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MELAG
competence in hygiene

Technical Manual

MELAtherm® 10 Evolution

Washer-Disinfector

from software version 3.0.20



EN

Read this manual carefully and in the correct order before setting up and commissioning the device. The instructions include important safety information. You also receive a user manual with the device. Please store this manual and the user manual carefully and in close proximity to the device. They represent a component of the product.

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1 General guidelines

Read this manual carefully and in the correct order before setting up and commissioning the device. The instructions include important safety information. You also receive a user manual with the device. Please store this manual and the user manual carefully and in close proximity to the device. They represent a component of the product.

Symbols used

Symbol	Explanation
	Indicates a dangerous situation, which if not avoided, could entail slight to life-threatening injuries.
	Draws your attention to a situation, which if not avoided, could result in damage to the instruments, the practice fittings or the device.
	Draws your attention to important information.

Formatting rules

Example	Explanation
see **Chapter 2**	Reference to another text section within this document.
`Universal-Program`	Words or phrases appearing on the display of the device are marked as display text.

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2 Installation requirements

Space requirements

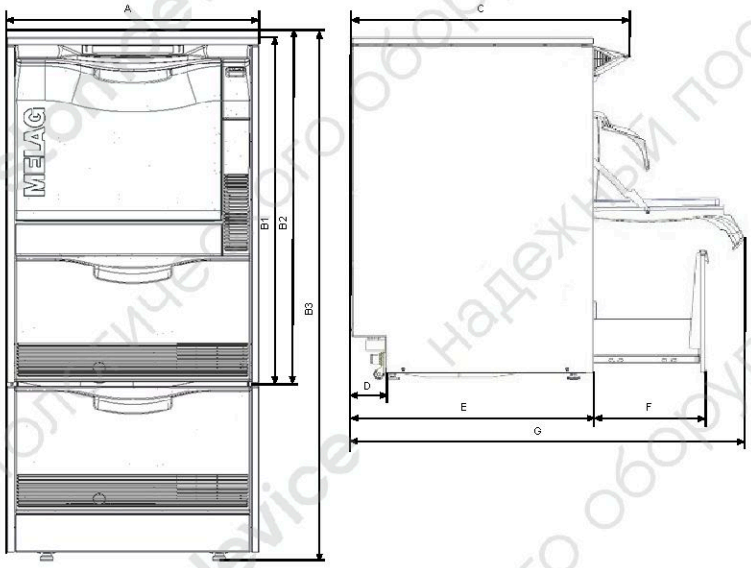


Fig. 1: Fore view with floor unit and side view left

PLEASE NOTE

If the device is installed in an L-shaped corner, drawers to the left or right of the device may be blocked and cannot open due to the protruding display unit.

Device dimensions		Semi-integrated unit	Free-standing	Top-frame device*)
Width	A	59.8 cm	59.8 cm	59.8 cm
Height	B	B1 = 81.8 cm	B2 = 83.6 cm	B3 = 124 cm
Depth (with display)	C	68.1 cm	68.1 cm	68.1 cm
	D	8.2 cm	8.2 cm	8.2 cm
Depth (without display)	E	59.1 cm	59.1 cm	59.1 cm
	F	28.5 cm	28.5 cm	28.5 cm
	G	96.1 cm	96.1 cm	96.1 cm
Remarks	--	Space requirements in the working surface: min. 60 cm width, 60 cm depth and 82 cm height.	Free-standing using the optionally-available stainless steel cover plate e.g. next to to the already present under-desk cabinets.	This enables a particularly ergonomic operation and loading of the device. Provides storage space, e.g. for up to six 5 l containers. The stainless steel cover plate can also be used.
*) Free-standing using the optionally-available stainless steel cover plate e.g. next to the already present under-desk cabinets.				

PLEASE NOTE

Avoid disturbing installations in the area of the device rear (such as hoses, cables, pipes, sockets etc.).

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Additional space requirement when using a water treatment unit

Space is required above the MELAdem 53 / MELAdem 53 C for clear access to the hose connections.

Dimensions	MELAdem 53	MELAdem 53 C
Diameter	24 cm	24 cm
Height of the unit incl. connecting parts	57 cm	45 cm

PLEASE NOTE

If the device is to be installed as a semi-integrated unit, the MELAdem 53 / MELAdem 53 C can be placed in an adjacent floor unit.

Installation location

Electromagnetic compatibility

When assessing the Electromagnetic Compatibility (EMC) of this device, the emitted interference threshold values for Class B devices and the stability for operation in an electromagnetic environment as described in IEC 61326-1 were taken as the basis.

The device is thus suitable for operation in all institutions and domestic settings connected to a public mains power supply.

The floor should be made of wood or concrete or be tiled with ceramic tiling. If the floor is fitted with synthetic material, the relative humidity must amount to a minimum of 30 %.

NOTICE

Steam escaping from the device may cause damage at the adjacent furniture.

- During installation of the device please ensure that the adjacent base cabinets or other furniture and fittings are resistant to condensation.

Set-up variations

You can set up the device in the following manner:

- Free-standing using the optional stainless steel cover plate.
- Next to pre-existing under-desk unit in conjunction with the optional stainless steel plate. Space requirements amount to a minimum of 60 cm in width and 60 cm depth.
- As under-desk equipment in a pre-existing cavity with a work surface.
- Free standing an additional floor unit and stainless steel cover plate (optional).

PLEASE NOTE

If the device is to be set up with the additional floor unit, then the device must be secured on the wall using the wall fixture (art. no. 21589), see separate instructions (doc.: AS_025-17).

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Property	MELAtherm 10 Evolution DTA/MELAtherm 10 Evolution DTB		
Installation location	Dry and dust-proof and free from vibrations and shocks. There are no installations in the area of the device rear.		
Installation surface	Level and horizontal. It is possible to compensate the floor unevenness of max. 1 cm by adjusting the device feet.		
Max. altitude	1500 m (it may be necessary to reduce the disinfection temperature depending on the installation height, see Exceptions when setting up at altitudes [▶ page 24])		
Waste heat (with max. solid load)	0.98 kWh (3.5 MJ)		
Ambient temperature	5-40 °C (recommended max. 25 °C)		
Relative humidity	max. 80 % at temperatures up to 31 °C, max. 50 % at 40 °C (decreasing in a linear fashion)		
Max. floor loading (normal operation)	Semi-integrated unit:	Free standing:	Top-frame device:
	40.7 kg per device foot	42.7 kg per device foot	63.7 kg per device foot

Steam egress can occur during operation. Do not set up the device in the immediate proximity of a smoke detector. Maintain clearance from materials which could suffer damage from steam.

Installation free-standing

NOTICE

In case of an incorrect installation of the device, there may be malfunctions during operation.

The specified installation heights must be complied with.

Requirements to construction-side wastewater connection for a semi-integrated unit or free-standing device

Connection height	Remarks
0.4-1 m	---
< 0.4 m	Installation in a curve to at least 0.4 m height

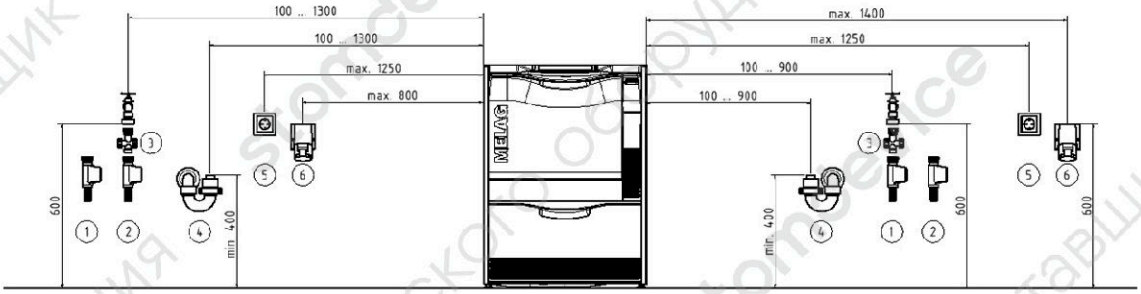


Fig. 2: Connection scheme without floor unit

1 DI water connection
2 Cold water inlet
3 Dirt trap water inlet
4 Connection for water outlet at the syphon
5 Type F (SCHUKO) socket
6 CEE socket

PLEASE NOTE

Due to the length of mains lead and water pipe a sinistral connection is recommended.

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Installation as a top-frame device

Requirements to construction-side wastewater connection for a top-frame device

Connection height	Remarks
min. 0.74 m	---
< 0.74 m	Installation in a curve to at least 0.74 m height

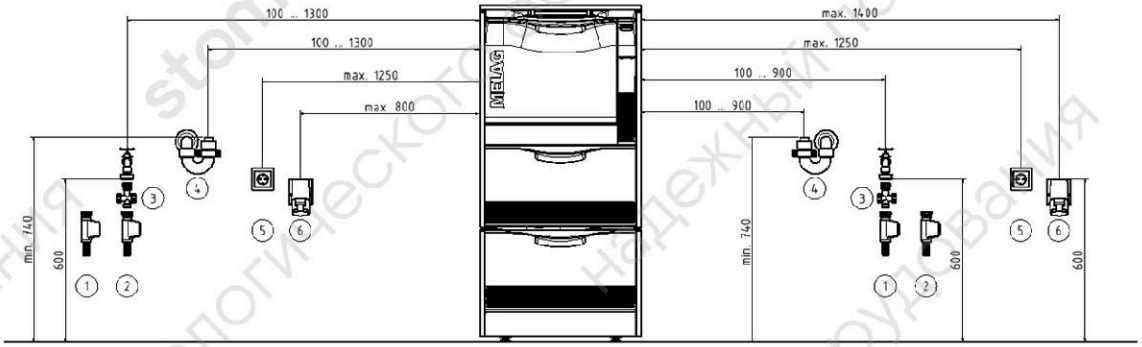


Fig. 3: Connection scheme with floor unit

1 DI water connection
2 Cold water connection
3 Dirt trap water inlet
4 Connection for water outlet at the syphon
5 Type F (SCHUKO) socket
6 CEE socket

PLEASE NOTE

Due to the length of mains lead and water pipe a sinistral connection is recommended.

On-site requirements

WARNING

Improper connections can result in a short-circuit, fire, an electric shock or water damage.

- The connection of the electrical supply as well as the feed and wastewater connections are to be made by trained personnel.
- Comply with the specifications regarding the installation and first commissioning provided in the user manual.

Mains supply

- Never damage or alter the power plug or cable.
- Never bend or twist the power cable.
- Never remove the plug by pulling on the power cable. Always take a grip on the plug.
- Never place any heavy objects on the power cable.
- Never run the power cable over areas in which it could become trapped (e.g. doors or windows).
- Never lead the cable along a source of heat.
- Never use any nails, paper fasteners or similar objects to fix the cable.
- Should the power plug or cable suffer damage, switch off the device. The power cable or plug should only be replaced by authorized technicians.

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On-site requirements of the mains connection

	MELAtherm 10 Evolution DTA	MELAtherm 10 Evolution DTB
Local requirements	Electrical equipment must accord with DIN VDE 0100. A main switch (all-pole) should be fitted on the customer side. This must be marked as a separator for the device and be easily accessible for the operator.	The mains socket must be freely accessible after set up so that the device can be disconnected from the electricity supply at any time.
Electrical power	10.3 kW	3.4 kW
Power supply	3N AC 380-415 V, 50 Hz Max. voltage range 360-440 V	AC 220-240 V, 50 Hz Max. voltage range 207-253 V
Electrical connection	CEE socket	country-specific single-phase connection with PE protective earth connection
	The connection should be realized with a cable cross-section of 2.5 mm^2.	
Building fuses	3x 16 A, separate power circuit with Type B 16 A fuse, additional RCD switch with 30 mA	1x 16 A, separate power circuit with Type B 16 A fuse, additional RCD switch with 30 mA
Length of the power cable*)	2 m	
Other	Additional socket for the MELAprint 42/44 log printer etc.	
*) Comply with the specifications in the connection diagram.		

PLEASE NOTE

When installing the DTB device version with an ambient temperature above 35 °C, it must be equipped with the EURO-plug CEE 3p 230 V 16 A instead of the Type F (SCHUKO) plug in order to connect to the mains.

Water connection

- Do not shorten or damage the feed hose and outlet hose for cold water / DI water.
- Do not remove the dirt filter in the aqua-stop valve of the cold water feed hose.
- Stains on the instruments or the device can develop from poor water quality. To avoid the development of stains on the instruments or in the washing chamber, MELAG recommends a final rinse with deionised water (DI water).

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Requirements of the water connection

	Cold water	Demineralized water	Wastewater
Length of the outlet hoses*)	1.8 m A 3 m extension hose can be ordered if required (art. no. 24933).		1.8 m The hose can be replaced by a 4 m long outlet hose if required.
Connection in the practice	To the cold water cut-off valve (angle valve)	To a water treatment unit e. g. MELAdem 53 / MELAdem 53 C	To a separate wall outlet (DN21) or a flush outflow**) (**NOTICE! The temperature of the wastewater can amount to up to 95 °C for a short while**)
Min. flow pressure	1.5 bar at 8 l/min Netherlands: 2 bar at 8 l/min		--
Recommended flow pressure	2.5 bar at 8 l/min Netherlands: 3 bar at 8 l/min		--
Max. water pressure (static)	10 bar		--
Connection dimensions	3/4“ internal thread (for the connection to a standard 3/4“ connection with external thread)		DN21
Additional requirements	No additional backflow preventer required (internally secured against backflow into the drinking water supply in accordance with EN 1717) Always comply with all local regulations.	When using the MELAdem 53 / MELAdem 53 C, safeguard with a safety combination with backflow preventer and a pipe aerator in accordance with EN 1717	--
Water quality	Comply with the specifications of the Drinking Water Ordinance (TrinkwV) or the applicable local specifications	When using a central demineralization system, max. permissible conductivity: 5 µS/cm	--

*) Comply with the specifications in the connection diagram.

**) Alternatively you can order a noise-reduced double chamber siphon (art. no. 26635).

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System and network safety

The device is fitted with multiple external interfaces. Comply with the following information pertaining to the use of these interfaces to ensure safe operation of the device, especially to ensure incorporation in the local network (LAN).

Interfaces and connections

NOTICE

Only connect the hardware to the device which is listed in the following table. Only use the software which has been intended for the purpose and approved by the manufacturer.

Interface	Type	Hardware	Purpose/software
CF card slot	CF type I	MELAflash CF with a FAT32 file system	Writing log data on a MELAflash CF card
			Device software update
Ethernet	Ethernet 1000BASE-T, IEEE 802.3 Clause 40	1000BASE-T or 100BASE-T Switch port (via CAT-5 patch cable)	MELAview saving log data, querying device data
			MELAtrace saving log data
			FTP server saving log data
			MELAconnect (mobile app) querying device data
			Connection to the local network (LAN)
		MELAprint 42/44 (via CAT-5 patch cable)	Log printing

NOTICE

When performing a device software update, use only the update data authorized by MELAG for the corresponding device type.

Operating the device with memory media (CF card)

To prevent data loss, only use memory media to save the log data with the following characteristics:

- Functional capability (without malware etc.)
- Writeable
- Formatted with a correct file system

Perform regular data backup. Restrict access to the device and systems with access authorization to the necessary circle of persons.

Only use MELAflash CF cards.

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Operating the device in the local network (LAN)

NOTICE

Do not connect the device to a public network (e.g. the internet).

An Ethernet/IP-based network connection (LAN) is required to operate the device in a local network. In its delivery state, the device is configured to obtain the IP address automatically from a DHCP server operated in a LAN.

NOTICE

Check the IP address carefully during the conversion for a manual configuration before connecting the device to the LAN.

An incorrectly-entered IP address can cause IP conflicts in the network and thus disturb another device in your network.

In the LAN with a firewall, only permit connections to and from the device which correspond to the intended use of the device. All ports not used are blocked on the device side.

The device is able to make the following connections as standard:

Log	Source port	Destination port	Direction	Aims
TCP	≥ 1000	21	Outgoing	FTP control
TCP	any	≥ 1025	Listening / incoming	FTP (active) data transfer (device set to FTP logging)
UDP	68	67	Outgoing	Communication to DHCP server - requests to the DHCP server
UDP	67	68	Listening / incoming	Answers from DHCP server(s)
TCP	any	80	Listening	Data transfer to the MELAconnect app or web browser
TCP	any	Device parameters ODPPT	Listening / incoming	Data transfer log data (device set to TCP logging)
UDP	17784	17784	Outgoing	Broadcast search log printer
TCP	50001	50000	Outgoing	Data transfer to the log printer

Network bandwidth / Quality of Service (QoS)

The device does not place any requirements on the LAN bandwidth for data transfer, that exceed the standard time-out times of the respective logs.

Process	Volume max.	Volume normal
Transfer status, legend, program, malfunction log	10 kB	2-6 kB
System log	64 kB	--
Graphic log	3000 kB	1700 kB
Data transfer MELAconnect	240 bit/s per device	approx. 200 bit/s per device

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3 Setup and installation

WARNING

Improper installation may lead to a short-circuit, fire, water damage or electrical shock.

This could result in serious injury.

- Only have the device set up, installed and commissioned by people authorized by MELAG.

- The device is not suitable for operation in explosive areas.
- The device is conceived for use outside patient surroundings. The device should be located a minimum of 1.5 m radius away from the treatment area.
- The documentation media (computer, MELAprint 42/44, MELAflash CF card reader) must be placed in such a way that they cannot come into contact with liquids.
- Observe all the information contained in this chapter during commissioning.

Removing from the packaging

CAUTION

Danger of injury from incorrect carrying.

Lifting and carrying too heavy a load can result in spinal injury. Failure to comply with these provisions can result in crushing.

- Comply with the safety regulations issued by your professional association.

The device and the floor unit are delivered on a europallet (W x D x H: 1200 x 800 x 144 mm). Hold the device by the reinforced areas of the device feet on the floor and the rear panel when carrying and lifting it.

Moving the device

The floor unit has three casters.

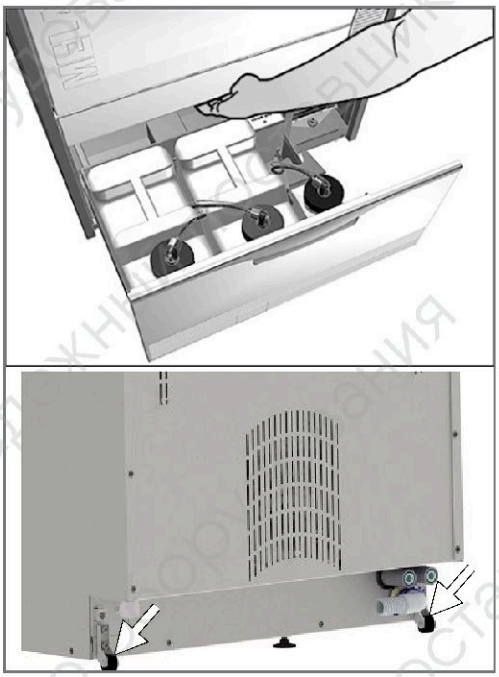
1. Slightly unscrew the fore caster for transport purposes.
2. After transportation, screw in the fore caster.

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Positioning the device

If the device is to be set up in a niche underneath a work surface, proceed as follows:

1. Open the drawer and lift the device slightly. Move the device on its rear caster into the required position.



2. As soon as the required position is reached, screw the rear middle device foot downwards using an Allen key (4 mm) and align the device horizontally.

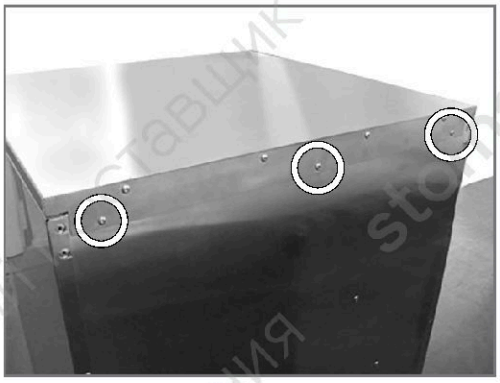


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Removing the stainless steel cover plate

1. Unscrew and remove the three TORX screws (TX 20) on the rear side of the device.



2. Push the stainless steel cover plate approx. 6 mm backwards and remove upwards.



Aligning the device horizontally

Align the device horizontally.

1. Turn the fore device feet in or out with an open-end wrench (size 24). Then tighten the counter nut with an open-end wrench (size 13).
2. Use an Allen key (4 mm) to adjust the rear device foot in the middle from inside.

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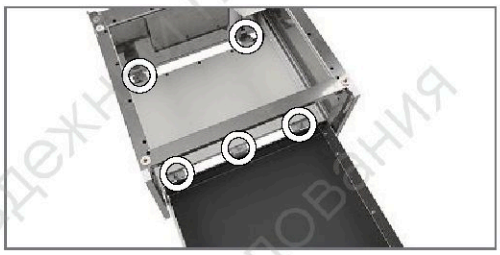
Aligning the device with floor unit

PLEASE NOTE

In order to align the device with floor unit (top-frame device), it is recommended to align the floor unit first and then mount the device onto the floor unit, see Fitting the device on a floor unit [▸ page 18].

Move and align the floor unit as follows:

1. Open the drawer of the floor unit to its fullest extent in order to obtain free access to the casters.



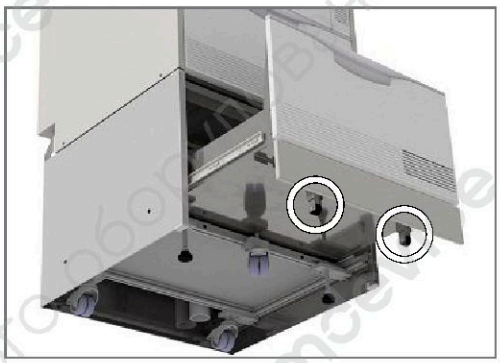
2. Slightly unscrew the third fore caster.

   ➥ The floor unit can now be moved in its final position.

3. Afterwards, screw the middle caster in using an Allen key (5 mm).
4. The rear casters and the feet are also adjusted by screwing them in or out.
5. Fix the position of the Allen screws by countering the nuts.

Adjust the support rollers of the drawer as follows:

6. Open the drawer of the floor unit to its fullest extent.
7. Remove the drawer mat.
8. Adjust the support rollers in height as required by screwing the Allen screws (5 mm) in or out.



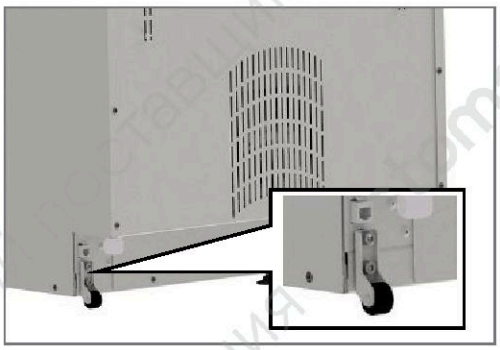
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Fitting the device on a floor unit

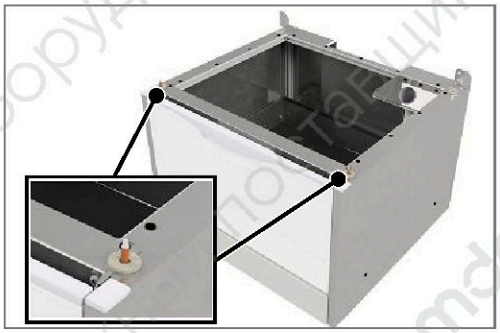
In order to fit the device on a floor unit, proceed as follows:

1. Unscrew both rear casters including rails using a 5 mm ball-head Allen key. Reuse the screws to secure the bracket.

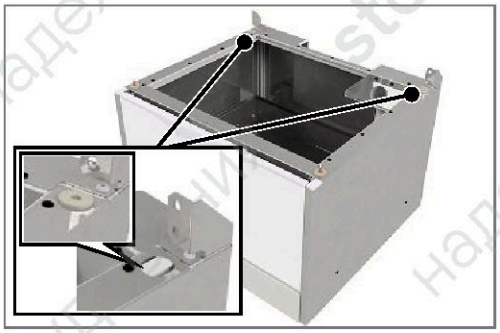


2. Unscrew and remove both fore device feet and the rear device foot using an open-end wrench (size 24).

3. Place the 3 mm flat washers on both fore pins on the corners of the floor unit.



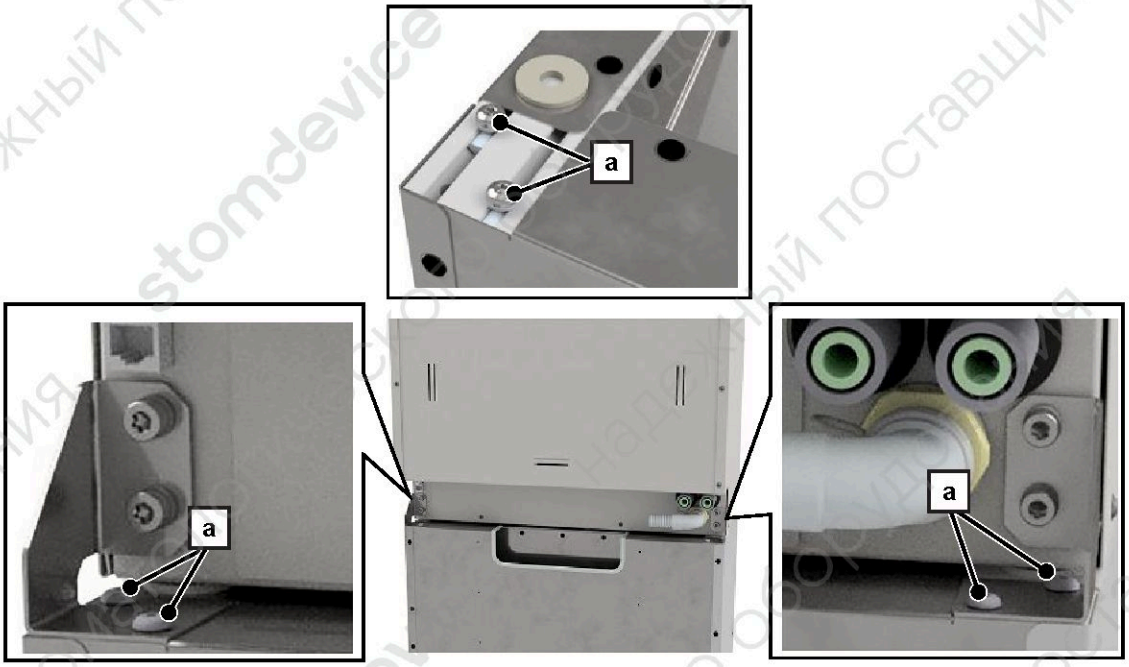
4. Place the 3 mm flat washers on both rear holes on the corners of the floor unit.



5. Place the MELAtherm on the floor unit.

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6. Screw the two brackets (scope of delivery of the floor unit) on the MELAtherm and the floor unit using the screws and flat washers (see pos. a).



7. The closed side of the bracket must point outwards.
8. Secure the device with floor unit on the wall with the aid of the wall fixture, see "Instructions for installing the wall fixture" (doc.: AS_025-17).

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4 Commissioning

After installing the device, the following works have to be performed in accordance with the record of installation and setup. Tools required:

- High-precision scales (accuracy d=0.1 g or better)
- Measuring cylinder with a scale of up to 250 ml (+/- 2 ml)

Date and time

▸ Set date and time in the `Settings` menu.

Logging

▸ In the `Settings` > `Log settings` menu, perform the required settings in order to record and save the logs.

Filling the regeneration salt

1. Before first commissioning, fill the salt container with water until it flows over so salt can dissolve in it.
2. Fill the salt container with 1 kg of regenerating salt. If there is not enough salt in the container, the device must not be operated.
3. After filling salt wait about three minutes before starting a program so that the salt can dissolve.

Determining the water hardness

1. Determine the local water hardness using a titration test (e.g. from Caldur, art. no. 71000). Allow the water to run a little before conducting the test. This ensures an exact result.
2. Set the determined water hardness in the `Settings` > `Water hardness in °dH` menu.

Regeneration

▸ Start the "Regeneration" program.

Filling process agents

1. Place a 5 l container of cleaning agent and a 5 l container of neutralizer in the device drawer, and close them with the corresponding cap (blue = cleaning agent, red = neutralizer) and suction lance.
2. Transfer the rinse aid from the original packaging into the 1 l container and close the container with the black cap with suction lance.

NOTICE

Do not use a rinse aid to reprocess ophthalmological instruments!

- Remove the rinse aid container from the process agent drawer and hang the black suction lance in the suction lance bracket.

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Checking the metering concentration

The metering concentration is pre-set for the first commissioning and may be adapted to local conditions by the service technician.

1. In the `Settings > Diagnosis and service > Service > VRP Process-relevant parameters`, select the program to be checked.
2. Check the metering concentration in the respective partial cycle and set the concentration anew, if necessary.

PLEASE NOTE

Observe the metering specifications of the process agent manufacturer. This information is indicated on the container in ml/l or on separate data sheets provided by the manufacturer.

Bleeding the metering system

- Start the program “Air removal” before commissioning.

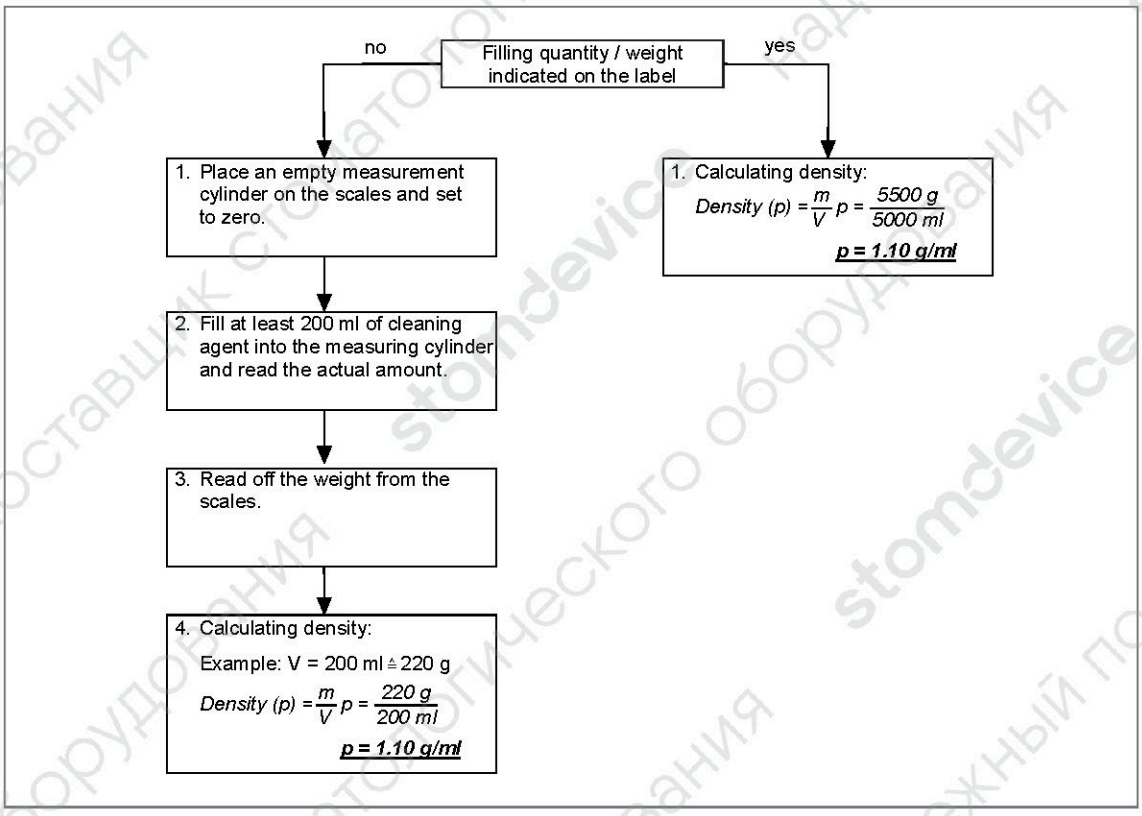
Checking the metering accuracy

Ascertaining the density of the process agents

Depending on the manufacturer, the density or filling level with the associated weight is directly indicated on the label of the process agents.

If the label or data sheet of the process agents does not provide information regarding the density, then the density of the cleaning agent, neutralizer and rinse aid (not for ophthalmology) must be ascertained.

The following scheme shows the ascertainment of the density of the cleaning agent. The ascertainment of the density of the other process agents can be done the same fashion.



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Ascertaining the metering quantities of the process agents

After ascertaining the density, ascertain the metering quantity in gramme [g]. During a program run, proceed as follows to calculate the quantities of cleaning agent, neutralizer and rinse aid consumed:

1. Either place the cleaning agent container on the scales and read off the total weight or reset the scales to zero by pressing the tare key if possible.
2. Start the device with basis basket in the program preferred by the practice (**PLEASE NOTE:** In the ophthalmology the Ophthalmo-Program).
3. Check all connections, chamber conduits for leaks during a program run.
   ➥ As soon as the display shows “Cleaning” and the metering temperature is reached, the cleaning agent metering pump will start metering the cleaning agent audibly. The metering has stopped once the pump sound has stopped.
4. Note the weight change in grammes after metering the cleaning agent.
5. Take the cleaning agent container from the scales.
6. Either place the container with neutralizer on the scales and ascertain the total weight or reset the scales to zero by pressing the tare key if possible.
   ➥ As soon as the displays shows "Neutralization", the neutralizer metering pump will start metering the neutralizer audibly. The metering has stopped once the pump sound has stopped.
7. Note the weight change in grammes after metering the neutralizer.
8. Take the neutralizer container from the scales.

PLEASE NOTE

The rinse aid must not be used in the Ophthalmo-Program.

9. Either place the container with rinse aid on the scales and ascertain the total weight or reset the scales to zero by pressing the tare key if possible.
   ➥ As soon as the display shows “Disinfection” and the metering temperature is reached, the rinse aid metering pump will start metering the rinse aid audibly. The metering has stopped once the pump sound has stopped.
10. Note the weight change in grammes after metering the rinse aid.

PLEASE NOTE

The exhaust hose must be re-mounted before the end of disinfection (5 min holding time) in order to avoid steam and hot air emission.

11. Ten minutes before program end, the program can be stopped in the “Drying” partial cycle.

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Converting the ascertained metering quantities of the process agents

Based on the ascertained density and the metering quantities in gramme [g] it is possible to convert the metering quantity of the process agents in millilitre [ml].

The following example shows the ascertainment of the metering quantity of the cleaning agent in millilitre. The ascertainment of the metering quantity of the other process agents can be done the same fashion.

$$\text{Metering quantity [ml]} = \frac{\text{Metering quantity [g]}}{\text{Density [g/ml]}}$$

Example:

For example, the cleaning agent weighed 30.8 g in the Universal-Program. => Metering quantity = 30.8 g

The ascertained density of the cleaning agent is 1.1 g/ml.

$$\text{Metering quantity} = \frac{30.8\ g}{1.1\ g/ml} = \mathbf{28\ ml}$$

Checking the metered quantity actual / target

Using the log printout of the previous program, compare the nominal metering values of the process agents with the ascertained values. A maximum deviation of +/- 10 % is permissible. Should larger deviations occur, ascertain the metered quantity/minute for the corresponding pump again. Finally re-check the actual metered quantity in the corresponding partial cycle.

The following example serves to ascertain the percentage deviation between the nominal and the actual value of the metered quantity of the cleaning agent Apply the same procedure for other process agents.

Read off the nominal value of the cleaning agent from the program log and compare this value with the calculated actual value before calculating the percentage of deviation.

$$x = \left(\frac{V\ (actual)}{V\ (target)} - 1\right) \times \mathbf{100}$$

Example:

Calculated metering quantity: V (actual) = 28 ml
Metering quantity acc. to log printout: V (target) = 27.8 ml

$$\left(\frac{28\ ml}{27.8\ ml} - 1\right) \times \mathbf{100} \Longrightarrow \mathbf{x = 0.7\ \%}$$

The check of the metering quantity reveals a deviation of 0.7 %.

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Exceptions when setting up at altitudes

In high altitude areas, the boiling temperature of the washing liquor is reduced which requires a reduction of the disinfection temperature.

PLEASE NOTE

If the process-relevant parameters (VRP) are not set according to the altitude area at the site of installation, then a malfunction might be the consequence.

- Perform the parameter settings for all available programs.

When having an altitude above 800 m, perform the following settings in order to reduce the disinfection temperature:

✓ *The* `Service` > `VRP Process-relevant parameters` *menu is displayed.*

1. Select the partial cycle "Disinfection" in the respective program.
2. In the partial cycle "Disinfection", set the parameter `Time in s` to 600 s and the parameter `Temperature in °C` to 88 °C.
3. Perform these settings for all available programs.
4. Note these settings in the Process-relevant parameters (VRP) [▶ page 25] chapter.

Resetting the maintenance counter

The maintenance counter must be checked upon first commissioning.

In a device which has not yet been used, the maintenance counter is already running as it saved the manufacture date after completion.

Reset the maintenance counter after the set-up in the `Diagnosis and service` menu, see separate instructions "Resetting the maintenance counter" (doc.: AS_005-18).

Checklist

- The water treatment unit is connected.
- The salt container contains sufficient salt.
- The cold water tap is open.
- The device power switch is on.
- The "Regeneration" program has been started first.
- The process agents have been filled.
- The metering system has been bled.
- The metering process has been checked in terms of the metering quantity.
- The basis basket is in place.

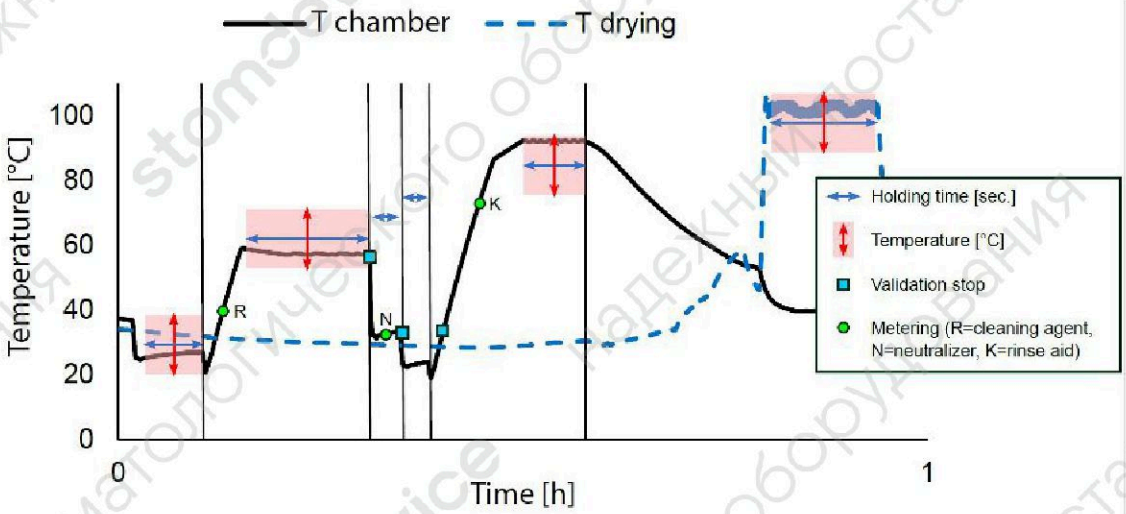
Validation

Detailed information regarding the validation of the device can be found in the separate document "Recommodations for the validation of MELAtherm 10 Evolution" (doc.: AS_007-19).

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5 Process-relevant parameters (VRP)

Universal-Program



Factory settings Universal-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition	1	1	1	1	1	1
Holding time [sec.]	210	600	60	60	300	600
Temperature [°C]	22	55	--	--	90	100
Metering temp. [°C]	--	R: 40	--	--	K: 70	--
Metering conc. [ml/l]	--	R: 6	N: 1.5	--	K: 0.3	--
DI proportion [%]	0	0	0	0	100	--
Quantity of water [l]	7	7	7	7	7	--

When changing the VRP, make a copy and enter the values in the following table:

Changes Universal-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition						
Holding time [sec.]						
Temperature [°C]			--	--		
Metering temp. [°C]	--	R:	--	--	K:	--
Metering conc. [ml/l]	--	R:	N:	--	K:	--
DI proportion [%]						--
Quantity of water [l]						--

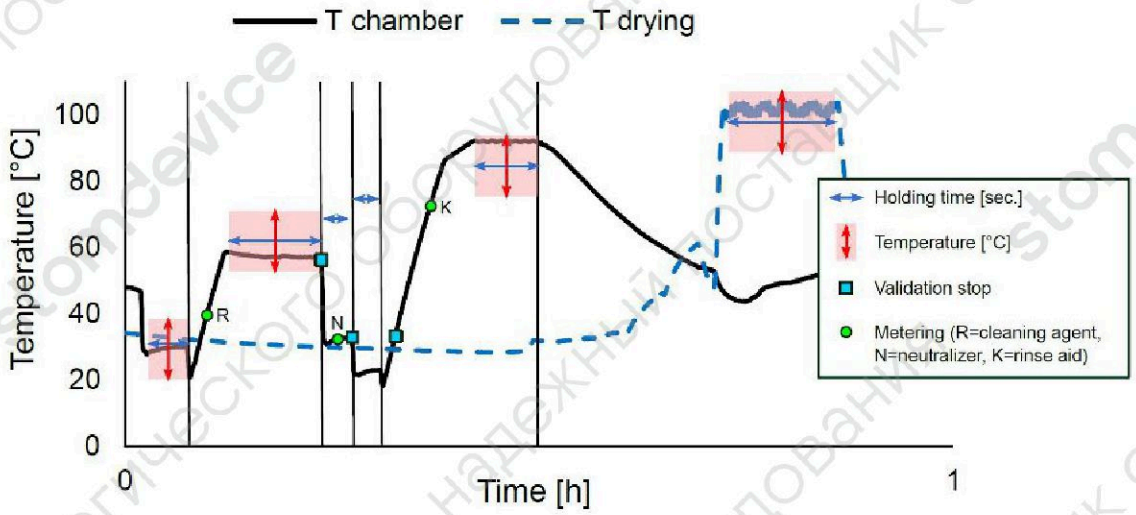
Incorrect changes of the parameters can result in personal injury and/or damage to the device as well as damage to property. MELAG does not accept any liability for such damage.

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Quick-Program



Factory settings Quick-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition	1	1	1	1	1	1
Holding time [sec.]	90	420	60	30	300	600
Temperature [°C]	22	55	--	--	90	100
Metering temp. [°C]	--	R: 40	--	--	K: 70	--
Metering conc. [ml/l]	--	R: 6	N: 1.5	--	K: 0.3	--
DI proportion [%]	0	0	0	0	100	--
Quantity of water [l]	7	7	7	7	7	--

When changing the VRP, make a copy and enter the values in the following table:

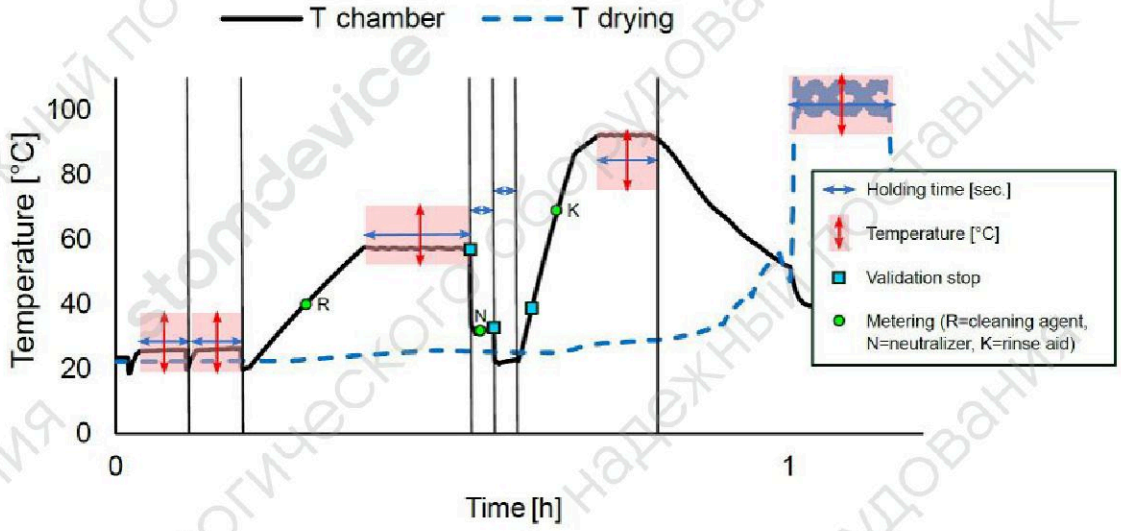
Changes Quick-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition						
Holding time [sec.]						
Temperature [°C]			--	--		
Metering temp. [°C]	--	R:	--	--	K:	--
Metering conc. [ml/l]	--	R:	N:	--	K:	--
DI proportion [%]						--
Quantity of water [l]						--

Incorrect changes of the parameters can result in personal injury and/or damage to the device as well as damage to property. MELAG does not accept any liability for such damage.

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Intensive-Program



Factory settings Intensive-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition	2	1	1	1	1	1
Holding time [sec.]	180	600	60	60	300	600
Temperature [°C]	22	55	--	--	90	100
Metering temp. [°C]	--	R: 40	--	--	K: 70	--
Metering conc. [ml/l]	--	R: 10	N: 1.5	--	K: 0.3	--
DI proportion [%]	0	0	0	0	100	--
Quantity of water [l]	7	7	7	7	7	--

When changing the VRP, make a copy and enter the values in the following table:

Changes Intensive-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing	Disinfec-tion	Drying
Partial cycle repetition						
Holding time [sec.]						
Temperature [°C]			--	--		
Metering temp. [°C]	--	R:	--	--	K:	--
Metering conc. [ml/l]	--	R:	N:	--	K:	--
DI proportion [%]						--
Quantity of water [l]						--

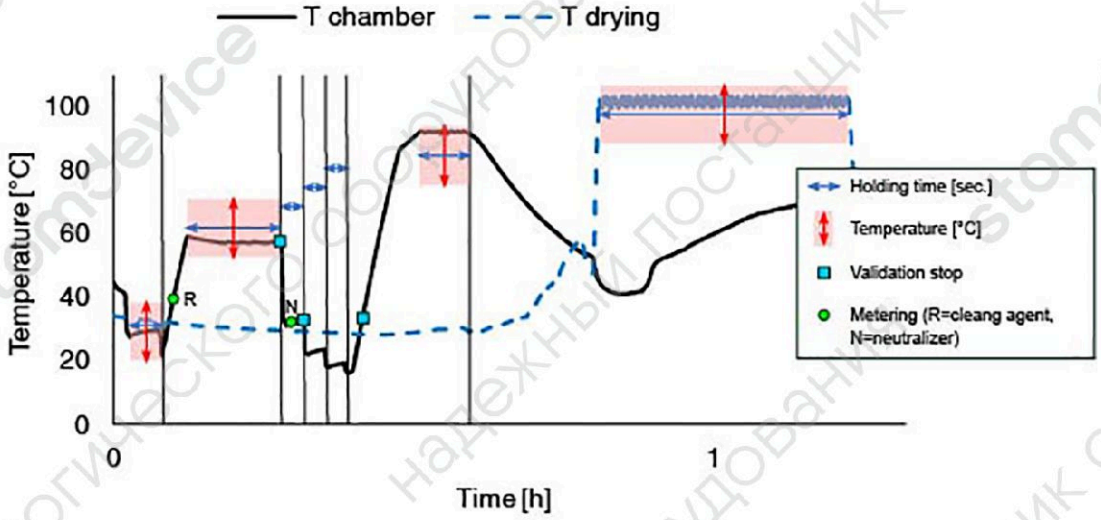
Incorrect changes of the parameters can result in personal injury and/or damage to the device as well as damage to property. MELAG does not accept any liability for such damage.

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Ophthalmo-Program



Factory settings Ophthalmo-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing		Disinfec-tion	Drying
				I	II		
Partial cycle repetition	1	1	1	1	1	1	1
Holding time [sec.]	90	600	60	60	60	300	1800
Temperature [°C]	22	55	--	--	--	90	100
Metering temp. [°C]	--	R: 40	--	--	--	--	--
Metering conc. [ml/l]	--	R: 6	N: 1.5	--	--	--	--
DI proportion [%]	0	0	0	100	100	100	--
Quantity of water [l]	7	7	7	7	7	7	--

When changing the VRP, make a copy and enter the values in the following table:

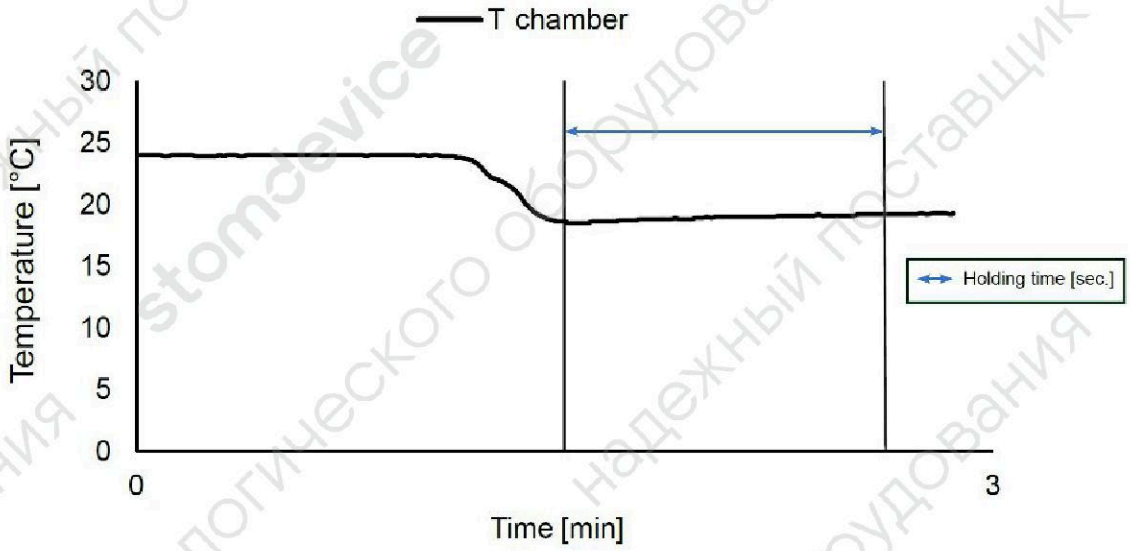
Changes Ophthalmo-Program	Pre-cleaning	Cleaning	Neutrali-zation	Intermed. rinsing		Disinfec-tion	Drying
				I	II		
Partial cycle repetition							
Holding time [sec.]							
Temperature [°C]			--	--	--		
Metering temp. [°C]	--	R:	--	--	--	--	--
Metering conc. [ml/l]	--	R:	N:	--	--	--	--
DI proportion [%]							--
Quantity of water [l]							--

Incorrect changes of the parameters can result in personal injury and/or damage to the device as well as damage to property. MELAG does not accept any liability for such damage.

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Rinsing



Factory settings "Rinsing" program	Rinsing
Partial cycle repetition	1
Holding time [sec.]	120
Temperature [°C]	--
Metering temp. [°C]	--
Metering conc. [ml/l]	--
DI proportion [%]	0
Quantity of water [l]	7

When changing the VRP, make a copy and enter the values in the following table:

Changes "Rinsing" program	Rinsing
Partial cycle repetition	
Holding time [sec.]	
Temperature [°C]	--
Metering temp. [°C]	--
Metering conc. [ml/l]	--
DI proportion [%]	
Quantity of water [l]	

Incorrect changes of the parameters can result in personal injury and/or damage to the device as well as damage to property. MELAG does not accept any liability for such damage.

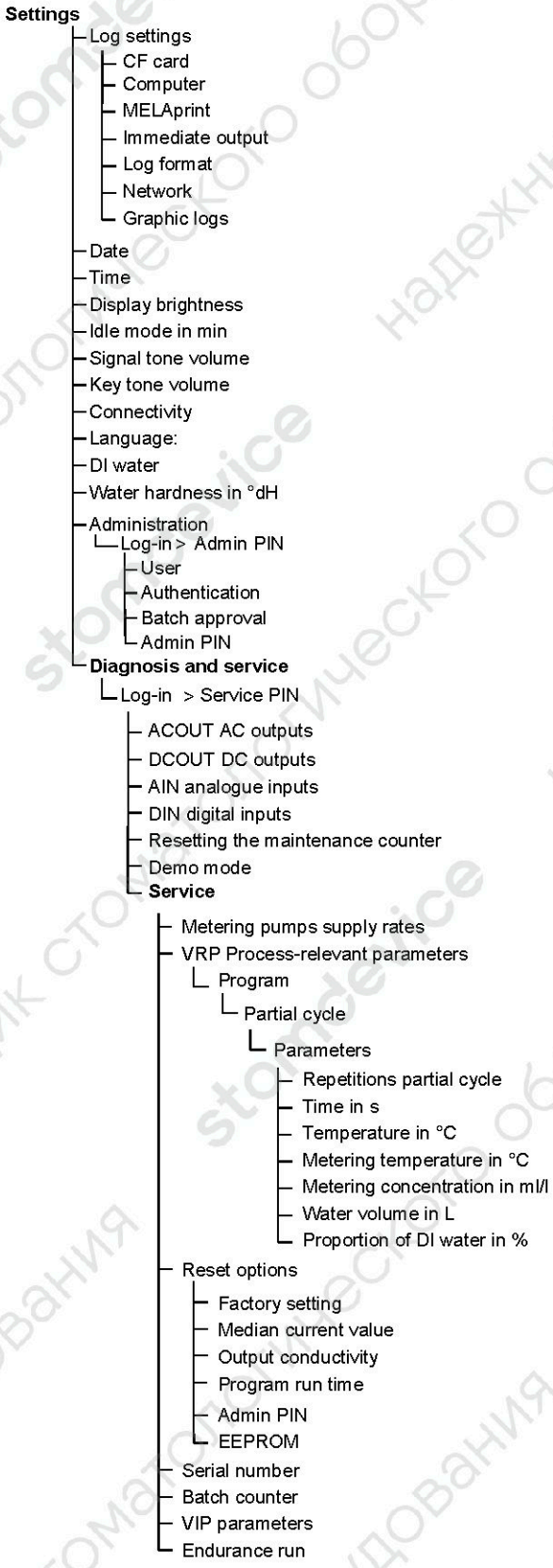
Date: _____ Signature service technician: _____

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6 Settings

Menu overview



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Setting the IP address

NOTICE

The setting up in the (practice) network will require in-depth understanding of the network technology.

Handling errors of IP addresses can result in malfunctions and data loss in your user network.

- IP addresses may only be set by the (practice) network system administrator.

The device is equipped as standard with IP addresses which all belong to a common network with the sub-net mask stated in the table "Pre-setting of the IP addresses in the device ex works". Observe the following before integrating the device in a present (practice) network (and only then!):

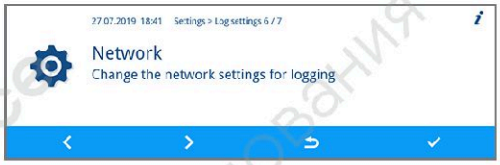
- The IP addresses listed in the table "Pre-setting of the IP addresses in the device ex works" must not be assigned to the (practice) network yet.
- The device cannot be automatically administered in a dynamic (practice) network (i. e. a DHCP network).

Presetting of the IP addresses in the device ex works

Device	IP address	Remarks
MELAtherm IP	192.168.41.10	Preset works side
Computer IP	192.168.40.140	Preset works side
Log printer	192.168.40.240	Preset works side
[Client3]	[192.168.40.144]	[..] not yet used / cannot be changed
Gateway IP	192.168.40.244	Not relevant within a network
Subnet mask	255.255.255.0	Possibly to be taken over by customer network

✓ *The* `Settings` > `Log settings` > `Network` *menu is displayed.*

1. Press the `FORWARDS` or `BACK` key to navigate to the desired output medium e.g. `MELAtherm-IP`.



2. Press the `CONFIRM` key.



3. Press the `FORWARDS` or `BACK` key to select the digit to be changed. The open arrow on the left of the digit indicates the current selection.



4. Press the `EDIT` key.

5. Press the `FORWARDS` or `BACK` key to change the language.



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PLEASE NOTE

Holding the FORWARDS or BACK key pressed accelerates the increase or decrease.

6. Press the CONFIRM key to accept the change.



7. Repeat steps 3 to 6, to change further digits of the IP.

Selecting the connection via FTP or TCP

Connection via FTP

✓ *The Settings > Log settings > Network menu is displayed.*

1. Press the FORWARDS or BACK key until the Type of connection window is displayed.



2. Press the EDIT key.



3. Press the FORWARDS or BACK key to change between **0** for FTP and **1** (TCP/IP).



4. Press the CONFIRM key to accept the change.



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Changing the FTP password attachment / TCP port

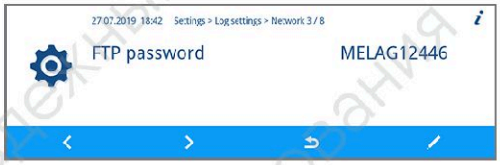
The following section describes how to set the FTP password. The TCP port is set in the same fashion.

✓ *The* `Settings` > `Log settings` > `Network` *menu is displayed.*

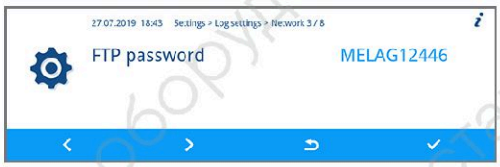
1. Press the `FORWARDS` or `BACK` key until the `FTP password` parameter are displayed.



2. Press the `EDIT` key.



3. Press the `FORWARDS` or `BACK` key to change the parameter.



PLEASE NOTE

Holding the `FORWARDS` or `BACK` key pressed accelerates the increase or decrease.

4. Press the key `CONFIRM` to accept the change.



PLEASE NOTE

If the device is integrated in the (practice) network via a TCP connection, you will require a suitable program, e.g. MELAview/MELAtrace.

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7 Frequently Asked Questions (FAQ)

How to open and print a log?

All pure text log files are text files in ASCII format which you can also read, print or edit using simple text editors of every operating system or with a word processing or table calculation program. Graphic logs can only be displayed with MELAview/MELAtrace.

The file ending shows the operating system and program with which a file can be opened and processed. The computer does not usually recognize the log file endings. It is necessary to "inform" the operating system that a file with endings such as PRO, STR or LOG should always be opened with the text editor.

The following example of the Windows editor shows how you can link this with a particular ending.

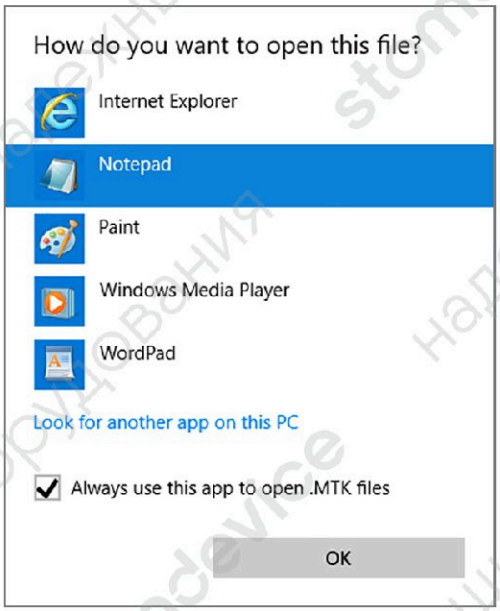
1. Working in Windows Explorer, double click on the log file.

2. If the file ending is unfamiliar, Windows 10 will display the following message:



3. Select "Try an app on this PC".

4. Mark the Notepad and confirm with "OK".



➥ You can then open files with this ending via a double-click in Windows Editor.

Alternatively, you can open all text and graphic logs with the documentation software MELAview/MELAtrace. MELAG has developed MELAview/MELAtrace for the display and sorting of logs and for recording graphic logs during a program run. Text and graphic logs can be printed from MELAview/MELAtrace or exported in various data formats.

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What does the log name mean?

Complete encoding of both the serial number and the total batch number is performed in the 8 digit log name. Manually re-named files are always easy to identify but not to be recommended. A log name is never assigned twice. The log name achieves good log sortability.

Knowledge of the encoding within the name of the log file is not necessary, as a double-click on the file reveals the content and thus serial number and total batch number immediately. This requires assignment of a log file to a text editor.

<table>
<tr><td>Pos.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td></td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Ex.</td><td>C</td><td>R</td><td>0</td><td>Z</td><td>H</td><td>1</td><td>K</td><td>P</td><td>.</td><td>P</td><td>R</td><td>O</td></tr>
<tr><td>Meaning</td><td colspan="5">Serial number</td><td colspan="3">Batch</td><td></td><td colspan="3">End of the log files</td></tr>
<tr><td>Explanation</td><td>Year of constr.</td><td>Type</td><td colspan="3">Manufacture number</td><td colspan="3"></td><td></td><td colspan="3"></td></tr>
<tr><td></td><td>A..2010
B..2011
C..2012
D..2013
E..2014
F..</td><td>10-DTA
10-DTB
10E-DTA
10E-DTB</td><td colspan="5">The manufacture number and the total batch number are converted according to the same principle. A small Excel application makes the conversion possible.</td><td></td><td colspan="3">PRO...Progr. successful
GPD...Graphic log
STR...Malfunction
STB...Malfunction in standby
LOG...System log
STA...Status log
LEG...Key
DEM...Demo log
DES...Demo malfunction</td></tr>
</table>

Date and time of the log files

The date and time of the log files in Windows explorer are identical with the time of the program start, provided of course that the files were saved on the corresponding medium via immediate output. The information is lost upon subsequent collected issue on a medium or e-mail dispatch.

Following change of the control electronics

If the control electronics must be replaced, the total batch count must be re-entered. This is possible in menu `Service > Batch counter` (only for authorized specialists).

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How to format a CF card in the device?

NOTICE

All data saved on the CF card is deleted during formatting.

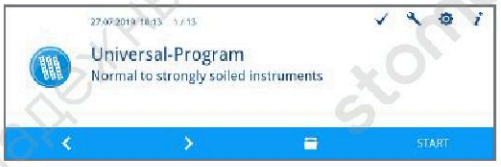
- Check whether important data is stored on the CF card.
- Save any logs or other data on the computer or another memory medium.

Format the CF card as follows:

1. Insert the CF card in the card slot correctly (tangible raised bar on the edge pointing towards the display). Do not use force.



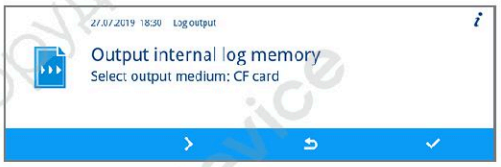
2. Working in the main menu, press the `FORWARDS` or `BACK` key until the `Log output` menu is displayed.



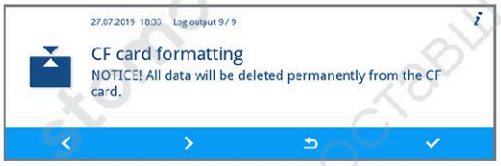
3. Press the `CONFIRM` key to open the menu.



4. Press the `CONFIRM` key again and then the `FORWARDS` key until `CF card formatting` is displayed.



5. Press the `CONFIRM` key to perform formatting. All the data saved on the CF card will be deleted.



6. Press the `YES` key to start the formatting.



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How to format a CF card on the computer correctly?

The CF card should be only formatted on the device. Formatting on the computer is permissible only under exceptional circumstances. The CF card to be used may have a max. memory capacity of 4 GB and must be formatted with the file system FAT16 or FAT32. CF cards from which a software update is to be performed may only be formatted in a FAT16 file system.

The device can only file or read data on CF cards formatted in this way. CF cards supplied by MELAG fulfil these requirements and have already been formatted.

Formatting on a computer is described in Windows 10:

1. Insert the CF card in the MELAflash card reader installed and connected to the computer.
2. Working in Windows Explorer, `This PC` > `Devices and drives` select the corresponding drive and open the menu window by right-click.
3. Working in the menu window, select `Format...`. The adjacent dialogue window opens.
4. Working under the file system, select format `FAT (Default)`.
5. Working under `Allocation unit size`, Windows automatically selects the appropriate allocation unit for the size of the CF card. The allocation unit is dependent of the size of the CF card.
6. Click on `Start`.



How to integrate the device in a (practice) network?

Arrange for the IT company that services your network to integrate your device in the network.

The following requirements must be fulfilled:

- The computer is fitted with a network card with RJ45 bushing (LAN).
- Log archive via FTP: an FTP server*) or an FTP service is installed on the computer that permits the creation of users with write permission independent of the operating system.
- Log output via TCP: a suitable program, e.g. MELAview/MELAtrace, is installed.

*) We recommend using the MELAG FTP server to integrate network-compatible MELAG devices in a (practice) network.

1. Ask the IT administrator for the IP address of the computer or find out yourself. The logs of the completed programs are saved on this computer later. When choosing the computer, be aware that it would be advantageous to integrate the saved logs in the automatic data saving system of the practice.
2. Connect the Ethernet cable to any Ethernet data connection on the device, preferably on the rear panel of the device and connect it with the (practice) network. Should you wish to connect the device to a computer directly, use a 1:1 cable.
3. Enter the specified IP addresses for the device and the connected media (see Setting the IP address [▶ page 31]). The selected computer must always have a fixed IP address, regardless of whether it is in an automatically or manually configured network. The device and computer must belong to a subnetwork (e.g.: MELAtherm IP: 192.168.41.10 and computer IP: 192.168.40.140).
4. Check whether an FTP server is installed on the computer or install one.

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How to set up the FTP server?

The following describes how to log on a device as user using the example of the MELAG FTP server:

1. Install the MELAG FTP server on your computer. If you have MELAview/MELAtrace, start the installation directly from the installation assistant of MELAview/MELAtrace and follow the instructions for installation.

PLEASE NOTE

To be able to install the FTP server by MELAG, you need to install the free-of-charge media library "Microsoft .NET Framework 2.0" or a higher version on your computer. With Windows Vista this media library is already included in the operating system.

2. Start the program. Depending on the configuration of the computer, it may be necessary to set the FTP is an exception for the firewall of the computer.
3. Enter MELAtherm 10 as new user in the **User** tab.
   User name = serial number of the device, e.g. 201910E-DTA1111; user password = MELAG12345.
   Enter the four digits of the year of construction as the user name. The name plate only specifies the two end digits of the year of construction.
   Example: If the name plate contains "1910E-DTA1111", enter exactly "201910E-DTA1111" as the user name.
4. Click on the folder and select the desired directory as storage location.
5. In the `Log output` menu, output a system or status log for testing.
6. Start the additional program "Rinse" and check the immediate output of the log.

PLEASE NOTE

Moving the FTP server to another folder on the computer results in the loss of the user settings.

- Never move the program files of the FTP server program.

Messages which could be displayed in the window of the FTP server	Meaning
The following line is displayed for a longer time period: `14:12:14 Server has been started at Port 21`	▪ The cable connection is defective. ▪ The computer IP address is not set correctly in the device (see Setting the IP address [▶ page 31]).

The following lines are repeatedly displayed for a longer time period:
`< 14:12:22 192.168.41.10 USER: 201910E-DTA1111`
`> 14:12:22 192.168.41.10 USER: 201910E-DTA1111`
`<< Login or password incorrect >>`
	▪ The password MELAG12345 was not entered correctly.

The following lines are displayed approx. every eight seconds:
`< 14:03:22 192.168.41.10 USER: 201910E-DTA1111`
`> 14:03:22 192.168.41.10 USER: 201910E-DTA1111`
`<< is logged in.>>`
`> 14:03:52 192.168.41.10 USER: 201910E-DTA1111`
`<< C:\Dokumente und Einstellungen\Admin\Eigene Dateien\Protokolle >>`
`< 14:12:22 192.168.41.10`
QUIT
	▪ The device and the FTP server are successfully connected. But no logs are transferred.

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What do the terms IP address, subnetwork and DHCP mean?

Term	Meaning
IP address	The IP address is a identifier of the computer or device expressed in numbers in a network. It serves to identify the computer or device with four number blocks (e.g. 192.168.88.8).
Subnetwork	Every IP address is divided into a network and a device (host) section. The division is performed via the subnetwork mask (also: subnet/sub-net mask). The network section of the IP addresses must be identical so that the devices can communicate with each other. With a network entry mask = 255.255.255.0 (the most often) the first three numbers (e.g. 192.168.88.x) must be the same. The device part of the IP address is assigned individually and only once. The first (network itself) and the highest (broadcast) device address may not be issued.
DHCP	The IP addresses are automatically issued in a computer network via DHCP (= Dynamic Host Configuration Protocol) i.e. the IP addresses need not be entered manually in every device in the network. The precondition is the presence of a DHCP server in a network.

How to determine the software version of the device?

1. Press the `STATUS` key in the context menu in order to open the `Status` menu.



   ➥ The `Status 1 / 14` window shows the device software.

2. Press the `FORWARDS` or `BACK` key to display more device data.

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MELAG Medizintechnik GmbH & Co. KG

Geneststraße 6-10
10829 Berlin
Germany

Email: info@melag.com
Web: www.melag.com

Original instructions

Responsible for content: MELAG Medizintechnik GmbH & Co. KG
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