ADSORPTION DEHUMIDIFIER IA2 ES F

USER MANUAL

CorroVenta®

Contents

User instructions IA2 ES F

Intended use

IA2 ES F is intended for, and must only be used for, drying air indoors and at normal ambient pressure. The machine is not intended for use in environments where flammable gases can occur.

Any other use of IA2 ES F, as well as use contrary to the instructions in this manual, may result in personal injury and/or damage to equipment and other property.

Introduction

The IA2 ES F adsorption dehumidifier has been developed for the dehumidification of indoor air. The machine is a four-hole model and has a separate regeneration flow, which allows the regeneration air to be taken from outside the space if this is appropriate for energy conservation or to minimise the impact on the air pressure in the space. For maximum flexibility in the installation and the positioning the machine, IA2 ES F is fitted with connectors that facilitate connection of hoses or pipes for all air flows.
Via the control panel, the user of IA2 ES F can optimise the operation for the intended job, control the fan and select a suitable method for controlling the dehumidification using either the built-in sensor for temperature and relative humidity or a connected external sensor.
IA2 ES F can be used with Digital Gateway for connection to a building system via ModBus. The machine is also compatible with SuperVision® 2.0 and can consequently be both controlled and monitored remotely via a smartphone, tablet or computer. SuperVision® 2.0 saves collected measurement data and the user can easily create any graphs that may be needed for analysis.
The machine is built with a robust chassis made of powder-coated, galvanised sheet steel and can easily be opened for servicing and maintenance work, with the aim of ensuring a long service life and problem-free ownership.

• High capacity level	• Galvanised, power-coated chassis steel
• Energy efficient	• Digital control panel
• Robust	• Can be used with Digital Gateway control and monitoring via ModBus
• Service-friendly	• Compatible with SuperVision® 2.0 for control and monitoring via a smartphone, tablet or computer

Manufacture directive

IA2 ES F is CE approved.
The dehumidifier is manufactured in Bankeryd, Sweden, by Corroventa Avfuktning AB, which is certified in accordance with ISO 9001.

Limitation of Liability

- Incorrect installation and/or incorrect use can cause damage to property as well as injury.
- The manufacturer assumes no liability for property damage or injury incurred as a result of failing to follow these instructions, the machine being used for purposes other than those intended or failure to observe these warnings. Such damage, injury or liability is not covered by the product warranty.
- The product warranty does not cover consumable parts or normal wear.
- The purchaser is responsible for checking the product upon delivery and before use to ensure it is in good condition. The product warranty does not cover damages resulting from the use of defective products.
- No changes or modifications to the machine may be performed without written consent from Corroventa Avfuktning AB.
- The product, technical data and/or installation and operating instructions are subject to change without notice.
- These user instructions contain information protected by applicable intellectual property laws. No part of these user instructions may be reproduced, stored in a retrieval system or transmitted to third parties in any form or by any means without the prior written consent of Corroventa Avfuktning AB.

Any comments regarding the content of this document must be sent to:

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Safety information

The device is not intended for use by people (including children) with reduced physical, sensory or mental capabilities, or by people with a lack of experience or knowledge, unless they are under the supervision of, or have first received instructions regarding the use of this device from, a person who is responsible for their safety.

Children must be kept under supervision to prevent them from playing with the device.

Electrical installations carried out in connection with the installation of IA2 ES F must be performed by a qualified electrician in accordance with local and national regulations.

In addition, the following warnings and instructions must be read and followed:

1. The dehumidifier is only intended for indoor use, for drying air at normal air pressure.
2. The dehumidifier must not be supplied with voltage before the installation has been completed in accordance with these user instructions.
3. A dehumidifier that is supplied with voltage must not be covered, as this can lead to overheating and the risk of fire.
4. The dehumidifier must not be used as a work table, trestle or stool.
5. Do not use the dehumidifier as a step or platform.
6. Never operate the dehumidifier without fitting filters, as this may damage the dehumidifier and its rotor. Check that the filters are clean, as clogged filters can cause the dehumidifier to overheat.
7. The dehumidifier must not be used in environments where the following chemicals/substances may be present in the air being processed:
    i. alkaline gas or dust,
    ii. organic material with a high boiling point,
    iii. aerosols of grease/oil,
    iv. acidic impurities,

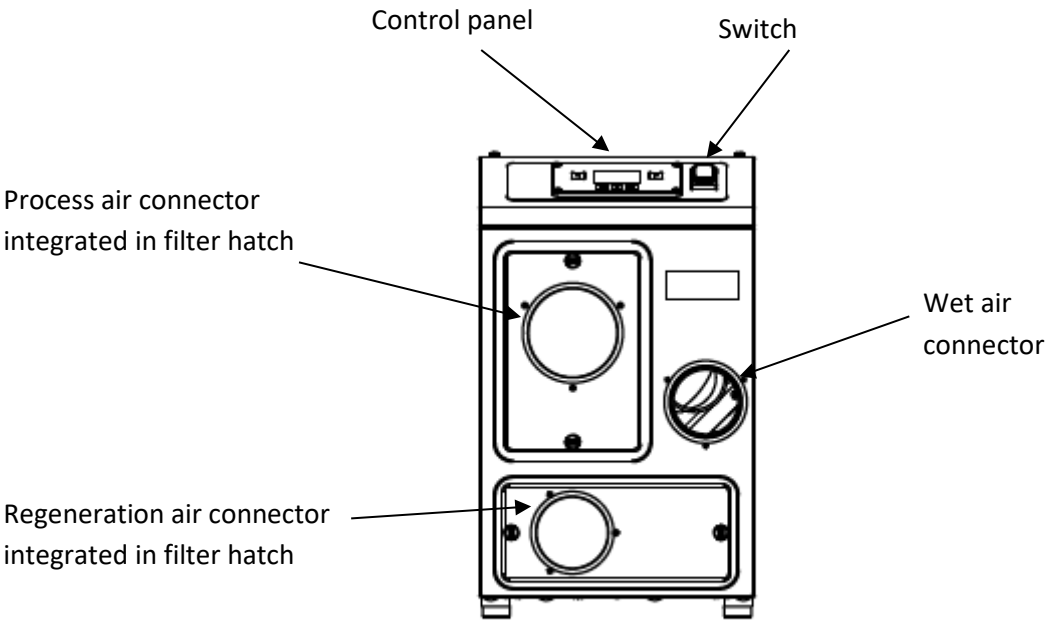
    as these will damage the material in the rotor and hence the machine's dehumidification capacity.
8. The dehumidifier must not be used in such a way or in such a location that the ambient air or the air passing through the machine in its respective flows can contain flammable/potentially explosive substances or gases.
9. Do not insert objects into the air outlets or air inlets. This can result in damage to the machine as well as personal injury.
10. Install the dehumidifier on level ground and balanced so that it cannot tip over.
11. Keep children, animals and bystanders away from the workplace while installation is being carried out.
12. Contact your retailer if the dehumidifier is damaged or broken. Never repair the equipment yourself unless you have received special training from the manufacturer.
13. Check that the electrical cable that is to be used for the machine is not damaged or faulty. The cable must not run through water or over sharp edges.
14. Never lift or pull the machine by its cable.
15. It can be hazardous to use electrical equipment in very damp or wet conditions. Never apply voltage to the dehumidifier if it is standing in water.
16. The dehumidifier may only be connected to a grounded outlet with voltage and frequency that correspond to the dehumidifier's rating plate.
17. To minimise the risk of electric shock, a residual current device must be used.
18. Water must not come into contact with the dehumidifier's electrical components. In the event of this happening, you must check that the equipment is dry before it is powered and used again.

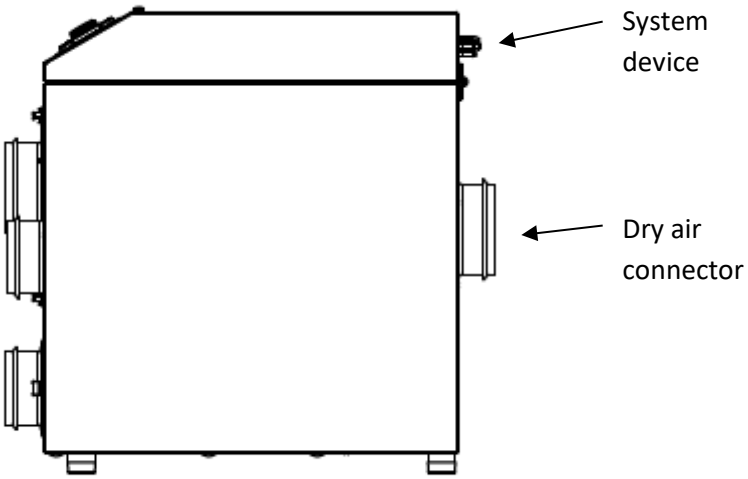
19. The dehumidifier must always be disconnected from the mains voltage before it is opened.
20. Repair and maintenance of the dehumidifier's electronics and electrical system may only be carried out by an authorised electrician.
21. All work involving the machine, including installation, repairs, servicing and maintenance, must be carried out using appropriate personal protective equipment.
22. The wet air hose/pipe that is used and connected to the dehumidifier must be corrosion resistant and able to withstand a temperature of 80°C.
23. Following transport and/or lifting, the machine must be inspected and, if there is reason to believe that damage may have occurred, the dehumidifier must not be used until it has been checked by a qualified engineer.
24. The dehumidifier's air flows must not be connected to other equipment in such a way that this equipment forces air into or out of the dehumidifier.
25. Note that when the machine is in operation, depending on its installation, it can affect pressure balances and hence air flows between rooms/spaces in the building and/or between the building and its surroundings. Analyse this and implement any measures that are required to ensure that the operation of the machine does not cause harmful gases or particles to be transferred into spaces where people spend time, and that it does not have a negative effect on chimneys, stoves or other types of ventilation or extraction.
26. The dehumidifier must not be used with accessories other than those described in this manual or approved by Corroventa Avfuktning AB.

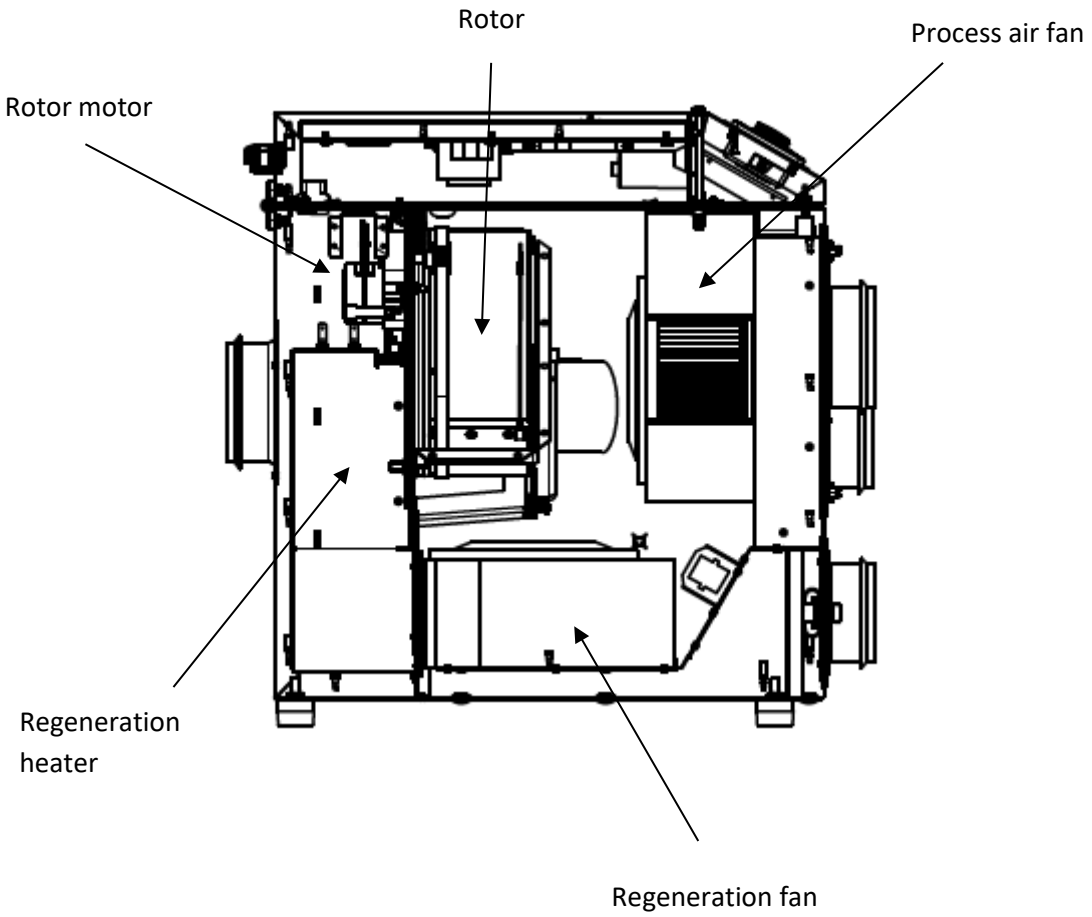
Contact the supplier for further advice on the safety and use of the product.

Product overview

The dehumidifier's main components






Rotor
Process air fan
Rotor motor
Regeneration heater
Regeneration fan

Drying theory and drying method

Relative humidity and its impact on substances

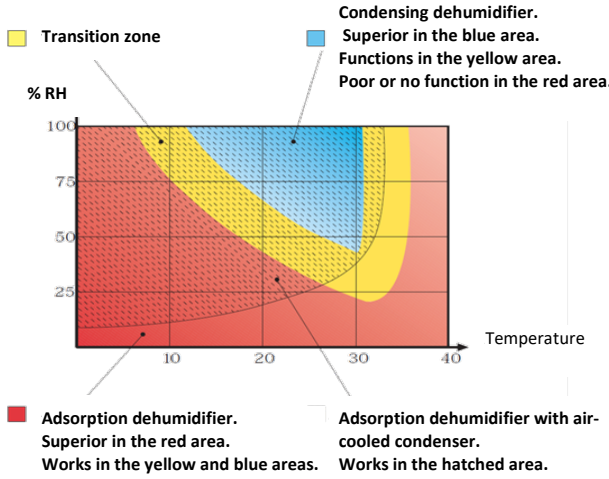
All air contains a greater or lesser degree of moisture. However, we cannot see the moisture with the naked eye until it has condensed as small water droplets, for example on a metal or glass surface. Even before the moisture is visible, it affects various substances and production processes, causes corrosion and the growth of microorganisms.

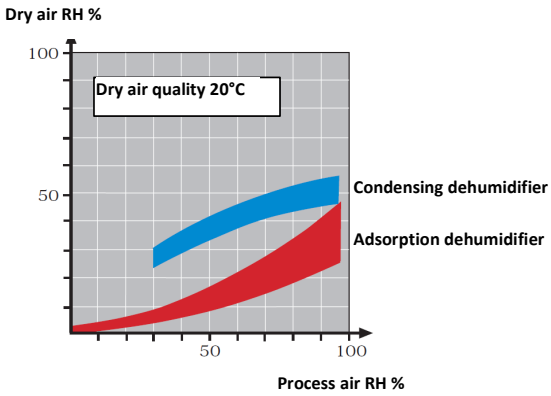
Humidity is measured and referred to in terms of relative humidity (% RH). This is a measure of how much water the air contains in relation to the amount of water it can contain at a given temperature and a given pressure. The higher the temperature, the more water the air can contain. However, it is still the relative humidity that is important, and this must be regulated if we want to prevent corrosion and the build up of mould.

At 100% RH, the air is saturated – fog forms and the moisture condenses in small droplets. Steel corrodes at 60% RH, and at 70% RH there is a risk of mould build up. As a rule of thumb, 50% RH is a good climate for most materials.

Choose the right type of dehumidifier

The adsorption principle is less dependent on the ambient temperature than the dehumidification of condensation. Adsorption also works far below freezing point, whereas the capacity of condensation dehumidifiers deteriorates rapidly as the temperature drops, as can be seen from the diagram to the left below.
As a rule of thumb when it comes to choosing a type, adsorption is the primary choice for drying unheated premises or where material has to be dried. Adsorption dehumidifiers produce dehumidified air, reduce a significant proportion of the water content calculated in grams per kilogram (Δx) and consequently generate a greater difference in vapour pressure that is directly related to the drying speed.





As can be seen from the diagram above, condensing dehumidifiers are used in warm and moist conditions where the aim is to dry the room and the ambient air.

This is how the dryer works

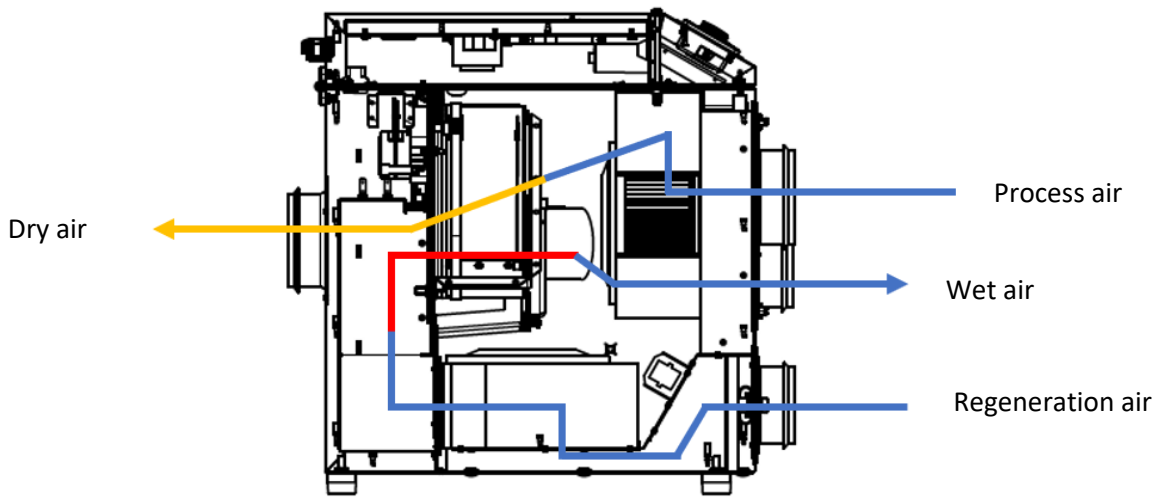
IA2 ES F is a four-hole adsorption dehumidifier, which means that it has two fans and two entirely separate air flows. It is also fitted with connectors for all the air flows, which deliver maximum flexibility as regards the positioning of the machine, within or outside of the space that is to be dried. Similarly, the regeneration air can naturally also be taken from the most suitable location, taking into account both the pressure in the space and the energy consumption.

The drying process in the machine basically works as follows:

> Process air is drawn into the machine via a connector and first passes the process air filter, where it is cleaned of dust and particles. After this, the process air passes through the process air fan and is forced on through the rotor, where it comes into contact with the silica gel that dries it. After the rotor, the now dry air continues out through the dry air connector, ready to be distributed in the space that is to be dried.

In parallel with the above drying process, the rotor continuously performs regeneration which prevents it from becoming saturated, which would otherwise soon have halted the dehumidification process. This entirely separate regeneration flow works as follows:

> Regeneration air is drawn into the machine via a connector and first passes a filter, after which it reaches the regeneration fan. From there, the air is forced on into the heater and then through a separate segment of the rotor. The warm air flow forces out the adsorbed moisture and makes the rotor ready for a new cycle. The air flow, which is now warm and moist, leaves the machine via the wet air connector.



Transportation and lifting

IA2 ES F weighs 25.6 kg, and the method used and any aids for transportation and lifting must be selected on this basis.

Delivery check, inspection following transportation or lifting

Once the machine has been delivered to the site where it is to be used, it must be inspected to ensure that no damage has occurred as a result of transportation and/or lifting. If there is reason to believe that such damage has occurred, or if there are visible signs of damage, the machine must not be used until it has been checked by a qualified engineer.

Storage

When the dehumidifier is to be stored, either prior to installation or between installations, the following should be taken into account to ensure the best possible service life and to avoid unnecessary damage:

- Store the dehumidifier indoors so that it is protected from dust, frost, high humidity/rain/snow and aggressive pollution.
- Ensure that the dehumidifier is protected against physical damage, for example from collisions with forklift trucks.
- Place the dehumidifier in an upright position on a horizontal surface.

Installation

The installation of IA2 ES F should be planned in such a way that the ducting for the required air flows can be kept as short and, for the respective two air flows, as well balanced as possible. Long ducts generate greater resistance for the respective fans and impede the capacity and energy efficiency in the process.

As guidance in the planning work regarding ducting, take the following general instructions into account:

- Plan the installation and position the machine such that the required ducting is as short as possible.
- Use pipes/hoses for regeneration air and wet air and for process air and dry air respectively with dimensions that are the same and as large as possible. The aim is to achieve as small a pressure drop as possible, and for the pressure drop before and after the machine to be as similar to each other as possible in the respective two flows.
- Be sure to avoid leaks in joints and transitions that otherwise constitute losses in the process.
- Ensure that wet air ducting is tilted away from the machine so that any condensation water does not run back into the machine. Place suitable drainage holes low down to deal with condensation water if another run-off solution is not possible or desirable.
- Use insulated ducts to minimise condensation in situations where there is a risk of freezing or if the ambient temperature is expected to be below the dew point for the air in the ducts.

- Bear in mind that structure-borne noise/vibrations are propagated through solid, fixed connections, and a suitable flexible hose or equivalent should therefore be used as the transition from machine to permanently installed pipe/duct to minimise this phenomenon where relevant and appropriate.
- Regeneration air inlets outdoors should be executed so that:
    - dust, dirt, exhaust fumes or other unsuitable/harmful gases are not drawn into the machine.
    - rain or snow is not drawn in
    - wire mesh at the inlet prevents animals and large objects from entering. A suitable mesh sizes is approximately 10 mm to ensure good function without an excessive pressure drop.
    - there is no risk of the wet air being drawn in. The outlet for this is ideally located at a distance of two metres or more.
- Wet air outlets outdoors are executed so that:
    - there is a drop all the way from the machine, and so that run-off can take place there or via drainage holes at low point(s) along this section.
    - wire mesh at the outlet prevents animals and large objects from entering. A suitable mesh sizes is approximately 10 mm to ensure good function without an excessive pressure drop.

Summary of installation, key points:

1. Place the dehumidifier on a horizontal and level surface, so that it cannot tip over causing injury or damage.
2. Connect other pipes or hoses for regeneration air, process air and dry air, according to the needs of the installation. Pay attention to general instructions regarding ducting.
3. Check that filters are installed in the machine for both process air and regeneration air, and that these are intact and clean.
4. Check that filter hatches are closed and locked.
5. Check that the electrical cable is intact, with no signs of visible damage. Connection the machine to a 230 VAC, 50 Hz outlet, which should be protected with a residual current device.
6. Start the machine using the switch to the right of the control panel. When the display lights up and shows the first screen image after start-up, press Resume to continue with previously made settings or press Start for the machine to run continuously (Manual mode) at maximum capacity (Max).
7. Check that the air flows are as anticipated, and that ducting, connected pipes and hoses are not leaking.

Starting and stopping the machine

To start the machine:

1. Press the switch to the right of the control panel.
2. Wait for the control panel to start up.
3. Once the control panel has started, there are two alternatives in the display: Start and Resume.

   Select **Resume** if previous settings and adjustments are to be used again.

   Select **Start** if previous settings are to be ignored and the machine is to operate in Max mode with continuous dehumidification, i.e. in Manual control mode.

   Note: The machine starts up automatically after a power failure. After a power failure, or if the most recent user did not press Stop on the control panel before the switch was turned off, a countdown will be presented on the display when this lights up. After the countdown, which lasts for 30 seconds, the machine starts up. If this is not desirable, however, the countdown can be halted with the aid of the Stop button, which can be found in the middle, below the display.

To stop the machine:

1. Press Stop on the control panel.
2. The machine now enters a cooling phase – wait until the countdown on the display is complete.
3. The machine is now in standby. To shut down completely, turn off the switch.

The control panel’s menus and functions

IA2 ES F is fitted with a control panel that has a display and five push buttons. For easy navigation, the user interface is implemented in such a way that the two upper, larger buttons are used for navigation between menus, while the three smaller buttons below the display are used for selecting and editing within each given menu.

In the upper menus, the left-hand of the lower buttons is called the HOME button, and pressing this button immediately takes the user back to the standard view. In many of the views there is an Info button that presents information that can be useful for inexperienced users.

If the display's background lighting goes out after the preset time, the first button push only illuminates the display.

If the control panel is unused for 10 minutes, a keypad lock is activated. The machine then must be unlocked by pushing the two upper button simultaneously. This is still presented in text and as an image on the display.

Upper buttons to the left and right –	**Only menu navigation. Never change any settings.**
Home button	**Return to standard view.**
Info button	**Presents information.** **Electronic user instructions.**

SuperVision® 2.0/ Digital Gateway

Appears when the machine is connected to Gateway for remote monitoring and remote control.

Network status

If the machine is connected to a network, Master or Slave appears, depending on the network role.

Capacity mode
Indicates the selected capacity mode.

Timer

Indicates when the machine is set to timer mode.

Slave – indicates that the machine is being controlled by another machine.

Drying indicator

Moves when drying is in progress.

Alarms

The machine has detected a fault.

Fan indicator

Moves when the fan(s) is running.

Control mode

Indicates how drying is controlled, if it is continuous (MAN = manual) or if it works to a preset setpoint for Relative Humidity (RH), Mixing ratio (X), or dew point (DP). It can also be controlled from an external hygrostat (HYG).

If an external sensor for relative humidity and temperature is used, E.RF, E.X or E.DP appears in this mode.

Setting setpoint

The left and right buttons below the screen are used to increase and decrease the setpoint that is shown against a black background.

Fan mode

Cont – continuous fan.
If this information is not displayed, the process air fan only works when drying is required.

INT –
Intermittent fan operation, 5 minutes every hour. **Read important information in the following chapter.**

Start view

When IA2 ES F starts up, two options are presented to the user on the display:

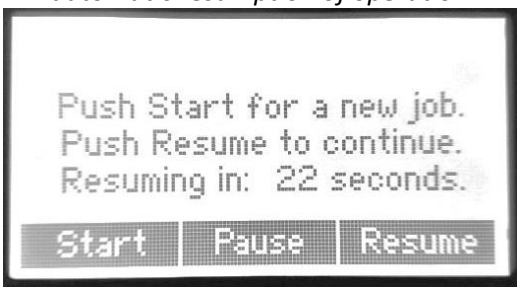
Start: Starts the machine with standard settings, continuous operation with maximum capacity. Any adjusted operating point, as well as all other settings including control mode etc., are deleted and the machine reverts to the factory setting.

Resume: The machine resumes operation with the same settings that previously applied, and this must be used in all instances where a machine has already been adjusted and set for a particular task.

If the user did not press the stop button before the power was interrupted the last time the machine was used, the machine will automatically resume operation when the timer has counted down to zero.
The countdown can be stopped by pressing the Stop button, which then switches the machines to standby until it is started manually.

Normal start

Start after power cut – automatic resumption of operation



Standard view

When IA2 ES F is in operation, the machine can always be stopped (set to standby) using the middle button below the display.

When the machine is running in a control mode instead of in manual mode, the setpoint (which is marked with black background in the middle of the screen) can be increased or decreased using the negative (-) and positive (+) buttons.

Standard view graphics.

Control mode

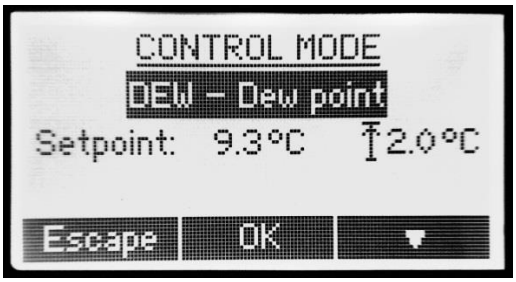
In control mode, it is determined whether drying should occur continuously (MAN - manual mode) or is only to be activated when necessary, on the basis of the ambient climate.

The selected control mode is displayed in the lower, left-hand corner in standard view.

Open the screen for selecting control mode by pressing the upper, right-hand button.

The following basic control modes are available:

MAN	Manual, continuous drying.
RH	Dehumidification for selectable relative humidity (%).
X	Dehumidification for selectable mixing ratio (g/kg).
DP	Dehumidification for selectable dew point (°C).
HYG	Dehumidification is controlled by an external hygrostat that is connected to the machine.



Thanks to its network functions, you can also connect the machine to external temp. and RH sensors, and use their values to control operation, instead of the built-in sensor for relative humidity and temperature. The following modes for external sensors exist for this purpose:

E.RH	Dehumidification for selectable relative humidity (%) according to the measurement values from the external temp and RH sensor(s) that are connected to the machine.
E.X	Dehumidification for selectable mixing ratio (g/kg), according to the measurement values from the external sensor(s) that is connected to the machine.
E.DP	Dehumidification for selectable dew point (°C), according to the measurement values from the external sensor(s) that is connected to the machine.

The external control mode requires that the machine is network connected and connected to an external temp. and RH sensor. If the machine is not already connected to the network, the machine asks whether to create a network.

If there are several sensors in the network and if the <All> option has been selected (instead of a single sensor, e.g. RHT61), the machine works according to the “worst case scenario” and runs for as long as any of the sensors detects that the humidity is above the setpoint. If the machine selects a mode other than MAN, the user will note that the setpoint can be set. When the setpoint has been reached, drying stops automatically. If the humidity later rises above the setpoint again, drying resumes automatically. **Hysteresis** When one of control modes; RH, DP or X is selected, a symbol and a hysteresis value appears to the right of the display. The symbol shows the setpoint value's position in the operation range as below. ↕ - centre ↓ - bottom ↑ - top If the preselected values for the hysteresis are not suitable for the usage in question, these can be adjusted in a menu that can be accessed under the Setup and Maintenance menus. **ALARMS** At the bottom of this menu, it is possible to activate an alarm, which is presented on the display in the event the humidity should reach an excessively high level.	

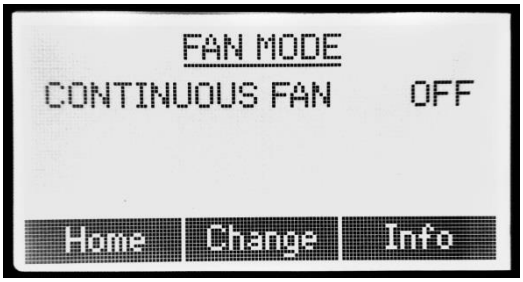
Fan mode

The fan mode determines whether the process air fan in the dehumidifier is to work continuously or only for as long as drying is required. The regeneration fan is only in operation while dehumidification is in progress and during subsequent cooling.

If continuous fan is selected, the word Cont appears in the lower right-hand corner in standard view.

For optimal drying effect, continuous fan operation should be used as far as is possible to keep the air moving.

Intermittent fan mode means that the fan is shut off when dehumidification is not required according to the current control mode setting. However, the fan starts up regularly and operates for 5 minutes each hour, and it is only during this period that the machine checks and reads off the temperature and relative humidity. If dehumidification is required, the machine continues dehumidifying until the control mode interrupts operation, i.e. when the humidity level has dropped to the intended level. If, during the 5 minute period of operation, the humidity is already at an acceptably low level, the fans stop and the machine waits for 55 minutes before starting up and checking the humidity again. Intermittent fan operation can consequently save energy and is useful in those situations where ducting and the location of the machine mean that the temperature and humidity at the machine's inlet cannot be deemed relevant unless the fans are in operation. However, the user should note that intermittent operating mode and the combination with control mode based on the built-in temperature and RH sensor can, in practice, produce a delay in the start-up of dehumidification of almost 60 minutes. If such a delay is not acceptable in the operating case in question when the humidity is rising, continuous fan operation or the use of an external temperature and RH sensor is recommended instead.

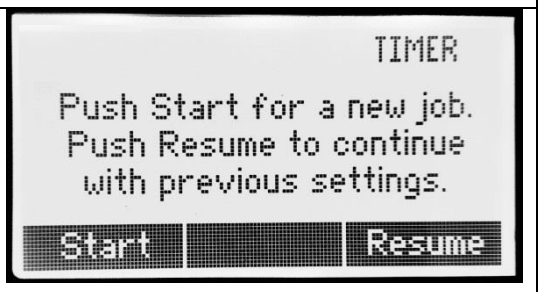


Capacity mode

The drying capacity of IA2 ES F can be optimised for a given work task and situation with two different operating modes, Max and DX1.
In the case of Max, the machine is fully operational with the maximum possible dehumidification capacity. In DX1 mode, drier air is created by means of the process air fan operating at a lower speed, which means that the drying effect is concentrated on a smaller volume of air. The lower fan speed also entails a lower noise level.

Timer

IA2 ES F has an integrated timer function that allows the user to determine when the machine is to run. When the timer function is used, the word Timer appears in the standard view's upper, right-hand corner according to the graphic to the right.



From the standard view, press the right-hand arrow button repeatedly until the timer menu is presented. Press Activate.

When the timer has been activated, the machine begins by prompting the user to check that the time and date have been set correctly. If they have been, press OK. If the time or date need changing, press Edit and adjust the values before continuing.

In the next step the user can set the time interval that the machine is to work within. The machine remembers the timer settings from the previous time it was used and shows its settings as the start values.

Finally, the user selects what the machine will be doing at other times, i.e. whether it will be shut off or operate in silent mode.
(Silent mode corresponds to DX1 mode)

Network

Note! Install all system cables before the machines are started.

IA2 ES F has network functions that make it possible for the machine to be monitored and controlled remotely via Digital Gateway or SuperVision® 2.0.

A network is established by installing the machines in the intended way and connecting them to each other using system cables before they are started.
Open the network menu on the machine which is to be master, i.e. control the others.
Press Create and wait while the machine establishes the network. This can take up to one minute.

Once the network has been established, the display switches between the slave units in the network menu. These are indicated by type (e.g. IA2 ES F) and address (e.g. 101).

To change the settings for a slave unit, press Change and select the slave unit. The background lighting for the selected unit starts to flash to confirm that the unit has been selected.

Desired settings can also be made directly on the relevant machine.

Start the master machine when all desired settings have been made. The slaves start automatically within one minute. The machines are stopped in the same way. Press stop on the master machine and the slaves stop automatically shortly afterwards.

As the network is controlled by the master machine, a slave unit that is started manually is stopped when the master machine is in standby. In the same way, a slave unit that is stopped manually is restarted manually when the master machine is in operation.

Setup and maintenance menus

The setup and maintenance menus contain functions that are not needed for normal operations.

Date and time: Setting system date and system time.

Language: Language selection for the interface.

Menu system: The menu system is set to Advanced as standard with all functions visible and available. If it is set to Basic, the more advanced functions are removed from the menu system.

Keylock: Option to activate/deactivate the keylock:

RH hysteresis: Option to adjust the hysteresis settings for control mode RH. The setpoint's position in the operation interval and the hysteresis value can be set from here.

Dew point (DP) hysteresis: Option to adjust the hysteresis settings for control mode dew point (DP). The setpoint's position in the operation interval and the hysteresis value can be set from here.

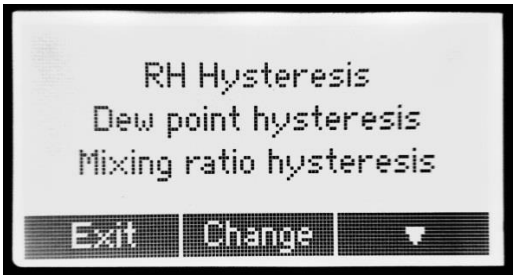
Mixing ratio (X) hysteresis: Option to adjust the hysteresis settings for control mode mixing ratio (X). The setpoint's position in the operation interval and the hysteresis value can be set from here.

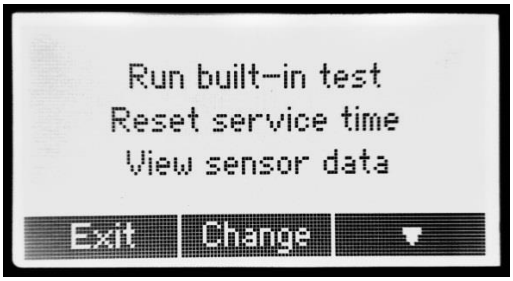
Run built-in test: A built-in self-test that is available to service technicians. Requires external equipment to work as intended.

Reset service time: The machine is set to remind you about a service once a year. Once the service has been carried out, the service reminder can be reset using this function.

See sensor data: Function intended for service technicians.

USB settings: Option to activate and deactivate USB logging.





Counters

This screen presents a resettable work counter, followed by the date on which the counter was reset, as well as the number of hours that have elapsed since then in brackets. By comparing the total number of hours with the work counter's hours, it is possible to obtain a clear picture of the operating profile.

Press Reset to reset the work counter. Confirm resetting of the counter by pressing OK on the following screen.

The operating hours for the entire service life of the machine are displayed at the bottom. This counter cannot be reset.

Alarms Identified alarms are shown on this screen. As soon as an alarm is identified, a pop-up window also appears. Additionally, a warning symbol appears in the standard view's upper right corner, as long as the fault remains. The user does not have to erase the alarms that are shown. As soon as the machine detects that the function has been reset, the alarm disappears automatically.	

Control mode and hysteresis

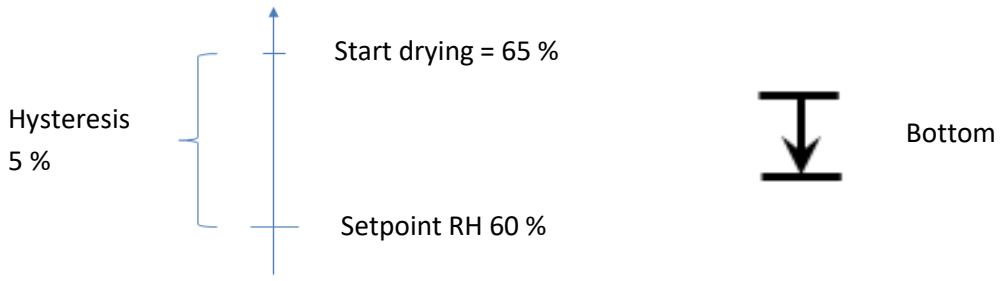
In addition to the normal, continuous drying operation, the operation of IA2 ES F can also be controlled via its built-in sensor for relative humidity and temperature as well as via its external hygrostat or external, networked sensor.

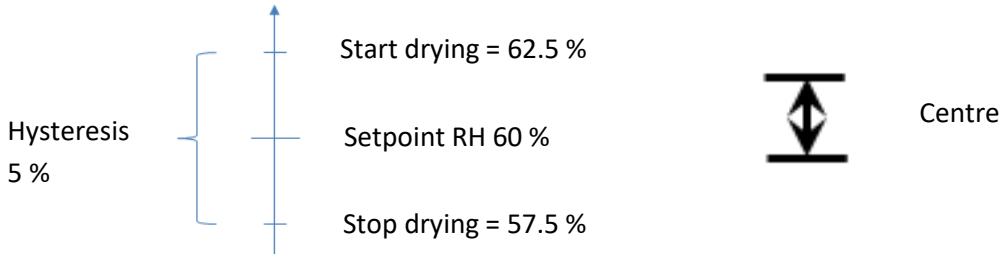
If a built-in or external electronic sensor is used, the machine uses a software controlled hysteresis that stabilises machine operation and prevents too many restarts.

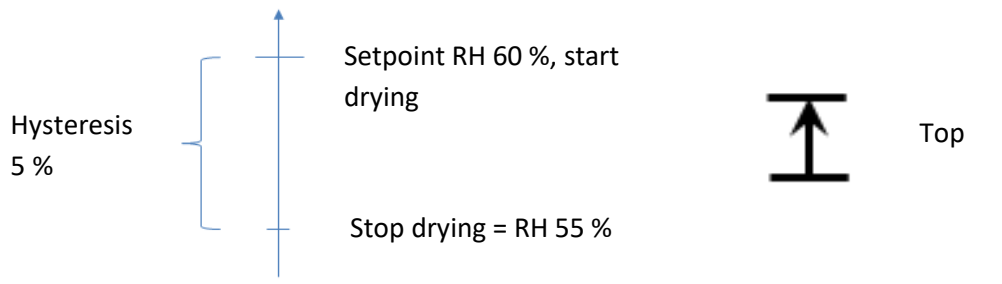
The table below shows the machine's standard settings. If changes are required, these can be made in the setup and maintenance menus.

Control mode	Hysteresis	Setpoint's position
RH	4 %	Bottom
Dew point	2°C	Top
Mixing ratio	0.5 g/kg	Bottom

The illustrations below describe the different hysteresis settings: bottom, centre and top.







Alarms

If the machine detects a fault, corresponding information appears in a pop-up window. Additionally, a warning symbol appears in the standard view's upper right corner, as long as one or more problems remain.

The following alarms can appear. Recommended corrective action is also given for each alarm.

Alarms	Action/advice
No contact with internal control board	Internal fault. If the alarm remains, contact a service technician.
Internal sensor fault Temp and RH sensor	Internal fault. If the alarm appears after the machine has been disassembled, the fault may be because the sensor connection to the cover has not been installed correctly. If not, and if the alarm remains, contact a service technician.
External Temp and RF sensor fault	The machine has lost contact with the external temp and RH sensor(s). Check that the cables are correctly installed. When contact with the external sensors has been lost, the machine automatically returns to using the built-in temp and RF sensor.
One or more slaves not responding	This alarm appears when the machine is used as master in a network that has lost contact with one or more of its slave machines. If this alarm appears, check all system cables and the power supply to all machines. When communication has been re-established the alarm disappears automatically again.
Ambient temperature too high!	The machine has switched off all heaters due to too high ambient temperature (above 40 degrees Celsius). If continuous fan is selected, the fan continues to run. The machine automatically resumes operation if the temperature drops.
Overheating alarm	The automatically reset overheat protection has tripped and stopped the heater. If this has happened during normal operation for no known reason, examine the installation and machine carefully. Check that: The filters are clean The air flows are not blocked That the air flow from the fans is normal. If no reason is discovered, consult a service technician before starting to use the machine again.

Carry out the following when connecting machines to a network, e.g. in order to use SuperVision® 2.0:

1. If the machines are connected, switch them off. Then connect the machines to each other using system cables. The two connectors on the machines have the same function, so it does not matter which of them is used. If Gateway is to be used, it can be connected to any machine.
2. Start up the machine(s):
3. On the machine that is to be the Master in the network, open the network menu shown below.

(If the menu is not found, the *Basic* menu system has been activated on the machine. Change this by opening the setup and maintenance menus and set the menu system to Advanced.)

4. Press **<Create>** in the network menu and wait while the machine establishes the network.
5. Once the network has been created, the display switches between the different slaves at the top of the screen. If Gateway has been connected, the text about this appears at the bottom of the screen. It can take up to one minute for the text to appear.

When the above steps have been followed, all slave machines are controlled by the *Master*. This means that all slave machines start and stop together with the *Master*. They work with the same settings as they had before being connected in the network. If the settings need changing, press **Change** and then select the slave to be changed via the master. It is also possible to make the necessary changes on the machine itself. Whilst the slave machine is being changed, via the master, the slave machine's background lighting flashes so that the user can see which machine is selected.

Service reminder

The machine is set to remind you about servicing every 12 months. The reminder is given in the form of an alarm, but does not affect the operation of the machine. When servicing has been carried out, the service counter is reset with the function that is accessed in Setup and the Maintenance menu.

Maintenance and service

The need to service and maintain the machine is heavily dependent on the environment in which it is used, as well as on its operating profile, how often and how much it is used. The air filters are perhaps the clearest example of this, as they can be used up very quickly in a dirty environment.

The maintenance is carried out by authorised personnel and according to the date, and the machine presents a service reminder at such times, provided processing is managed and the service counter is reset during each implemented service.

Every 12 months:

1. Filter replacement.
2. Inspection and internal cleaning of machine, including rotor.
3. Function check, including checking air flows.

Every 60 months:

In addition to the annual service as above, the following are also performed at this time:

1. Overheat protection replacement.
2. Capacity check

If justified by the cost and consequences of machine downtime, preventive replacement of:

3. Rotor motor
4. Fans

The machine is designed in such a way that a breakdown of the rotor motor or fan(s) will not endanger safety, which is why the preventive replacement of this hardware is not necessary.

Filter replacement

Filter replacement is performed as follows:

1. Shut off the machine by first pressing the stop button on the control panel, at which point the machine starts after-cooling.
2. Wait until cooling is complete, the countdown on the display has expired and the fans have stopped.
3. Turn off the switch.
4. Open the filter hatches and remove the old filters.
5. Clean the filter spaces with a vacuum cleaner so that dust and dirt that have fallen off the filter do not immediately catch in the new filters or get drawn into the machine at restart.
6. Install new filters and close the filter hatches.
7. Restart the machine and wait by the machine for a few minutes to check that it is operating normally.

Service and repair work as well as cleaning

During servicing work, the machine must be disconnected from the mains supply. Turn off the machine, allow it to cool and then turn off the switch. Disconnect the power cable from the electrical socket and make sure it is not reconnected by anyone else while the work is in progress.

When the machine is being cleaned, protective equipment that is appropriate for the purpose must be used to ensure that there are no injuries arising from dust or particles.

Clean the outside of the machine with a damp cloth. Inside the machine, use a vacuum cleaner with a brush to remove dust and particles. Vacuum clean the rotor from both sides with a brush nozzle, taking care to ensure the surface of the rotor is not damaged.

Accessories and consumables

The following parts are available as accessories and consumables for IA2 ES F:

Article number	Name
6000902	Filter, process air
1003187	Filter, regeneration air
1002749	System cable, 0.5 m
1002748	System cable, 5 m
1002816	Adapter cable, hygrostat
1002817	External temp. and RH sensor, series ES

Fault tracing

Symptom	Probable cause	Actions
Premises not dehumidified/low capacity.	Depending on the situation, the cause of the problem could be incorrect installation, e.g. because of obstructed wet air hose, clogged filter, incorrect settings on the machine or machine fault.	Perform fault tracing as follows until the problem has been identified: Check the installation – check that all ducting is intact and not blocked, wholly or partially. Ensure that the air flow is correct. If the air flow is weak, check the air filters and replace if necessary. Check the machine settings as follows. Start by checking that the water symbol on the left-hand side of the display screen moves as an indication that dehumidification is in operation. If it does not move, check the control mode in the lower, left-hand corner of the display. For continuous drying, MAN must be indicated for manual operating mode. If an external hygrostat is connected and used (operating mode HYG), check the hygrostat's setting. If control mode RH, dew point (DP) or mixing ratio (X) is used, check the setpoint value which is marked in the middle of the display and adjust if necessary. Check that the water symbol starts to move. If the control mode and its settings were not the problem, continue by checking the capacity mode that is shown at the upper right-hand corner in standard view. For maximum dehumidification capacity, the text “MAX” must appear.
No air flow, the fan is not working.	The machine has been set in standby. The dehumidifier has been set to a control mode other than manual (MAN), the continuous fan functions are switched off and the surrounding humidity is so	Press Start to start the machine with the standard settings or press Resume to start with the previous settings. Check control mode in the lower left-hand corner of the display. For continuous operation, MAN (for manual operating mode) should be indicated. Check the setpoint value if another operating mode is being used.

	low that the machine has switched to standby. The machine is controlled by a timer and is currently in standby mode.	For continuous fan operation, use the right-hand arrow button to open the menu for fan mode and activate continuous fan operation.
The machine appears to be shut off, even though the switch is turned on.	The manually reset overheat protection by the heat cover or the thermal fuse by the wet air cover may have tripped.	Contact a service technician.

Technical data

IA2 ES F	
Capacity 20°C, 60% RH	16.8
ΔX mode, at 110/50*, g/kg	4.4
Nominal dry air flow, m^3/h	170
Available static pressure, Dry air flow, Pa	200
Maximum dry air flow, m^3/h	250
Nominal wet air flow, m^3/h	50
Available static pressure, Wet air flow, Pa	150
Maximum wet air flow, m^3/h	80
Heat output, W	1200
Power consumption, W	1400
Process air connector, mm	Ø 100
Dry air connector, mm	Ø 100
Wet air connector, mm	Ø 80
Regeneration connector, mm	Ø 80
Noise level (3 m) dB(A)**	45
Built-in RHT sensor	Yes
Temperature range	-20 – 40°C
Weight, kg	25.6
Size (L x W x H) mm	531 x 300 x 507
Article number	1005485

**For ΔX mode, dry air flow 110 m^3/h, wet air flow 50 m^3/h*

***Varies depending on installation*

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