

# SH2 control unit

Operating instructions



Adiabatic  
Humidifiers

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# 1 Introduction

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## 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

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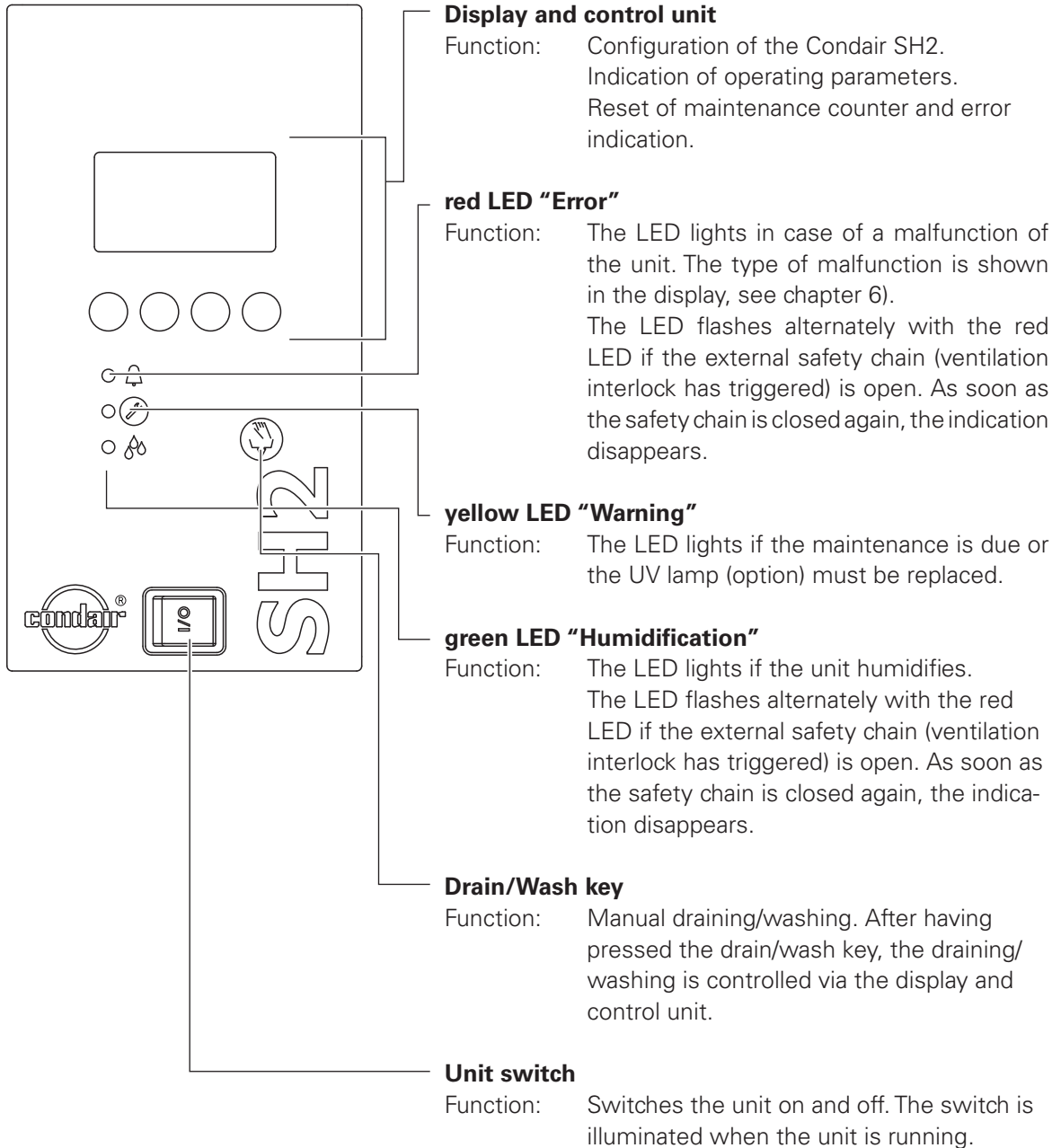
## 1.2 Safety

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

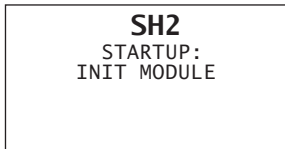
### 2.2 Function of the display and operating elements



## 2.2 Switching the control unit on and off

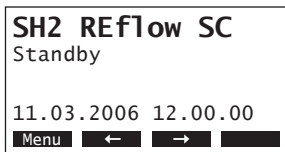
Note: For putting the unit into operation and taking the unit out of operation please follow the procedures described in the chapters 5.1 and 5.4 of the installation and operating instructions for the Condair SH2.

- **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.

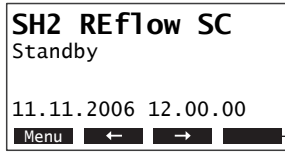
## 2.3 Remote operating and fault indication

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
<b>H1 "Error"</b>	A malfunction is present, further operation is not possible.	Red LED lights An error message is shown in the display
<b>H2 "Service"</b>	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
<b>H3 "Humidification"</b>	Unit is humidifying	Green LED lights
<b>H4 "Unit on"</b>	Unit ready for operation	Unit switch lights

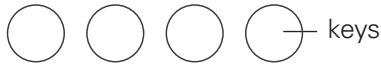
## 2.4 Overview and operating of the menu

### Operating

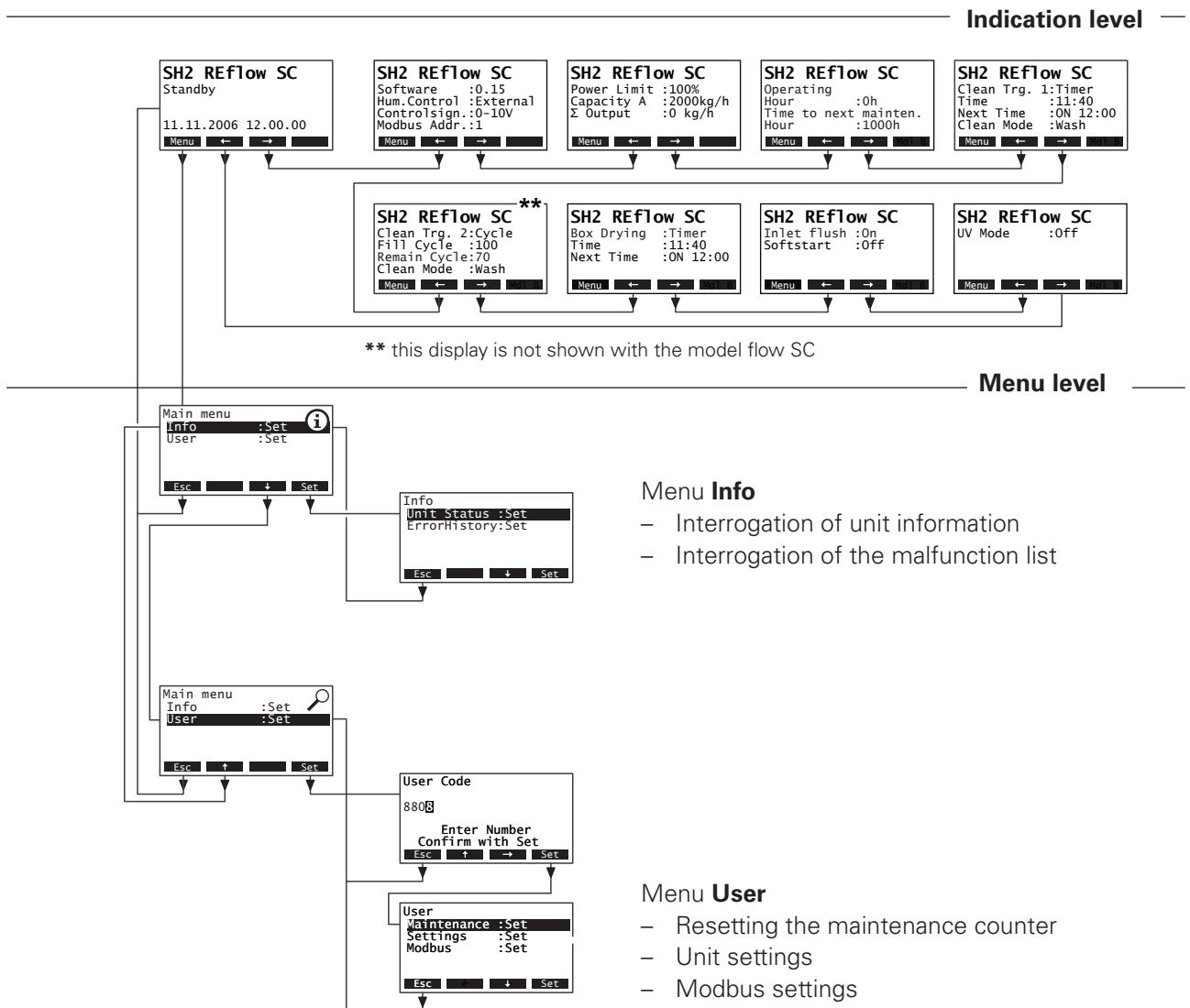


The operating and display unit is operated via the four keys located just below the display. The 4 status fields at the bottom of the display show the active keys the functions assigned to them.

actual key setting



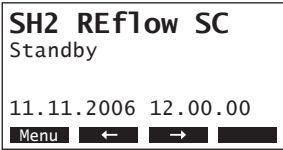
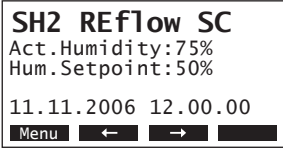
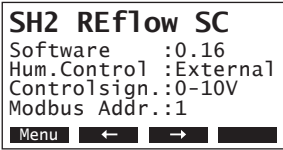
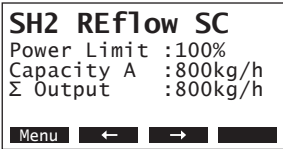
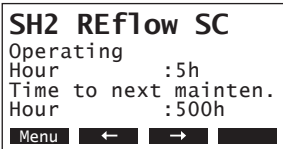
### Menu overview



## 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	
 <p>SH2 REF1ow SC Standby 11.11.2006 12.00.00 Menu ← →</p>	<p>Standard operating display with control via the <b>external</b> controller</p> <p>Standby (no humidity demand) or Demand % (humidity demand present)</p>
 <p>SH2 REF1ow SC Act. Humidity: 75% Hum. Setpoint: 50% 11.11.2006 12.00.00 Menu ← →</p>	<p>Standard operating display with control via the <b>internal</b> controller</p> <ul style="list-style-type: none"> <li>- Actual humidity in %rh</li> <li>- Set nominal humidity %rh</li> </ul>
Info page: Settings	
 <p>SH2 REF1ow SC Software :0.16 Hum. Control :External Control sign.:0-10V Modbus Addr.:1 Menu ← →</p>	<ul style="list-style-type: none"> <li>- Software version</li> <li>- Selected control signal source</li> <li>- Set control signal range</li> <li>- Set Modbus address of the unit</li> </ul>
Info page: Performance data	
 <p>SH2 REF1ow SC Power Limit :100% Capacity A :800kg/h Σ Output :800kg/h Menu ← →</p>	<ul style="list-style-type: none"> <li>- Set power limitation in % of the maximum output</li> <li>- Actual output unit A in kg/h</li> <li>- Actual total output in kg/h</li> </ul>
Info page: Operating hours	
 <p>SH2 REF1ow SC Operating Hour :5h Time to next mainten. Hour :500h Menu ← →</p>	<ul style="list-style-type: none"> <li>- Total operating hours of the Condair SH2</li> <li>- Remaining operating hours to the next maintenance</li> </ul>

### 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).

**SH2 REFlow SC**  
Clean Trg. 1:Timer  
Time :07.16  
Next Time :On 21:00  
Clean Mode :Wash  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 1:Periodic  
Periodic Int:4.0h  
Remain Time :2.5h  
Clean Mode :Wash  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 1:Demand  
Wash Demand :Off  
Clean Mode :Wash  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 1:Off  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 2:Cycle  
Fill Cycle :100  
Remain Cycle:80  
Clean Mode :Wash  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 2:μSSensor  
μS Limit :1000μS  
Conductivity:25μS  
Clean Mode :Wash  
Menu ← →

- **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)

**SH2 REFlow SC**  
Clean Trg. 2:Off  
Menu ← →

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

### Info page: Box drying

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

SH2 REFlow SC  
 Stage Drying:Timer  
 Time :12:18  
 Next Time :0n 11:00  
 Menu ← →

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

SH2 REFlow SC  
 Stage Drying:Periodic  
 Periodic Int:14.0h  
 Remain Time :6.5h  
 Menu ← →

- **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

SH2 REFlow SC  
 Inlet Flush :0n  
 Softstart :0n  
 Menu ← →

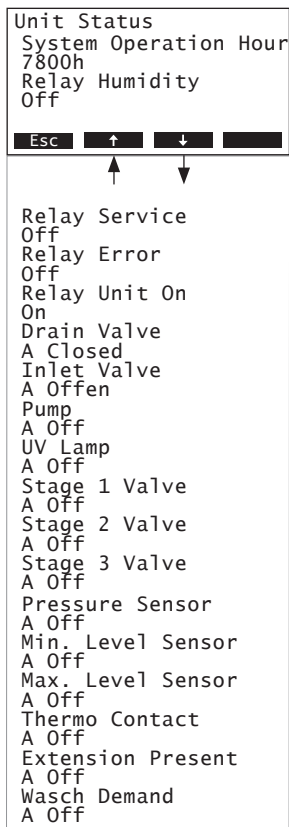
- Status of the supply line flushing function (see chapter 4.5)
- Status of the water quantity reduction function (see chapter 4.11)

### Info page: UV Module (option)

SH2 REFlow SC  
 UV Module :0ff  
 Menu ← →

- 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.

```
ErrorHistory
01/05 11.11.06 12:59
E22A Fill Timeout
Infotext
Esc  →  Set
```

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

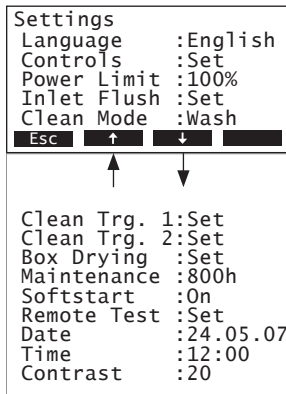
Press **<↓>** and **<↑>** keys, in order to select further error messages in the list.

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



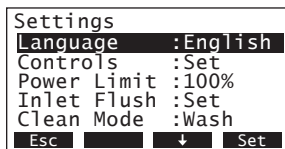
Select the unit settings menu:

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.

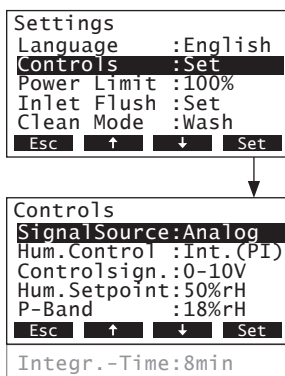
Factory setting:

**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:

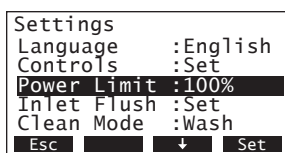
**Analog**

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 %**



### 4.1.7 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.

```
Settings
Inlet Flush :Set
Clean Mode  :Wash
Clean Trg. 1:Set
Clean Trg. 2:Set
Stage Drying:Set
Esc  ↑  ↓  Set
```

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.

```
Clean Trg. 1
Clean Trg. 1:Timer
Time 1      :On 15:00
Time 2      :On 21:00
Time 3      :Of  --:--
Time 4      :Of  --:--
Esc  ↑  ↓  Set
```

#### 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**).

```
Clean Trg. 1
Clean Trg. 1:Periodic
Periodic Int:12.0min
Esc  █  █  ↓  Set
```

#### 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**).

```
Clean Trg. 1
Clean Trg. 1:Demand
Esc  █  █  ↓  Set
```

#### 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.

```
Clean Trg. 1
Clean Trg. 1:Off
Esc  █  █  ↓  Set
```

#### 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.

```
Settings
Clean Mode :Wash
Clean Trg. 1:Set
Clean Trg. 2:Set
Stage Drying:Set
Maintenance :800h
Esc  ↑  ↓  Set
```

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 ( $\mu$ SSensor) triggering of the operation dependent draining is selected.

```
Clean Trg. 2
Clean Trg. 2:Off
Esc  Set
```

**Operation dependent draining deactivated** (Off)

```
Clean Trg. 2
Clean Trg. 2:Cycle
Fill Cycle :100
Esc  ↑  ↓  Set
```

**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**).

```
Clean Trg. 2
Clean Trg. 2:uSSesnor
uS Limit :1000uS
Esc  ↑  ↓  Set
```

**Conductivity controlled draining** ( $\mu$ SSensor) → Option

With the parameter " **$\mu$ S 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  $\mu$ S, **factory setting: 1000 $\mu$ S**).

## 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.

```
Settings
Clean Trg. 1:Set
Clean Trg. 2:Set
Box Drying :Set
Maintenance :800h
Soft Start  :Off
Esc  ↑  ↓  Set
```

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.

```
Box Drying
Box Drying :Off
Esc  ↑  ↓  Set
```

**Drying function deactivated** (Off → **factory setting**)

```
Box Drying
Box Drying :Timer
Time 1     :On 23:00
Time 2     :Of  --:--
Time 3     :Of  --:--
Time 4     :Of  --:--
Esc  ↑  ↓  Set
```

**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**).

```
Box Drying
Box Drying :Periodic
Periodic Int:12.0min
Esc  ↑  ↓  Set
```

**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

```

Settings
Clean Trg. 2:Set
Box Drying :Set
Maintenance :800h
Soft Start :Off
Remote Test :Set
Esc  ↑  ↓  Set
  
```

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 is 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.

```

Settings
Box Drying :Set
Maintenance :800h
Softstart :Off
Remote Test :Set
Date :21.03.07
Esc  ↑  ↓  Set
  
```

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".

```

Settings
Maintenance :800h
Softstart :Set
Remote Test :Set
Date :05.04.07
Time :22:24
Esc  ↑  ↓  Set
  
```

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

```

Remote Test

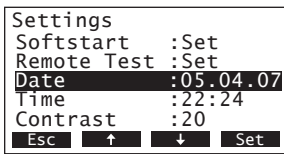
Relay Humidity
Off

Esc  ↑  ↓  Set

Relay Service
Off
Relay Error
Off
Relay Unit On
Off
  
```

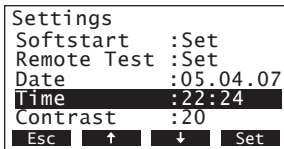
Press the **<↓>** and **<↑>** keys in order to select the relay you want to test and press the **<Set>** key to activate/deactivate the corresponding relay for testing.

### 4.1.13 Setting the date



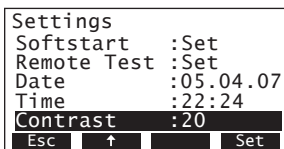
Select "**Date**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the actual date (format "tt.mm.jj").

### 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

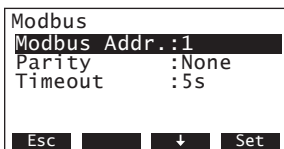


Select "**Contrast**" in the settings menu, then press the **<Set>** key. In the upcoming modification dialogue set the desired value for the display contrast.

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.

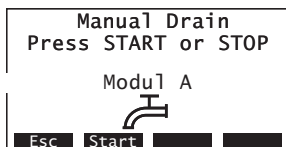
#### Description of the Modbus settings

- **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.**

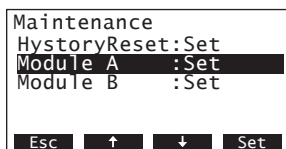
To stop the drain/flush cycle press the **<Stop>** key.

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.

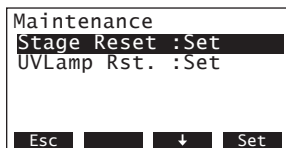
Note: If the maintenance indication is not reset within 168 hours an error message is triggered.



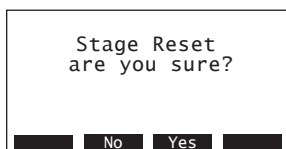
Select the maintenance menu:

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.**

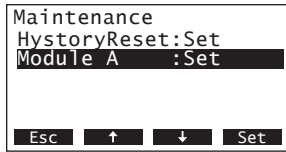
Note: Press the **<Esc>** key if you wish to abort the reset procedure.

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.

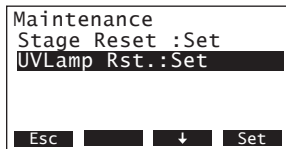
Note: If the hours meter of the UV lamp is not reset within 168 hours an error message is triggered.



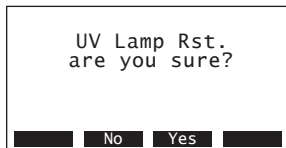
Select the maintenance menu:

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.

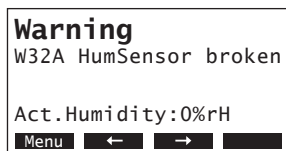
To return to the standard operating display press the **<Esc>** key several times.

## 6 Malfunctions

### 6.1 Fault indication

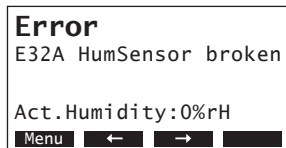
Malfunctions during operation are indicated by a corresponding warning or error message in the display of the control unit:

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



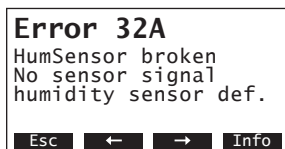
Further operation is still possible. If the cause of the malfunction disappears of its own accord, the warning message will automatically switch off. If the cause of the malfunction does not disappear even after a longer period of time, an error message is triggered.

- **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		
<b>SH Card missing (Test run possible)</b>		<b>SH Card missing</b>			
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.
		<b>SH Card is empty</b>			
—	—	red lights	Error E2: CP3-Card Empty	No data stored on the SH Card.	Install new SH Card.
		<b>SH Card is defective</b>			
—	—	red lights	Error E3: SH-Card Invalid	Invalid data stored on the SH Card.	Install new SH Card.
		<b>SH Card is incompatibel</b>			
—	—	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.
		<b>Unit module B missing</b>			
—	—	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
		<b>Wrong parameter settings</b>			
—	—	red lights	Error E9: Illegal Setting	Data of CPU and SH Card do not match.	Install correct SH Card. Contact your Condair supplier.
		<b>Hardware fault (Flash)</b>			
—	—	red lights	Error E10: Flash R/W Fault	CPU on control board defective.	Replace control board.
		<b>Hardware fault (Clock)</b>			
—	—	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		
<b>External safety chain is open</b>					
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
<b>Error level sensor</b>					
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.
<b>Maximum filling time exceeded (20 minutes)</b>					
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.
<b>When draining the water tub the lower level is not reached within 8 minutes</b>					
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.
<b>Pump over current</b>					
—	—	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.
<b>Conductivity of the water in the tub too high</b>					
red flashes	Warning W25A: $\mu$ S out of Range	red lights	Error E25A: $\mu$ S 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		
<b>Maintenance due</b>		<b>Maintenance not performed and/or maintenance indication not reset</b>			
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.
<b>Maximum lifespan of the UV lamp reached</b>		<b>Maximum lifespan of the UV lamp reached</b>			
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.
<b>Current of the UV lamp too low</b>		<b>Current of the UV lamp too low</b>			
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.
<b>No signal from humidity sensor</b>		<b>No signal from humidity sensor</b>			
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.
<b>No signal from conductivity sensor</b>		<b>No signal from conductivity sensor</b>			
red flashes	Warning W33A: $\mu$ S Sensor broken	red lights	Error E33A: $\mu$ S 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.
<b>Condair SH2 deactivated via Modbus</b>		<b>Modbus system failed</b>			
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.
		<b>Timeout Modbus</b>			
red flashes	—	red lights	Error E35A: Modbus Timeout	No inquiry from Modbus	Activate Modbus system
<b>Cleaning of humidification boxes in progress</b>					
—	Warning W36A: Stage Hygiene	—	—	Cleaning of humidification boxes in progress.	None (wait).

Warning		Error		Cause	Remedy
LED	Display	LED	Display		
<b>Draining of water tub in progress</b>					
—	Warning W37A: Tank Draining	—	—	Draining of water tub in progress.	None (wait).
<b>Water pressure too low (flow only)</b>		<b>Water pressure for more than 4 hours too low (flow only)</b>			
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.

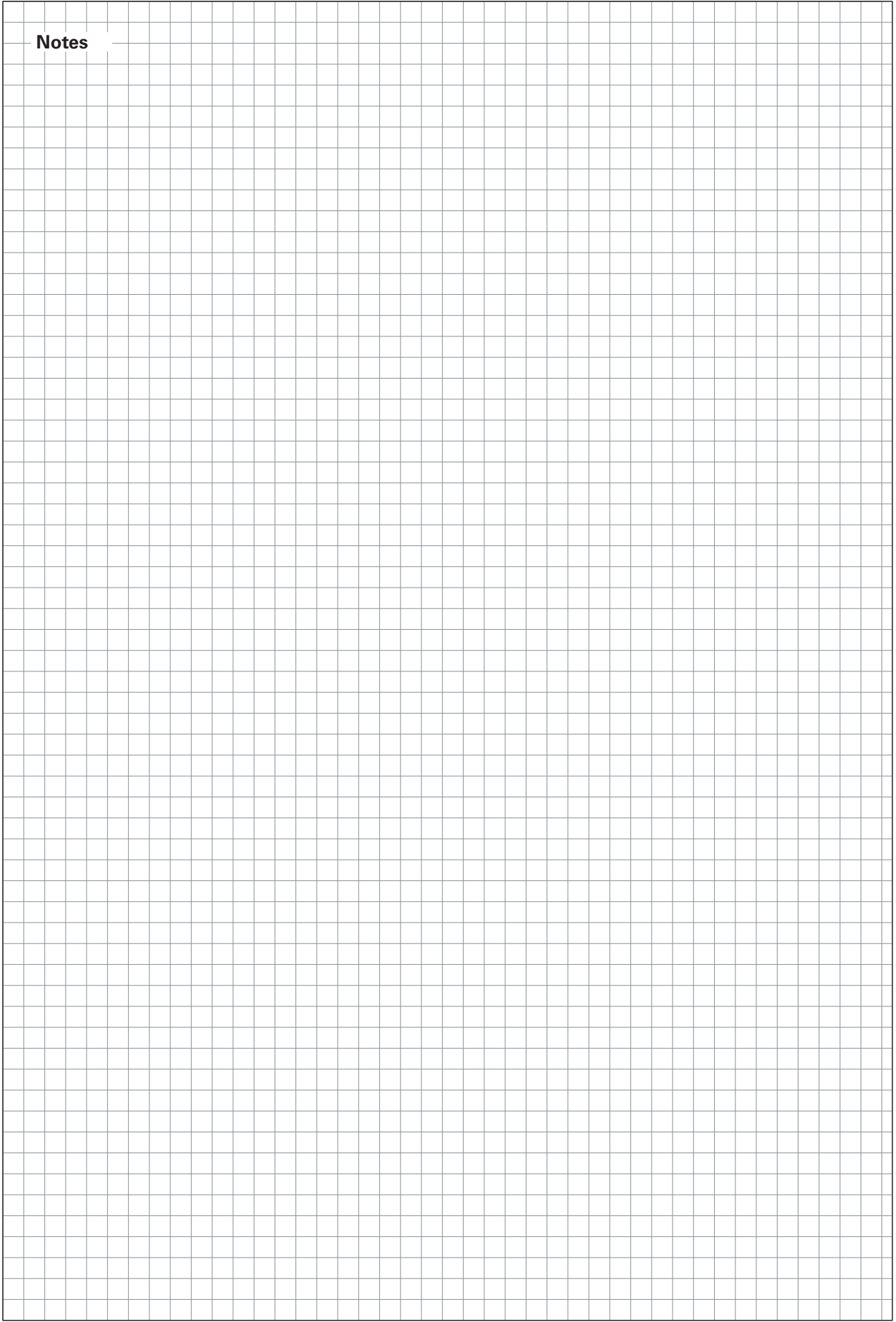
### 6.3 Resetting the error indication

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**

