HOMEVISION® PRO

Control system for crawl space dehumidifier CTR STD-TT and CTR 300TT2

USER MANUAL

CorroVenta®

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User Manual HomeVision®

Intended use

HomeVision® is developed and intended for wireless control and supervision of Corroventa CTR STD-TT and CTR 300TT2 crawl space dehumidifiers and it consists of aControl Unit and a Control Panel. Through use of the Control Panel mounted in the in the aparent the system can be monitored and its settings adjusted. The climate can be controlled traditionally with a set point relative humidity as well as through the use of Mould Growth Index which under certain circumstances has the potential to further decrease the energy consumption.

For easy follow-up, the Control Panel provides a graphic presentation of operational hours, average temperature and relative humidity. Any detected disturbance to the operation is automatically presented as an alarm and so is the service reminder. The Control Panel also stores operational data on a USB memory stick readable with Excel or other similar software.

A Control Panel can connect up to eight Control Units so even if the building requires more than one dehumidifier, all control and monitoring can be done from one and the same position provided of course the Control Units are all within radio coverage.

• Control and supervision of crawl space climate, temperature and relative humidity	• Logging of operation and climate data on USB-stick – available for users of the Pro version
• Operation indicators and alarms	• Easy to install – wireless Control Panel
• Service reminders	• Graphical display with an easy interface
• Expandable – Up to eight Control Units	•

Manufacturing Directive

HomeVision® Pro is tested in accordance with LVD and EMC directives. HomeVision® is CE approved.

Waiver of Liability

- Faulty, incorrect installations and/or incorrect use can cause damage to property and human injury.
- The manufacturer assumes no responsibility or liability for damages or injuries caused by non-compliance with the instructions herein, use for other purposes than the intended, or failure to observe its warnings. Such damage, injuries or liabilities are not covered by the product warranty.
- The product warranty does not cover consumables or normal wear and tear.
- It is the responsibility of the buyer to inspect the product at time of delivery and before use to ensure its good function. The product warranty does not cover damage resulting from use of faulty products.
- Changes or modifications to the equipment must not be made without written consent by Corroventa Avfuktning AB.
- The product, technical data and/or installation and operation instructions can be changed without prior notice.
- This manual contains information that is protected by the Intellectual Property laws. No part of this manual may be copied, stored in an information system or transferred in any form or in any way without the written consent of Corroventa Avfuktning AB.

Any comments on the contents of this document shall be sent or addressed to:

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Fax 036-37 18 30
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Safety Information

This equipment is not intended to be used by individuals with physical or mental disabilities impeding their operation or understanding of it or by individuals lacking required knowledge or experience unless they are supervised and instructed by another person with responsibility for their safety.

Children must only use this equipment under supervision of an adult to ensure that it is not used as a toy, something that it is not designed for.

Electrical installations made in connection with the installation of the dehumidifier or the HomeVision® shall be made by authorized personnel in accordance with local and national regulations.

1. Read and observe the Safety Information in the user manual of the dehumidifer that is to be installed and/or used.
2. Incorrect settings in HomeVision® can result in damage to property and/or the equipment as well as too high energy consumption.
3. The Control Unit is connected to the dehumidifier with its cable and is mounted in the crawls space at approximately half the height in such a way that it is not affected by:
    a. The dry air from the dehumidifier.
    b. The wet air from the dehumidifier.
    c. Radiation from surfaces warmer than ambient air.
    d. Radiation from surfaces colder than ambient air.
4. Place and mount the Control Panel:
    a. In hallway or similar space where it is often passed and seen so that any appearing alarm is spotted shortly.
    b. Beyond the reach of small children in order to avoid unintentional changes to system settings.
5. As the Control Panel is intended to be continuously powered through included AC/DC adapter, do not leave batteries in the Control Panel as many makes and types have a tendency to leak as they age.
6. To use electrical equipment i a very humid or wet environment can be dangerous. Do not use or operate the dehumidifier if it, or its Control Unit are in water.
7. Water must not come in contact with or reach the electrical components of the dehumidifier or the HomeVision®. If this still happens, make sure they are dry before the system is powered and used again.
8. It is recommended that the power socket used to supply the dehumidifier is protected through a residual current device / ground fault circuit interrupter.
9. Be careful not to damage the cables. They must not be submerged in water or pass sharp edges.
10. HomeVision® must not be used with any other accessories than those presented in this manual or that are explicitly approved by Corroventa Avfuktning AB.

For further advice on product safety and use, please contact the supplier.

Relative humidity and its effect on substances

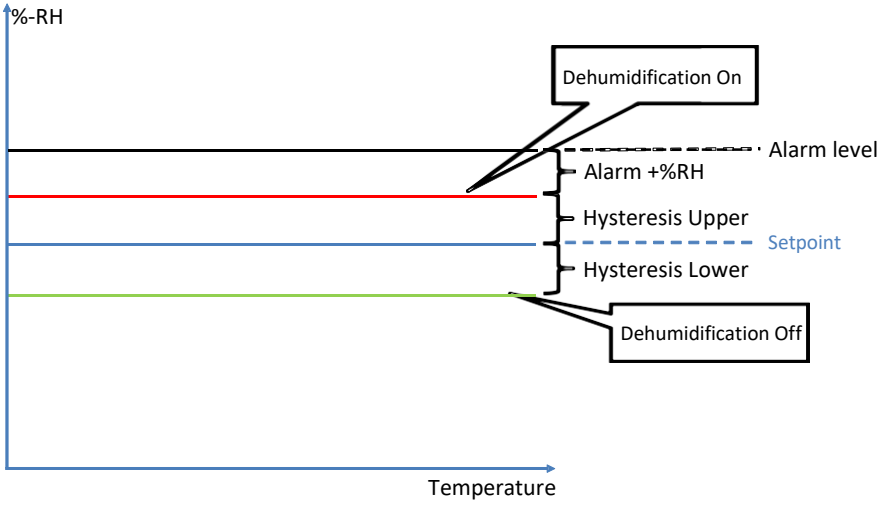
All air contains more or less moisture but the naked eye cannot see it until it condensates in small droplets on for instance a metal or glass surface. Already before it is visible however, the moisture affects substances and production processes, causes corrosion and micro organism growth. In the Nordic climate in particular, one must always count on ambient humidity due to the large water surfaces of the many thousands of lakes and of the surrounding sea.
Air humidity is measured and referred to in terms of relative humidity (%RH) which is a measure how much water it contains relative how much it can contain at given temperature. The higher the temperature, the more water the air can contain but it is still the Relative Humidity that counts and that needs to be controlled.
At RH 100% the air is saturated – there is fog and the moisture condensates in small droplets. Already at RH 60% steel corrodes and at 70% there is a risk for mould growth. As a rule of thumb, RH 50% is a good climate for most substances but in the Nordic countries the humidity is rarely that low. The yearly average for most places is closer to 80% and it can be as high both summer and winter.

Control of crawl space humidity

When a dehumidifier is installed in the crawl space in accordance with instructions in manual, vents, cracks and other openings are sealed and the ground is covered with non-aging plastic foil, all prerequisites are there for achieving and sustaining a good climate where rot, mould and bad smell are prevented. As an extra prevention, downpipes that end by the foundation wall should be modified so that the water is lead away from the building and do not leak into the crawl space. HomeVision® with its wireless Control Panel offers easy and convenient monitoring of the crawls space environment and allows the user to set desired operating parameters for Fixed RH control and, for Pro also Mould Growth Index RH control.

Fixed RH control

With RH control a setpoint is selected, a relative humidity one wants the system to use as basis for its dehumidification. Furthermore, one defines an upper and a lower hysteresis as well as an alarm limit, the latter defining an alarm level at which, should it ever be reached, an automatic alert is triggered on the Control Panel. The diagram is not to scale but only intended as an illustration of the principle presented and its different parameters.



To further facilitate the understanding of the principal, the example below presents all the parameters and explains how they are applied.

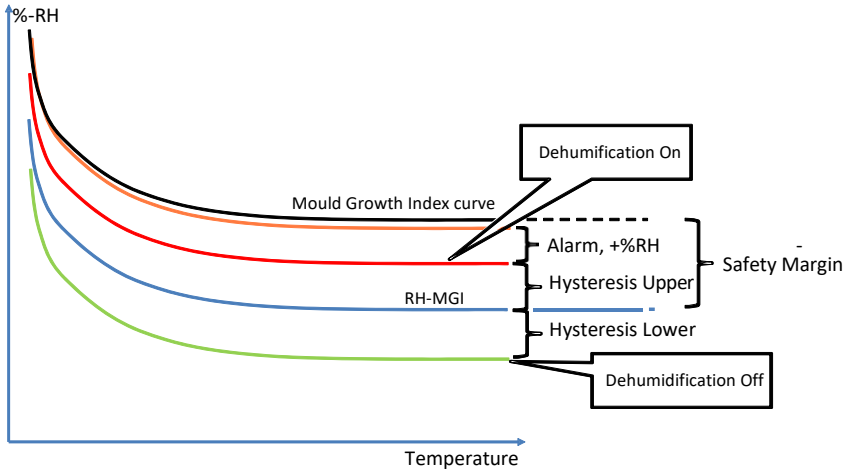
Setpoint, %RH:	65%	Activation: Setpoint+Hysteresis Upper = 65% + 4% = 69% Deactivation: Setpoint +Hysteresis Lower = 65% - 4% = 61%
Hysteresis Upper/Lower:	+ 4%, -4%	
Alarm, +%RH:	10%	Added to the activation level to give the Alarm Level. Alarm Level = Setpoint + Hysteresis Upper + Alarm = 65% + 4% + 10 % = 79%

As can be seen from the example above, the setpoint shall not be seen as, or confused with, a maximum level as it is exceeded with Hysteresis Upper before the dehumidifier is even activated. At times of high moisture load, the relative humidity can climb even further before it starts declining. Consequently, the setpoint is, if not perfectly correct, more to be seen as an upper limit for the average relative humidity and therefore **there must always be a margin bigger than the Hysteresis Upper between the setpoint and the level at which damage arises**.
The reason for HomeVision® allowing the user to set the hysteresis is to allow for each and every installation to be optimized. A too narrow span results in many starts and stops of the dehumidifier with increased wear on the equipment. A too wide span normally results in the system drying the crawls space to unnecessarily low levels which consumes more energy than necessary.

Mould Growth Index RH control

In addition to Fixed RH control, HomeVision® Pro also implements Mould Growth Index, MGI, control. The control mechanism makes use of the fact that mould growth, in addition to being humidity dependant also is temperature dependant. At lower temperatures, higher humidity can be tolerated without causing mould growth, the positive side of which is of course the potential to save further energy.

The MGI control principle, as explained implemented in HomeVision® Pro for its energy saving potential, is visualized in the schematic diagram below. The diagram is not to scale but intended only to explain and clarify the principle and its parameters.



The upper curve, the Mould Growth Index curve, is programmed in HomeVision® Pro and is not affected by user settings. The user is instead allowed to set RH safety margin, Hysteresis Upper and Lower and alarm limit, the meanings of which are explained by the following example.

RH safety margin, %RH:	-15%	Activation: Current MGI– RH safety margin + Hysteresis Upper = = Current MGI – 15% + 4%
Hysteresis Upper/Lower:	+ 4%, -4%	Deactivation: Current MGI – RH safety margin – Hysteresis Lower = = Current MGI– 15% - 4%
Alarm, +%RH:	10%	Added to activation to level to give Alarm level. Alarm level: Current MGI – RH safety margin + Hysteresis Upper + Alarm= = Current MGI – 15% + 4% + 10 %

Current MGI = The relative humidity that for current temperature is the lower limit for mould growth.

The principals are familiar to those acquainted the Fixed RH control but instead of a set point a safety margin is defined. As with the Fixed set point, the RH safety margin is exceed by the Hysteresis Upper before the dehumidifier is activated. **The RH safety margin does thus not constitute a maximum level**. As for Hysteresis and the Alarm, these function the same way with MGI as with Fixed.

As the reader has understood already, it is in the lower temperature interval that the relative humidity supported by Mould Growth Index can be allowed to rise somewhat higher and thus achieve an energy saving. For higher temperatures, the two control modes coincide and the energy consumption is thus identical.

Delivery inspection

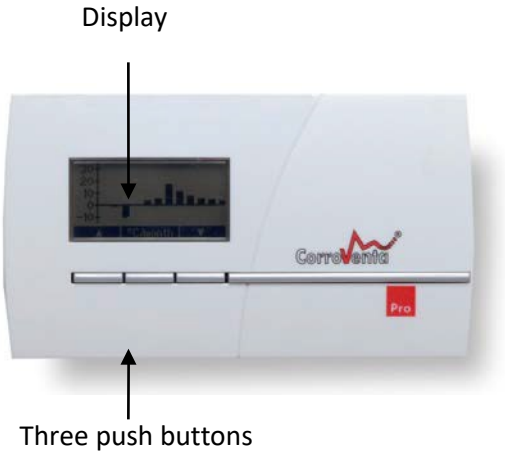
HomeVision® is delivered with the following items included:

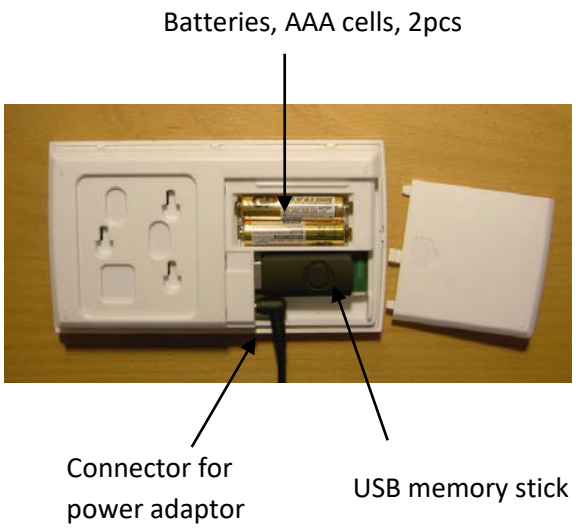
Control Unit with cable connection to CTR STD-TT or CTR 300TT2 dehumidifier	1 pc
Control Panel with USB memory stick	1 pc
Power adaptor for Control Panel	1 pc
Batteries for Control Panel, AAA cells	2 pcs
User Manual	1 pc

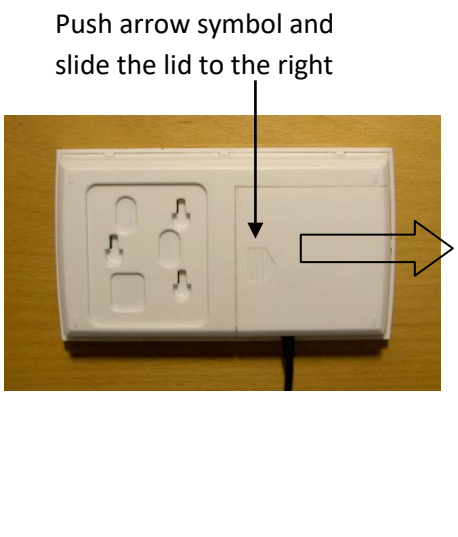
**) Please note that the batteries are already mounted in the Control Panel. To use them, the isolating piece of plastic between the battery pole and the contact spring must be removed. The batteries are intended for use during installation of the equipment. For normal use, the Control Panel shall be powered through the power adaptor.*

Product Overview

Control Panel



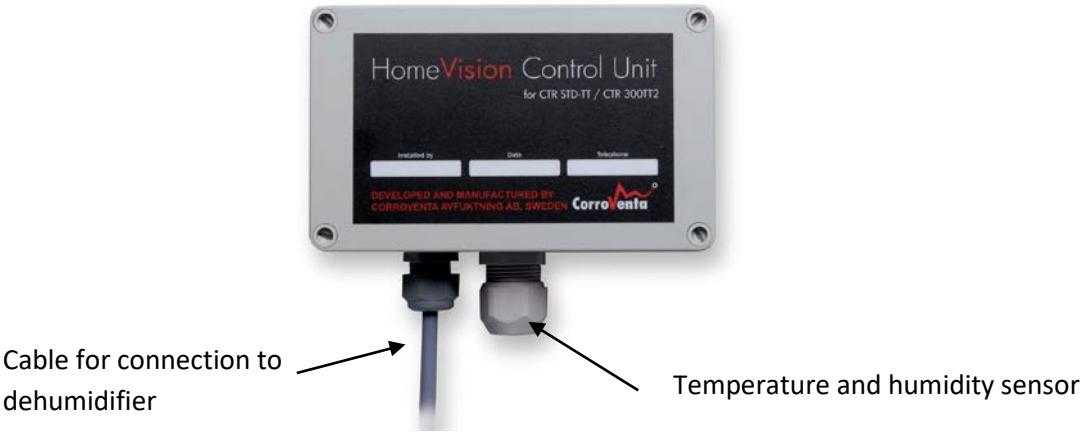




The battery comparent is opened by pushing by the arrow symbol and simultaneously sliding the lid in the arrow direction as shown in the picture below.

Control Unit

Control unit is mounted with sensor downwards.



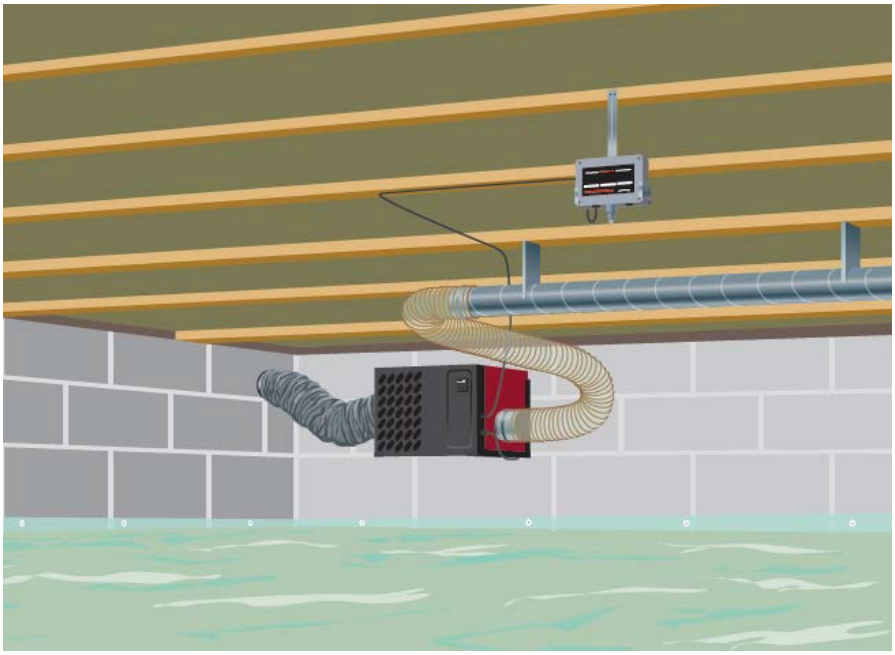
Installation

Installation of Control Unit and connection of Control Panel

When installing the Control Unit, prepare the Control Panel by removing the battery protection and bring it to the crawl space.

1. Mount the Control Unit where its cable can reach the dehumidifier and where its measurements of temperature and relative humidity will be representative of the ambient crawl space environment, securing that:
   - The unit is at approaximately half the height of the crawl space.
   - The unit is not directly affected by the dry air from the dehumidifier.
   - The unit is not directly affected by the wet air from the dehumidifier.
   - The unit is not affected by radiation from heat sources/surfaces hotter than ambient air.
   - The unit is not affected by radiation from surfaces colder than ambient air.

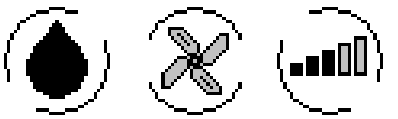
   The Control Unit is mounted in bracket, part of the installation kit (Monteringskit TT Multi) **with the sensor downwards**. The bracket is preferably fixed as depicted below.



2. Connect the Control Unit cable to the dehumidifier.

3. Connect the Control Panel to its power adaptor and then connect that to mains power. Continue in accordance with below instructions:

If the Control Panel does not already have one or several Control Units connected, its screen will look as the in the picture to the right. Push OK to continue.	No unit is currently connected. Push OK to continue. OK
For normal connection, intended for continous use, select Standard which is marked as default. För normal anslutning, välj Standard vilket är markerat. Push OK to continue. *Please note: Service connection is only temporary and intended for service technicians.*	Select pairing type: Standard Service Escape OK ▼
The user is now reminded that the Control Unit is open to connection during only two minutes after power-up. Restart it if necessary and the push Continue. *Please note: If the user selects service pairing, before the reminder to restart the Control Unit, the Control Panel displays a warning about the temperary nature of service pairing. If this screen is presented and the selection of this type of pairing was unintended, push Exit to return to previous menu and restart the process.*	Control Unit open to pairing for two minutes after start. If necessary, restart it and then push Continue. Continue Warning! Service pairing is only temporary and intended for service technicians only. Escape Continue
The Control Panel now searches for and identifies Control Units available for connection. Wait for this process to finish which is to be expected within 30 to 40 seconds. If the process should take considerably longer, restart the Control Unit and try again.	Identifying available control units … ■ Escape
When the process is finished, identified Control Units are presented. If there are several units on the list, select by verifying what identity is found on the backside of appropriate Control Unit. Step to this unit in the list with use of arrow button and then push OK.	Select unit to connect: -- 1234567891 HomeVision Escape OK

While the Control Panel executes the connection order it presents the screen presented to the right. Wait for it to finish.	Attempting to pair up.. Escape
When the connection process is finished, normally the Control Panel displays the result as in the upper picture to the right. The connected unit is given an identity consisting of capital letter A followed by the lowest available number in the interval one (1) through eight (8). *If the process should fail, likely cause of which would be that more than two minutes had passed or that there was disturbances in the communication, the Control Panel displays the screen depicted to the lower right. If this should happen, follow the instruction and restart the Control Unit before the process is reinitiated.*	Pairing successful New unit named: A1 OK Pairing failed. Restart Control Unit intended for pairing before retry. Escape Retry
When pairing is successful, push <OK> to continue to default, status view which looks like the picture to the right. At the top center the name of the current machine is presented, in the example A1. The Control Panel can connect up to eight Control Units, and when more than one unit is connected the default presentation toggles between the different units every five seconds..	52% A1 12.5°C  View Setup ▼

In order not to forget it, set correct time and date in the system immediately after connection of the first unit so that the statistics and the logs will be created correctly.

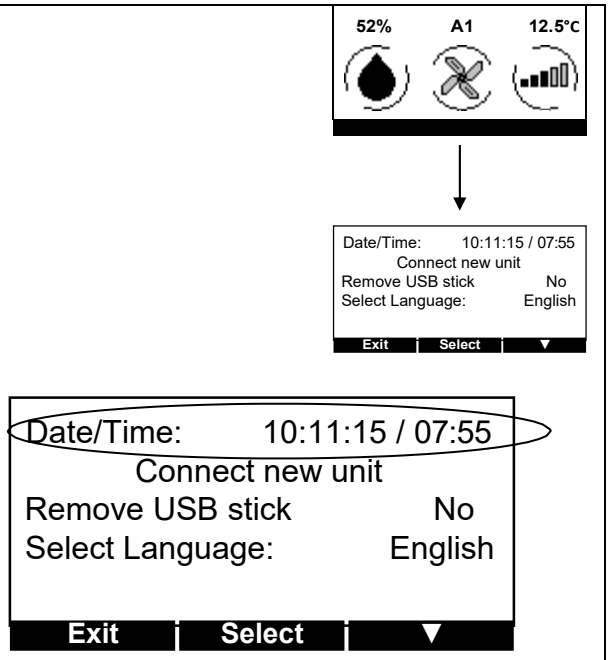
In the default, status view, push <Setup> to get to the Administration view where Date/Time is found on the first row.

Push <Select> and the Date/Time row will be highlighted.

Push <OK> to select this function.

Note: The date is presented in sequence YY – MM- DD.
The first figure, the year, is now highlighted. Use arrow buttons, <▲> and <▼>, to get to correct value and then push <Next> to continue with the editing.

When the last figure is edited, the minutes, the center button is labeled <Save>. When correct value is displayed, push <Save> and the setting of time and date is completed.



Installation of Control Panel

When the Control Unit is installed and radio connection between that and the Control Panel is established, proceed as follows:

1. Select position for the Control Panel where there is power outlet within reach of the power adaptor cable and preferably where any alarm would be noticed as soon as possible (the screen back light starts to flash when alarms are presented). Furthermore, if there are small children in the household, the Control Panel should be placed beyond their reach.

   Put the Control Panel at the intended position and leave it there for a couple of minutes to let the signal quality indication reflect current conditions. Verify that at the indication is at level two or higher.

2. Detach the wall bracket from the Control Panel by pushing it downwards. Hold the bracket to the wall at the intended position and mark the position of the three holes to be drilled. Drill the holes and insert the wall plugs. Fix the bracket to the wall using the three screws.
3. Remove the batteries from the Control Panel and connect the power adaptor. (The Control Panel, if correctly paired, will automatically reconnect the Control Unit after power down.)
4. Mount the Control Panel on the wall bracket by holding it over the bracket and pulling it downwards. Connect the power adaptor to the power outlet.

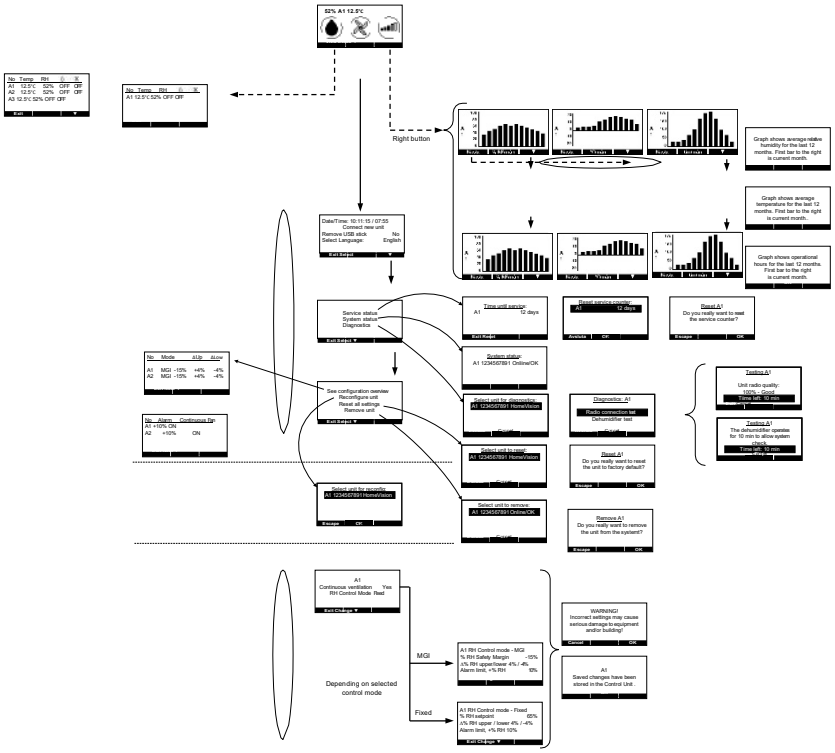
To use HomeVision® Pro

HomeVision® has an easily understood user interface with a display and three push buttons. The push buttons are so called soft buttons meaning that their respective functions vary with the menus to make the maneuvering as simple as possible.

The menus are all depicted below except for automatic alarms and reminder which are presented in separate chapter. From the default view, the menus are reached through the center setup button. The right Overview button presents current status data for all connected Control Units in a tabular form to allow comparison. The left down arrow in the default view is used to present operation, temperature and relative humidity statistics. In the statistics views, the first column from the right is the current calendar month, followed by the last completed calendar month and so forth.

When using and operating HomeVision®, remember the following:

- If no button is pushed, the Control Panel presentation automatically returns to the default view after 30 seconds. The only exception to this is when a Diagnostic test is activated in which case the presentation remains with this test until it is completed and only thereafter returns to default.
- If no button is pushed, the display back light goes out, switches off, after 15 seconds. When the back light is not lit, the first button push has no other function than turning on the back light. This also applies if and when an alarm is active and the back light is flashing.
- The Control Unit connected to the dehumidifier is, for its own function and control of the dehumidifier, independent of the Control Panel. Thus, even if the radio communication with the Control Panel should be interrupted, the Control Unit continues to operate and control the dehumidifier according to its settings.



Default view

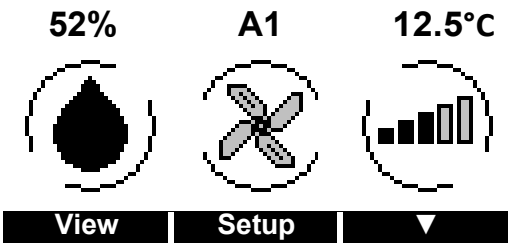
Default view

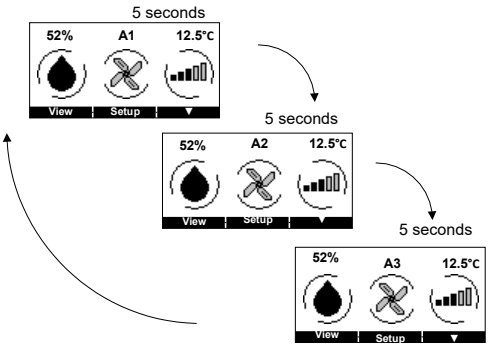
In the default view, current crawl space relative humidity and temperature are presented.
The user can also read whether dehumidification is currently ongoing and whether the fan is active or not. The far right symbol with the bars presents radio communication quality.
If more than one Control Unit is connected, the default presentation steps between all of them in a continuous loop where each unit is displayed for five seconds. The A1 identity in the top center of the example to the right indicates that the data currently displayed is that of the first unit.

The indications in the lower part of the screen show, from left:

- Dehumidification, if the dehumidifier is currently active or not. When active, the water level in the droplet is moving and the outer circle rotating.
- Fan – if the fan is currently active or not. When active the fan wheel and the outer circle are both rotating.
- Signal quality, how good the connection with the Control Unit is. The higher the indication, the better quality. When connection is lost, the entire symbol flashes.

  Please note that the signal quality reflects how many data packages are correctly received in their first transmission. The level normally builds up over time and may then vary slightly. Standard paired systems automatically reconnect after power reset. When the Control Unit has been powered down it takes approximately three minutes for the system to reestablish communication.

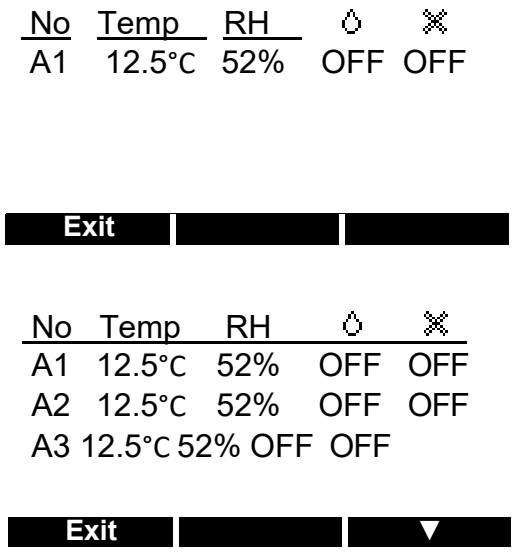




Overview

The Overview, a function accessible with the left button in the default view, presents current status data of all connected Control Units in a tabular format allowing comparison.
In addition to temperature and relative humidity, the user can also see whether dehumidification is ongoing and if the fan is active or not. The respective symbols used are recognizable from the default view.

When more than three units are connected and thus all units cannot be simultaneously displayed, the right button has a down arrow symbol and allows for the user to step down the list, machine by machine.



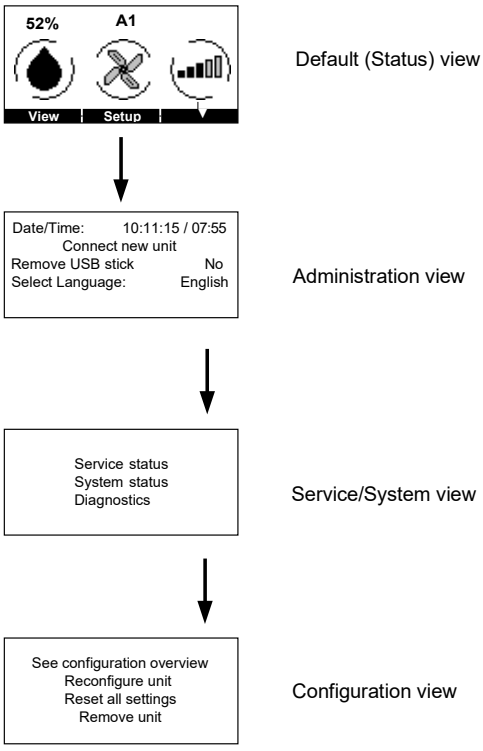
Setup

With center button <Setup> in the default view, all setup and configuration available with the system are accessed.

The first level of this menu tree is called **Administration** and allows for setting and adjusent of system time and date, connection of further Control Units, removal of USB memory stick as well as selection of preferred Control Panel language.

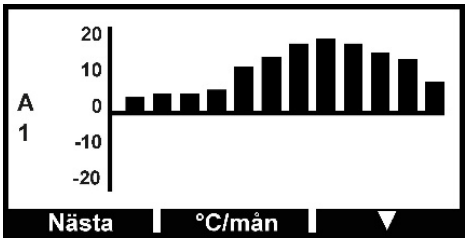
A first and single push of <▼> from Administration will access the second level of the menu tree called **Service/System** providing the user with the possibility of reading and resetting time to service, a system view providing a list of connected units and their respective technical status and finally also diagnostics functionality. Diagnostics is intended and useful for system inspection and trouble shooting.

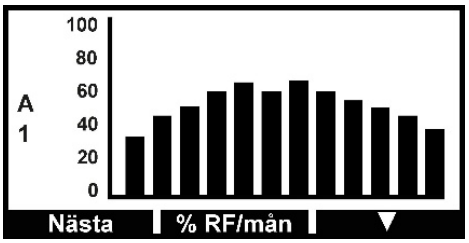
A second push of <▼> will access the third and final level of the main menu tree called **Configuration**. In this view the user can access a configuration overview where, in a tabular format, the current configuration data of all the connected units are presented. The user can also choose to change setup parameters in the Control Units, reset them to their factory default configuration as well as to delete them from the system.

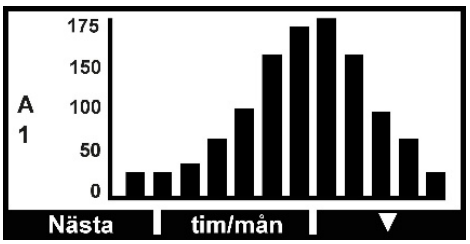


Statistics

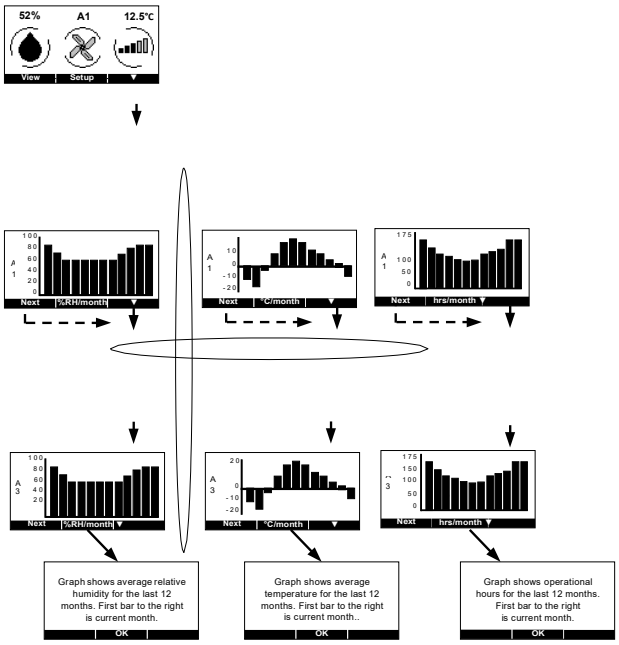
The statistics views are accessed from the default view with a push of <▼>. In these views, separately for each connected unit, the user is provided three diagrams respectively displaying average relative humidity, average temperature, and accumulated hours of operation for the past 12 calendar months. What unit selected data is reflecting is always visible through the unit identity, A1 or A2 etc., found in the center left margin of the screen.
In each view, the center button text is toggling between descriptive text and the word" Info" and a push of this button provides the user with an explanation of the data currently displayed.
The first machine to be displayed is A1. Push <Next> to see the next diagram for this machine. Push <▼> to step to the following machine.
In the diagrams, the first bar from the right is current calendar month.







Push of <Next> steps from diagram to diagram for selected machine, thus a horizontal displacement in this illustration. Current machine identity is displayed in the center left margin.



Push of <▼> steps from machine to machine and then back to the default view, thus a vertical displacement in this illustration. Current machine identity is displayed in the center left margin.

Set time and date

In the default, status view, push <Setup> to get to the Administration view where Date/Time is found on the first row.

Push <Select> and the Date/Time row will be highlighted.

Push <OK> to select this function.

Note: The date is presented in sequence YY – MM- DD. The first figure, the year, is now highlighted. Use arrow buttons, <▲> and <▼>, to get to correct value and then push <Next> to continue with the editing.
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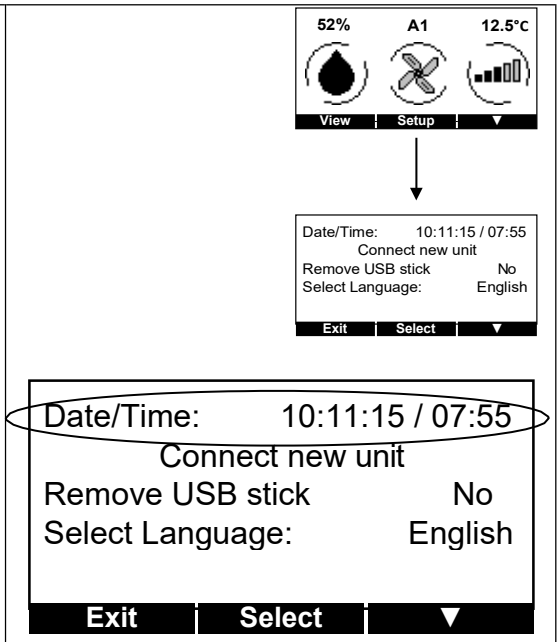


Connect new unit

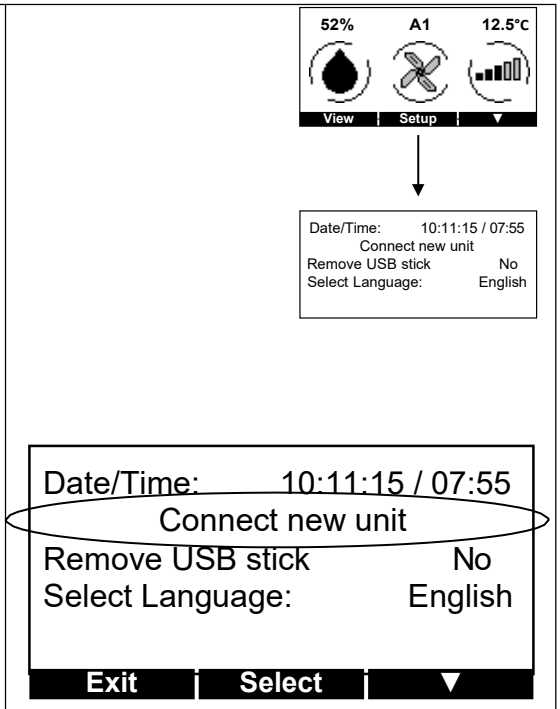
For new installation or other situation where the Control Panel does not already have a Control Unit connected, please refer to chapter Installation of Control Unit and connection of Control Panel.

If a new unit is to be connected as a replacement of an old unit, make sure this old unit is deleted from the system first so that its identity becomes available. If not, the replacement unit will not get the same identity as its predecessor which is unnecessarily confusing to the user who might already have memorized what identities corresponds to what machines/positions in the building.

In default, status view push <Setup> to get to the Administration view where the "Connect new unit" function is found.

Push <Select> which makes the Control Panel highlight the first row, Date/Time. Use down arrow, <▼>, to step to "Connect new unit" and push <OK>.

For normal installation, select alternative "Standard" so that the units will reestablish communication automatically, should there be for instance a power cut.

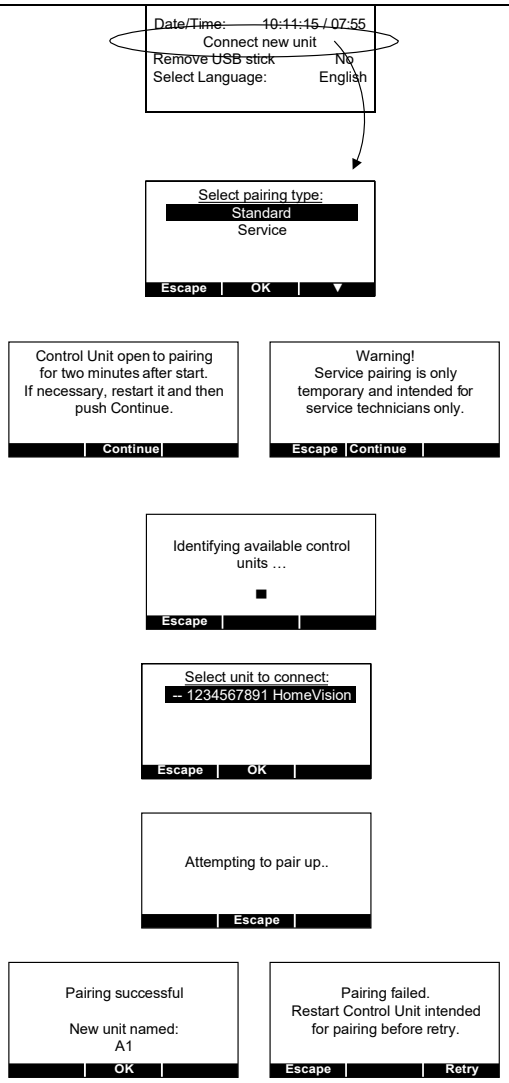


After selection of connection type, for the Standard alternative, the system will display a reminder of the fact that the Control Unit is open to connection for only two minutes after power-up. If Service connection was selected, the system displays a warning informing that this type of connection is not permanent. Push <Continue>.

The Control Panel searches for, and identifies, available Control Units. Wait for this process to finish which it normally does within 30 to 40 seconds. If not, restart the Control Unit and try again.

When the search is finished, the Control Panel displays a list of the units found. Units that are already connected to the Control Panel are not found in the list, even if they were restarted. Also, normally, there is only one unit in the list but if multiple Control Units within radio coverage was recently restarted there can be several units. Choose correct unit, if necessary by comparing listed identities with the identity found on the backside of the Control Unit, and push <OK>.

When unit for connection is selected, the system tries to execute this order by exchanging required information. Wait for this process to finish, at what time the Control Panel displays applicable result as depicted at the bottom of the illustration to the right. If the connection was successful, the new Control Unit is given an identity consisting of capital letter A followed by the lowest available number in the interval 1 through 8.



Remove USB Memory stick

Please note that this function shall be used at all times when the USB stick is to be removed from the Control Panel as it stops the writing to the memory and thus prevents damage to the memory stick itself as well as to the log files stored on it..

In the default, status, view push <Setup> to get to the Administration view where the “Remove USB stick” function is found.

Push <Select> which highlights the first row, the Date/Time. Using the down arrow, <▼>. step down to ”Remove USB stick”. Push <OK>.

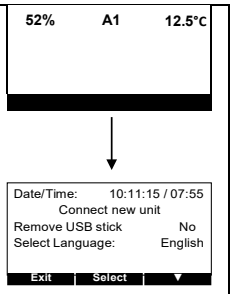
Use either <▲> or <▼> to toggle the alternative from ”No” to ”Yes”.

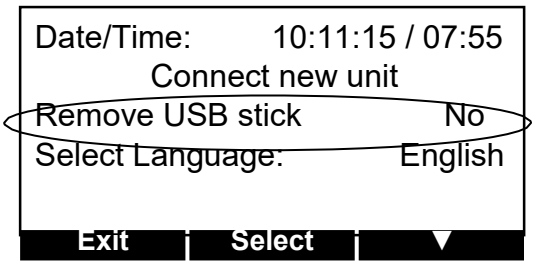
Push <Save> and wait until the choice is confirmed and a screen with the text ”The USB stick can now be safely removed” is presented..

Remove the Control Panel from its wall bracket, remove the battery lid by sliding it outwards and then remove the USB stick.

Remember to put the USB stick back into the Control Panel as soon as possible so that no, or at least minimum, log data is lost. When the USB stick is put back, push it all the way into the connector and if possible, observe that USB stick lights up and that its indicator starts flashing which indicates that writing is initiated. On the original black USB stick, this indicator is red and visible through a small hole at the top of the stick, opposite the actual connector.

If the log file is to be studied, as a first measure, do a copy of the .csv file found on the stick and work with that copy rather than with the original so as to avoid loss of original data, unintended changes to it as well as corruption of the file as such.

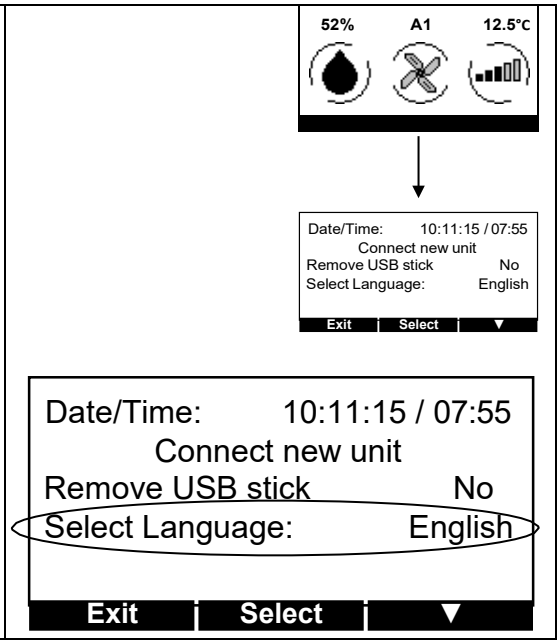




Select language

In the default, status, view push <Setup> to get to the Administration view where the “Select language” function is found.

Push <Select> which highlights the first row, the Date/Time. Using the down arrow, <▼>. step down to ”Select language”. Push <Save> and the selection is now made and stored.



Service status – Reset service counter

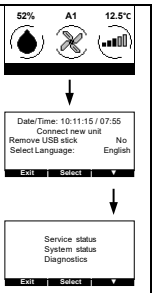
In the default, status, view push <Setup> and then <▼> to get to the Service/System view where “Service status” function is found.

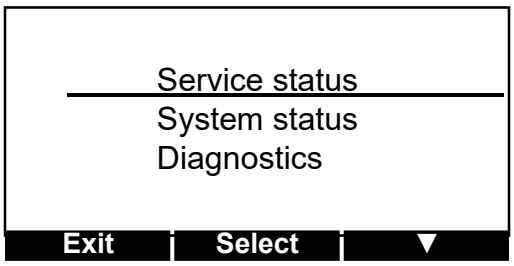
In this view, push <Select> which highlights the first row, Service status. Push <OK> to select this function.

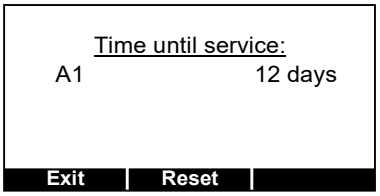
The system now presents a list of all units connected and, for each and every one of them, how many days that remain until it is time for service.

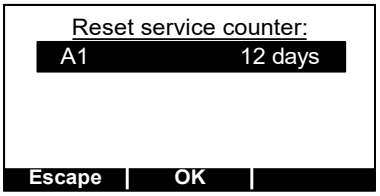
When service has been undertaken and the counter should be reset, push <Reset>, use <▼> to step to correct unit and push <OK>.

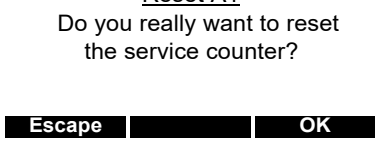
To prevent unintended resets, the system asks the user to confirm his intent to reset. Push <OK> if everything is in order and almost immediately the system presents a screen saying that the saved change has been stored. If this confirmation is not presented, do the reset again.









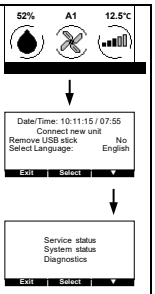


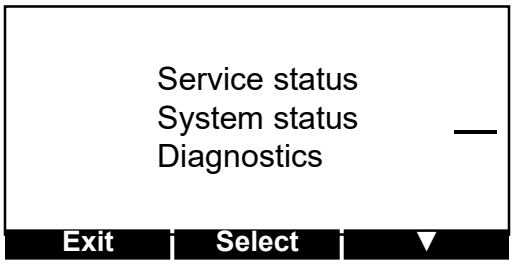
System status

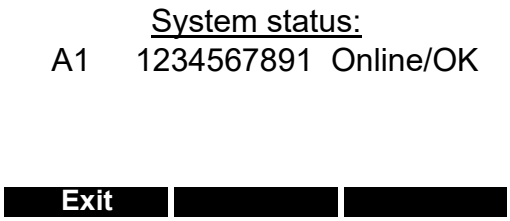
In the default, status, view push <Setup> and then <▼> to get to the Service/System view where “System status” function is found.

In this view, push <Select> which highlights the first row, Service status. Use to <▼> to step down to “System status” and push <OK>.

The system presents a list of all connected units, their respective serial numbers and their current technical status, whether they are currently online or not and if they are reporting any errors or if everything is in order.
As any and all detected alarms are automatically presented, the user does not normally have to access this menu.







Diagnostics – Radio connection test

In the default, status, view push <Setup> and then <▼> to get to the Service/System view where the "Diagnostics" is found.

In this view, push <Select> which highlights the first row, Service status. Use to <▼> to step down to "Diagnostics" and push <OK>.

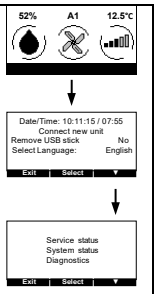
Select unit for test using <▼>. If only one unit is connected to the system, this unit is already highlighted. Push <OK>.

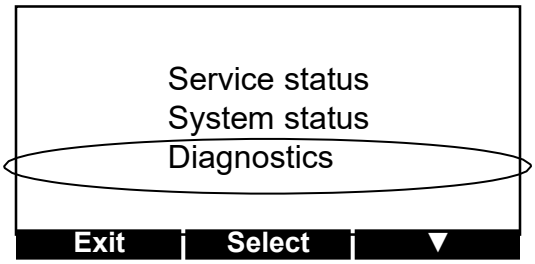
Select the already highlighted "Radio connection test" by pushing <OK>.

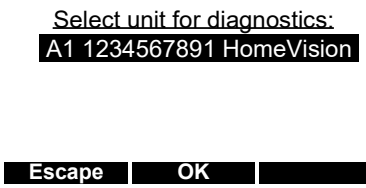
The test is now initiated and will continue for ten minutes unless the user stops it before.

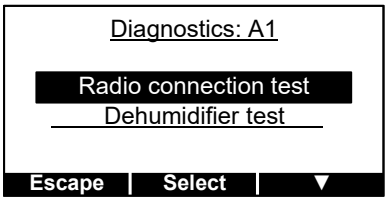
The intent of this test is to allow the user to, for instance, evaluate what Control Panel positions are possible to use by verifying whether the Control Unit is within reach.

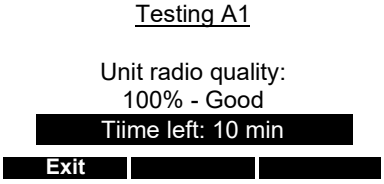
While using this test, observe that the system presents signal quality, a statistical calculation reflecting how many of the data packages sent are correctly received and confirmed the first time they are sent, not requiring any repetitions. This means that changes to presented quality, both positive and negative, are rather slow and also somewhat delayed. It is not to be compared with the signal strength presented by a cellular phone which is a value that can change very rapidly, both up and down.











Diagnostics – Dehumidifier test

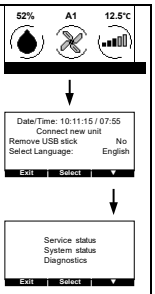
In the default, status, view push <Setup> and then <▼> to get to the Service/System view where the "Diagnostics" is found.

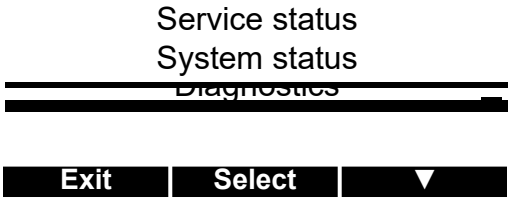
In this view, push <Select> which highlights the first row, Service status. Use to <▼> to step down to "Diagnostics" and push <OK>.

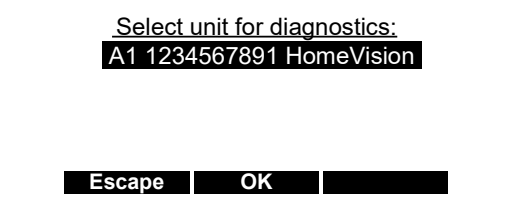
Select unit for test using <▼>. If only one unit is connected to the system, this unit is already highlighted. Push <OK>.

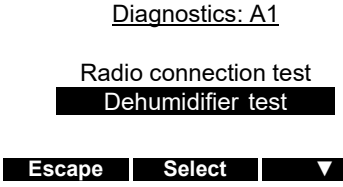
Step down to"Dehumidifier test" using <▼> and then push <OK>.

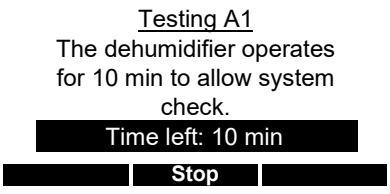
The test is now initiated which means that, regardless of current crawl space climate and current settings, the dehumidifier is now active and its fan operating. The user can thus easily verify that the fan is functioning, that the air is moving as it should and that the wet air leaving through the wet air hose feels warm – all good indicators of the system functioning as intended. Please note that when using this test, as in all other situations where the dehumidifier has been operating, the fan will continue operating for five minutes after the dehumidification has stopped. In other words, in situations where this test is run on a system that is not set to have continuous fan it will still be 15 minutes before the fan stops even though the dehumidification is only operational for 10 minutes.











See configuration overview

In the default, status, view push <Setup> and then <▼> twice to get to the Configuration view where the "See configuration overview" is found.

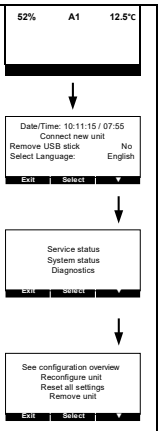
In this view, push <Select> which highlights "See configuration overview" and then push <OK> to enter it.

The intent of this function and presentation is to provide the user with an easy way of verifying either that the units are indeed identically or that the differences in the configurations are only the intended ones as applicable to given installation.

If there are more than three units connected to the system, the right button has the down arrow, <▼>, symbol and thus allows the user to step down the list, row by row.

The first view presents the selected mode of operation, Fix or MGI with applicable set point or safety margin, followed by upper and lower hysteresis.

The second view, accessible by push of <Next>, presents alarm level and whether continuous fan is selected or not.



See configuration overview
Reconfigure unit
Reset all settings
Remove unit

Exit | **Select** | **▼**

No	Mode		ΔUp	ΔLow
A1	MGI	-15%	+4%	-4%
A2	MGI	-15%	+4%	-4%
A3	MGI	-15%	+4%	-4%

Exit | **Next** | **▼**

No	Alarm	Cont. Fan
A1	+10%	ON
A2	+10%	ON
A2	+10%	ON

Exit | **Next** | **▼**

Reconfigure unit

In the default, status, view push <Setup> and then <▼> twice to get to the Configuration view where the “Reconfigure unit” is found.

In this view, push <Select> which highlights the first row. Push <▼> to step down to ”Reconfigure unit” and push <OK>.

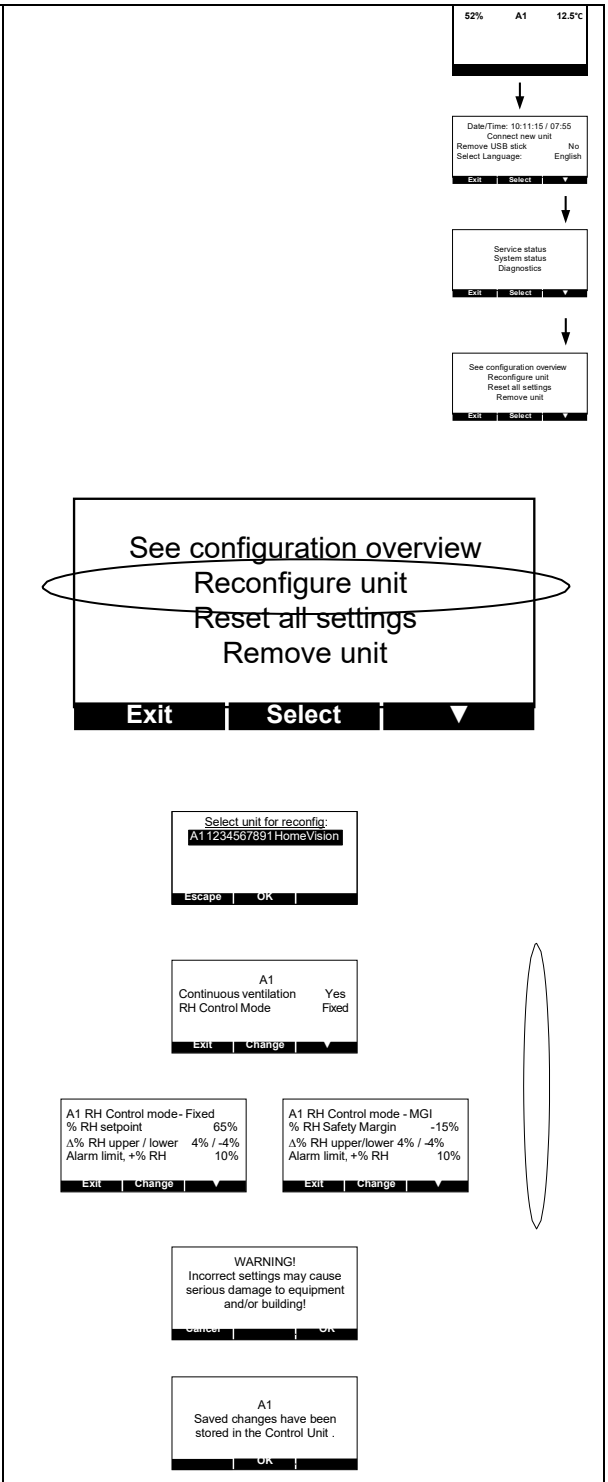
The Control Panel now asks the user to select what unit to configure. If required, push <▼> to step to intended unit. If intended unit already is highlighted, push <OK> to continue.

The first view presents the settings for Continuous fan and regulation mode. If continuous fan is active, the fan always operates. If it is deactivated, the fan only operates when dehumidification is required and ongoing.
The regulation mode can be set to either Fix or MGI. The Fix mode is the traditional and uses a constant set point relative humidity. MGI, Mould Growth Index control calculates a maximum relative humidity given the current temperature and to this it applies a safety margin as is thoroughly explained in the early sections of this manual.

To change any of these parameters, push <Change> and verify the intent to change setup by pushing <OK> to the warning message that appears. Step to intended parameter, row, using <▼> and when it is highlighted push <OK>.
Use the arrow buttons to display the correct alternative setting, for instance Yes or No for the Continuous fan and then confirm the selection by pushing <Save>.

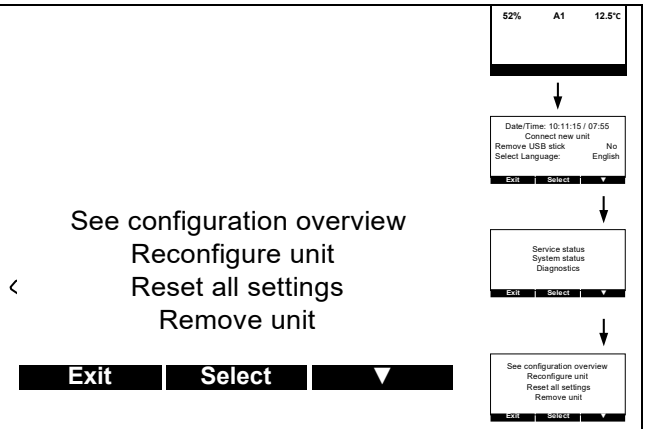
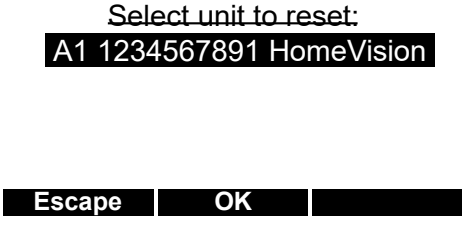
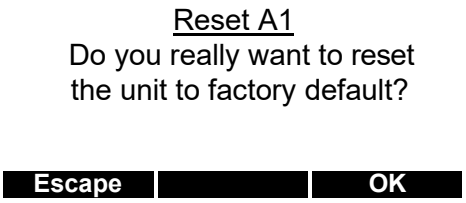
From the first screen, the down arrow, <▼>, leads to the second screen that depending on selected regulation mode presents the parameters for either FIX or MGI. To change these parameters, push <Change> and continue in the same manner as with the first screen.

When a change has been made to the configuration, the system almost immediately presents a confirmation screen informing on the fact that the changes have been stored in the Control Unit. If this confirmation is not presented, go back to the same screen and observe what data is presented. If it is still the old data and not the new, do the change again.



If in doubt as to whether the change was accepted and stored or if it was correctly done, use the ”See configuration overview” to see what data is currently used.	

Reset all settings

In the default, status, view push <Setup> and then <▼> twice to get to the Configuration view where the “Reset all settings” is found. In this view, push <Select> which highlights the first row. Push <▼> to step down to ”Reset all settings” and push <OK>. The Control Panel now asks the user to select unit to reset. If required, use <▼> to step to intended unit. If this is already highlighted, push <OK> to continue. To avoid unintentional resets, the user is asked to confirm his intent to reset the unit. If in order, push <OK>. If everything is in order, almost immediately the user is presented with a confirmation that the changes have been stored. Reset to factory default means that the unit applies Fix regulation with set point RH 65% and hysteresis +/- 4%. The alarm level is set to 10% which means that the alarm for high humidity is triggered at RH 79%. If in doubt as to whether the change was accepted and stored or if it was correctly done, use the ”See configuration overview” to see what data is currently used.	  

Remove unit

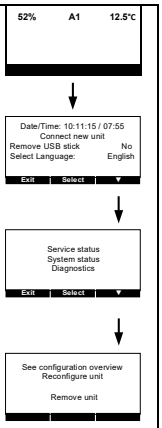
In the default, status, view push <Setup> and then <▼> twice to get to the Configuration view where the “Remove unit” is found.

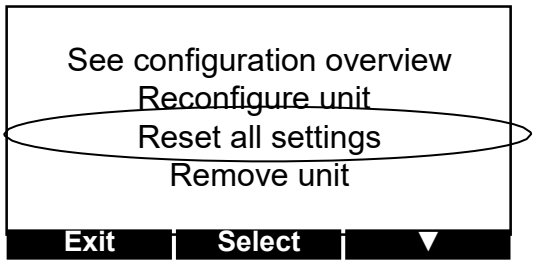
In this view, push <Select> which highlights the first row. Push <▼> to step down to ”Remove unit ” and push <OK>.

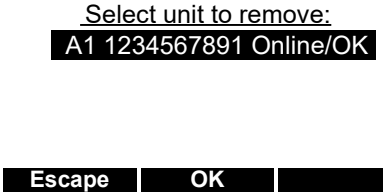
To avoid unintentional removals, the user is asked to confirm his intent to remove the unit. If in order, push <OK>.

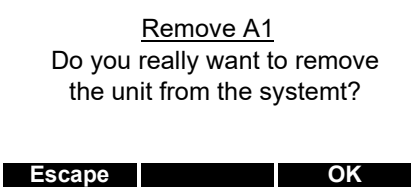
The unit is now deleted from the system. Its data will no longer be presented and nothing from this unit will be logged. Its alarms will not be presented either. The Control Unit itself however, unless unplugged, will continue to operate the dehumidifier in accordance with its latest settings.

The unit name that the removed unit had, for instance A3, is now available again and if, in addition, it is the lowest number available this name will be given to the next unit that is connected to the system. Therefore, if replacing hardware, delete the old one from the system before the new one is connected. This way, the new unit will inherit the name of its predecessor.



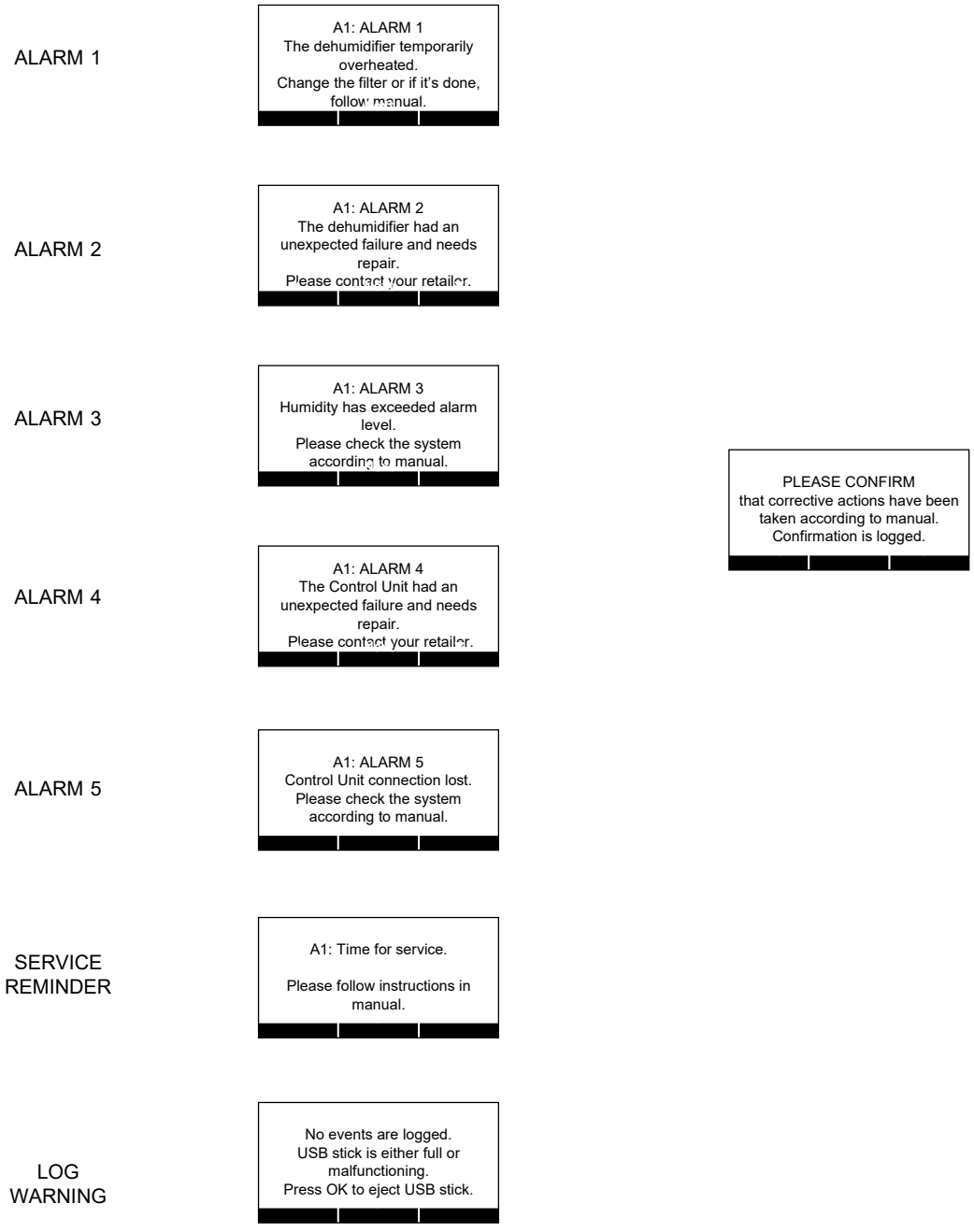






Alarms and service reminders,

In HomeVision® Pro there are a number of automatic alarms and reminders implemented intended to alert the user to any disruptions or system failures and to remind of service needs.
For all these alarms and reminders, except for the Log warning, the <Next> button leads to a confirmation screen depicted below to the right. When <OK> is pushed, the confirmation is logged with date and time which is a support for service technicians in any subsequent trouble shooting.
Below the picture is a table with further explanations of the screens.
Where applicable, the top row of the alarm text starts with the identity of the machine that has detected the error so that the user can identify the source of the error in systems with multiple units connected. In the below examples, it is unit A1 that has reported the error.



Alarm	*Explanation*
ALARM 1	The dehumidifier's automatic overheating protection has temporarily stopped the system. The dehumidifier restarts as soon as the temperature has sunk but to prevent this from happening again it should be attended to in accordance with its manual. A likely cause of the incident is, as the text says, that the filter is clogged and needs to be replaced. When the corrective measures have been taken, confirm them by pushing <OK>. The alarm will then disappear and a log post is created. If the problems remain after these measures, please contact your retailer.
LARM 2	Like the text says, the dehumidifier has failed and needs to be repaired by professional service technician. The dehumidifier does no longer function. Please contact your retailer as soon as possible.
LARM 3	The relative humidity is, or has temporarily been, above the alarm level. As a first measure, verify that the alarm level setting is relevant, that the humidity is indeed a problem. Thereafter, use the dehumidifier manual to locate the error. Confirm corrective actions performed by pushing <OK>. The alarm will then disappear and a log post is created.
LARM 4	Like the text says, the Control Unit has failed and needs to be repaired by professional service technician. The dehumidifier and its built-in fan are now running continuously to prevent damage on the property. As continuous dehumidification means significantly higher energy consumption, please contact your retailer as soon as possible.
LARM 5	This alarm is activated when the Control Panel has not heard radio traffic from the Control Unit for sixty minutes. If the connection is reestablished, the alarm disappears automatically. As a first measure, verify that the dehumidifier is powered so that power loss is not the reason for the alarm. If the problem remains, restart the dehumidifier by disconnecting and then reconnecting power and pair the Control Panel again according to the installation procedure of this manual. If the problem still remains, contact your retailer.
SERVICE	The system presents this service reminder once every year. Follow the instructions in the dehumidifier manual. When the service is confirmed by pushing <OK>, the built-in timer is automatically reset and the reminder will not reappear until after one year. A log post is created and stored.
LOGGNINGS-VARNING	This screen is presented if there is a problem with the logging to the USB stick. The problem can that there is no memory available or that the USB stick itself has failed. To isolate the problem, if possible, please try another USB stick formatted to FAT32 to see if that eliminates the issue. If not possible or if the problem remains, please contact your retailer.

How to read the log, PRO

The HomeVision® Pro creates a CSV (comma separated) log file on the USB memory stick that can be read with for instance MicroSoft Excel.
Remember to use the remove USB function in the menu system before physically removing the memory stick. If this is not done, there is a risk for an interrupt in the writing to the USB that can result in a corrupt log file. Furthermore, the first step should be to make a copy of the log file and then use that for the analysis. This way, unintentional saving of modified file to the USB stick is avoided which is preferable as a modified file can cause the logging process to stop. As soon as the copy is made, the USB stick should be put back into the Control Panel.

If the copy is opened with Excel the data can be sorted to columns resulting in the format presented in the example below. The column ”Unit ID” gives the ID of the Control Unit to which the Control Panel is connected. Log posts created while no Control Unit was connected will have ID zero (0). ”PARAMETER NR” records the given parameters internal number, an information that normally is of no importance to the user unless it is used to sort data or to search for information.”PARAMETER NAME” is naturally the name of the parameter and ”PARAMETER VALUE” the given parameter’s value at given time.

DATE/TIME	UNIT ID	PARAMETER NR	PARAMETER NAME	PARAMETER VALUE
2011-01-01 00:01	730	101	D RHlow	-4

In the following, all the parameters that can appear in the log are presented.

PARAMETER NR	PARAMETER NAME	PARAMETER VALUE	DESCRIPTION
101	*D RHlow*	*-4*	Hysteresis Upper
102	*D RHHigh*	*4*	Hysteresis Lower
103	*Calc Low RH*	*61*	Calculated deactivation level for the dehumidifier, Fixed control
104	*Calc High RH*	*69*	Calculated activation level for the dehumidifier, Fixed control
106	*MGI safety margin*	*-15*	Safety margin, Mould Growth Index control
109	*RH nominal fixed*	*65*	Setpoint, Fixed control
110	*RH alarm limit*	*10*	Alarm limit
111	*RH alarm level*	*69*	Calculated alarm level, Fixed control
120	*output FAN*	*1*	Logged at time of automatic activations and deactivations of fan. 1 at start. 0 at stop.
121	*output HEATER*	*1*	Logged at time of automatic activations and deactivations of heater (dehumidifier). 1 at start. 0 at stop.
122	*Alarm 1 overheated*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
123	*Alarm 2 failure*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
124	*Alarm 3 humidity*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
125	*ContFan*	*1*	Continuous Fan is 1. 0 for activation only when dehumidifying.
126	*FIX/MGI*	*0*	0 for Fixed control. 1 for MGI..
127	*Months to service*	*13*	Starts at 13 and counts down.
128	*Time changed*	*2011-05-03 15:33*	Logged when time is changed.
130	*CU ID*	*725*	Logging of Control Unit ID.
132	*Pairing attempt std/serv*	*0*	Logged when the system tries to connect new unit. 0 for Standard, 1 for service.
133	*Alarm Connection lost*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
134	*Alarm USB writing error*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
135	*Alarm 4 CU failure*	*1*	Normally 1. 0 when alarm is triggered – displayed on the Control Panel.
142	*Corrective action taken*	*1*	Logged when an alarm or a service reminder is acknowledged.
143	*Lite/Pro*	*1*	Logging of Control Panel version. 0 for Lite. 1 for Pro.
150	*Active hrs this month*	*19*	Logging of accumulated hours of operation. Logged the last day of each month.
165	*Mean temp this month*	*14*	Logging of average temperature. Logged the last day of each month.
180	*RH this month*	*45*	Logging of average relative humidity Logged the last day of each month.
192	*Active hrs/day*	*2,7*	Logging of accumulated hours of operation. Logged daily.
193	*Mean temp/day*	*14*	Logging of average temperature.
194	*Mean RH/day*	*43*	Logging of average relative humidity.

Service and maintenance

HomeVision® requires neither periodic service nor any maintenance.

The battery power option of the Control Panel is intended for use only during the installation. As soon as this is finished, the Control Panel should be powered by the included power adaptor and the batteries should then be removed as many makes and types have a tendency to leak as they age. The leakage from the batteries can cause the electronics of the HomeVision® to fail.

If the batteries still, for any reason, needs to be replaced they shall be 1.5V AAA cells. Two such batteries are required.

Fault finding

Note: The alarms and the warnings of the system are presented in previous chapter, including instructions on how to address them. Many of them require the dehumidifier manual.

Symptom	Probable cause	Measure
The Control Panel does not work. The display does not show anything	If batteries are used, these might be empty. The power adaptor is not connected or broken.	Replace batteries. Verify that the power adaptor is connected to the power outlet and that there is power in the outlet (connect another consumer to the outlet such as a lamp or a radio) Verify that the power connector cable is correctly positioned in the Control Panel. If the problem remains, insert batteries (1.5V AAA cells) in the Control Panel. If this works, the power adaptor is broken and needs to be replaced. If none of the above works, the Control Panel itself is probably out of order. Please contact your retailer.
The Control Panel does not log anything-	The USB stick can be malfunctioning or, if used anywhere else before, incorrectly formated.	Verify that the USB stick, if it has been used anywhere else, is FAT 32 formated. If this does not work, replace the USB stick with another FAT32 formated stick. If the problem remains, please contact your retailer.

Technical data

Control Unit		
Voltage (powered by dehumidifier)		24VDC
Protection class		*IP 56*
Length x Width x Height (mm)		180x110x63 mm
Control Panel		
Battery type		*AAA cell, 1,5 Volts*
Power adaptor:	Connection, Primary	*230VAC/50Hz*
	Secondary voltage and max current	*5VDC, 800mA*
USB interface for memory stick		*Delivered with 1GB memory stick*
Length x Width x Height (mm)		
Radio Frequency		868 MHz

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