memmert

Operating manual

ICO

CO_2 incubator

EN English

Table of Contents

1. About this Manual 5

2. Safety 7

2.1 Terms and Symbols Used 7
2.1.1 Terms Used 7
2.2 Product Safety and Dangers 7
2.3 Requirements to be met by Operating Personnel 8
2.4 Responsibility of the Owner 8
2.5 Product Use 9
2.5.1 Intended environment 9
2.5.2 Intended Use 9
2.5.3 Improper Use 9
2.6 Changes and Alterations 9
2.7 Behaviour in case of Malfunctions and Irregularities 10
2.8 What to do in case of Accidents 10
2.9 Switching off the Unit in an Emergency 11

3. Construction and Description 12

3.1 Design 12
3.2 Description of Function 13
3.3 Materials 13
3.4 Electrical Equipment 14
3.5 Connections and Interfaces 14
3.5.1 Electrical Connection 14
3.5.2 Communication Interfaces 14
3.6 Nameplate 15
3.7 Technical Data 16
3.8 Applicable Guidelines 17
3.8.1 Declaration of Conformity 17
3.8.2 Material Compliance 18
3.9 Ambient Conditions 18
3.10 Scope of Delivery 19

4. Delivery, Transport and Setting Up 20

4.1 Safety 20
4.2 Delivery 20
4.3 Transport 20
4.4 Unpacking 20
4.5 Storage after Delivery 21
4.6 Setting Up 21
4.6.1 Preconditions 21
4.6.2 Anti-tilt bracket 22

4.6.3 Stacking equipment ... 23

5. Putting into Operation 26

5.1 Putting into Operation for the First Time ... 26
5.2 Connecting the Unit to the Power Supply ... 26
5.3 Water specifications ... 27
5.4 Inserting the Water Tray ... 27
5.5 Connecting and Filling the Water Tank ... 27
5.6 CO_2 and N_2 connection ... 28
5.7 Switching on Unit ... 29

6. Operation and Control 30

6.1 Operating Personnel ... 30
6.2 Opening the Door ... 30
6.3 Loading the Appliance ... 31
6.4 Switching on Unit ... 32
6.5 Device login (optional) ... 32
6.5.1 Manual login (Option S1) ... 32
6.5.2 Login using an RFID chip ... 33
6.5.3 Login with fingerprint (Option Z1) ... 33
6.6 Basics ... 34
6.6.1 Status bar ... 34
6.6.2 Normal operation ... 34
6.6.3 Distance View ... 35
6.6.4 Main Menu ... 36
6.7 Manual Mode ... 37
6.7.1 Manual Mode View ... 37
6.7.2 Manual Mode Setup ... 38
6.7.3 Set the temperature ... 39
6.7.4 Set temperature limits ... 39
6.7.5 Adjust the humidity ... 41
6.7.6 Set humidity limits ... 41
6.7.7 CO_2 set ... 43
6.7.8 CO_2-Set limits ... 43
6.7.9 Set the timer ... 45
6.7.10 View parameter details ... 46
6.7.11 Export parameter details ... 47
6.8 Sterilise the device ... 47
6.9 Program Mode (Option S2) ... 49
6.9.1 Create a program ... 49
6.9.2 Start the program ... 52
6.9.3 Running Program ... 54
6.10 Logs ... 55
6.11 Settings ... 57
6.11.1 Overview ... 57

6.11.2 Device Information ... 58
6.11.3 Device Settings ... 58
6.11.4 User Management (Option S1) ... 70
6.11.5 Connecting an RFID chip and logging in (Radio Frequency Identification) ... 72
6.11.6 Registering a fingerprint and logging in ... 74
6.11.7 Profile Settings ... 76
6.11.8 Data Exchange ... 76

7. Faults, warnings and error messages 78

7.1 Event Types ... 78
7.2 Display of error messages ... 79
7.3 Error messages, malfunctions and operator errors ... 80
7.3.1 General Device Errors ... 80
7.3.2 Temperature monitoring ... 81
7.3.3 Humidity monitoring ... 82
7.3.4 CO2 monitoring ... 82
7.3.5 O2 monitoring ... 82
7.3.6 System error ... 83
7.3.7 Communication and Data ... 83
7.3.8 Program and Operation ... 84
7.4 What to Do in Case of a Power Outage ... 84

8. Maintenance and Servicing 85

8.1 Cleaning ... 85
8.2 Decontamination ... 85
8.3 Regular Maintenance ... 86
8.4 Repairs and Service ... 86

9. Storage, Transport and Disposal 87

9.1 Storage and Transport ... 87
9.2 Disposal ... 87

1. About this Manual

Purpose and target audience

This manual describes the design, function, transport, operation and maintenance of the product series CO2 incubators ICO. It is intended for use by trained personnel employed by the owner who are tasked with operating and/or maintaining the unit.

If you have been tasked with working on the unit, read this manual carefully before starting work. Familiarise yourself with the safety instructions. Only perform work that is described in this manual. If there is anything you do not understand, or if any information is lacking, ask your line manager or contact the manufacturer. Do not take any course of action on your own initiative.

Versions

The appliances are available in different equipment versions and sizes. If certain features or functions are only available in certain equipment versions, this is indicated at the relevant points in this manual.

The functions described in this manual relate to the most recent firmware version.

Due to the different equipment versions and sizes, the illustrations in this manual may be slightly different to your product. However, the product is identical in terms of its operation and function.

Further applicable documents

In addition to this manual, please also refer to the following documents:

- myChamber Control Software Manual
  When operating the device with the Memmert PC software myChamber Control, follow the separate instructions.

Retaining and passing on this manual

This operating manual belongs to the unit. It is available for download in digital format (PDF) at **www.memmert.com**. You can also access the operating manual via the QR code on the nameplate of the unit.

The operator must ensure that all persons who are working or are due to work on the unit have access to the operating manual at all times and know where to find it.

We recommend:

- Download the operating manual and save it in a location that is accessible to all authorised persons, e.g. on a network drive or a computer near the unit.
- Make sure the operating manual is also available without an internet connection.
- Check regularly whether a more recent version is available at **www.memmert.com**.

If you print out the operating manual, keep the printout in a protected place near the unit. Protect it from heat and humidity.

If the unit is installed in a different location, make sure that the operating manual is also accessible there. If the unit is resold, inform the new owner about the QR code on the nameplate and the download at **www.memmert.com**.

Address and Customer Service

Manufacturer's address

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Tel. +49 9171 9792 911
E-mail: **service@memmert.com**
www.memmert.com
If you have any queries, please always quote the product number on the nameplate.

Shipping address for repairs

Memmert GmbH + Co. KG
Willi-Memmert-Straße 90-96 | D-91186 Büchenbach | Germany
Please contact our customer service before sending appliances for repair or before making returns, otherwise, we have to refuse acceptance of the shipment.

2. Safety

2.1 Terms and Symbols Used

In this manual and on the unit itself, certain recurring terms and symbols are used to warn you of hazards or give you information that is important in order to prevent injury or damage. To avoid accidents and damage, observe and follow these instructions. These terms and symbols are explained below.

2.1.1 Terms Used

⚠ DANGER	Warns of a dangerous situation that will result directly in death or serious (irreversible) injury.
⚠ WARNING	Warns of a dangerous situation that could result in death or serious physical injury.
⚠ CAUTION	Warns of a dangerous situation that could result in moderate or minor physical injury.
NOTICE	Warns of damage to property.

2.2 Product Safety and Dangers

The units described in this manual are technically sophisticated, manufactured using high-quality materials and subject to many hours of testing in the factory. They reflect the state of the art and comply with recognised technical safety regulations. However, there are still risks involved, even when the units are used as intended. These are described below.

⚠ DANGER



Live parts

When covers are removed, live parts are exposed and contact with these parts may result in electric shock. Electric shock can have serious health consequences including death.

- Only authorised persons may carry out electrical installation work.
- Before starting work, disconnect the unit from the power supply.
- Ensure that the unit is fully de-energised.
- Secure the unit to prevent it from being switched on again.

⚠ DANGER



Risk of short circuit

Condensation in the electrical components may cause short circuits.

- After transporting or storing the unit in humid conditions, remove it from its packaging and allow it to acclimatise for at least 24 hours in normal ambient conditions.
- Do not connect the unit to the mains power during this time.

⚠ WARNING



Poisonous or explosive vapours and gases

When loading the unit with an unsuitable load, poisonous or explosive vapours or gases may be produced. This could cause the unit to explode, and persons could be severely injured or poisoned.

– The unit may only be loaded with materials and substances which cannot form any toxic or explosive vapours at the set temperature and which cannot explode, burst or ignite.

⚠ WARNING



Explosion of gas cylinders

Gas cylinders may burst or explode at high temperatures. This can cause serious physical injury and damage to property.

– Keep gas cylinders away from open flames.
– Store gas cylinders below 50 °C and ensure that the location is always well ventilated.
– Prevent water from entering as well as flowing back into the gas cylinders.
– It is essential that you read the safety notes and instructions of the gas supplier.

⚠ CAUTION



Danger of suffocation

CO_2 and N_2 can have a suffocating effect in high concentrations. The appliance releases small amounts of CO_2 and N_2 to its surroundings when operating normally.

– You should therefore ensure that the room in which it is installed is properly ventilated.
– A ventilation rate of 250 m^3/h is required.
– Always close the stop valve or pressure reducer on the gas cylinders if the appliance is not in operation.

i

CO_2 and N_2 are not dangerous substances within the meaning of the German Hazardous Substances Ordinance (GefStoffV). You should nevertheless familiarise yourself with the applicable safety regulations prior to handling such gas cylinders.

2.3 Requirements to be met by Operating Personnel

The appliance may only be operated and maintained by persons who are of legal age and have been instructed accordingly. It is intended to be operated and maintained by trained personnel employed by the owner.

Repairs may only be performed by qualified electricians. The guidelines in the separate service manual must be observed.

2.4 Responsibility of the Owner

The owner of the unit

- is responsible for the flawless condition of the unit and for operating it in accordance with its intended use;
- is responsible for ensuring that persons who operate or service the unit are qualified to do this, have been instructed accordingly and are familiar with these operating instructions;
- must know the applicable guidelines, requirements and operational safety regulations, and train staff accordingly;
- is responsible for ensuring that unauthorised persons cannot access the unit;
- is responsible for ensuring that the maintenance plan is adhered to and that maintenance work is properly carried out;
- has to ensure that the unit and its surroundings are kept clean and tidy, for example through corresponding instructions and inspections;

- is responsible for ensuring that personal protective clothing is worn by operating personnel, e.g. work clothes, safety shoes and protective gloves.

2.5 Product Use

2.5.1 Intended environment

The unit is intended for use in basic and industrial electromagnetic environments. Standards complied with for this purpose:

- IEC 61326-1

2.5.2 Intended Use

ICO CO_2 incubators are intended for incubation of cell cultures or similar.

2.5.3 Improper Use

Any other use constitutes misuse and may result in dangers and damage.

The device is not explosion-proof. The device may only be loaded with materials and substances that do not emit toxic or explosive vapours at the set temperature. Furthermore, it must only be loaded with materials or substances that do not themselves explode or burst, and that neither ignite nor burn under the applied time-temperature conditions. Furthermore, it must only be loaded with materials or substances that do not produce vapors capable of igniting due to continuous condensation and accumulation of the vapors.

If there are any doubts regarding the material properties, a process validation must be performed to determine the compatibility of the charge with the process being used.

The appliance must not be used to dry, vaporise or brand materials whose procurement or constituents pose a risk of fire and/or explosion, especially if the solvents of these materials could form an explosive mixture when combined with air. If you are not sure whether a given material has these characteristics, you must not put it in the appliance. Potentially explosive gas-air mixtures must not be able to form in the working chamber or in the direct vicinity of the appliance.

Only introduce the specified media (distilled water as well as CO_2 and N_2) into the chamber via the media connections on the rear of the unit. Introducing other liquids or gases is not permitted.

The incubator must not be used for sterilisation, of e.g. medical devices, medical material, medical equipment or similar. It is not a steriliser in the sense of the MDR (Medical Device Regulation) or the MPDG (medical device implementation regulation). The only purpose of the sterilisation programme which is permanently stored in the unit is to sterilise the interior surfaces of the loading chamber and assemblies (e.g. grids) belonging to the unit.

2.6 Changes and Alterations

⚠ WARNING



Use of impermissible accessories or spare parts not specified by the manufacturer

Increased electromagnetic emissions, reduced electromagnetic immunity and incorrect operation of the device.

– Only accessories specified or provided by the manufacturer may be used.

The device must not be modified or altered without authorization. No parts may be added or installed that are not approved by the manufacturer.

Unauthorized modifications or alterations will invalidate the CE conformity of the device and the device must no longer be operated.

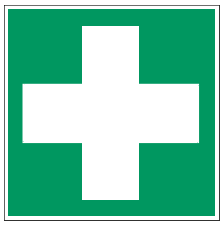
The manufacturer shall not be liable for damage, hazards or injuries resulting from unauthorized modifications or alterations or from failure to comply with the regulations in these instructions.

2.7 Behaviour in case of Malfunctions and Irregularities

i The unit must only be used in a flawless condition. If you, as the operator, notice irregularities, malfunctions or damage, immediately turn off the unit and inform your line manager.

i You can find information on troubleshooting in the chapter Malfunctions, Warning and Error Messages.

2.8 What to do in case of Accidents



1. Keep calm. Take considered and decisive action. Avoid putting yourself in danger.
2. Switch off the appliance and close the valves of the gas cylinder.
3. Call a doctor.
4. Administer first aid. If available: Call a trained first aid helper.

When breathing in CO_2 or N_2:

High concentrations can cause asphyxiation. Symptoms may include a loss of mobility and unconsciousness. The victim will not be aware that this is happening.

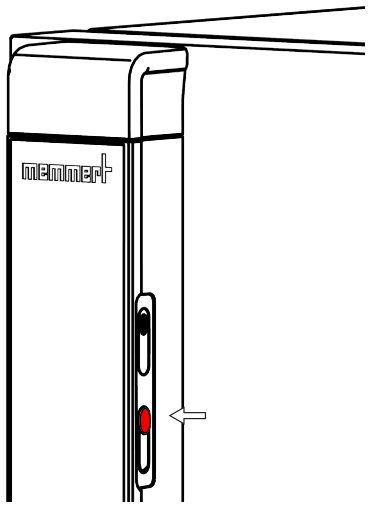
Low concentrations of CO_2 can cause hyperventilation and headaches.

1. Affected persons should be given a breathing apparatus that delivers air from an independent source and taken outdoors to the fresh air.
2. Keep the person warm and calm.
3. Seek medical assistance.
4. If the person has stopped breathing, use artificial respiration.

In case of gas leakage:

1. Leave the room immediately, warn others and ventilate the room.
2. If you re-enter the room, use a breathing apparatus that delivers air from an independent source unless you have established beyond doubt that it is safe to do so.

2.9 Switching off the Unit in an Emergency



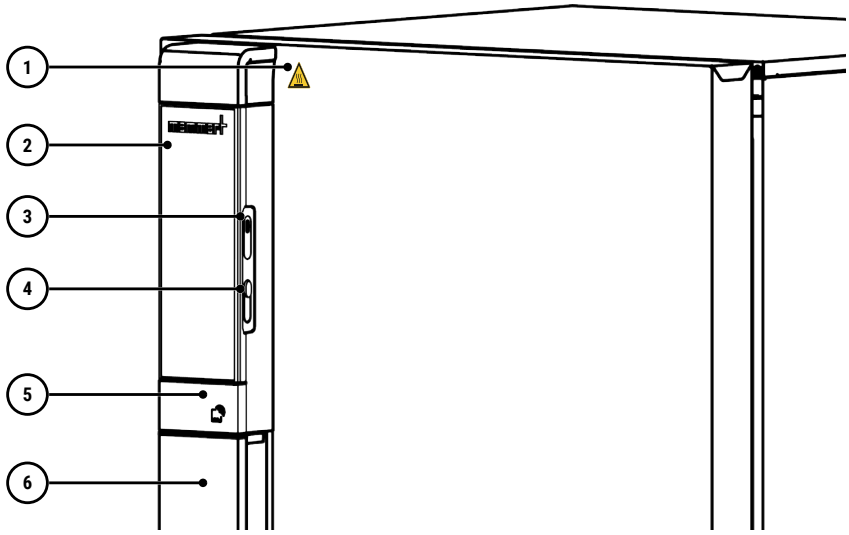
1. Press the main switch on the device.
2. Unplug the mains plug from the power source.

⇨ This disconnects the device from the mains on all poles.

3. Construction and Description

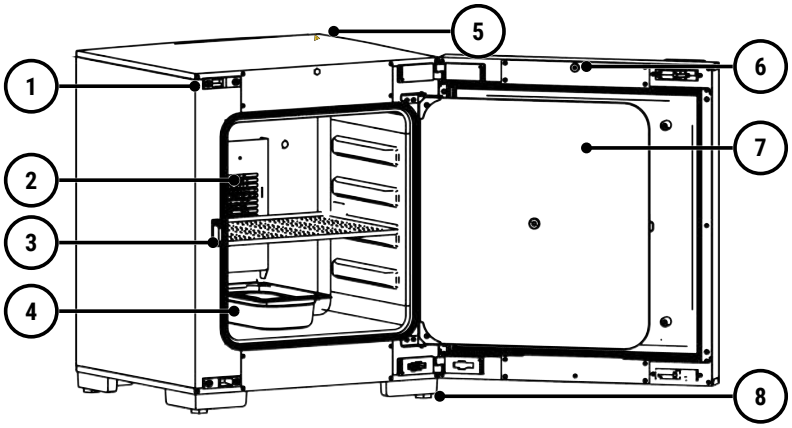
3.1 Design

Layout – control unit/door handle



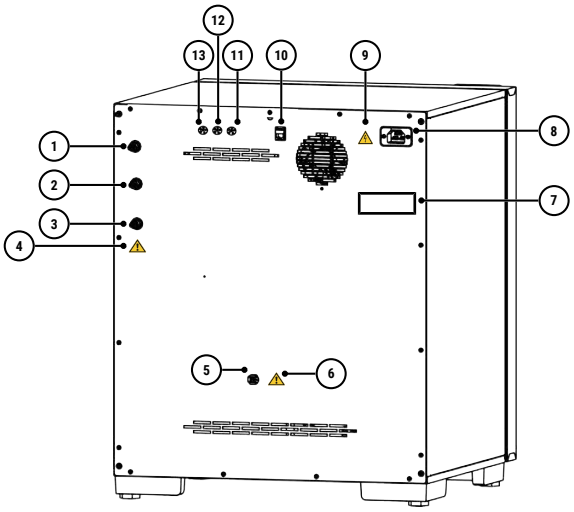
1	"Caution: Hot" label	2	Touchscreen
3	USB-C port	4	On/Off button
5	RFID or fingerprint scanner (Option Z2 or Z1)	6	Door handle

Layout – unit



1	Door latch	2	Interior fan
3	Door latch for glass interior door	4	Water tray
5	"Caution: Hot" label	6	Door-open detection
7	Inner glass door	8	Appliance feet

Layout – back of unit



1	CO2 gas connection	2	N2 gas connection (optional)
3	Additional CO2 gas connection (optional)	4	Label "Caution"
5	Water connection (optional)	6	Label "Caution"
7	Nameplate	8	Mains connection
9	Label "Caution: electrical voltage"	10	Ethernet interface
11	4–20 mA interface (optional)	12	4–20 mA interface (optional)
13	Null-voltage contact (optional)		

3.2 Description of Function

The air inside the unit is heated by a large-area, all-round heating system.

In units with passive closed-loop humidity control, the chamber is humidified by evaporation from a water tank located inside it. In units with active closed-loop humidity control, the chamber can be humidified via a hot steam generator at the back of the unit, which evaporates water in measured quantities from a canister or via a water connection to a central water supply. The sterile hot steam is directed into the chamber above the fan and mixed with the air flow. In units with a water tank, humidity is limited by a Peltier humidity trap in the rear panel of the unit. In units with active humidity control, dehumidification takes place through the controlled supply of fresh air via a sterile filter.

Carbon dioxide (CO_2) and nitrogen (N_2 only in units equipped with an O_2 module) are also fed into the chamber via sterile filters. The chamber ventilation ensures an even distribution of the gases and thus a homogeneous atmosphere. The oxygen concentration is controlled by the supply of nitrogen: when nitrogen is supplied, the oxygen concentration decreases.

3.3 Materials

i

The chamber load of the appliance must be carefully checked for chemical compatibility with the indicated materials.

Components	Material
Housing (lid + side panels)	Stainless steel 1.4016 – ASTM 430
Housing (back panel)	Galvanised steel plate
Chamber (incl. cover)	Stainless steel 1.4301 – ASTM 304
Accessories (perforated shelf, grid)	Stainless steel 1.4301 – ASTM 304
Door seal	Silicone
Inner glass doors	Tempered safety glass

Components	Material
Battery	Type: CR2032 Chemical system: Li-Mn-based battery Weight: 3 g Capacity: 220 mAh Voltage: 3.2 V Label: “Not rechargeable”
LiFePO4 battery (optional with Option C2 UPS)	Type: LiFePO4 battery Chemical system: Lithium iron phosphate battery Weight: 350 g Voltage: 13.2 V

3.4 Electrical Equipment

- Operating voltage and current consumption: See ▸3.6 Nameplate or ▸3.7 Technical Data
- Degree of protection IP 20 acc. to DIN EN 60529
- Protection class I, i.e. operating insulation with PE conductor connection according to EN 61010
- Interference suppression acc. to EN 55011 class B

See also

- Technical Data [▸ 16]
- Nameplate [▸ 15]

3.5 Connections and Interfaces

3.5.1 Electrical Connection

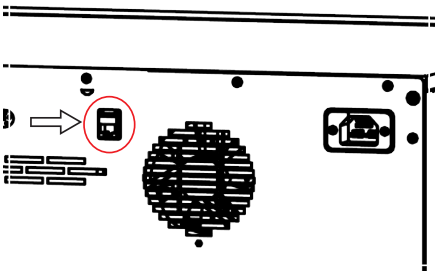
This unit is designed for operation on an electrical power system with a maximum system impedance Z_{max} at the point of transfer (service line) of 0.292 Ohm. The operator must ensure that the unit is only operated on an electrical power system that meets these requirements.

If necessary, ask your local utility company what the system impedance is. Observe the country-specific regulations when making connections (e.g. in Germany DIN VDE 0100 with earth leakage circuit breaker).

3.5.2 Communication Interfaces

The communication interfaces are intended for devices that comply with the requirements of IEC 60950-1.

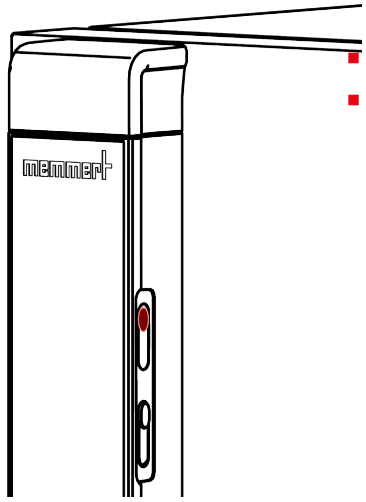
Ethernet interface



The device can be connected to a network via an Ethernet interface, and programmes created using the myChamber Control software can be transferred to the device, whilst logs can be read out.

For identification, every connected unit must have a unique IP address.

USB-C port

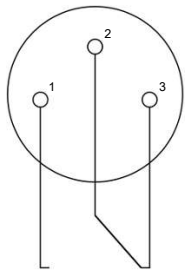
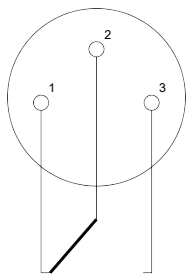


The device comes standard with a USB-C port.

- USB 2.0 (480 Mbit/s)
- Max. 5 V; 500 mA

Data can be exported and imported via the interface (see ▸6.11.8 Data Exchange)

Dry contact | Option H6 (only with optional equipment)

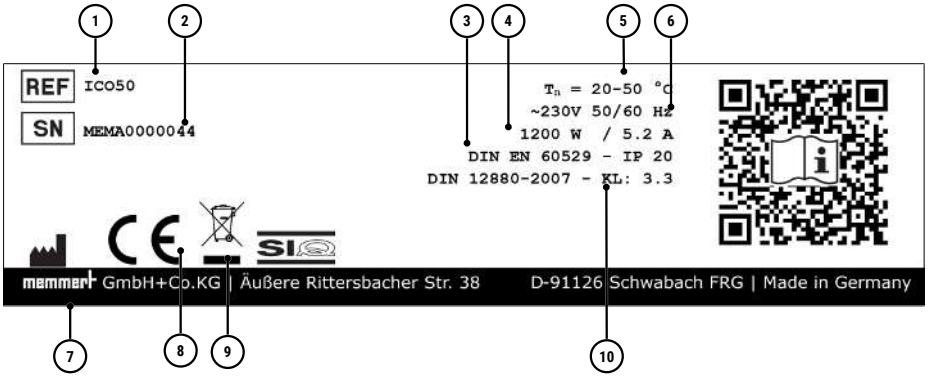
Relay/LED	Pin assignment	Description of Function	Miscellaneous
Relay off Test LED Red	Alarm 	Contact 2-3 is closed in the event of the following faults: ■ Power failure ■ Overtemperature ■ Undertemperature ■ Humidity alarm ■ CO2 alarm ■ O2 alarm ■ Mechanical temperature limiter TB ■ PT1000 temperature sensor faulty	Switching capacity max. 2 A max. 24 volts
Relay on Test LED Green	Alarm 	Contact 1-2 is closed ■ Unit switched on and in working order	Switching capacity: max. 2 A max. 24 V

See also

Scope of Delivery [▸ 19]

3.6 Nameplate

The nameplate provides information about the unit model, manufacturer and technical data. It is mounted on the back of the unit (see ▸3.1 Design).



1	Model Number	2	Device number
3	Protection Class	4	Connection / Power Ratings
5	Temperature range	6	Operating voltage
7	Manufacturer's Address	8	Test Mark
9	Disposal Instructions	10	Applicable Standard / Protection Class

See also

Design [▶ 12]

3.7 Technical Data

Chamber

Unit size			50	105	180	240
Volume		mm	56	108	177	243
Width	A	mm	400	560	600	600
Height	B	mm	425	480	590	810
Depth	C	mm	330	400	500	500
Fan cover		mm	37,5			
Max. number of shelves			4	5	6	9
Max. load per shelf		kg	15			
Max. load per unit		kg	50	75	90	135

Housing

Unit size			50	105	180	240
Width	D	mm	548	708	748	748
Height	E	mm	628	683	793	1013
Depth	F	mm	519	589	689	689
Door handle		mm	50			

Electrical data

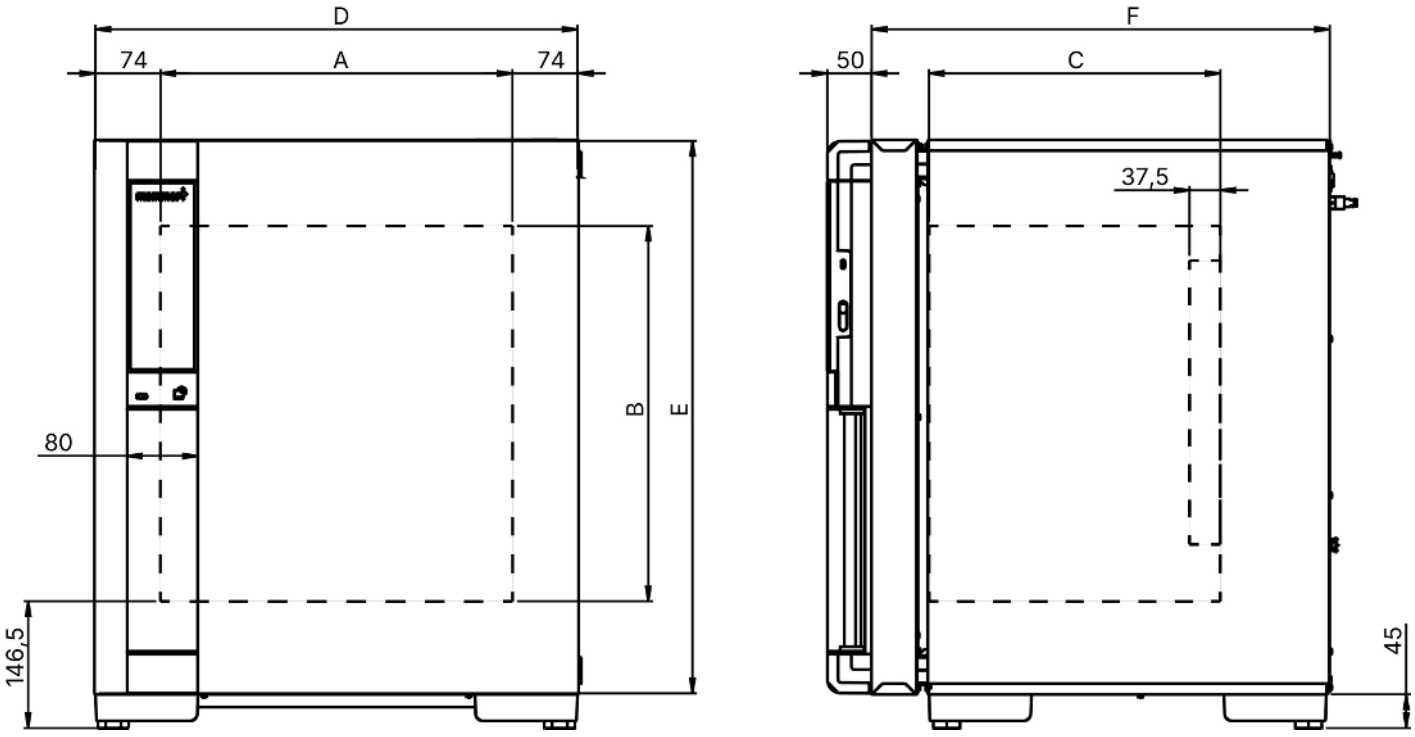
Unit size			50	105	180	240
Frequency		Hz	50/60			
Power connection		V	115 / 230			
Power consumption 115 V / 230 V		W	1200	1450	1550	1750

Packaging data

Unit size			50	105	180	240
Net weight		kg	53	70	98	113
Gross weight		kg	66	85	116	132
Width		mm	655	825	925	925
Height		mm	893	967	1072	1277
Depth		mm	755	815	854	854

Parameter

Unit size				50	105	180	240
Temperature	Working temperature range		°C	5 K above room temperature up to +50 °C			
	Setting temperature range		°C	+20 to +50			
	Setting accuracy		°C	0,1			
Humidity (only with Option K7)	Setting range		% RH	40 to 98			
	Setting accuracy		% RH	0,5			
CO_2	Setting range		%	0 to 20			
	Setting accuracy		%	0,1			
O_2 (only with Option T6)	Setting range		%	1 to 20			
	Setting accuracy		%	0,1			



3.8 Applicable Guidelines

3.8.1 Declaration of Conformity

CE

You can download the EC declaration of conformity of the appliance online:

English: **http://www.memmert.com**

German: **http://www.memmert.com**

Based on the directives listed below, the products described in this manual are CE-marked by Memmert:

Low-Voltage Directive

Directive 2014/35/EU of the European Parliament and of the Council of February 26, 2014, on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

EMC Directive

Directive 2014/30/EU of the European Parliament and of the Council of February 26, 2014, on the harmonization of the laws of the Member States relating to electromagnetic compatibility

RoHS Directive

Directive 2011/65/EU of the European Parliament and of the Council of June 8, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment

REACH Regulation

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of December 18, 2006, concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC, and repealing Council Regulation (EEC) No. 793/93 of the Council, Commission Regulation (EC) No. 1488/94, Council Directive 76/769/EEC, and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC, and 2000/21/EC

RED (Radio Equipment Directive)

Directive 2014/53/EU of the European Parliament and of the Council of April 16, 2014, on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC

Packaging Ordinance

Regulation (EU) 2025/40 of the European Parliament and of the Council of December 19, 2024, on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC (Text with EEA relevance)

3.8.2 Material Compliance

We confirm that we always draw the attention of our suppliers to the legal restrictions on materials in accordance with our **Company Standard for Material Compliance of Memmert GmbH + Co KG** to ensure they take the original publications by the legislative authority into consideration at all times. The suppliers and deliveries must comply with all material compliance requirements which are relevant or specified in the company standard. By taking this approach, and by making our own observations, we are always able to stay abreast of developments to the best of our knowledge and ability.

The latest material compliance statement can be accessed via the link **https://www.memmert.com/de/downloads**.

3.9 Ambient Conditions

- The unit must only be used in closed rooms and in the ambient conditions listed below:

Ambient temperature	10 °C to 35 °C
Air humidity	max. 70% non-condensing
Overvoltage category	II
Contamination level	2
Installation altitude a.s.l.	2000 m a.s.l.
Maximum mains voltage fluctuations	AC 115 V (± 10%) AC 230 V (± 10%)

- The unit may not be used in Ex zones. The ambient air must not contain explosive dusts, gases, vapours or gas-air mixtures. The unit is not explosion-proof.
- Heavy dust production or aggressive vapours in the vicinity of the unit could lead to sedimentation in the interior and, as a consequence, could result in short circuits or damage to electrical parts. For this reason, sufficient measures to prevent large accumulations of dust or aggressive vapours should be taken.

3.10 Scope of Delivery

- 1 or 2 stainless steel perforated shelves (load capacity: 15 kg each)
- Stainless steel water tray (only for appliances with passive closed-loop humidity control)
- Calibration certificate
- Anti-tilt bracket
- Mains connection cable
- Water tank with connecting hose (only with active closed-loop humidity control)
- CO_2Connection Kit

4. Delivery, Transport and Setting Up

4.1 Safety

⚠ CAUTION



Lifting the appliance incorrectly

The appliance is heavy. You could injure yourself if you try to lift it on your own because of its weight.

– Please ensure that the required number of people are present when handling equipment.
– Larger items must not be carried; they must be transported using a pallet truck or forklift.
– Do not lift the appliance by the door.

50	105	180	240
			

⚠ CAUTION



Crushing hazard due to heavy equipment

The unit is heavy. Crushing injuries to hands or feet can occur when transporting and installing the unit.

– Wear protective gloves and safety boots.
– Grab hold of the sides of the unit to carry it.

⚠ CAUTION



Risk of injury due to the appliance falling over during transport

The appliance is heavy. The appliance could fall over and seriously injure you.

– Never tilt the appliance and only transport it in the upright position without load (except for standard accessories such as grids or shelves).
– Appliances with castors always have to be moved by at least two people.

4.2 Delivery

The appliance is supplied packed in cardboard on a wooden palette.

4.3 Transport

The unit can be transported in different ways depending on its size:

- With a forklift truck or pallet truck; move the forks of the truck entirely under the pallet
- Carrying; lift the unit at the designated handle positions

4.4 Unpacking

- Do not unpack the appliance until you reach the installation site.
- Remove the cardboard packaging by pulling it upwards or carefully cutting along an edge or unscrew and remove wooden crate.

Checking for completeness and transport damage

- Check the delivery note to ensure the delivery is complete.
- Check the unit for damage.

  If you notice deviations from the scope of delivery, damage or anything unusual, do not put the unit into operation and inform the haulage company and the manufacturer.

Remove the protective film from the housing

- Remove the protective film from all components before commissioning.

4.5 Storage after Delivery

If the unit is to be stored initially after delivery:

- Observe the storage conditions (see ▸9 Storage and transport).

4.6 Setting Up

⚠ WARNING



Risk of tipping due to the centre of gravity of the device

Due to its centre of gravity, the appliance may tip forward and injure you or someone else.

– Always secure the appliance to a wall using the anti-tip device.

– If the spatial situation prevents the appliance from being fixed to a wall, do not put the appliance into operation and do not open the door.

– Please contact customer service.

⚠ WARNING



Do not use or carry RF communication devices (including accessories) near the unit.

The unit may be impaired in its function by electromagnetic radiation and may cause interference.

– Use RF devices only at a distance of at least 30 cm from the unit.

4.6.1 Preconditions

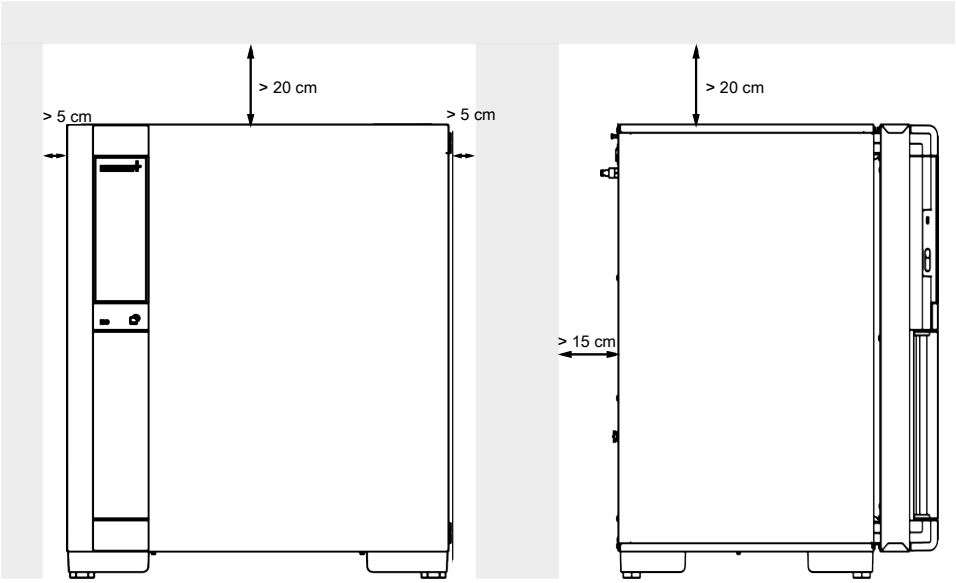
✓ The installation site must be flat and horizontal and must be able to reliably bear the weight of the unit (see ▸3.7 Technical Data). Place the unit on a heat-resistant, fireproof and non-flammable surface.

✓ A 230 V or 115 V power connection must be available at the installation site, depending on the version (see ▸3.6 Nameplate).

✓ During operation, the appliance emits small amounts of CO_2 and N_2 to its surroundings. The room in which it is installed must therefore be ventilated. An exhaust air rate of 250 m^3/h is required for the installation room.

✓ The distance between the wall and the rear panel of the appliance must be at least 15 cm.

✓ The clearance from the ceiling must not be less than 20 cm and the side clearance from walls or nearby appliances must not be less than 5 cm. Sufficient air circulation in the vicinity of the appliance must be guaranteed at all times.



See also

- Technical Data [▸ 16]
- Nameplate [▸ 15]

4.6.2 Anti-tilt bracket

i Depending on the ambient conditions, the anti-tilt bracket can be fastened at one of the two holes provided in the appliance.

1. Bend the anti-tilt bracket up by 90° to achieve the required clearance from the wall (observe the minimum clearance).
2. Find a suitable wall, drill a hole, insert a plug and screw on the anti-tilt bracket.

4.6.3 Stacking equipment

NOTICE

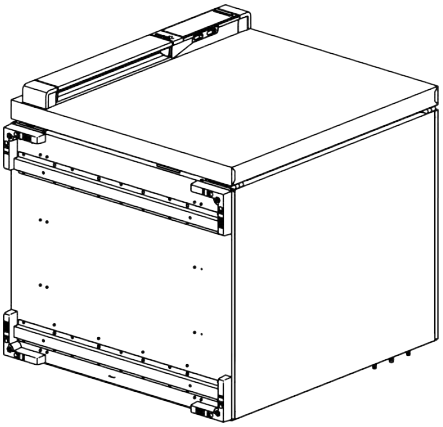
Risk of tipping when equipment is stacked.

Stack only ICO devices of the same size. You must use the correct stacking set to ensure stability.

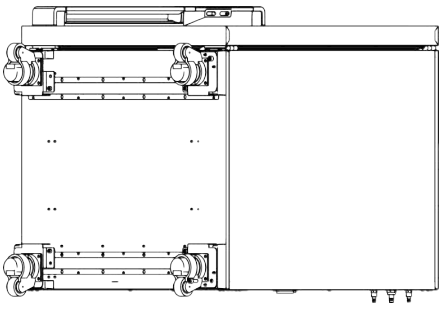
Item number Stackable set	50	105	180	240
B68362	✓	✓	-	-
B64732	-	-	✓	✓
B68476 (mobile)	-	-	✓	✓

The following section describes the stacking of size 180 in the mobile stacking version.

Fit the castors to the lower unit



1. Lay the unit on its back.
2. Use a non-slip surface and place the unit on wooden beams, for example, so as not to damage the connections.
3. Unscrew the levelling feet.

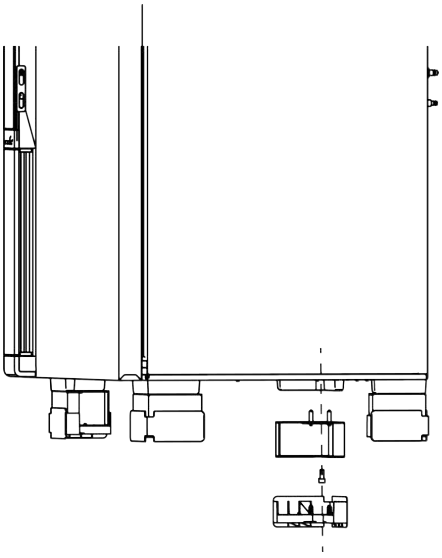


4. Fit the castors to the base of the unit.
5. Set the unit upright again.
6. Place the pre-assembled unit at the installation site.
7. Level the unit using the adjustable feet integrated in the castors. For stacking, the lower unit must be level.

Fit the spacers to the upper unit

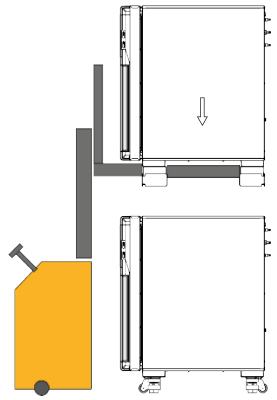
For installation, we recommend lifting the upper unit using a lifting device, such as a forklift truck. Alternatively, turn the device over.

50	105	180	240
			

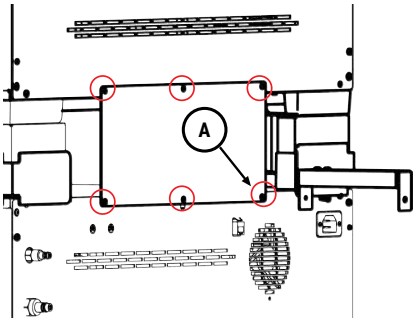


1. Unscrew the feet.
2. Fit the spacers to the base of the unit.
3. Fit the stacking corners onto the spacers.

Stacking equipment

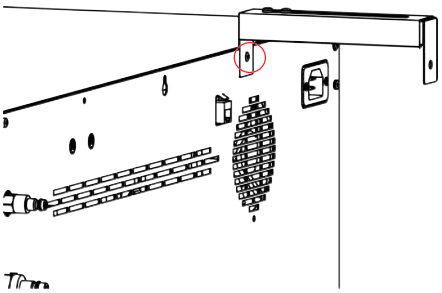


1. Please observe the transport instructions.
2. Carefully place the upper unit in position.

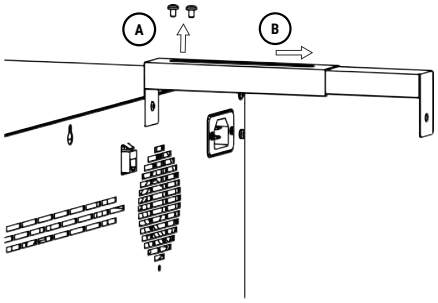


3. Loosen the screws on the rear panel of the unit.
4. Connect the stacked units using the connecting plate.
5. The tilt protection is fastened at the marked position (A).

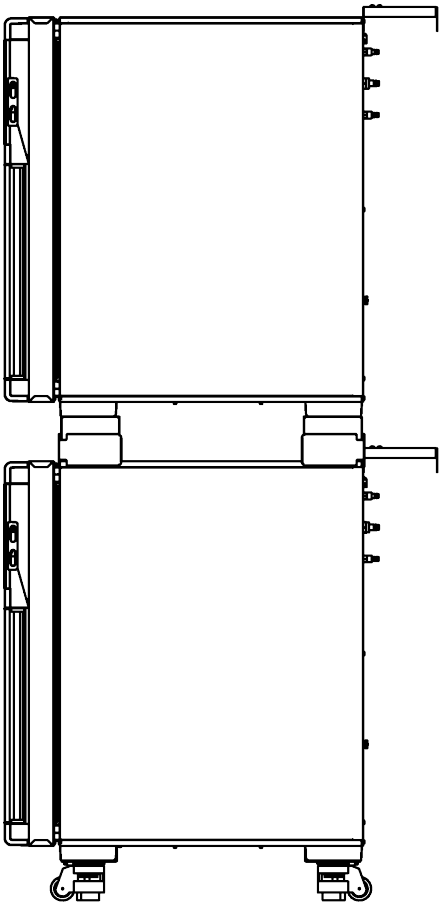
Fitting the anti-tip device



1. Loosen the screw on the back of the unit.
2. Fit the anti-tilt device in this position.



3. To adjust the length, loosen the two screws (A).
4. Observe the minimum wall clearance of 15 cm.
5. Fix the tilt protection at the appropriate length (B).
6. Fasten the tilt protection to the wall using suitable fixing material.



7. Fit the anti-tip devices to the top and bottom of the machine. (see ▸4.6.2 Anti-tilt bracket)

5. Putting into Operation

5.1 Putting into Operation for the First Time

⚠ WARNING



Condensation in the electrical components may cause short circuits.

Due to temperature fluctuations during transport, condensation may form inside the unit.

- After transporting or storing the unit in humid conditions, remove it from its packaging and allow it to acclimatise for at least 24 hours in normal ambient conditions.
- Do not connect the unit to the power supply during this time.

NOTICE



When putting the unit into operation for the first time, do not leave it unattended until it has reached a steady state.

- Please observe the national regulations when connecting the unit.
- Observe the connected loads and power ratings (see ▸3.6 Nameplate and ▸3.7 Technical Data).
- Be sure to establish a safe PE conductor connection.

See also

- Nameplate [▸ 15]
- Technical Data [▸ 16]

5.2 Connecting the Unit to the Power Supply

NOTICE



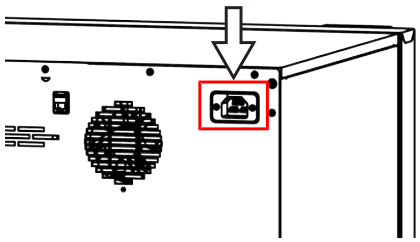
The unit may only be operated with the original mains cable supplied by Memmert. Other mains cables, especially inadequately rated mains cables, must not be used.

i

Observe the country-specific regulations when making connections (e.g. DIN VDE 0100 with earth leakage circuit breaker, in Germany).

Observe the connected loads and power ratings (see ▸3.6 Nameplate and ▸3.7 Technical Data).

Be sure to establish a safe PE conductor connection.



Route the power cable so that

- nobody can trip over it.
- it cannot come into contact with any hot parts.
- it is easily accessible at all times and the plug can be pulled out quickly in the event of a fault or emergency, for example.

See also

- Nameplate [▸ 15]
- Technical Data [▸ 16]

5.3 Water specifications

Only water with the following specifications may be used in Memmert units:

- Demineralised water and distilled water (a variety of terms are used commercially for this) that is residue-free when it evaporates, according to regulation VDE 0510 and DIN 43530
- Conductivity of approx. > 1; < 10 µS/cm
- neutral pH value (between 5 and 7)
- Chlorine-free

The use of double-distilled water / ultrapure water / other highly purified water (a variety of terms are also commonly used) with an electrical conductance below about < 1 µS/cm must be avoided. The use of such water is not necessary and could damage the unit by corroding metallic components on and in the unit. Unsuitable water with an electrical conductance greater than 10 µS/cm will damage the unit due to the residues that occur during evaporation and vaporisation, including the formation of limescale deposits.

5.4 Inserting the Water Tray

For units with passive closed-loop humidity control

NOTICE



Important: make sure not to spill any water and make sure that the water tray does not overflow onto the floor, as this would cause the humidity to exceed the maximum values.

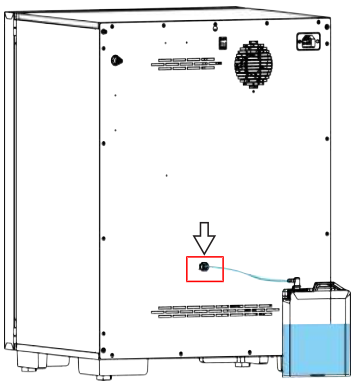


1. Fit the sealing lip supplied to the narrow side of the water tank.
2. Fill the water tank with 1.5 cm to 2 cm of water.
3. Place the filled water tank, with the sealing lip fitted, in the centre of the unit floor.
4. Carefully push the water tank towards the back panel until the sealing lip beneath the ventilation duct is fully flush against the back panel.

⇨ The sealing lip is drawn magnetically towards the back panel and directs the water that condenses on the humidity limiter back into the water tank.

5.5 Connecting and Filling the Water Tank

For units with active closed-loop humidity control (Option K7)



1. Fill the water tank with water.
2. Connect the water tank to the "H_2O" connection on the rear of the cabinet with the enclosed hose.

5.6 CO_2 and N_2 connection

⚠ WARNING



Danger of explosion and poisoning when introducing gases/materials other than inert gas.

Explosion of gases can cause serious physical injury and damage to property.

Breathing in the gases can cause serious health problems.

– Only inert gas (nitrogen, helium, neon, argon, krypton) may be introduced into the appliance through the gas connection on the back of the appliance.

⚠ WARNING



Explosion of gas cylinders

Gas cylinders may burst or explode at high temperatures. This can cause serious physical injury and damage to property.

– Keep gas cylinders away from open flames.
– Store gas cylinders below 50 °C and ensure that the location is always well ventilated.
– Prevent water from entering as well as flowing back into the gas cylinders.
– It is essential that you read the safety notes and instructions of the gas supplier.

⚠ CAUTION



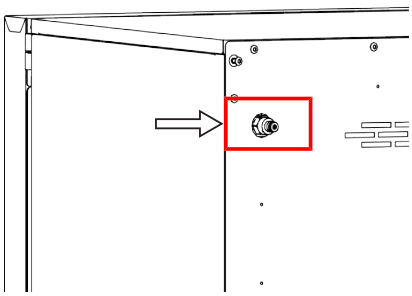
Danger of suffocation

CO_2 and N_2 can have a suffocating effect in high concentrations. The appliance releases small amounts of CO_2 and N_2 to its surroundings when operating normally.

– You should therefore ensure that the room in which it is installed is properly ventilated.
– A ventilation rate of 250 m^3/h is required.
– Always close the stop valve or pressure reducer on the gas cylinders if the appliance is not in operation.

Gas specification

- Carbon dioxide 4.5
- Purity 99.995 vol.%



1. On the back of the unit, connect the delivered gas connection tubes to the CO_2 and N_2 gas cylinders (pressure reducer) and to the "CO_2 In" and "N_2 In" connections (N_2 only for units with active closed-loop humidity control).
2. Set pressure reducer to between 1.0 and 1.2 bar.

5.7 Switching on Unit



1. Press the main switch to switch on the unit.

⇨ The start-up process is indicated by the Welcome screen.

6. Operation and Control

⚠ CAUTION



Danger of suffocation

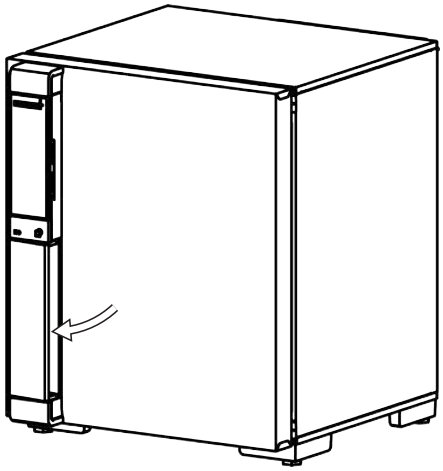
CO_2 and N_2 can have a suffocating effect in high concentrations. The appliance releases small amounts of CO_2 and N_2 to its surroundings when operating normally.

- You should therefore ensure that the room in which it is installed is properly ventilated.
- A ventilation rate of 250 m^3/h is required.
- Always close the stop valve or pressure reducer on the gas cylinders if the appliance is not in operation.

6.1 Operating Personnel

The appliance may only be operated by persons who are of legal age and have been instructed accordingly. Personnel who are to be trained, instructed or who are undergoing general training may only work with the appliance under constant supervision of an experienced person.

6.2 Opening the Door



1. To open the door, pull the door handle to the side.
2. Close the door by pushing the door shut.

Behaviour of the unit when the door is open

- "Door open" symbol is displayed on the controller
- Heating switched off
- Fan switched off
- Gas supply switched off
- Audible alarm after 30 seconds
- If applicable, alarm message if set parameter limits are exceeded or not reached

6.3 Loading the Appliance

⚠ WARNING



Poisonous or explosive vapours and gases

When loading the unit with an unsuitable load, poisonous or explosive vapours or gases may be produced. This could cause the unit to explode, and persons could be severely injured or poisoned.

– The unit may only be loaded with materials and substances which cannot form any toxic or explosive vapours at the set temperature and which cannot explode, burst or ignite.

NOTICE



Chemical compatibility of the chamber load

Chemical incompatibility may result in damage to the appliance.

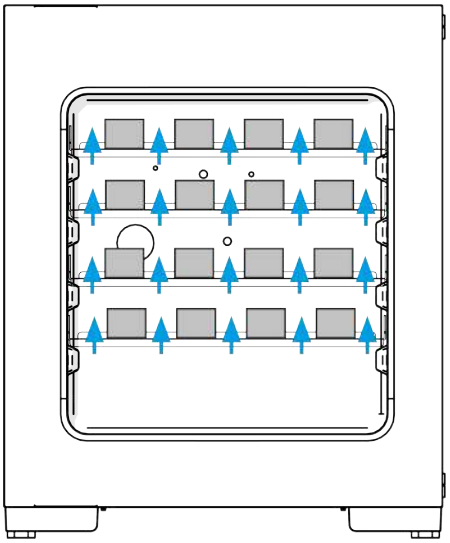
– Check the chamber load for chemical compatibility with the materials of the appliance (see ▸3.3 Materials).

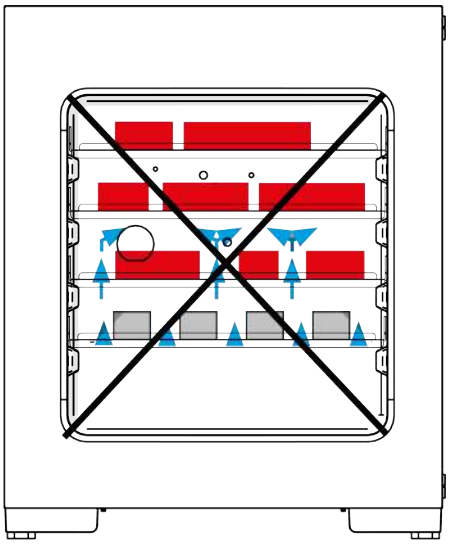
i Insert the metal grids or shelves. The maximum number or grids / shelves and the load capacity are specified in the ▸3.7 Technical Data.

i The appliance can be sterilised before loading (see Sterilising the Appliance).

The unit must not be loaded too densely, to ensure proper air circulation in the chamber. If the unit is loaded unfavourably (too densely), the set temperature may be exceeded or only reached after a longer time.

- Do not place any chamber load on the floor, against the side walls or under the ceiling of the chamber.





See also

- Materials [▸ 13]
- Technical Data [▸ 16]

6.4 Switching on Unit



1. Press the main switch to switch on the unit.

⇨ The start-up process is indicated by the Welcome screen.

6.5 Device login (optional)

When the unit is started for the first time, user management is not yet activated and must be activated in the settings.

Authentication options with active user management (Option S1):

- **Manual login**: Login using username and password (default for Option S1)
- **RFID chip**: Login via RFID chip (additionally requires Option Z2)
- **Fingerprint**: Login via fingerprint (additionally requires Option Z1)

6.5.1 Manual login (Option S1)



1. Enter your login details.
2. Enter your password.
3. Select **Login**.

6.5.2 Login using an RFID chip



1. Hold the RFID chip below the touch display on the unit.
   ⇨ You will be logged in automatically.

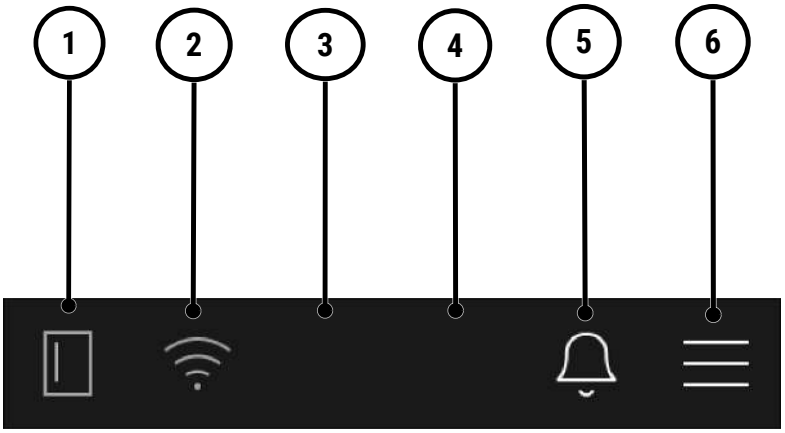
6.5.3 Login with fingerprint (Option Z1)



1. Place your finger on the fingerprint sensor below the touchscreen.
   ⇨ You will be logged in automatically.

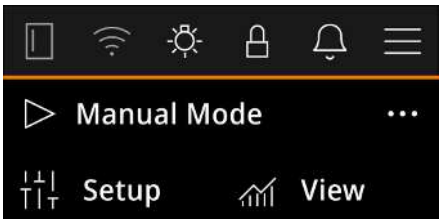
6.6 Basics

6.6.1 Status bar

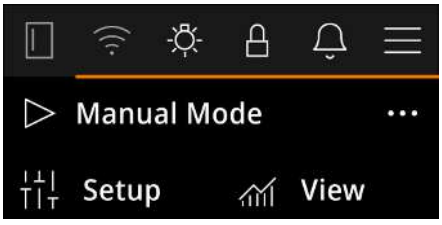


1	Door-open detection	2	Connection status
3	Interior lighting	4	Door lock
5	Audible alerts enabled/disabled	6	Main menu

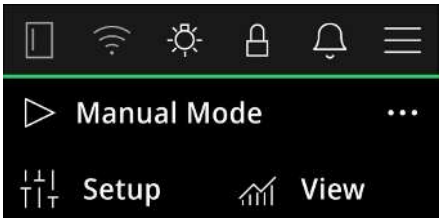
6.6.2 Normal operation



If a setpoint is reached while a programme is running or via a manual parameter setting, the status is indicated by an orange display.

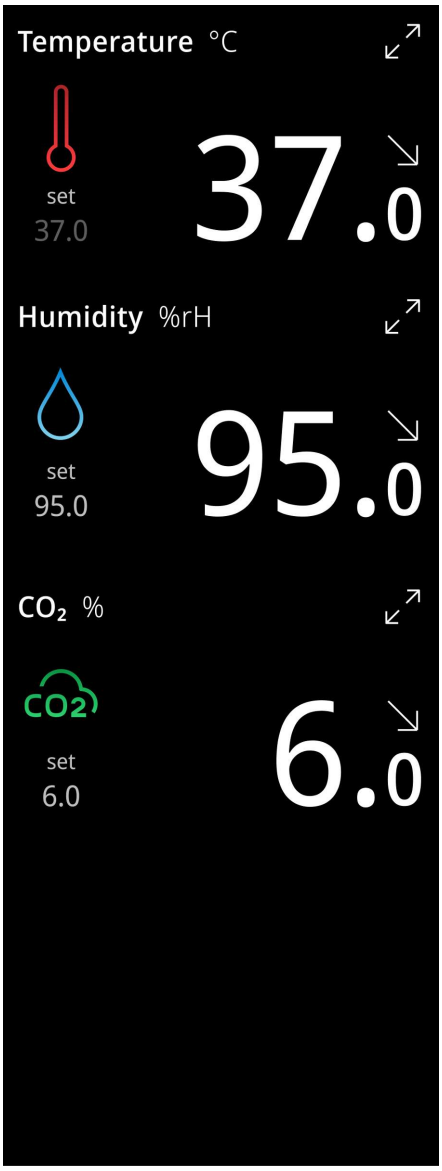


When a timer is running, its progress is shown by an orange bar until the time has elapsed.



When a programme has finished, its status is indicated by a green bar.

6.6.3 Distance View

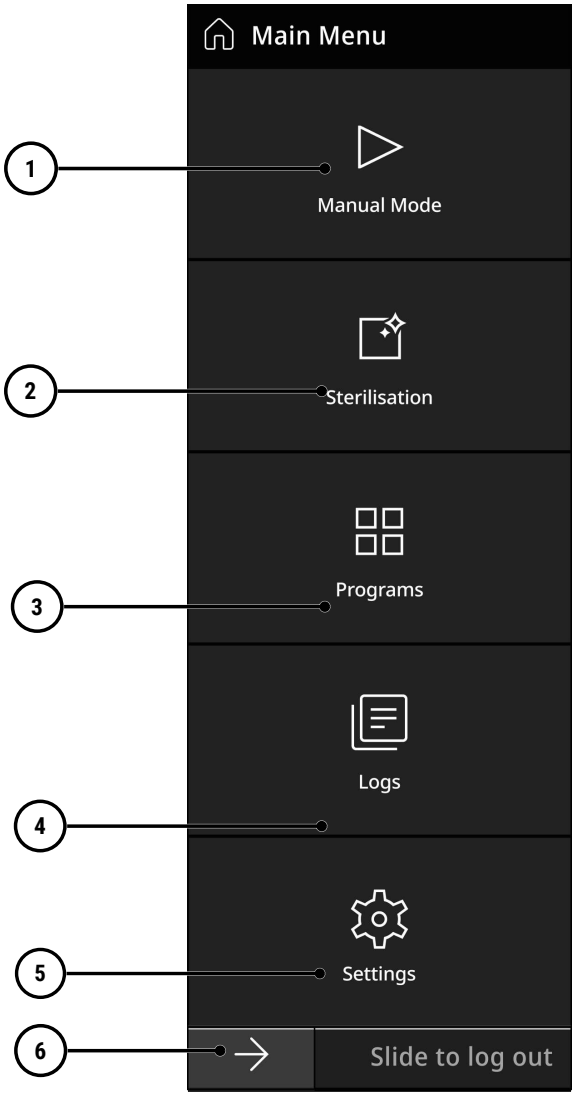


- If there is no activity, the touch display switches to **Distance View**.
- In **Distance View**, the set values are displayed without graphs. Tapping on a parameter displays it in Fullscreen View.
- The values displayed and the time until **Distance View** is activated can be configured under **Settings**.
- As soon as a value is outside the set limits, it is highlighted in red. Fullscreen View is then deactivated until the error has been rectified.
- You can exit **Distance View** by touching the touch display or pressing the standby button.
- The arrows above the parameter actual value indicate the activity (heating, cooling, humidifying, dehumidifying, etc.).

The settings are described in chapter ▸6.11.3.6 Distance View.

- Up to 4 parameters can be displayed simultaneously in **Distance View** .

6.6.4 Main Menu



1	Manual Mode	2	Sterilisation programme
3	Programme Mode	4	Logs
5	Settings	6	Logout

6.7 Manual Mode

- After logging in or exiting **Distance View**, the unit is in the **Manual Mode View** by default.
- When a programme is active, after logging in or exiting **Distance View**, the unit is by default in the view **Program Mode View.**

In **Manual Mode**, you can choose between **Setup** and **View**.

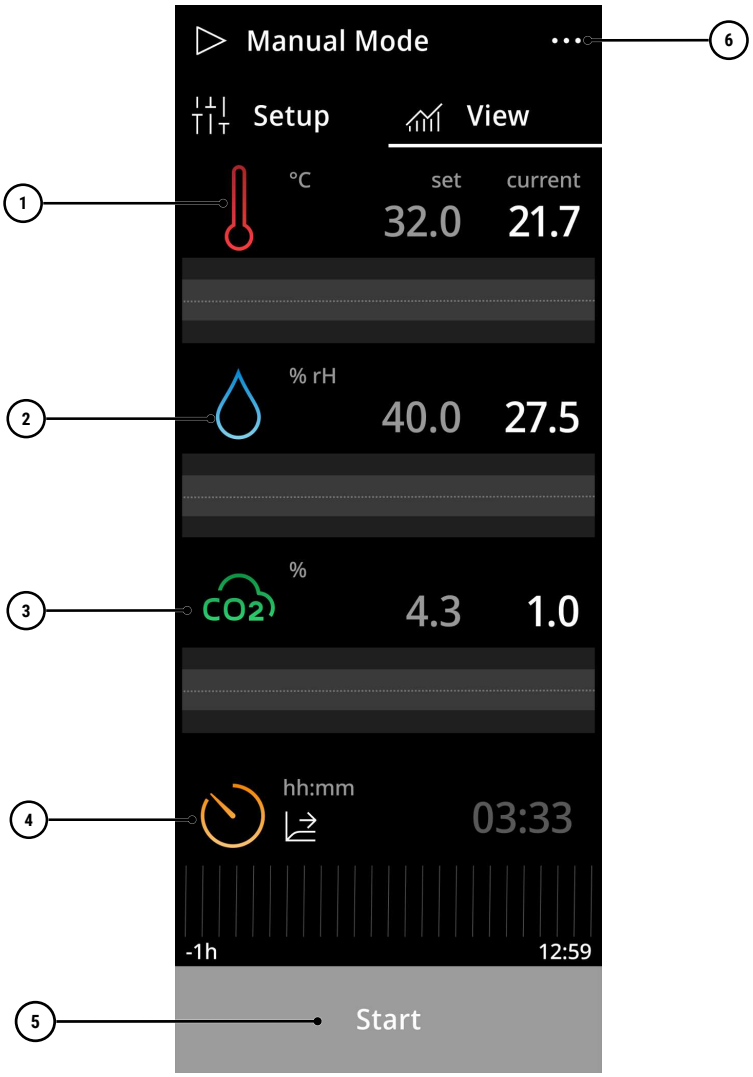
Setup

In **Setup**, the setpoints and limits for all available parameters and the timer duration can be set.

View

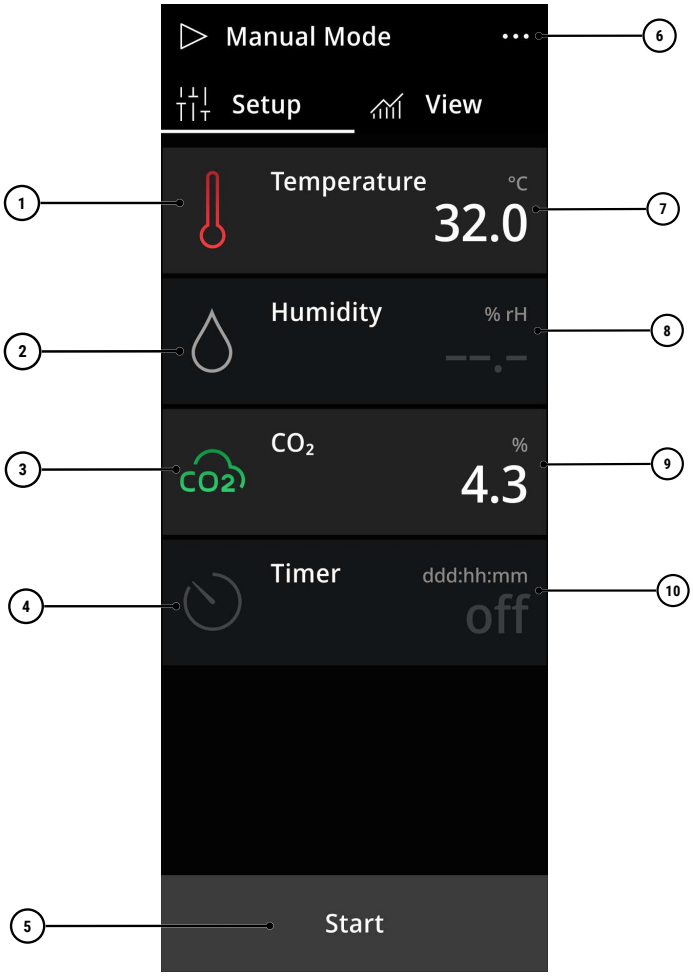
View displays the current parameter curves, actual values and timers.

6.7.1 Manual Mode View



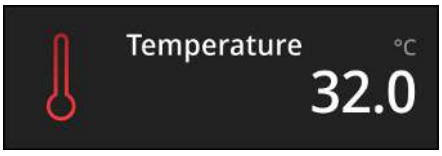
1	Display of set and current temperature	2	Display of set and current humidity
3	Display of set and current CO2 level	4	Display of set timer
5	Start/stop Manual Mode	6	Settings Manual Mode

6.7.2 Manual Mode Setup



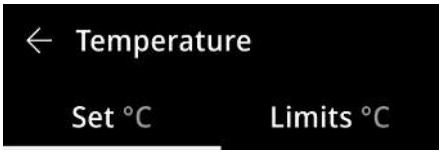
1	Temperature parameter	2	Humidity parameter
3	CO2 parameter	4	Timer parameter
5	Start/stop Manual Mode	6	Settings Manual Mode
7	Display of set temperature	8	Display of set humidity
9	Display of set CO2 level	10	Display of set timer

6.7.3 Set the temperature

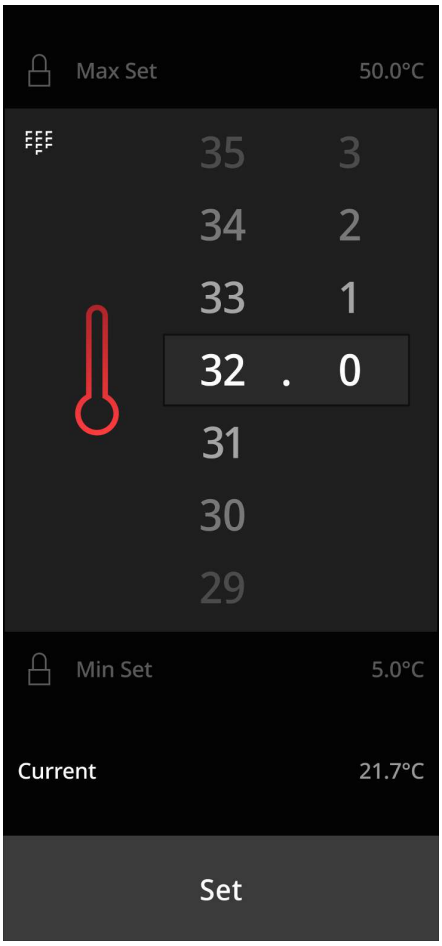


✓ You are here **Manual Mode Setup**.

1. Select the **Temperature parameter**.

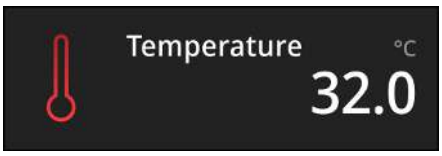


2. Select **Set**.



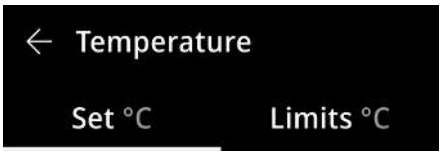
3. Set the value.
4. Confirm by clicking **Set**.

6.7.4 Set temperature limits

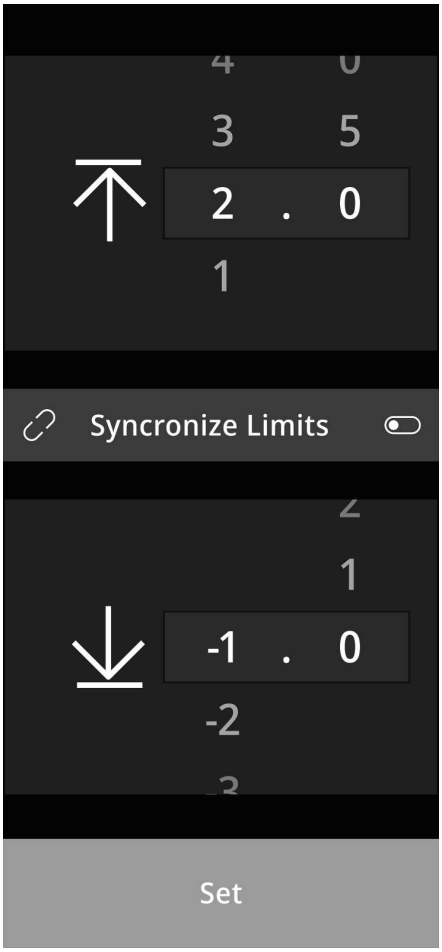


✓ You are here **Manual Mode Setup**.

1. Select the **Temperature parameter**.

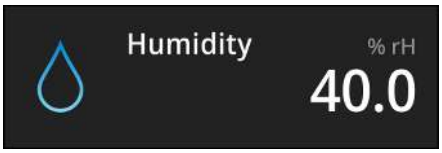


2. Select **Limits**.



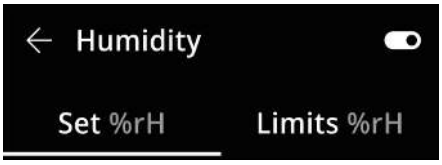
3. Set the upper limit.
4. Set the lower limit.
5. To synchronise the upper and lower limit values, select .
6. Confirm by clicking **Set**.

6.7.5 Adjust the humidity



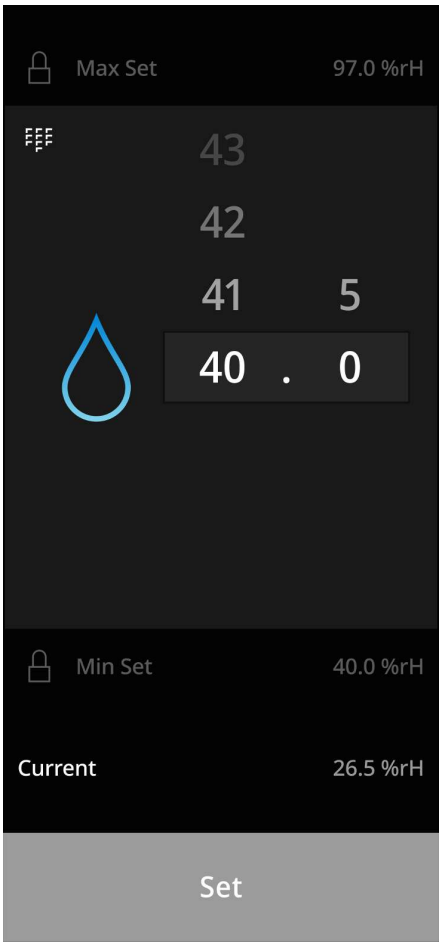
✓ You are here **Manual Mode Setup**.

1. Select the **Humidity parameter**.



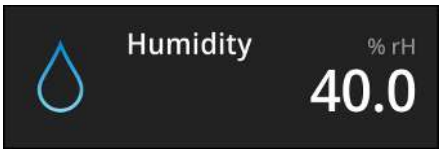
✓ The parameter is enabled .

2. Select **Set**.



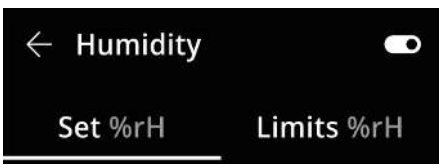
3. Set the value.
4. Confirm by clicking **Set**.

6.7.6 Set humidity limits



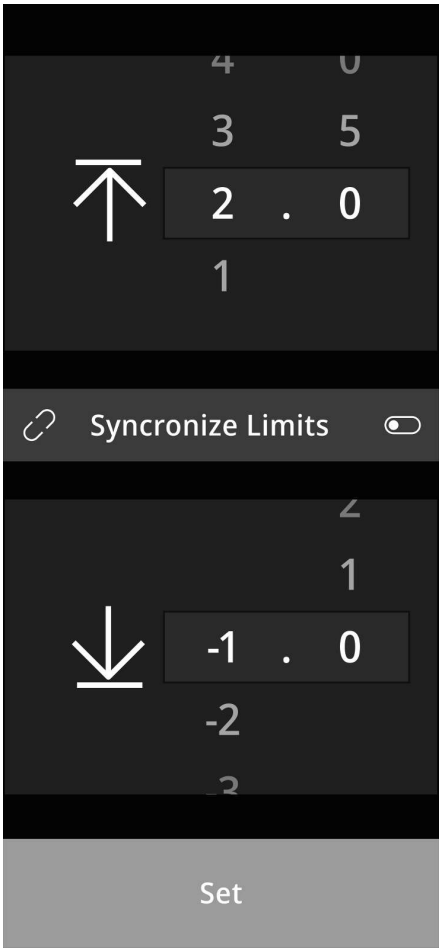
✓ You are here **Manual Mode Setup**.

1. Select the **Humidity parameter**.



✓ The parameter is enabled .

2. Select **Limits**.



3. Set the upper limit.
4. Set the lower limit.
5. To synchronise the upper and lower limit values, select .
6. Confirm by clicking **Set**.

6.7.7 CO_2 set



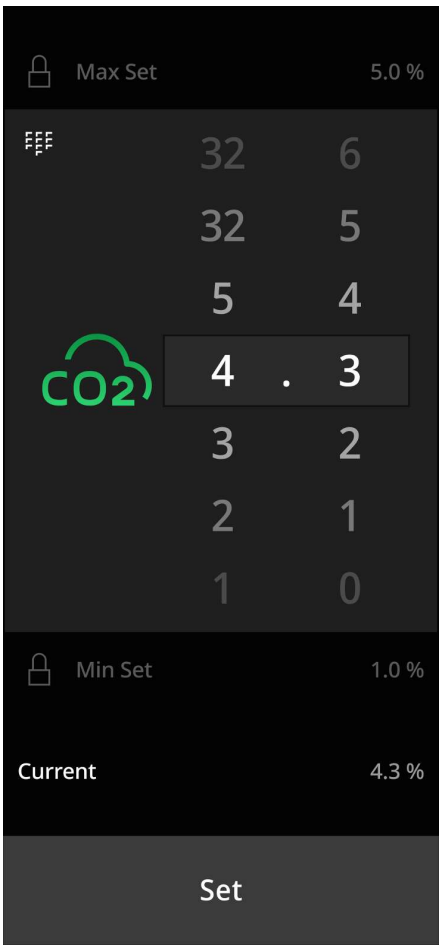
✓ You are here **Manual Mode Setup**.

1. Select the **Parameter CO_2**.



✓ The parameter is enabled .

2. Select **Set**.



3. Set the value.
4. Confirm by clicking **Set**.

6.7.8 CO_2-Set limits

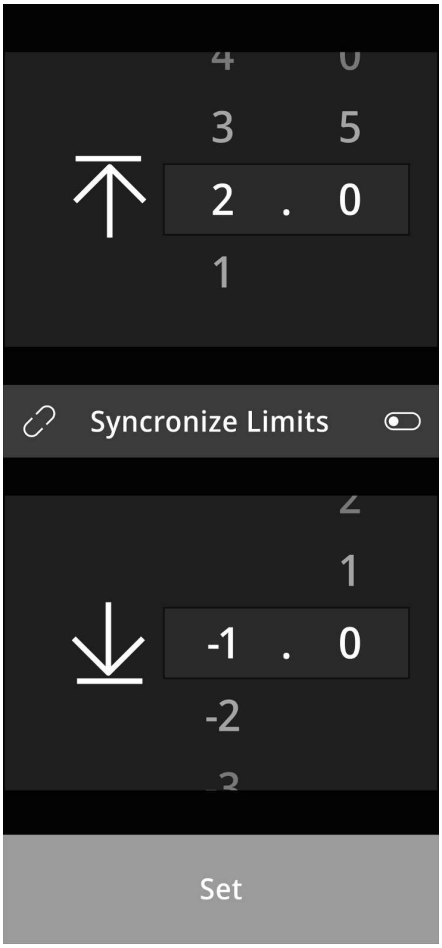


✓ You are here **Manual Mode Setup**.

1. Select the **Parameter CO_2**.

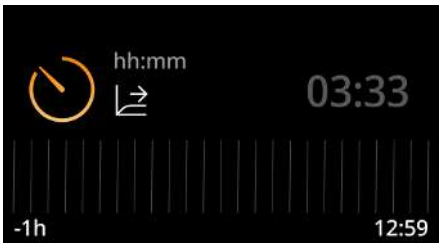


2. Select **Limits**.



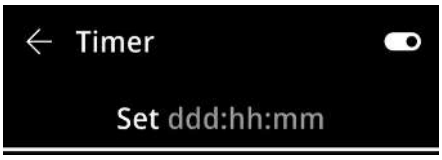
3. Set the upper limit.
4. Set the lower limit.
5. To synchronise the upper and lower limit values, select .
6. Confirm by clicking **Set**.

6.7.9 Set the timer



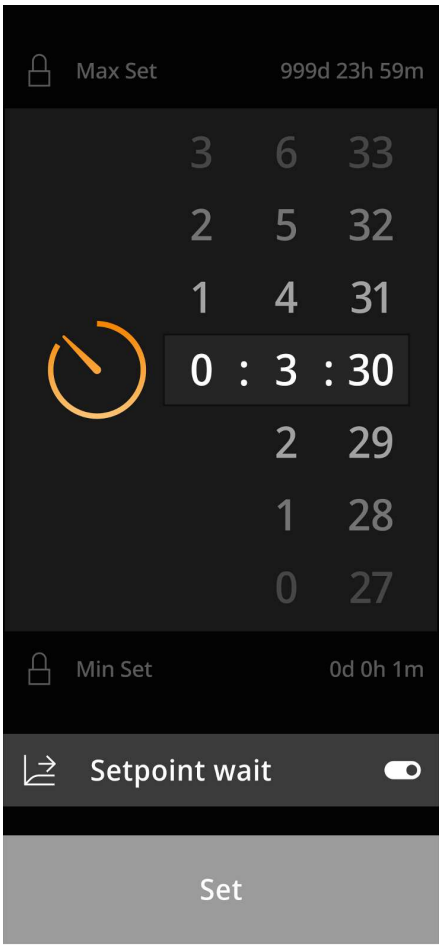
✓ You are here **Manual Mode Setup**.

1. Select the **Timer parameter**.



✓ The parameter is enabled .

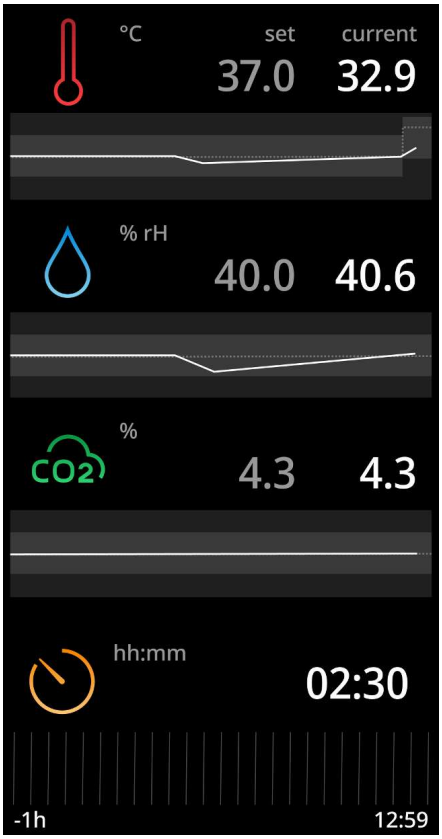
2. Select **Set**.



3. Set the value.
4. Activate the **Setpoint wait** function to start the timer once all set parameters have reached the setpoint.
5. Confirm with **Set**.

6.7.10 View parameter details

The parameter details are displayed using the example parameter **Temperature** . The functionality is identical for all parameters.



- During operation, the actual values are displayed in a graph below the parameter.

✓ You are in the **Manual Mode View**.

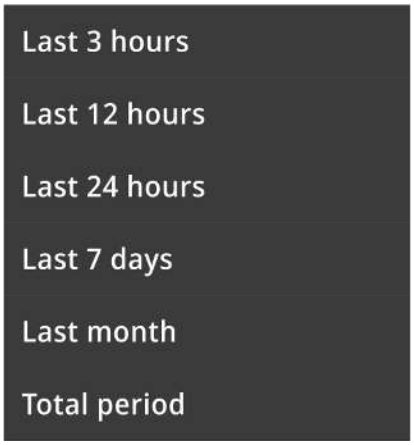
1. Select the parameter whose details you want to view.



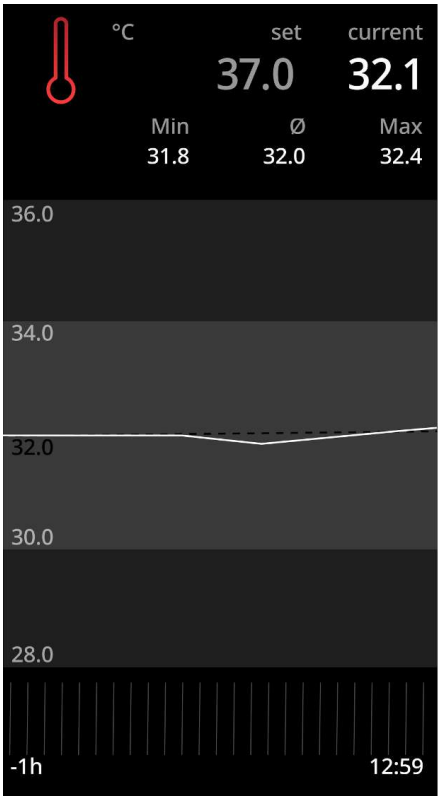
2. To return to the Manual Mode View, select ←.



3. Select the time period you want to display.

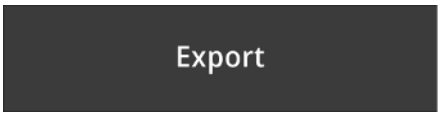


4. Select the time period you want to view.



- The actual values are displayed in detail as a graph in full-screen mode.

6.7.11 Export parameter details



✓ An active Ethernet connection is established, or a USB storage device is connected.

1. Select **Export**.

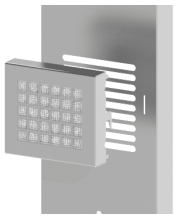
6.8 Sterilise the device

A sterilisation programme is stored in the unit. It is used to sterilise the unit and must not be used to sterilise medical devices.

During the sterilisation programme, the unit heats up to +182 °C.

- The sterilisation programme takes approx. 6:00 hours.
- The sterilisation programme consists of three phases:
  - Heating phase approx. 1:00 hour
  - Sterilisation phase approx. 1:00 hour
  - Cooling phase approx. 3:50 hours

i You cannot set or change any values as long as the programme is running.



✓ If there a HEPA filter is fitted on the fan box in the chamber (extra equipment):

1. Remove the HEPA filter. It can get damaged during sterilisation.

2. Empty the water tanks.
3. Open the door to let moisture escape.
4. Insert the shelves and the water tank with sealing rubber into the unit.
5. Close the unit door.



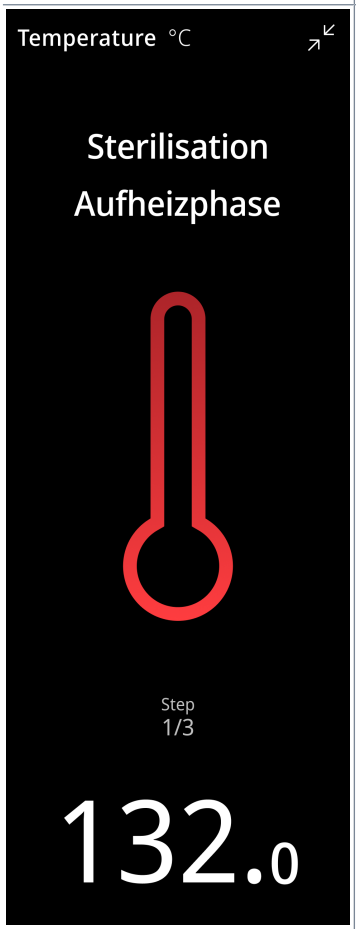
✓ You are in the **Main menu**.

6. Select **Sterilisation**.

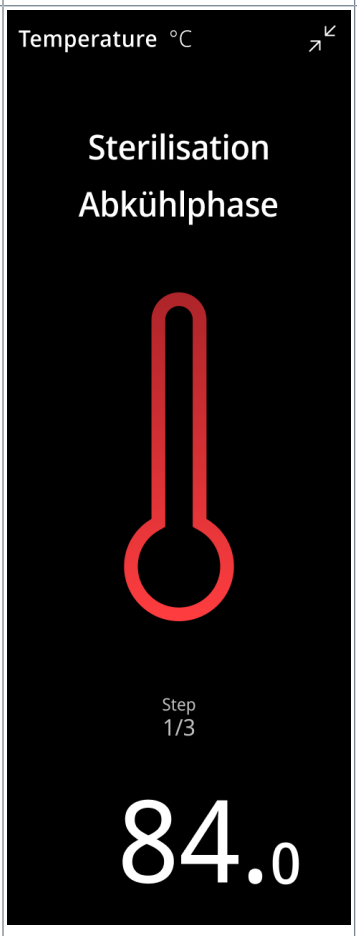
7. Start the sterilization program.

⇨ The sterilization program has started and automatically goes through 3 phases:

Heating up	Sterilisation	Cooling down	Completion
The unit starts heating to +180 °C	The timer starts when the set temperature is reached. The sterilisation temperature of **+182 °C is maintained for 1 hour**	When the timer has elapsed, the cooling phase starts. The unit stops heating and cools down.	When the final temperature of +37 °C is reached, the sterilisation programme is complete.









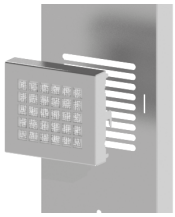
⚠ CAUTION



Hot steam

Hot steam can build up inside the appliance. When opening the door, there is a risk of scalding yourself.

– Allow the appliance to cool down before opening the door.



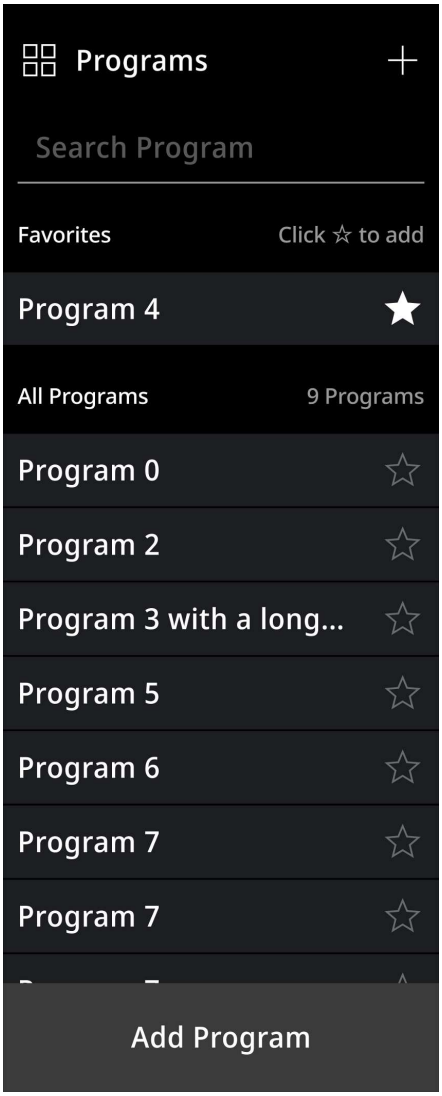
8. Fit the HEPA filter in the chamber (optional).

The unit can now be reloaded and operated normally again.

To do this, all setpoints must be reset (temperature, humidity, CO_2, O_2) (see 6.7 Manual Mode).

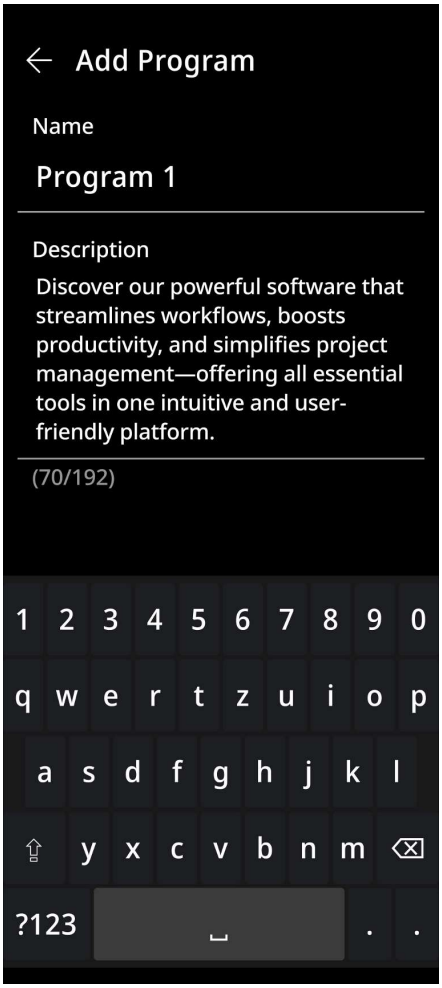
6.9 Program Mode (Option S2)

6.9.1 Create a program



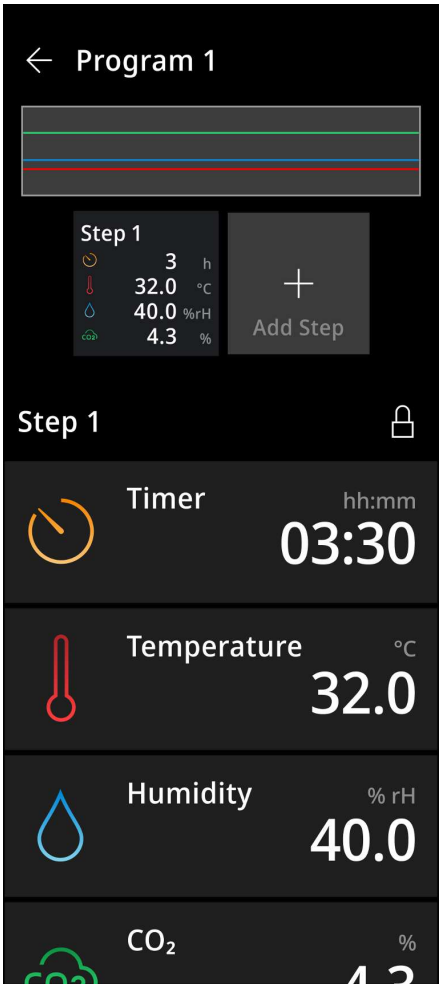
✓ You are in the program overview.

1. Select **+** or **Add Program.**



2. Enter a program name.
3. Add a program description if necessary.

- For a programme step, at least the parameter **Temperature** and the **Timer** must be defined.



4. Select **Step 1**.
   - A programme must consist of at least one programme step.
5. Select **Timer**.
6. Set the parameter **Timer** ▸6.7.9 Set the timer.
7. Select **a parameter**.
8. Set the parameter, e.g. **Temperature** ▸6.7.3 Set the temperature.
   - In programme mode, you can also define a start value and an end value for the parameters.
9. Select the lock symbol to activate the door lock for the programme step.



10. Select **+**to create a new program step.
11. Set the parameters for the new program step.
    - You can create as many program steps as you like.
12. Select the trash can icon to delete a program step.

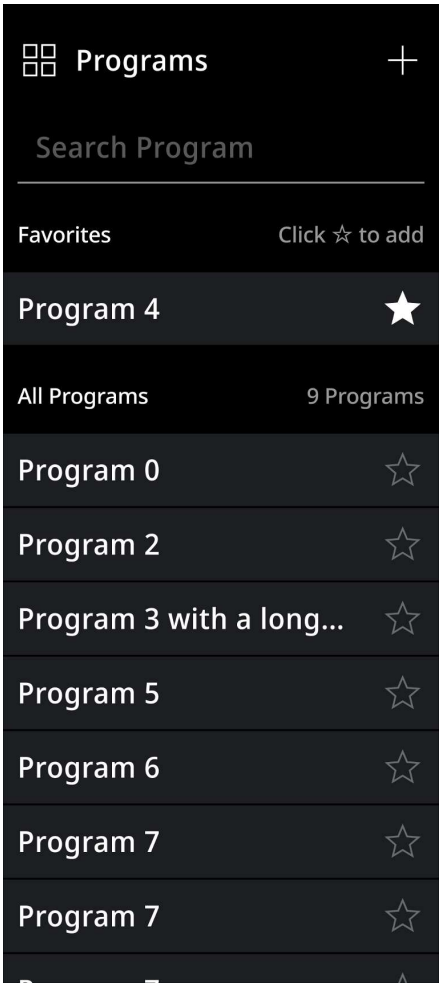


13. Select **Finish Editing**to finish creating the program.

See also

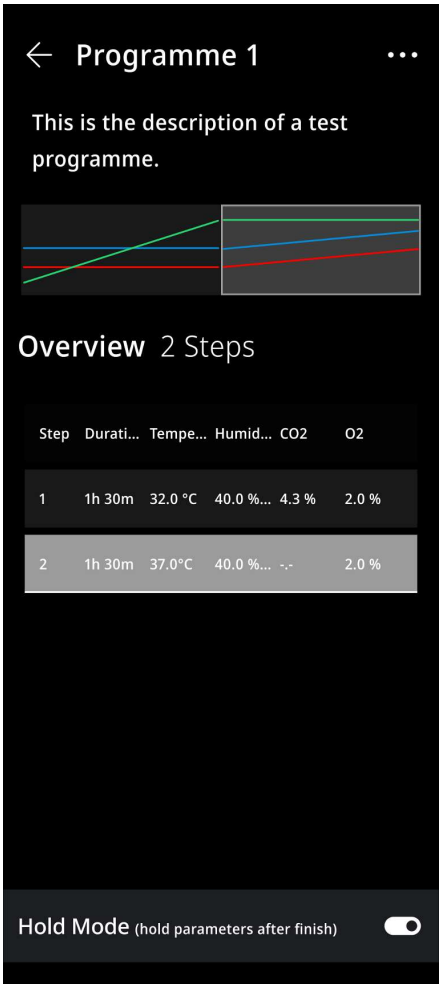
- Adjust the humidity [▸ 41]
- CO_2 set [▸ 43]

6.9.2 Start the program

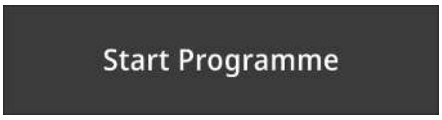


✓ There is a program that has been created.

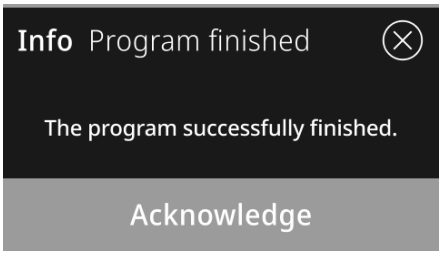
1. Select a program.
   - You can mark programs as favorites with the star icon. They will appear at the top of the list.



2. Enable **Hold Mode** in the program overview to retain the last actual values after the program ends.



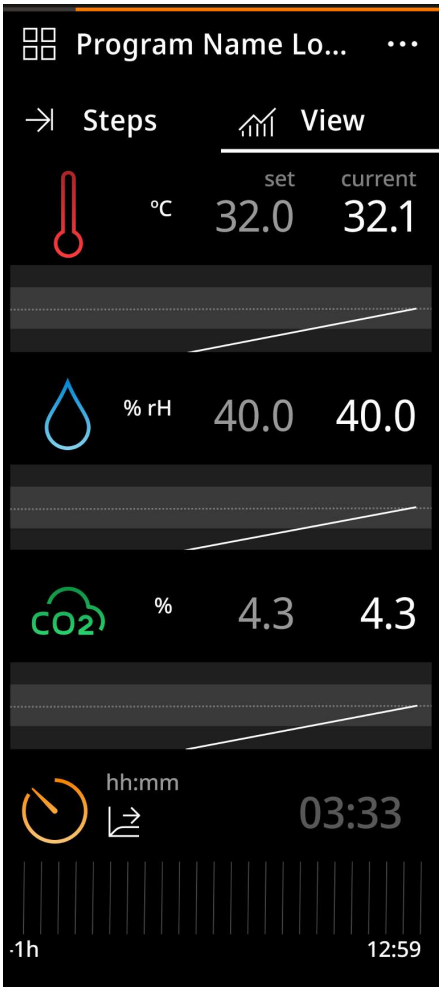
3. Start the programme.



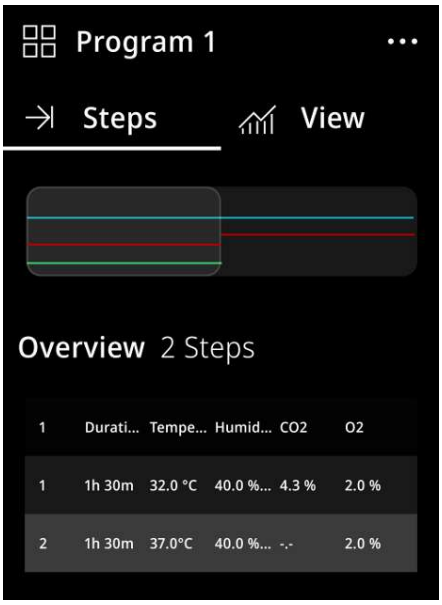
- A pop-up window indicates when the program has ended.

4. Select **Acknowledge**to acknowledge the message.

6.9.3 Running Program



1. Select **View**to display an overview of the parameters in the active program.

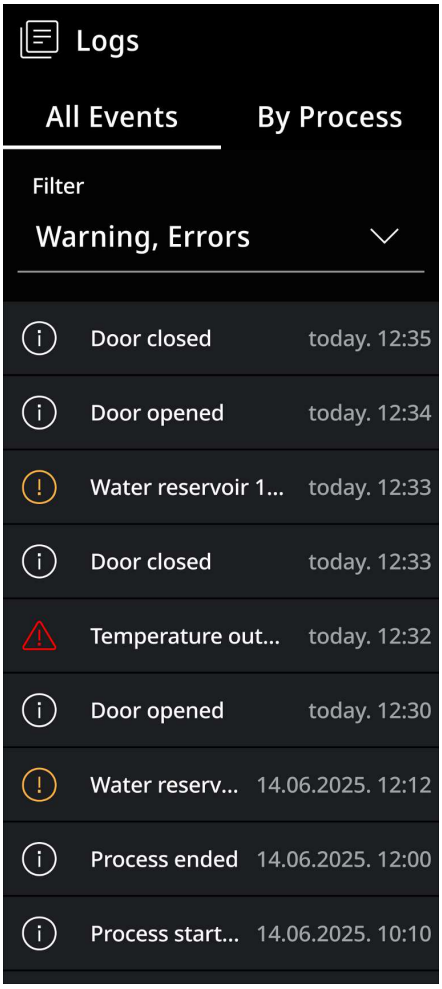


2. Select **Steps**to display the program steps.
3. Select **Stop** to pause the programme.
4. Select **Restart** to restart the programme.

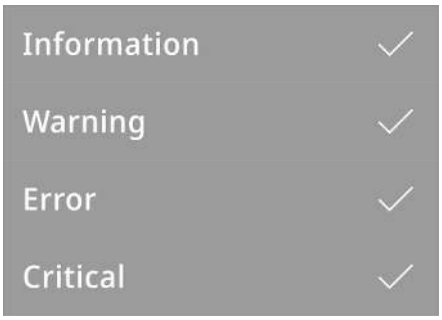
6.10 Logs



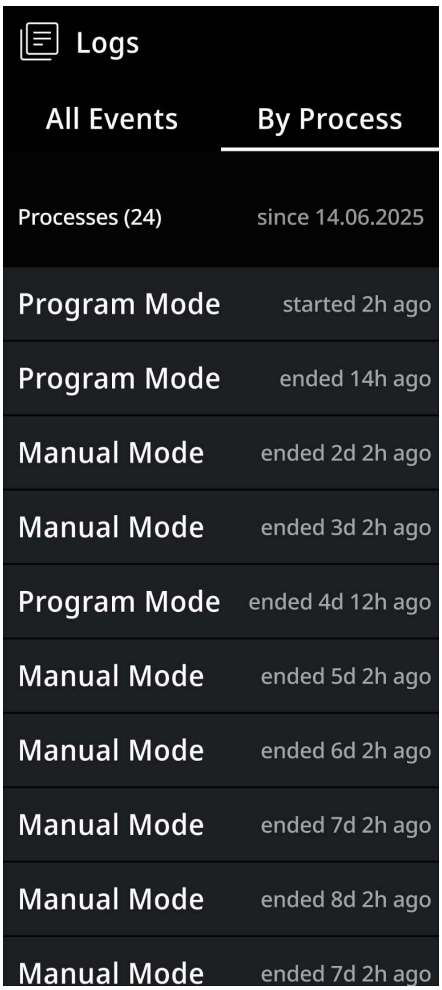
- You can view the log data for all events or sort them by process.



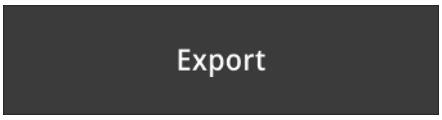
- All events are displayed as a list.



- The list can be filtered by event type.



- All processes are displayed as a list.

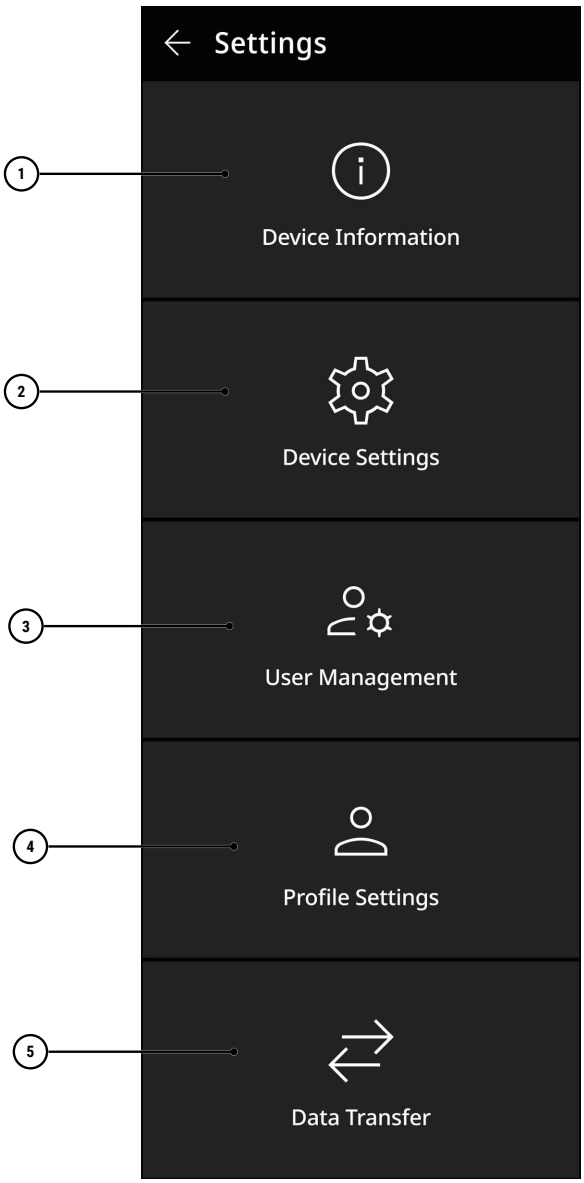


✓ There is an active Ethernet connection or a USB storage device is connected.

1. Select **Export**to export the list.

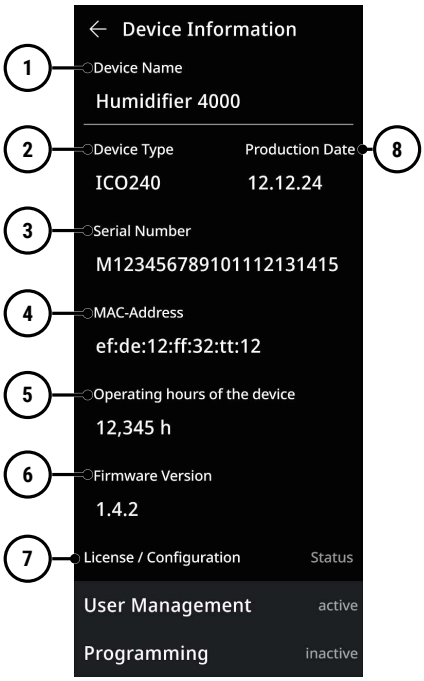
6.11 Settings

6.11.1 Overview



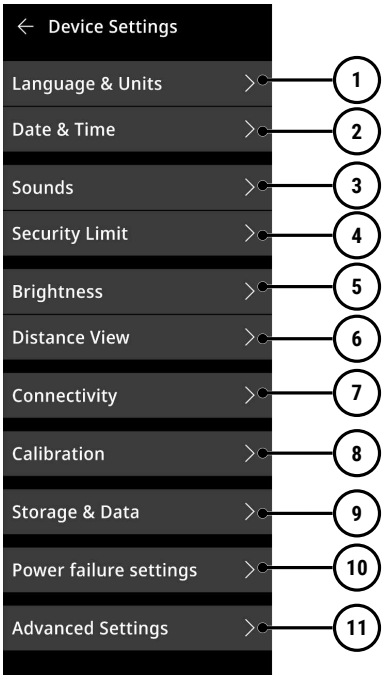
1	Unit information overview	2	Unit settings
3	User management	4	Profile settings
5	Data exchange		

6.11.2 Device Information



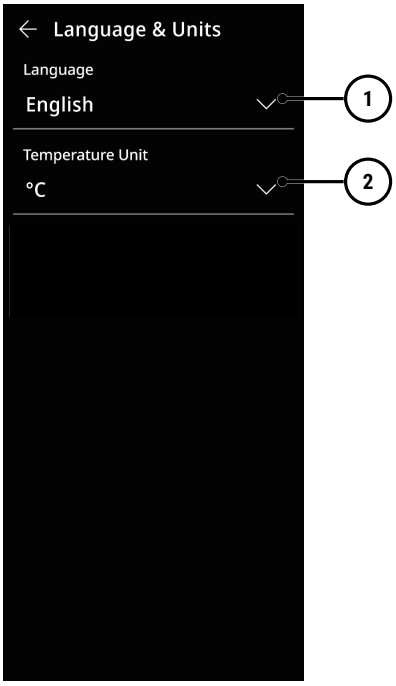
1	Device Name	2	Device Type
3	Serial Number	4	MAC Address
5	Device Operating Hours	6	Firmware version
7	Status information about options	8	Date of manufacture

6.11.3 Device Settings

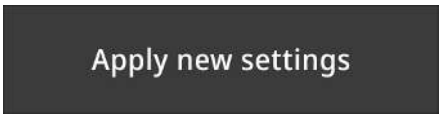


1	Language & Units	2	Date & Time
3	Sounds	4	Monitoring Systems
5	Brightness	6	Distance View
7	Connection	8	Calibration
9	Storage & Data	10	Settings Power Outage
11	Advanced Settings		

6.11.3.1 Language & Units

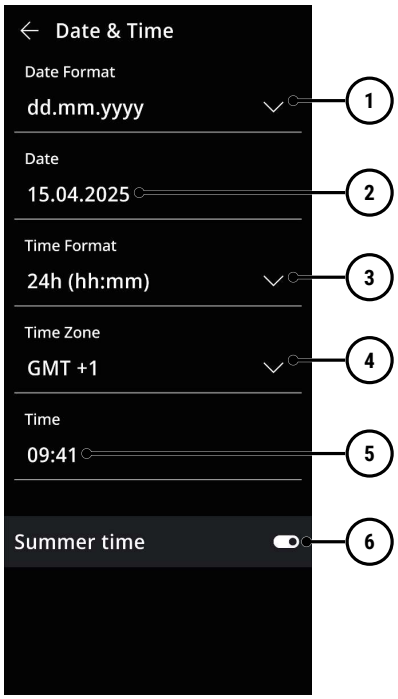


1	Set language	2	Set temperature unit

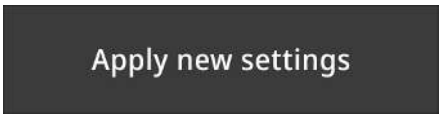


1. Select **Apply new settings**to apply the settings.

6.11.3.2 Date & Time



1	Set Date Format	2	Set the date
3	Set time format	4	Set time zone
5	Set Time	6	Enable Daylight Saving Time



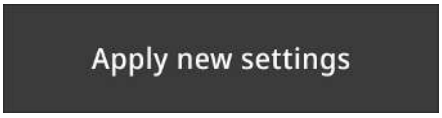
1. Select **Apply new settings**to apply the settings.

6.11.3.3 Sounds

Error messages and malfunctions are always indicated by a beep.



1	Enable beep for process start	2	Enable beep for process end
3	Enable an alert sound when a limit is exceeded	4	Enable confirmation button beep
5	Enable beep for door-open warning	6	Define the delay before the "Door Open" warning beep sounds



1. Select **Apply new settings**to apply the settings.

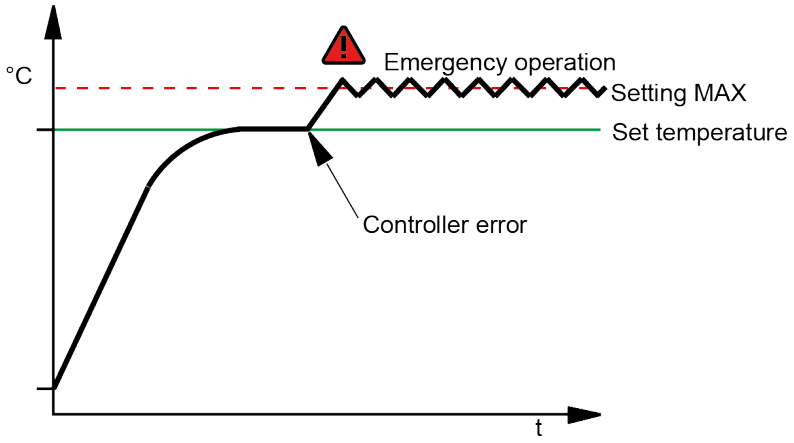
6.11.3.4 Monitoring Systems

The unit is equipped with two over-temperature protection systems in accordance with DIN 12880. These are designed to prevent damage to the material being processed and/or the unit in the event of a malfunction:

- TWW issues a warning when the limit values are exceeded.
- TWB shuts down the unit if the limit values are exceeded.

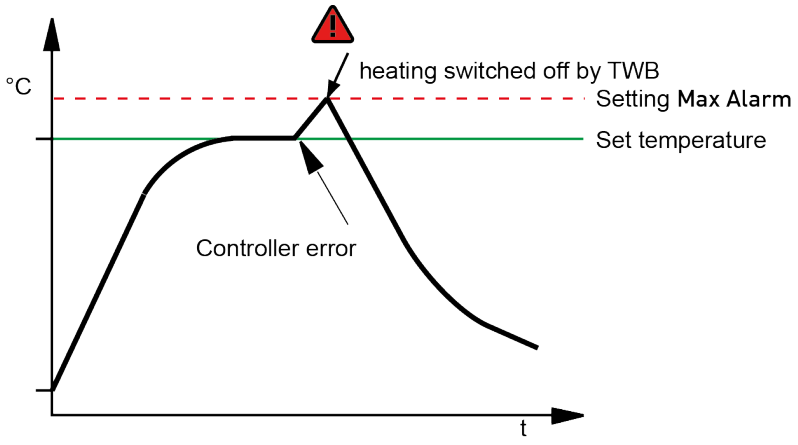
Electronic Temperature Monitoring (TWW)

The manually set min and max monitoring temperature of the electronic overtemperature protection is monitored by a temperature selector switch (TWW) protection class 3.3 acc. to DIN 12880.

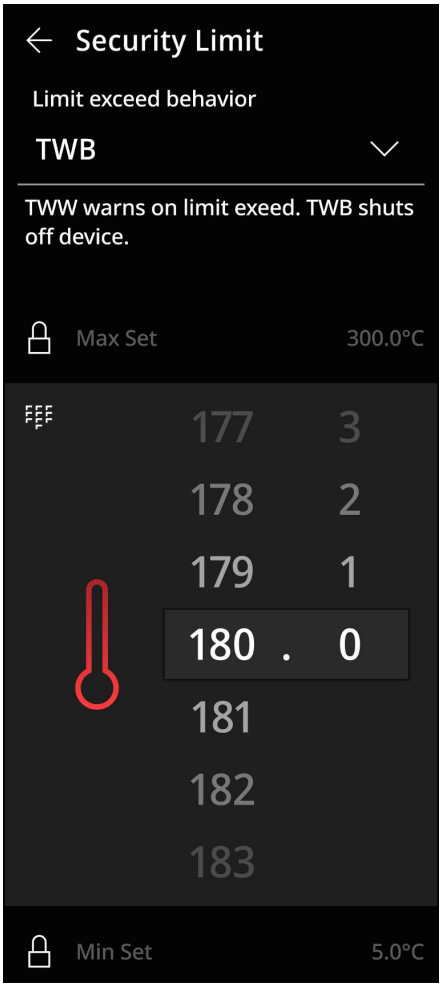


Temperature-Selective Limiter (TWB)

In programme mode, the current programme is resumed for TWB alarms of up to 15 minutes. If the alarm is active for more than 15 minutes, the programme is cancelled.



Setting Limit Values

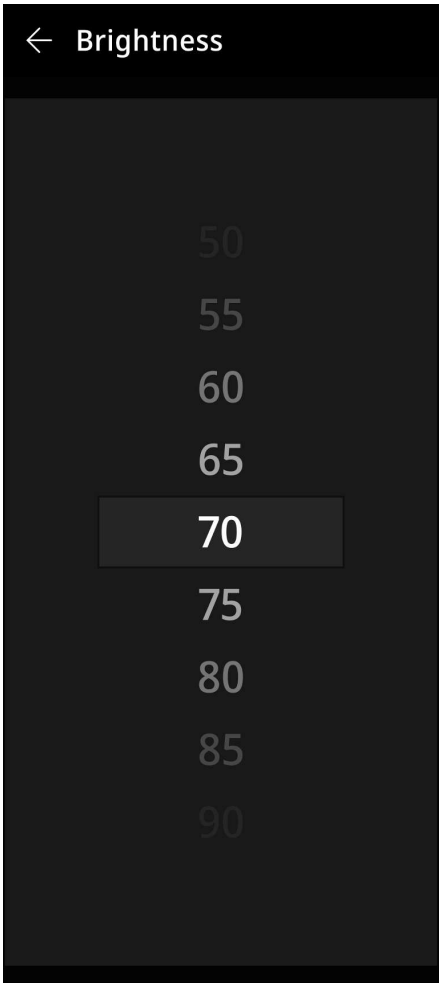


1. Select the monitoring system for which you want to set the limit values.
2. Set the upper limit value using the rotary knob.
3. Set the lower limit using the rotary knob.



4. Select **Set**to save the settings.

6.11.3.5 Brightness



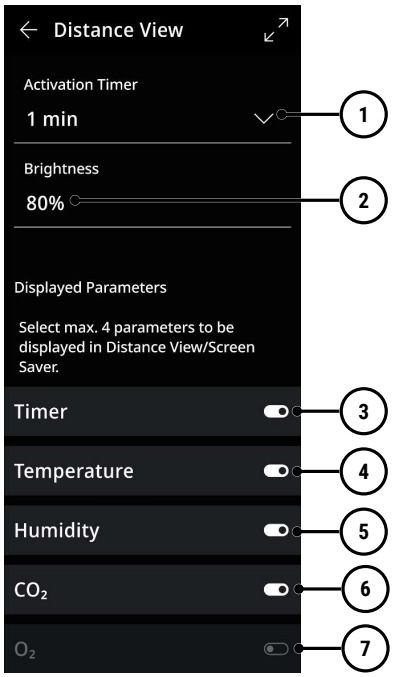
1. Set the **brightness** using the dial. The settings for the display in Distance View are made separately.



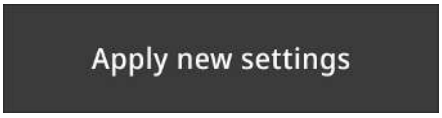
2. Select **Set**to save the settings.

6.11.3.6 Distance View

- Up to 4 parameters can be displayed simultaneously in **Distance View** .



1	Set the time until activation	2	Set brightness
3	Display the "Timer" parameter	4	Display temperature parameters
5	Display humidity parameter	6	Display CO2 parameter
7	View O2 Parameter		

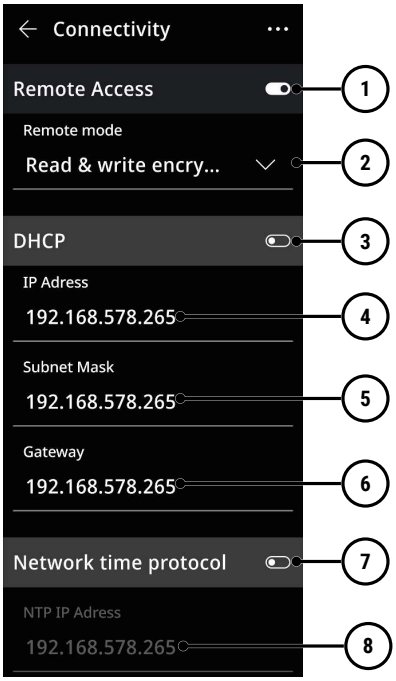


1. Select **Apply new settings**to apply the settings.

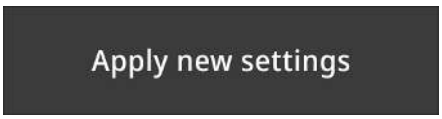
6.11.3.7 Connectivity

- The remote control can be set to the following modes:
  - Read encrypted
  - Read unencrypted
  - Read and write encrypted
  - Customer service

- The addresses are preset to a default at the factory and can be edited.



1	Enable Remote Control	2	Set remote control mode
3	Enable DHCP	4	Change IP Address
5	Change the subnet mask	6	Change the gateway
7	Enable Network Time Protocol	8	Change NTP IP Address



1. Select **Apply new settings**to apply the settings.

6.11.3.8 Calibration

NOTICE



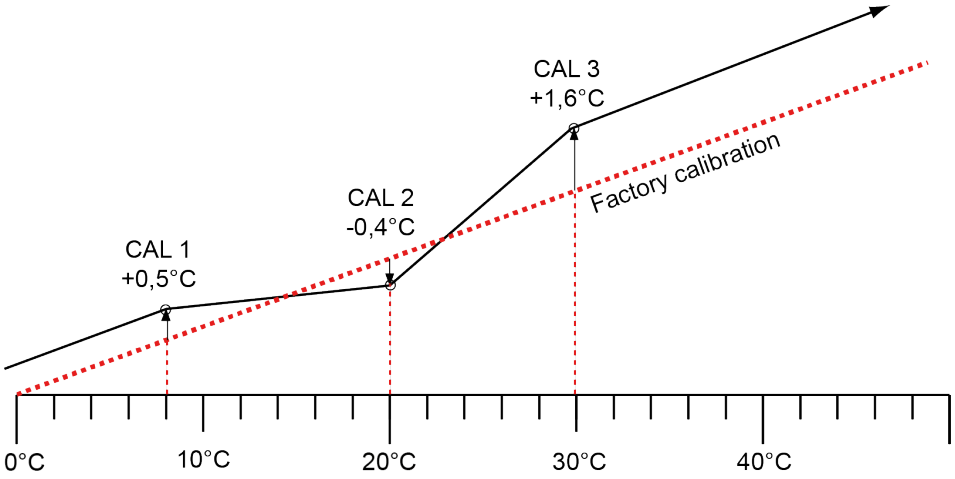
To guarantee problem-free closed-loop control, we recommend calibrating the appliance once a year.

Temperature calibration

The units are temperature-calibrated and adjusted at the factory. Should readjustment be necessary – for example, due to the influence of the chamber load – the unit can be adjusted to customer requirements using three user-defined calibration temperatures:

- Cal1 temperature calibration at low temperature
- Cal2 temperature calibration at medium temperature
- Cal3 temperature calibration at high temperature

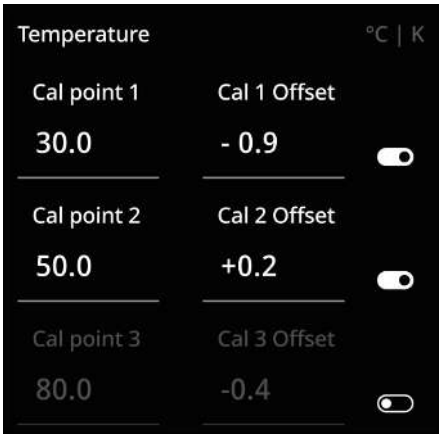
i For temperature calibration, you will need a calibrated reference instrument.



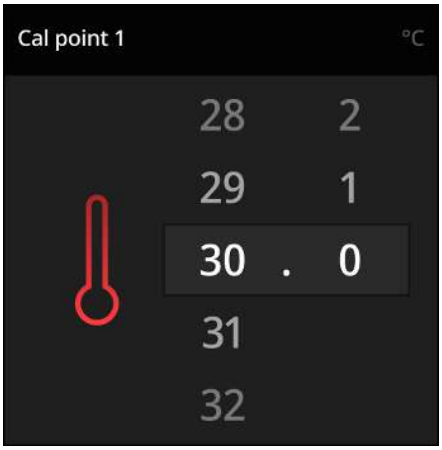
Example: A temperature deviation is detected and needs to be corrected.

✓ You are in the calibration menu.

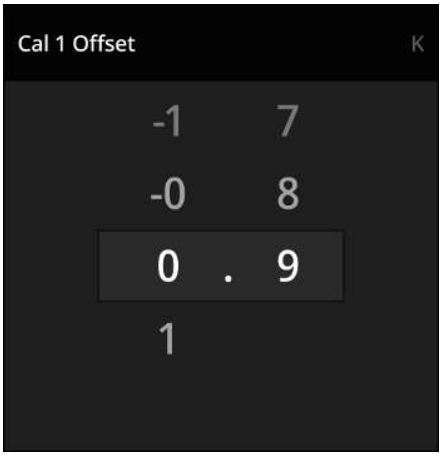
1. Select to activate the calibration point.



2. Select calibration point 2.



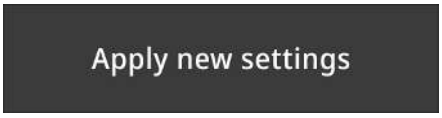
3. Set the calibration temperature using the rotary knob.



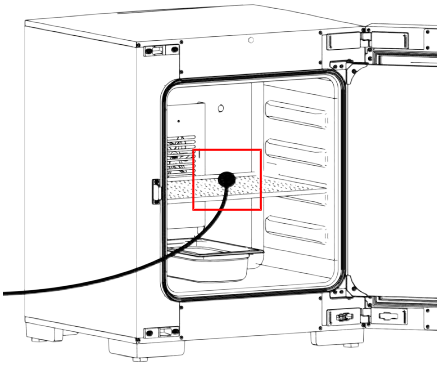
4. Set the calibration correction value to 0.0 K.



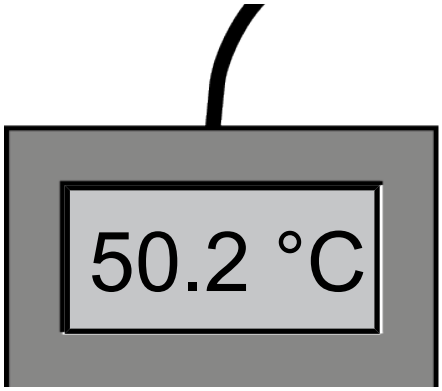
5. Select **Set**to save the settings.



6. Select **Apply new settings**to apply the settings.



7. Open the door.
8. Place the sensor of a calibrated reference meter in the center of the unit's interior.
9. Close the door.
10. In **Manual Mode** , set the calibration temperature as the setpoint (see ▸6.7 Manual Mode).



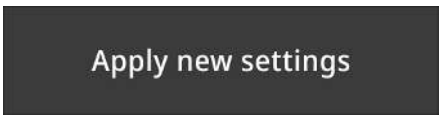
11. Wait until the device has reached the setpoint temperature and displays it.
    - The reference measuring instrument displays the corresponding deviation.



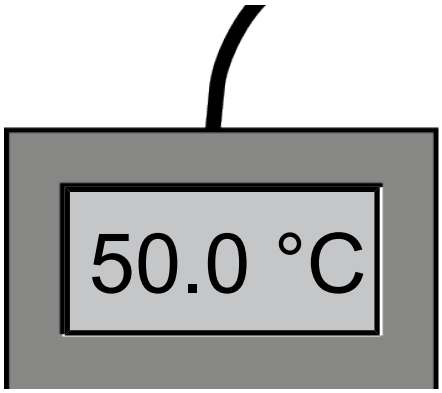
12. Set the calibration correction value for calibration point 2 to the deviation temperature (measured actual value minus setpoint).



13. Select **Set**to save the settings.



14. Select **Apply new settings**to apply the settings.



15. Align the measured temperature value of the reference meter with the temperature output value of the device.
    ⇨ The temperature measured by the reference meter should now also be the setpoint temperature after the adjustment process.

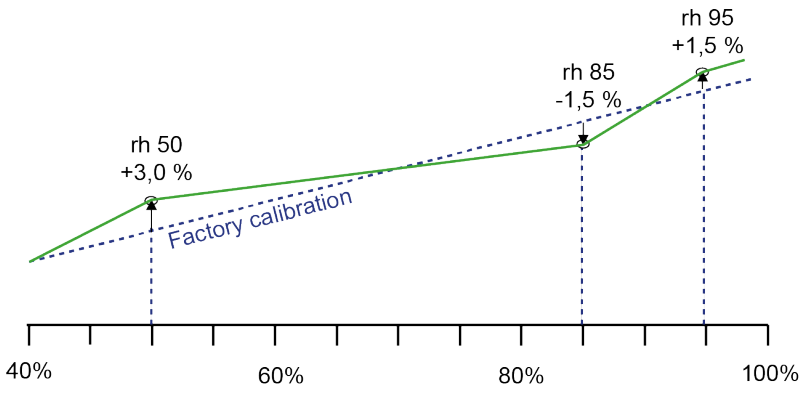
Calibration point 1 can be used in the same way to adjust another calibration temperature below calibration point 2, and calibration point 3 to adjust one above it. The minimum distance between the calibration values is 10 K.

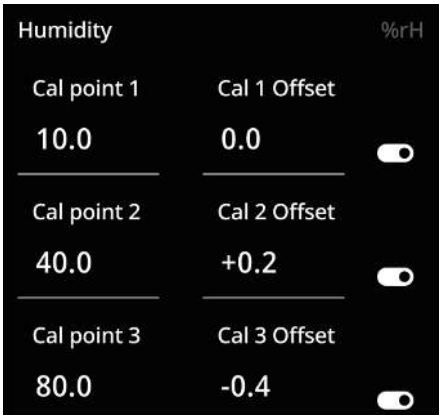
i If all calibration correction values are set to 0.0 K, the factory calibration settings are restored.

Humidity calibration (only with active closed-loop humidity control, Option K7)

Humidity control can be adjusted to customer requirements using three freely selectable calibration points. For each selected calibration point, a positive or negative calibration correction value can be set.

i A calibrated reference meter is required for humidity calibration.



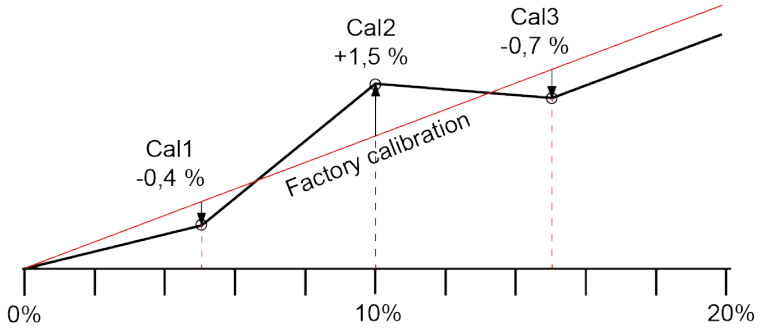


1. Perform humidity calibration in the same manner as temperature calibration.

CO_2 and O_2 calibration

You can calibrate the closed-loop CO_2 and O_2 control (O_2 only in the corresponding configuration) according to customer requirements with three freely selectable calibration points. For each selected calibration point, a positive or negative calibration correction value can be set.

For CO_2 calibration, a calibrated CO_2 measuring instrument is required; for O_2 calibration, a calibrated O_2 measuring instrument is required.

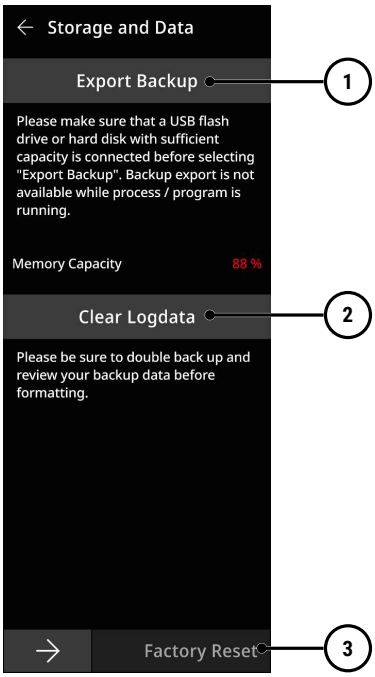


1. Perform CO_2 and O_2 calibration in the same manner as temperature calibration and humidity calibration, respectively.

6.11.3.9 Memory & Data

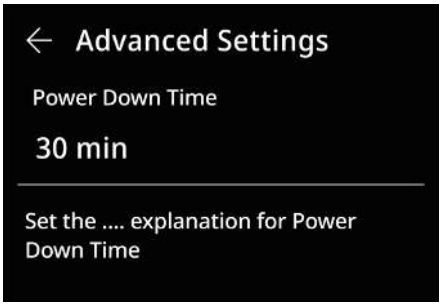
- An active Ethernet connection or a connected USB storage device is required to export a backup.

- A backup cannot be exported while Manual Mode is active or while a programme is running.

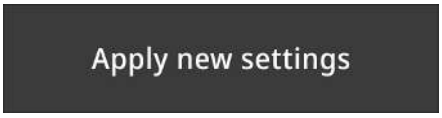


1	Export backup	2	Delete Log Data
3	Reset device to factory settings		

6.11.3.10 Advanced Settings



1. Set the time after which the device shuts down if there is no activity.



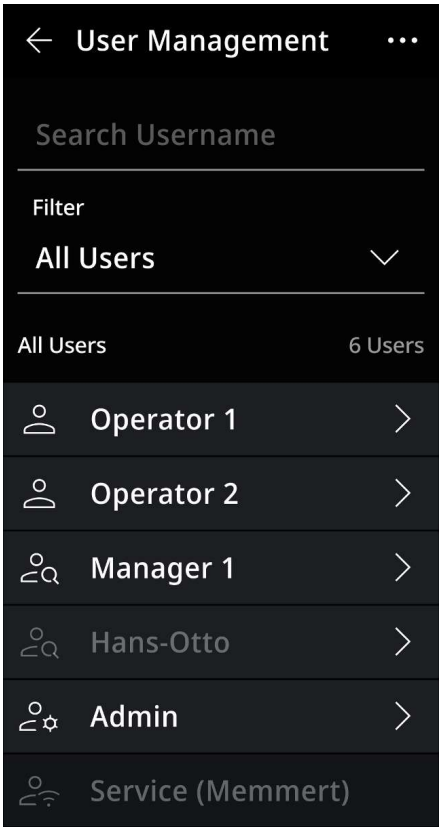
2. Select **Apply new settings**to apply the settings.

6.11.4 User Management (Option S1)

- The following roles are available **Admin**, **Manager** and **Operator** are available.
- In addition, you can assign the role **SuperAdmin** (see XX Link XX).
- In User Management, you can set up fingerprint (optional) or RFID chip (optional) login for the various users.

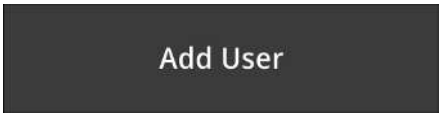
	Admin	Manager	Operator
Manual Mode	Read and write access	Read and write access	Read and write access
Start sterilisation programme	Read and write access	Read and write access	Read and write access
Programme management	Read and write access	Read and write access	/

	Admin	Manager	Operator
Run programmes	Read and write access	Read and write access	Read and write access
Logs	Read and write access	Read access	Read access
Unit information overview	Read and write access	Read access	Read access
Unit settings	Read and write access	Read access	Read access
User management	Read and write access	/	/
User settings	Read and write access	Read and write access	Read and write access
Data transfer	Read and write access	Read access	Read access



- The user management overview displays all created users.
- You can search for a username.
- You can filter the list by the roles **Admin**, **Manager** and **User** .

6.11.4.1 Create a user



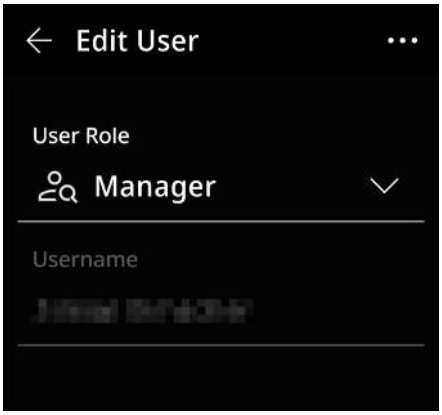
✓ You are logged in as **admin** .

1. To create a new user, select **Add User**.
   - The username may contain up to 50 characters.

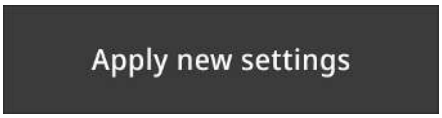
6.11.4.2 Change user settings

✓ You are logged in as **Admin** .

1. To open the user settings, select **>** next to the user in the user overview.



2. You can change the role and username.
3. Select the three-dot menu to configure the following settings:
   - Remove password
   - Reset password
   - Enroll fingerprint (optional)
   - Register an RFID chip (optional)
   - Deactivate user



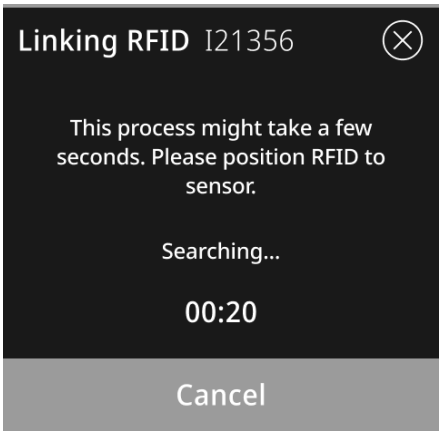
4. Select **Apply new settings**to apply the settings.

6.11.5 Connecting an RFID chip and logging in (Radio Frequency Identification)

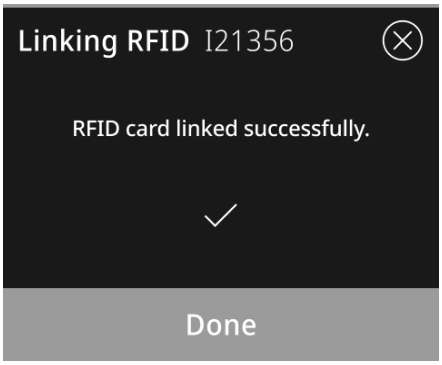
Pairing an RFID chip



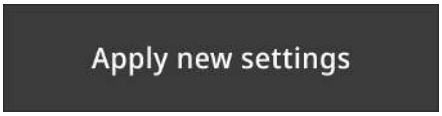
✓ You are in the user settings.
✓ You have selected the user who is to receive the RFID chip.
1. Select the three-dot menu.
2. Select **Link RFID-Card**.



3. Hold the RFID chip against the RFID scanner below the control unit for at least 3 seconds.



4. RFID chip successfully connected.



5. Select **Apply new settings**to apply the settings.

Login using an RFID chip



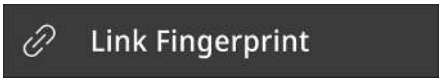
1. Hold the RFID chip below the touch display on the unit.
   ⇨ You will be logged in automatically.

6.11.6 Registering a fingerprint and logging in

Register fingerprint

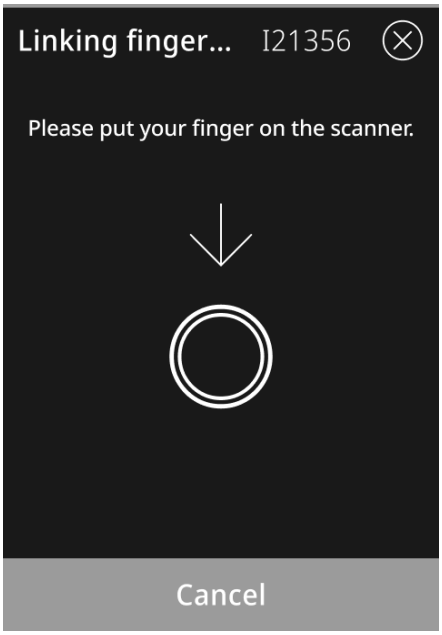


Please note that the fingerprint scanner is located below the touchscreen.



✓ You are in the user settings.

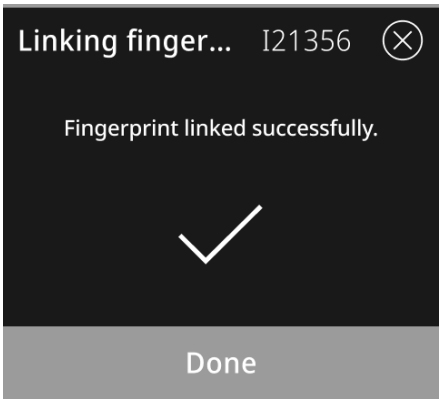
1. Select the three-dot menu.
2. Select **"Link Fingerprint"**.



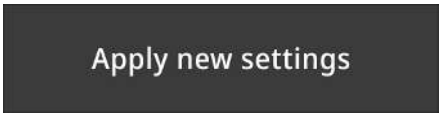
3. Place your finger on the fingerprint scanner below the control panel.



4. Keep your finger on the fingerprint scanner for at least 3 seconds.
5. Repeat the process.



6. Fingerprint successfully scanned.



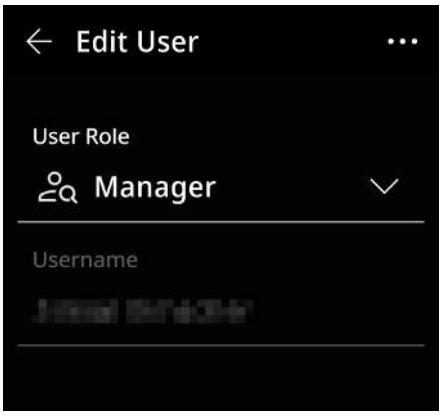
7. Select **Apply new settings**to apply the settings.

Login with fingerprint (Option Z1)

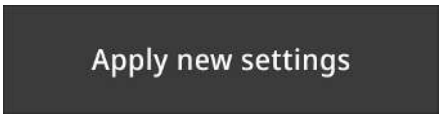


1. Place your finger on the fingerprint sensor below the touchscreen.
   ⇨ You will be logged in automatically.

6.11.7 Profile Settings



1. You can change the role and username.
2. Select the three-dot menu to configure the following settings:
   - Remove password
   - Reset password
   - Enroll fingerprint (optional)
   - Register an RFID chip (optional)
   - Deactivate user



3. Select **Apply new settings**to apply the settings.

6.11.8 Data Exchange

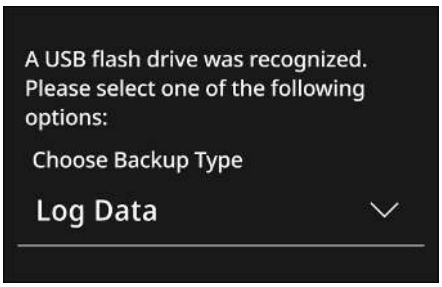
An active Ethernet connection or a connected USB storage device is required for exporting, importing, and enabling options.

Export

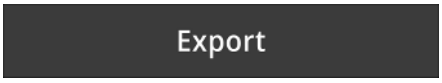
When exporting, folders are automatically created on the USB storage device.

The following data is available for export:

- Audit Trail
- Log Data
- Programs
- Settings
- User Management (optional)

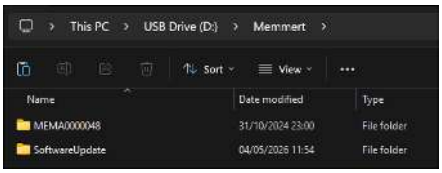


1. Use the drop-down menu to select which data you want to export.



2. Select **Export**to start the export.

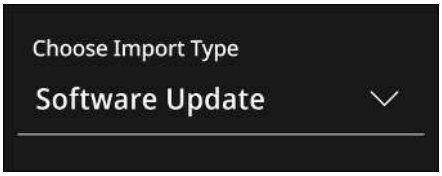
Import



- To import data, a folder named **Memmert** on the USB drive.
- To import **programs**, **user management** and **settings** , the USB drive must contain a subfolder named after the device's serial number (see 6.11.2 Device Information).
- To import software updates, the USB drive must contain a subfolder named **SoftwareUpdate** on the USB storage device.

The following data is available for import:

- Software Updates
- Programs
- User Management
- Settings

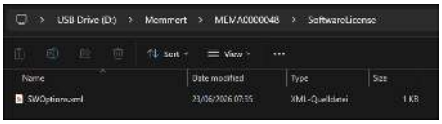


1. Select the data you want to import from the drop-down menu.



2. Select **Import**to start the import.

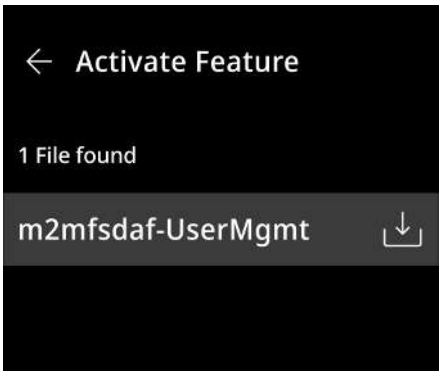
Enable Options



- Options purchased at the factory are automatically enabled.
- If you would like to purchase an additional option, please contact **sales@memmert.com**.
- You will then be provided with a license file.
- To activate options, the license file must be placed in a subfolder named **SoftwareLicences** within the subfolder named after the device's serial number.



1. Select **Activate Feature**.



2. Select the license file.
   ⇨ The option is enabled.

7. Faults, warnings and error messages

⚠ DANGER



Risk of electric shock from unauthorised troubleshooting

Errors requiring intervention inside the unit may only be rectified by qualified electricians.

– Follow the measures listed in the event of a malfunction.
– Contact Memmert International After Sales.

Do not try to rectify appliance errors yourself; instead you should contact Memmert International After Sales or an authorised customer service point.

In case of enquiries, please always state the model and appliance number on the nameplate (see ▸3.6 Nameplate).

See also

Nameplate [▸ 15]

7.1 Event Types

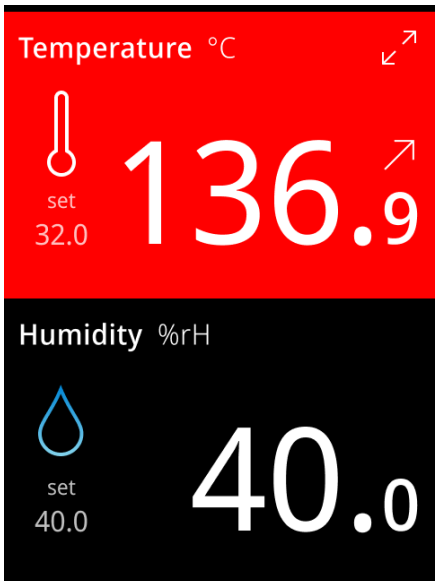
The following overview describes the individual event types, their respective effects on operation, and the characteristics by which you can identify them.

Event Type	Abbreviation	Icon	Description
Info	I		Purely informational message with no impact on operation (e.g., system restart, change in system time).
Warning	W		Important note for the user. Operation continues, but a malfunction is possible (e.g., a temperature sensor is defective).
Error	E		A component has failed. Operation may be able to continue with limitations under certain circumstances (e.g., all temperature sensors have failed).
Critical	C		Operation is being shut down; a total failure has occurred. A system restart is required.

7.2 Display of error messages

If the alarm signal tone is activated in the settings, the alarm is additionally signalled by a warning tone.

Distance View



- Error messages in Distance View are highlighted in red on the affected parameter. See ▸6.6.3 Distance View.

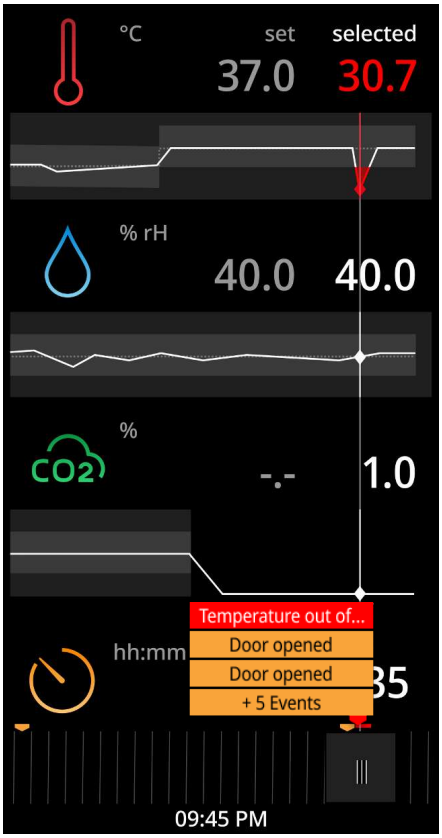
1. Select the parameter with the error to exit Distance View.

Error messages are displayed as pop-up messages on the control unit.



2. Resolve the malfunction and check the device.
3. Select **Confirm**to acknowledge the error message.

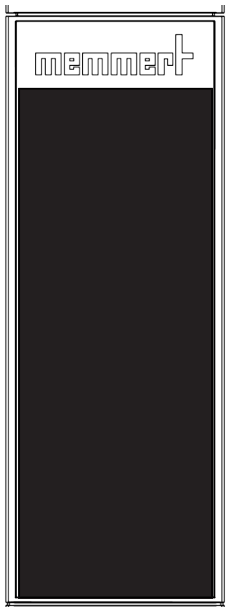
Manual Mode



1. Events are logged in **Manual Mode** are highlighted in the graph.
2. Results can be viewed via the timeline and selected for a detailed view.

7.3 Error messages, malfunctions and operator errors

7.3.1 General Device Errors

Error message, malfunction, operator error	Cause of the error	Troubleshooting
The control panel is dark; the device can no longer be operated 	External power supply interrupted	■ See ▸2.9 Switching off the Unit in an Emergency
	Fuse, circuit breaker or power supply unit faulty	■ Contact customer services
The control unit has cracked		**Risk of cuts!** Please stop using the device.

Error message, malfunction, operator error	Cause of the error	Troubleshooting
		■ See ▸2.9 Switching off the Unit in an Emergency ■ Contact customer services
Displays flicker or experience brief glitches	Under certain external conditions, the display may be affected by electromagnetic interference. This interference does not affect the device's functions.	■ The device can continue to be used. ■ If the fault occurs frequently, contact customer services
C0C01	Power management error	Check power supply Contact customer service
C0C02	Problem with the power supply	Check the power supply Contact customer service
W0C03	UPS active (Option C2)	Check the power supply Contact customer service
W0C04	Restart after a power outage	Check the power supply Contact customer service

7.3.2 Temperature monitoring

Error message, malfunction, operator error	Cause of the error	Troubleshooting
C805	Both temperature sensors are defective.	Turn off the appliance Contact customer service.
C3801	The temperature limiter has tripped	Turn off the appliance Contact customer service.
W806	One of the temperature sensors is defective.	Turn off the appliance
W808	Temperature sensor reading is incorrect.	Turn off the appliance Contact customer service.
W1401	Temperature limit exceeded	Turn off the appliance Contact customer service.
W1402	Temperature limit exceeded – ASF activated	Turn off the unit Contact customer service.

7.3.3 Humidity monitoring

Error message, malfunction, operator error	Cause of the error	Troubleshooting
C804	Humidity sensor defective	Turn off the unit Contact customer service.
W1405	Humidity limit exceeded	Turn off the device Contact customer service.

7.3.4 CO2 monitoring

Error message, malfunction, operator error	Cause of the error	Troubleshooting
C802	CO2 sensor defective	Turn off the device Contact customer service.
W1403	CO2 limit exceeded	Turn off the unit Contact customer service.

7.3.5 O2 monitoring

Error message, malfunction, operator error	Cause of the error	Troubleshooting
C803	O2 sensor defective	Turn off the device Contact customer service.
W1404	O2 limit exceeded	Turn off the device Contact customer service.

7.3.6 System error

Error message, malfunction, operator error	Cause of the error	Troubleshooting
C1003	General error	Turn off the device Contact customer service.
C100B	Configuration error	Turn off the device Contact customer service.
C100D	System configuration failed	Turn off the device Contact customer service.
E1001	Error during startup	Turn off the unit Contact customer service.
E1002	Measurements are incorrect	Turn off the device Contact customer service.
E1005	System memory full	Turn off the device Contact customer service.System monitoring faulty
E100A	System monitoring malfunction	Turn off the device Contact customer service.
E1C01	Device Malfunction	Turn off the appliance Contact customer service.
W1004	System memory is 95% full	Turn off the device Contact customer service.
W100E	Error in the system user file	Turn off the device Contact customer service.
W1011	System configuration warning	Turn off the device Contact customer service.

7.3.7 Communication and Data

Error message, malfunction, operator error	Cause of the error	Troubleshooting
E2001	Firmware update error	Turn off the device Contact customer service.
E2401	Communication error on the CAN connection	Turn off the device Contact customer service.
E2C01	Data import failed	Turn off the device Contact customer service.
E2C02	Data export failed	Turn off the device Contact customer service.
E2C05	Program data export failed	Turn off the device Contact customer service.

7.3.8 Program and Operation

Error message, malfunction, operator error	Cause of the error	Troubleshooting
E3001	Time synchronization error	Turn off the device Contact customer service.
E3401	Program limits exceeded	Turn off the unit Contact customer service.
E3404	Program start error	Turn off the appliance Contact customer service.
W0402	Door open	Turn off the appliance Contact customer service.
W0404	Empty program step	Turn off the appliance Contact customer service.

7.4 What to Do in Case of a Power Outage

In the event of a power cut, the device will behave as follows:

The device uses a battery to continue logging all relevant measurement values, settings, and error messages.

Manual Mode

- Power outage lasting less than 24 hours: Operation resumes with the previously set parameters.
- Power outage lasting more than 24 hours: The active process is terminated; parameters remain saved.

Program Mode

- Power outage lasting less than 1 hour: The program continues to run for the remaining duration.
- Power outage lasting longer than 1 hour: The program is stopped; a prompt to resume is required.

8. Maintenance and Servicing

⚠ DANGER



Live parts

When covers are removed, live parts are exposed and contact with these parts may result in electric shock. Electric shock can have serious health consequences including death.

- Only authorised persons may carry out electrical installation work.
- Before starting work, disconnect the unit from the power supply.
- Ensure that the unit is fully de-energised.
- Secure the unit to prevent it from being switched on again.

⚠ CAUTION



Danger of cuts due to sharp edges

Touching sharp edges on the unit may result in cuts.

- Wear protective gloves during all work.
- Be careful when handling sheet metal parts.

8.1 Cleaning

Interior and metal surfaces

Regular cleaning of the easy-to-clean interior prevents build up of material residues that could impair the appearance and functionality of the stainless steel chamber over time.

The metal surfaces of the appliance can be cleaned with normal stainless steel cleaning agents. Make sure that no rusty objects come into contact with the interior or with the stainless steel housing. Rust deposits can lead to an infection of the stainless steel. If rust spots appear on the surface of the interior due to impurities, the affected area must be immediately cleaned and polished.

Plastic parts

Do not clean plastic parts of the appliance with caustic or solvent-based cleaning agents.

Glass surfaces

Glass surfaces can be cleaned with a commercially available glass cleaner.

8.2 Decontamination

⚠ CAUTION



Irritation of the skin and eyes

Skin and eye contact with decontaminants may cause irritation of the hands and eyes or allergic reactions and chemical burns.

- Wear chemical-resistant gloves during decontamination.
- For correct application, follow the instructions for use on the respective container of the decontamination agent.

i Memmert units may become contaminated by infectious substances or by environmental factors at the installation site. All parts of the affected unit must be decontaminated both before shipping it to our service department and before disposing of the unit.

i For decontamination, we recommend commercially available alcohol-based decontaminants, i.e. isopropanol and/or ethanol (total alcohol concentration less than or equal to 70%).

If you have any questions about using a decontamination agent for decontaminating Memmert units, please contact our service department.

After cleaning and decontamination, ventilate the installation site and allow the unit to dry completely.

8.3 Regular Maintenance

Annually

- Check the seals for damage and replace them if necessary.
- To guarantee perfect closed-loop control, we recommend calibrating the appliance once a year (see Calibrate).

8.4 Repairs and Service

Maintenance and service work may only be carried out by the manufacturer and qualified service providers.

NOTICE



Repairs and service work are described in a separate service manual.

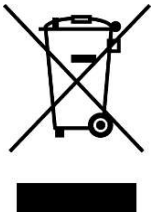
9. Storage, Transport and Disposal

9.1 Storage and Transport

The appliance may only be stored and transported under the following conditions:

- in a dry enclosed, dust-free room
- disconnected from the power supply
- Before storing or transporting the unit, disconnect the water connection, the CO_2 connection and the O_2 connection.
- Empty the water tray before storing.
- Close the valves on the gas cylinders and disconnect the gas cylinders
- Gas cylinders may only be stored in closed rooms if the rooms are sufficiently ventilated

9.2 Disposal

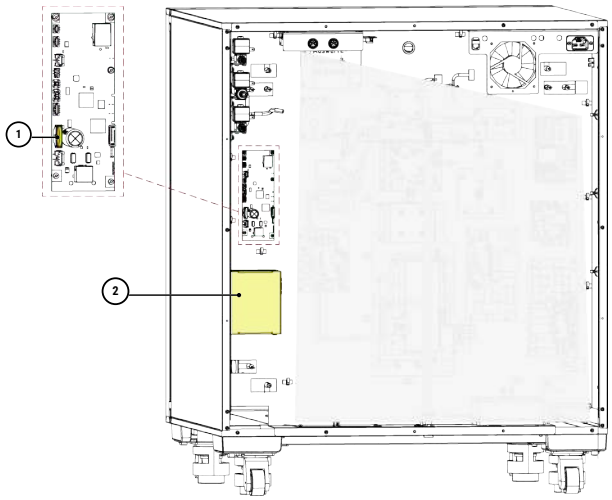


This product is subject to Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) of the European Parliament and EU Council of Ministers. This unit was placed on the market after 13 August 2005 in countries which have already integrated this Directive into their national laws. It must not be disposed of as normal household waste. For disposal, please contact your dealer or the manufacturer. Any units that are infected, infectious or contaminated with materials hazardous to health are excluded from return. Please also observe all other regulations applicable in this context.

Before disposing of the appliance, please render the door locking mechanism unusable, for example to prevent playing children playing with the appliance and being locked inside.

- Note for Germany:
  Do not dispose of the device at public or local collection points
- The device contains a lithium battery.
- The device may contain an additional battery. If equipped with Option C2—Uninterruptible Power Supply—this must be removed before disposal.

  Remove all batteries and dispose of them in accordance with the applicable local regulations.



1	Battery type: CR2032	2	Optional battery for an uninterruptible power supply (Option C2)

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