



# AERIAL®

## Instruction manual

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## Dehumidifier AD 110

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## 1. General advice

You have bought an air dryer made by AERIAL thus deciding for a proven quality product "Made in Germany". If nevertheless complications should occur, you will find some advice hereinafter how to eliminate such difficulties as quickly as possible.

### **ATTENTION PLEASE!**

*Immediately after receipt, you should check your air dryer for transport damage! In the case of damage, you should inform the forwarding agent, parcel service, post office etc. accordingly upon receipt, and make a note of it on the forwarding documents!*

*If a transport damage should be stated after unpacking the equipment, please contact immediately your respective seller or specialized trader*

*Before putting your air dryer into operation for the very first time, these instructions for operation should be studied very thoroughly. Thus, you can make sure that this appliance will operate perfectly for a long period of time saving yourselves unnecessary repairs and expenses.*

*In the case of technical unclarity or faults disconnect your appliance and ensure that it is not connected again by taking the mains plug out of the socket.*

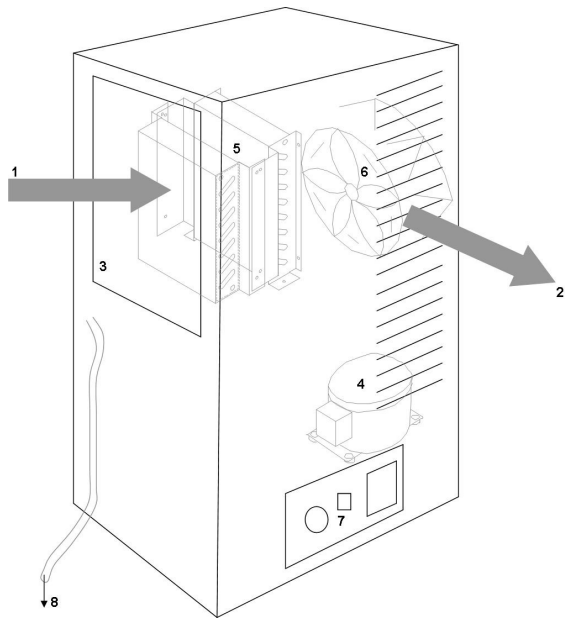
***Please, keep the device wrapping in order to be able to send the device safe for guarantee repair. In order to save place you open simply the adhesive tape with a knife and you fold the carton.***

## 2. Mode of operation

The AD-air dryer is constructed exclusively for air drying in closed rooms. That dehumidifier can prevent the formation of sweating water, eliminate too high air humidity and hold a specific air humidity unchangeable. The time which the dryer requires in order to achieve a specific humidity depends essentially on the environmental conditions. The attainable humidity value is equally dependent on the environmental conditions.

The AD-dehumidifier works according to the condensation principle with heat recovery. The fan (partial positions see detail drawing) suck the moist air through a cool register (evaporator). The air becomes so far chilled under the point of condensation here, that the steam of air condense as water and flows through the connected hose into a sump. The chilled and dried air is warmed up at the condenser again. Through the heat pump effect, the outlet air is some degrees warmer than the sucked room air. Vigour profit can conducted up to 3-fold of the electrical power consumption. The absolute moisture of air is lowered continuously by the continuous circulation of the room air through the device. The surplus moisture is removed takingly and efficiently.

- 1 – wet room air
- 2 – dry air
- 3 – air inlet with filter
- 4 – compressor
- 5 – evaporator and condenser
- 6 – fan
- 7 – operation panel
- 8 – condensate outlet (hose)



### 3. Safety

The condensation dryers AD 110 are furnished with protective devices. The devices were subjected to a safety examination. Dangers threaten in the case of operating error or abuse

- for the user.
- for the machine and other real values.
- for the efficient work of the machine.

All persons who have to do with the installation, service and maintenance of the devices must be qualified correspondingly and consider this operating manual precisely.

#### **Using as directed**

The condensation dryers are intended for the drying of air with atmospheric pressure.

#### **Risk by accessory**

Hoses for condensate removal and air filters must be fit expertly and must not take the protective devices of the condensation dryers out of operation. The control elements must always remain freely amenable.

#### **Authorized users**

The service of the condensation dryers AD may only be carried out by persons, who were instructed from the operator. The user is responsible in the field of action third parties compared to.

Responsibilities for different activities on the device must of course be determined and kept. Unclear competences are a safety hazard.

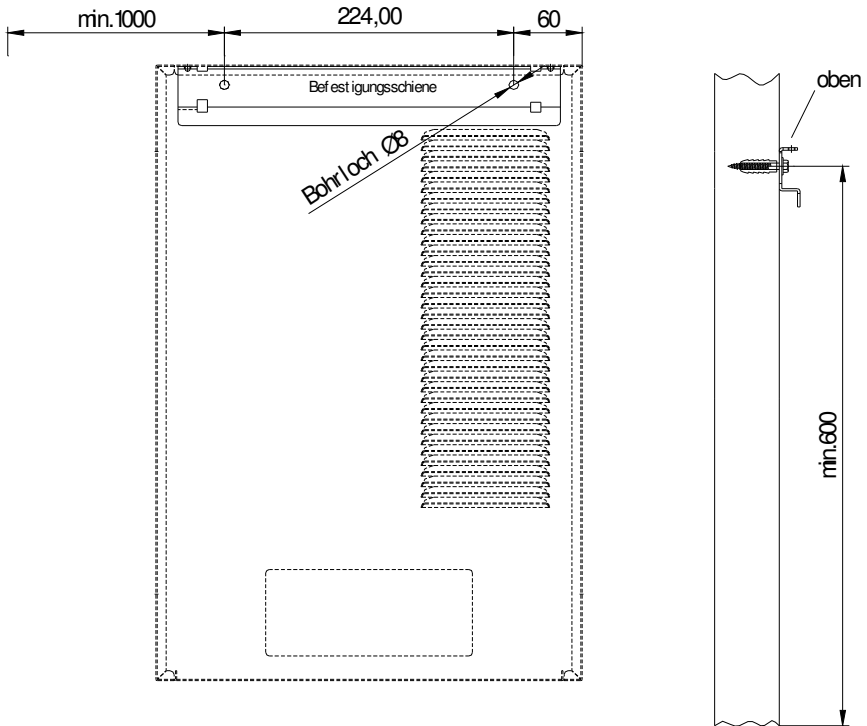
The operator must make the operating instruction amenable for the user and make sure that the user did understand the manual.

## 4. Installation and transport

The AD-dehumidifier AD 110 is planned for wall mounting only. During the setting up and transportation of the dehumidifier, the following items are to be considered:

- That dehumidifier must be installed so that the air can circulate without obstruction through him. The air filter and also the lamellae of the front wall must not be covered. The open space before the lamellae and the air filter must at least conduct 1 meter. The open space **under** that dehumidifier must conduct at least 10 cm.
- That dehumidifier is attached with the delivered mounting bar to a wall. (Rough draft following see) The bar is to be arranged with a spirit level.
- That dehumidifier can be transported standing or lying! The standing transportation is to be preferred if possible.
- The appliance must be used exclusively for air drying.

### Fixing at the wall



### **ATTENTION!**

The open space **above** that dehumidifier must conduct at least 10 cm for fixing the screws!

## 5.Operation

### 5.1 electrical connection

Before connecting the air dryer, the following items must be checked:

- Does the mains voltage coincide with the voltage of the appliance?
- Adequate fusing of socket and supply system?
- Has the required residual-current-operated circuitbreaker (r.c.c.b) been installed in case of swimming baths?
- If a cable drum is used: has it been unwound completely?
- Is the appliance connector suitable for the building socket?
- Is the socket provided with a perfect grounding?

#### **ATTENTION:**

*Before putting the air dryer into operation, the technical data of the appliance should be compared to the conditions prevailing in the room of installation!*

### 5.2 Putting into operation

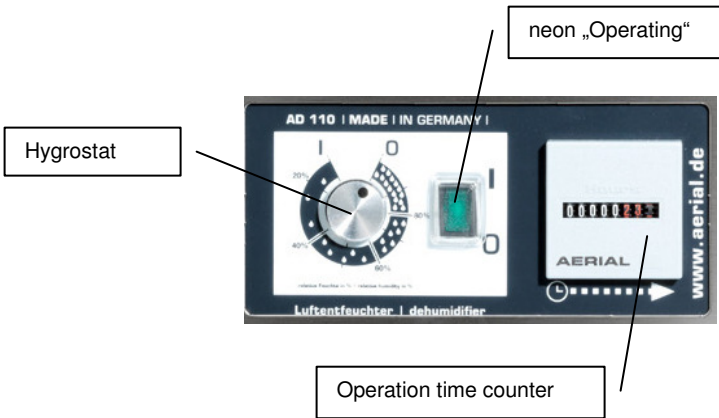
#### **ATTENTION:**

*Before putting the air dryer into operation, the instruction manual should be studied carefully. Thus, damages by a false or inappropriate operation as well as by inadequate environmental conditions can be avoided.*

For using the air dryer, please proceed as follows:

- After having been transported, the air dryer should rest for abt. 15 min. During this period of time, the oil distributed inside the refrigerating system and frothed during transport will return into the compressor. We recommend this procedure since it extends the service life of the compressor.
- Make sure that a socket and a runoff is near the installation place. When using a device without pump (standard), the runoff must be placed below the unit.
- Attach mounting bar to the planned wall (see rough draft point 4). Arrange with spirit level!
- Put up device on the mounting bar. Above the device is right and left in each case a screw. With these screws, the device is to be fixed on the mounting bar.
- Connect the available hose to a runoff. Guarantee that the hose is attached certainly to the drain and can not slip. If the hose length should not be sufficient, extend the hose with a nipple and two clamps. (accessory). Test for tightness!
- The hose must be moved away with slope of the device. The hose must not be buckled.
- Put the plug into the socket.
- Switch on the unit at the hygrostat. You find the hygrostat in the front.
- Adjust the required humidity value at the hygrostat. (see hygrostat-control).
- Is the actual humidity higher than the required value, the dehumidifier will start.
- Is the actual humidity lower than the required value the dehumidifier will not start.

### 5.3 Operation panel AD 110



### 5.4 hygrostat control

The air dryers of the AD-series dispose of a hygrostat for setting the required humidity value. This hygrostat is located in the front of the unit. It makes that the air dryer cuts in as soon as the ambient humidity exceeds the preset value. If the humidity value falls below the set value, the hygrostat will switch off the appliance. The following operating modes can be set by means of the hygrostat

Pos. 0 = Unit is switched off

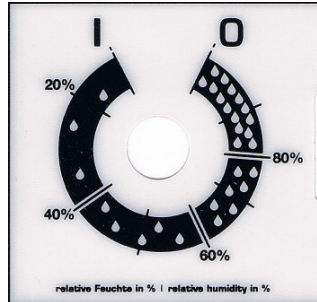
Pos. 1 = Continues operation

80% = The dehumidifier switches off when a humidity of approx. 80% r.h. has achieved. And switches on again when humidity is higher than 80%.

60% = The dehumidifier switches off when a humidity of approx. 60% r.h. has achieved. And switches on again when humidity is higher than 60%.

40% = The dehumidifier switches off when a humidity of approx. 40% r.h. has achieved. And switches on again when humidity is higher than 40%.

20% = The dehumidifier switches off when a humidity of approx. 20% r.h. has achieved. And switches on again when humidity is higher than 20%.



*The marks at the rebound curve and the humidity values mentioned above are to be seen as reference values only. The hygrostat of the air dryer and a hygrometer located inside the room to be dried most probably will not indicate the same values. It is recommended to change the setting at the air dryer until the desired room humidity has been reached.*

**Please consider:**

With a condensation dryer a relative humidity of minimum 40 – 45% r.h. are possible. If you need lower values, you should use an adsorption dryer. Please contact your dealer!

**Agreeable climate:**

For living areas a climate of 20 – 25°C and 50 – 60% r.H. is recommendable. While drying or storing rooms with wood furnishing, the humidity should not fall below 55 – 60% r.H.  
For unclear drying request, please contact your dealer.

**5.5 Condensate outlet**

The dehumidifier AD 110 is with 3 mtr. Run off hose (12 mm)

The end of the hose must be situated lower than the beginning of the hose (runoff socket)!

The hose must never be bent!

No objects must be placed onto the hose!

**ATTENTION:**

Make sure that the condensate can always be absorbed safe.

**5.6 Automatic defrosting**

During air drying, ice may form at the evaporator. The volume of ice depends on the ambient conditions prevailing in the room to be dried. The air dryer is equipped with an automatic hot-gas defroster. It ensures that, depending on the extent of ice formation, the appliance will be defrosted automatically according to the following principle:

- A temperature sensor measures the condition existing in a critical area of the evaporator.
- It transmits the signal for defrosting to the DryLogic-electronic. The DryLogic finds out if defrosting is necessary, and it will start defrost-mode on its own.
- During defrosting the compressor works and the fan does not work.
- When the ice is defrosted, the dehumidifier will start again with dehumidifying

**6.Operation conditions**

AD-condensation dryer AD 110 are suitable for the effort in water works, in residential buildings, in swimming halls, in garages and storerooms. AD-condensation dryer work problem-free at the temperature range of +3 to +32°C and in the case of relative humidity from 40% to 95% r.h. .

The use in rooms with higher temperatures leads to disadvantages at the compressor. The use in rooms with lower temperatures is ineffective and can lead to icing.

Also the storage of the dehumidifier at inadmissible temperature conditions can lead to damages / problems while immediate switch-on. Therefore, make possible short time for adaptation for the device before switch-on



**ATTENTION:**

The appliance must not be used under the following conditions:

- in rooms of potentially explosive atmosphere
- in rooms of aggressive atmospheres, for example ammonia and wood acid
- In rooms with water which shows a pH-value outside of 7,0 to 7,4. **Remark:** In the case of lower pH-value, corrosion occurs at all metals and damages occurs at mortar containing materials. In the case of higher pH-value, it comes to irritation of skin and eye mucous membrane and extreme lime deposits.
- In rooms with salt or salty liquids. Salt content >1% (also sole baths).
- In rooms of air treated with ozone
- in rooms featuring a high concentration of solvents
- in rooms of an extremely high ratio of dust.
- Please consider also, that extremely air movings around the dryer can annoy or affect the function of the dryer as the air flow of the dryer can not flow as planned.

In the case of doubtful operating conditions it is recommended to contact the Technical Department of Messrs. AERIAL or a specialized dealer.

**Using an AD-air dryer under inadequate operating conditions will entail that the warranty becomes null and void.**

## 7. Technical data

Among other things, many different components which are installed in the condensation dryer decide on the capacity of the device. Since these components can never be completely identical, in accordance to DIN EN 810 the capacity may deviate up to 5% of specified capacity.

**General:**

Operation range: +3°C up to + 32°C / 40% r.h. up to 95% r.h.  
 Protection class: IP 54  
 Electrical supply: 230 V / 50-60 Hz

Type		<b>AD 110</b>
Air volume	cbm/h	250
Power consumption	Max. Watt	198
Noise level	dB(A)	46
refrigerant (charge see type plate)		R134a

Capacity / power consumption at		
30°C / 80%	l/24h Watt	12,0 280
27°C / 60%	l/24h Watt	6,0 250
20°C / 60%	l/24h Watt	5,3 230
10°C / 70%	l/24h Watt	2,5 210
dimensions	mm	494 x 330 x 241
weight	kg	24

## 8. Service & Maintenance

### **ATTENTION!**

*When performing any repair or maintenance, the general safety rules and provisions must be adhered to!*

To the protection of a troublefree function, the device should be cleaned regularly. The following procedure is recommended:

- Switch OFF the air dryer
- Disconnect mains cable
- Remove filter for cleaning or disposal

#### **During strong pollution:**

- Dismantle cover and top
- Blow out device cautiously with compressed air. (wear protective goggles!) In this case, it might ensure that all components are cleaned. (Compressor, evaporator, condenser, ect.)
- Visual inspection: Drain and connected hose
- Clean case with moist cloth. Do not use aggressive Detergent
- Mount cover and top
- Insert new or cleaned filter
- Put main plug into the sucket
- Switch on dehumidifier

**This cleaning is without fail regularly required!  
No other maintenance work is required for the air dryer.**

## 9. Trouble shooting

Assign that dehumidifier a putative defect on, please, first check the following points. If this should provide no relief, please contact your technical consultant.

### 1) The dehumidifier shows a bad or no drying capacity

- The humidity is lower than 40% r.h. or the temperature in that room is lower than +3°C. In that case. The effort of the dryer is uneconomical in the case of these conditions. It is recommended to disconnect the dryer. **Tip:** Put the built-in hygrostat on an attainable value (e.g. approx. 50%r.F.), with it the dryer punctually may switch off.
- The air filter is soiled. The dryer does not receive air sufficiently. Clean the filter and/or install a new one. A soiled air filter can in the long run lead to disadvantages at the dryer. **Tip:** Control the filter regularly.

### 2) The fan of the dehumidifier does not work.

- The unit is in defrost mode. In this case the compressor still runs and the fan does not run. After some minutes, the unit will start with regular working.

### 3) The complete dryer is out of operation. Fan and compressor do not run.

- Is the dryer switched on? Adjust the hygrostat in position "1". The dryer should start.
- Is the unit supplied with voltage?
- Check the main cable, an additional cable, the socket and the main fuse.
- The at the hygrostat adjusted value has been achieved. The dryer will start again after exceeding the adjusted humidity.

### 4) Strong icing up at the evaporator.

- Put the dryer into a room with min. +10°C room temperature and wait until complete ice is defrosted. Switch on the unit again (in that room with min. +10°C) and let work for approx 3 hours. If there is icing up again, please contact your dealer. Otherwise make sure that the units is only been used in rooms with more than +3°C. Also the storage of the dehumidifier at inadmissible temperature conditions can lead to damages / problems while immediate switch-on.

### 5) The humidity adjusted at the hygrostat does not become achieved and/or the device does not switch off automatic.:

- Is the hygrostat adjusted on a value lower than 40 – 45% r.h. ? Humidity values of a minimum of 40 % - 45 % r.h. can be achieved with a condensation dryer. Adjust the hygrostat to a reachable value.
- Is the unit with enough capacity for your application? The air changing, number of the persons in the room and open water surfaces decide on the humidity burden in the room. Let calculate the necessary capacity from your dealer
- Is there a lot of water in the walls or the floor? In that case the dryer needs some time to remove that water and to achieve an acceptable humidity in that room.

## ATTENTION

*The appliance must be repaired by a trained and expert personnel only. In the case of interventions by unauthorized people, any and all warranty claims shall become null and void!*

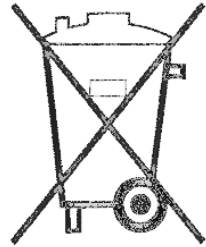
*If you have any questions regarding defects and malfunctions of AERIAL-air dryers we recommend to get in touch with your supplier.*

## 10. Disposal

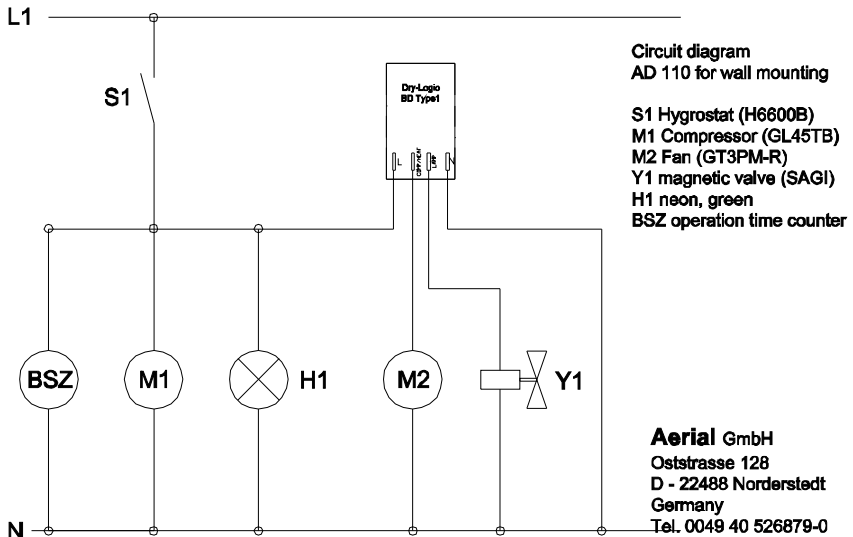
Please do not dispose this unit with the domestic waste and please do not dispose this unit in the environment.

We dispose this unit for you – free of charge and environment-friendly. Please contact us!

Alternative your local waste management enterprise takes this unit for environment-friendly disposal.



## 11. Circuit diagram AD 110



## 12. Manufacturer's declaration

(EU-directive 2006/42/EG)  
(EU-directive 2004/108/EG)  
(EU-directive 2006/95/EG)

manufacturer: AERIAL GmbH - Systeme zur Luftbehandlung  
Oststraße 148, D-22844 Norderstedt

Product description: dehumidifier type AD 110

capacity: 12,0 l/day

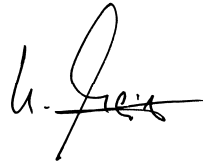
The product described above is an ambient air dryer ready for connection.

Related standards:	EN ISO 12100	Safety of Machinery
	EN 61000	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 60335-2-40	Safety of electric appliances for domestic use and similar purposes

In the case of changings at the unit this manufacturer's declaration becomes void.

Norderstedt, 02.01.2015

sign / stamp



Karsten Meier – General Manager

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