Nortec
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MH Series™

CONTROL UNIT

Installation Manual

2544831-A

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RECORD OF REVISIONS

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Revision Number	Revision Date	Date Put In Manual	By	Revision Number	Revision Date	Date Put In Manual	By

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10-00
INTRODUCTION

1. INTRODUCTION

1.1 NOTES ON THE OPERATING INSTRUCTIONS

Limitation

These operating instructions are an addendum to the installation and operating instructions for the Nortec MH and describe the operating of the MH control unit, which is used with the models Nortec MHTC Flow, MHB Reflow, MHTC Reflow. These operating instructions are meant for well trained personnel being sufficiently qualified.

Safekeeping

Please safeguard these operating instructions in a safe place, where they can be immediately accessed. If the equipment changes hands, the documentation must be passed on to the new operator.

If the documentation gets lost, please contact your local Nortec representative.

Copyright protection

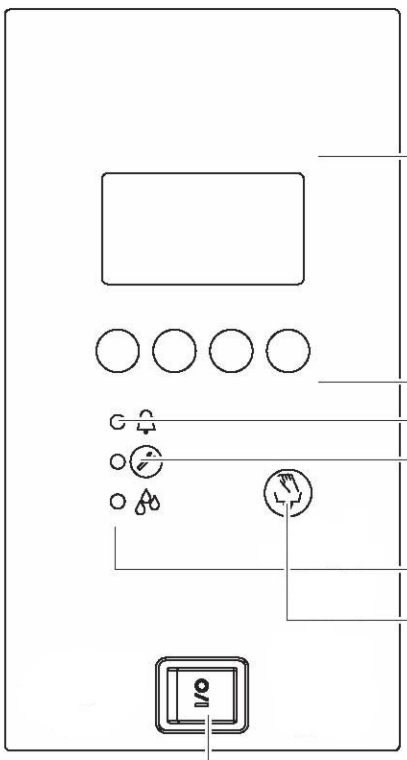
1.2 SAFETY

Every person operating the MH control unit must have read and understood the operating instructions of the MH control unit as well as the installation and operating instructions of the Nortec MH (specially the safety instructions).

Knowing and understanding the contents of the operating instructions of the MH control unit and the installation and operating instructions of the Nortec MH is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty operation, and to operate the unit safely and correctly.

2. OPERATING THE MH CONTROL UNIT

2.1 FUNCTION OF THE DISPLAY AND OPERATING ELEMENTS



Display and control unit
Function: Configuration of the Nortec MH
Indication of operating parameters.
Reset of maintenance counter and error indication.

red LED "Error"
Function: The LED lights in case of a malfunction of the unit. The type of malfunction is shown in the display
The LED flashes alternately with the red LED if the external safety chain (ventilation interlock has triggered) is open. As soon as the safety chain is closed again, the indication disappears.

yellow LED "Warning"
Function: The LED lights if the maintenance is due or the UV lamp (option) must be replaced.

green LED "Humidification"
Function: The LED lights if the unit humidifies.
The LED flashes alternately with the red LED if the external safety chain (ventilation interlock has triggered) is open. As soon as the safety chain is closed again, the indication disappears.

Drain/Wash key
Function: Manual draining/washing. After having pressed the drain/wash key, the draining/washing is controlled via the display and control unit.

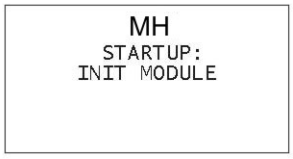
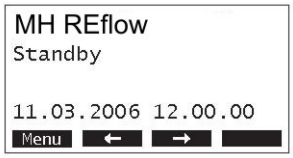
Unit switch
Function: Switches the unit on and off. The switch is illuminated when the unit is running.

Figure 1. Display

2.2 SWITCHING THE CONTROL UNIT ON AND OFF

NOTE: For putting the unit into operation and taking the unit out of operation please follow the procedures described in the installation and operating instructions for the Nortec MH.

Switching the MH control unit on

	The control carries out a system test, during which all the LEDs light up and the opposite display is shown. If a failure occurs on the system test, a corresponding error message is shown in the display.
	After the system test the control is in normal operation mode. The display shows the standard operating display. Note: The contents of the standard operating display depends on the type (MHTC Flow, MHTC Reflow), the actual operating status and on the configuration of the Nortec MH and can differ from the opposite display.

Switching the MH control unit off

The display goes out. On models MHB Reflow and MHTC Reflow the drain valve opens and the water tub empties.

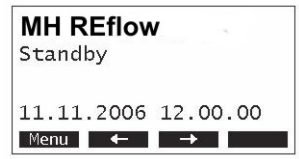
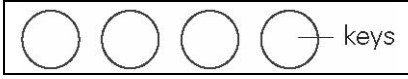
Note: The different hygiene functions (regular draining, flushing of the supply line, etc.) remain active also in times without humidification / cooling demand, the control unit should only be switched off for maintenance or, troubleshooting, or to disable completely operation (as in seasonal shutdown).

2.3 REMOTE OPERATING AND FAULT INDICATION

If your control is equipped with a remote indication board (accessory) the following operating status are shown remotely:

Activated remote indication relay	When?	Display on Unit
H1 "Error"	A fault is present, further operation is not possible	Red LED lights. An error message is shown in the display
H2 "Service"	Maintenance or UV lamp (option) replacement is due. The unit remains operational for a certain time	Yellow LED lights. The service warning message is shown in the display
H3 "Humidification"	Unit is humidifying	Green LED lights
H4 "Unit on"	Unit ready for operation	Unit switch lights

2.4 OVERVIEW AND OPERATING OF THE MENU

	The operating and display is operated via the four keys located just below the display. The four status fields at the bottom of the display show the current function of the keys.
	Keys

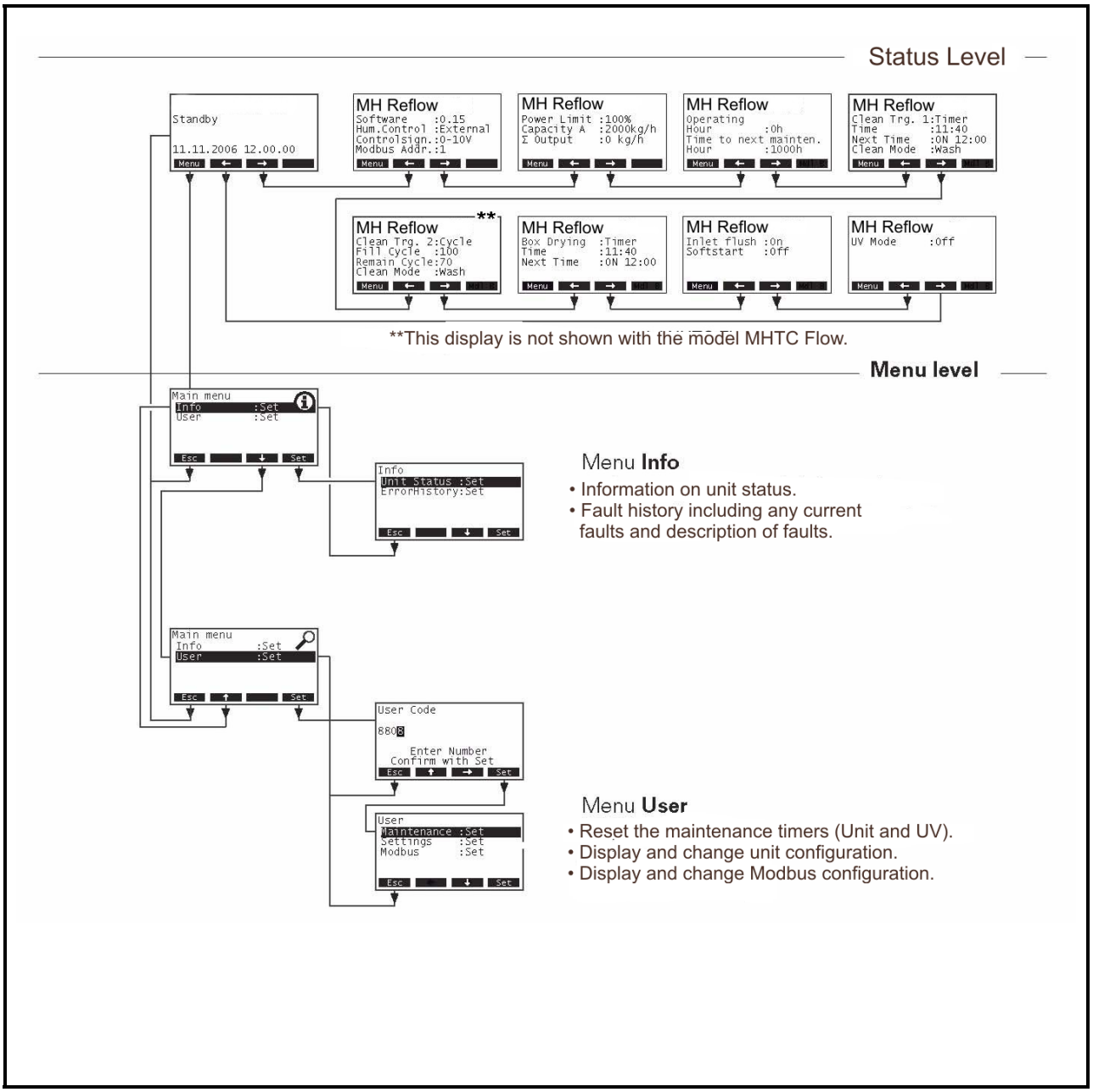
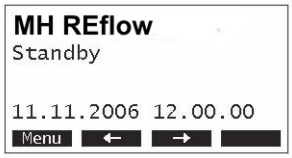
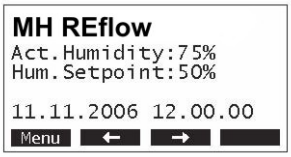
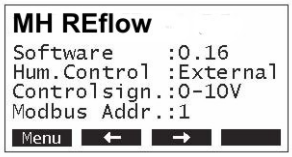
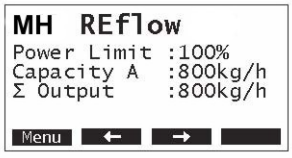
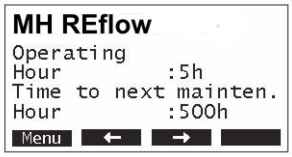


Figure 2. Menu Overview

3. EXPLANATION OF CONFIGURATION SETTINGS

3.1 EXPLANATION OF THE STATUS INFORMATION (INDICATION STATUS)

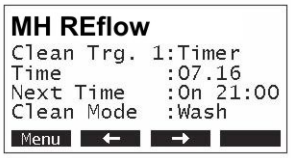
In normal operation mode the control unit is in the status level. The status level forms a loop that includes several pages holding operating information which can be accessed with the arrow keys. The various displays of the status level are shown below.

Standard operating display	
The appearance of the standard operating display depends on the actual operating status and the configuration of the Nortec MH	
	Standard operating display with external control via the external controller. Standby (no humidity demand) or Demand % (humidity demand present).
	Standard operating display with internal control. - Actual humidity in %rh. - Configured humidity setpoint in %rh.
Info Page: Settings	
	- Software version. - Selected control signal source. - Configured control signal range. - Configured Modbus address of the unit.
Info Page: Performance data	
	- Configure power limitation in % of the maximum output. - Actual output unit A in kg/h. - Actual total output in kg/h (the same as Capacity A unless a second module is connected to control unit). .
Info Page: Operating hours	
	- Total operating hours of the Nortec MH. - Remaining operating hours to the next maintenance.

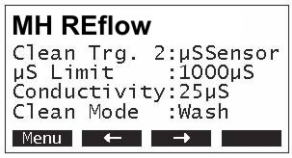
Info Page: Clean Trg. 1

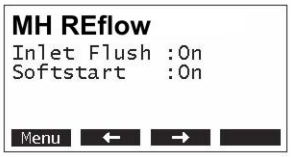
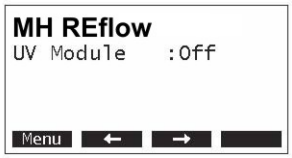
This page shows the current settings for the time based and externally activated forced draining/box cleaning (MHTC Reflow) or the box cleaning (MHTC Flow), respectively.

Note: Wash = draining with simultaneous box cleaning (MHTC Reflow) or box cleaning only (MHTC Flow), Drain = draining only.

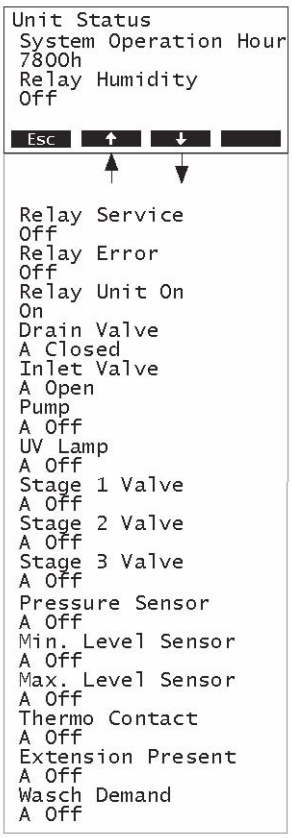
	– Time controlled draining/box cleaning (Timer). – Actual time of day. – Point in time of the next draining/cleaning cycle. – Configured cleaning mode.
	– Interval controlled draining/box cleaning (Periodic). – Configured interval time in hours. – Remaining time in hours up to the next draining/cleaning cycle. – Configured cleaning mode.
	– Externally controlled draining/box cleaning (Demand). – Actual status of the draining/cleaning demand. – Configured cleaning mode.
	– Clean Trg. 1 deactivated (can appear only with module MHTC Flow).

Info Page: Clean Trg. 2 (Note: This page is not shown with model MHTC Flow)

	– Fill cycle controlled draining (Cycle). – Number of fill cycles between cleaning/draining cycles. – Remaining fill cycles up to the next draining. – Cleaning mode (Wash= Draining with simultaneous box cleaning or box cleaning only, Drain= draining only).
	– Conductivity controlled draining/cleaning (µSensor) -->Option. – Set conductivity limit value inn µS/cm. – Actual conductivity value of the water in the tub in µS/cm. – Configured cleaning mode.
	– Operation-dependent draining deactivated (Off).

Info Page: Box drying	
This page shows the settings for box drying.	
	– **Time controlled** box drying (Timer) – Actual time of day – Point in time of the next drying cycle
	– **Interval controlled** box drying (Periodic) – Configured interval time in hours – Remaining time in hours up to the next drying cycle
Info Page: Supply line flushing function/water quantity reduction function	
	– Indicates if the supply line flushing function. – Indicates if the "Softstart" water conservation function is enabled.
Info Page: UV Module (option)	
	Indicates if the UV water treatment option is enabled (Note: UV treatment requires optional components be installed).

3.2 EXPLANATION OF UNIT INFORMATION



Path: ***Main menu > Info > Unit Status***
Press **<>** and **<>** keys, in order to select the unit information available in the list:

– System Operation Hour:
Total operating hours of the control unit (unit on) since the initial commissioning of the unit.

– Relay Humidity:
Actual status of the remote indication relay “Humidify”.

– Relay Service:
Actual status of the remote indication relay “Service”.

– Relay Error:
Actual status of the remote indication relay “Error”.

– Relay Unit On:
Actual status of the remote indication relay “Unit on”.

– Drain Valve:
Actual operating status of the drain valve.

– Inlet Valve:
Actual operating status of the inlet valve.

– Pump:
Actual operating status of the circulation pump.

– UV Lamp:
Actual operating status of the UV lamp

– Stage 1 Valve: Actual operating status of the step valve 1
– Stage 2 Valve: Actual operating status of the step valve 2
– Stage 3 Valve: Actual operating status of the step valve 3

– Pressure Sensor (MHTC Flow only):
Actual operating status of the minimum pressure switch

– Max Level Sensor (MHTC Reflow only):
Actual operating status of the minimum level sensor

– Thermal Contact (MHTC Reflow only):
Actual operating status of the thermal contact (pump motor protection)

– Extension Present:
Indication, whether or not a unit extension is present.

– Wash Demand:
Actual status of the external demand triggering a wash cycle.

Press the **<Esc>** key several times to quit the information list and to return to the standard operating display.

3.3 EXPLANATION OF ERROR HISTORY LIST

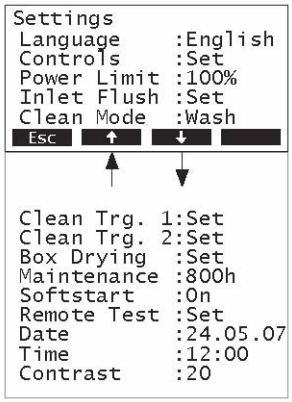
The last 10 faults that occurred during operation are saved in the error history list and can be reviewed.	
	Path: *Main menu* > *Info* > *Error History* The last error that occurred is shown with: – Current Error being viewed / Total number of errors recorded. – date and time of occurrence – error code (Warning: W..., Error: E...– error message – additional info text regarding the error Press <←> and <→> keys, in order to select further error messages in the list. Press the <Esc> key several times to quit the error history list and to return to the standard operating display.

10-10
CONFIGURATION

1. CONFIGURATION

1.1 UNIT SETTINGS

1.1.1 Launching the unit settings menu

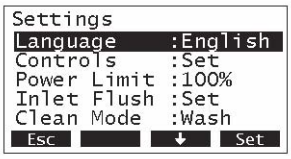


Path: ***Main menu > User > Password entry: 8808 > Settings***

Press the **<↓>** and **<↑>** keys in order to select the individual settings in the settings menu.

Detailed information on the different settings are found in the following chapters sections.

1.1.2 Select dialogue language



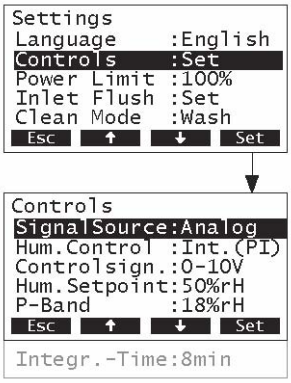
Select "**Language**" in the settings menu, then press the **<Set>** key. In the following modification dialogue select the desired dialogue language.

After confirmation, the unit automatically switches to the selected dialogue language.

Factory setting: English

Options: French, Spanish

1.1.3 Control Settings



Select "**Controls**" in the settings menu, then press the **<Set>** key.

The control settings appear. The settings available depend on the selected signal source and the control type. The opposite display shows the maximum number of settings available.

DESCRIPTION OF THE SETTINGS

SignalSource	Selecting the signal source. **Factory setting:** Analog **Options:** Analog Modbus
Hum.Control:	Selecting the control type. **Factory setting:** External **Options:** External (external continuous controller) 24VOn/Off (external On/Off humidistat) Int. (P) (Internal P controller) Int. (PI) (Internal PI controller)
Controlsign.	Selecting the control signal. **NOTE:** This setting is available only if control type "External", "Int. (P)" or "Int. (PI)" is selected. **Factory setting:** 0–10V **Options:** 0–5V, 1–5V, 0–10V, 2–10V, 0–16V, 3.2–16V, 0–20mA, 4–20mA
Hum.Setpoint:	Setting the nominal humidity value inn %rh. **NOTE:** This setting is available only if the internal P or PI controller is activated. **Factory setting:** 50 %rH **Setting range:** 20...99 %rH
P-Band:	Setting the proportional range inn % for the internal P/PI conntroller. **NOTE:** This setting is available only if the internal P or PI controller is activated. **Factory setting:** 18 % **Setting range:** 1...100 %
Integr.-Time:	Setting the integral time in minutes for the internal PI controller. **NOTE:** This setting is available only if the internal P or PI controller is activated. **Factory setting:** 18 Minutes **Setting range:** 1...60 Minutes

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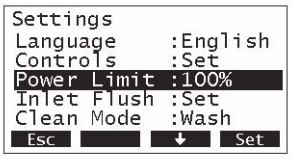
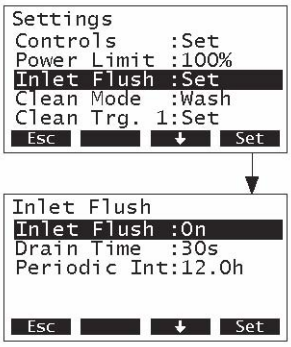
1.1.4 Setting the capacity limitation

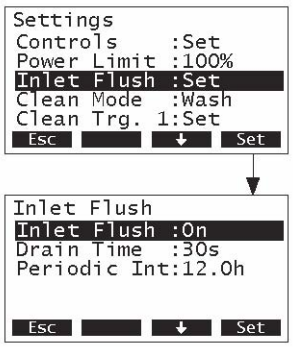
	Select "**Power Limit**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the desired capacity limitation in % of the maximum capacity of the humidifier. **Factory setting:** 100 % **Setting range:** 30...100 %

1.1.5 Configuring the supply pipe flushing

	Select "**Inlet Flush**" in the settings menu, then press the **<Set>** key. Used to configure the unit to flush supply lines even if there is no demand signal. You can; - enable / disable inlet flush - set length of flush - set time between flushes
DESCRIPTION OF THE SETTINGS	
Inlet Flush	Enable or disable the supply pipe flushing. **Factory setting:** On **Options:** On (enable) Off (disable)
Drain Time	Setting the flushing time in seconds. **Factory setting:** 60s **Setting range:** 5...600s
Periodic Int	Setting the time without demand after which the supply pipe should be flushed. **Factory setting:** 12.0 h **Setting range:** 0.5 ... 24.0 h

1.1.6 **Setting the Cleaning Mode** (MHTC Reflow only)

NOTE: The cleaning mode may only be set with the MHTC Reflow. With the cleaning mode you determine whether the humidification boxes will be washed simultaneously during a draining or operation dependent draining /cleaning cycle. This option does not appear for other models.



Select “Clean Mode” in the settings menu, then press the <Set> key. In the upcoming modification dialogue select the desired cleaning/draining mode.

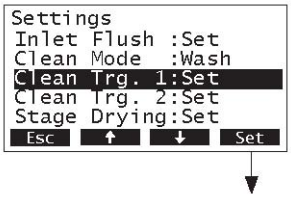
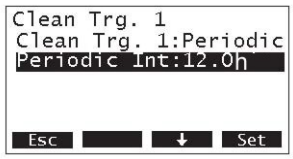
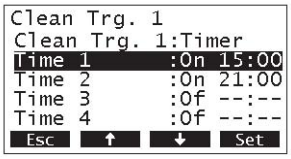
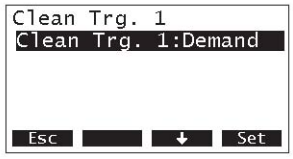
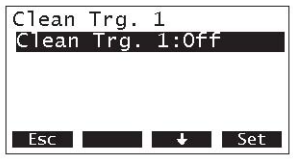
Factory setting: Drain
Options: Drain (draining only)
Wash (Draining w/box cleaning)

NOTE: During operation, the washing process of the humidification boxes can lead to a temporary humidity increase.

1.1.7 Configuring the cleaning trigger 1 (Clean Trg. 1)

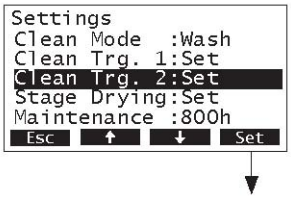
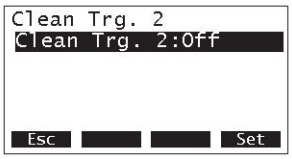
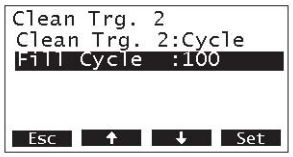
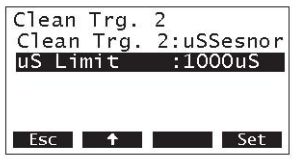
With the cleaning trigger 1 settings you determine whether the forced draining/cleaning (MHTC Reflow) or the box cleaning (MHTC Flow) is time or interval controlled or triggered via an external signal. The forced draining can be deactivated, however the box cleaning can be deactivated. The forced draining cannot be deactivated for the MHTC Reflow. The washing can be deactivated for either the MHTC Flow or Reflow.

Note: the forced cleaning/draining serves to empty the water tub regularly and independent of the operation time of the Nortec MH.

	Select “Clean Trg. 1” in the settings menu, then press the <Set> key. The current settings for the forced draining/box cleaning appear. The available settings depend on whether the interval controlled (Periodic (factory setting), timer controlled (Timer) or external signal controlled (Demand) triggering of the forced draining/box cleaning is selected.
	Interval controlled draining/box cleaning (Periodic). With Periodic Int you can determine in which time intervals the draining/box cleaning is performed (setting range: 0.5 ...24 .0h, factory setting: 2.0h).
	Time controlled draining/box cleaning (Timer)With the parameters “time 1” to “time 4” you can define up to four times of day to start the draining/box cleaning (factory setting: no starting times defined).
	Triggering the draining/box cleaning via an external signal (Demand). In order to trigger the draining/box cleaning via an external signal a potential-free contact (B4) must be connected to the control board of the control unit MH. Closing the contact results in a draining/box cleaning cycle.
	Cleaning trigger 1 deactivated (Off)Note: this option is only available/visible for model MHTC Flow.

1.1.8 Configuring the cleaning trigger 2 (Clean Trg. 2) (MHTC Reflow only)

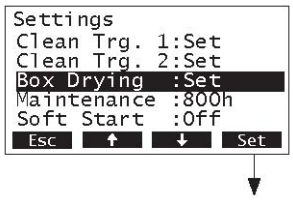
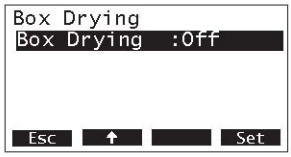
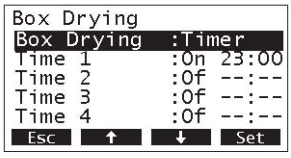
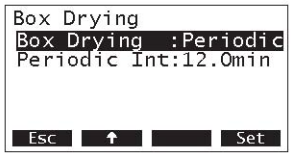
Note: The cleaning trigger 2 to configure operation dependent draining appears only with the MHTC Reflow. With the cleaning trigger 2 settings you determine whether operation dependent draining is triggered depending on the fill cycles or on the conductivity of the water in the water tub (option) or whether the cleaning trigger 2 should be deactivated.

	Select “Clean Trg. 2” in the settings menu, then press the <Set> key. The current settings for the operation dependent draining appear. The settings available depend on whether the operation dependent draining is deactivated (Off, factory setting) or the fill cycle (Cycle) or the conductivity controlled (µ Sensor) triggering of the operation dependent draining is selected.
	Operation dependent draining deactivated (Off)
	Fill cycle controlled draining (Cycle). With the parameter “Cycle” you can determine after how many filling cycles a drain is performed (setting range: 10...10000, factory setting: 100).
	Conductivity controlled draining (µ Sensor) (Requires optional components). With the parameter “µS Limit” you can set a conductivity limit value. If during operation the conductivity value of the water in the tub reaches the set limit, a draining is performed (setting range: 10...5 000 µS, factory setting: 1000µS).

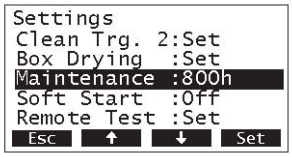
1.1.9 Configuring the humidification box drying

An occasional drying of the humidification boxes helps prevent germs and bacteria from developing in the humidification boxes. The drying process can be time triggered or, interval controlled, or it can be deactivated.

Note: During operation, the drying process of the humidification boxes can lead to a temporary humidity decrease.

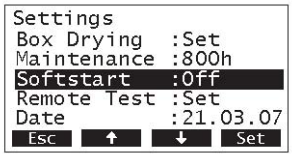
	Select “Box Drying” in the settings menu, then press the <Set> key. The current settings for the box drying function appear. The settings available depend on whether the box drying function is deactivated (Off, factory setting) or whether the time controlled (Timer) or the interval controlled (Periodic) triggering of the drying function is selected.
	Drying function deactivated (Off ---> factory setting)
	Time controlled drying (Timer)With the parameters “time 1” to “time 4 ” you can define up to four times of day to start a box drying process (factory setting: no starting times defined).
	Interval controlled drying (Periodic) With the parameter “Periodic Int” you can determine inn which time intervals a box drying process is performed (setting range: 0.5 ...24 .0h, factory setting: 12.0h).

1.1.10 Configuring the Humidifier Maintenance Interval

	Select “Maintenance” in the settings menu, then press the <Set> key. In the following dialogue set the desired maintenance interval time in hours. After the maintenance interval time has elapsed a maintenance message appears in the display and the yellow LED lights up. If the maintenance is not performed and the maintenance indication is not reset within a certain time (168 h) , an error message is triggered. Factory setting: 800 h Setting range: 100... 50000 h Note: to determine the maintenance interval time please refer to 1.3 in section 10-40 of the installation and operating instructions for the Nortec MH.

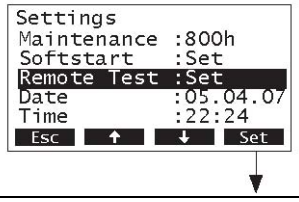
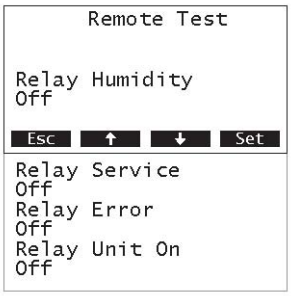
1.1.11 Activating/deactivating the softstart function

If the mats in the humidifier boxes became dry due to a operation interruption, they need a certain time until they are again moistened with water. In order to prevent too much water flows over the humidification boxes in this phase and water droplets are carried in the air flow, the amount of water can be reduced for a fixed time with the “**Softstart**” function.

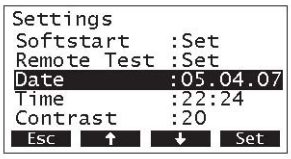
	Select “**Softstart**” in the settings menu, then press the **<Set>** key. In the modification dialogue you can activate or deactivate the softstart function. Factory setting: **Off** Options: **Off** (Softstart function deactivated) **On** (Softstart function activated)

1.1.12 Performing remote relay tests

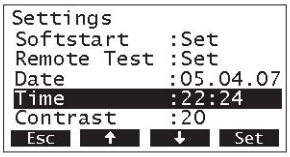
With the test functions under "**Remote Test**" you can check the function of the relays "Humidification", "Service", "Error" and "Unit on".

	Select "Remote Test" in the settings menu, then press the <Set> key.
	Press the <↑> and <↓> keys in order to select the relay you want to test and press the <Set> key to activate/deactivate the corresponding relay for testing.

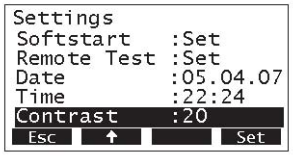
1.1.13 Setting the date

	Select "**Date**" in the settings menu, then press the **<Set>** key. In the following dialogue set the actual date (format "tt.mm.jj").

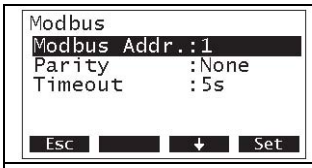
1.1.14 Setting the time

	Select "**Time**" in the settings menu, then press the **<Set>** key. In the following dialogue set the actual time (format "hh.mm").

1.1.15 Setting the display contrast

	Select "Contrast" in the settings menu, then press the <Set> key. In the following dialogue set the desired value for the display contrast. **Factory setting:** 20 **Setting range:** 0 (no display) ...100 (display turns black).

1.2 Modbus Settings

	Select the Modbuus menu: Path: *Main menu* > *User* > *Password entry: 8808* > *Modbus* The settings for the Modbuus appear.
Description of Modbus Settings	
Modbus Add.:	Setting the modbus address of the Nortec MH. **Factory setting:** 1 **Setting range:** 1...247
Parity:	Selecting the parity bit for the data transmission. **Factory setting:** None. **Options:** None1, None2, Odd, Even
Timeout:	Setting the time out time for the data transmission. **Factory setting:** 5 **Seconds Setting range:** 1...600 Seconds

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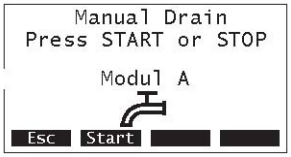
10-20
OPERATIONAL FUNCTIONS

1. OPEARTIONAL FUNCTIONS

1.1 CARRYING OUT MANUAL DRAINING / PIPE FLUSHING

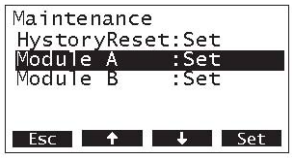
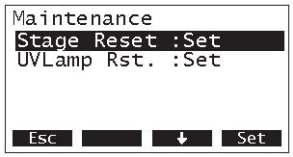
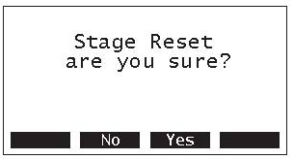
To carry out a manual draining (MHTC Reflow) or pipe flushing (MHTC Flow) proceed as follows:

Drain	1. **Briefly press the drain key**. The drain/flush dialogue appears in the display.
	2. Press the **<Start>** key. – Models MHTC Reflow: The drain valve opens after a delay of up to 3 minutes and the water tub empties. The **yellow LED flashes**. – Model MHTC Flow: The inlet valve and the flushing valve open and the pipe is flushed. The **yellow LED flashes**. To stop the drain/flush cycle press the **<Stop>** key. Note: By pressing the **<Esc>** key the control unit returns to the standard operating display. A drain/flush cycle in progress will be stopped automatically.

1.2 RESETTING THE MAINTENANCE INDICATION

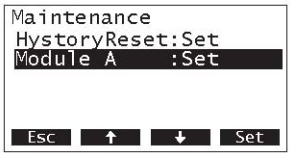
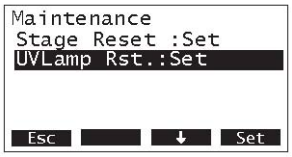
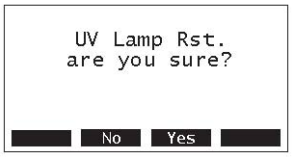
After completing maintenance work, the **maintenance indication** (yellow LED lights) must be reset on the models MHTC Flow, MHB Reflow, MHTC Reflow.

Note: If the maintenance indication is not reset within 168 hours a fault is triggered and the unit stops operation.

	Select the maintenance menu: Path: ***Main menu > User > Password entry: 8808 > Maintenance*** Select "**Module A**", then press the **<Set>** key.
	Select **"Stage Reset**", then press the **<Set>** key.
	The reset dialogue shows up in the display. Press the **<Yes>** key to reset the maintenance hours of the unit. Note: Press the **<Esc>** or **<No>** key if you wish to abort the reset procedure. To return to the standard operating display press the **<Esc>** key several times.

1.3 RESETTING THE HOURS METER OF THE UV LAMP

After replacing the UV lamp (option) the hours meter of the UV lamp must be reset.
Note: If the hours meter of the UV lamp is not reset within 168 hours the UV maintenance warning an error message is triggered.

	Select the maintenance menu: Path: ***Main menu > User > Password entry: 8808 > Maintenance*** Select "**Module A**", then press the **<Set>** key.
	Select **"UV lamp Rst**", then press the **<Set>** key.
	The reset dialogue shows up in the display. Press the **<Yes>** key to reset the **hours meter of the UV lamp**. Note: Press the **<Esc> or <No>** key if you wish to abort the reset procedure. To return to the standard operating display press the **<Esc>** key several times.

10-30
TROUBLESHOOTING

1. FAULT INDICATION

1.1 FAULT INDICATION

Malfunctions during operation are indicated by a corresponding warning or error message in the display of the control unit:

Warning messages (additionally to the error message the red LED is on)	
	Further operation is still possible. If the cause of the malfunction disappears of its own accord, the warning message will automatically switch off. If the cause of the malfunction does not disappear even after a longer period of time, an error message is triggered.
Error message (additionally to the error message the red LED is on)	
	Further operation is not possible. The malfunction is stored in the error list.
	By pressing the **<Info>** key additional information are displayed for each warning or error message.
	By pressing the **<Esc>** key the control unit returns to the standard operating display.

1.2 TROUBLESHOOTING

1.2.1 System Faults

Warning		Error		Cause	Remedy
LED	**Display**	**LED**	**Display**		
MH Card missing (Test run possible)		MH Card Missing			
Red flashes	Warning W1: MH Card Missing	Red lights	Error E1: MH Card Missing	No MH Card installed on the control board.	Install MH Card or start test run.
		MH Card is Empty			
--	--	Red lights	Error E2: MH Card Empty	No data stored on the MH Card	Install new MH Card.
		MH Card is defective			
--	--	Red lights	Error E3: MH Card Invalid	Invalid data stored on the MH Card	Install new MH Card.
		MH Card is incompatible			
--	--	Red lights	Error E4: MH Card Incompat	The MH Card is not compatible with the hardware or the basic settings on the control board.	Install new MH Card. Modify basic settings.
		Unit Module B missing			
--	--	Red lights	Error E5: Module B Missing	No response from module B. Flat ribbon cable interrupted or disconnected 120V supply cable disconnected.	Plug in flat ribbon cable, plug in 120V supply cable.
		Wrong parameter settings			
--	--	Red lights	Error E9: Illegal Setting	Data of CPU and MH Card do not match.	Install correct MH Card. Contact your Nortec supplier.
		Hardware Fault (flash)			
--	--		Error E10: Flash R/W Fault	CPU on control board defective.	Replace control board.
		Hardware Fault (clock)			
--	--		Error E11: Clock R/W Fault	CPU on control board defective.	Replace control board.

1.2.2 Unit Faults

Warning		Error		Cause	Remedy
LED	Display	LED	Display		
External safety chain is open					
Red and green flash	Warning W20A: Safety Loop Open		--	Air proving interlock open.	If applicable, check/turn on fan.
				Air flow monitor triggered	Check fan/filter of the fan system.
				Safety humidistat triggered.	Wait, if applicable, check safety humidistat
Error level sensor		**Error level sensor**			
Red flashes	Warning W21A: Level Sensor	Red lights	Error E21A: Level Sensor	The level sensor is blocked or defective (broken or short-circuited).	Check/clean or replace level sensor. Check level sensor with ohmmeter: If no water is in the tub, the circuit of the level sensor must be closed. If the water in the tub is on maximum level sensor must be open.
Maximum filling time exceeded (30 minutes)		**Maximum filling time exceeded (more than 4 hours)**			
Red flashes	Warning W22A: Fill Timeout	Red lights	Error E22A: Fill Timeout Note: This error message is reset automatically as soon as the water supply functions again.	Water supply blocked/shut-off valve closed/water pressure too low. Water treatment unit (fully demineralised water) is regenerating.	Check water supply (filter, pipes, etc.), Check/open shut-off valve, Check water pressure.
				Inlet valve blocked or defective.	Check strainer in the inlet valve, clean if necessary. Replace inlet valve.
				Drain valve open, blocked in open position or not electrically connected. Drain valve is open unless powered	Check/replace drain valve, connect drain valve.
				Leakage in the water drain system.	Check/seal water drain system.

When draining the water tub float is not open within 8 minutes		**When draining the water tub the float is not open within 4 hours**			
Red flashes	Warning W23A: Drain Timeout	Red lights	Error E23A: Drain Timeout	Drain valve blocked/defective or clogged.	Check/clean or replace drain valve.
				Siphon clogged.	Clean siphon.
				Relay defective (weld-shut).	Replace control board.
				Level sensor stucked or short circuited.	Clean/Replace level sensor.
				Backpressure in the siphon.	Install special siphon.
Conductivity of the water in the tub too high		**Conductivity of the water in the tub too high**			
Red flashes	Warning W25A: µS out of Range	Red lights	Error E25A: µS out of Range	Conductivity after draining, restart or cleaning cycle during 10 minutes higher than the set nominal value.	Increase the nominal value or enhance water quality.
				Conductivity sensor defective.	Replace conductivity sensor.
				Conductivity transmitter defective.	Replace conductivity transmitter.

Warning		Error		Cause	Remedy
LED	Display	LED	Display		
Maintenance due		**Maintenance not performed and/or maintenance indication not reset**			
Red flashes and yellow lights	Warning W28A: Maintenance	red and yellow lights	Error E28A: Maintenance	Maintenance due.	Perform maintenance according to section 10-40 of the installation and operating instructions for the Nortec MH. Then, reset the maintenance indication.
				Maintenance not performed and/or maintenance indication not reset within 168 h (1 week).	Perform maintenance according to section 10-40 of the installation and operating instructions for the Nortec MH. Then, reset the maintenance indication.
Maximum lifespan of the UV lamp reached		**Maximum lifespan of the UV lamp reached**			
red flashes and yellow lights	Warning W29A: UV Maintenance	red and yellow light	Error E29A: UV Maintenance	Maximum lifespan of the UV lamp reached.	Replace UV lamp and clean glass tube
				UV lamp not replaced or hours counter of the UV lamp not reset after replacement of the UV lamp. Unit switches off after 168 hours.	Replace UV lamp and clean glass tube (see 1.4.2 in section 10-40), then reset hours counter of the UV lamp.
				Wrong UV lamp installed.	Install correct UV lamp.
No signal from humidity sensor		**No signal from humidity sensor**			
Red flashes	Warning W32A: Hum Sensor broken	Red lights	Error E32A: Hum Sensor broken	Sensor cable not connected or sensor cable interrupted.	Connect/replace sensor cable.
				Humidity sensor defective.	Replace humidity sensor.

No signal from conductivity sensor		**No signal from conductivity sensor**			
Red flashes	Warning W33A: µS Sensor broken	Red lights	Error E33A: µS Sensor broken	Sensor cable not connected or sensor cable interrupted.	Connect/replace sensor cable.
				Conductivity transmitter defective or wrong version (conductivity constant).	Replace conductivity transmitter.
				Conductivity transmitter not configured correctly.	Contact your Nortec supplier.
				Conductivity sensor defective.	Replace conductivity sensor.
Nortec SH2 deactivated via Modbus		**Modbus system failed**			
Red flashes	Warning W34A: Modbus disable	Red lights	Error E34A: Modbus disable	Nortec MH deactivated via Modbus.	None or activate Nortec MH via Modbus.
				Modbus system failed.	Check/activate Modbus system.
		Timeout Modbus			
Red flashes	--	Red lights	Error E35A: Modbus Timeout	Timeout. No activity from Modbus	Activate Modbus system
Cleaning of humidification boxes in progress					
--	Warning W36A: Stage Hygiene	--	--	Cleaning of humidification boxes in progress.	None (wait).
Draining of water tub in progress					
--	Warning W37A: Tank Draining	--	--	Draining of water tub in progress.	None (wait).

Water pressure too low (flow only)		**Water pressure for more than 4 hours too low (flow only)**			
Red flashes	Warning W40A: No W.-pressure	Red Lights	Error E40A: No W.-pressure	Water supply blocked/shut-off valve closed/water pressure too low. Water treatment unit (fully demineralised water) is regenerating.	Check water supply (filter, pipes, etc.), Check/open shut-off valve. Check water pressure.
				Inlet valve blocked or defective.	Check strainer in the inlet valve, clean if necessary. Replace inlet valve.
				Flushing valve leaking.	Replace flushing valve.

1.3 RESETTING THE ERROR INDICATION

To reset the error indication: Investigate and correct cause of error. Turn control panel ON/OFF switch to OFF.

Wait approx. 5 seconds, then turn control panel ON/OFF switch to On position.

Note: If the fault has not been eliminated, the error indication reappears after a short while.

WARRANTY

(1) WALTER MEIER INC. and/or WALTER MEIER LTD. (hereinafter collectively referred to as THE COMPANY), warrant for a period of two years after installation or 30 months from manufacturer's ship date, whichever date is earlier, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted (with the exception of the cylinder), are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

(2) THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

(3) The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

(4) THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.

(5) THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.

(6) THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

(7) THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.

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