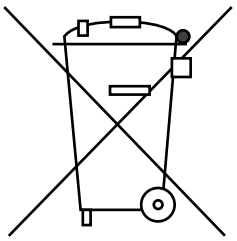
Dantherm®
CONTROL YOUR CLIMATE

HCV700

Service manual
Rev. 1.2
en

Dantherm®
CONTROL YOUR CLIMATE



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Introduction

Overview

Introduction

This is the service manual for the Dantherm Air Handling A/S home ventilation unit type HCV700.

Table of contents

This manual covers the following topics:

092889 • Version 1.2 • 15.09.2017

General information

Introduction

This section gives you the general information about this service manual and the unit.

Manual, part no.

Part number of this service manual is 092889

Target group

The target group for this service manual is daily users and Technicians

Reservations

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

EU Declaration of Conformity

CE

Dantherm A/S

Hereby declares under our sole responsibility that the product(s):

Product name: HCV700
Product no.: 352443

Covered by this declaration is in conformity with the following directives, standards or other normative documents, provided that the product is used in accordance with our instructions:

2014/35/EU	LVD Directive
2014/30/EU	EMC Directive
2014/53/EU	RED Directive
1907/2006	REACH Regulation
2012/19/EU	WEEE Directive
EN 60 335-1:2012	Household & similar electrical appliances, Safety - Part 1
EN 61 000-3-2:2014	Electromagnetic compatibility (EMC) – Part 3-2: Limits (Harmonics)
EN 61 000-3-3:2013	Electromagnetic compatibility (EMC) – Part 3-3: Limits (Flicker)
EN 61 000-6-2:2005	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards (Immunity)
EN 61 000-6-3:2007	Electromagnetic compatibility (EMC) – Part 6-3: Generic stand-ards (Emission)
EN 61 000-6-3/A1:2011	Electromagnetic compatibility (EMC) – Part 6-3: Generic standards (Emission) - Annex 1
EN 62 233:2008	Measurement methods for electromagnetic fields of household appliances
EN 55 014-1:2007	Electromagnetic compatibility - Requirements of household appliances etc. Part 1: Emission
EN 55 014-2:1997	Electromagnetic compatibility – Requirements of household appliances etc. Part 2: Immunity – Prod uct family standard
EN 30 1489-1 EMC / ERM Part 1	
EN 30 1489-3 EMC / ERM Part 3	
EN 30 0200-1:2013-02	EMC / ERM Short Range Device Part 1
EN 30 0200-2:2013-02	EMC / ERM Short Range Device Part 2
EN 30 0200-3:2013-02	EMC / ERM Short Range Device Part 3

Skive, 14.09.2017

Recycling

Dantherm units are designed for long term durability. When total lifetime ends, the unit should be recycled according to national rules and with high environmental protection considerations.

Product description

Overall description

Introduction

This section gives you a description of the overall unit.

HCV700 overview

HCV700 ventilation unit is designed to supply fresh air to residential home, by exchanging heat from outgoing air to incoming air, resulting in virtual no energy loss.
The unit is designed for installation in dry surroundings, with temperatures >12°C. e.g. utility room or similar heated rooms.
The duct connections can be electronically swapped, providing ability to route the connected ductwork, either to the right of to the left, as described on page 22 .

Use of shortages in this manual

This manual uses shortages for ventilation terminologies

Short	Description
T1	Outside air coming into the unit
T2	Supply air going from unit to indoor
T3	Indoor extract air going into the unit for heat recovery
T4	Exhaust used air from unit to outside
S1	Temperature sensor no 1
S2	Temperature sensor no 2
S3	Temperature sensor no 3
S4	Temperature sensor no 4
A	Indicating operation mode **A** where the T2 and T3 is on the **LEFT** hand side of the top of the unit. See more at page 22
B	Indicating operation mode **B** where the T2 and T3 is on the **RIGHT** hand side of the top of the unit. See more at page 22
G4	Standard air filter,
F7	Fine filter (Accessory)
BP	Bypass damper
IP	Unique address for the ethernet port.
DHCP	Automatic settings of an ethernet adresse provided from an external network component (if connecting the unit to Ethernet)
PC	Personel computer running MS Windows
USB	Universal serial bus connection- located on almost any computer
LAN	Local area network
WAN	Wide area network(internet)

Continued overleaf

Overall description, *continued*

Illustration

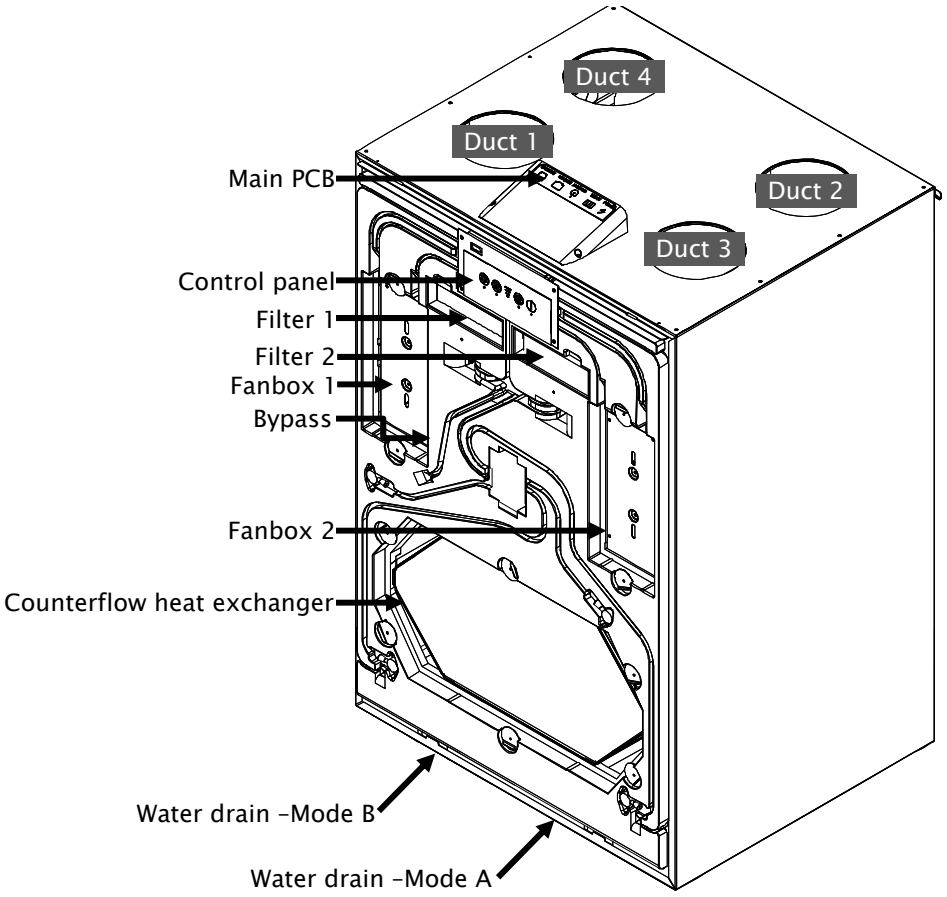


Fig. 1

Component description

Part	Mode A		Mode B	
Duct connection 1	Indoor extract air –	T3	Outside air inlet –	T1
Duct connection 2	Exhaust to outside –	T4	Indoor supply air	T2
Duct connection 3	Outside air inlet –	T1	Indoor extract air	T3
Duct connection 4	Indoor supply air –	T2	Exhaust to outside	T4
Filter 1	Extract filter G4		Supply filter G4 or F7	
Filter 2	Supply filter G4 or F7		Extract filter G4	
Fanbox 1	Extract fan		Supply fan*	
Fanbox 2	Supply fan*		Extract fan	

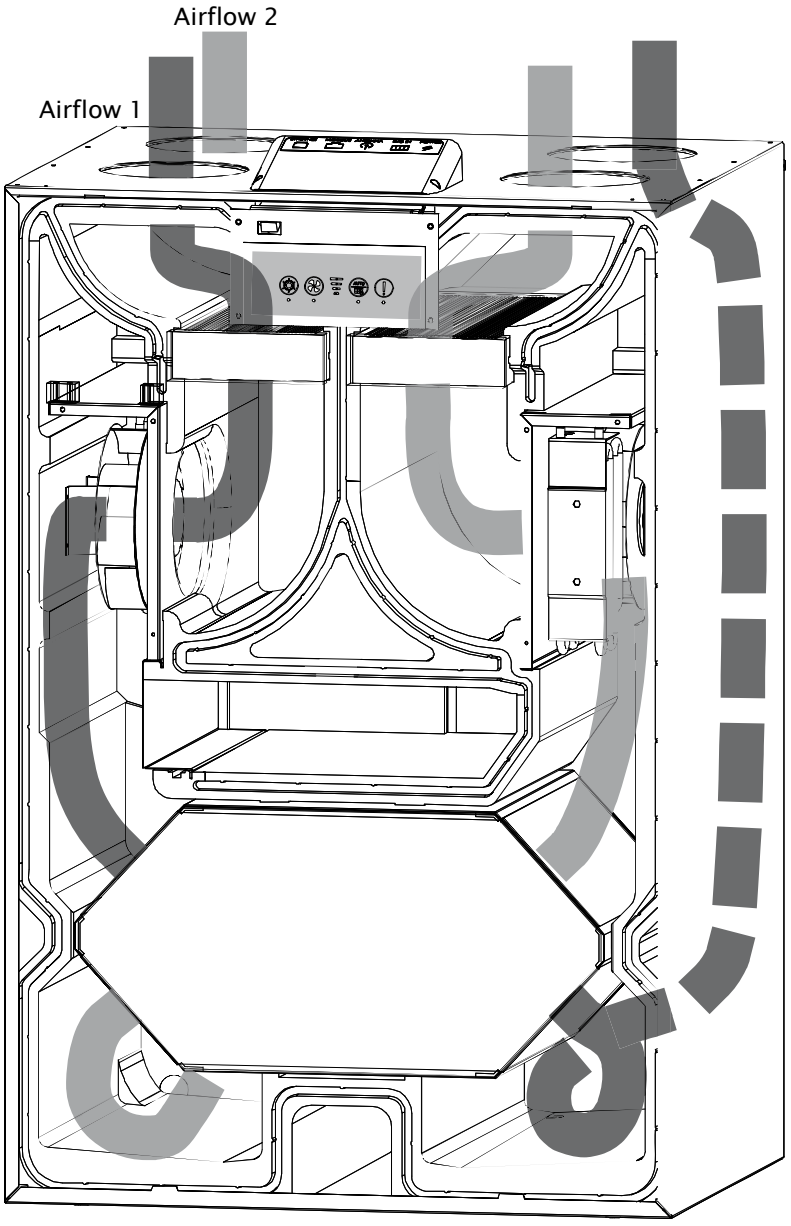
*Supply fanbox can be fitted with electrical preheat element (accessory)

Continued overleaf

Overall description, *continued*

Airflows

This illustration shows the two air flow paths, through the unit. The airflow direction will change if changing operation mode. See more about changing operation mode at page 22



Components description

Introduction

This section describes the individual components of the HCV700.
Please use the Fig. 1 illustration on page 5 for reference

Cabinet

Cabinet outer parts are made of aluzink coated sheet metal, finished with powder paint. The inner part is one moulded polystyrene piece, which cannot be opened.
If adding accessory or exchanging parts, all access is available, just by removing the front cover, and uses the internal polystyrene hatches for each part.
The cabinet is internal sound and heat insulated, with fire retardant polyester foam. The unit´s cabinet is designed for mounting in 12°-40° C ambient temperature

Filters

The unit is standard equipped with class G4 cassette filter. These filters protects the heat exchanger, and improves the inside environment by remove dust and particles, in both airflows. F7 filter can be purchased. If F7 is used, this is always placed in the supply air, removing even smaller particles in the air. Correct placement of F7 filters according mode selection, is shown on the connection label on the top of the unit.

Heat exchanger

The counter flow heat exchanger absorbs the heat energy from extract air and moves this heat energy to the ingoing supply air, resulting in ventilation virtually without any heat loss.

Fans

Supply air fan supply fresh outdoor air through the unit's heat exchanger to the distribution ducts, where it´s distributed to bedrooms, living rooms and possibly sauna or steam bath.
The **extract air** fan draws used and moistened and polluted air from inside, through the unit and heat exchanger, in which the heat is moved to supply air. Finally the air is exhausted to the outside.

Water drainage

The unit is equipped with 2 pcs. spigot connections. One of these is mandatory to be fitted with water hose connections, discharging the condensed water to a sever. A double drainage spigot can be used (accessory), or a single one depending on selected running mode. Correct drainage is shown on the connection label on the top of the unit

Components description, *continued*

Electronic control

Detailed description of the electronic controls on page 11 , and user guide page 25

Control part illustration

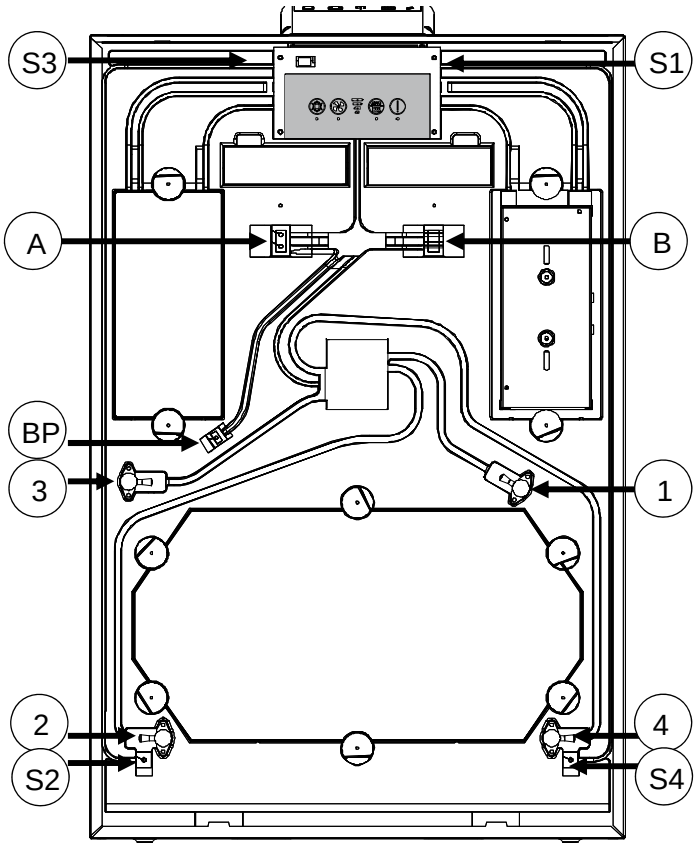


Fig. 2

Component description

pos	Mode A	Mode B
S1	T1 outside air inlet temperature sensor	T3 indoor extracted air temperature sensor
S2	T2 indoor supply air temperature sensor	T4 exhaust to outside temperature sensor
S4	T4 exhaust to outside temperature sensor	T2 indoor supply air temperature sensor
S3	T3 indoor extracted air temperature sensor	T1 Outside air inlet temperature sensor
A	VOC and RH% sensor (accessory)	n/a (sealing pad)
B	n/a (sealing pad)	VOC and RH% sensor (accessory)
1	T1 outside air inlet pressure connection	T3 indoor extracted air pressure connection
2	T2 indoor supply air pressure connection	T4 exhaust to outside air pressure connection
3	T3 indoor extracted air pressure connection	T1 outside air inlet pressure connection
4	T4 exhaust to outside air pressure connection	T2 indoor supply air pressure connection
BP	Cable for by pass	Cable for by pass

Accessory description

Installation of accessories	The unit is delivered from factory, without any accessories mounted. These are to be installed prior to initial unit installation or alternative after commissioning, if further functionality is requested. The installation of one or more accessories is illustrated on a leaflet following each accessory.
Electric preheating (accessory)	Preheats incoming air, by installing an electrical preheating element (accessory) The preheater increases the outside air temperature going into the heat exchanger, and thereby reduces the risk of ice in the heat exchanger in very cold conditions.
Humidity sensor (standard) and VOC sensor (accessory)	This unit can be fitted with Humidity (RH%) and/or VOC (air quality) sensors (accessory). These sensors will continuously monitor the quality of the extract air, and adjust the air flow level accordingly. This is operation is named demand mode. If a HRC remote control is connected, the level will be shown in the display using 3 level icon. Using demand mode will results in the correct level of ventilation with lowest possible electrical power consumption. When installing these sensors, the sealing pad initially blocking the mounting slot, is turned 90°, and reveals then a routing path for the cable.
Bypass damper (standard)	The motorized bypass damper overrides the heat exchanger functionality. This is used in warm summer conditions, where colder outside air, can be used for reducing inside temperature, when inside temperature exceeds an upper temperature limit.

Electronic control

Introduction

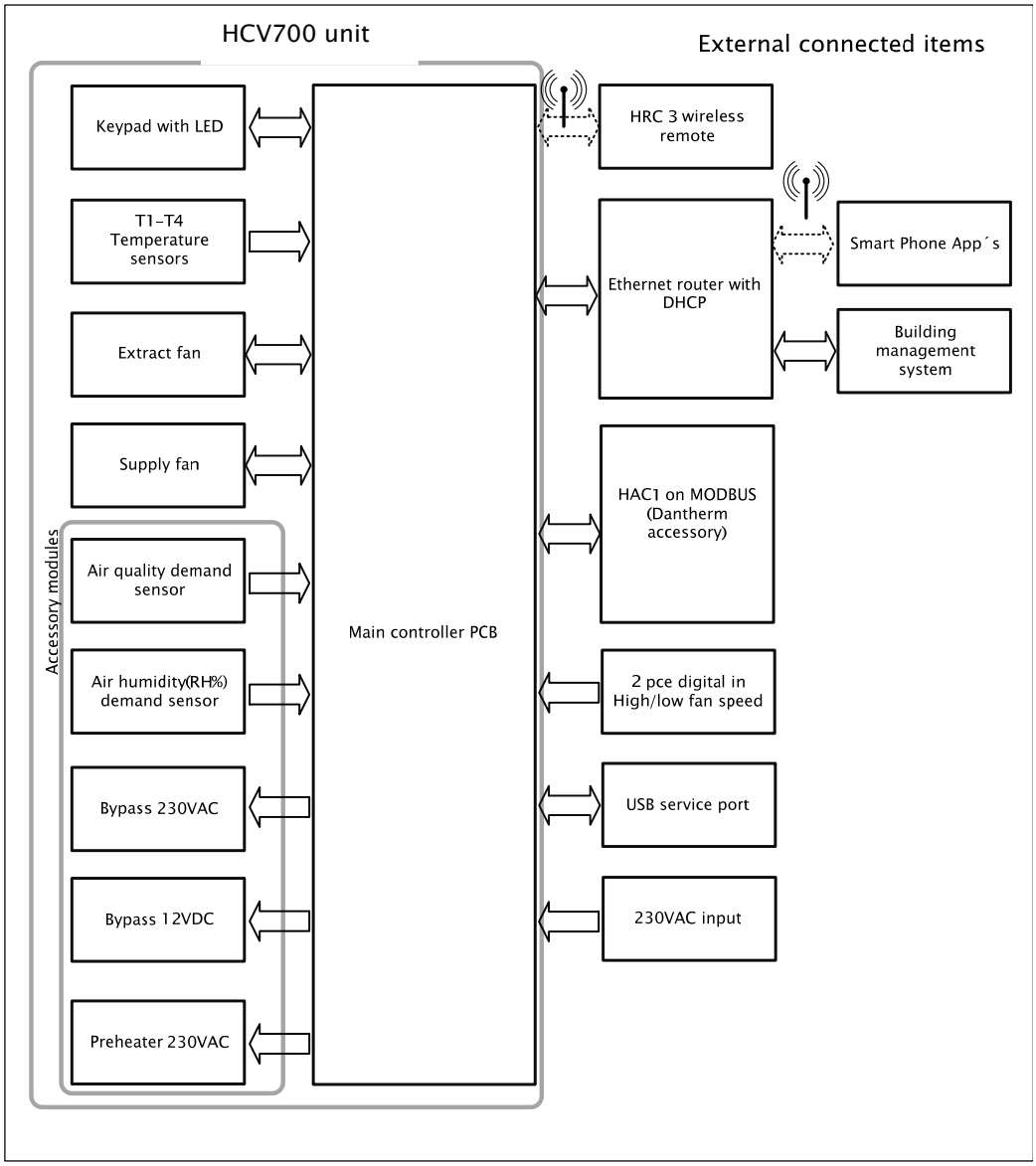
This section gives you a detailed description of the electronic control.

Function

The unit´s main controller is placed at the main PCB, together with I/O connections for internal as well as external connections.
Control board with keypad and LED signals is placed below and connected to main PCB with a non-extendable multicore cable.

System architecture

This illustrates the overall system control architecture:



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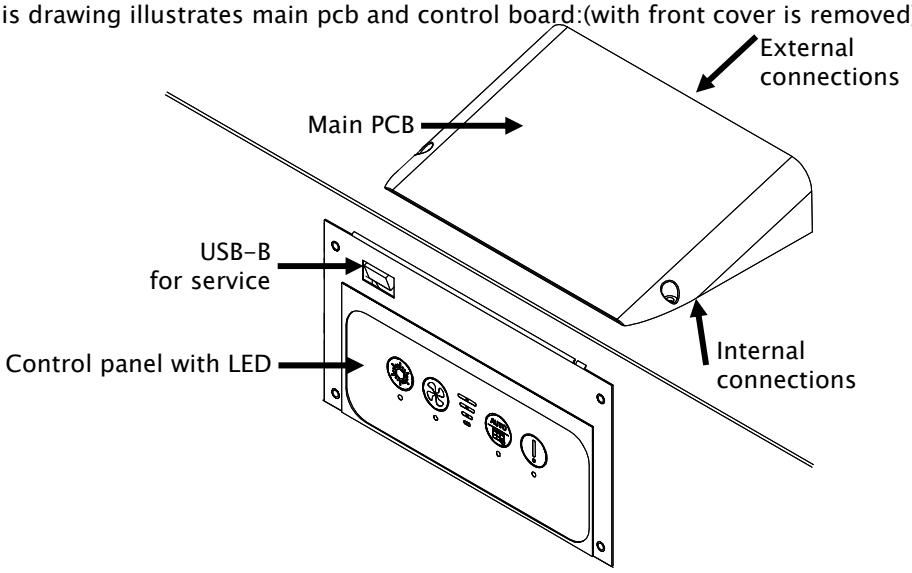
Electronic control, *continued*

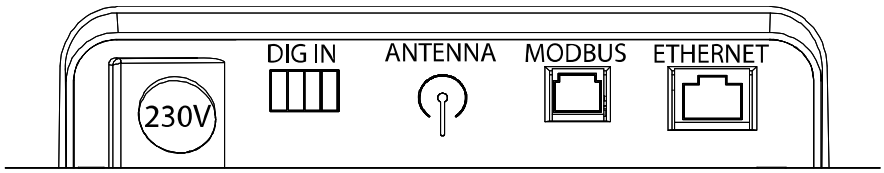
Unit control illustration

This drawing illustrates main pcb and control board:(with front cover is removed)



Connection illustration

This drawing illustrates main pcb´s external connections:



Connection description

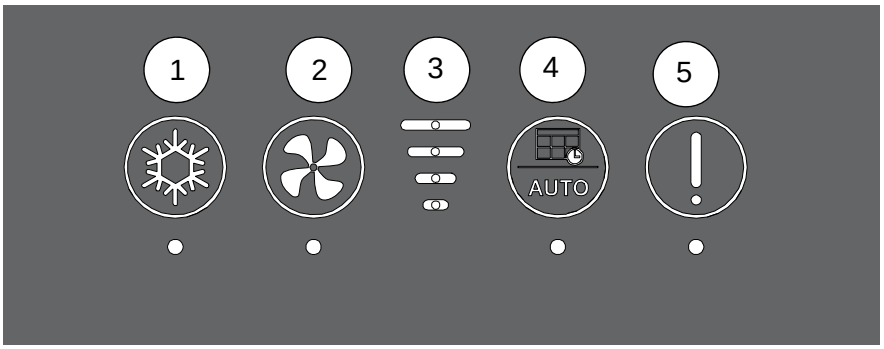
This table describes the external connections:

Connection	Description
230V	Connection for 230V supply. Cable fitted with Schuko plug
DIGI IN	External digital input, to select operations
ANTENNA	Wireless connection point for proprietary remote control
MODBUS	Modbus connection for accessory modul
ETHERNET	LAN connection

continued overleaf

Electronic control, *continued*

Control panel illustration



Control panel description

The foil keypad has four buttons with corresponding LED signal light below. Four blue LED indicating the fan speed is situated in the middle. They will regardless of operation conditions, always indicate the present fan speed. User manual page 27 describes operation of the unit in details.

System operation strategy

Introduction

This section describes the operation strategy in various conditions.
For a user specific running operation see user guide at page 27

Preheat

If preheater is installed, the unit can add electrical heat to the T1 incoming outside air, in order to reduce defrost situations, and increase the supply air temperature.

- Preheater can be enabled/disabled on the HRC3 in installer mode, if preheat module is set to “present” in the pc tool when installing
- Preheat is applied after the T1 sensor.
- If outside temperature is <-3°C or supply air is < 16,5°C the preheater will switch on with 10% power.
- The power will increase/decrease 10% for each 60 seconds depending on the T1 or T2 temperature.

Setpoints cannot be changed

Defrost

In cold conditions where T1 is below -3°C and exhaust T4 is <+2°C the condensed water could built up as ice in the heat exchanger, blocking the air path and eventually destroying the heat exchanger.
In order to prevent this sequence is initiated:

- Apply additional heat with preheater if mounted
- The supply fan speed will decrease with 3 rpm/second until minimum RPM is reached.
- After 10 seconds at this speed the supply fan will stop completely, while the ongoing exhaust fan is supplying warmer air into the heat exchanger component, to remove any potential ice.
- When T4 yet again is >+8°C the supply fan will start at minimum RPM, and then increase speed with 3 rpm/second until the original required speed is regained.
- If T4 becomes <+2°C during the speed increase cycle, the supply fan will decrease speed again.
- If T1<= -13°C for more than 4 minutes and 25 seconds, even with defrost mode active, the unit will stop all operation for 30 minutes, and reattempt previous operation condition. If electrical built in preheat is present, this total off mode is disabled.

The defrost operation will create an underpressure inside the house, so if fireplace mode is enabled, and defrost is necessary; the unit will stop all operation in 4 hours instead. Setpoints cannot be changed.
When defrost is active a HRC 3 will show dEF
When defrost has shut all off, the display will flash the T1 temperature

Bypass cooling and summer mode

See more in the user guide page 27

Installation

Introduction

This section will guide you through unpacking, mounting and installation

Important

Warranty is restricted to units, installed by trained and certified personnel only.

Wrapping

HCV700 is delivered in a cardboard box. Please check packaging for damages before unpacking.

Check content

Check the content of the box:

Step	Action
1	Unpack the unit carefully. Do not use a knife
2	The HCV700 is designed to be placed on a wall console bracket.

Installation considerations

The following should be considered selecting an Appropriate location for installation:

- The air flow direction can be electronically swapped, providing ability to route the connected ductwork to and from the unit, either to the right of to the left. See more in the Overall description at page 5.
  This swapping function, provides ability to route the pair of ducts (outside or inside) towards the unit from the left OR the right, according to building and room layout
  The HCV700 unit, is designed to mounted in dry surroundings, with temperatures >12°C. Utility room or similar heated rooms.

- Please allocate additional space, to ensure correct mounting and service ability.

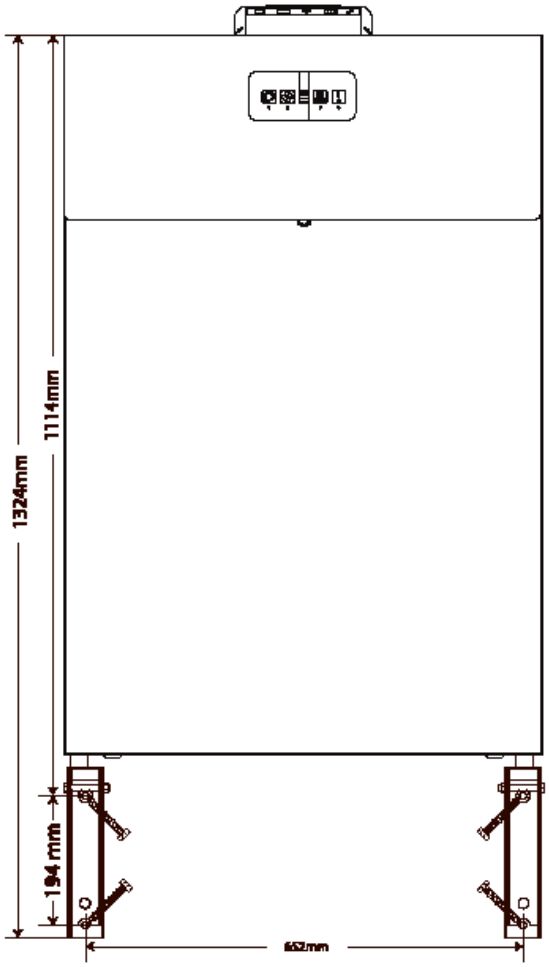
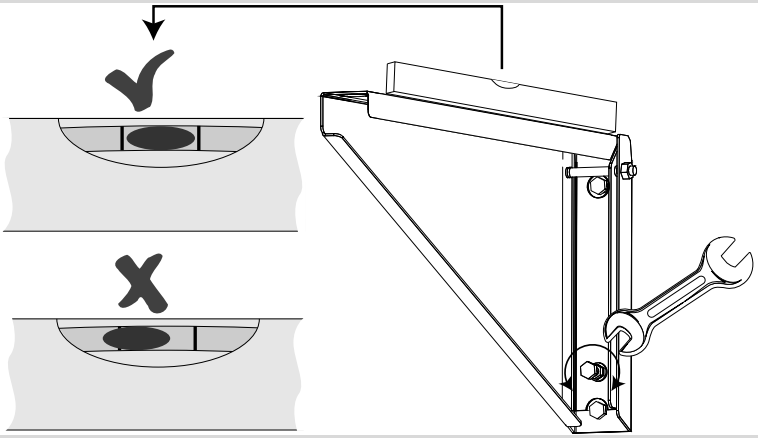
- Please ensure that the walls structure is adequate to withstand the unit additional weight, regardless of bracket type.

Continued overleaf

Wall mounting

Mounting wall console bracket

Please follow these steps to mount the unit on the wall console brackets.

Step	Illustration
Fasten the wall consoles, according dimensions	
Level the brackets	

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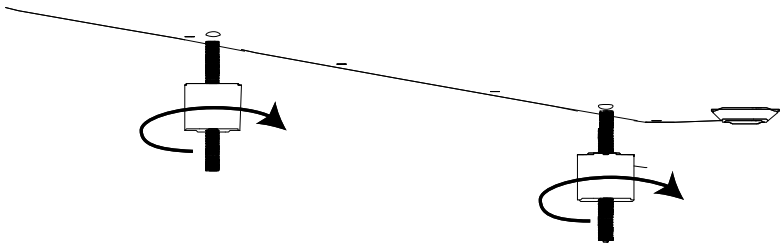
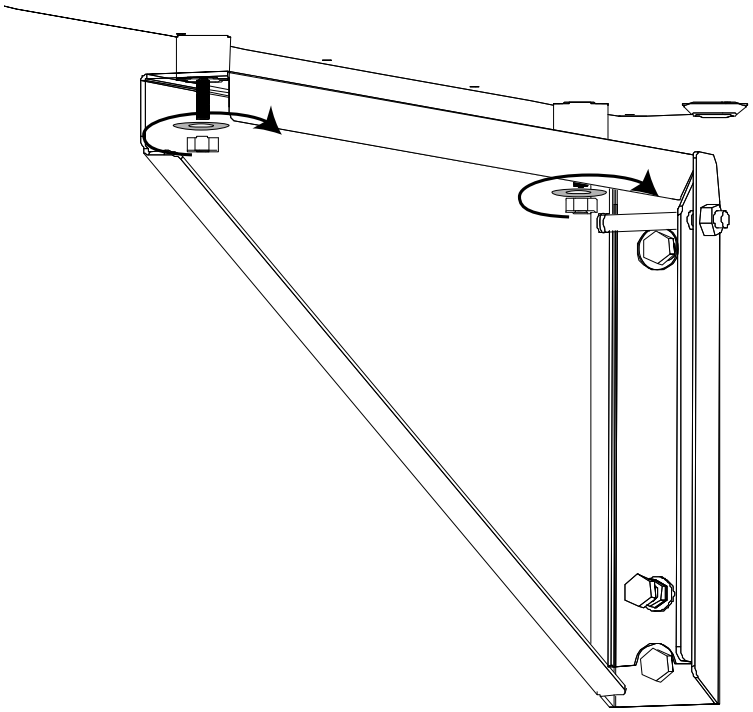
Wall mounting, *continued*

Mounting wall console bracket, *continued*

Step	Illustration
Mount the four damper bushings	
Place the unit onto the console brackets, place washer- and fasten the nuts	

Continued overleaf

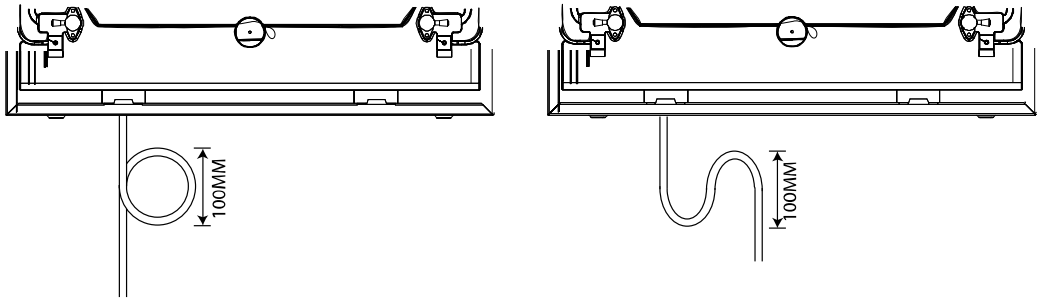
Water drainage

Introduction

As the unit absorb the heat from the extracted air, air with high humidity will condensate to water drops. This water is harmful to its surrounding if not managed correctly

Drainage connection

Connect a water drainage hose to the Appropriate water outlet spigot, in the bottom of the unit. The unused spigot is to be closed with a blind.
The drainage hose has to be fitted with a water trap not smaller than 100 mm water column, made as a loop or two bends on the hose.
Route the hose to Appropriate water sever, securing that the hose cannot freeze to ice.



Connecting ducts

Warning

The ducts must be covered and the unit must not be connected until the house is ready for occupation, which means clean and dry. This is to prevent building dust and condensation from settling in the duct system and to prevent hygiene problems in the ventilation unit at a later date.

Consideration

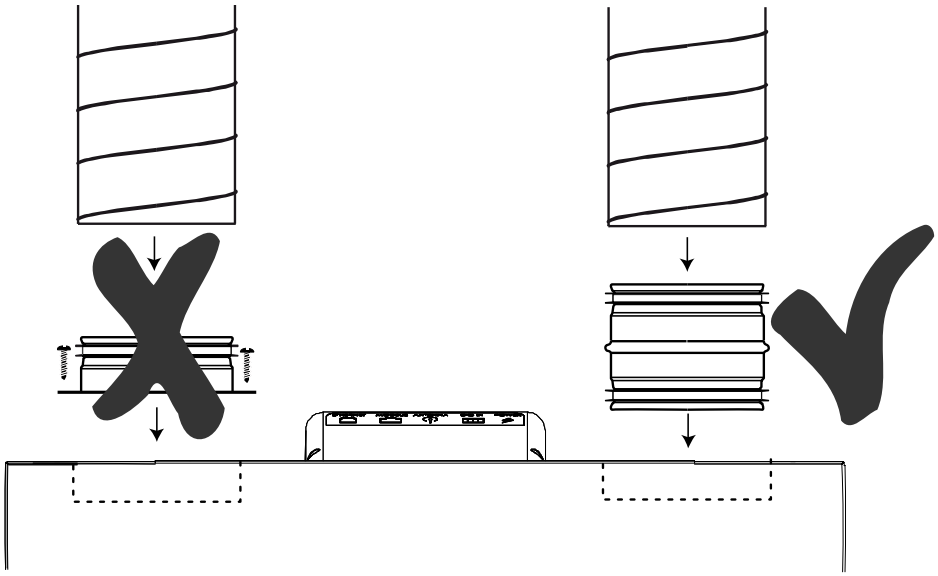
The ducts connected to the unit must have at least the same diameter as the unit's duct connection or larger. Dimensions can be seen in the technical data section
Dimensions of ducts and sound absorbers must be in conformity with national standards and guidelines in the current building legislation. Contact your Dantherm dealer for further advice.
Noise and vibrations from the unit to the ducts must be minimized. This can be achieved by installing sound absorbers on both the supply and exhaust air sides.

Locate correct air connection

Please consult the product description at page 5, as well as the label on the top cover, to determine the correct duct connection

Connection

Connect duct items with spigot´s ONLY



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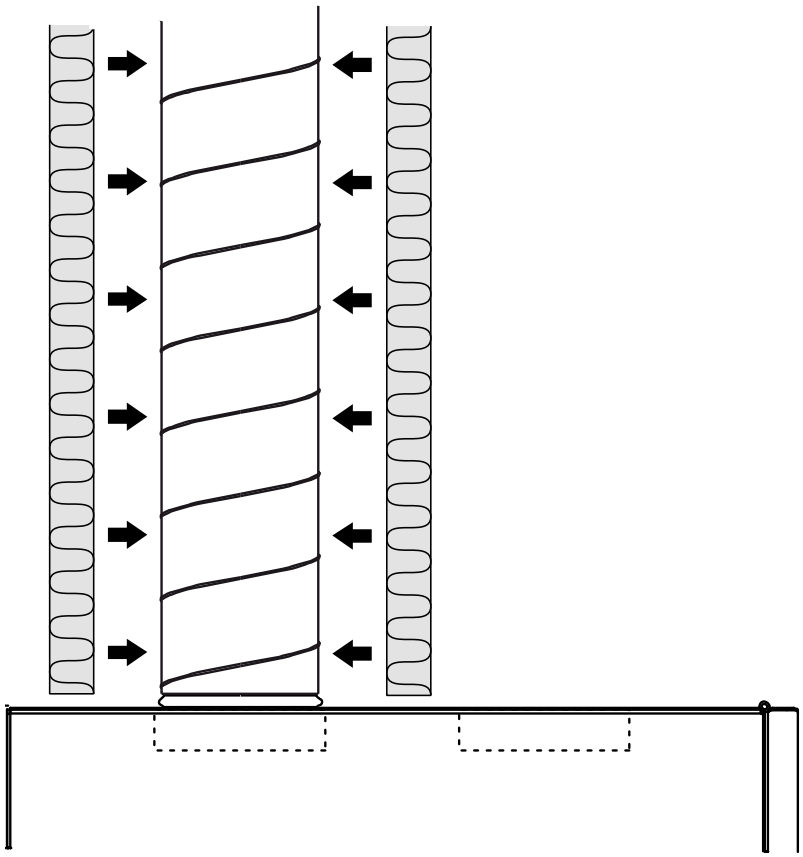
Connecting ducts, *continued*

Insulation Wrap minimum 50 mm insulation around all four ducts



External connections

Introduction

Connecting accessories will enhance the usability of the ventilation system.

Connecting to LAN

Connect the unit to LAN (local area network) using a standard Ethernet cable, fitted with RJ45 plug.
If using non pre-fabricated cable, please first run the cable through the house as needed and mount the RJ45 plug using the standard Ethernet wire crossing terminology, as specified in T568A or T568B. These mounting instructions can be found in the internet fx. on Wikipedia. The unit is auto sensing T568A OR T568B
The units LAN connector utilizes connection control, by having built in LED.

The unit will then be access able on the LAN/WAN for the Dantherm smartphone app (Iphone and Android)

MODBUS

Connections for the external connection module, available through your Dantherm dealer. This module can control various inputs/outputs.

Digital input

Digital input 1 (set low): will, when active
Option 1: Force the fans down to speed 1*
Option 2: Smoke shut down (if smoke set it to manual / auto restart* in pc tools)

Digital input 2: (set high) will, when active:
Option 1: Force the fans to speed 3*
Option 2: Force the fans to speed 4

All settings are to be done in PC tools.

*=default setting

Swapping operation mode

Introduction

HCV700 has an option for swapping the duct connections according the description in section Overall description at page 5
This section will guide you through the process of swapping the running mode between mode A and B

Important

Always make sure the power is disconnected prior to disassembling and operating the mode selector switch

Selecting mode

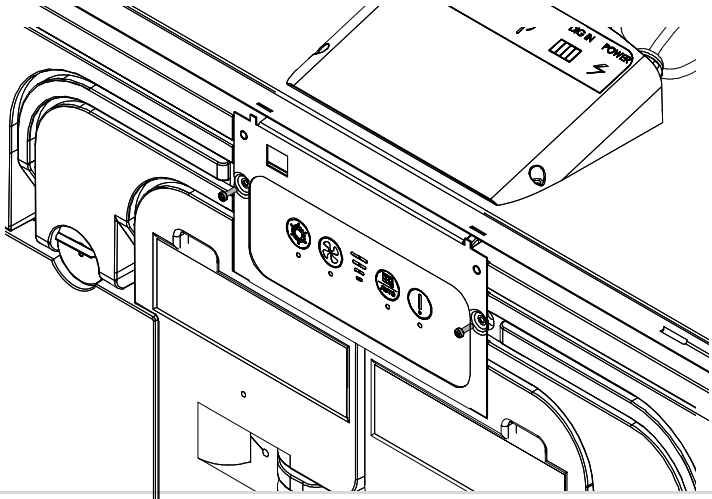
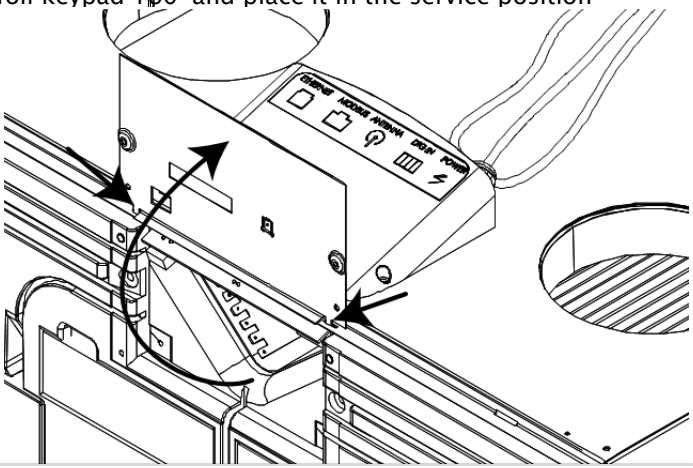
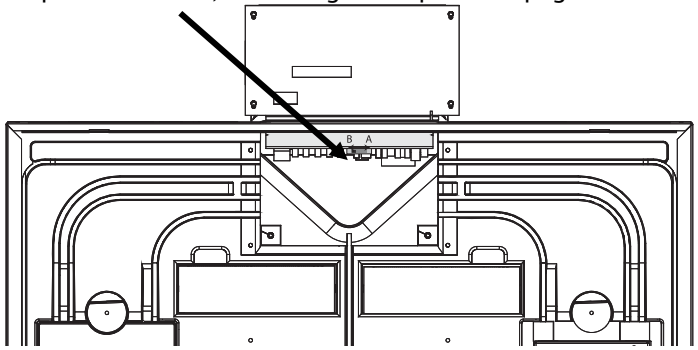
The air ducts going into the house can either be connected on the right hand side or the left hand side of the top of the unit. The default mode is mode A with the house ducts going out to the left. If local systems demands mode B, follow the below procedure AND follow the label or description at page 5 to connect the water drainage correct.

Continued overleaf

Swapping operation mode, *continued*

Procedure

Follow these below steps to change running mode:

Step	Action
1	Remove front and remove the two screws shown 
2	Turn the foil keypad 180° and place it in the service position 
3	Locate the mode switch on the edge of the main PCB, and slide the lever to appropriate operation mode, according description on page 5  If any accessories are mounted, please move these according the instructions following the accessory item.

Initial calibration

Introduction

In order to obtain the correct ventilation comfort level, as well as not damaging the house structure, it's important to adjust the amount of ventilation air going in to the house, as well as extracting from the house.
This is done by adjusting the fan speed levels, in nominal mode (100% ventilation), that is equals to fans speed **three**.
Fan speed four is an operation boost level, only active in 6 hours, thereafter the unit switch down to prior previously used fan speed

Calibration tools

The unit can be adjusted by means of the SW tool, or using the keypad on the front.
In both options the air flows needs to be measured in order to calibrate the unit to the counter pressure in the ducts connected. Dantherm recommend a small handheld meter, Testo 510, that is perfect for this kind of measurements.

IMPORTANT

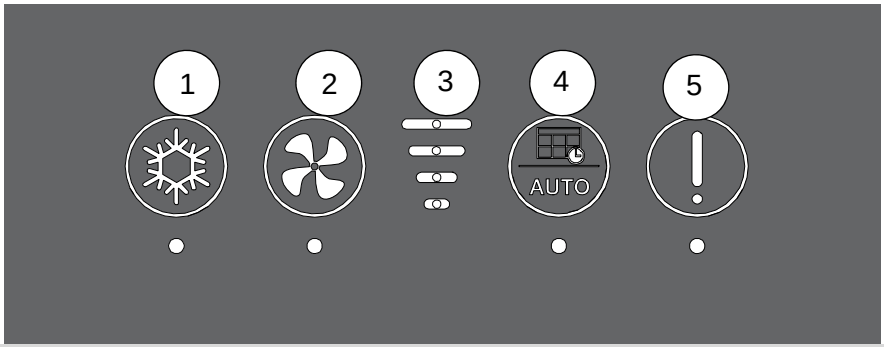
Fill 0,5 L water into the water trap, to assure no leakage through the drain prior to calibration

Calibration

Follow these few steps to calibrate the units fan speed.

Step	Action
1	Press and hold the fan (2) and week program (4) until both LED flashes (5 sec.). The fan speed will change to speed 3 if not already The unit is now in installer
2	Connect the ΔPa meter to supply direction spigots, according the label on the heat exchanger cover.
3	Adjust supply air to Appropriate level according to local needs. Push and hold bypass (1) and adjust up(4) and down (2) until correct level is measured.
4	Remove the ΔPa meter and reconnect to the extract spigots
5	Adjust extract air to Appropriate level according to local needs. Push and hold alarm reset (5) and adjust up(4) and down (2) until correct level is measured.
6	Press and hold the fan(2) and week program (4) until both LED stops flashing

Keypad illustration:



Setting operation parameters

Introduction

The HCV700 unit utilizes an USB-B connection, for changing the units parameters with a MS Windows pc tool

Preparation

Make sure the unit is in normal running condition, and it's easy to disconnect/connect the 230V power supply.

Tools needed

The following tools is necessary for updating the HCV700 unit firmware

- Computer (PC) with any MS Windows installed, and free USB slot available.
- USB cable- USB_A to USB_B plugs (printer cable)
- PC software tool

Connection

Follow this procedure to establish on the fly connection with the HCV700 unit

Step	Action
1	Switch on the PC, and wait until its ready
2	Install the service tool, if not already installed
3	Connect the USB cable to the PC and to the running HCV700 unit (plug located behind the upper front cover)
4	If connected correct, the PC will now find the USB connection, and automatically install the correct USB driver (DAH-UVC)

Logging in

Start up the DAH PC tool, select your device at the start screen, and press **connect**:
Log in by:

- Installer = "1234"
- User = no password is needed

Mandatory parameter changes

The supply and extract air flows should always be adjusted, in order to maintain a correct level of ventilation according to national legislations.
Follow the software help guide (F1) in the pc tool to adjust the fan levels.

Firmware update

Introduction

The HCV700 unit utilizes an USB-B connection, for updating the units firmware, by uploading a firmware file onto the units internal storage, where after it will be loaded and activated upon the next reboot of the unit

Preparation

Make sure the unit is in normal running condition, and it's easy to disconnect/connect the 230V power supply.

Tools needed

The following tools is necessary for updating the HCV700 unit firmware

- Computer (PC) with any MS Windows installed, and free USB slot available.
- USB cable- USB_A to USB_B plugs (printer cable)
- Firmware file (filename.BIN)

Procedure

Follow these steps to update the firmware:

Step	Action
1	Switch off the HCV700 unit if on
2	Switch on the PC, and wait until its ready
3	Connect the USB cable to the PC and to the HCV700 unit (plug located behind the upper front cover)
4	Switch on the HCV700 unit
5	If connected correct, the PC will now find the USB connection, and automatically install the correct USB driver (DAH-UVC)
6	Open Windows file explorer, and locate the HCV700 unit with its own drive letter
7	The HCV700 unit drive will contain minimum one file, BOOT_LOG.TXT and if previously firmware updated, also the present firmware, renamed to *.OLD
8	Locate the new firmware file with extension *.BIN on the PC, copy this file to clipboard. Navigate back to the HCV700 unit drive, and paste the file from clipboard into the HCV700 unit drive. Now the file is placed next to BOOT_LOG.TXT. This copy process must not exceed 60 seconds
9	Safely disconnect USB, using the MS Windows function: Safely Remove Hardware, and disconnect the USB cable when prompted for it.
10	Switch of the HCV700 unit, wait 30 seconds
11	Switch on the HCV700 unit, and wait while it loads the new firmware into the controller. This process must not exceed 120 seconds. The recent uploaded *BIN file is renamed to *.OLD, and stored for future roll backs if needed.
12	Now the unit is updated.

User's guide

Introduction

This section describes how the remote controller can be used to set various parameters and display the units running condition

Content

This section covers the following topics:

Overall ventilation functions

Introduction	The units can ventilate your home in three different operation modes. The modes are selectable according personal needs, taking in mind that national rules and regulations, can state a minimum ventilation requirement. Never turn off the main power to shut down the ventilation. This could ultimately result in condensate water dripping from air inlets.
Manual ventilation level	In manual operation, the unit will permanently operate with the selected fan speed. The mode can be selected on the keypad or through the LAN interface
Automatic controlled by time	In time controlled operation mode, the unit automatically adjust the fan speed, according to a fixed time table over a week, in order to cover the varying needs for fresh air, during day and week. One of the 11 time schedules, can be edited in the software service tool and through the LAN interface The Auto mode can be engaged on the control panel or through the LAN interface.
Controlled by VOC and RH% sensor (accessory)	In this mode (Demand) the unit will automatically adjust the ventilation level, to comply with the ventilation needs, measured in the outgoing air by the VOC and RH% sensors. This operation mode is only possible if the unit is fitted with the air quality sensor kit

Using the control panel

Introduction

This section describes how to use the keypad located in the front of the unit. The functionality varies depending on if any accessory is mounted. On the front of the unit you will find a quick guide under the upper cover.

Summer cooling mode

Summer mode will stop the supply fan, and new colder outside fresh air needs to be supplied through and open window.

- Press and hold for 5 seconds for enabling or disabling summer mode
- Supply fan operation will stop in summer mode.
- Cold outside air will be supplied into the house directly if opening some windows - exhaust fan will keep extracting air from the house creating an air flow.
- Summer mode can only be activated if T1 is above 14°C

When summer mode is active the LED flashes 5 seconds on I seconds off:

Auto bypass cooling mode

Automatic bypass cooling is dependent on user settings. On HRC and PC tool the following is possible:

- Setting the minimum outside temperature within the range 8-15°C.
- Setting the bypass setpoint in which the bypass damper is opened. Range is 22-30°C, with the possiblety to select "off" to disable the auto bypass This parameter is named Tmax.

When the following is present the automatic bypass cooling will then be active.

- If outside air is 2°C lower than inside
- AND the Tmin is higher than setpoint between 8-15°C.
- AND the Tmax is higher than setpoint (between 22-30°C)

Bypass is closed if any of the three conditions is outside range with 2°C

Bypass LED will light permanenly when damper is open

Continued overleaf

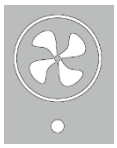
Using the control panel, *continued*

Manual bypass mode

If one of the parameter for the bypass going into auto mode is not avalible, you can manually select bypass by presssing the bypass key on the unit once. This will override setpoints, and activate bypass for 6 hours if the outside temperature is 2°C lower than inside.
Bypass LED will light when damper is open

Manual fan speed

When pressing this button once, the fan speed will increase one step.
When reaching step 4 it will switch to speed 0 and then again upwards

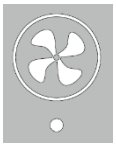


Fireplace

A fireplace needs overpressure inside the house in order to avoid smoke in the living room when lighting it up. Fireplace mode will:

- Put supply fan into speed 3
- Reduce the extract fan speed to 50% of supply, in order to create this overpressure.
- If T2 <9°C fireplace mode will be disabled

If fireplace is enabled in PC tool the fireplace function can be activated by pressing the manual fan speed for 5 seconds. Fireplace function is automatically disabled after 7 minutes, but can also be disabled manually by pushing MANUAL for 5 seconds again.
Fan speed 3 LED´s will flash during the 7 minutes fireplace count down.



Week program

Press once to select week program operation. Only HRC remote control enables you to select appropriate week program according your local needs. Week program 11 can be tailor-made also with a mix of fixed fan speeds, as well as demand mode time periods.
Week program 11 can be programmed with the pc tool.
5 seconds long press will activate demand controlled operation, VOC/RH% sensor kit if installed.

- LED light permanently to indicate week program
- LED flashes to indicated auto mode (demand) controlled by the VOC/CO^2sensors.

Filter or error indication

This button is the alarm reset. If the LED light up in orange its a warning indicating that the filter needs to be changed. Please see the service guide section at page 33 to learn how to replace the filters.

- Press the button once to reset the filter alarm.
- Press and hold for 10 seconds to reset the filter timer without the filter timer has run out.

If the LED is red, the unit is in a alarm state, that needs to be corrected, in order to bring the unit into operation again.
Error codes can be read on the remote control if connected, or in the PC tool.

Using the LAN interface

Introduction

HCV700 is fitted with an Ethernet connecting, designed to be connected to the home network (LAN) in order to be able to control and read out any operation details.

Setting IP address

On any computer network, each device needs its own IP address. It's like a unique telephone number.

Dynamic allocation:

If connecting the unit to a home router or similar LAN device with DHCP server built in, the unit will pull its own unique IP address from the router, when powering up the unit.

Static allocation:

With the installer usb SW tools, it's possible to set a static IP address to the unit. This is done in order to be able to use the smartphone App from outside the LAN area.
This will also need the buildings WAN address to be fixed, and needs a setting of a routing port forwarding table, inside the router setup.

Smartphone

Connecting a smartphone is simple.
Download the Apple App from App store, or the Android version from Google Play. Follow the simple setup steps in order to find and connect to the unit on the LAN. If using the smartphone from outside the home, you need to add the specific LAN incoming port, as previous setup, into the router port forwarding table.

Please notice, that there is a limit of three simultaneous active devices with app. After 10 minutes inactivity, the device will be automatically disconnected.

Service guide

Overview

CAUTION Any repair service should only be carried out by a qualified service technician

Serial numbers All requests for information, service or parts should include a serial number.
Product model and serial numbers are available from the nameplate, which is located behind the front cover which can be opened without the use of tools.

Contents This section covers the following topics:

Preventive maintenance

Introduction

To keep the unit into specifications, preventive maintenance has to be carried out, with specific intervals to avoid breakdown, inefficient operation and to maximize the expected lifetime of 10 years or more.
It is important to notice, that intervals between filter maintenance can vary depending on the specific environment, and that moving parts are wearing parts, that needs replacements when worn down dependent on the specific environment.

The factory warranty is only valid if documented preventive maintenance has been carried out. The documentation could be in form of a written log

Scope of maintenance

The following needs to be carried out at minimum:

Interval	Task	To be carried out by:
6 month	Check filters, Replace if required	User
1 year	Replace filters	User
2 years	Clean and check fans	Trained engineer
	Check and clean electrical preheater if installed	Trained engineer
	Clean internal air path	Trained engineer
	Check air duct connections	Trained engineer
	Check condensate water discharge hose	Trained engineer

Caution

Caution!

- Only trained engineers are allowed to service every other year's tasks as stated.
- Switch off power supply before working on the unit.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Filters (6 months)

After 6 months a filter warning alarm is activated. A buzzer starts to sound and the "**!**" LED on the units control panel is lit with **orange light**. If this LED is **red** please see section "Error list"
Check the filters. If one of them is dirty exchange both. After checking or replacing please reset the filter alarm interval. See more at page 30
The filter alarm interval can be changed via remote control or pc-tool.

Filters (1 year)

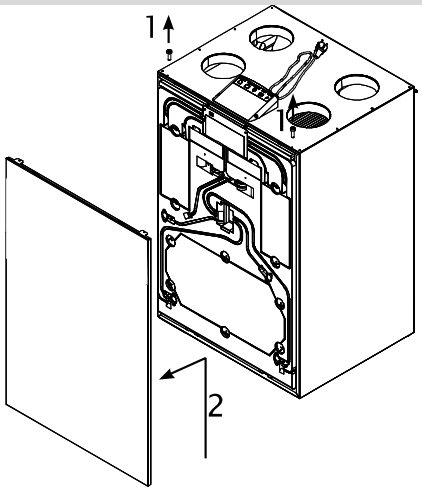
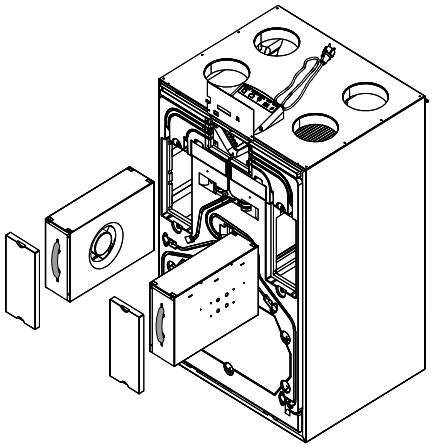
Replace the filters at least once a year regardless of pollution level and/or filter alarm buzzer.
Exchange the filter and reset the alarm. See more at page 30

Continued overleaf

Preventive maintenance, *fortsat*

Internal: Fans, air paths and preheater (2 years)

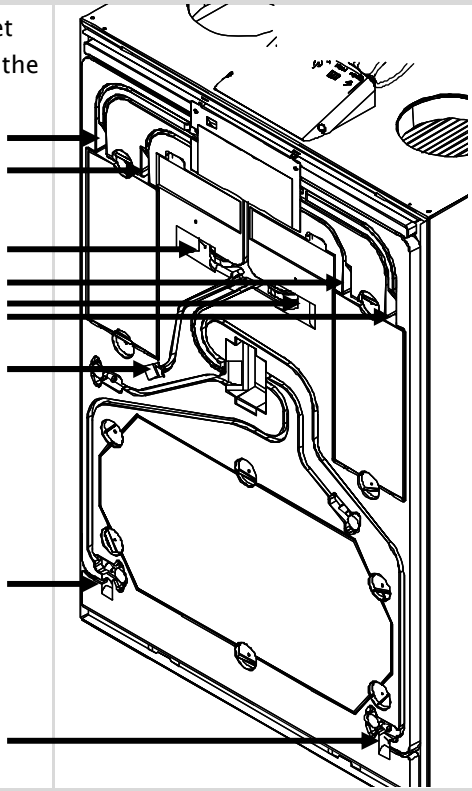
Follow this procedure to check and clean internal parts:

Step	Action	Illustration
1	Remove the two screws at top of the unit, and remove the front cover	
2	Pull **one** random fan box out.	
3	Clean the fan blades with compressed air or with a brush through the opening in the bottom of the fan box. Each blade has to be so clean that the fan stays balanced. Take care not to remove or move the metal balancing pieces, attached to the fan blades.	
4	Spin the fans with your fingers, and listen for noise from the bearing. If any noise is recognised, the fan needs to be replaced.	
5	If the unit has electrical preheater installed, please clean what is possible, without dismantling the fan box, and check the heat tubes for any visible damages.	
6	Pull the filter out, and visually inspect the air paths inside the unit, from the duct connectors in the top, all the way to the exit from the fan box. If any dirt appears, please clean it.	
7	Re-insert the fan box, and redo step 1-6 with the second fan box.	

Continued overleaf

Preventive maintenance, *continued*

Fans, air paths and preheater (2 years), *continued*

Step	Action	Illustration
8	Visually inspect that all rubber grommet are secures and tight, before installing the front cover	
9	Check that all cables are plugged properly onto the PCB and secured.	
10	Re-mount the front cover	

External: Water hose and duct connections (2 years)

Visually inspect:

1. The four duct connections on the top of the unit, for air leakage, which will show as dirty areas.
2. The drainage hose and the water trap for damages. See more at page 18
   Check also that there is water in the water trap.

Error list

Introduction

Errors are indicated by the LED, placed below the filter reset button.
If this LED is flashing slowly with a orange color, please exchange the air filters. See section “Replace filters” at page 33

LED readings Software <2.0

If this LED is **red**, it indicates an operation error. This red LED can indicate three different levels of errors:

LED state	Description
Flashing slowly	• Bypass damper fail • T3/T4 internal temperature sensor fail
Flashing rapidly	• Internal fan failure • Supply temperature is <+5°C • External fire alarm activated • Any internal sensor is measuring a temperature >70°C
Always on	• T1/T2 temperature sensor defective

LED readings Software ≧2.0

If this LED is flashing **red**, it indicates an operation error. The LED will flash a number of times that equals the corresponding error code, followed by a pause of five seconds, before restarting the counting again. The error code counts, corresponds to the below following errors:

Flash Count	Error number Remote control	Error
1	E 1	Exhaust air fan
2	E 2	Supply air fan
3	E 3	By-pass damper
4	E 4	Extract air temperature sensor (T1)
5	E 5	Supply air temperature sensor (T2)
6	E 6	Extract air temperature sensor (T3)
7	E 7	Exhaust air temperature sensor (T4)
8	E 8	Room air temperature sensor (T5)
9	E 9	Humidity sensor, RH% (Accessory)
10	E 10	Outdoor temperature < -13 °C
11	E 11	Supply temperature < +5 °C
12	E 12	Fire alarm, any one of the internal sensor, is measuring a temperature > 70 °C.
13	E 13	Communication error / low signal
14	E 14	Fire alarm, duct connected fire thermostat (Accessory)
15	E 15	VOC sensor fail (Accessory)

Continued overleaf

Error list, *continued*

Remote control error readings	Any error is also shown with an “E” + any number indication on a connected remote control. In this case the error specification can be read in the previous shown error table, as well as in the remote control manual.
PC tool	Any operation warning or error is always logged in the memory of the controller. Connect a computer running the PC-tool to the USB and readout detailed information
Resetting errors	Re-starting the unit (disconnect/connect to 230V) will reset the controller, and the unit will start normal operation, and also restart a new search for possible errors. This could last up to 15 minutes.

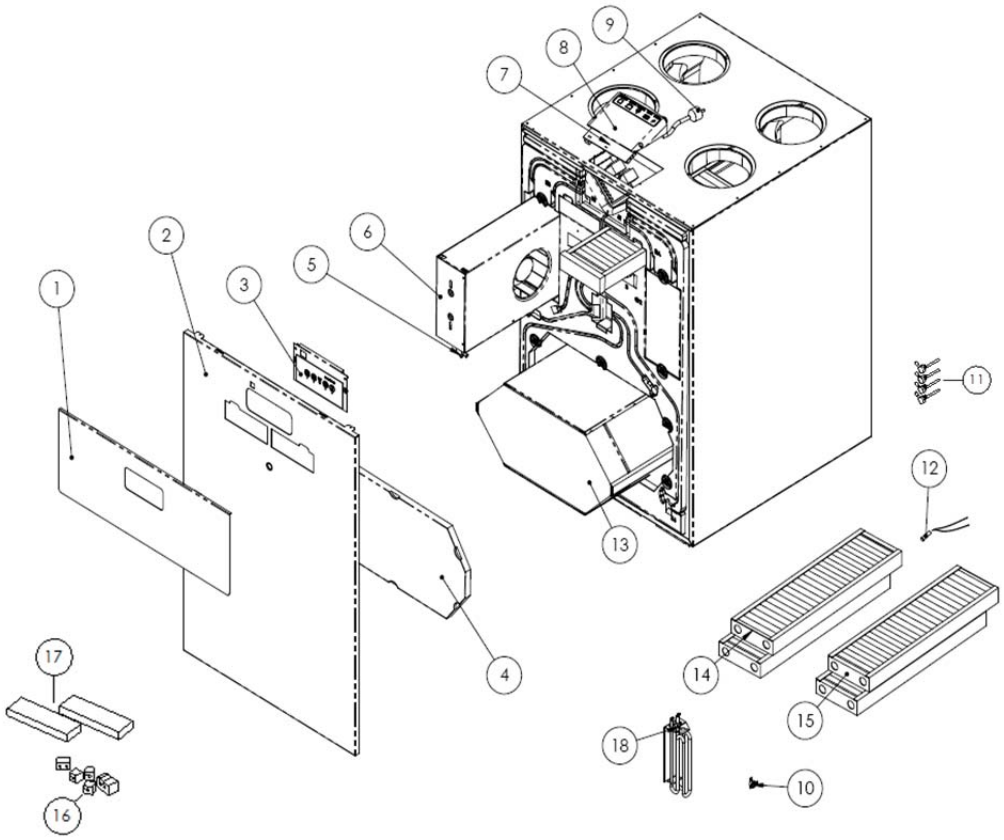
Spare part list

Introduction

Any spare-part shown in this section, can be obtained throughout the Dantherm distribution

Illustration

Available spare parts for HCV700:



Continued overleaf

Spare part list, *continued*

List

List of spare parts including spare part numbers:

Pos.	Decsription	HCV700
1	Filter cover	094692
2	Front complete	094698
3	Control panel complete	092946
4	EPS cover kit	077229
5	Damper motor	077231
6	Fan	081429
7	Control PCB	077234
8	PCB housing cover	077236
9	Mains supply cable	077237
10	OT thermostat for heat	290372
11	Kit, Air connection spigot	081185
12	Kit, temperatur Sensors	077243
13	Heat exchanger	077246
14	Kit, filters G4+F7	093479
15	Kit, filters 2xG4	093478
16	Kit, cable gaskets	077208
17	Kit, filter gaskets	077242
18	Pre heat element HCV700	081189

Technical data

HCV700

The below table gives the technical data of the HCV700:

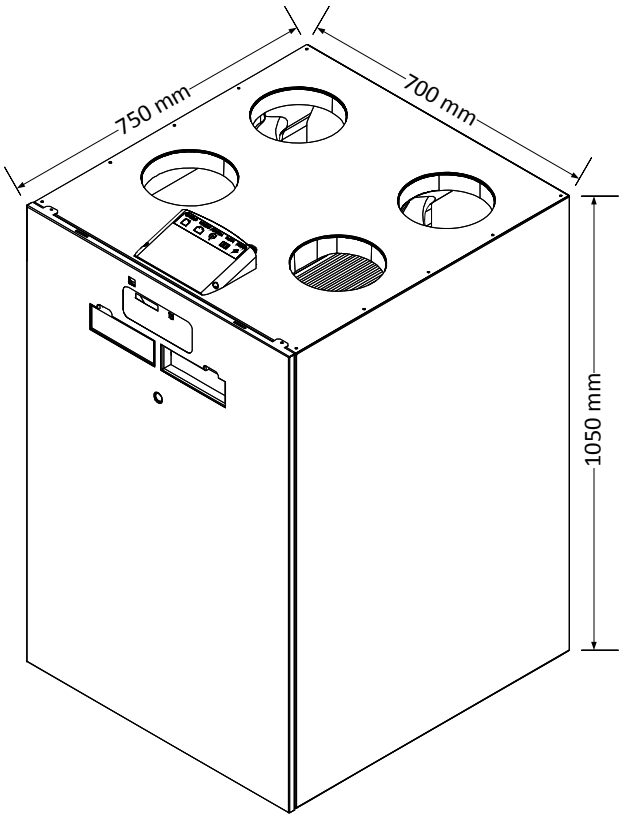
Specification	Unit	Data
Operating range DIBt*	m3/h	130 to 350
Operating range Passiv*	m3/h	130 to 320
Efficiency DIBt	%	85,7
Efficiency Passiv Haus	%	84,4
Efficiency EN 13141-7	%	84,6
Sound from cabinet (Passivhaus) 350 m3/h @ 100 Pa*	LPA /LWA	50,1 dB(A)
Sound from ducts (Passivhaus) 350 m3/h @ 100 Pa*	LWA	64 dB(A)
Filters According EN779:2002 (Exhaust/Supply)	Class	G4/G4 (F7 option)
Installation surrounding temp.	°C	+12 to +50
Outdoor temp (without preheating installed)	°C	-12 to +50
Outdoor temp (with preheating installed)	°C	-25 to +50
Maximum humidity in extract air	g/m³	10
CABINET:		
Dimensions WxHxD.	mm	700x1095x750
Duct Connectors	mm	Ø200
Weight	kg	70
Insulation Lambda 0,031 W/mK	W/(m*K)	U<1
Drainage hose included	ø/length	¾" - 1m
Cabinet colour	RAL	9016
Fire classification, polystyrene		DIN 4102-1
Fire classification, unit		EN 13501-1:2002
ELECTRICAL:		
Power input	V AC	230
Max. current consumption (without/with preheater)*	Watt	234/1834
Max. power consumption (without/with preheater)*	Amp	0,73/7,98
Frequency	Hz	50
IP-classification	IP class	21

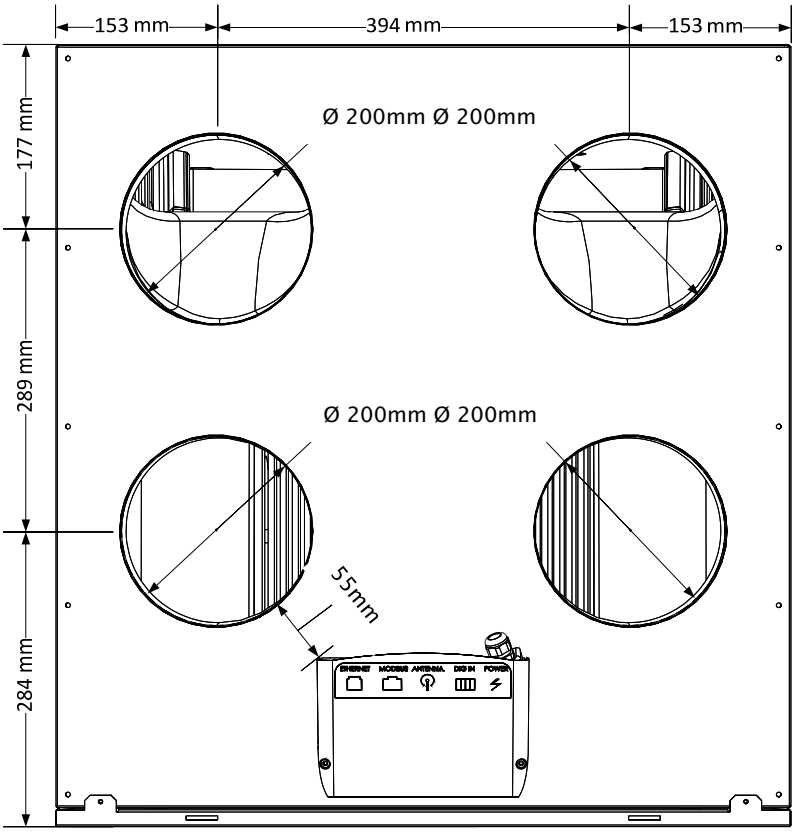
* *Under Revision*

Continued overleaf

Dimensions

HCV700





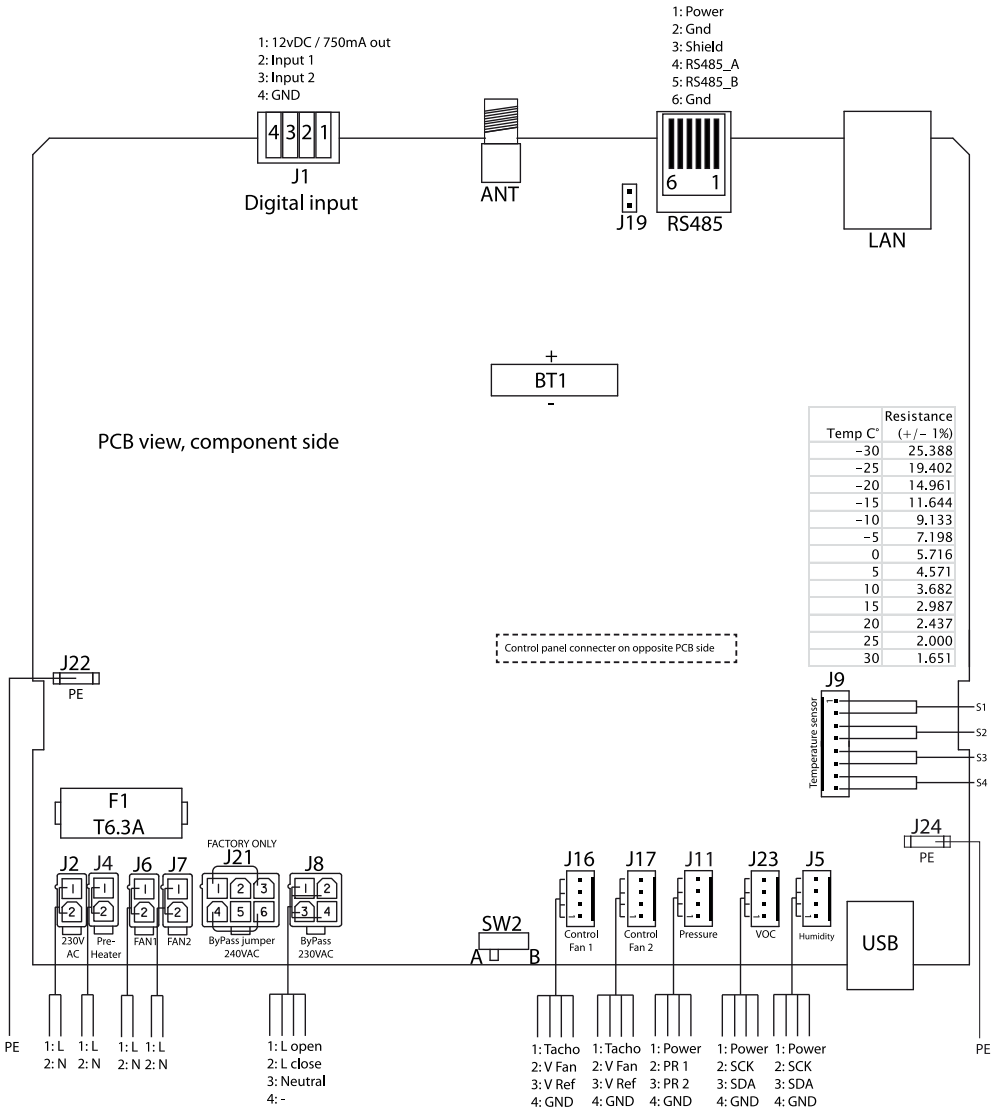
Wiring Diagram

Introduction

This section illustrates the electrical wiring diagrams for the main parts:

Illustrations

This illustrates the units schematics:



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