

CDP/CDP-T 40-50-70

Service Manual

Rev. 1.0

Dantherm[®]

CONTROL YOUR CLIMATE



Declaration of Conformity Dehumidification

Dantherm Air Handling A/S

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Declaration of following product:

Product name: CDP 40, CDP 40T, CDP 50, CDP 50T, CDP 70 & CDP 70T

Product no.: 351510, 351516, 351511, 351517, 351512 & 351518

The product is in conformity with the following directives:

2006/42/EC	Machinery Directive
2014/35/EU	Low Voltage Directive
2014/30/EU	EMC Directive
2014/53/EU	R&TTE Directive
2014/68/EU	Pressure Equipment Directive
2009/105/EC	Simple Pressure Vessels Directive
2011/65/EU	RoHS Directive

- and is manufactured in conformity with the following harmonised standards:

DS/EN ISO 12100-1:2011	Safety of machinery - General principles for design
EN 60 335-1:2012	Household and similar electrical appliances - Safety - Part 1:
EN 60 335-2-40:2003	Household and similar electrical appliances - Safety - Part 2-40
DS/EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3
DS/EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3
DS/EN 61000-6-2:2005	Electromagnetic compatibility (EMC) - Part 6
DS/EN 61000-6-3:2007	Electromagnetic compatibility (EMC) - Part 6
DS/EN 60730-1:2012	Automatic electrical controls for household and similar use - Part 1
DS/EN 55014-1:2007	Electromagnetic compatibility - Requirements for household appliances - Part 1
DS/EN 55014-2:2015	Electromagnetic compatibility - Requirements for household appliances - Part 2
DS/EN 301489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1
DS/EN 301489-3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3

Skive, 24/10-2016


Product manager


Jesper Holm Thorstensen
Managing director

Introduction

Warning

It is the responsibility of the operator to read and understand this service manual and other information provided and to use the correct operating procedure.

Read the entire manual before the initial start-up of the unit. It is important to know the correct operating procedures for the unit and all safety precautions to prevent the possibility of property damage and/or personal injury.

It is the responsibility of the installer to ensure the conformity towards national regulations of all, not supplied cables.

Table of Contents

This service manual covers the following topics:

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General information

Introduction

This topic gives the general information about this service manual and about the Dantherm CDP and the CDP-T dehumidifier.

Manual, part no.

Part number of this service manual is 975675.

Target group

The target group for this service manual is the technicians who install and maintain the CDP and CDP 40T-50T-70T dehumidifier.

Copyright

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Reservations

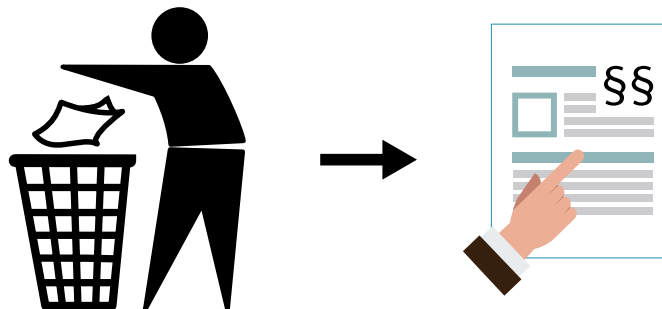
Dantherm reserves the right to make changes and improvements to the product and the service manual at any time without prior notice or obligation.

Recycling

The unit is designed to last for many years. When the time comes for the unit to be recycled, it should be recycled according to national rules and procedures to protect the environment.

The CDP dehumidifiers contain R407C refrigerant and compressor oil.

The compressor must be returned to authorities for disposal according to local regulations.

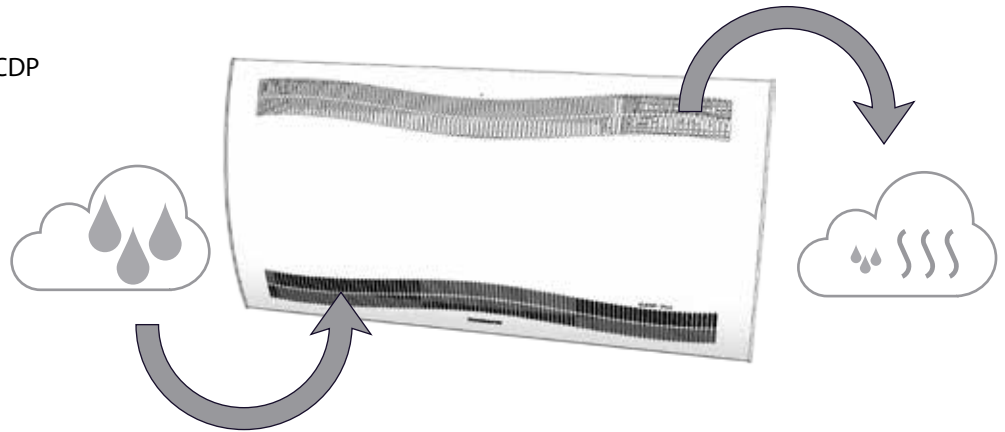


Product and functional description

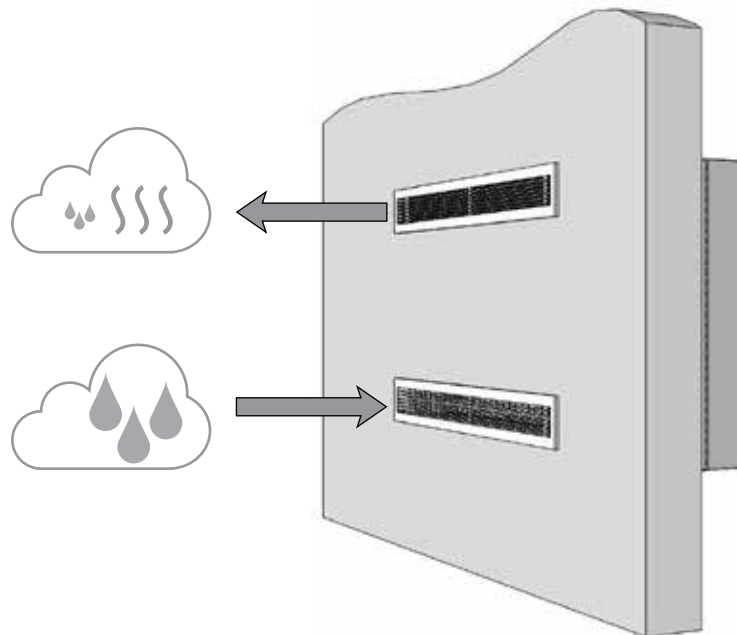
Product and functional description

Illustration of the functional principle of the CDP 40-50-70

CDP



CDP-T



Functionality of the dehumidifier

CDP 40-50-70 and CDP 40T-50T-70T work in accordance with the condensation principle. Humid air from the pool room is drawn into the unit by one or two fans. When passing through the evaporator the air is cooled down to below dew point and water vapour is condensed into water, which is drained. The dry air is then passed through the condenser where it is heated and returned to the pool room. As a result of the latent heat from the condensation process and the compressor energy the return air temperature to the pool room is approx. 5°C higher than the air from the pool room.

Fan control

When the dehumidifier is started by the hygrostat, the fan(s) are activated at the same time as the compressor.

Product and functional description - *continued*

Compressor control

The number of compressor starts is limited by a 6 minutes timer, which starts when the compressor is switched on.

The timer must have come to an end before the compressor can be switched on again.

Each time the unit has been switched off on the main switch, by the built-in hygostat or by an external hygostat, it will take 30 seconds before the unit can be switched on again.

This is a safety feature protecting the compressor against overloading caused by too high pressure in the cooling circuit at start up.

Defrosting

This unit is equipped with an intelligent defrosting strategy.

The unit monitors the temperature of the evaporator, and when the temperature have been below a certain temperature for a period of time, then the dehumidifier will switch to active defrosting, the fans will stop, and the magnetic valve will open.

The hot gas can now pass through the evaporator.

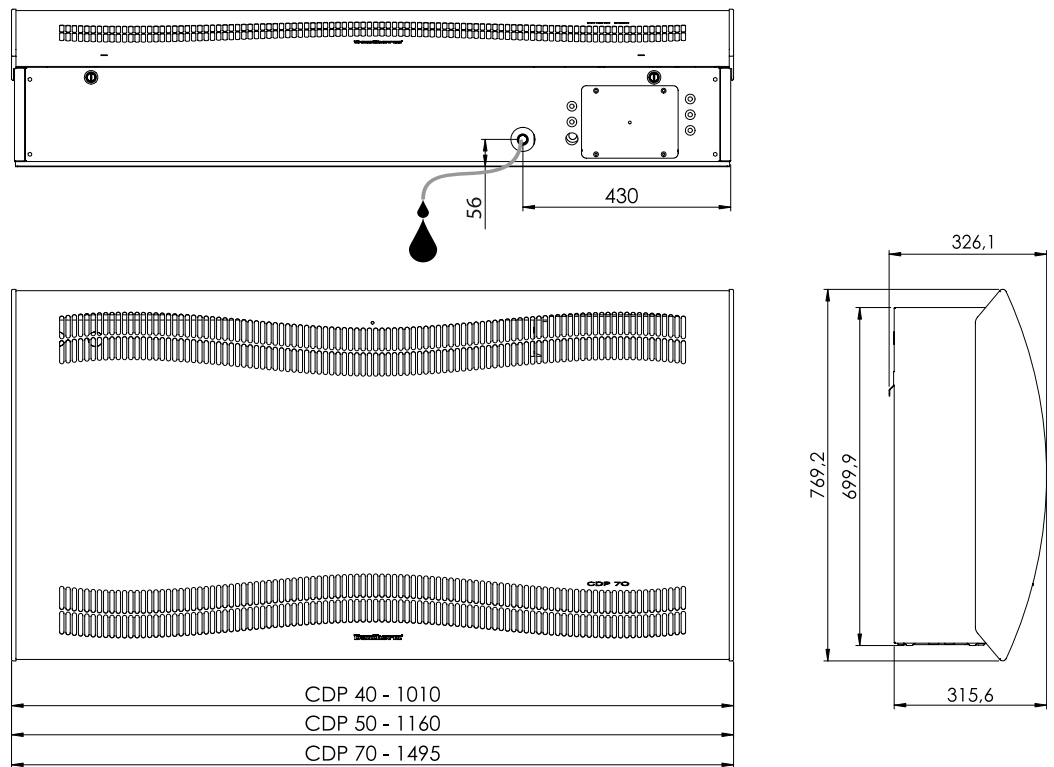
When the evaporator have the right temperature again the magnet valve will close and the dehumidification will continue.

Safety circuit

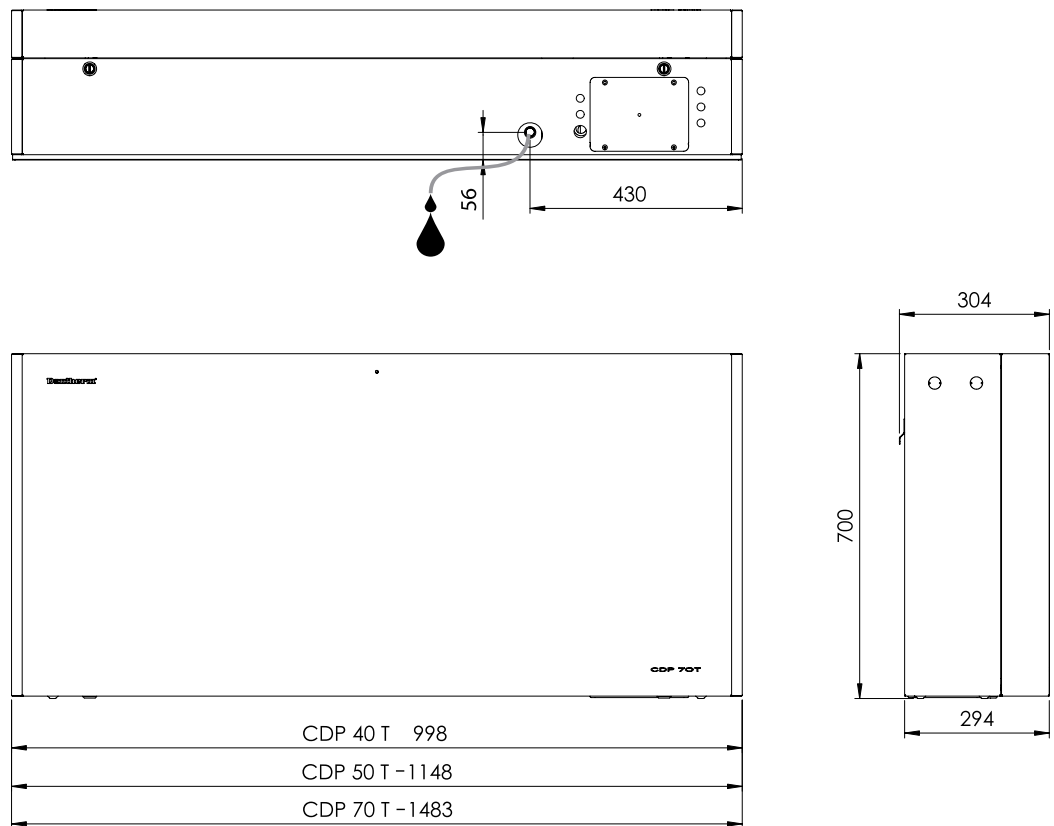
If the temperature in the dehumidifier increases to a temperature of more than 55 °C (in case of fan failure or room air temperature higher than 36 °C), the compressor stops automatically to avoid damaging it. When the temperature allows for it the dehumidification will continue.

Dimensions

CDP 40-50-70

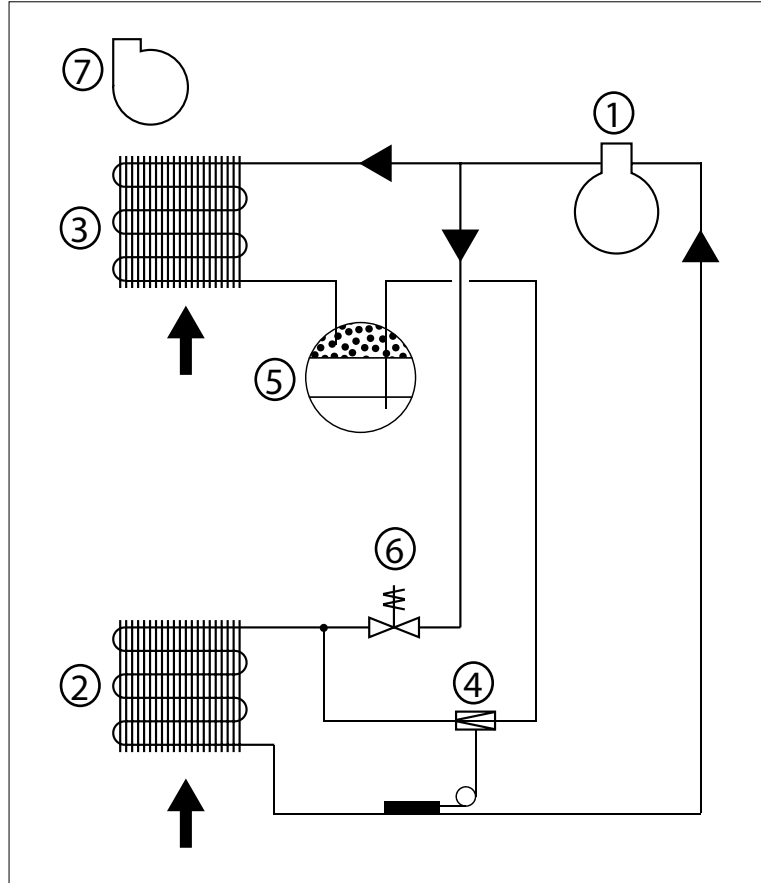


CDP 40T-50T-70T



Cooling Circuit CDP 40-50-70, CDP 40T-50T-70T

Illustration



No.	Description
1	Compressor
2	Evaporator
3	Air-cooled condenser
4	Thermostatic expansion valve
5	Receiver/liquid line drier
6	Solenoid valve for pressure equalization
7	Fan

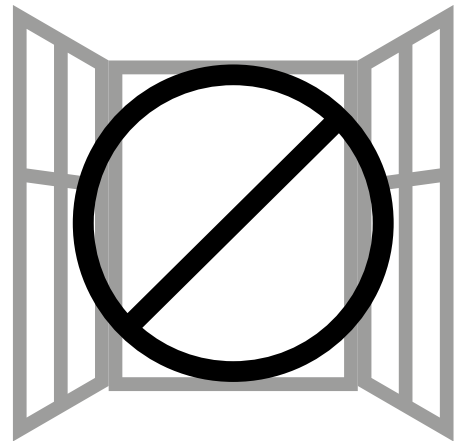
Mounting and installation instructions

Introduction

This section contains all necessary information for correct mounting of the dehumidifier. The electrical installation is described at the end of this section.

Important

- Do not place the dehumidifier close to a heating source, e.g. a radiator.
 - Doors and windows must be kept closed when the dehumidifier is in function.
 - To make sure that the room air passes freely through the dehumidifier, air inlet and air outlet openings must be free.
-



Mounting and installation instructions CDP

Mounting of CDP 40-50-70

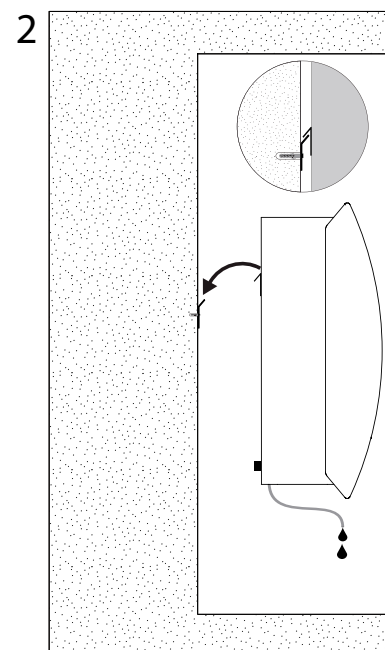
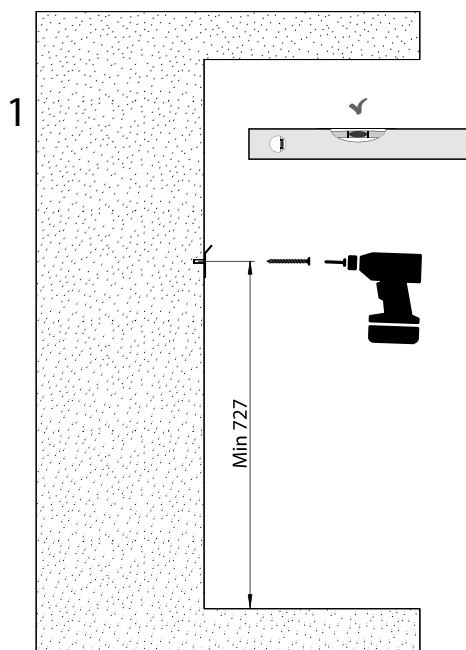
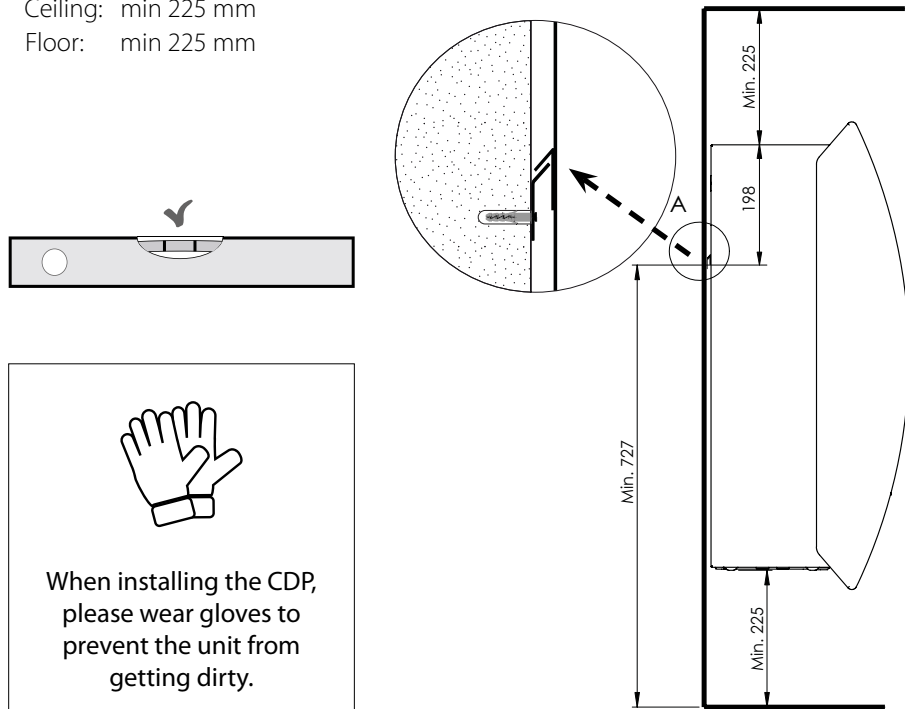
Please follow this procedure to mount the CDP 40-50-70:

- Fix the wall suspension bar supplied with the unit to the wall. It is important to fix it horizontally to ensure correct condensate outlet.
- Hang the dehumidifier on the wall suspension bar.

Recommended distance from dehumidifier to:

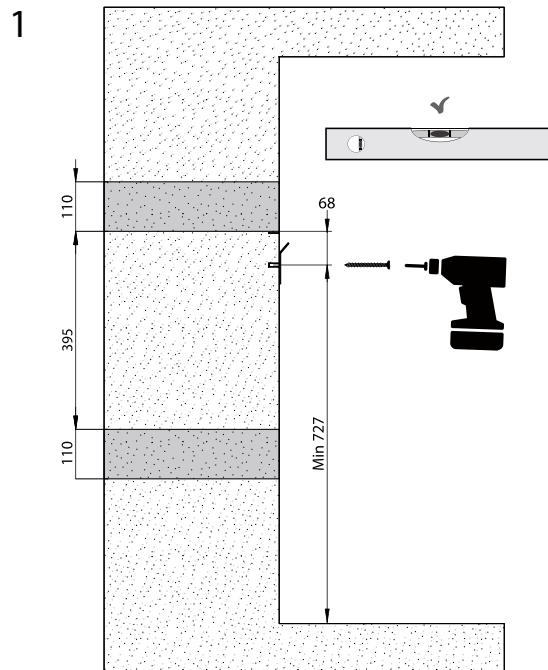
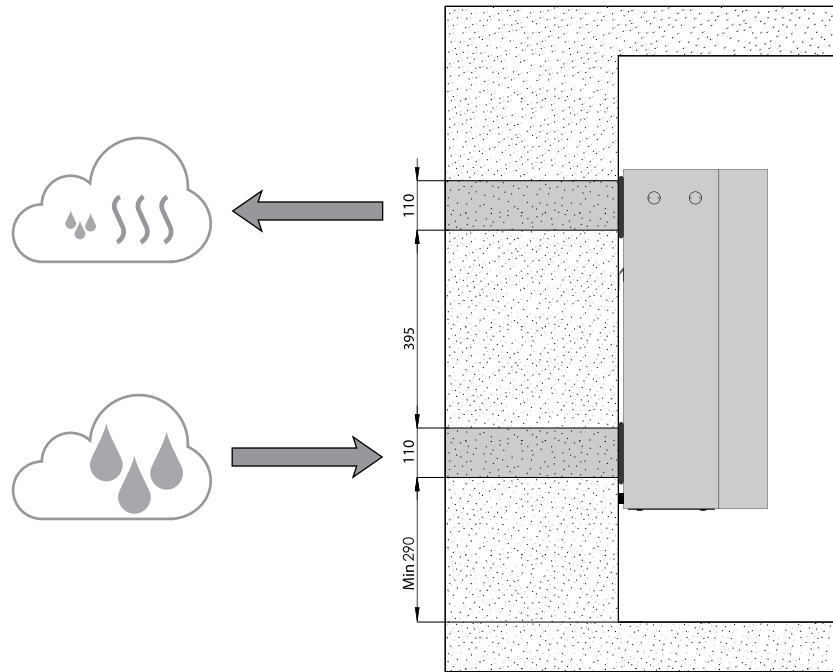
Ceiling: min 225 mm

Floor: min 225 mm



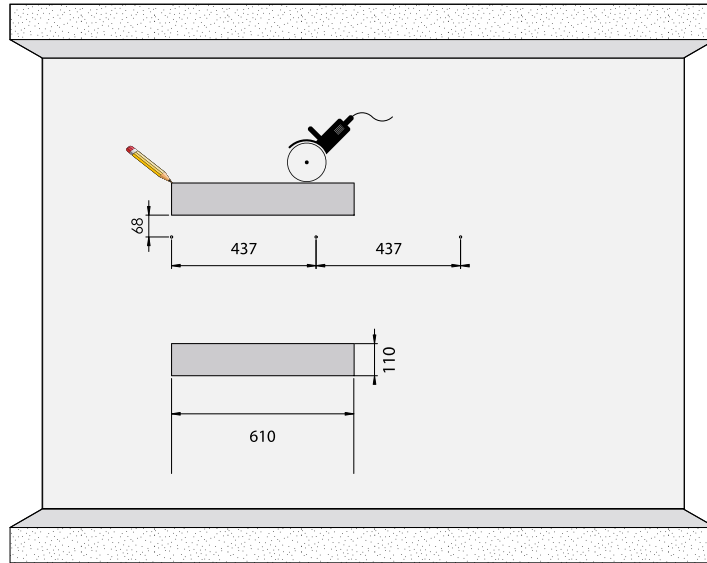
Mounting and installation instructions CDP-T

CDP-40T-50T-70T

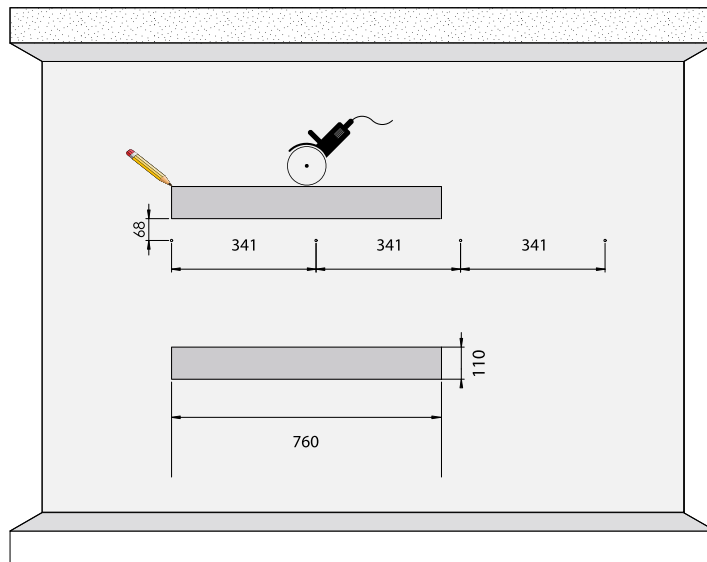


Mounting and installation instructions CDP-T *Continued*

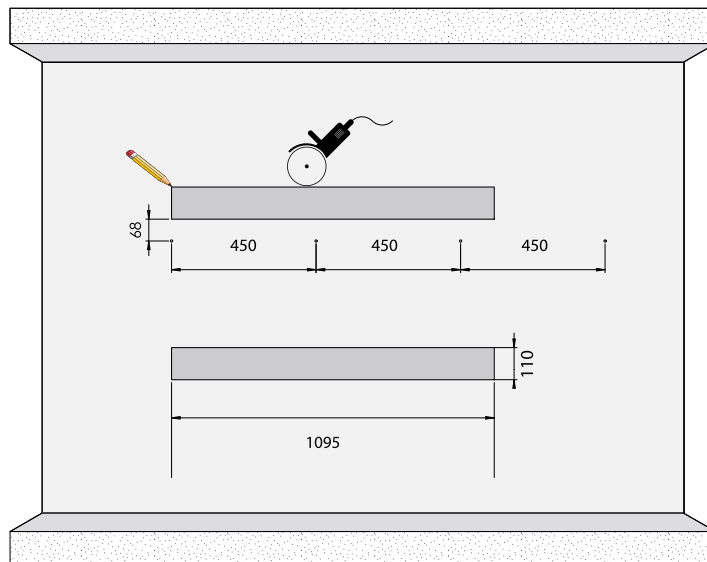
2a CDP 40T



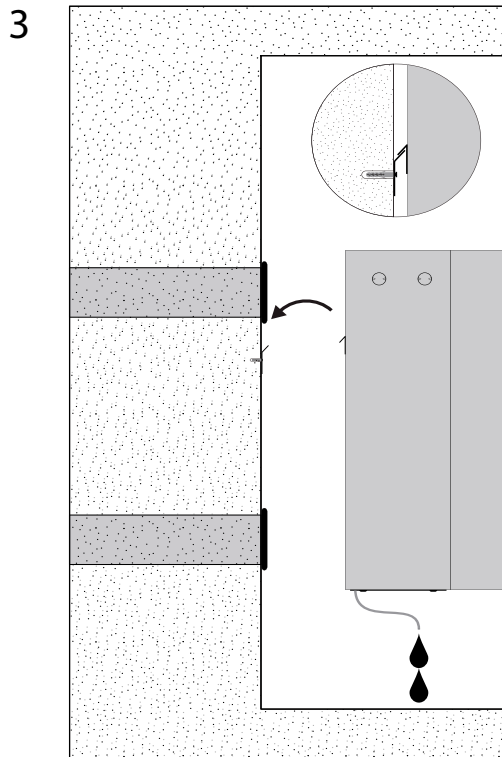
2b CDP 50T



2c CDP 70T



Mounting and installation instructions CDP-T *Continued*



Mounting and installation instructions CDP and CDP-T *Continued*

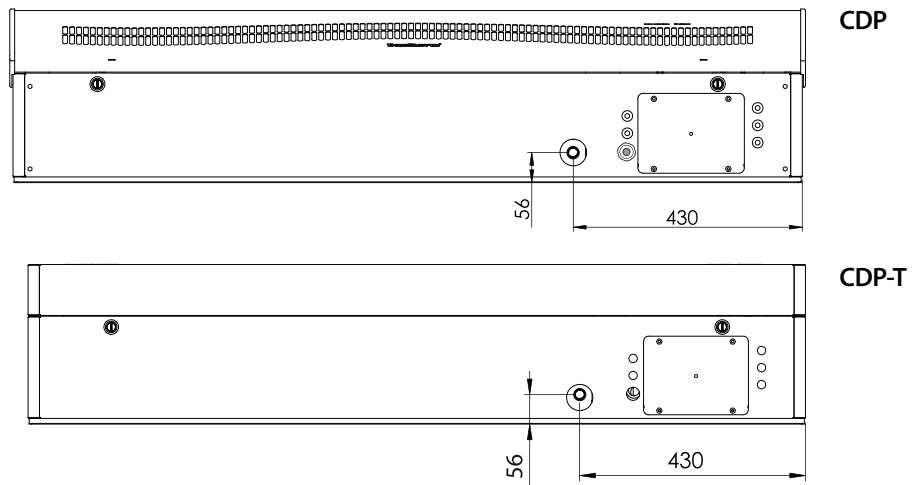
Condensate outlet

The condensate outlet is located at the base of the dehumidifier. The unit has a drain spigot intended for connection of a ¾" flexible or fixed water hose or simply dripping. If you choose to have the outlet through the wall, a matching hole is made in the wall and the drain is connected to the dehumidifier before it is placed on the wall suspension bar.

It is important that the hose from the dehumidifier to the drainage has a drop of at least 2 % to make sure that the water runs away from the condensate tray.

Alternatively a condensate pump can be fitted at the water outlet to pump the water to a drain.

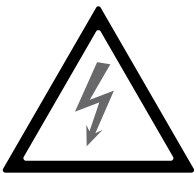
The position of the condensate outlet is shown on the drawing – the unit is seen from below.



Connection of power supply

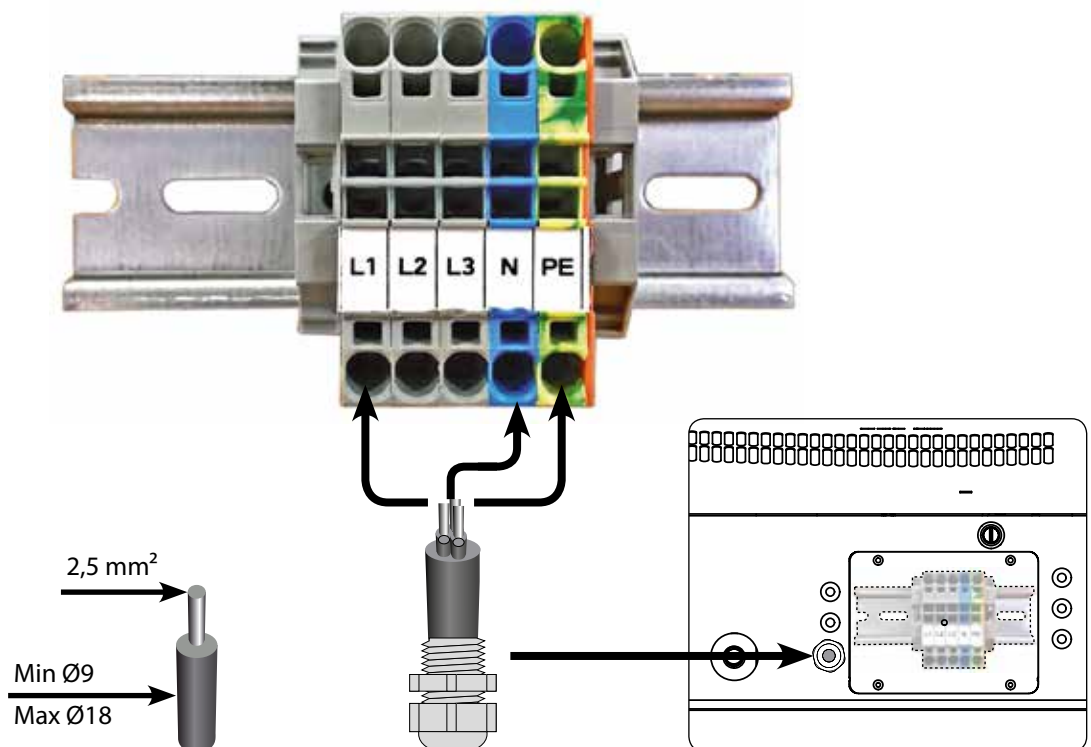
Power must be connected to the unit in accordance with the values stated on the name-plate. Please see wiring diagrams starting on page 20.

The AC mains must be connected as shown below.



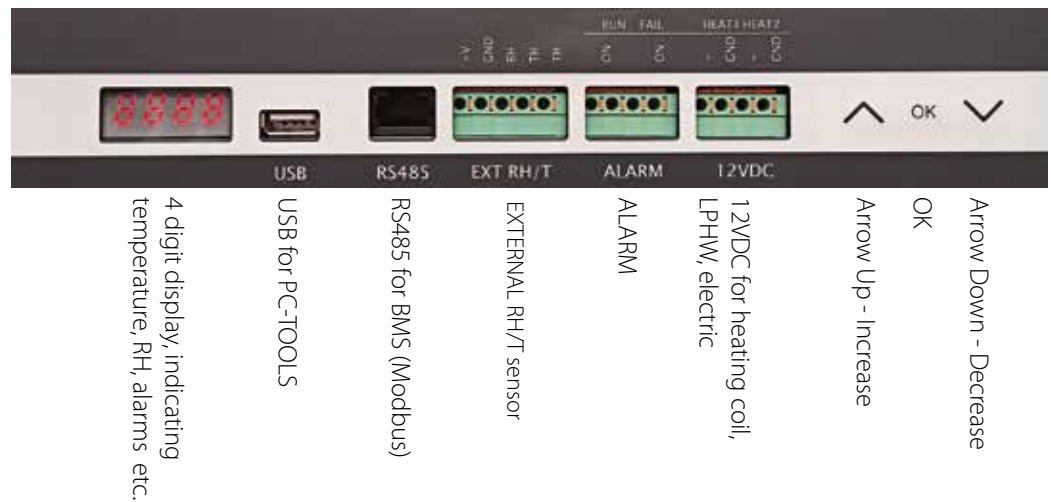
Note:

It is the responsibility of the installer to ensure the conformity towards national regulations of all, not supplied cables.



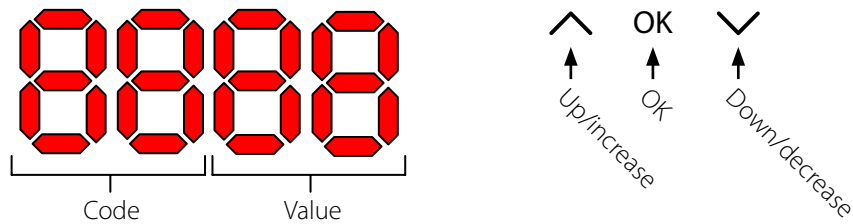
Operation

Display and control panel



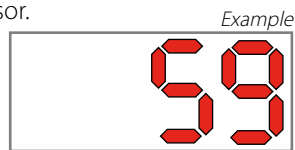
Layout

4 digit Display divided into 2 sections: The first 2 digits show the code and the last 2 show the value of the code.





Default View

By default the display will show the relative humidity RH %. This reading can be from the external humidity/temperature sensor when available, if not the RH will be from the internal humidity sensor.



Menu

 Press and hold OK button for 3 sec to enter menu mode

 Toggle Menu Page

Code: rH



 OK

 OK

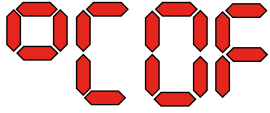
The Code is rH. The value can be set between 40 and 99 by pressing the Up or Down key.

Default value is 60%RH. Follow these steps to change to the desired value:

1. Press OK. The Value digits will flash.
2. Press the Up or Down key to the desired value. Note that pressing and holding the Up or Down key will accelerate the number increment to 5 per second.
3. Press OK to save the new value.

Operation, continued

Code °C

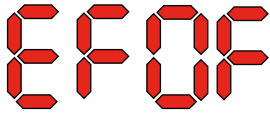


The Code is °C and the value can be set between 05 and 34 °C. Default setting is 0F. Follow these steps to change to the desired value:

1. Press OK. The result is that the Value digits will start flashing.
2. Press the Up or Down key to the desired value. Note that pressing and holding the Up or Down key will accelerate the number increment to 5 per second.
3. Press OK to save the new value.

Note: If no button is pressed for 10 seconds it will return to Standard view.

Code EF

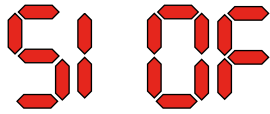


The Code is EF and is the setpoint value for start of the extractor fan. The value can be set between 40 and 99 %RH. Default setting is 0F. Follow these steps to change to the desired value:

1. Press OK. The result is that the Value digits will start flashing.
2. Press the Up or Down key to the desired value. Note that pressing and holding the Up or Down key will accelerate the number increment to 5 per second.
3. Press OK to save the new value.

Note: If no button is pressed for 10 seconds it will return to Standard view.

Code SI

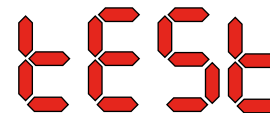


The Code is SI for Service Interval and measured in weeks. Default value is 0F. The value can be set from 1 to 99 weeks. Follow these steps to change to the desired value:

1. Press OK. The Value digits will start flashing.
2. Press the Up or Down key to the desired value. Note that pressing and holding the Up or Down key will accelerate the number increment to 5 per second.
3. Press OK to save the new value.

Note: If no button is pressed for 10 seconds it will return to Standard view.

Code tE



The Code is tE and the value is St for Selftest.

Press OK to alter the value to start self-test.

If you want to dismiss the test press and hold the down button for 5 seconds. The unit will return to Standard View.

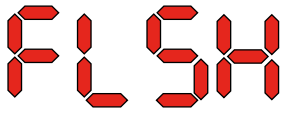
RS-485 Interface

A list of data for the RS-485 interface is available on page 50

Datalog

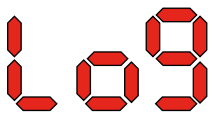
A list of data log parameters is available on page 56

Information



Changes saved to memory

After Flash a number is displayed. This shows the time of saving.



Log file saved to USB



Configuration file from USB loaded successfully.

Service guide

Introduction

The dehumidifier requires very little attention for trouble free running. All the necessary safety and control functions have been built in. The fan motor(s) and the compressor have permanent lubrication and require no particular maintenance.

Monthly service

The air inlet filter is to be cleaned once a month. The filter is placed in a stand behind the grill in the air inlet duct. Also drip tray and outlet should be cleaned so that water can run off freely. Please follow this procedure to perform the monthly service:

Step	Action
1	Unlock the two locks underneath the dehumidifier
2	Dismount the front cap by lifting it up and take out the filter. The filter is located on the rear of the front cap
3	Wash the filter in tepid soapy water or vacuum clean thoroughly. If the filter is faulty, replace it.
4	Insert filter in the filter holder and lock the two locks. (From Step 1)

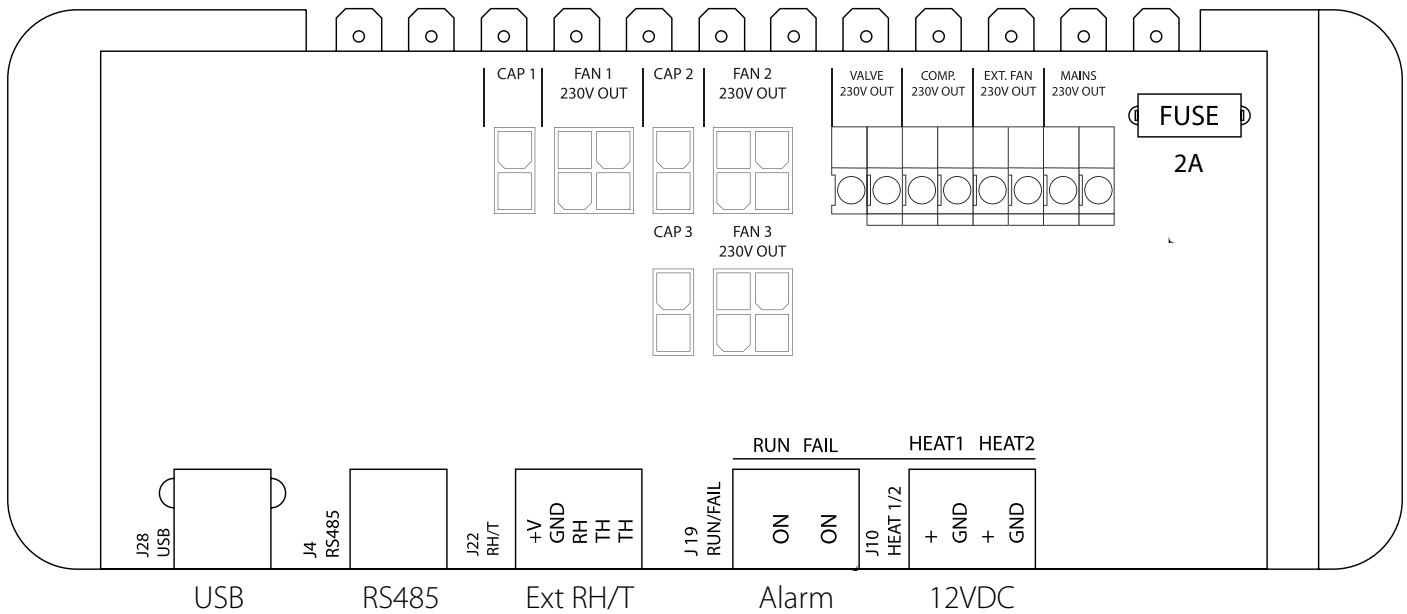
Annual service

The dehumidifier should be inspected once a year. Please follow this procedure to perform the annual service:

Step	Action
1	Remove the front from the dehumidifier
2	Inspect the inside of the dehumidifier
3	Vacuum clean the dehumidifier to remove any dust or debris Important: Vacuum clean the condenser thoroughly
4	If necessary wash the lamella evaporator in tepid soapy water if it is badly soiled

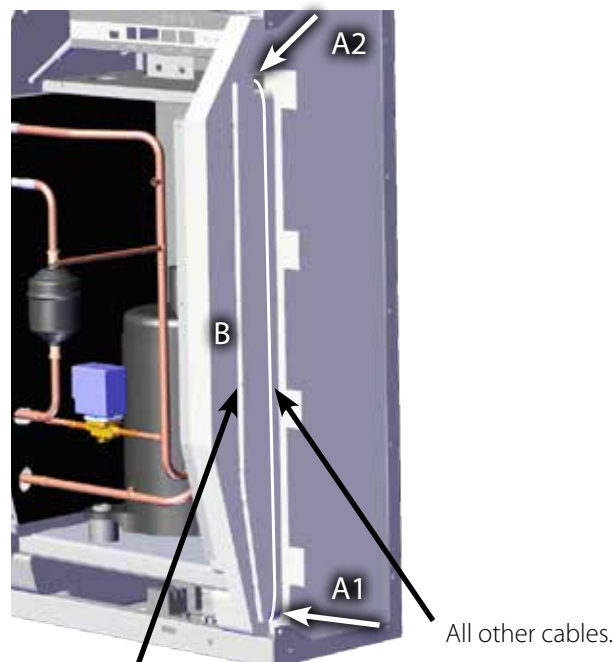
Main PCB and wiring diagrams

Overview of PCB connections



Routing of cables for accessories from terminal rail to PCB

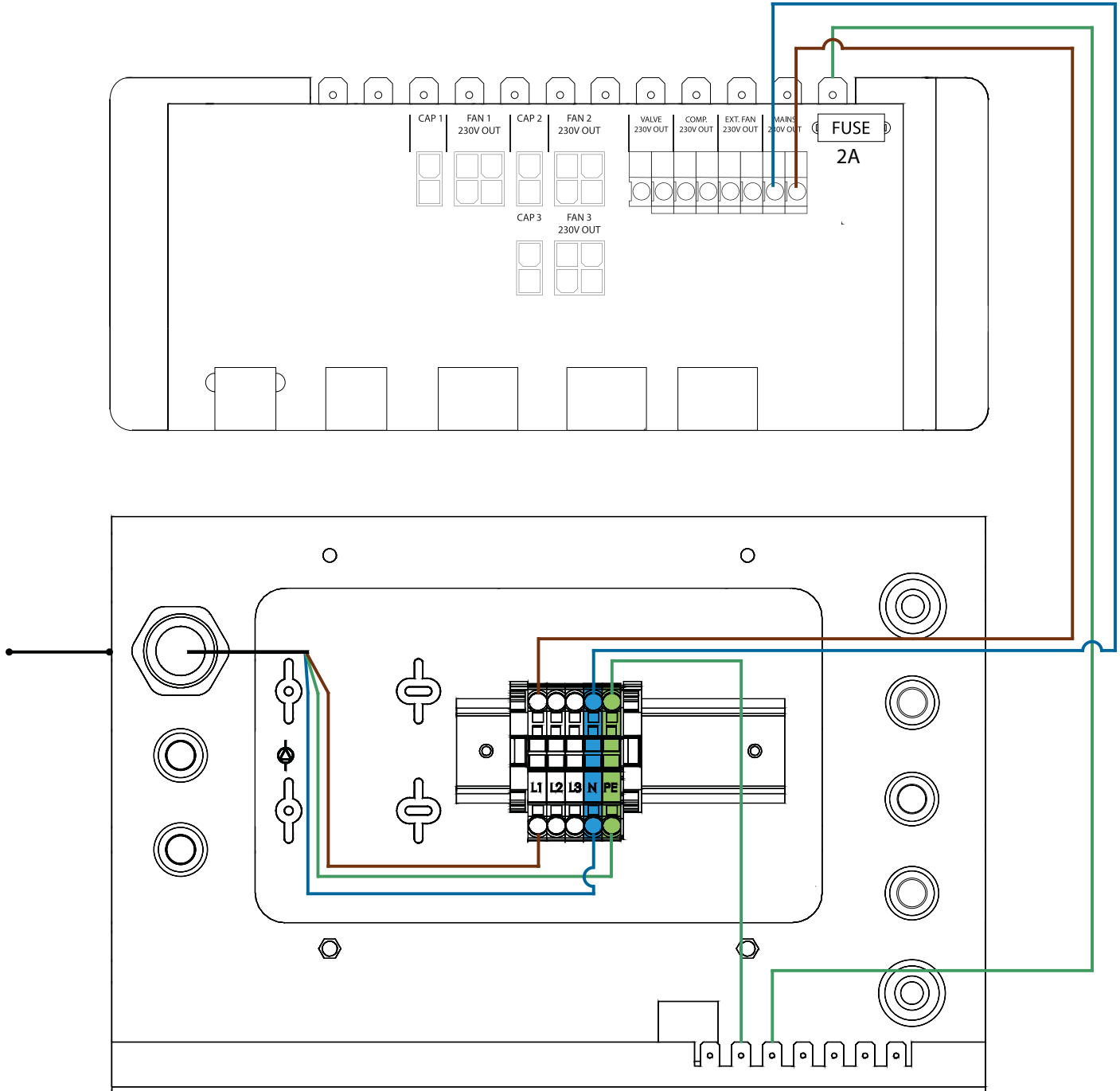
Pull the cable through hole A1 and to the hole A2 to connect to PCB.
The groove B is for use with cable from external RH sensor (not included) as it requires a separate groove to avoid interference.
All other cables are to be placed in groove A1-A2



Important:
External RH sensor cable only.

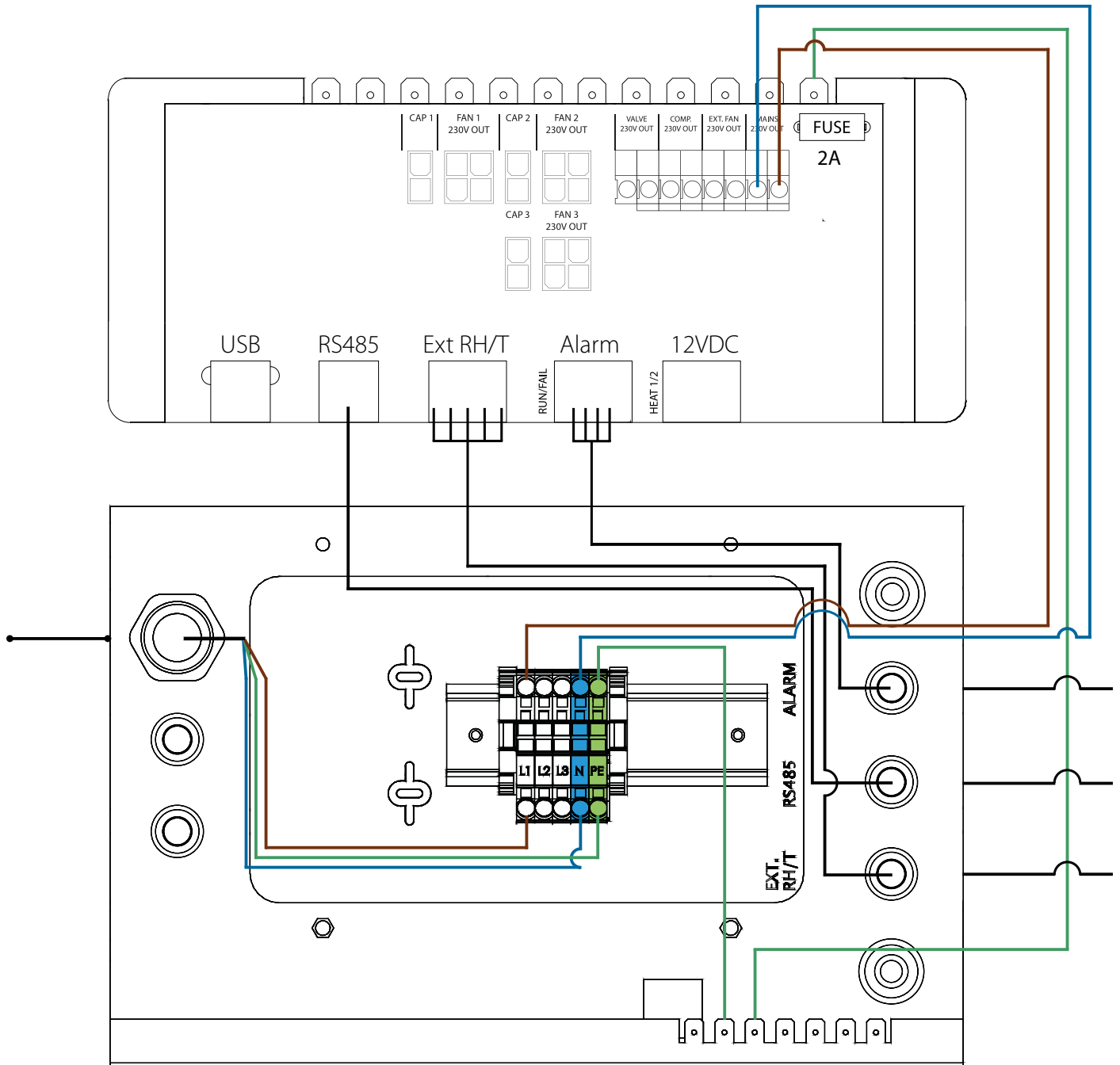
Wiring Diagrams

This diagram shows **standard connection** of the terminal rail and the main PCB.



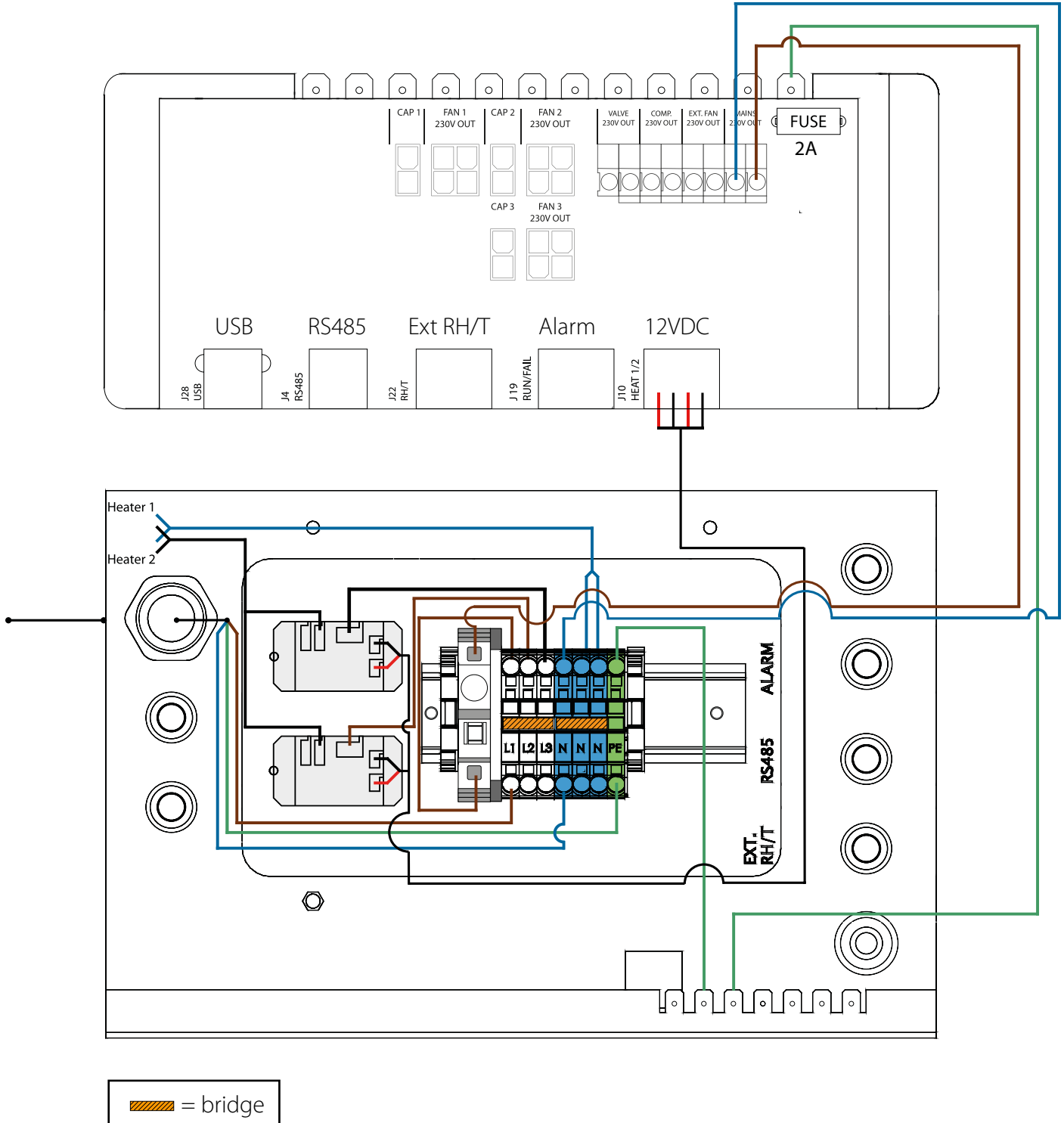
Wiring Diagrams

This diagram shows how to connect the CDP with **alarm, external RH sensor and RS485**.



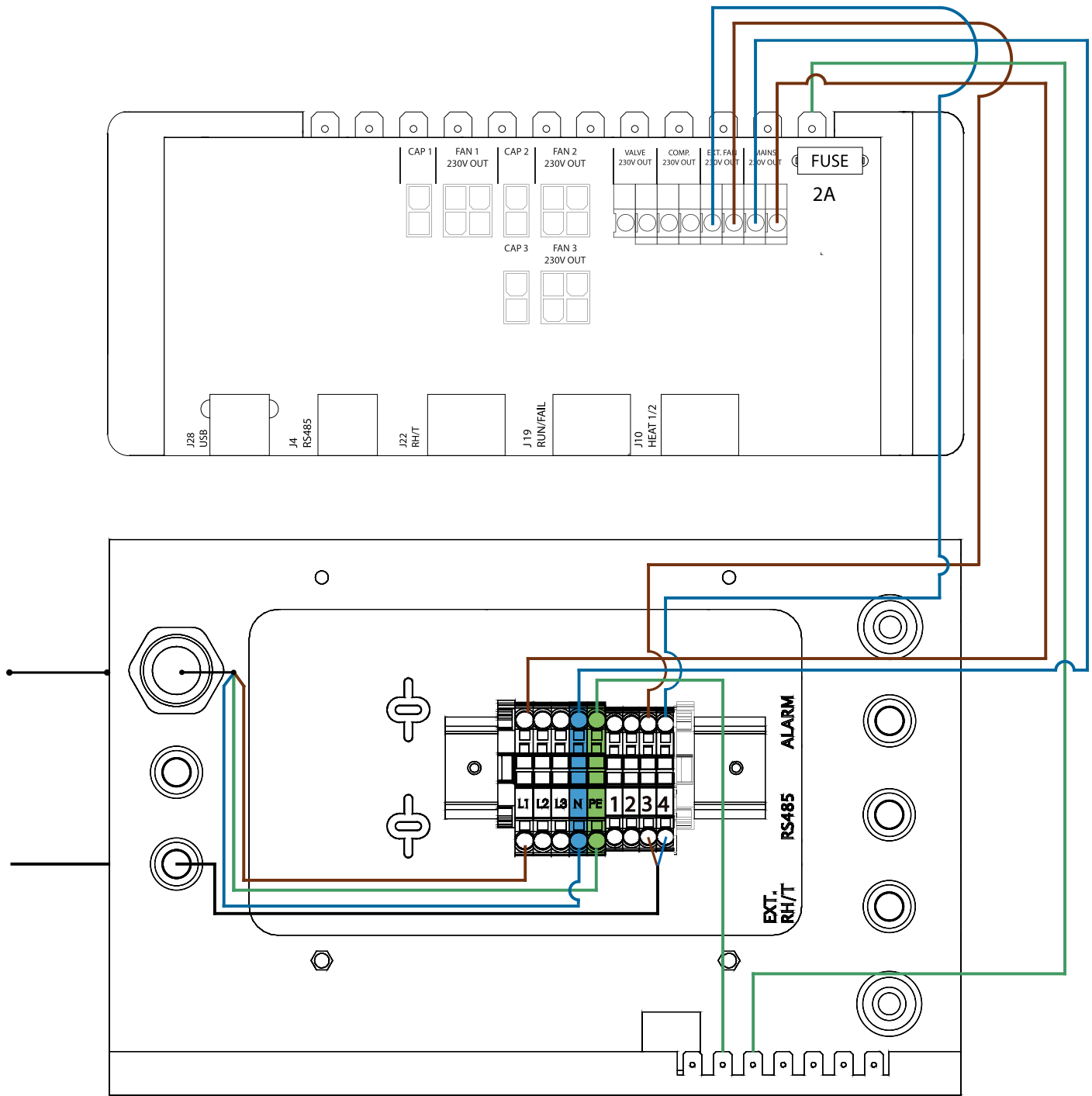
Wiring Diagrams

This diagram shows how to connect the CDP with **electric heating coil**.



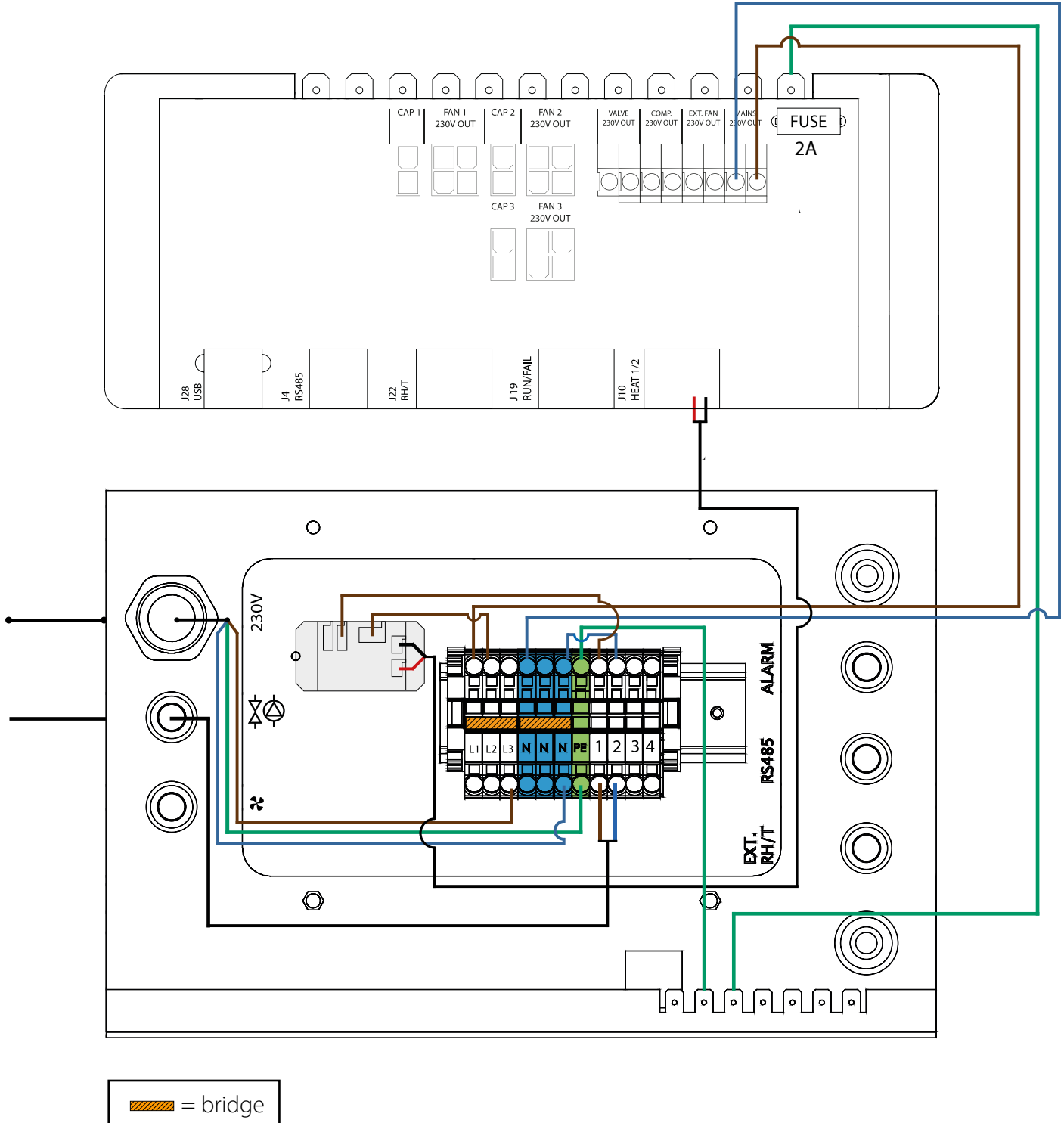
Wiring Diagrams

This diagram shows how to connect the CDP with **external fan**.



Wiring Diagrams

This diagram shows how to connect the CDP with **water heating surface, pump and valve.**



Fault finding guide

Important!

If the dehumidifier is not functioning correctly, shut it down immediately!

Fault finding

Use this table to localize and solve a possible problem or fault:

Fault	Possible cause	Solution
<ul style="list-style-type: none"> • The dehumidifier does not work • no light in the LEDs on the display 	-	<ul style="list-style-type: none"> • Check the external fuses • Check the power supply to the unit
<ul style="list-style-type: none"> • The compressor does not work • the display shows wrong type 	The compressor has stopped automatically caused by a too high temperature on the condenser	<p>If the unit does not start again after 45 minutes, check the following:</p> <ul style="list-style-type: none"> • Check that the fan(s) is running • Check if the filter in the duct kit is dirty, clean if necessary. • Check if the condenser coil is dirty • Check if the room temperature is higher than 36 °C. If the room temperature is higher than 36 °C, the unit must be stopped • Check that the duct openings are not covered
<ul style="list-style-type: none"> • The dehumidifier does not work 		<p>Check the built-in or the external hygostat, if any, by setting it to a low relative humidity, e.g. 10 – 20 %RH.</p> <p>If the unit still does not start, check the built-in or external hygostat for defects.</p>

More help

If you cannot find the reason for the fault, switch off the unit immediately in order to prevent further damage.


Contact a service technician or a Dantherm representative.

Error messages

Introduction


The CDP can display a number of Error Messages to help finding a fault.
This topic explains the messages in the display and what the problem might be.

Code LO



The Code LO displays LOSS
The connection to the Remote Panel is lost.
When the connection is reestablished the error message can be cleared by pressing OK.

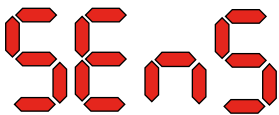
Code Ab



The Code Ab with the value t indicates that the ambient temperature is out of range.
This alarm cannot be dismissed by pressing OK, but will automatically return to Standard View when the temperature is within range again.



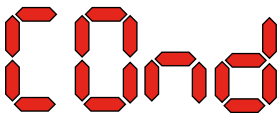
Code SE



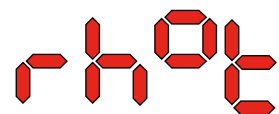
The Code SE with the value nS indicates a sensor fault and will cause the unit to stop.

Press either Up or Down to determine which sensor is faulty. The faulty sensor can be:

- Condensor sensor Cond
- Evaporator sensor EVAP
- Humidity sensor rh°t



The fault can only be dismissed by the unlock sequence initialized by pressing OK.
If no button is pressed for 10 seconds it will return to SEnS



Error messages

Code LP

LP

If the Code LP (Low Pressure detection) is shown, the fault must be found and rectified.
The fault can only be dismissed by the unlock sequence which is initiated by pressing OK.



Code HP

HP

If the Code HP (High Pressure detection) is shown, the fault must be found and rectified.
The fault can only be dismissed by the unlock sequence which is initiated by pressing OK.

Unlock Sequence

Loc

Code Lo and value c indicates that the unit is locked.
Press the Down button to unlock.
If no buttons are pressed within 5 seconds the display will return to previous fail state.



UnLo

Code Un and value Lo shows Unlock option.
Press OK to confirm



Service agreement

Introduction

The unit includes mechanical and electrical parts and the unit is often placed in a rough environment where the components are exposed to different climate conditions. Therefore the unit will need preventative maintenance on a regular basis.

Hotline

The After Sales Support Department of Dantherm A/S is ready to help you in case of a problem. To be able to offer quick and efficient help, please have the following information ready when contacting Dantherm A/S:

-Name	-Phone no	-Location of unit
-Company	-Email	-Serial no./ Order no.
-Country	-Type (unit)	-Description of problem

Contact Dantherm A/S, ask for the After Sales Support department and help will be provided as soon as possible:

Phone: +45 96 14 37 00
Fax: +45 96 14 38 00
Email: service@dantherm.com

Preventive maintenance

Dantherm A/S offers to perform preventive maintenance on the units so they will continue to operate according to factory standards.

Corrective and emergency repair

In case the unit malfunctions Dantherm A/S offers to perform emergency repair on the units. Agreements will be made with the customer regarding response time and price

Setup


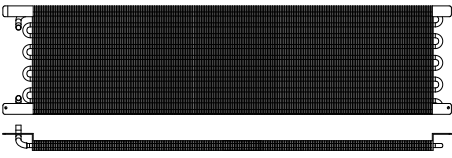

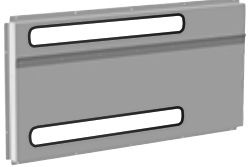

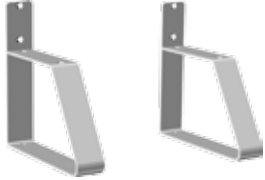


Dantherm A/S has established a network of service partners to perform preventative maintenance. The partner is trained and certified on the actual climate units. The partner will also carry an adequate number of spare parts – so any repairs can be made during the same visit. The agreement will be made with Dantherm A/S – and the overall responsibility for the agreement will be that of Dantherm A/S.

Further information

For further information about a service agreement in your country or region, please contact:

Henrik Hersted
After Sales Support Manager
Dantherm A/S
Phone: +45 9614 4767
Mobile: +45 2399 4066
Email: heh@dantherm.com

Accessories

Part No.	Description		Page
094336	Electric heating surface 2KW for CDP 40		30
094337	Electric heating surface 3.5KW for CDP 50		
094338	Electric heating surface 5KW for CDP 70		
094333	Water heating surface LPHW, 2KW, CDP 40		33
094334	Water heating surface LPHW, 3.5 KW CDP 50		
094335	Water heating surface LPHW, 6.5KW, CDP 70		
094271	Wall Duct, complete for CDP 40T		36
094243	Wall Duct, complete for CDP 50T		
093508	Wall Duct, complete for CDP 70T		
094801	Wall duct adaptor for CDP 40T		36
094802	Wall duct adaptor for CDP 50T		
094804	Wall duct adaptor for CDP 70T		
093455	Control panel, DRC1		37
094332	Floor stand		
094339	External fan 230V Lindab type IPA 100		
094341	External fan 230V Lindab type IPA 125		
094340	Control valve 1/2" ON/OFF, 230V, Frese type with actuator.		

Electrical heating coil for CDP dehumidifier

Introduction

This section gives all necessary information on how to install and use the electrical heating coil for Dantherm CDP Dehumidifiers.

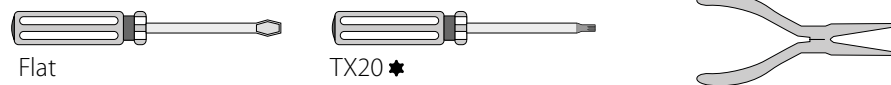
Part numbers

Electrical heating coil for CDP/CDP40T: **094336**
 Electrical heating coil for CDP/CDP 50T: **094337**
 Electrical heating coil for CDP/CDP 70T: **094338**

Overview

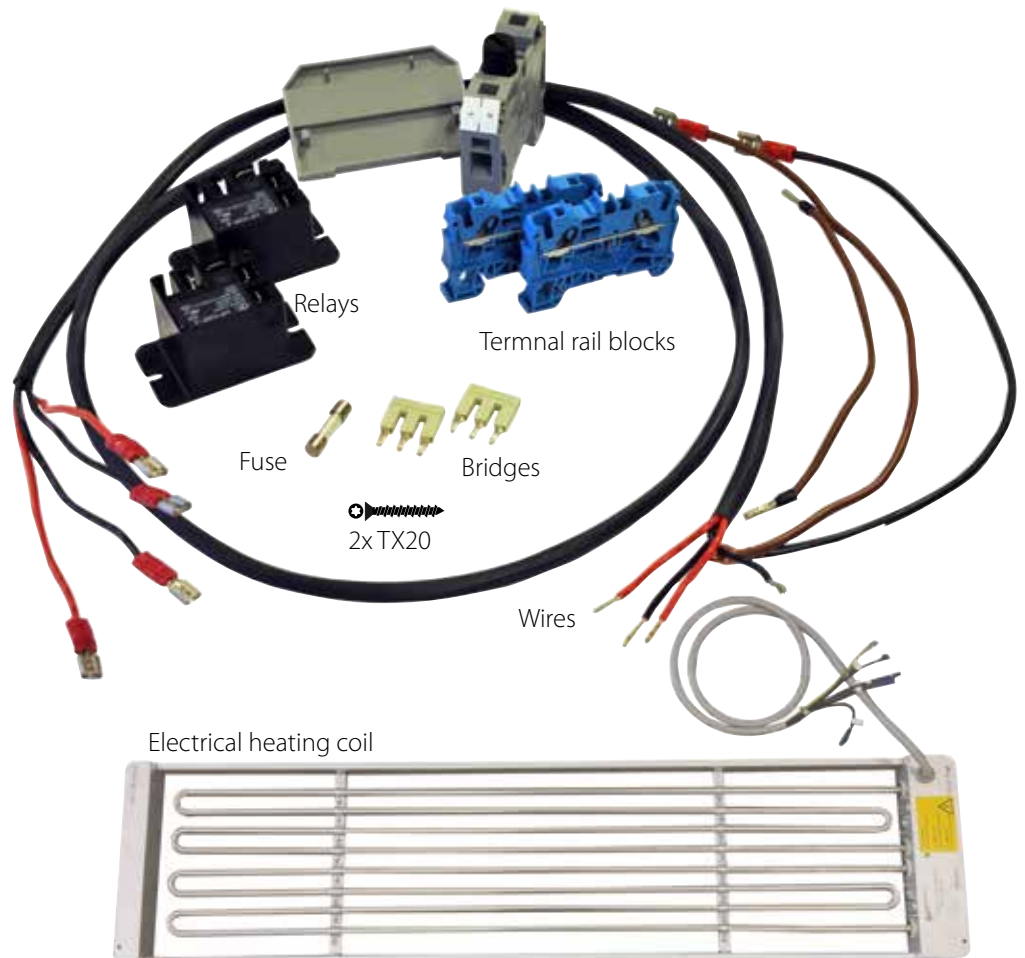
The heating surface is an accessory for the CDP and CDP-T ranges and supply additional heat to the dehumidified air from the dehumidifier.

Tools needed



Content

Shown below are the components included in the electrical heating coil kit.



Technical data

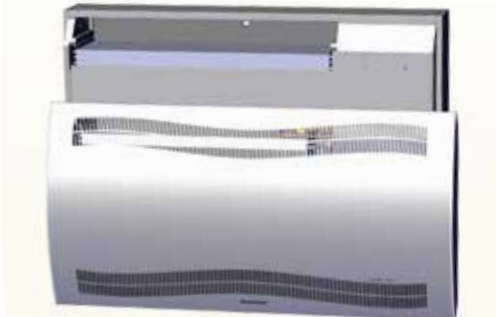
	Power	Current	Total max. load	Fuse
Electrical heater for CDP/CDP40T	2 kW	8,70 A	16,20 A	10A 5x20mm
Electrical heater for CDP/CDP 50T	3,5 kW	15,22 A	22,80 A	10A 5x20mm
Electrical heater for CDP/CDP 70T	5 kW	21,80 A	29,30 A	10A 5x20mm

Electrical heating coil for CDP dehumidifier

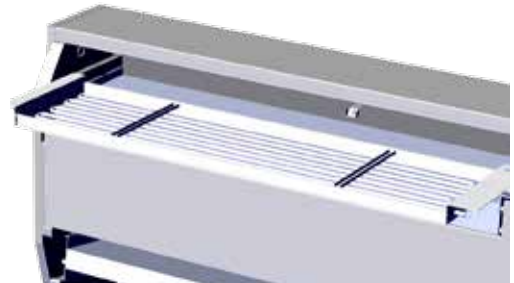
Installation procedure



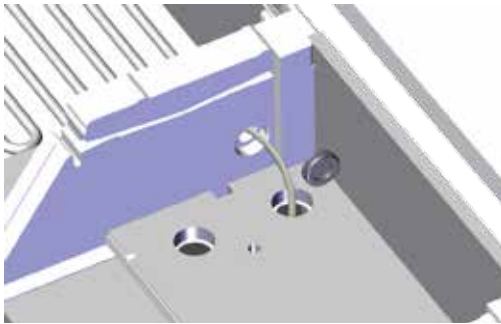
1. Remove front cover



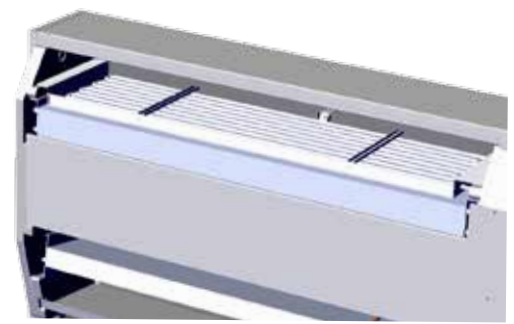
2. Slide heating coil halfway in. 1/2



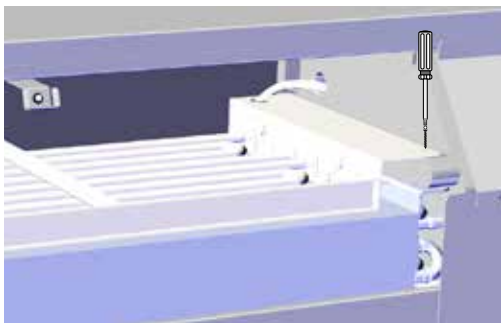
3. Remove rubber plug and pull wire to compressor compartment.



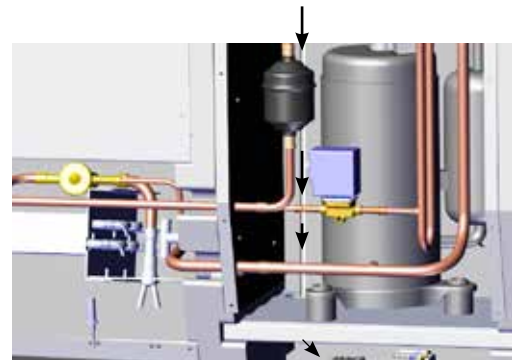
4. Slide heating coil all the way in place. 2/2



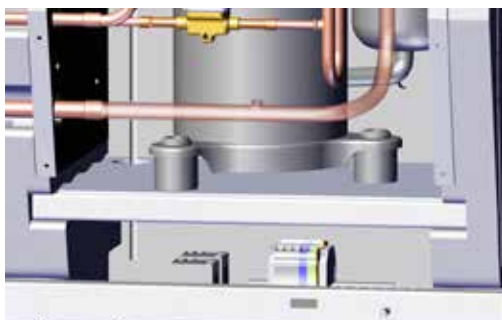
5. Secure heating coil with two screws left and right.



6. Pull wire through compressor compartment.



7. Gain access to terminal rail by removing rubber plug.



8. Connect wires to terminal rail and circuit board according to diagram on page 22

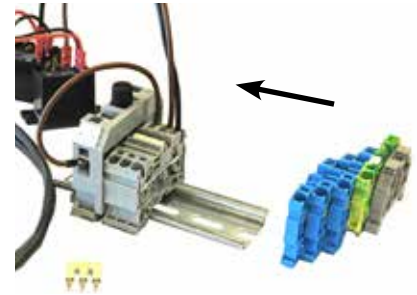
Electrical heating coil for CDP dehumidifier

Terminal Rail Assembly Procedure

1. Use flat screwdriver to remove terminal rail blocks.



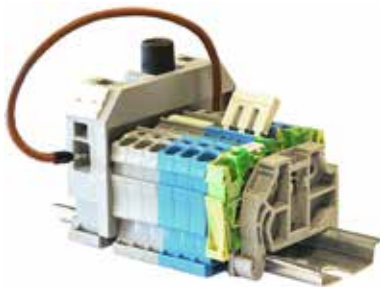
2. Slide additional terminal rail blocks into place in this order.



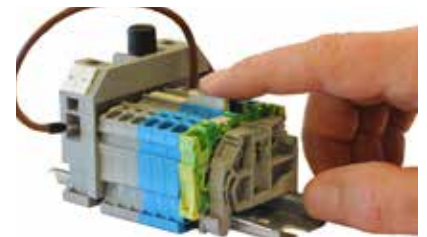
3. The terminal rail block can also be clipped on.



4. Place bridge in the three blue terminal rail blocks.



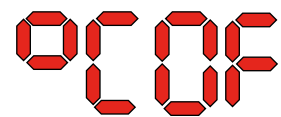
5. Press bridge firmly into place.



6. Glass fuse in large terminal rail block.
10A 5x20mm

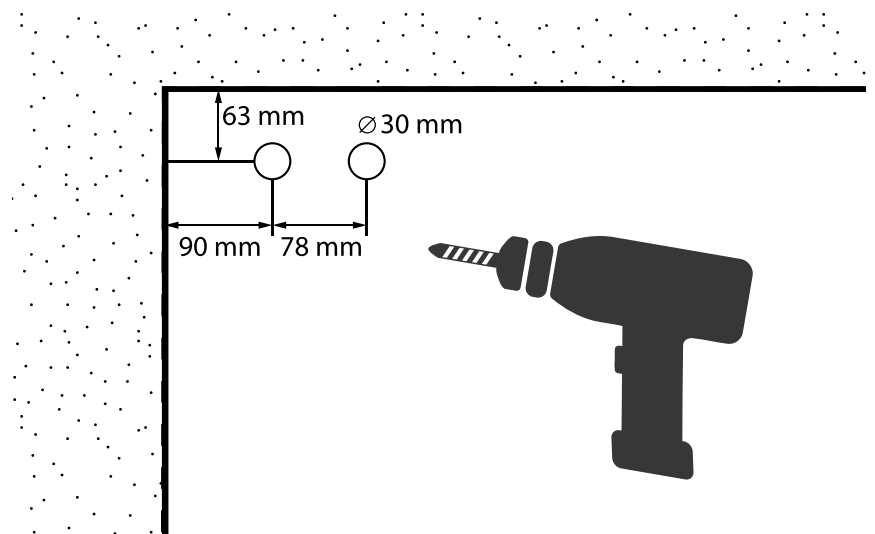
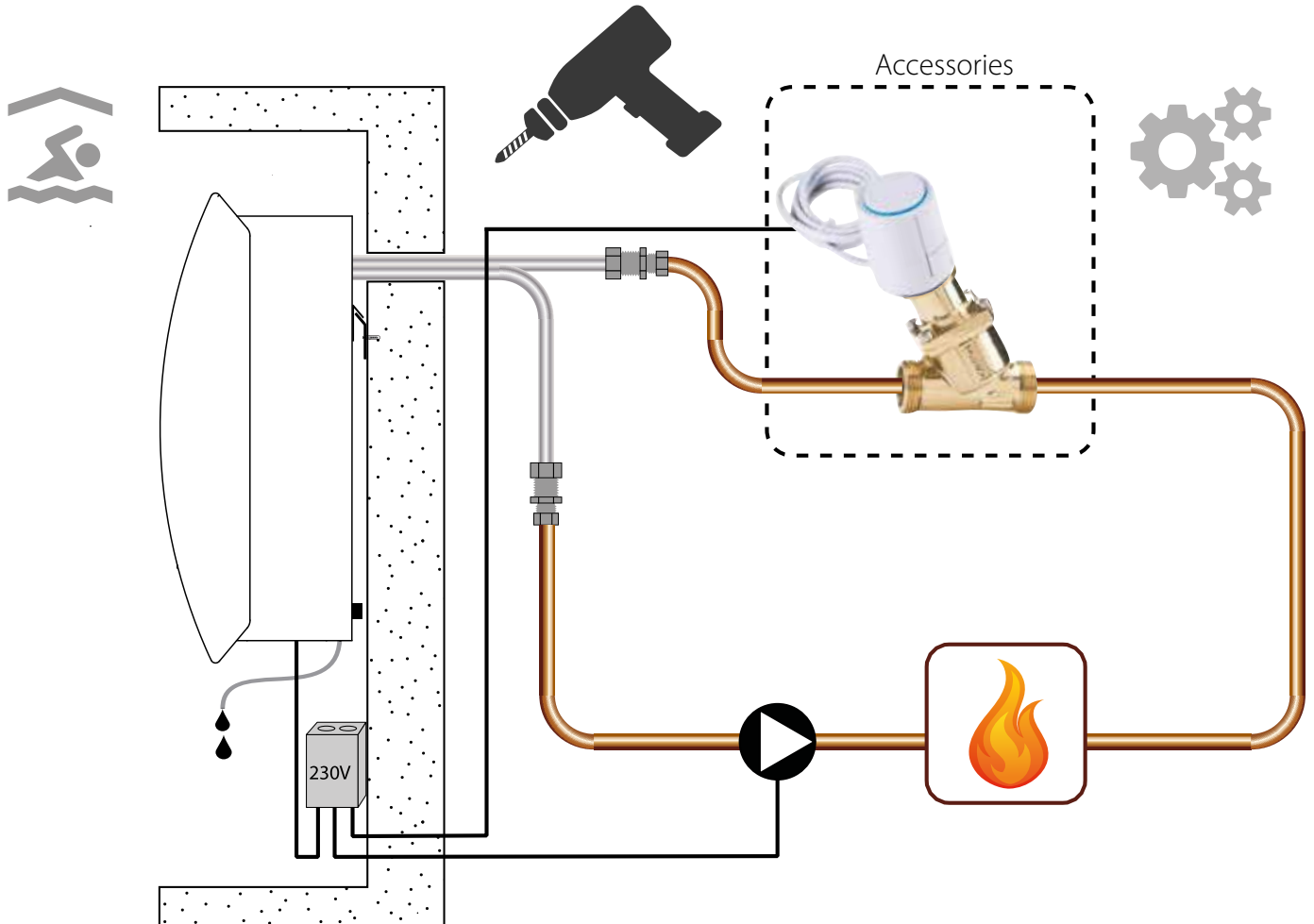


6. Activate heater as described in operation chapter, section "Code °C"



Water heating coil for CDP dehumidifier

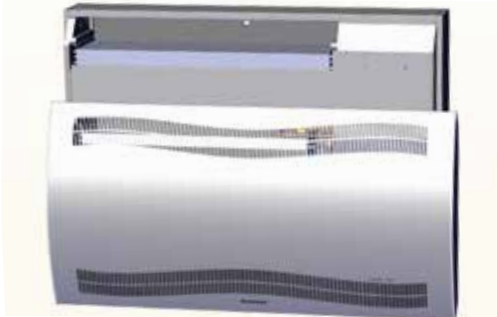
Overview



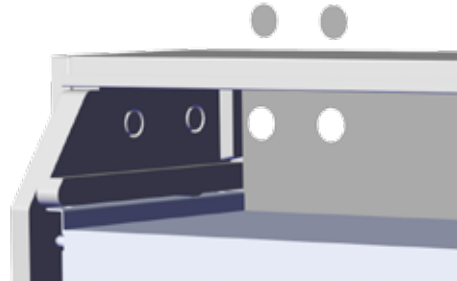
Water heating coil for CDP dehumidifier - mounting

Installation procedure

1. Remove front cover



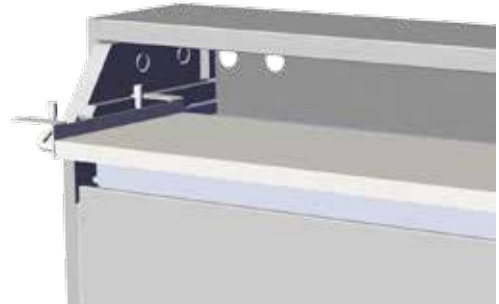
2. Punch out the two discs in the rear of the unit.



3. Pre-assemble gaskets, fittings and flexible hoses.

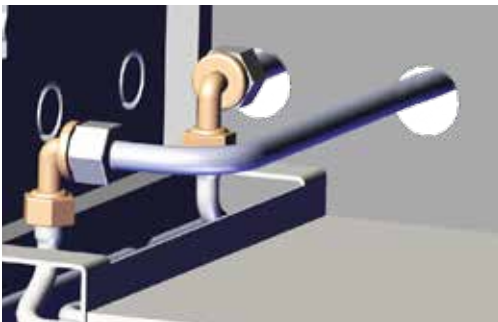


4. Slide heating coil into place.

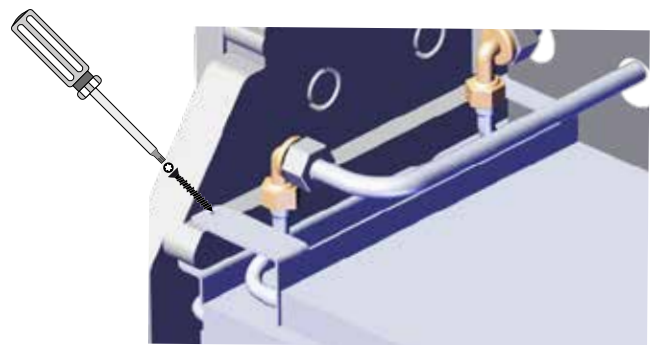


5. Connect hoses to external heating source.

Note: the hoses run through the wall behind the unit.



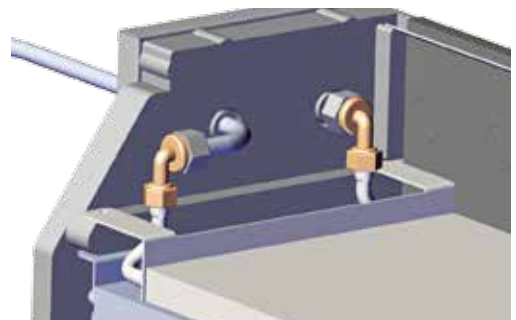
6. Secure heating coil with two screws left and right front.



7. Cut along dotted lines and fit grommet around flex hose. Push grommet and hose in place using liquid detergent for lubricant.

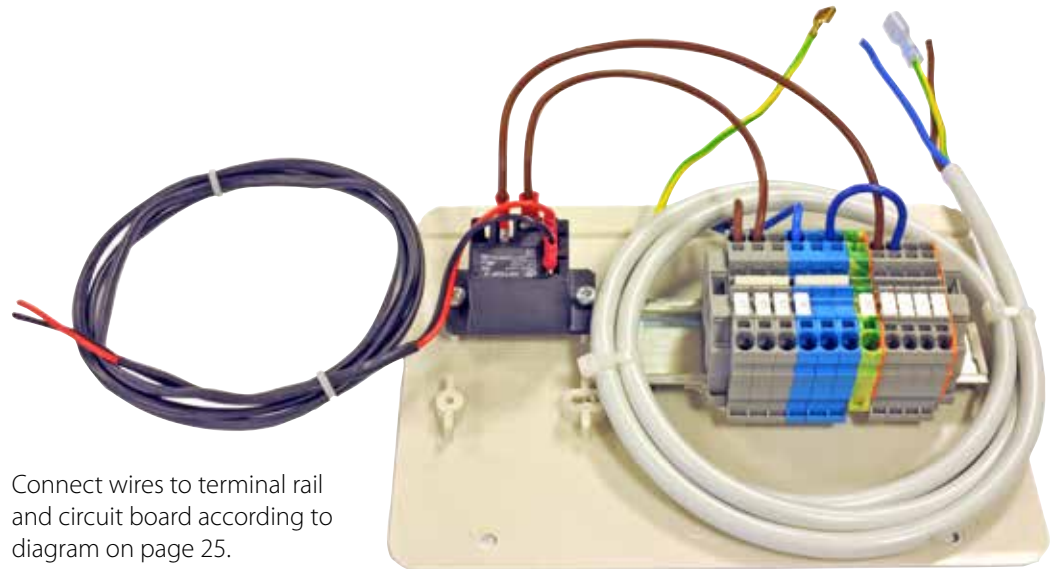


8. For CDP-T models the hoses are at the end of the unit.



Water heating coil for CDP dehumidifier - mounting

DIN rail with terminal blocks and connections.



Connect wires to terminal rail and circuit board according to diagram on page 25.

Flexible water hoses with gaskets and fittings



Water Heating Coil - Shown here: coil for CDP/CDP 70T

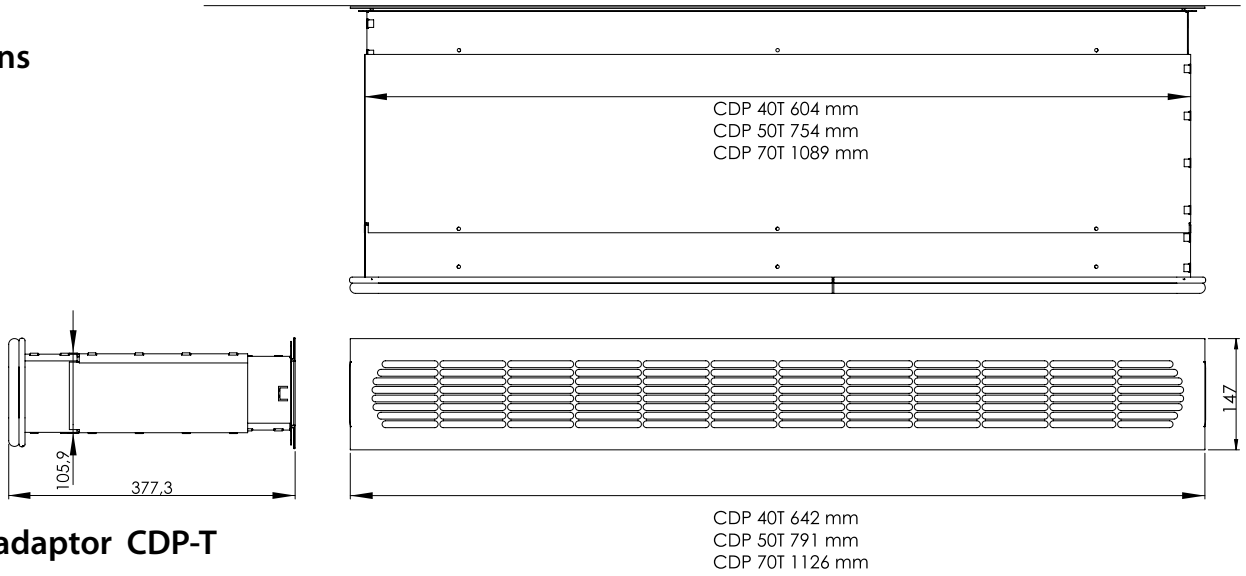


Technical data

Type	Total capacity	Air Flow
Water heating coil for CDP/CDP 40T	2 kW	300 m ³ /h
Water heating coil for CDP/CDP 50T	3,5 kW	680 m ³ /h
Water heating coil for CDP/CDP 70T	6,5 kW	900 m ³ /h

Wall duct for CDP-T

Dimensions



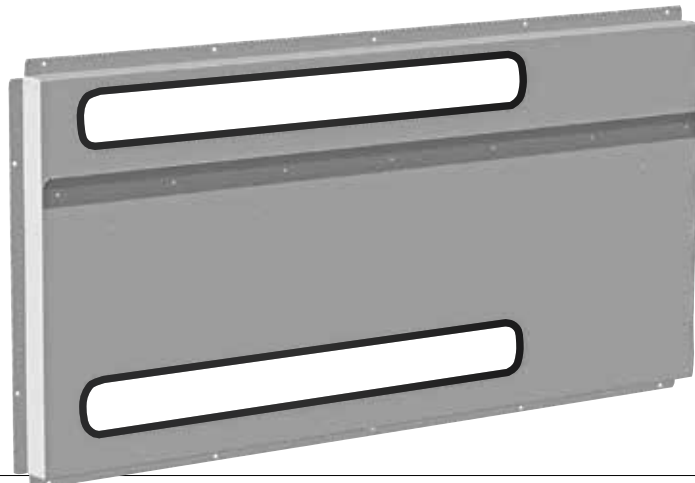
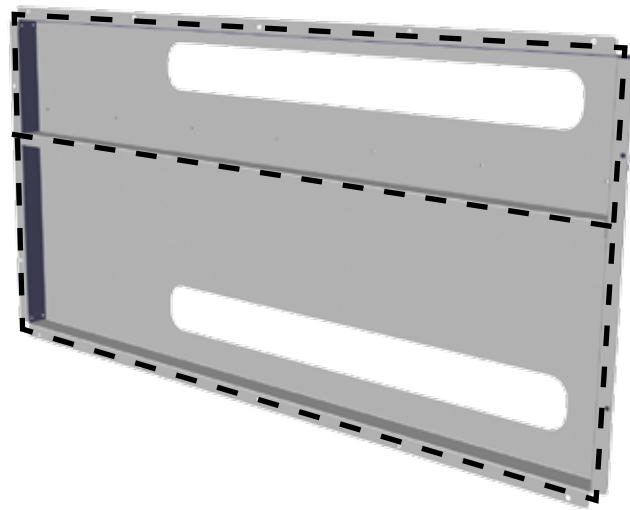
Wall duct adaptor CDP-T

For use if you have previously cut holes in your wall and want to install a new generation CDP-T dehumidifier.

1. Fit rubber seal along the edges of the adaptor.
(Dotted lines on this illustration.)

2. Mount the adaptor on the wall covering existing holes.

3. Hang the CDP-T dehumidifier on the bracket mounted on the adaptor.



Wireless Remote Controller DRC 1

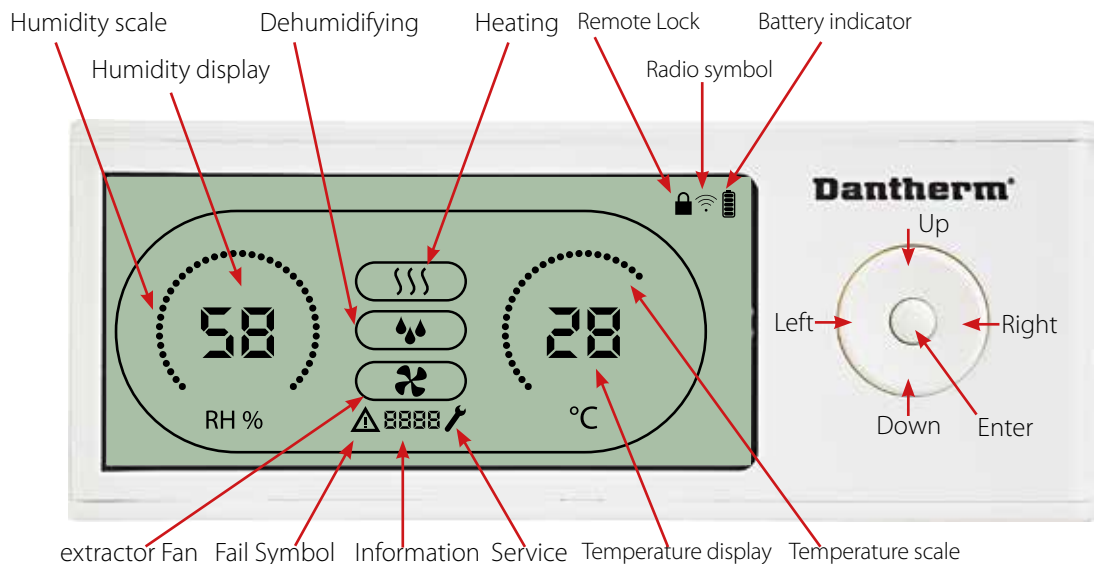
Warning

It is the responsibility of the operator to read and understand this service manual and other information provided and to use the correct operating procedure.
Read the entire manual before using the control panel. It is important to know the correct operating procedures for the unit and all safety precautions to prevent the possibility of property damage and/or personal injury.

Product description

The DRC 1 is a wireless remote control panel for use with Dantherm dehumidifier range CDP/CDP-T 40-50-70.
In this manual you will learn how to use the DRC 1 remote control panel to control your dehumidifier.
The range of DRC 1 is up to 50 meters depending on conditions.

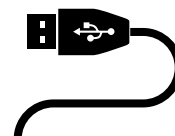
Remote panel Layout



Humidity and Temperature scale.
Temperature scale from 0° till 40°C.
Humidity scale from 0 to 99 % RH

USB cable

The USB cable is for updating software.
It can also be used as external power supply.

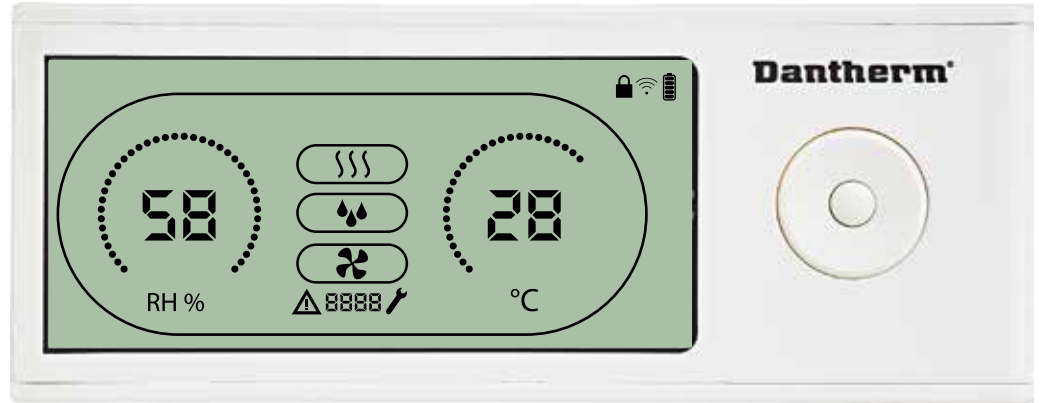


Mating

Mating Mode

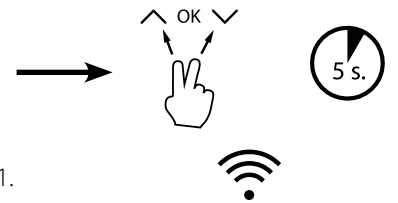
Before use, the DRC 1 must be mated with the CDP unit.
This section describes how to mate the DRC 1 with the dehumidifier.


Mating



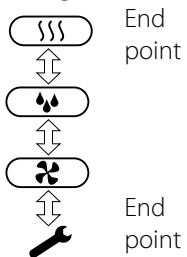
Procedure

1. Insert batteries (included)
 - 2.a. The DRC 1 will search for the dehumidifier 2 min. While searching display will flash at 0,5 Hz
 - 2.b. To enter mating mode on the dehumidifier:
 - Press and hold both up and down buttons on the dehumidifier for 5 seconds -
- Note:** this must be done while the DRC 1 is searching for the dehumidifier.
OR: turn the dehumidifier Off and ON.



3. The dehumidifier will send a serial number to the DRC 1.
When mating is successful, the radio icon comes on.
 4. The dehumidifier will confirm connection by showing code "Conn" for 3 seconds 
- More than one remote control panel can be connected to the dehumidifier.

Navigation



ENTER press and hold for 3 seconds to enter user menu setup

UP and **DOWN** buttons to navigate between icons.

LEFT and **RIGHT** buttons allows to change set points value 1press = 1 unit

ENTER confirms new set point value and automatically switches to next icon/or exits the menu




Press and hold **RIGHT** for 5 seconds to enter installer menu setup. (Exit setup menu first)

When no button is pressed for 10 sec, the DRC 1 exits the menu and returns to readings screen

Failed mating



Press and hold for 10 seconds to reset the serial number stored in DRC 1.

If mating fails  and  is shown in the display and the radio symbol flashes 
Reset DRC 1 and repeat mating process.

Standard readings




Standard readings when connected:

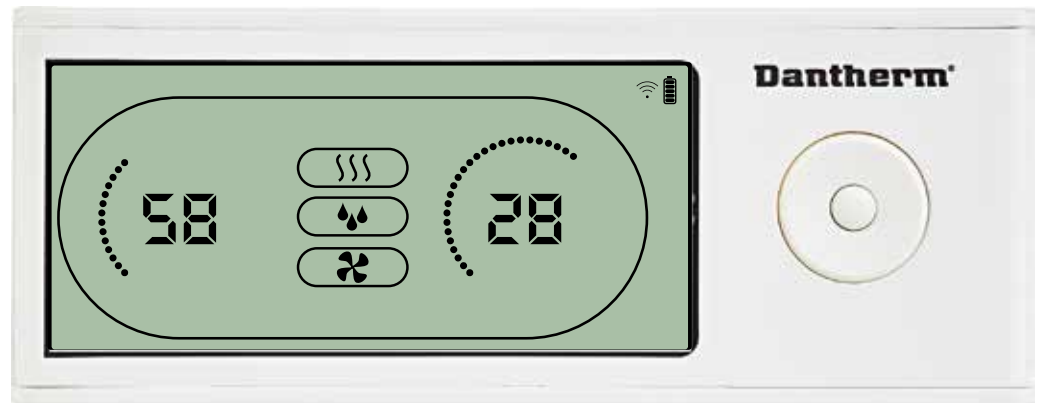
-Stand by, RH and °C scale

-Compressor active, dehumidifying symbol on 

General information

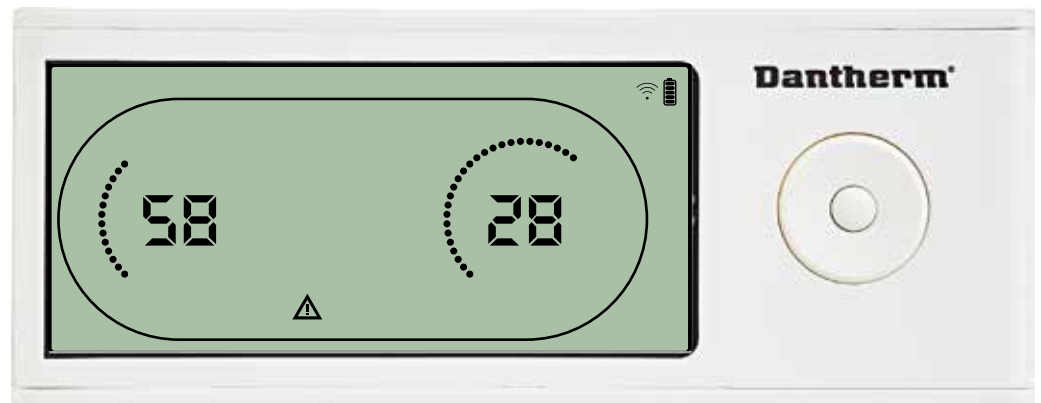
Operation

-  Press and hold for 10 seconds to reset the serial number stored in DRC 1.
-  Press and Hold for 3 seconds to enter user menu setup.
-  Press and hold for 5 seconds to enter installer menu.



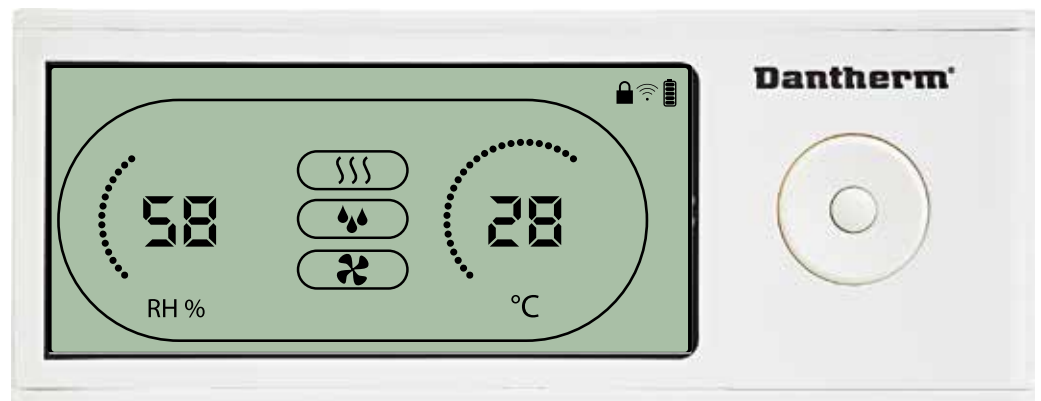
When the dehumidifier is running the dehumidifying symbol (💧) is shown in the DRC 1 display.
When heating is toggled ON, the heating icon (SSS) will be shown in the DRC 1 display.
When the extractor fan is turned on, the extractor fan icon (🌀) will be shown in the DRC 1 display.

Fail Condition



If the dehumidifier enters fail mode, the warning sign (⚠️) will be shown in the DRC 1 display.






Locked remote

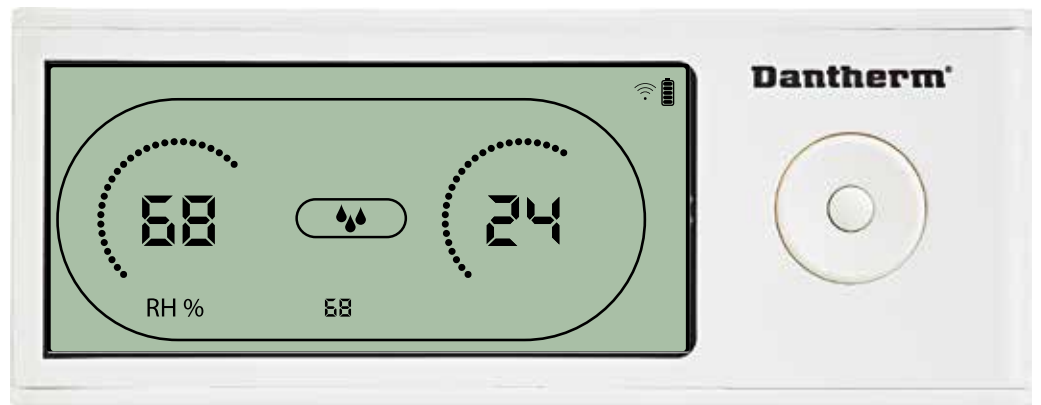


The DRC 1 is equipped with switch in the battery compartment.
When switched to "lock" position, the buttons on the DRC 1 become inactive.
The display will still update with information, but does not allow user inputs.

User menu Set points






Dehumidifying set point

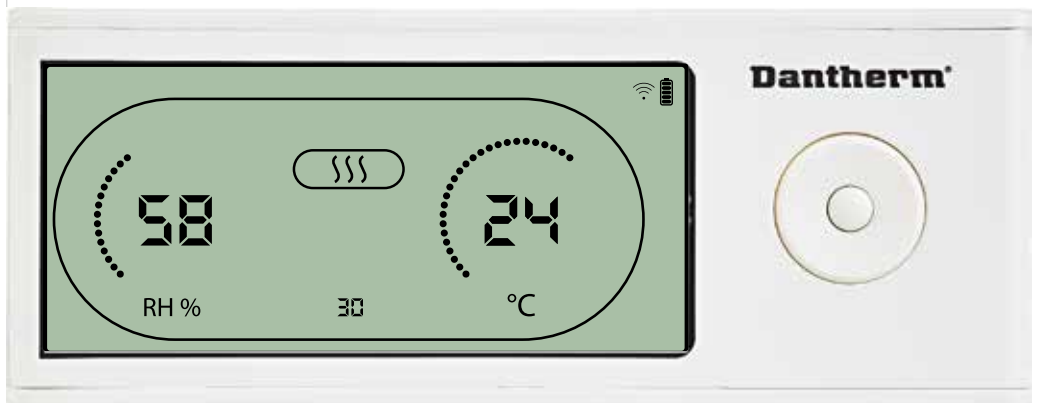
-  Press for 3 sec to enter user menu setup. Press to confirm.
-  Decrease with 1 unit
-  Increase with 1 unit
-  Navigation between icons
-  Navigation between icons



The humidity value and the dehumidifying icon will flash. The display shows the desired humidity set point. While flashing, the value can be increased or decreased by pressing Up/Increase or Down/Decrease button on DRC 1. Press enter to confirm humidity set point and go to next menu page.

Temperature set point

-  Press for 3 sec to enter user menu setup. Press to confirm.
-  Decrease with 1 unit
-  Increase with 1 unit
-  Navigation between icons
-  Navigation between icons



The temperature value and the heating icon will flash. The value displayed shows the desired temperature set point. While flashing, the value can be increased or decreased by pressing Up/Increase or Down/Decrease button on the DRC 1. Maximum: 34 °C, Minimum: 5 °C. Press enter to confirm new set point and go to next menu page.

Installer menu



Press and hold for 5 seconds to enter installer menu.

Fan set point.



Decrease with 1 unit



Increase with 1 unit



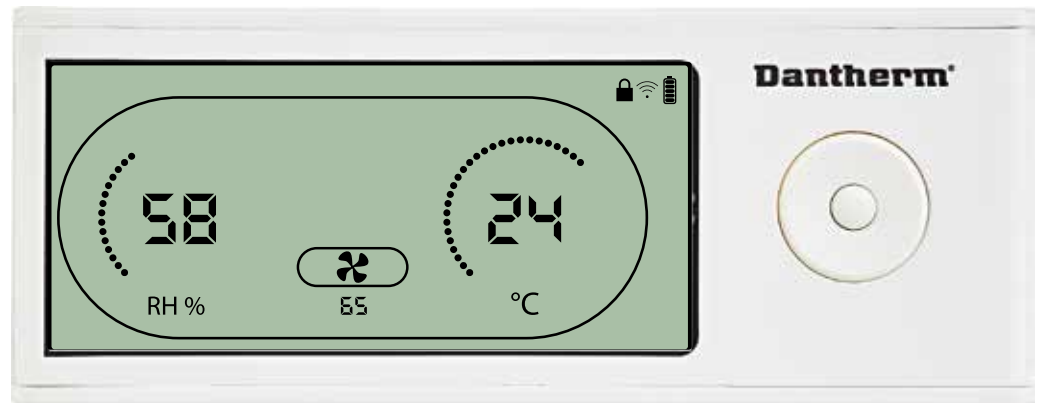
Navigation between icons



Navigation between icons



Press to confirm.



When Extractor fan icon flashes at 0.5 Hz and extractor fan set point value is shown on info line. Left or right button to decrease or increase value. Enter to confirm set point and go to next icon. If you do not confirm change, the new setpoint will not be stored

Service interval



Decrease with 1 unit



Increase with 1 unit



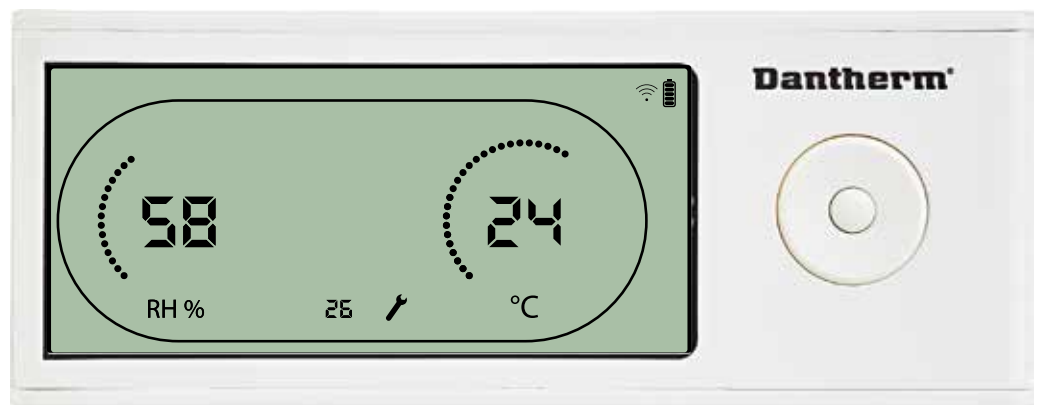
Navigation between icons



Navigation between icons




Press to confirm.




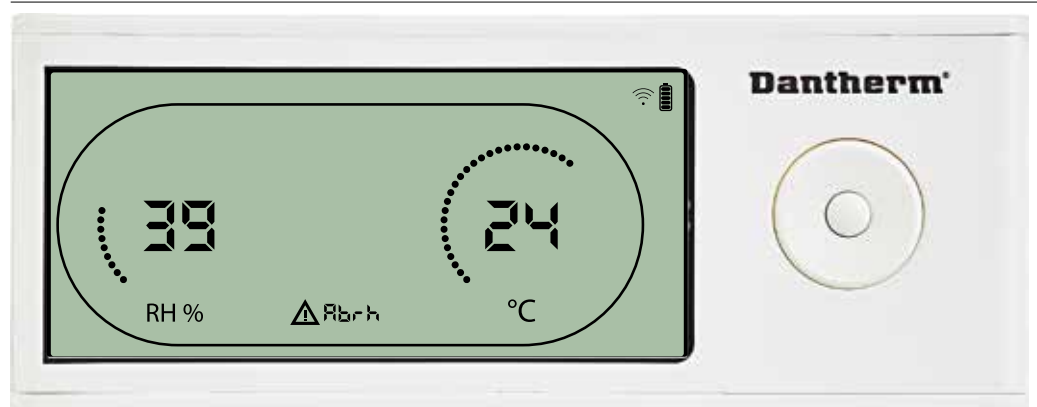
While flashing, the service interval can be increased by pressing RIGHT Button or decreased by pressing the LEFT Button. Maximum 99 Weeks. Minimum is 1 week.

Alarms

Ambient condition Stand-by mode 2


 Press for 3 seconds to enter user menu setup.


 Press for 5 seconds to enter installer menu setup

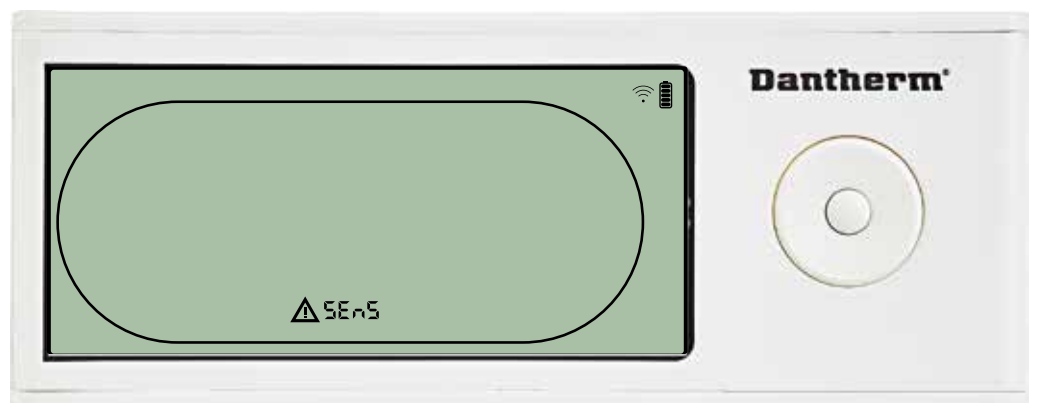


DRC 1 enters stand-by mode 2 when ambient conditions are out of operation range. The display will show temperature and Rh readings when the unit is in stand-by mode 1. This state will only get corrected when the ambient temperature (abt) or ambient humidity (abrh) is in range, and can not be dismissed. You can enter menu setup to modify set point values – only in this case. While in Menu Setup, the alarm icon turn off and set point value will be shown instead of "Abt/Abrh" code on INFO line

Sensor fail

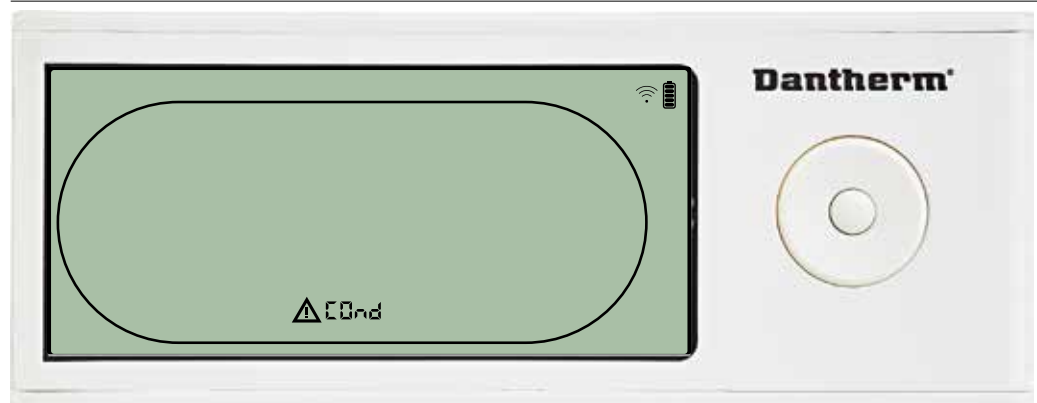
 Press to see which sensor is defect.

 Press to see which sensor is defect.



Dehumidifier is stopped because sensor failure is detected. Sensor Fail can not be dismissed from DRC 1. Use UP or DOWN button to see which sensor/sensors are defect. If all sensors are defect these codes show in the following sequence: "COnd" $\uparrow\downarrow$ "EVAP" $\uparrow\downarrow$ "RH/T" It is not possible to enter menu setup to modify set point values



Condensor sensor fail

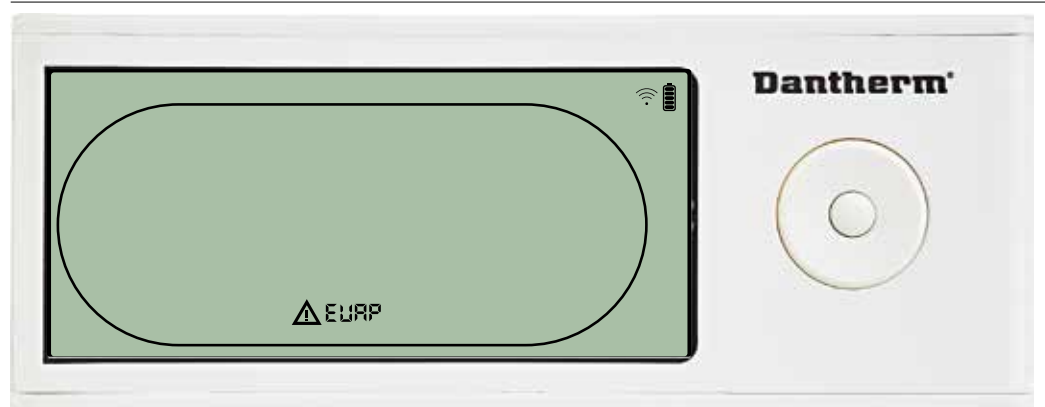


If condenser sensor is defected, then "COnd" code will be shown when pressing UP or DOWN when screen shows Sensor fail code "SEnS". If no buttons pressed within 10 seconds then screen will again show "SEnS" again. It is not possible to enter menu setup to modify set point.

Alarms continued

Evaporator sensor fail

-  Press to see which sensor is defect.
-  Press to see which sensor is defect.





If evaporator sensor is defect, then "EVAP" code will be shown when pressing UP or DOWN during screen shows Sensor fail code "SEnS".

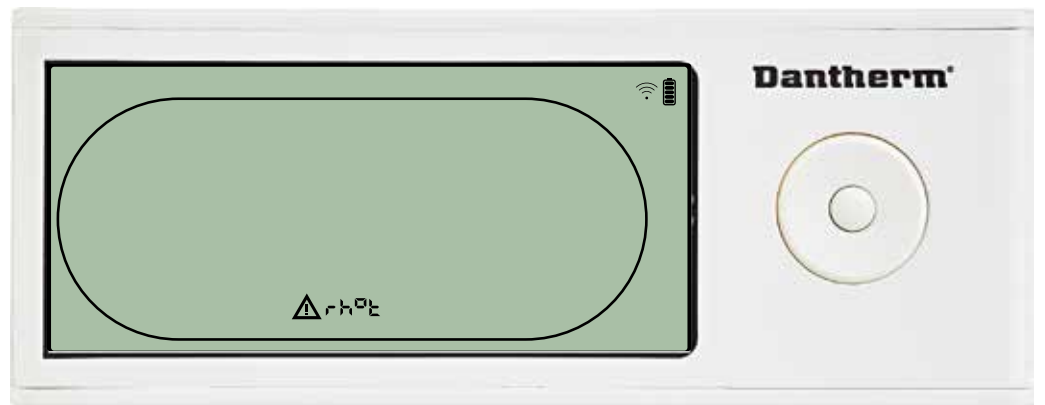
If Evaporator sensor ok, then no "EVAP" code shall be shown.

If no buttons pressed within 10 seconds then screen will show "SEnS" fail again.

It is not possible to enter menu setup to modify set point.

RH/T sensor fail

-  Press to see which sensor is defect.
-  Press to see which sensor is defect.



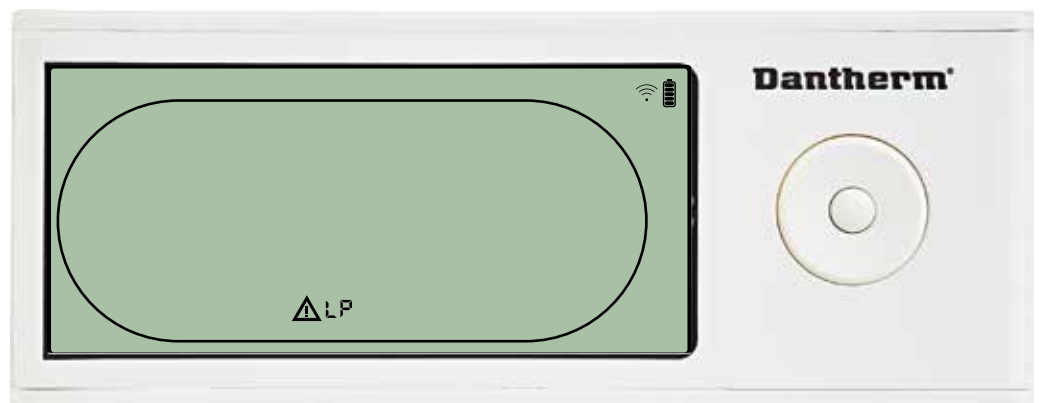
If RH/T sensor is defect, then "rh°t" code will be shown when pressing UP or DOWN during screen shows Sensor fail code "SEnS".

If RH/T sensor ok, then no "rh°t" code shall be shown.

If no buttons pressed within 10 seconds then screen will show "SEnS" fail again.

It is not possible to enter menu setup to modify set point.

Low pressure fail



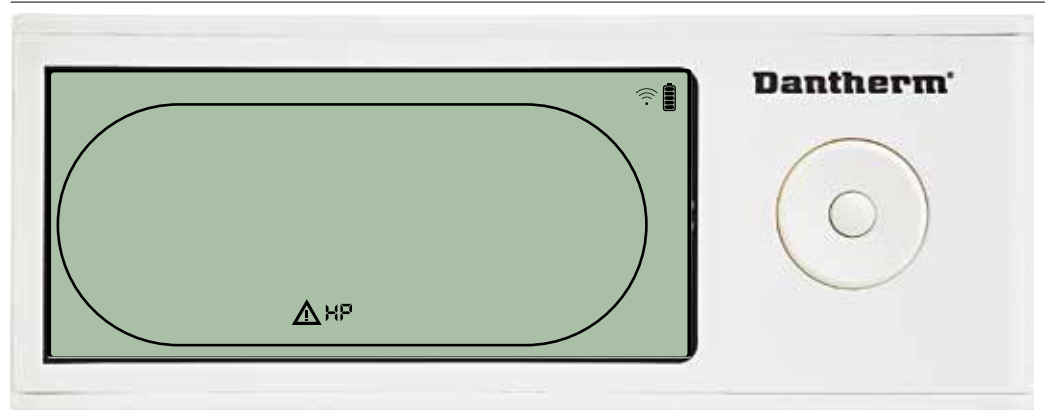
Dehumidifier stopped because of Low Pressure detection.

Fail can not be dismissed from DRC 1.

It is not possible to enter menu setup to modify set point.


Alarms continued

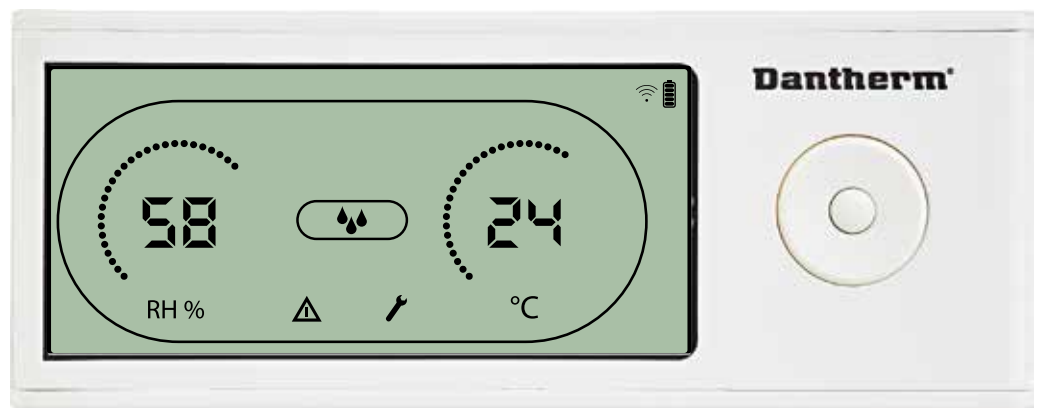
High pressure fail



Dehumidifier has stopped because of High Pressure detection.
Fail can not be dismissed from Remote panel.
It is not allowed to enter menu setup for modification of set points values.

Service alarm

 Press for 5 seconds
to enter installer
menu setup



The Service icon will be shown when it is time for servicing the dehumidifier.
The service alarm does not affect the operation of dehumidifier.

To dismiss/reset service alarm:

- Press right for 5 seconds to enter the installer menu.
- Press DOWN/UP to navigate to service icon.
- Press RIGHT/LEFT to change setpoint from 0 to desired service interval.
- Confirm service interval by pressing enter.



Alarms priority

HP	↑	High priority
LP		
SEnS		
Abt		
Abrh		Low priority

When more than one alarm is active the list above shows the priority of the alarms.

Technical data

Model		CDP 40	CDP 40T	CDP 50	CDP 50T	CDP 70	CDP 70T
- Operating range, humidity	%RH	40-100	40-100	40-100	40-100	40-100	40-100
- Operating range, temperature	°C	10-36	10-36	10-36	10-36	10-36	10-36
- Air volume at max. external pressure	m ³ /h	400	400	680	680	900	900
- Capacity at 28°C - RH 60	l/day	34	34	52	52	69	69
- SEC 28°C - RH 60	kWh/l	0,47	0,47	0,48	0,48	0,43	0,43
- Power supply	V/Hz	1 × 230/50	1 × 230/50	1 × 230/50	1 × 230/50	1 × 230/50	1 × 230/50
- Max. power consumption	kW	0.9	0.9	1.5	1.5	1.8	1.8
- Max Ampere consumption	A	3,8	3,8	6,6	6,6	8	8
- Refrigerant	-	R407C					
- Quantity of refrigerant,	kg	0.7	0.7	0.9	0.9	1.2	1.2
- GWP (Global Warming Potential)	-	1774					
- Noise level* (1 m from unit)	dB(A)	46	43	47	44	50	47
- Weight,	kg	56,5	57,5	65,0	66	75,5	77,5
Filter Type		PPI 15					

Ensure the chemistry of the water is correct

Water quality

The correct combination of chemicals in an indoor swimming pool is crucial, both for the health of users and for the inventory inside the pool room and the swimming pool's technical room. Insufficiently treated water results in poor hygiene, while water that has been excessively treated results in gases in the air that contain chlorine, which can irritate the eyes and cause breathing difficulties.

At the same time, the incorrect composition of chemical ingredients in the water can destroy all of the inventory in a very short space of time, including the dehumidifier and other equipment that have been installed to process the air.

Shown below are the threshold values, which apply to products for indoor swimming pools in accordance with EN/ISO 12944-2, protection class C4. These threshold values must be complied with for the warranty to be valid.

When adding chemicals

The following guideline values are applicable to swimming pools with the addition of chemicals.

Chemicals	ppm
Free chlorine content	1.0-2.0
Combined chlorine content	Max. 1/3 of free chlorine content
pH	7.2-7.6
Total alkalinity	80-150
Calcium hardness	250-450
Total dissolved solids	< 2000
Sulphates	< 360

With own production of chlorine

The following guideline values are applicable to swimming pools with self-production of chlorine:

Chemicals	ppm
Salt (NaCl)	< 30,000
Total dissolved solids	< 5500
pH	7.2-7.6
Total alkalinity	80-150
Calcium hardness	250-450
Sulphates	< 360

Langelier Saturation index

It is advisable to use the Langelier Saturation index to ensure that the combination of the different water parameters is acceptable.

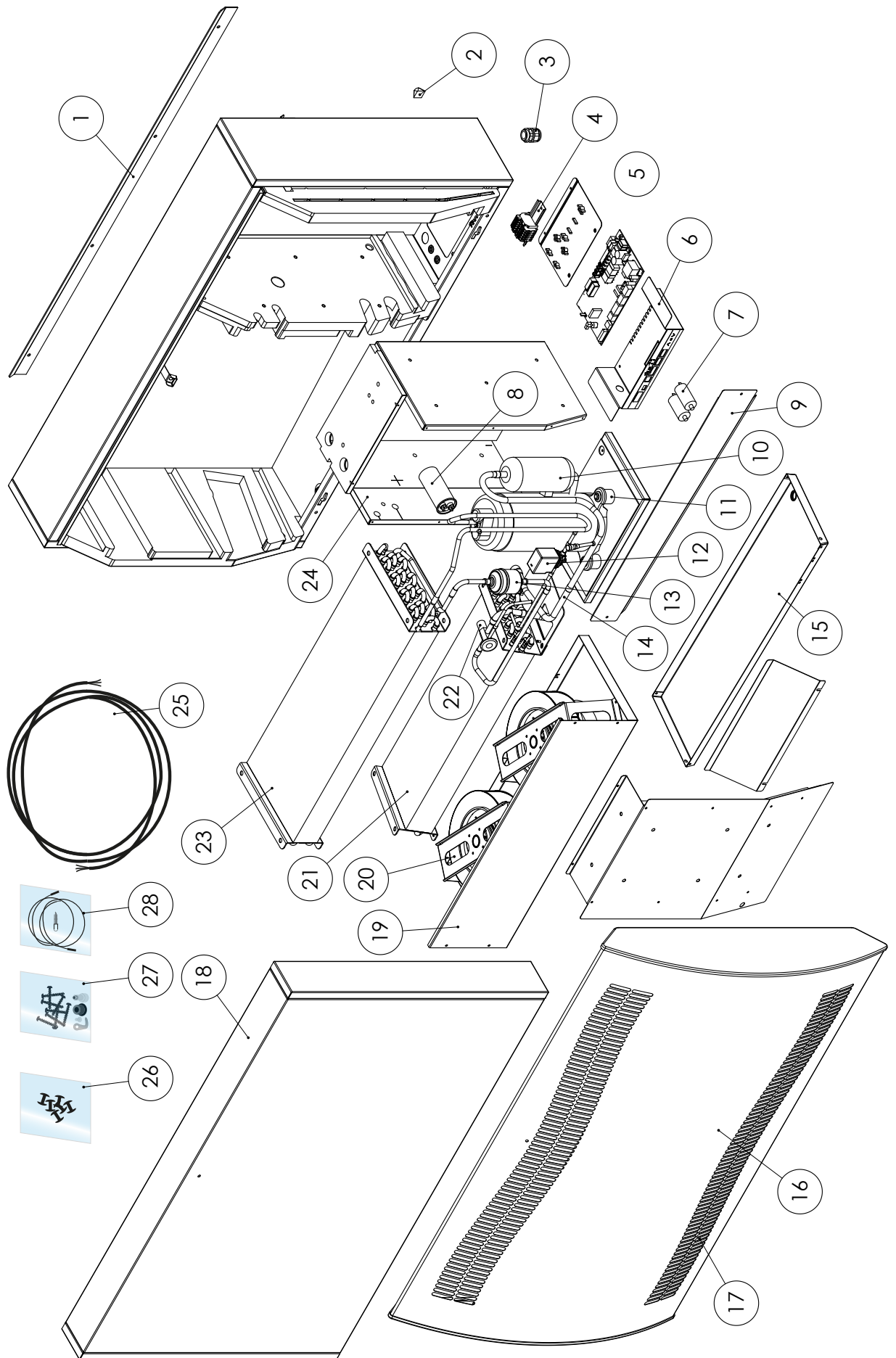
Contact Dantherm Air Handling A/S if necessary.

Spare parts list

See illustration next page

Illustration	Part no.	Description
1	094696	Wall bracket, CDP/CDP-T 40
	094827	Wall bracket, CDP/CDP-T 50
	094828	Wall bracket, CDP/CDP-T 70
2	094811	Wall mounting spacers, CDP/CDP-T 40-50-70
3	094812	Cable gland M25, CDP/CDP-T 40-50-70
4	094666	Terminal bloks on DIN rail, CDP/CDP-T 40-50-70
5	094685	Control board CDP/CDP-T 40-50-70
6	094687	Interface panel with holder CDP/CDP-T 40-50-70
7	094975	Fan capacitor CDP/CDP-T 40-50-70
8	094822	Motor capacitor, Compressor CDP/CDP-T 70
	094821	Motor capacitor, Compressor CDP/CDP-T 50
	094688	Motor capacitor, Compressor CDP/CDP-T 40
9	094682	Splash stop, CDP 40T
	094831	Splash stop, CDP 50T
	094832	Splash stop, CDP 70T
10	094693	Compressor, CDP/CDP-T 40
	094825	Compressor, CDP/CDP-T 50
	094826	Compressor, CDP/CDP-T 70
11	094691	Compressor accessories, CDP/CDP-T 40
	094823	Compressor accessories, CDP/CDP-T 50
	094824	Compressor accessories, CDP/CDP-T 70
12	094973	Magnet valve CDP/CDP-T 40-50-70
13	094665	Dry filter CDP/CDP-T 40-50-70
14	094694	Copper tubes kit, CDP/CDP-T 40
	094833	Copper tubes kit, CDP/CDP-T 50
	094834	Copper tubes kit, CDP/CDP-T 70
15	094683	Drip tray, CDP/CDP-T 40
	094817	Drip tray, CDP/CDP-T 50
	094818	Drip tray, CDP/CDP-T 70
16	094664	Front CDP 40 cpl.
	094807	Front CDP 50 cpl.
	094808	Front CDP 70 cpl.
17	094686	PPI filter (one size)
	094700	Front, CDP 40T cpl.
	094829	Front, CDP 50T cpl.
18	094830	Front, CDP 70T cpl.
	094671	Fan assembly CDP/CDP-T 40
	094815	Fan assembly CDP/CDP-T 50
19	094816	Fan assembly CDP/CDP-T 70
	094669	Fan CDP/CDP-T 40-50-70
20	094670	Evaporator coil cpl., CDP/CDP-T 40
	094813	Evaporator coil cpl., CDP/CDP-T 50
	094814	Evaporator coil cpl, CDP/CDP-T 70
21	094684	Thermo valve, CDP/CDP-T 40
	094819	Thermo valve, CDP/CDP-T 50
	094820	Thermo valve, CDP/CDP-T 70
22	094667	Condenser coil, CDP/CDP-T 40
	094809	Condenser coil, CDP/CDP-T 50
	094810	Condenser coil, CDP/CDP-T 70
23	094697	Insulation for compressor CDP/CDP-T 40-50-70
24	094690	Harness cpl. CDP/CDP-T 40-50-70
25	094681	Plastic rivets, fastening, CDP/CDP-T 40-50-70
26	094695	Screw and lock, CDP/CDP-T 40-50-70
27	094689	Temperature, RH sensor and light diode, CDP/CDP-T 40-50-70

Spare parts



RS-485 Interface

RS-485 Interface implements Modbus RTU protocol as slave device. Device doesn't have address . Settings: 115200, N, 8, 1. and accepts requests to any address.

Code Functions	
0x06	preset single register
0x10	preset multiple registers
0x03	read holding registers

Register	Byte	Database parameter	Min	Max	De- fault	Description
1	0	Test mode	0	65535	0	Turn on test mode on device (disables internal sensor and makes it possible to set it's values by modbus protocol): Value 0x5CAF - test mode enabled. Will set t_stop counter to compressor delay value after entering/exiting this mode. To avoid waiting for delay between compressor stop-start. Value 0x78AD - Line2Box test mode enabled. Value 0x3FC7 - PTS mode (switches modbus registers to table "7.2.2. PTS Modbus Registers", disables business logic) Any other value - test mode disabled.
	1					
2	2	Comp_state	0	1	0	Compressor state: 0 - Compressor stopped 1 - Compressor works
	3	Fan_state	0	1	0	FAN state: 0 - FAN stopped 1 - FAN works
3	4	Sole_state	0	1	0	Solenoid valve: 0 - closed 1 - open
	5	ExFan_state	0	1	0	Exhaust FAN state: 0 - FAN stopped 1 - FAN works
4	6	Heat1_state	0	1	0	Heater 1 state: 0 - Heater turned off 1 - Heater turned on
	7	Heat2_state	0	1	0	Heater 2 state: 0 - Heater turned off 1 - Heater turned on

RS-485 Interface
Continued

Register	Byte	Database parameter	Min	Max	De-fault	Description
5	8	Alarm1_state	0	1	0	Alarm 1 output: 0 - Alarm out turned off 1 - Alarm out turned on
	9	Alarm2_state	0	1	0	Alarm 2 output: 0 - Alarm out turned off 1 - Alarm out turned on
6	10	Evap_temp1 (decimal)	-40	100	0	Temperature from evaporator 1: decimal: may be used as integer value of temperature
	11	Evap_temp1 (fraction)	-40	100	0	fraction: may be recalculated to value after decimal point. To get whole value use the equation in float point values "val = decimal + (fraction / 256)"
7	12	Evap_temp2 (decimal)	-40	100	0	Temperature from evaporator 2: Usage the same as above.
	13	Evap_temp2 (fraction)	-40	100	0	
8	14	Cond_temp1 (decimal)	-40	100	0	Temperature from condenser: Usage the same as above.
	15	Cond_temp1 (fraction)	-40	100	0	
9	16	Aux_temp (decimal)	-40	100	0	Temperature from auxiliary sensor: Usage the same as above.
	17	Aux_temp (fraction)	-40	100	0	
10	18	Amb_temp (decimal)	-40	100	0	Temperature of ambient air: Usage the same as above.
	19	Amb_temp (fraction)	-40	100	0	
11	20	Amb_hum (High byte)	0	100	0	Humidity of ambient air: High byte has no meaning and always contains zero. Only low byte can be used.
	21					
12	22	RH_set	40	95	40	Setpoint value of desired humidity.
	23	RH_Fan	40	95	40	Setpoint value of humidity for exhaust fan start.
13	24	Temp_set (decimal)	0	36	0	Setpoint value of desired temperature: Usage the same as for Evap_temp1.
	25	Temp_set (fraction)				

RS-485 Interface
Continued

Register	Byte	Database parameter	Min	Max	De-fault	Description
14	26	t_start (day)	0	99	0	Time since last compressor start sequence. Note: board calculates time only when it powered on.
	27	t_start (hour)	0	23	0	
15	28	t_start (min)	0	59	0	
	29	t_start (sec)	0	59	0	
16	30	Fail_start	0	1	0	State of Fail_start mode
	31	SB_mode	0	1	0	Stand-by mode state
17	32	DEH_mode	0	1	0	Dehumidifying state
	33	Ice_mode	0	1	0	Deicing state
18	34	LP_mode	0	1	0	LP fail mode state
	35	Sens_mode	0	1	0	0 Sensor fail mode state
19	36	HP_mode	0	1	0	HP fail mode state
	37	Amb_mode	0	1	0	Ambient fail mode state
20	38	AmbT_mode	0	1	0	Ambient temperature fail mode state
	39	AmbRH_mode	0	1	0	Ambient humidity fail mode state
21	40	SW Build number (high)	0	65535	x	SW build number
	41	SW Build number(low)	0			
22	42	SW Version (Major)	0	255	x	SW version major
	43	SW Version (Minor)	0	255	x	SW version minor
23	44	HP Alarm Temp. (Decimal)	0	99	60	HP fail occurs when Cond_temp1 is more then this value. Usage the same as for Evap_temp1.
	45	HP Alarm Temp. (Fraction)				
24	46	Amb_hum_min	0	100	40	Minimal value of ambient humidity (less value of humidity causes ambient warning)
	47	Temp_ena	0	1	0	
25	48	Time deice (in seconds)	0	65535	60	Minimal deice mode work time.
	49					
26	50	Tdeice1 (decimal)	-40.0	100	1	
	51	Tdeice1 (fraction)	-40.0	100	5	

RS-485 Interface
Continued

Register	Byte	Database parameter	Min	Max	De-fault	Description
26	50	Tdeice1 (decimal)	-40.0	100	-3	Deicing mode 1 will be entered only if Evap_temp1 is less then this value. Usage the same as for Evap_temp1. To write negative value using the CASModbus user should multiply value on 256 and write thisvalue, CASModbus will convert this to needed value. Example: -20°. -20 *256 = -5120 (This value to CAS-Modbus)
	51	Tdeice1 (fraction)				
27	52	Tdeice2 (decimal)	-40.0	100	1	Deicing mode 1 will be entered only if Evap_temp1 is less then this value. Usage the same as for Evap_temp1.
	53	Tdeice2 (fraction)				
28	54	Tdeice3 (decimal)	-40.0	100	5	Deicing mode 2 will be entered only if Evap_temp1 is less then this value. Usage the same as for Evap_temp1.
	55	Tdeice3 (fraction)				
29	56	Tdeice4 (decimal)	-40.0	100	7	Deicing mode 3 will be entered only if Evap_temp1 is less then this value. Usage the same as for Evap_temp1.
	57	Tdeice4 (fraction)				
30	58	Temp_ AmbDeice1 (decimal)	-40.0	100	26	Maximal ambient temperature for entering into deice 1 mode Usage the same as for Evap_temp1.
	59	Temp_ AmbDeice1 (fraction)				
31	60	Temp_ AmbDeice2 (decimal)	-40.0	100	23	Maximal ambient temperature for entering into deice 2 mode Usage the same as for Evap_temp1.
	61	Temp_ AmbDeice2 (fraction)				
32	62	Temp_ AmbDeice3 (decimal)	-40.0	100	7	Maximal ambient temperature for entering into deice 3 mode Usage the same as for Evap_temp1.
	63	Temp_ AmbDeice3 (fraction)				
33	64	Temp_ OffDeice1 (decimal)	-40.0	100	7	Deicing mode 1 will be exited only if Evap_temp1 is above then this value. Usage the same as for Evap_temp1.
	65	Temp_ OffDeice1 (fraction)				

RS-485 Interface

Continued

Register	Byte	Database parameter	Min	Max	De- fault	Description
34	66	Temp_OffDeice2 (decimal)	-40,0	100	7	Deicing mode 2 will be exited only if Evap_temp1 is above then this value. Usage the same as for Evap_temp1.
	67	Temp_OffDeice2 (fraction)				
35	68	Temp_OffDeice3 (decimal)	-40,0	100	7	Deicing mode 3 will be exited only if Evap_temp1 is above then this value. Usage the same as for Evap_temp1.
	69	Temp_OffDeice3 (fraction)				
36	70	Time_Wait-Deice1	0	65535	1200	When temperature conditions are met, unit will wait this amount of seconds before entering into deice mode 1.
	71					
37	72	Time_Wait-Deice2	0	65535	1200	When temperature conditions are met, unit will wait this amount of seconds before entering into deice mode 2.
	73					
38	74	Time_Wait-Deice3	0	65535	600	When temperature conditions are met, unit will wait this amount of seconds before entering into deice mode 3.
	75					
39	76	State_Deice	0	3	0	Shows which conditions are met. Deice mode (0,1 - first; 2 - second, 3- third).
	77					
40	78	Led_Intensity	0	100	5	Led Intensity from 0% to 100%. 0 to register = 0% 100 to register = 100%
	79					
41	80	Fan_function	0	1	0	Enable FAN function in standby mode
	81					
42	82	Time_wait_fan	60	7200	3600	Time to wait until FAN will be started in standby mode, if enabled (seconds)
	83					
43	84	Time_run_fan	15	600	60	Time to run FAN in standby mode if enabled (seconds)
	85					
44	86	RH_Fen	0	1	0	Enable/disable Exhaust Fan function
	87	Service_ena	0	1	0	Enable/disable Service interval function
45	88	Service_int	0	99	0	Service interval value in weeks
	89					
101	200	Control command	0	255	0	1 - Go to Bootloader
	201	Reserved	-	-	-	Not in use.
102	202	Backup and Factory Reset command	0	65535	0	23234 (5AC2) - Backup on internal Flash 42301 (A53D) - Factory reset System will backup values only if they are differs from already saved values. After backup command, system will display "FLSH" and counter of internal flash write cycles in format "XXXX"
	203					

RS-485 Interface
Continued

Register	Byte	Database parameter	Min	Max	De- fault	Description
201	400	Serial Number byte 0	0	255	x	SN byte 0
	401	Serial Number byte 1				SN byte 1
202	402	Serial Number byte 2	0	255	x	SN byte 2
	403	Serial Number byte 3				SN byte 3
203	404	Serial Number byte 4	0	255	x	SN byte 4
	405	Serial Number byte 5				SN byte 5
204	406	Serial Number byte 6	0	255	x	SN byte 6
	407	Serial Number byte 7				SN byte 7
205	408	Serial Number byte 8	0	255	x	SN byte 8
	409	Serial Number byte 9				SN byte 9
206	410	Serial Number byte 10	0	255	x	SN byte 10
	411	Serial Number byte 11				SN byte 11
207	412	Serial Number byte 12	0	255	x	SN byte 12
	413	Serial Number byte 13				SN byte 13 (NRF default address 0)
208	414	Serial Number byte 14	0	255	x	SN byte 14 (NRF default address 1)
	415	Serial Number byte 15				SN byte 15 (NRF default address 2) (write to this byte starts flashing serial numbers and sets NRF address to default) after setting up new NRF address board should be restarted. Also NRFHWADDR could be updated via USB flash. "CDP_conf.txt" file should be on flash (described in SDD) Serial number converts to NRFHWADDR example: 207 - 0x200e - 208 - 0xebfd Serial last part: 0eebfd Should be write in config file "CDP_conf.txt" (from hex to dec convert): - 977917
209	416	Serial Number 2 byte 0	0	255	x	SN2 byte 0
	417	Serial Number 2 byte 1				SN2 byte 1
210	418	Serial Number 2 byte 2				SN2 byte 2
	419	Serial Number 2 byte 2				SN2 byte 3 (write to this byte starts flashing serial numbers and sets NRF address to default)

Datalog

Parameters

Data log uses 2KB of backup SRAM (under battery) for data records.

Interval for storing records is 3 hours. State change to fail mode also invokes record store.

If whole space filled by record then new one will replace the oldest.

After connecting USB flash drive all collected records will be stored to file data_log.csv in CSV format. Records won't be deleted from board so it is possible to get data onto several USB drives.

Data log record content:

Database parameter	Size (bits)	Output text	CSV column
Work_time	32	<dd:mm:hh:ss>	Timestamp
Amb_temp	8	<value>	T_amb
Amb_int_temp	8	<value>	T_amb_int
Amb_ext_temp	8	<value>	T_amb_ext
Aux_temp	8	<value>	T_aux
Cond_temp1	8	<value>	T_cond
Evap_temp1	8	<value>	T_evap1
Evap_temp2	8	<value>	T_evap2
Temp_set	8	<value>	T_set
Amb_hum	8	<value>	RH_amb
Amb_int_hum	8	<value>	RH_amb_int
Amb_ext_hum	8	<value>	RH_amb_ext
RH_set	8	<value>	RH_set
RH_Fan	8	<value>	ExtFanSet
Evap_temp_err	1	"EVAP"	Error
Cond_temp_err	1	"COND"	Error
Aux_temp_err	1	"AUX"	Error
Amb_int_err	1	"AMB_INT"	Error
Amb_ext_err	1	"AMB_EXT"	Error
SB_mode	1	"SB"	Mode
Startup_mode	1	"STARTUP"	Mode
DEH_mode	1	"DEH"	Mode
Ice_mode	1	"ICE"	Mode
LP_mode	1	"LP"	Mode
HP_mode	1	"HP"	Mode
Sens_mode	1	"SENS"	Mode
AmbT_mode	1	"AMBT"	Mode
AmbRH_mode	1	"AMBRH"	Mode
Service_ena	1	"ENABLED"	Mode

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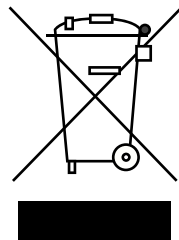
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