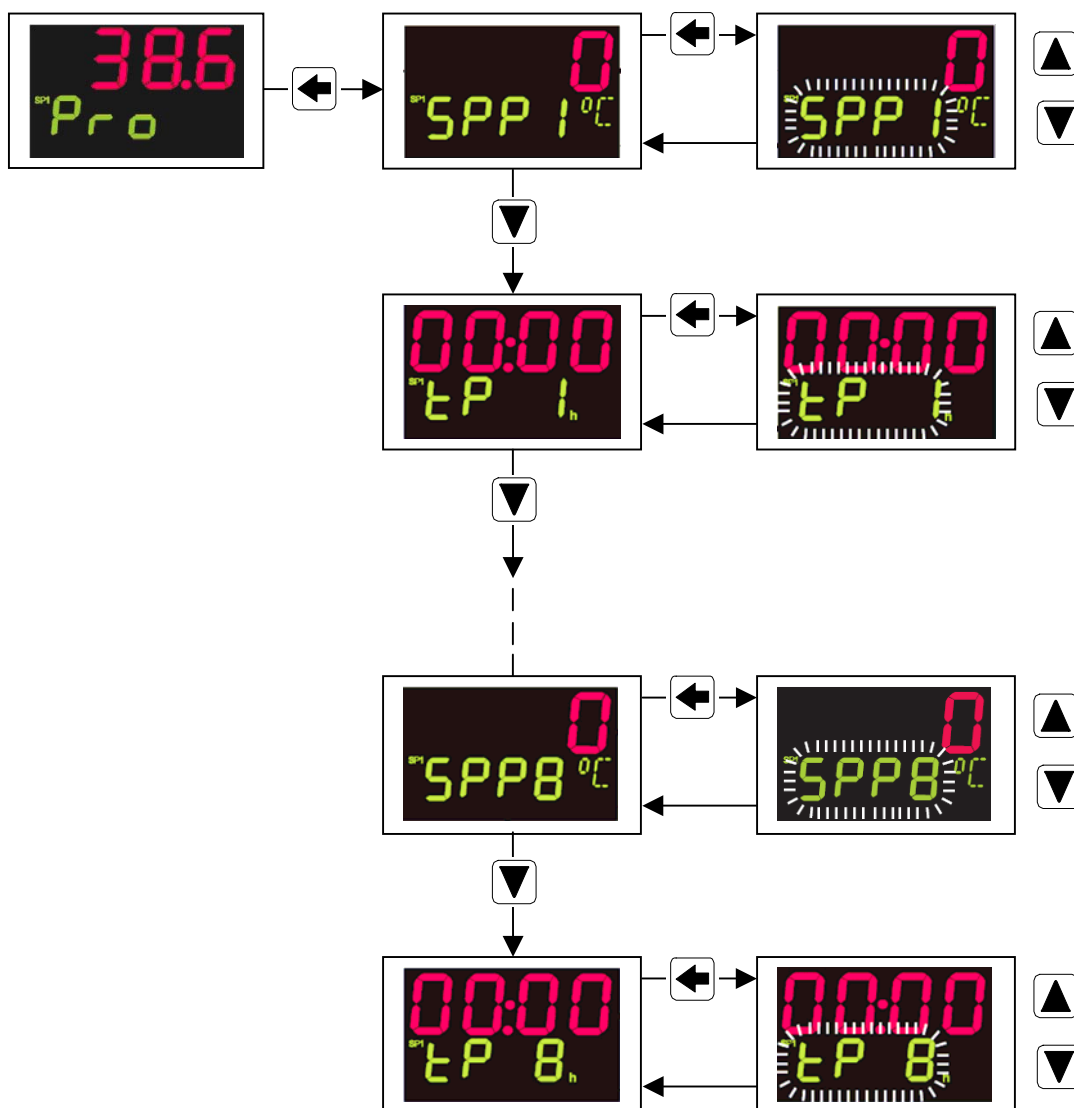
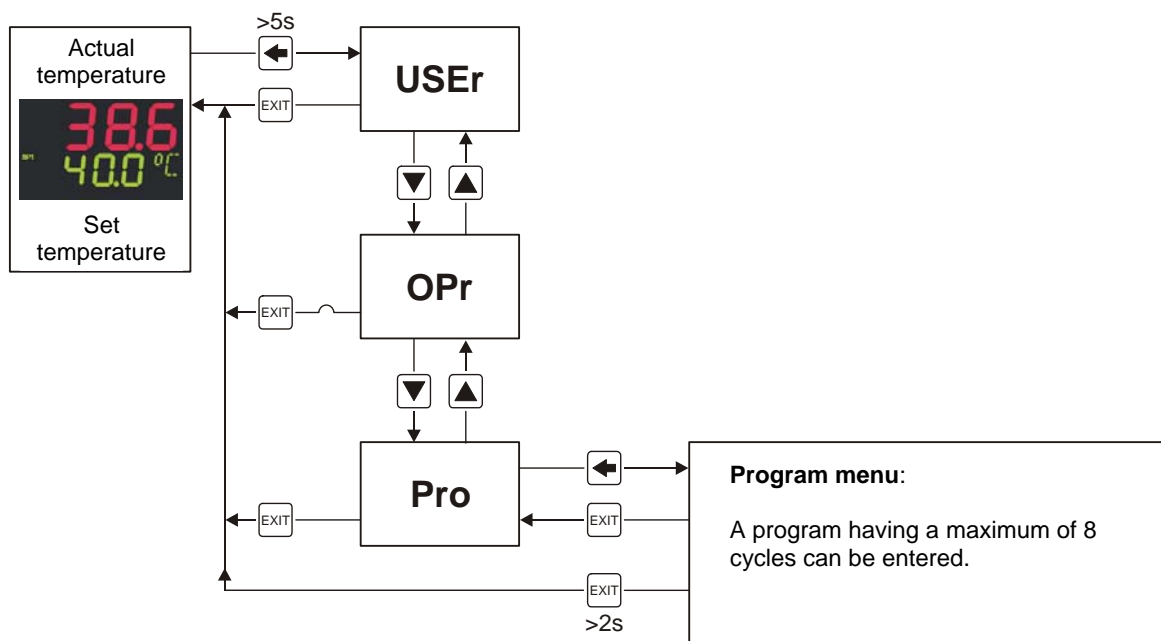
The temperatures (SPP1 to SPP8) and the cycle times (tP1 to tP8) are set in the program menu.

- Press and hold the **☐** key for 5 seconds. After 5 seconds, **USER** appears on the display.
- Press the **▼** key until **Pro** is displayed.
- Press the **☐** key.
- Select the desired parameter with the **▼** and **▲** keys.
- Press the **☐** key. The parameter symbol will flash.
- Set the desired value with the **▼** and **▲** keys.
- Press the **☐** button to save the setting.



The setting is stored after 2 seconds automatically.

- Select the next parameter and set, or press the **EXIT** key to exit the menu.



22.2 Starting the program



If the mains fails, the program is aborted.
As soon as the device is ready for operation again, the temperature is regulated to the set temperature.

- Press the and **EXIT** keys at the same time. **Strt** is displayed briefly and the symbol is illuminated. The symbol is illuminated until the program is finished.

22.3 Ending the program

- Press the and **EXIT** keys at the same time. The symbol will go out.
The program runtime is reset to 00:00.
After ending the program, the temperature is regulated to the set temperature.

22.4 Stopping and continuing the program

- Press and hold the **EXIT** key for 2 seconds.
After 2 seconds, the set temperature display starts to flash and keeps flashing until the program is continued.



The set temperature is regulated while the program is stopped.

- To continue the program, keep the **EXIT** key pressed for 2 seconds. The set temperature display stops flashing and the program is continued.

22.5 Querying the program runtime (trun)

It can be queried how long the program has been running already.



If no key is pressed for 180 seconds, or if the **EXIT** key was pressed for longer than 2 seconds, the actual and set temperatures are displayed again.

- Press and hold the key for 5 seconds.
After 5 seconds, **USER** appears on the display.
- Press the key. The program runtime (trun) is displayed.



After 180 seconds, the actual and set temperature are displayed automatically.

- Keep the **EXIT** key pressed for 2 seconds so that the actual and set temperatures are displayed.

23 Optical and acoustic alarm

If a malfunction occurs, there is an optical and acoustic alarm. For information about troubleshooting, see the chapter "Malfunctions".

- The acoustic alarm is ended by pressing the **EXIT** key.

24 Temperature monitor

The device is equipped with a temperature monitor, protection class 3.1, in accordance with DIN12880:2007-05.
The temperature monitor is for protecting the device (device protection), its surroundings and the sample material (sample protection) against impermissible, excessive temperatures.

If the electronic temperature regulation fails during operation, the temperature monitor takes over the regulating function.

24.1 Setting the temperature monitor as device protection

The temperature monitor must be set to the maximum value.

- Adjust the dial of the temperature monitor with a coin by turning it clockwise to the end stop.

24.2 Setting the temperature monitor as sample protection

The temperature monitor must be set a little higher than the selected set temperature on the controller.

To check at what temperature the temperature monitor responds, the device must be put into operation and the desired setpoint set on the temperature controller.

- Adjust the dial of the temperature monitor with a coin by turning it clockwise to the end stop (device protection).
- After the preselected temperature setpoint has been reached, turn the dial on the temperature monitor counter-clockwise up to the switching point until it switches off and **t_{AL}** is displayed.
- The optimal setting of the temperature monitor is reached by turning the dial clockwise until the **t_{AL}** display disappears.

25 Operating the device at a temperature setpoint below 4°C

If the device is operated at a set temperature below 4°C, the evaporator can ice up.

This would lead to a reduction in the cooling performance.

In this case, defrost the device regularly.

To defrost, set the temperature to 60°C and remove the feedthrough cover.

26 Options and accessories

26.1 Overview

Option / accessories	Order no.
Converter to USB	60501
Converter to Ethernet	60502
Program for programming and recording data of the HettCube for a period of max. 60 days	60901
Independent, flexible PT 100 sensor (4 wires) with an analogue output of 4 – 20 mA on the rear side of the device with external alarm monitoring for recording the temperature in the event of a power failure (LIM compatible)	60503
Object temperature sensor PT 100 (4 wire) with 4-pin connection on rear side of device (LIM compatible)	60504
Object temperature display with flexible PT 100 sensor (4 wire), can be documented with Hettich software	60505
Interior socket, EU shock-proof IP54, max. load 400 Watt, with ground fault circuit interrupter (10 mA)	60515
Interior socket, EU shock-proof IP54, max. load 400 Watt, without ground fault circuit interrupter	60511
Interior socket US NEMA 5-15 R, IP54, max. load 400 Watt, with ground fault circuit interrupter (10 mA) ¹⁾	60512
Interior socket US NEMA 5-15 R, IP54, max. load 400 Watt, without ground fault circuit interrupter ¹⁾	60508
Interior socket UK BS 1363, IP54, max. load 400 Watt, with ground fault circuit interrupter (10 mA)	60513
Interior socket UK BS 1363, IP54, max. load 400 Watt, without ground fault circuit interrupter	60509
Interior socket CH SEV 1011, IP54, max. load 400 Watt, with ground fault circuit interrupter (10 mA)	60514
Interior socket CH SEV 1011, IP54, max. load 400 Watt, without ground fault circuit interrupter	60510
Feedthrough on the left side of the device, Ø 22 mm	60006
Feedthrough on the left side of the device, Ø 42 mm	60007
Feedthrough on the left side of the device, Ø 67 mm	60008
Slide-in module made of stainless steel with guide made of stainless steel (standard slide-in module)	60001
Slide-in module made of stainless steel with telescope pull-out up to 70%, max. load 40 kg	60002
Drawer made of stainless steel with telescope pull-out up to 70%, load max. 40 kg, height 35 mm	60003
Drawer made of stainless steel with telescope pull-out up to 70%, load max. 40 kg, height 100 mm	60004
Drawer made of stainless steel with telescope pull-out up to 70%, load max. 40 kg, height 150 mm	60005
Stack kit for secure stacking of two HettCube models 200 or 200 R on top of each other	60009
Roller container for a HettCube model 200 or 200 R	60010

1) For types 62000-01, 62005-01, 64000-01, 64005-01, 66000-01, 66005-01 only

26.2 Converter to USB

A converter from the RS422/485 interface to USB is available.

Scope of delivery: 1 converter, 1 connecting cable (D-SUB extension 1:1, 9-pin, 5m), 1 USB cable 0.9m (from PC to the converter), 1 CD-ROM (mini CD) with interface drivers, 1 CD-ROM (CD) with program for programming and recording the HettCube data.


26.3 Converter to Ethernet

A converter from the RS422/485 interface to Ethernet is available.

Scope of delivery: 1 converter, 1 connecting cable (D-SUB extension 1:1, 9-pin, 5m), 1 adapter (2x9-pin, male) 1 patch cable (5 m), 1 CD-ROM (mini CD) with interface drivers, 1 CD-ROM (CD) with program for programming and recording the HettCube data.


26.4 Program for programming and recording HettCube data

A program for programming and recording HettCube data is available. Data from a device can be recorded for a period of max. 60 days.

 This program is already included in the scope of delivery of the converter to USB and Ethernet.

26.5 Analogue output for independent temperature measurement in the interior

The device can be equipped with an additional temperature sensor (PT100) and an analogue output for independent temperature measurement.

The analogue output is labelled with the  symbol.

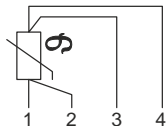
Analogue output 4-20 mA DC, temperature range 0-100°C, external voltage supply 7.5 ... 30 V DC.

External temperature measuring devices can be connected to this output.

26.6 4-pin output for independent temperature measurement in the interior

The device can be equipped with an additional temperature sensor (PT100) with a 4-pin output for independent temperature measurement.

The 4-pin output is labelled with the  symbol.






External temperature measuring devices can be connected to this output.

26.7 Display of the temperature of the sample material

The device can be equipped with an additional temperature sensor (PT100). The temperature of the sample material can be measured with this temperature sensor. This temperature can be displayed.

 If no key is pressed for 180 seconds, or if the **EXIT** key was pressed for longer than 2 seconds, the actual and set temperatures are displayed again.

- Press and hold the  key for 5 seconds.
After 5 seconds, **USER** appears on the display.
- Press the  key. The temperature of the sample material (InP1) is displayed.

 After 180 seconds, the actual and set temperature are displayed automatically.

- Keep the **EXIT** key pressed for 2 seconds so that the actual and set temperatures are displayed.

26.8 Interior socket

The device can be equipped with an interior socket (type of protection IP54) with or without a ground fault circuit interrupter (10 mA).

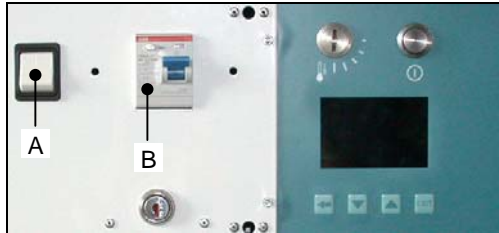


The maximum load of the inner socket is 400 VA.

For a device with inner socket without a ground fault circuit interrupter (B), a ground fault circuit interrupter must be installed in the building for the device.

It is also possible to equip the device with several interior sockets. In this case, the maximum load of 400 VA is distributed over all interior sockets. Please contact Andreas Hettich GmbH & Co. KG or your contact partner as needed.

The switch (A) for switching the socket on and off and the ground fault circuit interrupter (B) are located behind the front panel. See figure. To remove the front panel, grab it on one side and pull out.

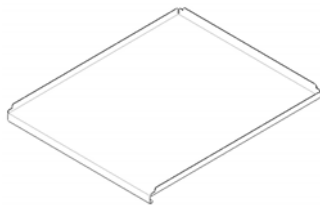


26.9 Feedthrough on the left side of the device

The device can be furnished with a feedthrough on the left side of the device.

The feedthrough is available with a diameter of \varnothing 22 mm or \varnothing 42 mm or \varnothing 67 mm and has a screw plug. For how to use the feedthrough, see the chapter "Feedthrough with screw plug".

26.10 Standard slide-in module



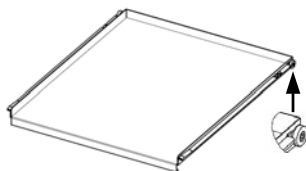
Standard slide-in module
Order No. 60001



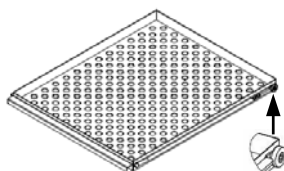
The maximum load per standard slide-in module is 50 kg.

26.11 Slide-in module and drawers with telescope pull-out

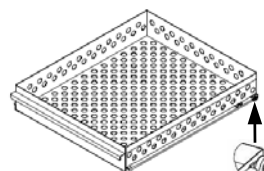
The slide-in module and the drawers can be pulled out by 70%. A stop prevents the slide-in module and drawers from falling out.



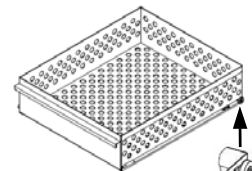
Slide-in module
Order No. 60002



Drawer, 35 mm high
Order No. 60003



Drawer, 100 mm high
Order No. 60004



Drawer, 150 mm high
Order No. 60005



The maximum load per slide-in module or drawer with telescope pull-out is 40 kg.

26.12 Stack kit

(for HettCube 200 / 200 R only)

2 of the HettCube 200 / 200 R devices may be stacked on top of each other.

The stack kit is required to stack 2 devices on top of each other securely.

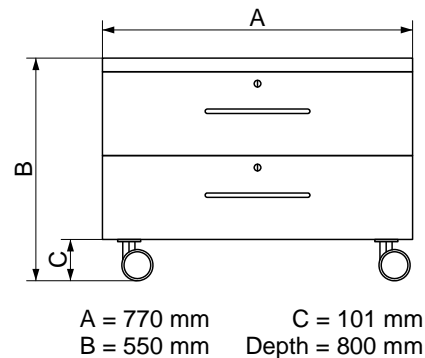
The top device also has to be secured against tipping. We recommend the fixing kit (order number 60012) to securely attach the upper device to the wall.

26.13 Roller container

(for HettCube 200 / 200 R only)

For the HettCube 200 / 200 R devices, there is a roller container available, on which the devices can be placed.

- Fasten the 4 mounting brackets for the device feet to the top section of the roller container using the screws (M5) included in delivery.
- Lift the device with an appropriate number of helpers and place it on the roller container so that the mounting brackets are in the device feet.



27 Maintenance and servicing



The device can be contaminated.



Pull the mains plug before cleaning.

Before any other cleaning or decontamination process other than that recommended by the manufacturer is applied, the user has to check with the manufacturer that the planned process does not damage the device.

The filter mat behind the ventilation slots is electrostatically charged and therefore may not be cleaned. In the event of strong contamination, the filter mat must be exchanged. For devices with cooling, we recommend that the filter mat be exchanged once a year.



For easier cleaning of the interior, the rails and sheets can be removed from the interior.

- They may only be cleaned by hand and disinfected with liquids.
- The water temperature must be between 20 – 25°C.
- Only detergents/disinfectants may be used which:
 - have a pH between 5 - 8
 - do not contain caustic alkalis, peroxides, chlorine compounds, acids and alkaline solutions
- In order to prevent appearances of corrosion through cleaning agents or disinfectants, the application guide from the manufacturer of the cleaning agent or disinfectant are absolutely to be heeded.



The housing of the device has an exterior RAL 9016 powder coating.
The interior of the device is made of stainless steel (1.4301).

27.1 Surface cleaning and care

- Clean the housing and the interior of the device regularly and, if necessary, clean with soap or a mild detergent and a moist cloth. This is for hygienic purposes and prevents corrosion due to adhering contaminants.
- Ingredients of suitable detergents: soap, anionic tensides, non-ionic tensides.
- After using detergents, remove the detergent residue by wiping with a damp cloth.
- The surfaces must be dried immediately after cleaning.
- The interior is to be checked for damage once a year.



If damage is found which is relevant to safety, the device may no longer be put into operation. In this case, notify Customer Service.

27.2 Surface disinfection

- If infectious material gets into the interior, disinfect it immediately.
- Ingredients of suitable disinfectants:
ethanol, n-propanol, isopropyl alcohol, glutardialdehyde, quaternary ammonium compounds.
- After using disinfectants, remove the disinfectant residue by wiping with a damp cloth.
- The surfaces must be dried immediately after disinfecting.

27.3 Removal of radioactive contaminants

- The agent must be specifically labelled as being an agent for removing radioactive contaminants.
- Ingredients of suitable agents for removing radioactive contaminants:
anionic tensides, non-ionic tensides, polyhydrated ethanol.
- After removing the radioactive contaminants, remove the agent residue by wiping with a damp cloth.
- The surfaces must be dried directly after removing the radioactive contaminants.

27.4 Autoclaving

The slide-in modules, drawers, rails and sheets in the interior can be autoclaved at 121°C / 250°F (20 min).
Before autoclaving, these parts must be removed from the interior.
Nothing definitive can be said about the degree of sterility.

27.5 Removing the rails and sheets from the interior

For easier cleaning of the interior, the rails and sheets can be removed from the interior.

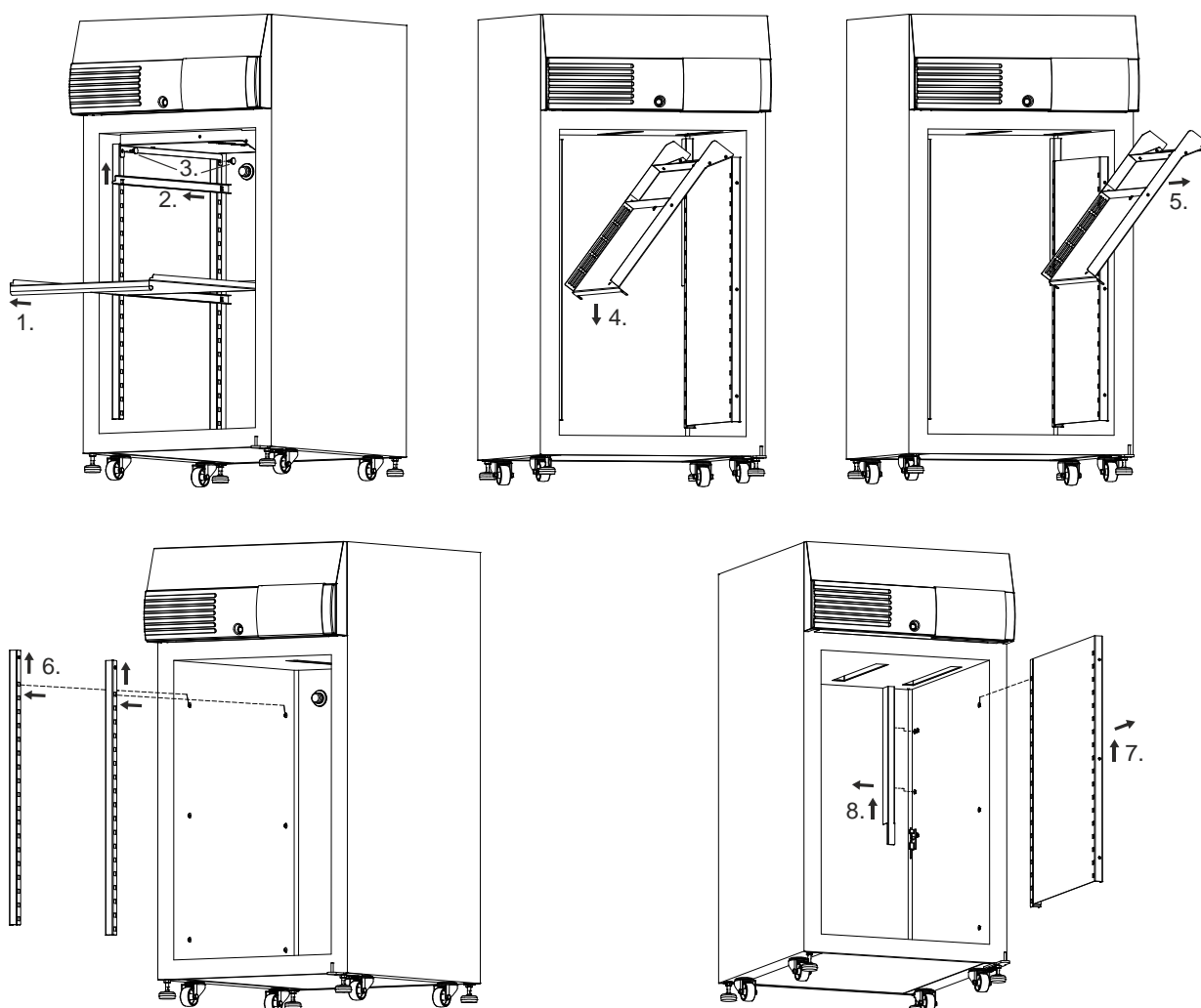
Removal:

1. Remove the slide-in modules and drawers.
2. Disengage the support rails upward and out of the front latching rail and then pull out toward the front from the rear latching rail.
3. Hold onto the baffle sheet and screw out both knurled screws.
4. Flip the top baffle sheet down.
5. Remove the baffle sheet toward the front.
6. Disengage the two latching rails upward and then remove toward the front.
7. Disengage the right baffle sheet upward and then remove toward the front.
8. Disengage the cover sheet of the temperature sensor upward and then remove toward the left.



Installation is done in the opposite order.

When installing the upper baffle sheet, push this upward and fasten with the two knurled screws. It must be flush with the ceiling of the interior.



28 Malfunctions

If the error can't be remedied using the troubleshooting table, notify Customer Service.

Please specify the type of device and the serial number. Both numbers can be found on the name plate of the device.



If a malfunction occurs, there is an optical and acoustic alarm.
The acoustic alarm is ended by pressing the **EXIT** key.

Display	Cause	Remedy
No display	No voltage	<ul style="list-style-type: none"> – Check the supply voltage. – Activate the automatic circuit breaker. – Switch on the main switch.
t – AL	The door has been open for longer than 2 minutes. Temperature in the interior is too high or too low. The temperature deviates from the setpoint by more than 1K. Temperature monitor incorrectly set.	<ul style="list-style-type: none"> – Close the doors. – Adjust the temperature monitor.
- 1999	Controller error.	– Notify customer service.
9999		
- - - -		
The setpoint display is flashing.		
ProF		
OPt		

29 Returning Devices

If the device or its accessories are returned to Andreas Hettich GmbH & Co. KG, in order to provide protection for people, the environment and materials, it has to be decontaminated and cleaned before being shipped.

We reserve the right to refuse contaminated devices or accessories.

Costs incurred for cleaning and disinfection are to be charged to the customer.

We ask for your understanding in this matter.

30 Disposal

Before disposal, the device must be decontaminated and cleaned to protect people, the environment and property.

When you are disposing of the device, the respective statutory rules must be observed.

Pursuant to guideline 2002/96/EC (WEEE), all devices supplied after August 13, 2005 may not be disposed as part of domestic waste. The device belongs to group 8 (medical devices) and is categorized in the business-to-business field.



The icon of the crossed-out trash can shows that the device may not be disposed as part of domestic waste.

The waste disposal guidelines of the individual EC countries might vary. If necessary, contact your supplier.