User Manual

MELA*therm*®10

Washer-Disinfector

Software version 1.309

Dear Dr.

We should like to extend our thanks for the expression of trust in our company which you have displayed through the purchase of this MELAG product.

As an owner-run and operated family concern founded in 1951, we have a long history of successful specialization in hygiene products for practice-based use. Our focus on innovation, quality and the highest standards of operational reliability has established MELAG as the world's leading manufacturer in the instrument treatment and hygiene field.

You, our customer are justified in your demand for the best products, quality and reliability. Providing **"competence in hygiene"** and **"Quality – made in Germany"**, we guarantee that these demands will be met. Our certified quality management systems is subject to close monitoring: one instrument to this end is our annual multi-day audit conducted in accordance with ISO 13485 and ISO 9001. This guarantees that all MELAG products are manufactured and tested in accordance with strict quality criteria.

The MELAG management and team.

CE 0197

General Guidelines

Please read this User Manual before you start operation of the device. The manual contains important safety information. The functionality and value-retention of this autoclave depend on the care accorded to it.

Make sure to keep the User Manual close to the device. It represents a component of the product.

User Group

This manual is targeted at doctors, medical assistants and service.

Validity

This manual applies to the devices MELA*therm* 10 DTA and MELA*therm* 10 DTB.

About these Instructions

Symbols used

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

Marking rules

Symbol	Explanation
→HEPA filter	Words or phrases marked with an arrow are explained in the glossary. The glossary is listed alphabetically. It can be found at the end of this manual.
`Cleaning`	Words or phrases appearing on the display of the device are marked as display text.
see **Chapter 2**	Reference to another text section or a figure within this manual.

Symbols on the device

Symbol	Explanation
	In affixing the CE mark, the manufacturer declares that this medical product fulfils the basic requirements of the medical products directive. The four-digit number confirms that this is monitored by an approved certification agency.
	The symbol of the crossed out waste bin identifies a device that must not be disposed in domestic waste. The vendor is responsible for proper and professional disposal. By the designation of an apparatus with this symbol, the manufacturer furthermore declares that he satisfies all requirements of the law concerning the release, redemption and environmentally sound disposal of electric and electronic appliances.

Disposal

The packaging protects the device against transport damage. The packaging materials have been selected for their environmentally-friendly and recycling properties and can be recycled. Returning the packaging to the material flow reduces the amount of waste and saves raw materials. Dispose of all non-required packaging materials at the collection points of the dual system.

Dispose of waste from process agents in accordance with the specifications from the manufacturer of the process agents. Information regarding this topic is provided by the safety data sheets or can be obtained directly from the manufacturer of the process agents.
Dispose of accessories and consumption media which you no longer require (e.g. used filters) in the appropriate manner. Comply with all relevant disposal specification in terms of possibly contaminated waste.

Contents

⚠ Safety Instructions

When operating the device, please ensure that you observe the following safety instructions as well as those contained in the following chapters.

Purpose

- Use the device only for the purpose named in the user manual.

Power cable and mains socket

- All legal specifications and electrical operating conditions of the local electricity provider must be complied with completely.
- Never damage or alter the plug or mains cable.
- Never operate the device if the mains cable or power plugs are damaged.
- Never unplug by pulling on the power cable. Always grip the plug itself.

Set-up installation and commissioning

- Only have the device set up, installed, and started up by people →authorised by MELAG.
- Check the device for any damage suffered during transport after unpacking.
- Only operate the device in areas that are not subject to explosion hazards.
- The connections for electrical provision and water supply and discharge must be set-up by trained personnel.
- Documentation media (computer, CF card reader, etc.) must be placed in such a way that they cannot come into contact with liquids.

Daily operation

- Use only those instruments designed by their manufacturer for automatic treatment in a washer disinfector. Please ensure that you observe the information provided by the instrument manufacturers according to ISO 17664. It is especially important to observe the manufacturer's information when treating newly purchased instruments for the first time.
- Use only original MELAG accessories or those from other suppliers authorized for use by MELAG.
- When using additional accessories to accept instruments, especially hollow-bodied instruments, it is necessary to observe the information contained in the manufacturer's operating instructions.
- Observe the relevant standards and directives applicable to the treatment of instruments e.g. from the →RKI, →BfArM, →DGSV, →DGKH etc. as well as the treatment information from the instrument manufacturer and the →AKI.
- The personnel responsible for instrument treatment must be sufficiently trained and schooled.
- The fore ventilation slits must not be covered.
- Only operate the device with the basis basket provided for this purpose.

Process agents

- Handle all process agents with care. The cleaning, neutralization and rinsing aids contain irritants and even caustic substances.
- Use only those process agents cleared for use in a washer-disinfector and which MELAG has approved for use in this device. Observe the operating and safety information of the process agent manufacturer. If, despite observation of the manufacturer's information, the process agents have a negative effect on the material of the instruments or the device, liability lies with the manufacturer of the process agents.
- The use of process agents not approved by MELAG absolves MELAG of all liability whatsoever for any damage to the device or the instruments.
- Should you have any questions concerning the compatibility of the process agents with the instruments, please consult the manufacturer. MELAG provides information for the application of the process agents in the device but does not take any responsibility for their effects on the instruments.
- Any fluids in the drawer and the floor tank underneath can also contain process agents in case of damage. Ensure that you observe the information of the respective process agent manufacturer.

Maintenance

- Have the maintenance performed only by →authorised persons.

Transport and storage

- Install and operate the device in a frost-free environment. Store and transport the device in a generally frost-free environment.
- Avoid strong shocks.
- The device should always be carried by two people.
- Malfunctions
- If repeated error messages occur while operating the device, turn the device off and notify your specialist dealer.
- Only have the device repaired by →authorised persons.

Chapter 1 – Performance Specifications

In this chapter you learn

- **The purpose for which you can employ the device**
- **What benefit you can achieve by using it**
- **The cleaning programs that are available**

Proper use

This device is designed for application in a medical context, e.g. clinics and medical and dental practices.

In accordance with DIN EN ISO 15883-1 and -2, this device is a washer-disinfector. You can subject thermo-stable medical instruments (i.e. instruments which are heat resistant to a temperature of 95 °C) to automatic cleaning as long as they are suitable for this purpose.

The cleaning is undertaken via the use of water and a chemical cleaning agent.
Subsequent disinfection is performed by thermal disinfection.

This device is **not** suitable for treatment of:

- Thermo-instable instruments, e.g. flexible endoscopes
- Wastes for disposal and in the lab area
- Dishes
- Bedpans

User benefits

Universal use

The device cleans and disinfects. The disinfection phase is conceived so as to reach an A0 value of at least 3000. This eliminates vegetative bacteria and fungi/fungal spores and disables viruses (inc. HBV, HCV) thus reaching the effective range AB according to the RKI directive.

Active drying

The device has an active drying facility. This means that after cleaning and disinfection, the instruments are dried inside (interior lumen) and out via an integrated drying fan. This enables the automatic treatment of hollow-bodied instruments such as suction cannulas. This protects the instruments from stain accretion and rusting.
The additionally fitted →HEPA filter guarantees drying with →contamination-free air.
The geometry of some hollow-bodied instruments such as turbines requires additional drying.

Automatic filter recognition

The device recognizes automatically that the fine filter has not been inserted in the base of the washing chamber before starting. Thus it avoids a situation in which instrument components enter the opening of the outflow pump or the circulation pump and thus restricting the function of the pumps, rinse arms and the injector rails.

Internal water softening

The device has an internal softening plant. The water hardness of the local drinking water is set in the device. The internal water softening unit then automatically adjusts itself to the best solution. This ensures the optimal rinsing of chlorides.

Monitoring the rotation speed of the rinse arms

The rotation speed of the lower and upper rinse arms is subject to permanent monitoring during a program run. This ensures that the cleaning process proceeds without hindrance and the rinse arms do not become blocked e.g. by protruding instruments in the washing chamber.

Monitoring cleaning pressure

The cleaning pressure is monitored during a program run via a pressure sensor. This ensures effective cleaning. Excess foam generation results in the interruption of the program run.

Metering monitoring

The required amounts of cleaning agent and neutralizer are measured out using a hose measuring pump. A measurement turbine performs flow monitoring. The rinse aid is metered using a hose metering pump subject to monitoring for rotation speed.

Drawer for process agents

The drawer in the lower area of the device provides storage space for the process agents cleaning agent, neutralizer and rinse aid.

Automatic conductivity measurement

If the device is provided with DI water in the final rinse, the DI water is subject to automatic, internal conductivity measurement.

CF card, Ethernet

An integrated CF card slot and Ethernet interface enable secure and easy documentation of the entire cleaning and disinfection process. This is an important precondition for the clearance process. This enables the transfer of data from the device to your practice computer.

Display

A program can be started and settings undertaken via the two-line display with four operating keys.

Motorized door lock

The device is equipped with a comfortable locking mechanism which locks the door with an automatic door lock with a motorized lock.

Emergency release

The door can be opened manually in the case of a loss of power or malfunction using the emergency release.

Chapter 2 – Device Description

In this chapter you learn

- **Which components are included in the scope of delivery**
- **What components the device contains**
- **What safety devices the device has**
- **How the operating elements are designed and how you should use them**

Scope of delivery

Standard scope of delivery

- Washer-disinfector MELA*therm* 10
- User Manual
- Technical Manual
- Record of installation and setting up
- Declaration of conformity
- 1 Container, 5 l
- 1 container for rinse aid, 1 l
- 1 feed funnel for the regeneration salt
- 1 starter package of regeneration salt

Optionally

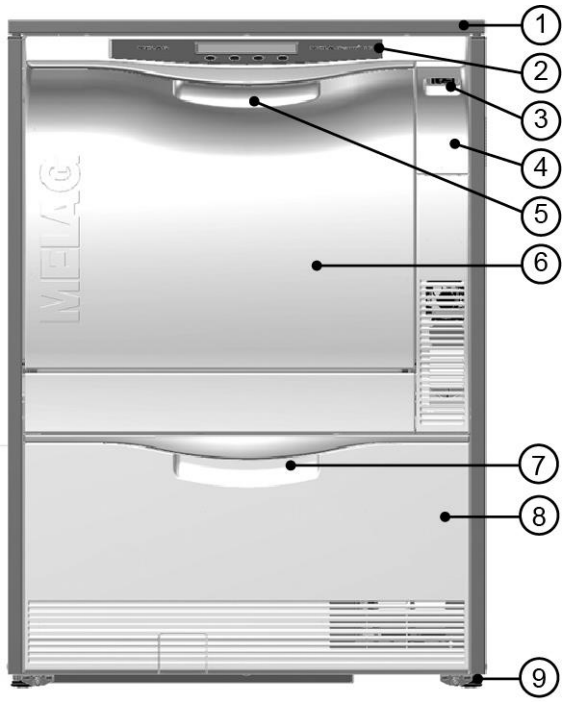
- Stainless steel cover plate (HxWxD 1.8 cm x 59.8 cm x 59.8 cm)
- Floor unit (HxWxD 40 cm x 59.8 cm x 49.8 cm)

Accessories

- According to order

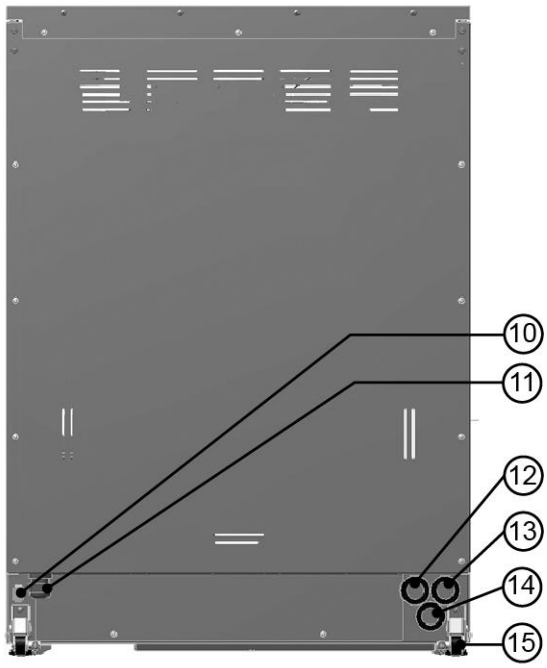
Views of the device

Front side



1. Cover plate (optional)
2. Operating and display field
3. Mains switch
4. Cover for CF card slot and Ethernet data interface
5. Door handle
6. Door, can be opened forwards
7. Drawer handle
8. Drawer for process agents, can be pulled out
9. Device front feet

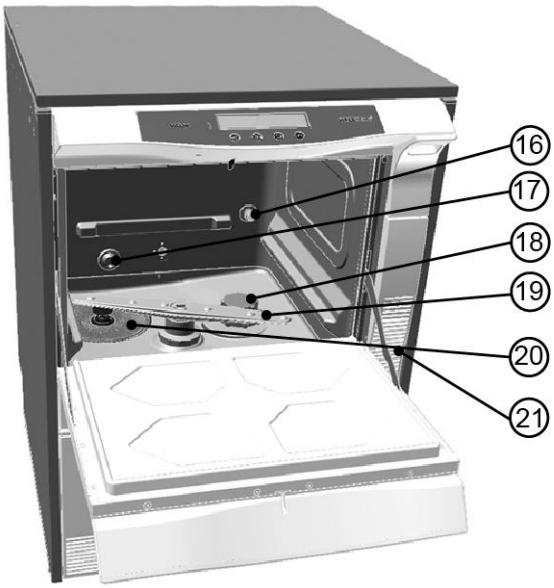
Back side



10. Ethernet-Data connection (rear)
11. Mains power cable
12. Connection for de-ionised water (DI water)
13. Connection for cold water (CW)
14. Effluent connection
15. Transport rollers

Fig. 1: Views of the device

Interior view



16. Connection tube for injector rails
17. Water intake cold water (CW) + DI water
18. Salt container
19. Rinse arm
20. Coarse and fine filter
21. Cooling slot (air outlet with active drying)

Fig. 2: Interior view

The control panel

The control panel consists of a two-line alphanumerical LED display and four membrane keys.

Keys •1 •2 •3 •4

Key	When to be used?	Function/Explanation
	e.g. program selection	Takes precedence over navigation BACKWARDS - FORWARDS, to adjust a value: SMALLER - LARGER
		To unlock the door or BACKWARDS, CANCEL, leave menu
		ENTER, OK, YES, SELECT, QUIT upon warning or error message
	In all display images	The system status is constantly displayed in 8 further display images with information relating to the device e.g. serial number, software version, daily and total batches etc.
	after program interruption	QUIT + DOOR, i.e. to clear the program interruption and unlock the door
	in the DOCU menu	To delete all logs located in the internal log memory
	In Universal-Program	Only for technicians (validation mode)
		Only for technicians (maintenance mode)

Acoustic signals

The device emits acoustic signals. The signals are designed to attract your attention and serve to inform the operator. With consecutive signals, the time between two signals amounts to 0.5 seconds.

Signal	Meaning
1 x 0.1 Seconds	Confirms the correct operation of a key
1 x 0.5 Seconds	Warning or message
3 x 0.5 Seconds	At indication: Refill the salt soon; Program interruption; end of interruption reached after interruption of drying
5 x 0.5 Seconds	Program completed successfully
10 x 0.5 Seconds	Fault

Overview of menus

MAIN MENU

- P01 Universal-Program
- P02 Quick-Program
- P03 Intensive-Program
- P04 Ophthalmo-Program:
- Z01 Rinsing
- Z02 Emptying
- Z03 Reference value measurement DI
- Z04 Air removal
- Z05 Regeneration
- Z06 Time metering 60s
- **M01 → DOCU MENU** (Output of a saved log via the following output media)
  - Select output medium Automatic*, CF card, MELAprint, PC
    - 01 Log list
    - 02 Last log
    - 03 Logs of day
    - 04 Logs of week
    - 05 Logs of month
    - 06 All logs
    - 07 Last malfunction log
    - 08 Malfunction logs of day
    - 08 Malfunction logs of week
    - 10 Malfunction logs of month
    - 11 All malfunction logs
    - 12 Caption log
    - 12 Status log
    - 14 System log
    - 15 Format CF card
- **M02 → SETUP- MENU**
  - 01 DI water
  - 02 Automatic logging
    - ⊞
  - 03 Date
  - 04 Time
  - 05 Display contrast
  - 06 Language
  - 07 Water (hardness) °dH
  - 08 →DIAGNOSIS + SERVICE
    - > AC outputs (AC-OUT)
    - > DC outputs (DC-OUT)
    - > Analogue inputs
    - > Counter inputs
    - > Digital inputs
    - **SERVICE MENU**
      - ⊞
    - Maintenance Counter Date
    - DEMO mode

Automatic door lock

The automatic door lock guarantees the safe locking and sealing of the door during the program run. The door is locked by a motorized lock. The device must be connected to the mains and switched on in order to open and close the door.

1. In order to close the door of the device, raise the door and press it on firmly until it clicks. You can let go of the door as soon as the motorized lock activates.
   The door is then closed and locked automatically.
2. To open the door, press the key. This unlocks the door which now can be opened. Pull the door forward using its handle.

NOTE

After the program has begun, the door can only be opened by interrupting the program. Clearing the program interruption or the end of a program also opens the door.

Emergency release

DANGER

There may be scalding or burns.

This could release hot steam when operating the emergency unlocking mechanism. The metal surfaces are hot.

- Never operate the emergency release while a program is active.

DANGER

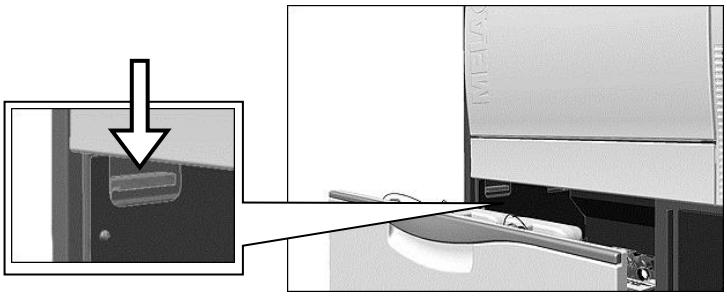
Risk of contamination

If a running program is aborted via emergency release, the program run must be classified as unsuccessfully completed. The instruments in the washing chamber and residues from the process water are not completely disinfected.

- Clean the instruments once again.

The door of the device cannot be opened to remove the instruments during a power outage. In such a case, you can activate the door emergency release. This is located on the left interior in the lower area of the device:

1. Pull the process agent drawer out forward. A tie rod for opening the door in emergencies is located in the left front of the device interior.
2. Press the tie rod to its fullest extent until you hear a click. Pull the door open. You will require a little more force.



Water softening unit

The device requires softened water for proper function.

Tap water over a particular hardness (4°dH) must be softened to prevent lime scale deposits on the instruments and in the interior of the device. A water softening unit is installed to this end. Its design has been adapted to match the requirements of the device in terms of water quality and performance. Commercially available regeneration salt (NaCl) is used in the regeneration of the water softening unit, as in a dish washer.

NOTE

The fitted water softening unit has been optimized for a degree of hardness of 0–40°dH. For higher degrees of hardness, you will require a dedicated water softening unit.

WARNING

If the hardness is too high, the salt consumption will be higher. Setting too low a degree of hardness can result in lime scale deposits on the instruments.

- When using a dedicated water softening unit, the residual hardness of the dedicated water softening unit must also be set in the setup menu.

Table 1: Water hardness conversion table

°dH	mmol/l	°f	°e
1	0.2	2	2
2	0.4	4	3
3	0.5	5	4
4	0.7	7	5
5	0.9	9	7
6	1.1	11	8
7	1.3	13	9
8	1.4	14	10
9	1.6	16	12
10	1.8	18	13
11	2.0	20	14
12	2.2	22	15
13	2.3	23	17
14	2.5	25	18

°dH	mmol/l	°f	°e
15	2.7	27	19
16	2.9	29	20
17	3.1	31	22
18	3.2	32	23
19	3.4	34	24
20	3.6	36	25
21	3.8	38	27
22	4.0	40	28
23	4.1	41	29
24	4.3	43	31
25	4.5	45	32
26	4.7	47	33
27	4.9	49	34

°dH	mmol/l	°f	°e
28	5.0	50	36
29	5.2	52	37
30	5.4	54	38
31	5.6	56	39
32	5.8	58	41
33	5.9	59	42
34	6.1	61	43
35	6.3	63	44
36	6.5	65	46
37	6.7	67	47
38	6.8	68	48
39	7.0	70	49
40	7.2	72	51

Chapter 5 – Logging

In this chapter you learn

- **Why and how you document batches**
- **Which output media you can employ for the batch documentation**
- **Where you can find the logs for the batch documentation**
- **How to read logs correctly**

Batch documentation

The batch documentation acts as proof of the successful conclusion of the cleaning and disinfection process and represents an obligatory part of quality assurance (→MPBetreibV).

The data, such as type of program as well as →batch and process parameters of the completed programs, are stored in an internal log memory of the device.

For the batch documentation you can transfer the internal log memory readout and the data onto diverse output media. This can be performed at the end of every program or at a later point, such as at the end of the day.

Internal log memory

The capacity of the internal log memory is sufficient for approx. 30 logs. If the internal log memory becomes full and at least one log has not been issued via an activated medium, the following warning will appear on the display: Internal program log is full. Not all logs issued. The appearance of this warning represents the last possibility to save the unissued log before the oldest logs are deleted and overwritten. Select the required output medium in the setup menu and issue the relevant log.

Output media

You are able to issue and archive the logs of the completed programs on the following output media:

- MELA*flash* →CF card
- A computer in a user network (LAN).
- Log printer MELA*print*®42 with network adapter

Any combination of the output media is possible. Thus it is possible both to save logs on the MELA*flash* CF card and print them on the log printer.

As delivered, the MELA*flash* CF card is set as an output medium in the setup menu and thus the automatic log issue at the end of a program (Immediate issue = YES) is thus activated. Log issue on multiply activated media is performed successively.

If you wish to retain this state, following commissioning of the device, the relevant log will be issued on the CF card and saved there as soon as a program ends (immediate issue = YES). To do this, the CF card must be inserted in the slot of the device (see the next section **Using the CF card as an output medium**).

Using the CF card as an output medium

WARNING

When the CF card is pulled from the card slot prematurely or if it is treated improperly, data loss, damage to the CF card, the device and/or its software may occur.

- Never push the CF card in the slot with force.
- Never remove the CF card from the slot whilst it is being written or read. The red →LED next to the card slot on the right will illuminate red in short irregular intervals during reading and writing access.

NOTE

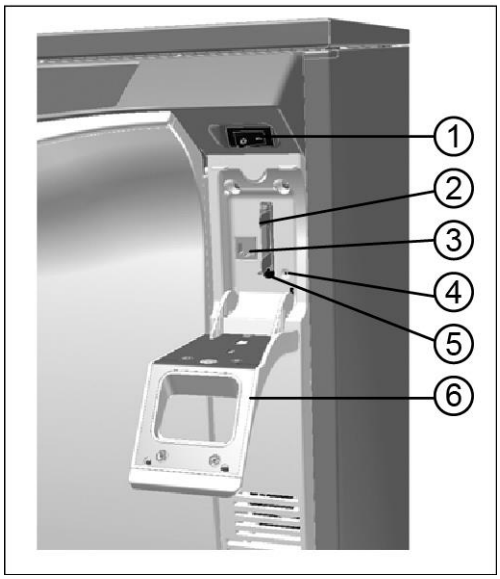
The CF card cover cap must remain closed during operation.

Inserting the CF card

The card slot for the →CF card is located behind the cover cap on the right, adjacent to the door below the main switch.

Proceed as follows in order to insert the CF card in the slot.

1. Open the →CF card cover cap (6) downwards



1. Mains switch
2. Card slot for the CF card
3. Ethernet-Data connection
4. LED
5. CF card ejection switch
6. CF card cover cap

Fig. 5: Card slot for the CF card

2. With the raised finger edge pointing leftwards, place the CF card in the card slot (2).
3. Push the CF card in the card slot until it clicks. When the CF card has been placed correctly, the red →LED (4) to the right adjacent to the card slot will illuminate shortly.

Removing the CF card

Proceed as follows in order to remove the CF card from the slot.

1. Watch the →LED to the right of the card slot. The red LED illuminates red in irregular intervals when a log is being saved on the CF card. If this is the case, wait until the →LED has extinguished.
2. Press the ejection switch (5) underneath the card slot and remove the CF card.
3. Return the cover cap (6) to its starting position.

Computer as output medium

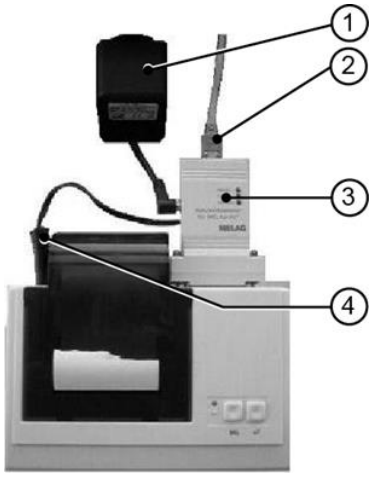
You can connect a computer to the device directly or over a network when the following prerequisites are met.

- ✓ *The computer has a network cared with a RJ45 socket (LAN).*
- ✓ *An FTP server or a FTP service is installed on the computer (when the log is issued via FTP).*
- ✓ *A suitable program, e.g. MELAview, is installed (when the log is issued via TCP).*

Log printer as issue medium

If you want to use the log printer MELA*print*®42 as an output medium, connect it to the device with the network adapter (not in the scope of delivery of the MELA*print*®42 – order no. 40295):

1. Plug (1) in the socket.
2. Connect the MELAG network adapter (3) with the supplied cable (2) to an Ethernet data connection point of the back of the device (see page 9, Fig. 1).
3. Plug the MELAG network adapter (3) into the serial connection of the log printer MELA*print*®42 (can be screwed).
4. Connect the cable (4) of the adapter (3) to the log printer electricity supply jack.
5. Switch on the device at the mains switch.
6. Now switch on the log printer.
7. Switch the device off and on again now.
   In doing so, the device sends the IP address saved in the device as a parameter to the network adapter and saves it.



1. Power supply
2. Connection cable

3. MELAG-Network adapter
4. Adapter cable

NOTE
If the above steps are unsuccessful, the IP addresses saved in the device and those of the MELA*print*®42 probably do not belong to the subnet, since the factory settings were changed.

Automatic immediate log output

Text logs

If you want to issue the relevant log automatically immediately after the end of a program, use the option with immediate output = YES in the **SETUP-MENU → 02 Automatic Logging**.

The following requirements must be fulfilled in order to issue text logs immediately after the end of a program.

- ✓ *In the setup menu → 02 Automatic logging →, immediate output is set to YES.*
- ✓ *In the setup menu → 02 Automatic logging →, at least one output medium is selected and 02 Automatic logging is thus set to ACTIVE.*
- ✓ *The activated output medium has been connected (e.g. log printer MELAprint® 42) or the CF card has been entered.*

When automatic log output is not possible, e.g. because the activated output medium is not connected, the text log is stored in the internal memory. It is not lost. A warning message appears.

The device registers as yet not issued logs for every output medium. It provides the option of issuing this log at the next possible opportunity.

> ***It is recommended using automatic logging with an immediate log output.***

If you want to issue the associated text logs automatically after the end of a program on the output medium set on **02 Automatic Logging**, must be set to **YES.**

As delivered, the device is set to automatic log output of the text logs via the CF card, immediately after the program has ended.

Graphics Logs (optional)

The following additional requirements must be fulfilled in order to record graphic logs:

- ✓ *In the SETUP-MENU → 02 Automatic logging → Graphics logs, at least one output medium is set to YES.*
- ✓ *At least one of the output media selected corresponds to an output medium for the text log.*
- ✓ *The activated output medium is connected, e.g. computer, or the CF card has been plugged in.*

Explanation of the possible settings for graphic log recording:

Graphics & CFC

In the menu **Graphic Log** → **Graphic+CFC** or **Graphic+Comp,** select the output media on which the graphic log is to be saved.

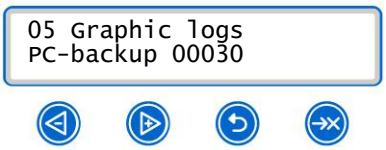
At least on of the two output media must correspond with the medium selected for the output of text logs.

CFC-Interval

CFC interval or **PC interval** indicates the time intervals in which the program curve is recorded on the CF card or computer. The smaller the time interval, the more exact the curve. In the example, the time interval is set at 1 second.

PC-backup

PC backup indicates the time interval in which the graphic logs are to be saved on the computer by the device. In the example, the backup interval is set to 30 seconds.



NOTE

Graphic logs cannot be saved in the internal log memory. If you wish to record optional graphic logs in addition to the text logs, please always ensure that at least one common output medium has been set for issuing text and graphic logs. This means that at least the computer or the CF card should correspond as output medium for both log types.

Output the logs subsequently

The docu menu provides the option of issuing logs subsequently and independently of the point of the program end. You can use the output media activated for the log automatic in the **SETUP MENU** → **02 Automatic logging** or any other output medium.

1. Push or to navigate in the main menu to **DOCU-MENU**.
2. Push to open the Docu menu.
3. Push repeatedly to select the desired output medium. If you want to assume the settings from the menu Automatic logging, select the option **automatic**.
4. Push to get to the option log type.
5. Push to choose between the log types, e.g. **last log, log of the day**, etc.
6. Push the in order to start the log output.

Delete saved logs

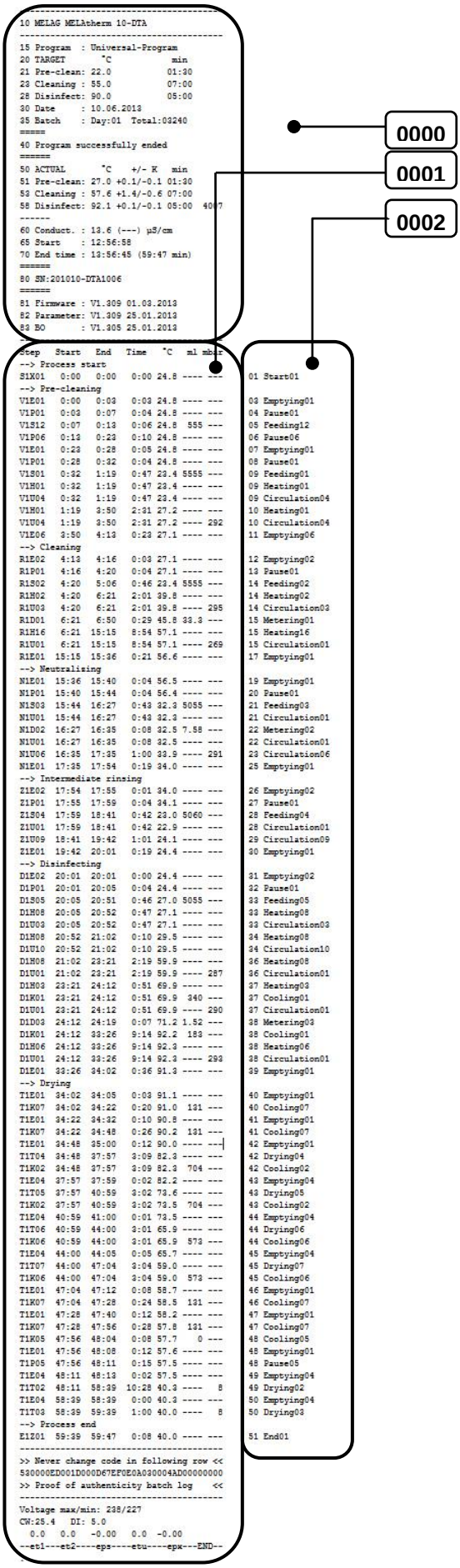
In order e.g. to suppress the warning text **Protocol memory full** for preset option **Immediate output NO**, the saved logs can be manually deleted as follows:

1. Push or to navigate in the main menu to **DOCU MENU**.
2. Push to open the Docu menu.
3. Push to get to the option log type.
4. Push to navigate to **06 All logs** .
5. In order to delete all logs, confirm the query by holding they keys +.

Determining the format for the program log

A log is saved in the internal log memory for every program run. The log format enables you to determine which of the data saved should be issued. You can choose between the format (0001) and the more comprehensive format (0002).

The log format (0002) is the standard format. The log format is saved in the program log in the setup menu (see page **Chapter 5 – Logging**).



	Log format		
Content	**0000**	**0001**	**0002***
Header	X	X	X
Program step values		X	X
Key			X

* Standard format

Header

The header comprises lines 15 to 83 and contains the most important information on the elapsed program (see Fig. 6). Information on the device, such as serial number, current software version of the firmware, parameter and operating interface is issued as well.

Program steps

During the program, the program steps are recorded together with the associated values for temperature, time, consumption of process agents, the cleaning pressure, the volume of cold water and DI water, the →conductivity as well as the start and end times.

Upon the incidence of a malfunction, row 92 issues warnings and error messages.

The end of the log displays the proof of validity and program-specific values in code.

Key

The key is a component of the log format 0002. It serves to mark the program steps to which the values given relate.

In digitally outputted logs (→CF card, PC) the key is located directly next to the values of the respective program step.

In logs issued via the log printer MELA*print*® 42, the row containing the key is always located under the row to which it refers.

Log types

In addition to logs for successfully completed programs, there are many other types of log. These can be issued via the list in the Docu menu. You can identify the log type by the ending of its file name.

Ending	Stands for	Explanation
PRO	Program log	Log of a successfully completed program
GPD	Graphic log	The log in which the process is recorded graphically
STR	Malfunction log	Log of an aborted program
STB	Malfunction in standby	Log with malfunctions without a program having run
LOG	System log	List of all the faults and changes to the system in order of time (log book)
STA	Status log	Summary of all the important settings and system states (counter, measurement values etc.) + a list of all procedure-relevant parameters (VRP)
LEG	Caption log	Contains all step abbreviations used in the program log
DEM	Demo log	Log of a successfully completed simulated program in DEMO mode (only for presentation purposes)
DES	Demo malfunction	Log of a program simulated as interrupted (presentation)

```
----------------------------------------
10 MELAG MELAtherm 10-DTA
----------------------------------------
15 Program  : Universal-Program
20 TARGET       °C            min
21 Pre-clean: 22.0           01:30
23 Cleaning : 55.0           07:00
28 Disinfect: 90.0           05:00
30 Date     : 10.06.2013
35 Batch    : Day:01  Total:03240
=====
40 Program successfully ended
42=
======
50 ACTUAL       °C    +/- K   min
51 Pre-clean: 27.0 +0.1/-0.1 01:30
53 Cleaning : 57.6 +1.4/-0.6 07:00
58 Disinfect: 92.1 +0.1/-0.1 05:00  4007
------
60 Conduct. : 13.6 (---) µS/cm
65 Start    : 12:56:58
70 End time : 13:56:45 (59:47 min)
======
80 SN:201010-DTA1006
======
81 Firmware : V1.309 01.03.2013
82 Parameter: V1.309 25.01.2013
83 BO       : V1.305 25.01.2013
----------------------------------------
Step   Start   End   Time   °C   ml mbar
--> Process start
S1X01   0:00   0:00   0:00 24.8 ---- ---
--> Pre-cleaning
V1E01   0:00   0:03   0:03 24.8 ---- ---
V1P01   0:03   0:07   0:04 24.8 ---- ---
V1S12   0:07   0:13   0:06 24.8  555 ---
V1P06   0:13   0:23   0:10 24.8 ---- ---
.
.
--> Cleaning
R1E02   4:13   4:16   0:03 27.1 ---- ---
R1P01   4:16   4:20   0:04 27.1 ---- ---
R1S02   4:20   5:06   0:46 23.4 5555 ---
R1H02   4:20   6:21   2:01 39.8 ---- ---
R1U03   4:20   6:21   2:01 39.8 ---- 295
.
.
--> Neutralizing
N1E01  15:36  15:40   0:04 56.5 ---- ---
N1P01  15:40  15:44   0:04 56.4 ---- ---
N1S03  15:44  16:27   0:43 32.3 5055 ---
.
.
--> Intermediate rinsing
Z1E02  17:54  17:55   0:01 34.0 ---- ---
Z1P01  17:55  17:59   0:04 34.1 ---- ---
Z1S04  17:59  18:41   0:42 23.0 5060 ---
.
.
--> Disinfecting
D1E02  20:01  20:01   0:00 24.4 ---- ---
D1P01  20:01  20:05   0:04 24.4 ---- ---
D1S05  20:05  20:51   0:46 27.0 5055 ---
D1H08  20:05  20:52   0:47 27.1 ---- ---
D1U03  20:05  20:52   0:47 27.1 ---- ---
.
.
--> Drying
T1E01  34:02  34:05   0:03 91.1 ---- ---
T1K07  34:02  34:22   0:20 91.0  131 ---
T1E01  34:22  34:32   0:10 90.8 ---- ---
T1K07  34:22  34:48   0:26 90.2  131 ---
T1E01  34:48  35:00   0:12 90.0 ---- ---
T1T04  34:48  37:57   3:09 82.3 ---- ---
.
--> Process end
E1Z01  59:39  59:47   0:08 40.0 ---- ---

92--------------------------------WARNING
>Event Step  Time  Hint

----------------------------------------
>> Never change code in following row <<
530000ED001D000D67EF0E0A030004AD00000000
>> Proof of authenticity batch log    <<
----------------------------------------
Voltage max/min: 238/227
CW:25.4   DI: 5.0
  0.0   0.0   -0.00   0.0  -0.00
--et1---et2----eps----etu----epx---END--
```

10 Name of the device

15 Program name
20
21
23 TARGET Value: Temperature and holding time of the partial cycles
28
30 Date
35 Day and total charge number

40 Control message
42 Program abort, if program unsuccessful

50
51 ACTUAL-value: Temperature (range) in C°, holding time of the partial
53 cycles.
58 ACTUAL value Temperature conditions of the disinfection, A0 value

60 →Conductivity of the DI water for the final rinse
65 Time at the start of the program
70 Time at the end of the program (Program length)

80 Device serial number

81 installed firmware version
82 installed parameter version
83 installed operating interface

Program step values and key

Time Time (mm:ss), since the program start

min: Duration (mm:ss), of a program step

C° Temperature of the →rinse liquor in the washing chamber in Celsius

ml Volume of CW/DI water, the process agent consumed during a process step.

mbar Rinse pressure

92 Up to a possible 5 warnings
95 Fault numbers upon program interruption

Proof of authenticity
May never be altered; indicates that the data was generated on a MELAG device and has not been changed.

Sensor measurement values are displayed in the case of a malfunction. The values are helpful for a technician.

Fig. 6: Example of a program log for a successful finished Universal-Program

Finding Logs

All memory media (→CF card or computer) contain a directory with the encoded serial number of the device concerned following log output. The folder name consists of five characters identical with the first five characters of every log, e.g. CR0ZH.

The directory contains sub-directories containing the month of the log generation e.g. 01_2013 for January 2013. These contain all the logs generated by device in this month. The device directory is entered in the main directory on the CF card.

The device checks the memory medium after every type of log output (immediate output after a completed cycle or the transfer of multiple logs simultaneously). Should a directory not exist, it creates one of a device and a month.

If logs are issued on the same memory medium more than once, a “duplicated" directory will be created under the device directory in which these logs will be saved only once.

NOTE
If possible, do not rename the directory otherwise logs will be stored in both the renamed directory as well as the device directory generated automatically by the device.

Direct transfer of the log to a computer via the network and using the MELAG FTP server allows you to determine directly in the FTP server where on your computer the device directory with log files is to be saved.

When issuing via TCP and e.g. MELA*view*, you also determine the filing folder right in the program.

Chapter 6 – Settings

Opening the setup menu

1. Push ◁ to navigate in the main menu to **M02→ SETUP MENU**.

1. Push ⇥ to open the setup menu.
2. Push ↩ to leave the setup menu.
3. Push the ⇥ in order to save the change or
4. Hold ↩ in order to discard the change.

Water supply

If a DI connection is available for the device, e.g. the MELA*dem*®53 or another water treatment unit is connected, this must be set on the device.

In its delivery state, the water supply has been set to **DI water YES**.

To alter this setting, proceed as follows:

1. Open the setup menu as described above.
   This display registers the option **01 DI water YES**.

2. Push ⇥ in order to change the option. The value **YES** flashes.
3. Push ◁ or ▷ to switch between **YES** and **NO**.
4. Push ⇥ to save the new value. The value no longer flashes.
5. Push ↩ to leave the setup menu (see above).

Automatic logging

Menu **02 Automatic logging** is used to undertake all settings concerning the issue of logs and which are to be made only **once**. Examples include the choice of output media, activating the immediate output, log format etc. All future program logs will always be issued from the respective output media using the settings made here.

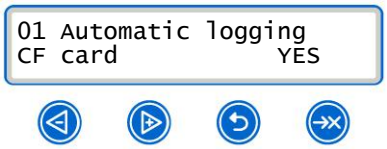
The display image shows whether the option for log output is **ACTIVE** or not.

Detailed information on logging is found in **Chapter 5 – Logging**.

Determining the output medium

In menu **02 Automatic Logging**, the selectable output media are displayed one by one, e.g. CF card, computer, MELAprint, etc.

1. Push repeatedly to navigate in the setup menu to **01 CF-Card YES**.



2. The display of **YES** indicates that the log is to be saved on the CF card. If a log is not to be saved on the CF card the setting must be changed to **NO.**
3. Push to change the value. The value **YES** flashes.
4. Push or to switch between **YES** and **NO**.
5. Push to save the new value. The value no longer flashes.
6. Push to leave the setup menu (see above).
7. Proceed in a similar manner to set a different output medium.

Determining log format

Detailed information on the log formats 0001 and 0002 can be found in **Chapter 5 – Logging**.

Date and time

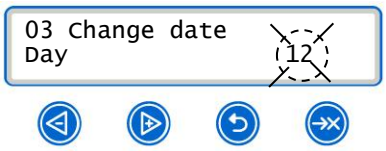
Date and time of the device must be correctly set for proper batch documentation. Observe the time re-settings in autumn and spring ("daylight saving time"), since this is not reset automatically

Setting the date

Set the date and time as follows:

1. Push repeatedly to navigate in the setup menu to **03 Date**.

2. Push to change the date. The display changes to **03 Change date**.



3. Push repeatedly to choose between day, month and year.
4. Push to alter the parameters selected, e.g. the day. The current value flashes.
5. Push or to reduce or increase the value.
6. Push to save the new value. The value no longer flashes.
7. Push to change the month next. Proceed accordingly.
8. Push to leave the setup menu.

Setting the time

To set the time, proceed as described in the previous section **Setting the date**.

Display contrast

1. Push repeatedly to navigate in the setup menu to **05 Display contrast**.

2. Push to change the contrast.
3. Push or to reduce or increase the contrast.
4. Push to save the settings.
5. Push to leave the setup menu.

Language

The device offers a selection of two languages. You can select the language in the setup menu.
Language 1 is usually the local language, Language 2 is English.

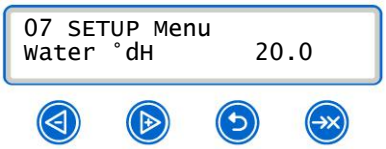
1. Push repeatedly to navigate in the setup menu to **06 Language**.

2. Push in order to change the language. The current value flashes.
3. Push to change to language 002.
4. Push to save the settings.
5. Push to leave the setup menu.

> ***If you wish to set a language other than those installed on the device, you must perform a language update from the CF card with the appropriate language file.***
>
> ***Please consult your MELAG customer services/stockist.***

Water hardness

1. Push repeatedly to navigate in the setup menu to **07 Water °dH**.



2. Push to change the value. The value flashes.
3. Push or to reduce or increase the value.
4. Push to save the new value. The value no longer flashes.
5. Push to leave the setup menu (see above).

> ***You can find a water hardness conversion table on page 14.***