STULZ

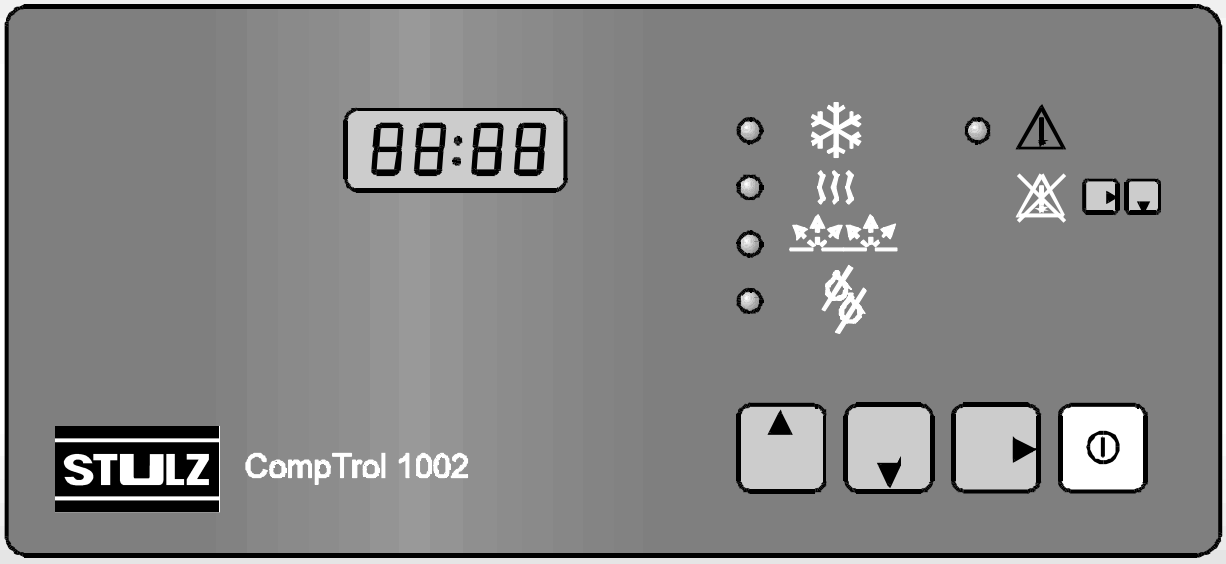
CompTrol 1002

INDEX 50

Edition 5.97

AIRCONDITIONING

MICROPROCESSOR



TECHNICAL MANUAL

STULZ

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1. Features

STULZ CompTrol 1002 is a complete control system for A/C-Units. The controller is build in a compact microprocessor design and is completely digital.The controlling system is driven by software only.

CompTrol 1002 controls temperature and humidity and supervises the room under free programmable conditions.

With the CompTrol 1002 single-module CW-units or units with a 2-stage compressor can be controlled. A 2-unit-sequencing is also included.

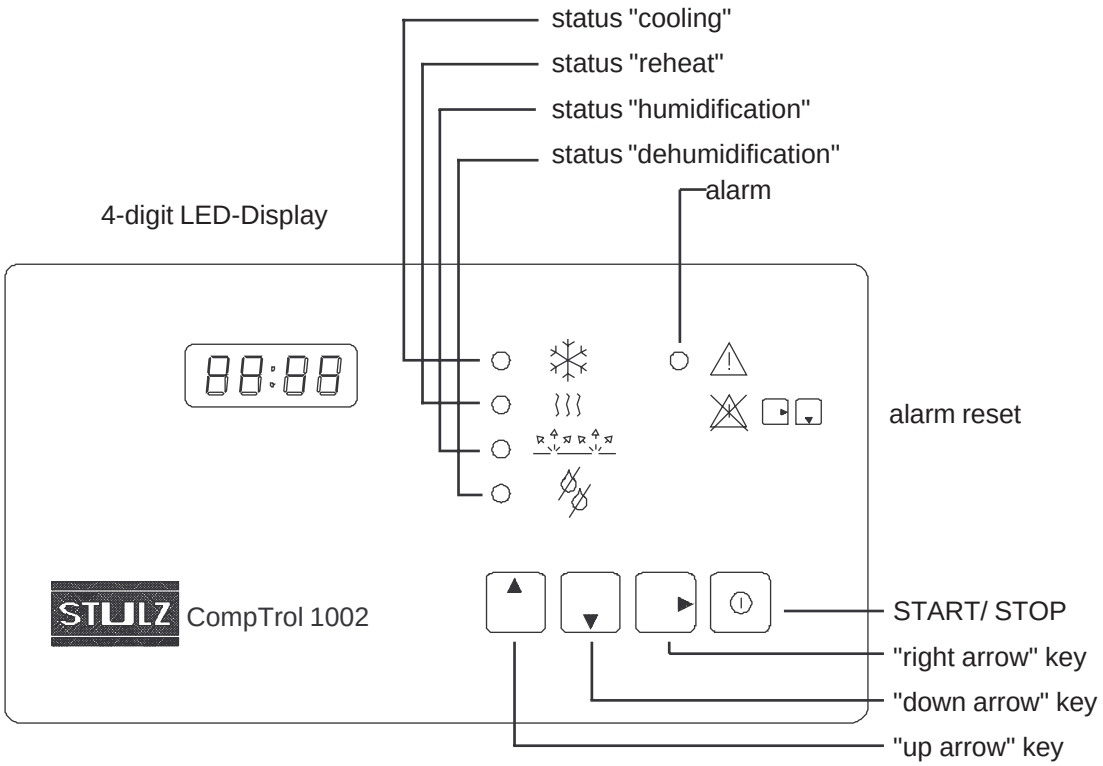
Functions such as cooling, reheat, humidification and dehumidification are continuously controlled and supervised. In case of any deviation from setpoints, the CompTrol 1002, will initiate necessary measures immediately. Parameters for the control system and the functions that have to be controlled can be directly programmed by three keys on the CompTrol 1002.

CompTrol 1002 can be connected to the STULZ Monitoring Systems InCompTrol and TeleCompTrol.

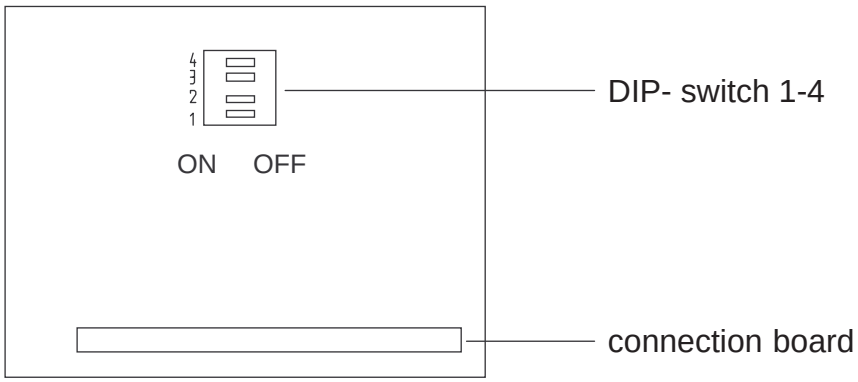
This manual is valid from CompTrol 1002 Software-Version 2.0

2. Operation and Status Elements

Face Plate



Rear Plate



4-Digit LED-Display
In this LED-display all controlling parameters such as setpoints, actual values and limiting values, are shown.

Status LED
Status LED show actual operation mode of controller. As a function switches on, the corresponding Status LED is indicated. On a CW-Unit, Status LED "cooling" indicates when CW-valve has an operation level greater than 0%.
Status LED "alarm" indicates when an alarm occurs.

DIP-Switch 1-4
Adjustments that need not to be changed after initial installation, are made by these DIP-switches. DIP- Switches 1-4 have the following functions:

DIP-Switch 1 No function
Modification from Version 2.1: When the sequencing is active (i.e. menue point 24 > 0), the start of the stand-by unit can be chosen by this switch.

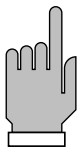
ON: no start by passing over a limit value

OFF: Start of stand-by unit in addition, 3K before the limit value "Temp. too high" is reached.

DIP-Switch 2 The control of the compressor version or the CW version can be chosen by this DIP-switch.

OFF: Control of compressor version is chosen.

ON: Control of CW version is chosen.

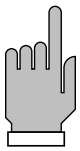


Some menue points, alarm inputs and outputs will receive another meaning. DIP Switch 2 must only be switched when dead.

DIP-Switch 3 Two alarm inputs can be chosen by this DIP- switch.

ON: The inputs "auxiliary alarm 1" and "auxiliary alarm 2" have the function of external alarms.

OFF: The input alarm 2 has the function of firestat- and smoke detector.
The input alarm 1 has the function of water sensor.

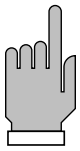


Consequences of alarm inputs "auxiliary alarm 1" and "auxiliary alarm 2" depends on position of DIP- switch 3. DIP- switch 3 can be switched at any time, even during controller operation. The function of this switch is immediately valid without further measures.

DIP-Switch 4 Temperatures in °C or °F can be chosen by this DIP - switch.

OFF: All absolute temperatures are shown in °C. Temperature differences are shown in K. Actual value is marked with a C.

ON: All absolute temperatures are shown in °F. Temperature differences are converted to degree Rankin and indicated. Actual value is marked with an R.



DIP - switch 4 can be switched over any time, even during controller operation. Function of switch is valid without further measures.

Membrane Keys

Key ⏻

Operation mode "start" and "stop" are the only functions of this key! If the controller is in enter mode, the key is ineffective.

Operation Mode "Stop"

Control system and unit are not in operation. CW-valve closes. Limiting values are supervised. Independent failures (like sensor break-down, water sensor alarm, firestat alarm, smoke detector and other external alarms) are supervised. Display indicates OFF_. The horizontal bar in display means that controller has been locally turned off by the ⏻ key.

Occuring alarms and failures can be reset in menue point 1. Inputs and modifications in all menue points can be made.

Operation Mode "Start"
Control system and unit are in operation. Unit functions are turned on when start values match setpoints of corresponding functions. Limiting values are supervised. Menue point 1 is shown. Display is alternating between actual value "temperature" and actual value "humidity" in 2- second- intervals.

Occuring alarms and failures can be reset in menue point 1. Inputs and modifications in all menue points can be made.

Right Arrow ▸ Key
This key has several functions.

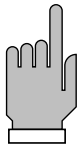
Menue Point 1 And Operation Mode "Stop"
Alarm reset is activated by pressing the key.

Menue Points 2 to 24
The setmode for these menue points is activated by pressing the key. After pressing this key there is a request for entering in the password.

Enter Mode
This mode can be initiated by pressing the key and the enter mode is left. The value shown last is taken into the continuous memory and is used for controlling.

Up Arrow ▲ Key
Next menue point can be entered by this key. The shown value is increased in enter mode.

Down Arrow ▼ Key
Last point of menue can be reached by pressing this key. The shown value is diminished in enter mode.

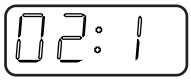


Pressing one of these two keys longer than one second in enter mode means pressing this key 12 times.

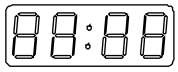
If none of the keys is used within five minutes, there will be an automatic return to menue point 1.

3. Start-up

Prior to initialization, the software version number is displayed for about 1 s.

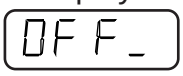
Example:  Software version 2.1

When the C1002 is started (operation voltage is supplied) the following symbol appears in the display for one second during initial phase:



In this initial phase all values of the continuous memory EEPROM are loaded into working memory.
Independent of the requirements for a certain function the CW- valve is closed for the time entered in menue point 8. This procedure is designed to synchronise the control system with the modulating valve.

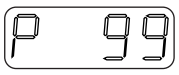
Start- up in Operation Mode "Stop"
If the CompTrol 1002 was in operation mode "stop" before cutting off the power supply, the controller will be in this operation mode again after restarting. If this happened there are three different procedures to follow:

	Display
1. I/O-Key: local mode	
2. Remote On/Off: remote mode	
3. Software On/Off: Monitoring system	

If controller is stopped from different locations, this identifies by the location of the bar in the fourth character position on the display. Restarting is only possible if local start mode (I/O-Key) exists. The I/O-Key has the highest priority.

Start-up in Operation Mode "Start" (Autostart)
The CompTrol 1002 is equipped with an "autostart"- function. This means that the unit starts automatically when it was in operation mode "start" before. A restart of several units with the C1002 at the same time can be avoided by entering a time delay in point of menue 22.

Start-up with Standard- Program
If the two keys which represent the password are pressed at the same time as power is turned on, the following reading appears on the display:



At this time the standard program is loaded from program memory EPROM to continuous memory EEPROM and working memory. During this procedure the control system is not working. By loading the standard program the controller is switched off locally and has to be set in operation mode "start" by pressing the ⏻ key.

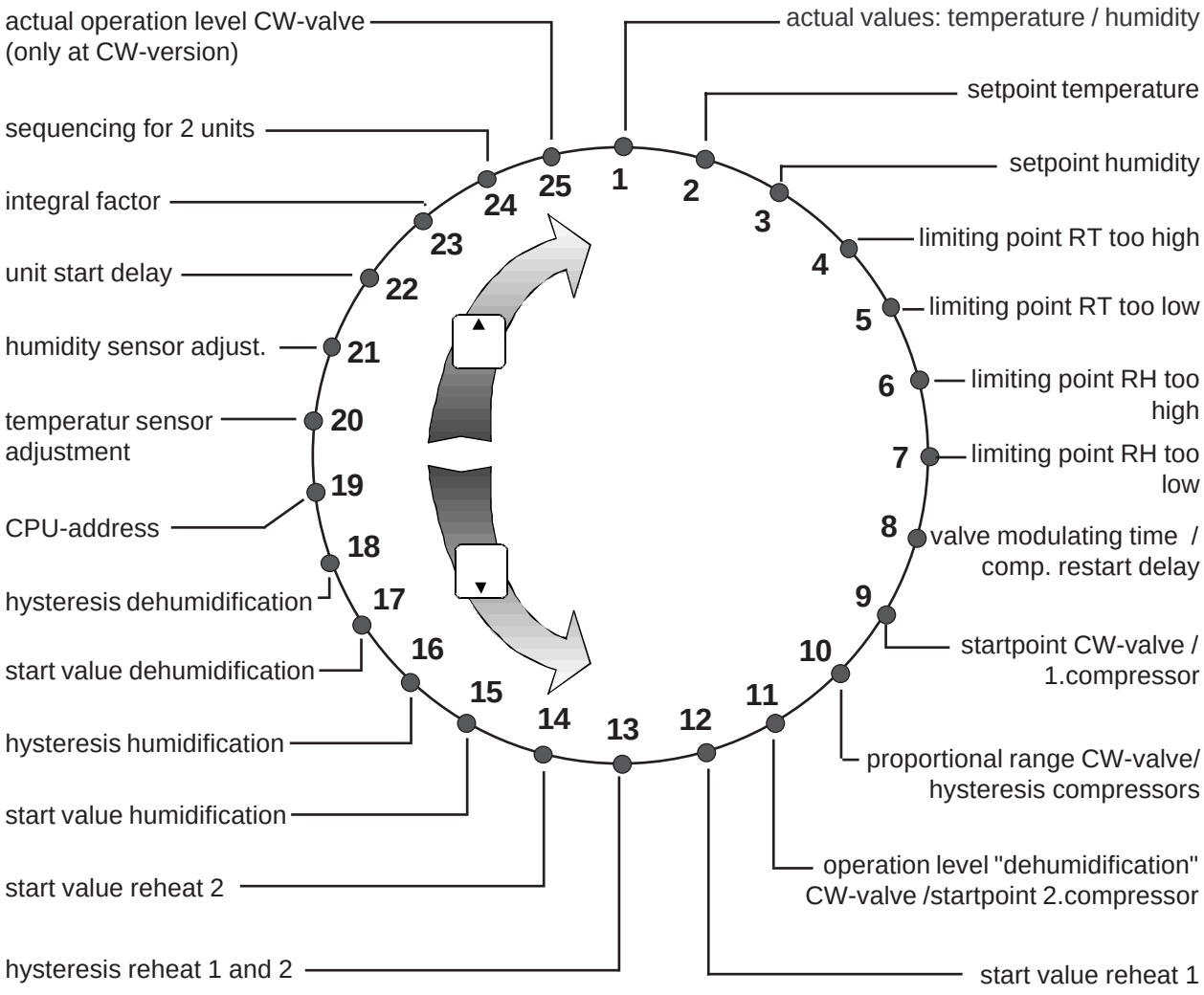
Start- up with new Continuous Memory
If the CompTrol 1002 is started with a new continuous memory, the following symbol appears in the display during the initial phase (about 1 second):

At this moment, the standard values of the program memory are loaded to steady memory and to working memory. During this procedure the control system is not working. By loading the standard program the controller is not working. By loading the standard program the controller is switched off locally and has to be set into operation mode "start" by pressing the ⏻ key.

Warm start
The Controller CompTrol 1002 is equipped with a "watchdog-timer". This "watchdog-timer" increases the safety of the controller and restarts the program if a runtime error occurs. If a warm start occurs the following reading appears in display:

If the C1002 was in operation mode "start" before a warm start occurs the autostart function is activated.

4. Menue



The menuepoints 8-11 depend on the position of the Dip-switch 2. The menuepoint 25 only exists, if the Dip-switch 2 is in position "ON".

RT : room temperature
RH : room humidity

Menuepoint	Meaning	Display	Further Functions
1	actual value "temperature"	25:3C	▸...1s... ▾ alarm reset
	actual value "humidity"	bb H	
2	setpoint "temperature"	20:0t	
3	setpoint "humidity"	50 h	
4	limiting point "room temperature too high"	35 tn	
5	limiting point "room temperature too low"	00 tu	▸ + PASSWORD ➡ enter mode modification of values by ▴ and ▾ leaving the enter mode with ▸
6	limiting point "room humidity too high"	80 hn	
7	limiting point "room humidity too low"	00 hu	
8a	valve modulating time (in seconds)	15 0A	
8b	compressor restart delay	25 5A	
9a	startpoint CW-valve	00:0b	
9b	startpoint 1. compressor	00:1b	
10a	proportional range of CW-valve	01:0c	
10b	hysteresis compressors	00:1c	

Menuepoint	Meaning	Display	Further Functions
11a	operation level "dehumidification" of CW- valve in %	10 0d	
11b	startpoint 2. compressor	01:2d	
12	start value reheat 1	00:5E	
13	hysteresis reheat 1 + 2	00:3F	
14	start value reheat 2	01:0H	
15	start value humidification	05 J	
16	hysteresis humidification	03 L	
17	start value dehumidification	05 n	
18	hysteresis dehumidification	03 o	
19	CPU-address	00 1P	
20	temperature sensor adjustment	25:3t	
21	humidity sensor adjustment	bb h	
22	unit start delay	00 4r	

[▸] + PASSWORD

➡ enter mode

modification of values by

[▲] and [▼]

leaving the enter mode with [▸]

Menuepoint	Meaning	Display	Further Functions
23	integral factor	00 I	▸ + PASSWORD ➡ enter mode modification of values by ▲ and ▼ leaving the enter mode with ▸
24	sequencing for 2 units	20 4U	
25	actual operation level CW-valve	07 5H	----------

The menue points 8a-11a and 25 are valid for CW-units.
The menue points 8b-11b are valid for units with a compressor.

Menue point

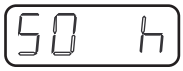
1 Actual Values

Display is alternating between actual value "temperature" and actual value "humidity" in 2- second- intervals.
Humidity is shown in % r.h. Actual value "humidity" is marked with an H.
Temperatures are shown in °C (marked with C) or °F (marked with F). This can be chosen by DIP- switch 4 at any time.

Resetting an alarm is only possible in this menue point.

2 Temperature Setpoint

"Temperature" setpoint is shown in this point of menue. Unit of temperature is °C or °F.

3 Humidity Setpoint 

"Humidity " setpoint is shown in this point of menue.

4 High Temperature Limiting Point (Room)

If the actual value "temperature " is rising up to this point, an alarm "limiting point high temperature" is given.

5 Low Temperature Limiting Point (Room)

If the actual value "temperature" is going down to this point, an alarm "limiting point low temperature" is given.

6 High Humidity Limiting Point (Room)

If the actual value "humidity" is rising up to this point, an alarm "limiting point high humidity" is given.

7 Low Humidity Limiting Point (Room)

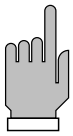
If the actual value "humidity" is moving down to this point, an alarm "limiting point low humidity" is given.

Menuepoint

a. CW-units

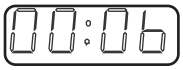
8 **Valve Modulating Time**

Modulating time of CW-valve (operating level 0% up to operating level 100% in seconds) will be entered in this menue point.



Actuator SQS 82, SQS 81 (L&G): 150 seconds.

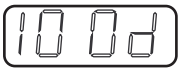
9 **Cooling Start Point**



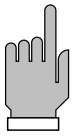
10 **Cooling Proportional Range**

Start point Cooling and proportional range of CW- valve are entered in these points of menue. Refer to control scheme.

11 **Operation Level Dehumidification**



Operation level of CW-valve required for dehumidification can be entered in this point of menue.



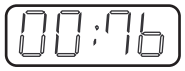
Maximum operation level "dehumidification" can be passed over when the CW-valve´s operation level for cooling is increased.

b. Units with Compressor

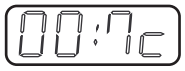
Compressor Restart Delay

In this point of menue the restart delay in seconds is entered. After a compressor turn-off, it can only be restarted when the time set has elapsed.

Startpoint 1. Compressor



Hysteresis of Compressors



Startpoint 2. Compressor

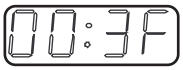
The parameters of the compressors' start and hysteresis can be entered in these menue points (9b-11b).

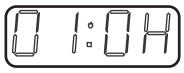
Menuepoint 11b is only relevant, if a second compressor exists.

If the proportional range or hysteresis is set to actual value "0" the corresponding function is not required, the status- LED is not activated and the corresponding failures are not evaluated.

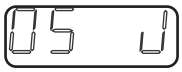
Menuepoint

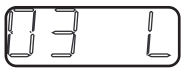
12 **Start Value Reheat 1**

13 **Hysteresis Reheat 1 + 2** 

14 **Start Value Reheat 2** 

Parameters of reheat´s stages 1+2 can be entered in these points of menue
The hysteresis is valid for both stages.

15 **Start Value Humidification** 

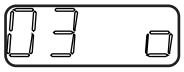
16 **Hysteresis Humidification** 

Parameters of 2-point-humidification can be entered in these points of menue.

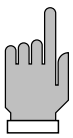
17 **Start Value Dehumidification**

CW-units:
For dehumidification CW-valve opens to the indicated operation level entered in point 11a of menue.
Units with compressor:
The dehumidification saver circuit and the compressor will be started.

The "dehumidification" function is stopped when temperature is less than 0.5 K (0.9R) over limiting point low temperature (room). It is set free again by a hysteresis of 0.5 K (0.9R).
Modification from version 2.1:
3K (5R) underneath the temperature setpoint the dehumidification is stopped. This way a fall of the room temperature by holding the humidity setpoint is avoided.

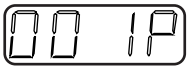
18 **Hysteresis Dehumidification** 

Parameters for dehumidification are entered in this point of menue.

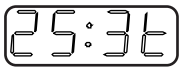


Basically a function is set passive, if the corresponding hysteresis is set to zero.
If hysteresis of humidification and dehumidification is set to zero, the limiting point "humidity" is not supervised.

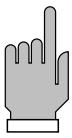
Menuepoint

19 **CPU- Address** 

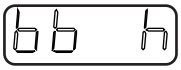
CPU- Address can be entered in this point of the menue. If CompTrol 1002 is connected to STULZ In-CompTrol Monitoring System, an address between 1 and 32 for every connected controller has to be adjusted.

20 **Temperature Sensor Adjustment** 

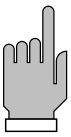
Temperature sensor adjustment can be done in this point of the menue. Actual value is indicated and can be adjusted to another value, that is measured by use of an independent temperature meter.



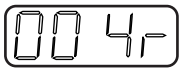
Display is in reference to position of DIP- switch 4 degrees Celsius or Fahrenheit.
By loading the basic program of the controller, sensor adjustment is restored.

21 **Humidity Sensor Adjustment** 

Humidity sensor adjustment can be done in this point of the menue. The actual value taken from a reference measurement has to be entered.



By loading the basic program of the controller, sensor adjustment is restored.

22 **Unit Start Delay** 

Unit start delay can be entered in this point of menue. This is the time, the unit start is delayed in addition to the initialization time, when the unit is turned on in start mode (Autostart)

The start delay can be entered in 4-second intervals.

Menuepoint

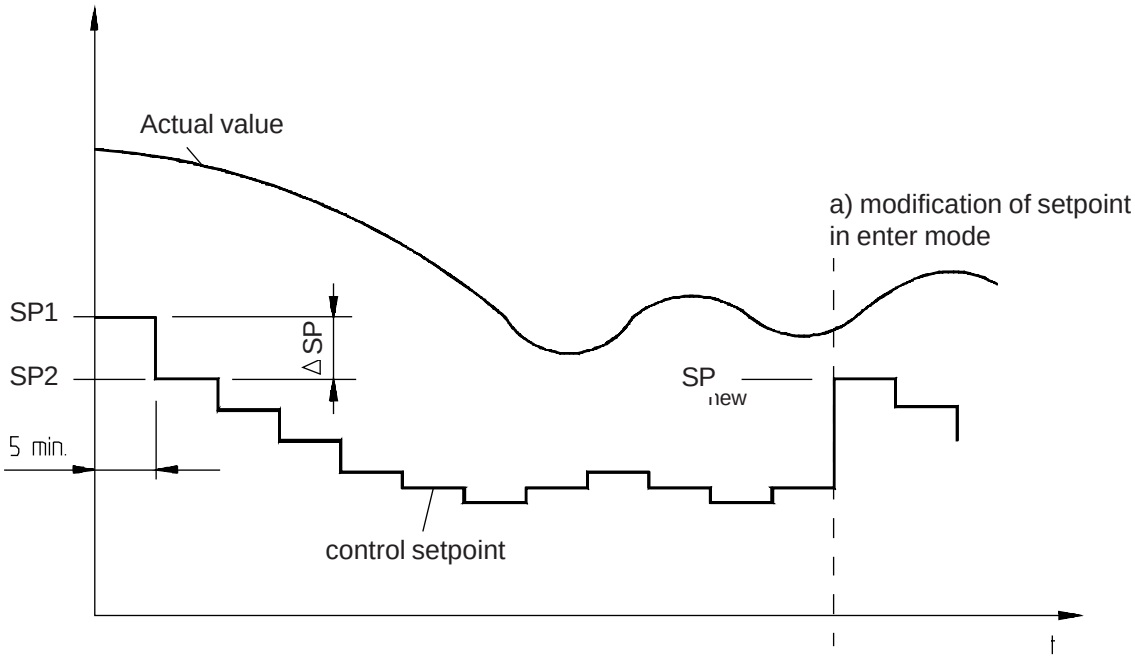
23 **Integral Factor** 00 I **for Setpoint “Temperature”**

In this point of the menue, the I-proportion of the PI controller can be preset. If a **non-zero** value is entered, the “offset behaviour” of a mere P controller is inapplicable. The setpoint SP_1 entered becomes “control setpoint”. Now, it is no more a constant value but is changed in integral intervals of 5 minutes and indicated in the menue point 2 “temperature setpoint”. Alteration of the setpoint is made using the following formula:

$$\Delta SP = (\text{Setpoint} - \text{Actual Value}) \times \text{Integral Factor } \%$$

which results in

$$\text{Control Setpoint } SP_2 = SP_1 + \Delta SP$$

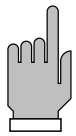


The originally entered setpoint SP_1 appears in the enter mode, which can be changed in this point of menue and which is immediately rendered valid after the alteration has been made (refer to illustration: a)).

The values of the integral factor may be between 0 and 80%. As a rule, a low value should be used to start with, as with a too high value, the system will start vibrating. 10% are proposed, which shall be slowly increased, until the system has been adjusted.

Menuepoint

For test purposes or in case the I-proportion should be undesirable, the integral factor is set to **zero**. A P controller exists and the control setpoint is equal with the setpoint.



Under the following circumstances, the setpoint is immediately taken over into the control setpoint:

- during initialization phase (make alive)
- turning on (start mode)
- failure “sensor break-down” active
- limiting alarms “temperature” active
- modification of setpoint

The range of the control setpoint is limited to setpoint ± 3 K (± 5.4 R).

24 **Sequencing for 2 units**

A 2-unit-sequencing is integrated in the software. The display during input mode and normal mode can vary.

input mode	normal mode	Meaning
0	0	No sequencing function.
1	5-4-3-2-1	Short sequencing 5 min for testing purposes. In normal mode the remaining minutes till sequencing are shown.
2...254	254...1 	Sequencing shown in hours. In the input mode a time lap of 2 to 254 hours can be chosen. In normal mode the remaining hours till sequencing are shown.
255	Un2 	If "255" is set in the input mode, the unit is marked as the "2nd" unit. No adjustments are carried out on this unit. The sequencing time is only set and displayed on the „1st“ unit.

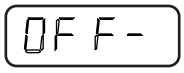
In case of failure (unit 1 or unit 2) the sequencing time is frozen. This state is maintained until a failure reset is carried out. After that sequencing continues as normal.

Menuepoint

If unit 1 is the StBy-unit (i.e. the unit, which is not in operation at the moment, due to the sequencing), a colon („:“) is displayed under menu point „U“. If unit 2 is the StBy-unit the colon disappears.

3K before the alarm „temperature too high“ the StBy-unit starts in addition. The sequencing time will not be interrupted. At a hysteresis of 3K the unit stops again.

The sequencing uses the standard inputs for remote on/off and water detector/ Aux1 and the standard outputs for common alarm and heating 2.
If the input Aux1/water detector and/or the output heating 2 is needed, an extension board is installed, where one input and output are available for the sequencing. That way the 2nd heating stage and the water detector input are available again on the processor board.

As the sequencing is carried out by using the input for remote on/off, the display of the StBy-unit shows: 

A connection scheme for both units is shown on the pages 29 and 33.

25 **Actual Operation Level CW Valve**

In this menue point, the actual operation level of the CW valve is displayed.
This menue point exists only at CW-units.

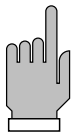
5. Alarms and Failures

General
An alarm or failure is indicated via a short text in the display and status-LED´s.
Conditions that activate the alarm-relay are shown in the following table. Each alarm or failure causes a certain delay, which also can be taken out from the table.
Texts for alarms and failures are only shown in operation mode "start", in point of menue 1 , and in operation mode "stop". All alarms and failures that have occured up to this time and corresponding operation- modes are indicated by showing up every four seconds.

Warnings
Warnings have no direct influence on the function of the unit, i.e. after a warning has occured, the unit can be continued in operation for a while. The alarm relay is not activated.

These functions are only supervised in start mode:
- Ultrasonic humidifier (5µS/cm)
- filter

Alarms
Actual values are supervised not to reach limiting points. After a delay of about 30 seconds the limiting alarm is activated. Limiting points are supervised even in operation mode "stop".



Alarm "humidity" is only evaluated if dehumidification and humidification hysteresis is not set at "0".

Failures
Failures on the following functions are **only** supervised in the **operation mode "start"**:
- reheat
- humidification (20µS/cm)
- airflow

compressor 1 low pressure
compressor 1 low failure
compressor 2 low pressure
compressor 2 low failure

Failures on the following functions are **also** supervised in the **operation mode "stop"**.
- Aux 1 / water sensor
- Aux 2 / firestat and smoke detector
- sensor break-down

If the alarm input is supplied with 24V, there is no failure/alarm. If the alarm inputs are not used they have to be supplied with 24V or, if possible, the hysteresis of the function has to be set to „0“. The inputs concerned are:

Heating 1 and 2
Air volume 1 and 2
Water sensor/Aux 1 Alarm
Fire/Aux 2 Alarm
High pressure, low pressure failure compressor
Humidifier alarm / 20 µS/cm
Alarm 5 µS/cm
Filter alarm

Reset Alarms And Failures
Resetting of alarms and failures can only be done in menue point 1.

Warning (Alarm Relay Inactive)

Press ▸ key and within 1 s later, press key ▾ . After that, warning is reset and the alarm LED disappears.

Alarm + Failure (Alarm Relay Active)

Press ▸ key and within 1 s later, press key ▾ . The alarm relay is deactivated.

Press ▸ key and within 1 s later, press key ▾ . All failures indicated are reset and the alarm LED disappears.

In case of a failure reset the components are switched on sequentially (same as after power failure), to prevent an overcharge of the alimentation line by the starting current.

Table of Alarms and Failures

Alarms

Display	Meaning	Alarm LED	Alarm Relay	Time Delay	Consequences
rt n	room temperature too high	X	X	about 30 s	----------
rt u	room humidity too low	X	X	about 30 s	----------
rh n	room temperature too high	X	X	about 30 s	----------
rh u	room humidity too low	X	X	about 30 s	----------

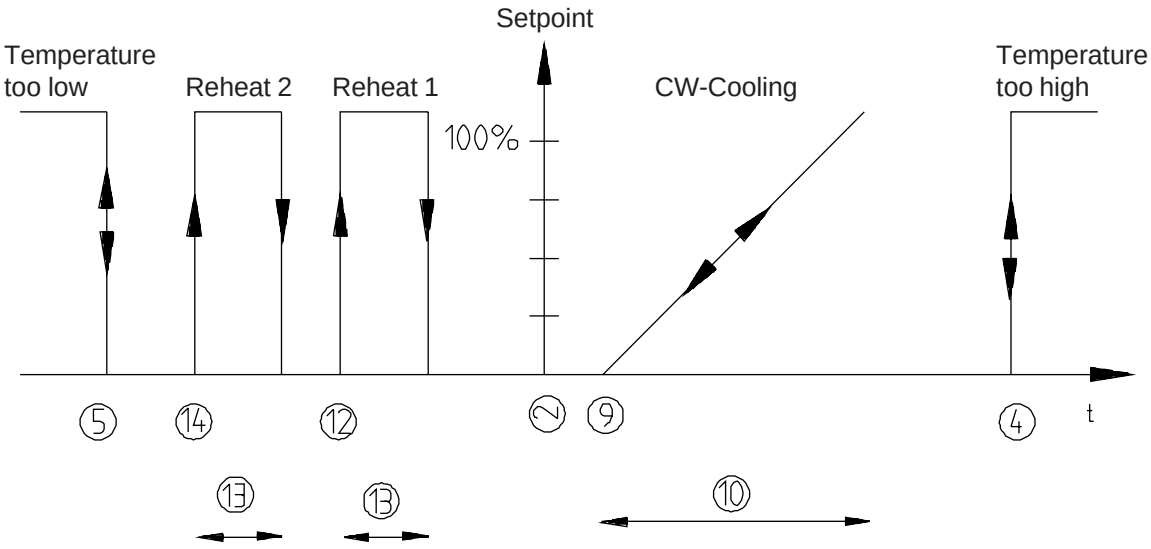
Failures

Display	Meaning	Alarm LED	Alarm Relay	Time Delay	Consequences
HEA	reheat 1 or 2	X	X	about 3 s	reheat 1 and 2 are switched off.
HU	humidifier (20mS/cm)	X	X	about 5 min.	humidifier off.
COn	conductivity meter (5mS/cm)	X	-	about 5 min.	----------
FL01	airflow module 1	X	X	about 20 s	all compon. off, valve is closing, louver is closing. The alarm "HEA", "HIP" and "LOP" are suppressed.
FL02	airflow module 2	X	X	about 20 s	
LOP1	low pressure compressor 1	X	X	③ 3 min.	compressor 1 off.
LOP2	low pressure compressor 2	X	X	③ 3 min.	compressor 2 off.
HIP1	compressor 1 failure	X	X	3 s	compressor 1 off.
HIP2	compressor 2 failure	X	X	3 s	compressor 2 off.
FIL	clogged filter	X	-	about 5 min.	----------
AU 1 ①	auxiliary alarm 1	X	X	about 3 s	----------
AU 2 ②	auxiliary alarm 2	X	X	about 3 s	----------
SEt	3°C > T > 50°C sensor break-down (temp.)	X	X	about 3 s	reheat, compressor off, valve closed.
SE h	3% > r.h. > 97% sensor break-down (humidity)	X	X	about 3 s	humidifier off, dehum. off.
F,rE ②	firestat alarm / smoke detector	X	X	about 3 s	all components off, valve is closing.
LLS ①	water alarm	X	X	about 3 s	humidifier off.
CPU	controller defect			immediately	change controller.

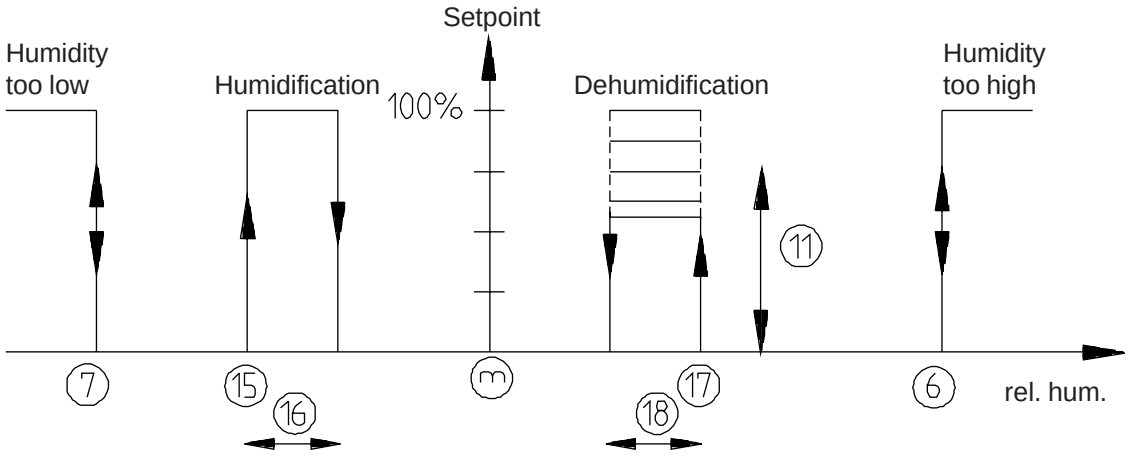
① ② these failures can be alternatively chosen (DIP-switch 3).
③ after compressor start, otherwise 3 s.

6. Control Scheme for CW-Units

Temperatur Control Scheme



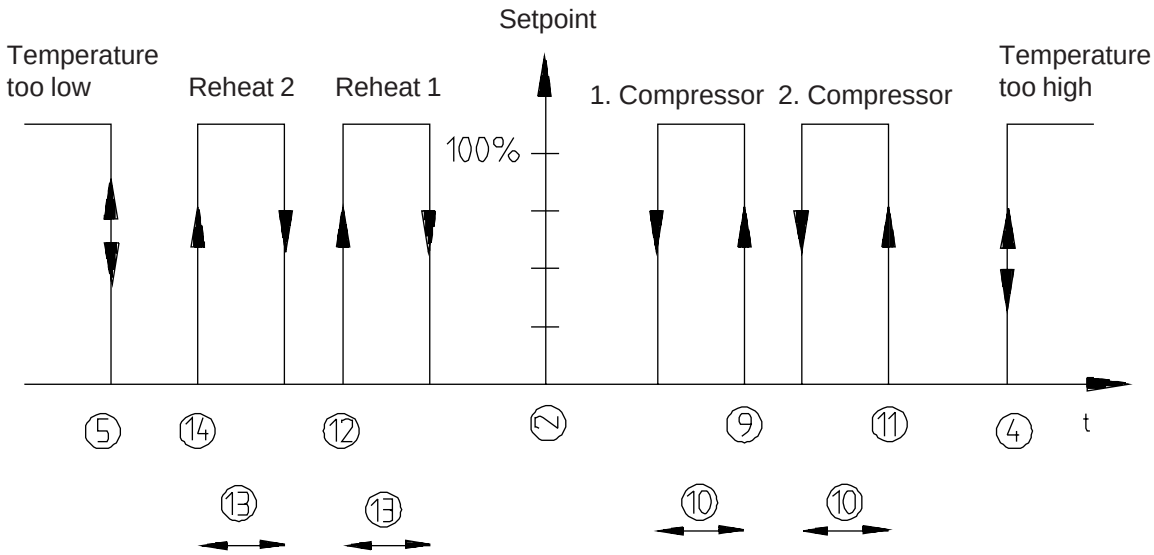
Humidity Control Scheme



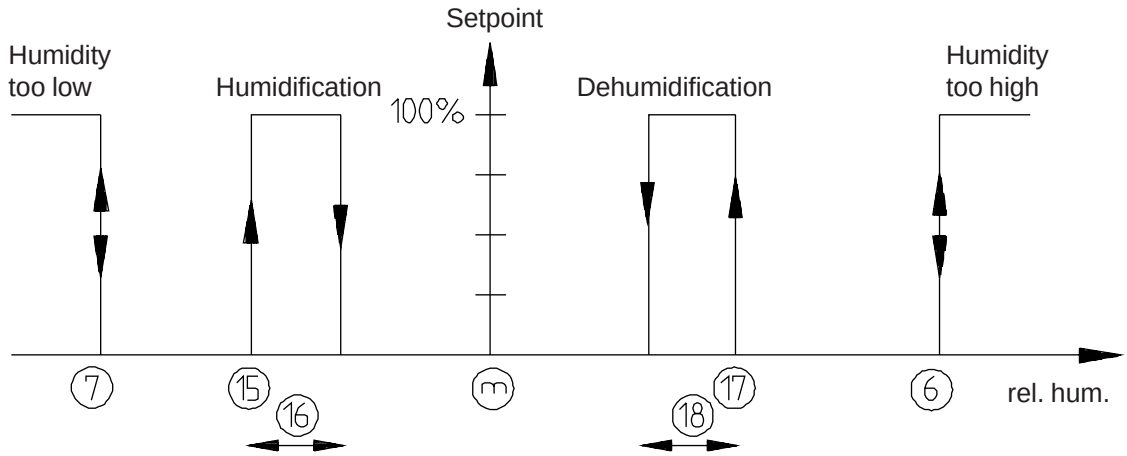
Numbers refer to the points of menue.

Control Scheme for Units with Compressor

Temperature Control Scheme



Humidity Control Scheme



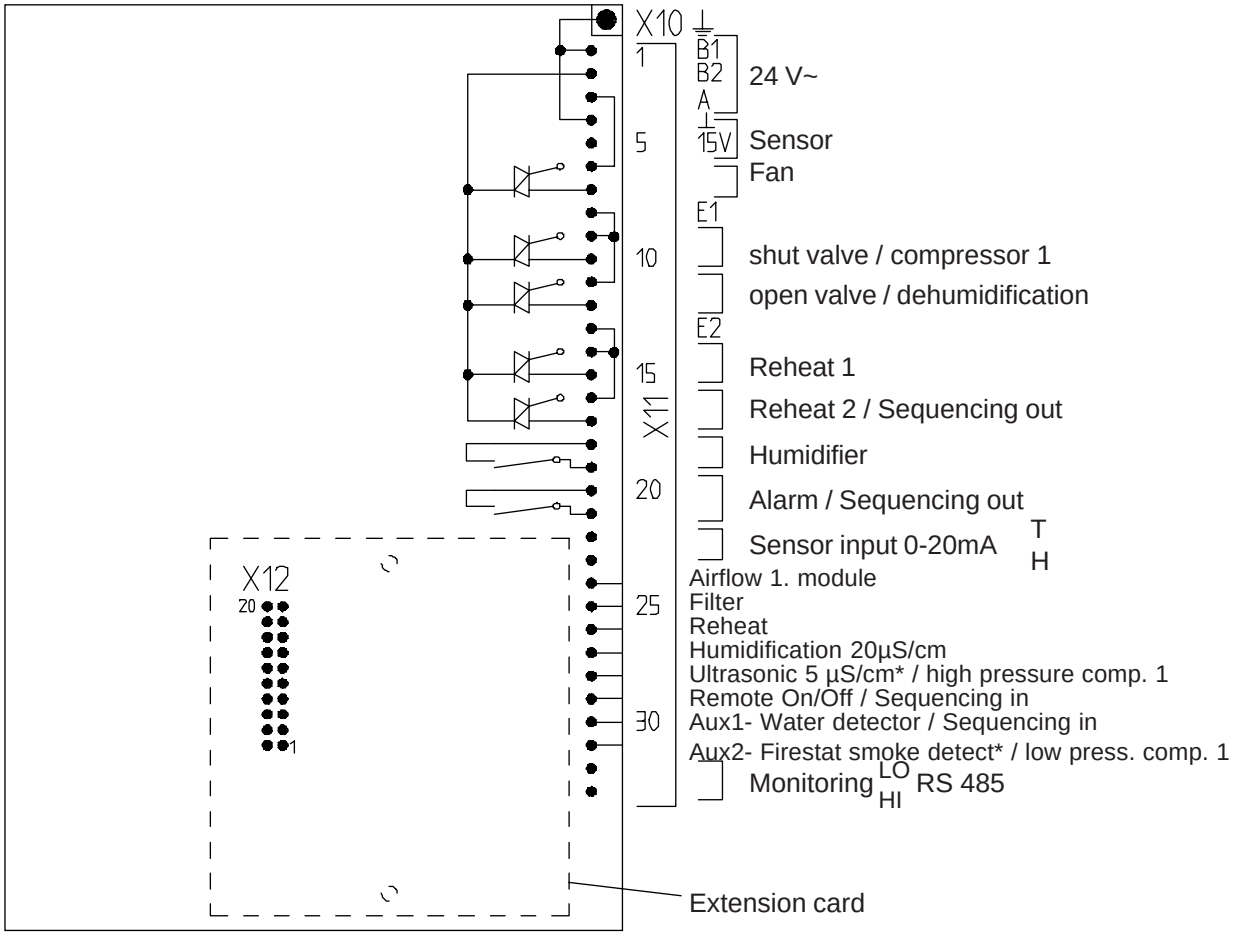
Numbers refer to the points of menue.

7. Specification CompTrol 1002

- Technical Data

dimensions l x w x h	280 x 195 x 45 mm (11.0" x 7.7" x 1.8")
power supply	(24 V + 20 % / - 15 %) V AC X10, X11.1 grounded
power consumption	12 W
fuse	1 Amp
power output	15 V DC, 40 mAmp
sensor input	2 (0..20 mAmp)
working resistance "temperature"	330 Ohm
working resistance "humidity"	162 Ohm
display	4-Digit LED-display 4 LED green for status ϕ 3 mm (1/8") 1 LED red for alarm ϕ 3 mm (1/8")
operating panel	4 keys
interface "Monitoring"	RS 485 9600 Baud
outputs	2 x relays 3 Amp, 24 V,1 normally open for alarm, humidification 5 x triac 4 Amp, 24 V fan, valve or compressor and dehumidification saver circuit, reheat 1, reheat 2 The consumer is connected to 24V.
inputs	8 x 24 V AC 2.7 kOhm input resistance
operating temperature	0°C ... 40°C (32°F ... 104°F)
storing temperature	-10°C ... 60°C (14°F ... 140°F)

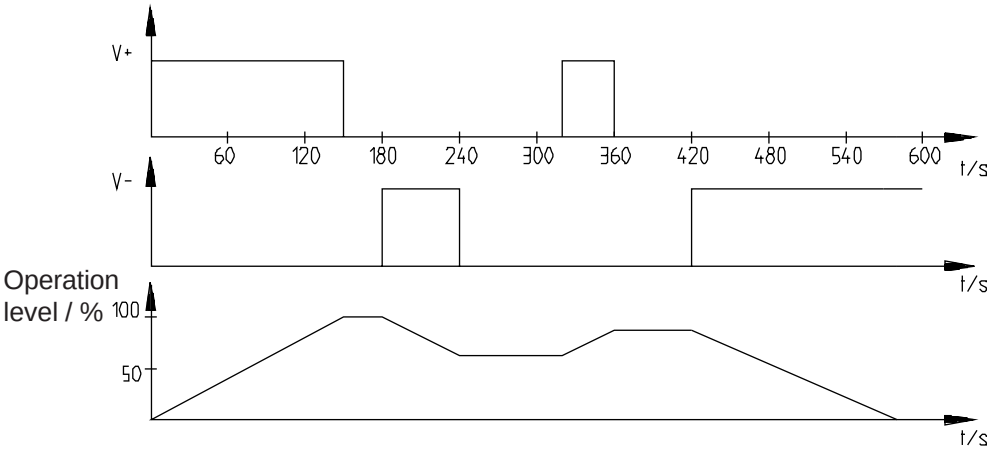
Connection Scheme of Processor Board C1002



X10: rack 6.3 • 0.8
X11: panel 33 pol
X12: extender connection 20 pol

* If an extension card is installed, the inputs for Ultrasonic 5µS/cm and Aux2/firestat are situated on the extension card.

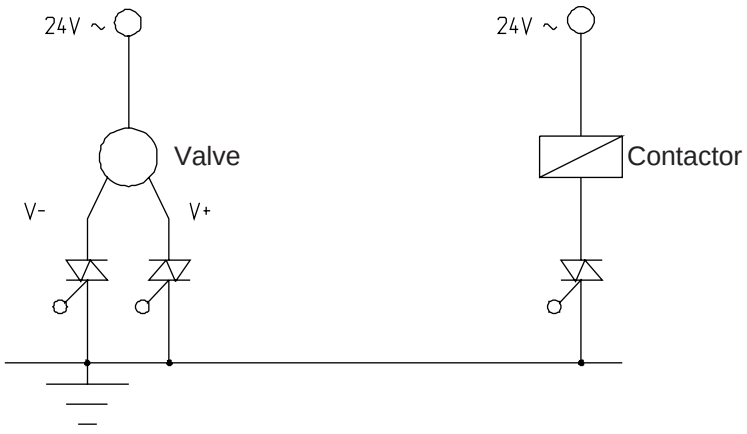
In a CW application, the CompTrol 1002 is usually used for a proportional valve with motor drive. The operation of the control is explained in the following drawing (example for a 150-seconds-runtime).



When connection V+ is supplied with power, the valve is completely opened within 150 seconds (operation level 0% to operation level 100%). Shorter times mean steeper operation level. When connection V- is supplied by power the valve is closing. If there is a power interruption to the valve, the last operation level is fixed.

The consumer is connected to 24V.

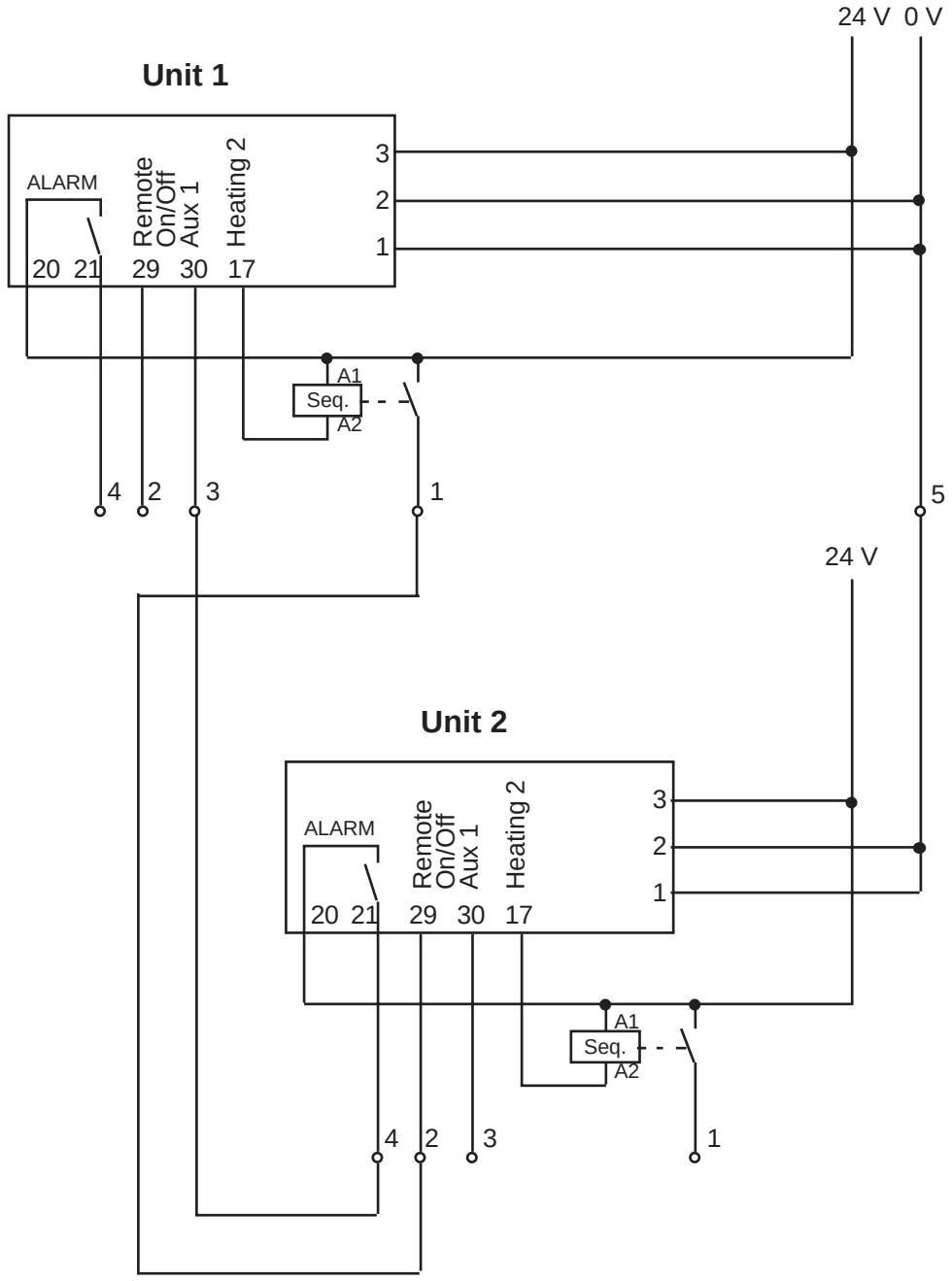
Examples:



The function of a triac **cannot be checked** by means of an electronic continuity tester or an ohmmeter. Measurements provided by these instruments would deliver wrong readings because a triac needs a load for a correct function. For an operational test, a continuity tester with filament lamp (about 2 W) should be used.

Inputs are designed for 24 V AC, but also a voltage 24V DC can be used.

Connection Scheme for Sequencing at the Processor-Board



Specifications of the Extension Card 1b

Characteristics

With the extension card 1b, additional inputs and outputs are provided to the CompTrol 1002. The extension card 1b is fastened to the CompTrol 1002 by means of the two distance pieces enclosed. Electric connection to the basic board is made with a 20-channel plug connector. As soon as the extension card has been connected, alarms aux 2 / firestat and smoke detector and Ultrasonic humidifier 5µS/cm are only valid on the extension board.

Operating Elements (DIP Switches 1-6)

DIP-Switch 1 Configuration of a louver

ON: A louver is configured. Fan start is delayed by about 90 s.

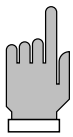
OFF: A louver is **not** configured. The fan starts immediately.

DIP-Switch 2 Configuration of a second compressor.

ON: A second compressor is available. The DIP switch on the rear side of the CompTrol 1002 must be set to OFF (Compressor version).

OFF: A second compressor does **not** exist.

DIP-Switch 3-6 No function



All DIP switches on the extension card 1b must only be switched when **de-energized**!

Technical Data Extension Card 1b

Dimensions L x W x H	125 x 70 x 30 mm (4.9" x 2.8" x 1.2")
Power supply	(24 + 20 % / - 15 %) V AC
	X20.24 grounded
Power consumption	4 W
Fuse	0.4 AT
Operating elements	6-fold DIP switches
Outputs	3 x triac (4 A, 24 V) for
	louver, compressor 2, sequencing
	The consumer is connected to 24 V.
Inputs	8 x 24 V AC
	2.7 kOhm input resistance
Operating temperature	0°C ... 40°C (32°F ... 104°F)
Storing temperature	-10°C ... 60°C (14°F ... 140°F)

Function of Extension Card 1b

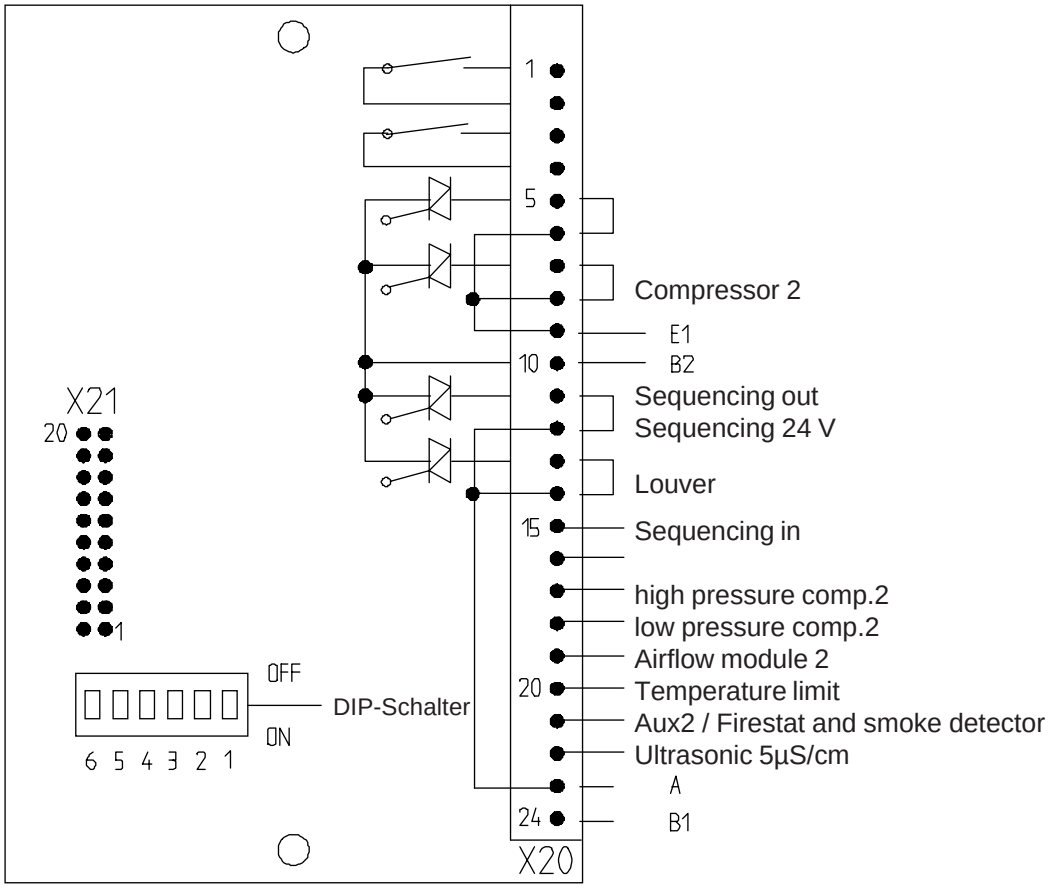
Compressor Sequencing

If two compressors are configured, these are subject to compressor sequencing, in accordance with the “first in - first out” principle, i.e. should both compressors be turned on, the compressor that had been turned on first will be turned off first. Start value parameters (menue points 9 and 11) will be changed internally, not visibly, upon each compressor start.

Temperature Limit

The input "Temperature Limit" exists. As soon as a voltage of 24 V is applied to this input, cooling is interrupted.
That means for
- CW version: The CW valve closes
- Compressor version: The compressors are switched off.

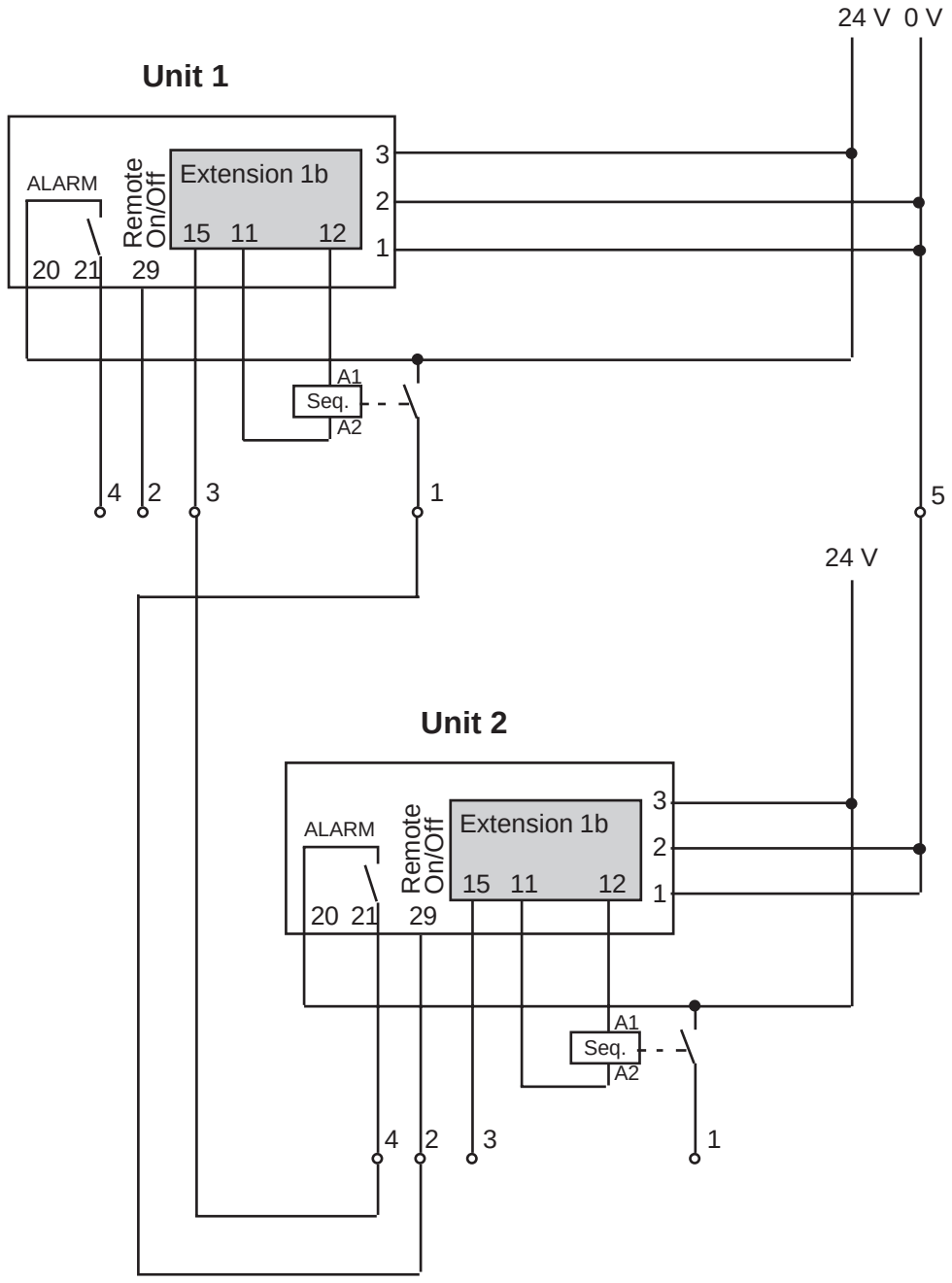
Connection Scheme of the Extension Card 1b



X20: panel 24 pol
X21: extender connection 20 pol

The consumer is connected to 24 V.

Connection Scheme for Sequencing with Extension Card



Appendix

Standard Programm

Point of Menue	Range	Standard value	Adjusted value
2. Setpoint temperature	10,0...30,0°C	23,0°C	
3. Setpoint humidity	10...90%	40%	
4. Limiting point temperature too high	10...50°C	35°C	
5. Limiting point temperature too low	0...30°C	0°C	
6. Limiting point humidity too high	30...90%	80%	
7. Limiting point humidity too low	0...70%	0%	
8a. Valve modulating time	0...255 s	150 s	
8b. Compressor restart delay	0...255 s	255 s	
9a. Startpoint cooling	0...9,9 K	0,0 K	
9b. Compressor 1 start	0...9,9 K	0,7 K	
10a. Proportional range (cooling)	0...9,9 K	1,0 K	
10b. Hysteresis compressors	0...9,9 K	0,3 K	
11a. Lifting grade (dehumidification)	0...100%	100%	
11b. Compressor 2 start	0...9,9 K	1,2 K	
12. Start value reheat 1	0...9,9 K	0,5 K	
13. Hysteresis reheat 1 + 2	0...9,9 K	0,3 K	
14. Start value reheat 2	0...9,9 K	1,0 K	
15. Start value humidification	0...20%	5%	
16. Hysteresis humidification	0...20%	3%	
17. Start value dehumidification	0...20%	5%	
18. Hysteresis dehumidification	0...20%	3%	
19. CPU-address	1...255	1	
20. Sensor adjustment "temperature"	-12,8...+12,7 K	0	
21. Sensor adjustment "humidity"	-24...+24%	0	----------
22. Unit start delay	0...996s	4	----------
23. Integral factor	0...80%	0%	
24. Sequencing for 2 units	0...255	0	

Standard Programm (US)

Point of Menue	Range	Standard value	Adjusted value
2. Setpoint temperature	50...86°F	75°F	
3. Setpoint humidity	10...90%	45%	
4. Limiting point temperature too high	50...122°F	95°F	
5. Limiting point temperature too low	32...86°F	32°F	
6. Limiting point humidity too high	30...90%	80%	
7. Limiting point humidity too low	0...70%	0%	
8a. Valve modulating time	0...255 s	150 s	
8b. Compressor restart delay	0...255 s	255 s	
9a. Startpoint cooling	0..17.8 R	0R	
9b. Compressor 1 start	0..17.8 R	1.3 R	
10a. Proportional range (cooling)	0..17.8 R	1.8 R	
10b. Hysteresis compressors	0..17.8 R	0.5 R	
11a. Lifting grade (dehumidification)	0...100%	100%	
11b. Compressor 2 start	0..17.8 R	2.2 R	
12. Start value reheat 1	0..17.8 R	0.9 R	
13. Hysteresis reheat 1 + 2	0..17.8 R	0.5 R	
14. Start value reheat 2	0..17.8 R	1.8 R	
15. Start value humidification	0...20%	5%	
16. Hysteresis humidification	0...20%	3%	
17. Start value dehumidification	0...20%	5%	
18. Hysteresis dehumidification	0...20%	3%	
19. CPU-address	1...255	1	
20. Sensor adjustment "temperature"	-23...+22.9 R	0	
21. Sensor adjustment "humidity"	-24...+24%	0%	----------
22. Unit start delay	0...996s	4	----------
23. Integral factor	0...80%	0%	
24. Sequencing for 2 units	0...255	0	

Password

In menue points 2 to 24 a password is requested in enter mode. To enter the password, keys ▲ and ▼ are pressed within 5 seconds.

The display shows

Should a wrong key be pressed or the time be exceeded, entering of password is aborted.

You are in the possession of the

TECHNICAL MANUAL FOR CONTROLLER

Index 50 - CompTrol 1002

The following manuals are available for other product ranges:

	Index	Type of manual
MODULAR LINE		
MRD/U A,G,GE	10	Operation Instructions
MRD/U A,G,GE	10PL	Planning Manual
MRD/U CW	11	Operation Instructions
MRD/U CW	11PL	Planning Manual
SMALL A/C UNITS		
CCD/U	20	Operation Instructions w Plannning Part
DAU 40 CW	21	Operation Instructions
SHELTER A/C UNITS		
SAF 101 A (400V)	30	Operation Instructions
SAF 101 A (208/220V)	31	Operation Instructions
SAD 111 A	32	Operation Instructions
PAF 41/71/101 A	33	Operation Instructions
CONTROLLER		
C 5000	52	Operation Instructions
InCompTrol	60	Operation Instructions
Sequencing box	61	Operation Instructions
TeleCompTrol	62	Operation Instructions
NI Stulz	63	Operation Instructions
SDC - C4000	64	Operation Instructions
Gateway Stulz/Honeywell	65	Operation Instructions
SDC - C5000	66	Operation Instructions
CONDENSORS	80	Technical Manual

For further informations please contact our marketing department.

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