SH2 control unit
Operating instructions

Adiabatic
Humidifiers

For a better climate

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Contents

1 Introduction

1.1 Notes on the operating instructions

Limitation

This operating instructions are an addendum to the installation and operating instructions for the Condair SH2 and describe the operating of the SH2 control unit, which is used with the models Condair SH2 flow SC, REflow C and REflow SC.

This 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 mislaid, please contact your Condair supplier.

Language versions

These operating instructions are available in various languages. Please contact your Condair supplier for information.

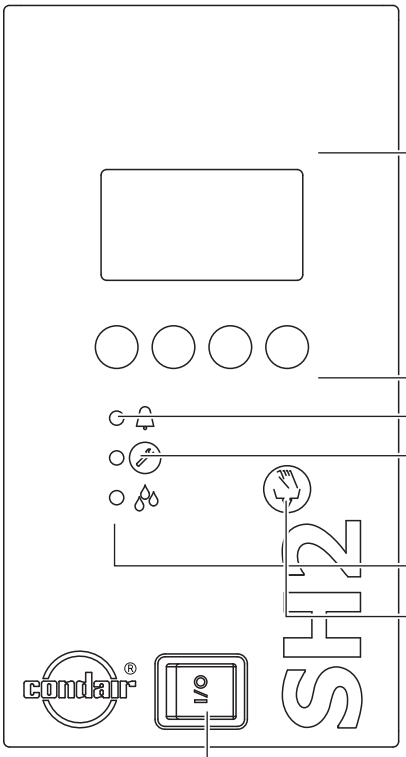
Copyright protection

1.2 Safety

Every person operating the SH2 control unit must have read and understood the operating instructions of the SH2 control unit as well as the installation and operating instructions of the Condair SH2 (specially the safety instructions) .
Knowing and understanding the contents of the operating instructions of the SH2 control unit and the installation and operating instructions of the Condair SH2 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 SH2 control unit

2.2 Function of the display and operating elements



Display and control unit
Function: Configuration of the Condair SH2.
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, see chapter 6).
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.

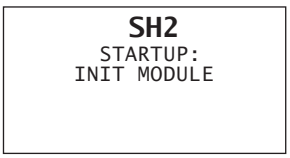
Drain/Wash key
Function: Manual draining/washing. After having pressed the drain/wash key, the draining/washing is controlled via the display and control unit.

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

2.2 Switching the control unit on and off

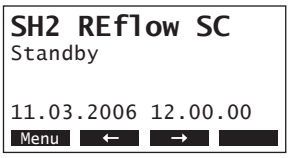
Note: For putting the unit into operation and taking the unit out of operation please follow the procedures described in the chapters 5.1 and 5.4 of the installation and operating instructions for the Condair SH2.

- **Switching the SH2 control unit on** (the unit switch lights).



The control unit 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 unit is in **normal operation mode**. The display shows the **standard operating display** (first page of the indication level).
Note: The contents of the standard operating display depends on the unit type (flow SC, REflow C or REflow SC), the actual operating status and on the configuration of the Condair SH2 and can differ from the opposite display.

- **Switching the SH2 control unit off**

  The display goes out. On models REflow C and REflow SC the drain valve opens and the water tub empties.

  Note: Thus 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 trouble-shooting.

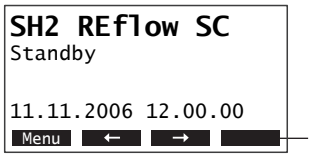
2.3 Remote operating and fault indication

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

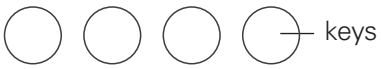
Activated remote indication relay	When?	Display on unit
H1 "Error"	A malfunction is present, further operation is not possible.	Red LED lights An error message is shown in the display
H2 "Service"	Maintenance or UV lamp (option) replacement is due. The unit remains operational for a certain time	Yellow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

Operating

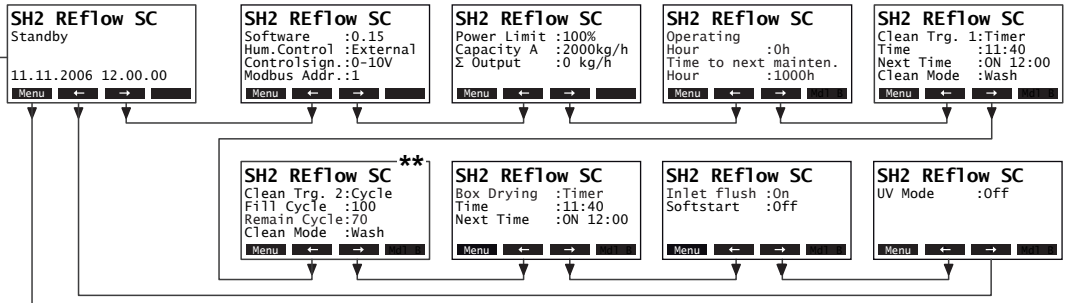


The operating and display unit is operated via the four keys located just below the display. The 4 status fields at the bottom of the display show the active keys the functions assigned to them.



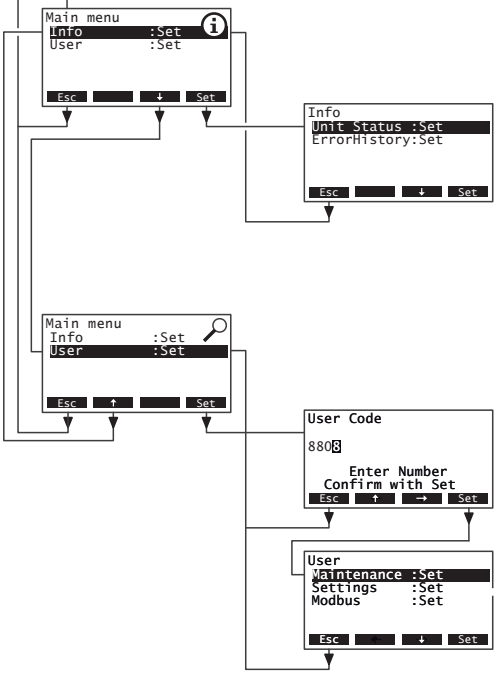
Menu overview

Indication level



** this display is not shown with the model flow SC

Menu level



Menu **Info**
- Interrogation of unit information
- Interrogation of the malfunction list

Menu **User**
- Resetting the maintenance counter
- Unit settings
- Modbus settings

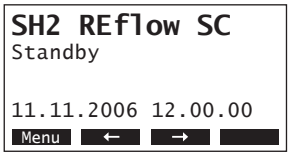
3 Interrogation functions

3.1 Interrogation of the operating information (indication level)

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

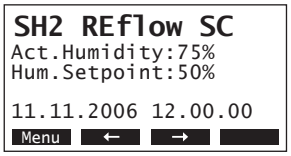
Standard operating display

The appearance of the standard operating display depends on the actual operating status and the configuration of the Condair SH2



Standard operating display with control via the **external** controller

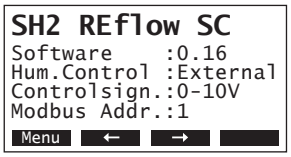
Standby (no humidity demand) or
Demand % (humidity demand present)



Standard operating display with control via the **internal** controller

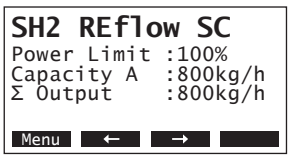
- Actual humidity in %rh
- Set nominal humidity %rh

Info page: Settings



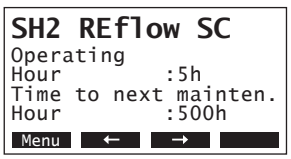
- Software version
- Selected control signal source
- Set control signal range
- Set Modbus address of the unit

Info page: Performance data



- Set power limitation in % of the maximum output
- Actual output unit A in kg/h
- Actual total output in kg/h

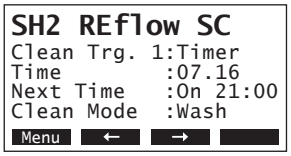
Info page: Operating hours



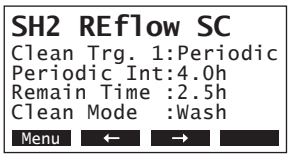
- Total operating hours of the Condair SH2
- Remaining operating hours to the next maintenance

Info page: Clean Trg. 1

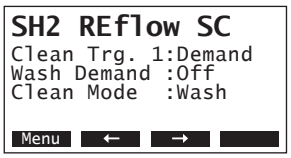
This page shows the current settings for the forced draining (models REflow C and REflow SC) or the box cleaning (model flow SC), respectively (see chapter 4.7).



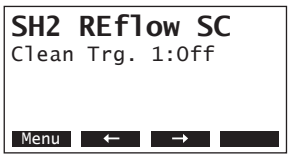
- **Time controlled** draining/box cleaning (Timer)
- Actual time of day
- Point in time of the next draining/cleaning cycle
- Cleaning mode (Wash= draining with simultaneous box cleaning or box cleaning only, Drain= draining only)



- **Interval controlled** draining/box cleaning (Periodic)
- Set interval time in hours
- Remaining time in hours up to the next draining/cleaning cycle
- Cleaning mode (Wash= draining with simultaneous box cleaning or box cleaning only, Drain= draining only)



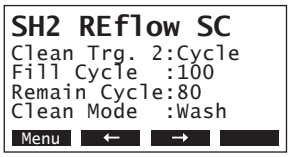
- **Ventilator controlled** draining/box cleaning (Demand)
- Actual status of the draining/cleaning demand
- Cleaning mode (Wash= draining with simultaneous box cleaning or box cleaning only, Drain= draining only)



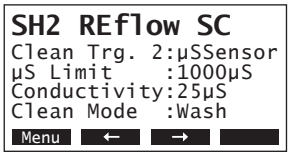
- **Clean Trg. 1 deactivated** (appears only with module flow SC)

Info page: Clean Trg. 2 (Note: This page is not shown with model flow C)

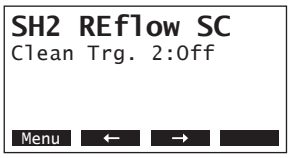
This page shows the settings for the operation-dependent draining (see chapter 4.8)



- **Fill cycle controlled** draining (Cycle)
- Set fill cycles
- Remaining fill cycles up to the next draining
- Cleaning mode (Wash= Draining with simultaneous box cleaning or box cleaning only, Drain= draining only)



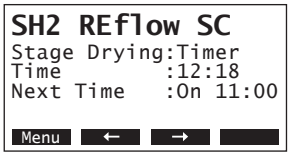
- **Conductivity controlled** draining (µSSensor) –>Option
- Set conductivity limit value in µS/cm
- Actual conductivity value of the water in the tub in µS/cm
- Cleaning mode (Wash= Draining with simultaneous box cleaning or box cleaning only, Drain= draining only)



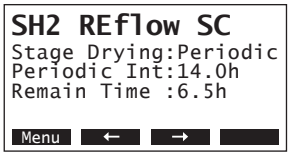
- **Operation-dependent draining deactivated** (Off)

Info page: Box drying

This page shows the settings for the box drying (see chapter 4.9)

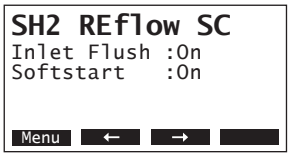


- **Time controlled** box drying (Timer)
- Actual time of day
- Point in time of the next drying cycle



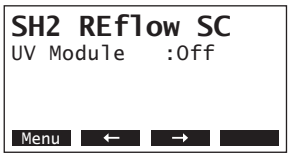
- **Interval controlled** box drying (Periodic)
- Set interval time in hours
- Remaining time in hours up to the next drying cycle

Info page: Supply line flushing function/water quantity reduction function



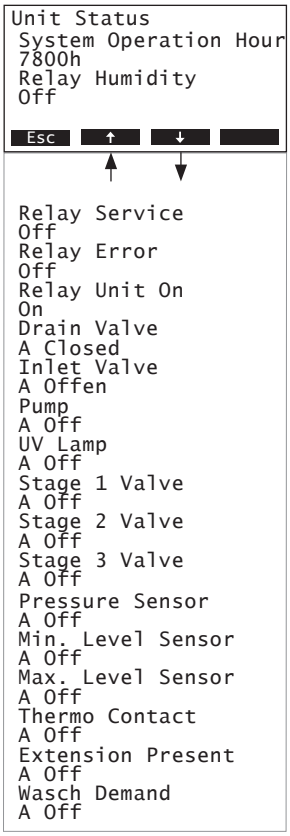
- Status of the supply line flushing function (see chapter 4.5)
- Status of the water quantity reduction function (see chapter 4.11)

Info page: UV Module (option)



- Information indication whether (On) or not (Off) the unit is equipped with the optional UV water treatment module.

3.2 Interrogation of unit information



Select the list with the unit information:
Path: **Main menu > *Info* > *Unit Status***

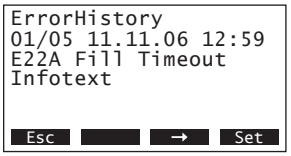
Press **<↓>** and **<↑>** keys, in order to select the unit information available in the list:

- `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` (flow SC only):
  Actual operating status of the minimum pressure switch
- `Min. Level Sensor` (REflow C and REflow SC only):
  Actual operating status of the minimum level sensor
- `Max. Level Sensor` (REflow C and REflow SC only):
  Actual operating status of the maximum level sensor
- `Thermo Contact` (REflow C and REflow SC only):
  Actual operating status of the thermo contact (pump motor protection)
- `Extension Present`:
  Indication, whether or not an 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 unit information list and to return to the standard operating display.

3.3 Interrogation of the malfunction list

The last 10 malfunctions that occurred during operation are saved in the error history list and can be interrogated.



Select the error history list:
Path: ***Main menu > Info > ErrorHistory***

The last error that occurred is shown with:
- running number of the error
- date and time of occurrence
- error code (Warning: W..., Error: E...
- error message
- additional info text regarding the error

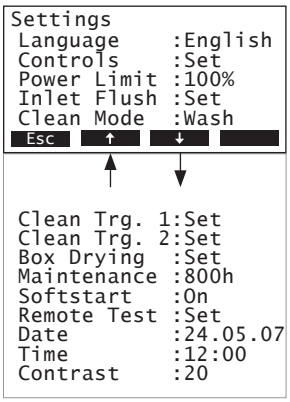
Press **<↓>** and **<↑>** keys, in order to select further error messages in the list.

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

4 Configuration

4.1 Unit settings

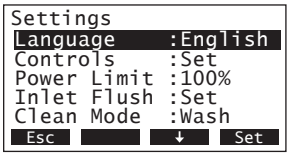
4.1.1 Launching the unit settings menu



Select 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.

4.1.2 Select dialogue language

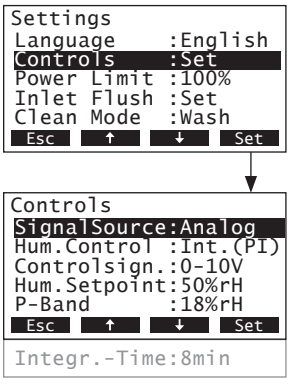


Select "**Language**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue select the desired dialogue language. After confirmation, the unit automatically switches to the selected dialogue language.

Factory setting: **Country specific**

Options: **German, English, French, Dutch**

4.1.3 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 control 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 in %rh.

Note: This setting is available only if the internal P or PI controller is activated.

Factory setting: **50 %rH**

Setting range: **20...98 %rH**

– **P-Band**: Setting the proportional range in % for the internal P/PI controller.

Note: This setting is available only if the internal P or PI controller is activated.

Factory setting: **18 %**

Setting range: **6...100 %**

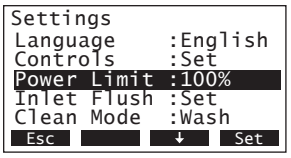
– **Integr.-Time**: Setting the integral time in minutes for the internal PI controller.

Note: This setting is available only if the internal P or PI controller is activated.

Factory setting: **18 Minutes**

Setting range: **1...60 Minutes**

4.1.4 Setting the capacity limitation



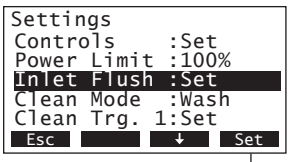
Select "**Power Limit**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the desired capacity limitation in % of the maximum capacity of the humidifier.

Factory setting: **100 %**

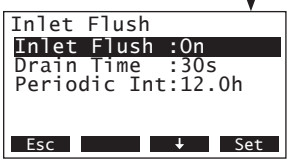
Setting range: **30...100 %**

4.1.5 Configuring the supply pipe flushing

In order to work against the germinating of the supply pipe in longer periods without demand the supply pipe can be flushed in definable intervals.



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



The settings for the supply pipe flushing appear. With these settings you determine whether or not the supply pipe should be flushed and how long and after which period of time without demand the supply pipe should be flushed.

Description of the settings

– **`Inlet Flush`**: Activating and deactivating the supply pipe flushing.
  Factory setting: **On**
  Options: **On** (activated)
  Off (deactivated)

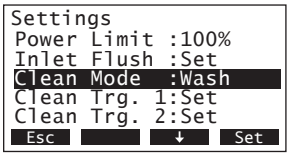
– **`Drain time`**: Setting the flushing time in seconds.
  Factory setting: **60s**
  Setting range: **5...600s**

– **`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**

4.1.6 Setting the cleaning mode

Note: the **cleaning mode may only be set with the models REflow C and REflow SC**.

With the cleaning mode you determine whether or not the humidification boxes will be washed simultaneously during a forced draining or operation dependent draining.



Select "**Clean Mode**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue select the desired wash mode.

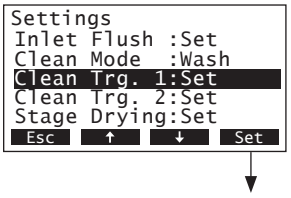
Factory setting: **Drain**

Options: **Drain** (draining only)
Wash (Draining with box cleaning)

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

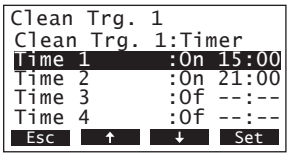
4.1.7 Configuring the cleaning trigger 1 (Clean Trg. 1)

With the cleaning trigger 1 settings you determine whether the **forced draining (models REflow C and REflow SC)** or the **box cleaning (Model flow SC)** is time or interval controlled or triggered via a signal from ventilator of the ventilation system. The forced draining can not be deactivated, however the box cleaning can be deactivated.
Note: the forced cleaning serves to empty the water tub regularly and independently of the operation time of the Condair SH2.



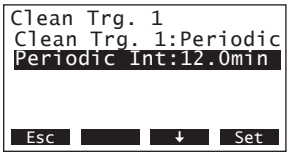
Select "**Clean Trg. 1**" in the settings menu, then press the **<Set>** key.

The current settings for the forced draining/box cleaning appear. The settings available depend on whether the interval controlled (**Periodic (factory setting)**, timer controlled (Timer) or the ventilator signal controlled (Demand) triggering of the forced draining/box cleaning is selected.



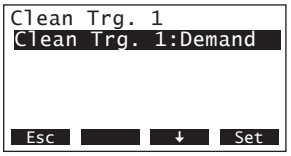
Interval controlled draining/box cleaning (Periodic)

With the parameter "**Interval**" you can determine in which time intervals the draining/box cleaning is performed (setting range: 0.5...24.0h, **factory setting: 2.0h**).



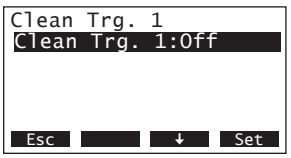
Time controlled draining/box cleaning (Timer)

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 a signal from the ventilator (Demand)

In order to trigger the draining/box cleaning via a signal of the ventilator a potential-free contact (B4) must be connected to the control board of the control unit SH2 (see chapter 4.4 of the installation and operating instructions for the Condair SH2). The contact must be closed, if the ventilator is not running.

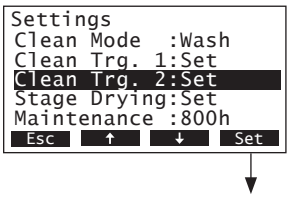


Cleaning trigger 1 deactivated (Off)
Note: this setting is only available for **model flow SC**.

4.1.8 Configuring the cleaning trigger 2 (Clean Trg. 2)

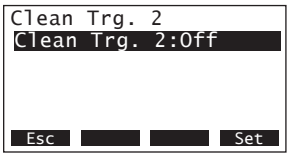
Note: The cleaning trigger 2 to configure the operation dependent draining **appears only with the models REflow C and REflow SC**.

With the cleaning trigger 2 settings you determine whether the 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.

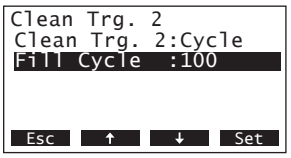


Select "**Clean Trg. 2**" in the settings menu, then press the **<Set>** key.

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 (µSSensor) triggering of the operation dependent draining is selected.

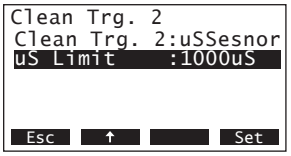


Operation dependent draining deactivated (Off)



Fill cycle controlled draining (Cycle)

With the parameter "**Cycle**" you can determine after how many filling cycle a draining is performed (setting range: 10...10000, **factory setting: 100**).

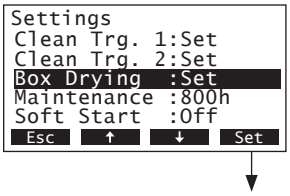


Conductivity controlled draining (µSSensor) --> Option

With the parameter "**µS Limit**" you can set a conductivity limit value. If during operation the conductivity value of the water in tub reaches the set limit value a draining is performed (setting range: 10...5000 µS, **factory setting: 1000µS**).

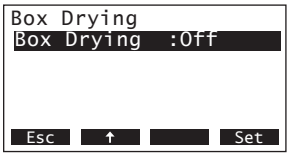
4.1.9 Configuring the humidification box drying

An occasional drying of the humidification boxes works against the germinating of the humidification boxes.The drying process can be triggered time 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.

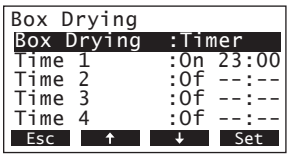


Select "**Box Drying**" in the settings menu, then press the **<Set>** key.

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.

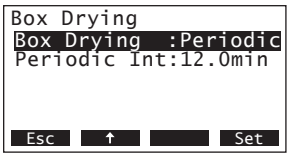


Drying function deactivated (Off –-> **factory setting**)



Time controlled drying (Timer)

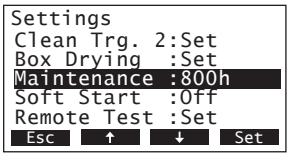
With the parameters "time 1" to "time 4" you can define up to four times of day to start a box drying process (**factory setting: no starting times defined**).



Interval controlled drying (Periodic)

With the parameter "**Interval**" you can determine in which time intervals a box drying process is performed (setting range: 0.5...24.0h, **factory setting: 12.0h**).

4.1.10 Setting the maintenance interval time



Select "**Maintenance**" in the settings menu, then press the **<Set>** key. In the upcoming modification 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 in not performed and the maintenance indication is not reset (see chapter 5.2) within a certain time (168 h) , an error message is triggered.

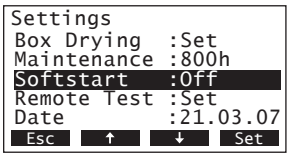
Factory setting: **800 h**

Setting range: **100 ... 50000 h**

Note: to determine the maintenance interval time please refer to chapter 6 of the installation and operating instructions for the Condair SH2.

4.1.11 Activating/deactivating the softstart function

If the mats in the humidifier boxes became dry due to a longer operation interruption, they need a certain time, until they are again moistened with water. In order to prevent that in this phase too much water flows over the humidification boxes and is drug along from the air flow, the amount of water can be reduced a certain time with the "**Softstart**" function.



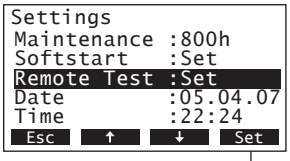
Select "**Softstart**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue you can activate or deactivate the softstart function.

Factory setting: **Off**

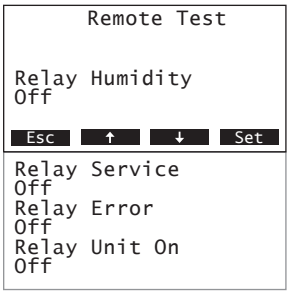
Options: **Off** (Softstart function deactivated)
On (Softstart function activated)

4.1.12 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".

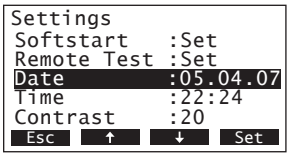


Select "**Remote Test**" in the settings menu, then press the **<Set>** key.



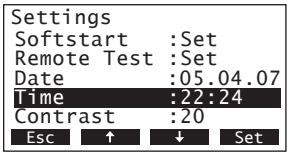
Press the **<↓>** and **<↑>** keys in order to select the relay you want to test and press the **<Set>** key to activate/deactivate the corresponding relay for testing.

4.1.13 Setting the date



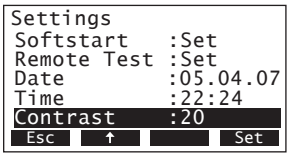
Select "**Date**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the actual date (format "tt.mm.jj").

4.1.14 Setting the time



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

4.1.15 Setting the display contrast

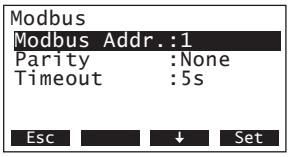


Select "**Contrast**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the desired value for the display contrast.

Factory setting: **20**

Setting range: **0** (no display) **...100** (display turns black)

4.2 Modbus settings



Select the Modbus menu:
Path: ***Main menu > User > Password entry: 8808 > Modbus***

The settings for the Modbus appear.

Description of the Modbus settings

– **Modbus Addr.**: Setting the modbus address of the Condair SH2.
  Factory setting: **1**
  Setting range: **1...16**

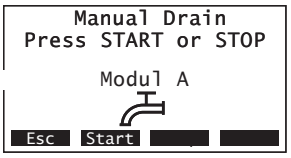
– **Parity**: Selecting the parity bit for the data transmission
  Factory setting: **None**
  Options: **None**, **Odd**, **Even**

– **Timeout**: Setting the time out time for the data transmission.
  Factory setting: **5 Seconds**
  Setting range: **1...600 Seconds**

5 Operational functions

5.1 Carrying out manual draining/pipe flushing

To carry out a manual draining (models REflow C and REflow SC) or pipe flushing (model flow SC) proceed as follows:



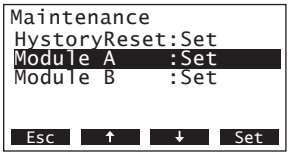
1. **Briefly press the drain/flush key**. The drain/flush dialogue appears in the display.
2. Press the **<Start>** key.
   - Models REflow C and REflow SC: The drain valve opens with a delay of up to 3 minutes and the water tub empties. The **yellow LED flashes**.
   - Model flow SC: The inlet valve 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.

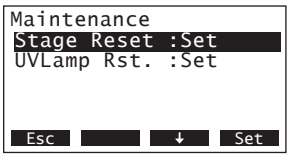
5.2 Resetting the maintenance indication

After completing maintenance work, the **maintenance indication** (yellow LED lights) must be reset on the models flow SC, REflow C and REflow SC.
Note: If the maintenance indication is not reset within 168 hours an error message is triggered.

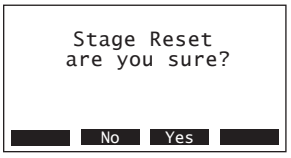


Select the maintenance menu:
Path: ***Main menu > User > Password entry: 8808 > Maintenance***

Select "**Module A**", then press the **<Set>** key.



Select **"Stage Reset**", then press the **<Set>** key.

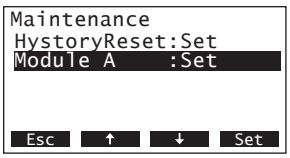


The reset dialogue shows up in the display. Press the **<Yes>** key to reset the **maintenance counter**.
Note: Press the **<Esc>** key if you wish to abort the reset procedure.

To return to the standard operating display press the **<Esc>** key several times.

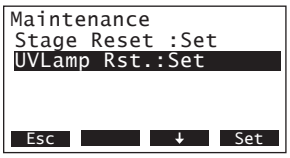
5.3 Resetting the hours meter of the UV lamp

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 an error message is triggered.

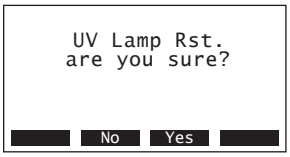


Select the maintenance menu:
Path: ***Main menu > User > Password entry: 8808 > Maintenance***

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>** key if you wish to abort the reset procedure.

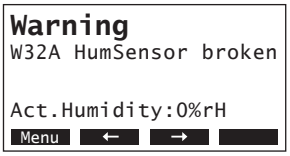
To return to the standard operating display press the **<Esc>** key several times.

6 Malfunctions

6.1 Fault indication

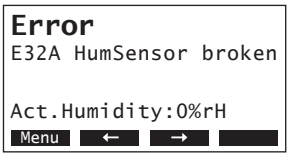
Malfunctions during operation are indicated by a corresponding warning or error message in the display of the control unit:

– **Warning messages** (additionally to the warning message the red LED flashes)



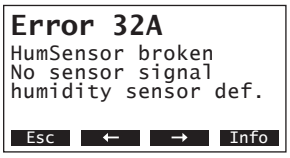
Further operation is still possible. If the cause of the malfunction disappears of its own accord, the warning message will automatically switch off. If the cause of the malfunction does not disappear even after a longer period of time, an error message is triggered.

– **Error message** (additionally to the warning message the red LED lights)



Further operation is not possible any longer. The malfunction is stored in the error list.

By pressing the **<Info>** key additional information are displayed for each warning or error message.



If the cause of the malfunction disappears of its own accord the malfunction indication is reset automatically and the adjacent message appears in the display. By pressing the **<Esc>** the control unit returns to the standard operating display.

6.2 Malfunction list

6.2.1 System faults

Warning		Error		Cause	Remedy
LED	**Display**	**LED**	**Display**		
SH Card missing (Test run possible)		**SH Card missing**			
red flashes	Warning W1: SH-Card fehlt	red lights	Error E1: SH-Card Missing	No SH Card installed on the control board.	Install SH Card or start test run.
		SH Card is empty			
—	—	red lights	Error E2: CP3-Card Empty	No data stored on the SH Card.	Install new SH Card.
		SH Card is defective			
—	—	red lights	Error E3: SH-Card Invalid	Invalid data stored on the SH Card.	Install new SH Card.
		SH Card is incompatibel			
—	—	red lights	Error E4: SH-Card Incompat	The SH Card is not compatible with the hardware or the basic settings on the control board.	Install new SH 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, 230 V supply cable disconnected	Plug in flat ribbon cable, plug in 230 V supply cable
		Wrong parameter settings			
—	—	red lights	Error E9: Illegal Setting	Data of CPU and SH Card do not match.	Install correct SH Card. Contact your Condair supplier.
		Hardware fault (Flash)			
—	—	red lights	Error E10: Flash R/W Fault	CPU on control board defective.	Replace control board.
		Hardware fault (Clock)			
—	—	red lights	Error E11: Clock R/W Fault	CPU on control board defective.	Replace control board.

6.2.2 Unit faults

Warning		Error		Cause	Remedy
LED	**Display**	**LED**	**Display**		
External safety chain is open					
red and green flash	Warning W20A: Safety Loop Open		—	Ventilation interlock open.	If applicable, check/turn on ventilation system.
				Air flow monitor triggered.	Check ventilator/filter of the ventilation 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	One of the two level sensors is blocked or defective (broken or short-circuited). The signals of the two level sensors indicate an illogical status (e.g. the upper level sensor signals water, while the lower level sensor signals no water).	Check/clean or replace level sensors. Check level sensors with ohmmeter: If no water is in the tub, the circuit of the upper level sensor must be closed while the circuit of the lower sensor must be open. If the water in the tub is on the maximum level it is vice versa.
Maximum filling time exceeded (20 minutes)		**Maximum filling time exceeded (more than 4 hours)**			
red flashes	Warning W22A: Fill Timeout	red lights	Error E22A: Fill Timeout	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 (currentless open).	Check/replace drain valve, connect drain valve.
				Leakage in the water drain system.	Check/seal water drain system.
When draining the water tub the lower level is not reached within 8 minutes		**When draining the water tub the lower level is not reached within 4 hours**			
red flashes	Warning W23A: Drain Timeout	red lights	Error E23A: Drain Timeout	Drain valve blocked/defective or glogged.	Check/clean or replace drain valve.
				Siphon glogged.	Clean siphon.
				Relay defective (weld-shut).	Replace control board.
				Lower level sensor stucked or short circuited.	Clean/Replace lower level sensor.
				Backpressure in the siphon.	Install special siphon.
		Pump over current			
—	—	red lights	Error E24A: Pump overcurrent	Over current circuit breaker of the circulation pump in the control unit has released.	Check/replace circulation pump. Reset over current circuit breaker in the control unit.
				Circulation pump defective. Pump voltage too high. Release value of the over current circuit breaker set too low (small pump 1.4 A, large pump 1.8 A)	Check/replace circulation pump. Check voltage. Adjust release value of the over current circuit breaker to the correct value (see data sheet).
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 chapter 6 of the installation and operating instructions for the Condair SH2. Then, reset the maintenance indication.
				Maintenance not performed and/or maintenance indication not reset within 168 h (1 week).	Perform maintenance according chapter 6 of the installation and operating instructions for the Condair SH2. 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 (see chapter 6.4.2).
				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 chapter 6.4.2), then reset hours counter of the UV lamp.
Current of the UV lamp too low		**Current of the UV lamp too low**			
red and yellow flashes	Warning W30A: UV Current	red and yellow light	Error E30A: UV Current	UV lamp defective.	Replace UV lamp (see chapter 6.4.2).
				Ballast defective.	Contact your Condair supplier.
				Connecting cable interrupted or defective.	Replace connecting cable.
				Fuse F2 on control board defective.	Replace fuse F2.
				Wrong UV lamp installed.	Install correct UV lamp.
No signal from humidity sensor		**No signal from humidity sensor**			
red flashes	Warning W32A: HumSensor broken	red lights	Error E32A: HumSensor 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 Condair supplier.
				Conductivity sensor defective.	Replace conductivity sensor.
Condair SH2 deactivated via Modbus		**Modbus system failed**			
red flashes	Warning W34A: Modbus disable	red lights	Error E34A: Modbus disable	Condair SH2 deactivated via Modbus.	None or activate Condair SH2 via Modbus.
				Modbus system failed.	Check/activate Modbus system.
		Timeout Modebus			
red flashes	—	red lights	Error E35A: Modbus Timeout	No inquiry from Modbus	Activate Modbus system
Cleaning of humidification boxes in progress					
—	Warning W36A: Stage Hygiene	—	—	Cleaning of humidification boxes in progress.	None (wait).

Warning		Error		Cause	Remedy
LED	**Display**	**LED**	**Display**		
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.

6.3 Resetting the error indication

To reset the error indication:

Disconnect the steam air humidifier from the mains. Wait approx. 5 seconds, then reconnect the unit to the mains.

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

Notes

Notes

Notes

2529321 EN 0705

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