



AERIAL®

Instruction manual

Swimming pool dehumidifier AP 50 / AP 70



Valid: 12-2010

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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 there are any questions, you will find some advice in this manual how to eliminate such difficulties as quickly as possible.

ATTENTION:

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 noticed after unpacking the equipment, please contact immediately your respective seller or specialized dealer.

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 malfunction disconnect your appliance and ensure that it is not connected again by taking the mains plug out of the socket.

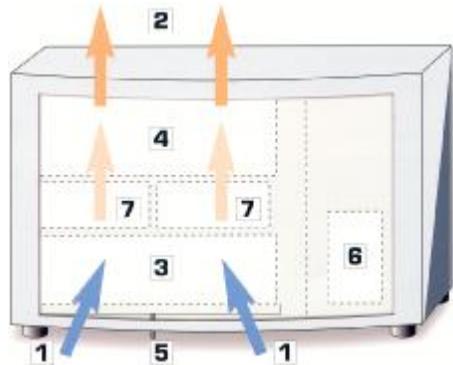
Please, keep the device wrapping in order to be able to send the device safe for guarantee repair. In order to save space you open simply the adhesive tape with a knife and you fold the carton.

2. Mode of functioning

The AP-air dryer is built particularly for air drying in closed rooms. That dehumidifier can prevent the formation of condensation, eliminate too high air humidity and hold a specific air humidity constant. 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 AP-dehumidifier works according to the condensation principle with heat recovery. The fan (shown indicatively below) suck the moist air through a cool register (evaporator). The air becomes so far chilled under the point of condensation here, that the moist air condense as water and flows 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. Useful energy 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 safely and efficiently.

- 1 - wet room air
- 2 - dry air
- 3 - evaporator (chilling)
- 4 - condenser (warm)
- 5 - condensate outlet
- 6 - compressor
- 7 - fan



3. Safety

The condensation dryers AP 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 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 AP may only be carried out by persons, that 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 available for the user and make sure that the user did understand the manual.

4. Operation conditions

The dryers of the AP-series are suitable for the employment in swimming pool rooms, but also in garages and store rooms.

AP-condensation dryers work problem-free at the temperature range of +10 to +32°C and in the case of relative humidity from 40% to 95% r.h. .

AP-condensation dryers are serially equipped with thermal control „ThermoLogic“.

The device turns off at inadmissible temperatures and on again at more permissible temperatures automatically.

ATTENTION:

The appliance must not be used under the following conditions:

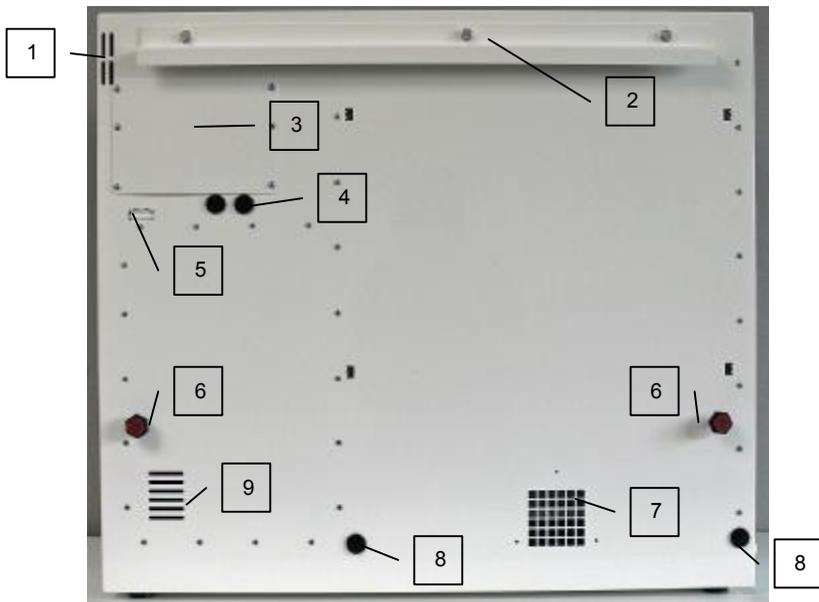
- *in rooms of potentially explosive atmosphere*
- *in rooms of aggressive atmospheres, for example ammonia and wood acid, high chlorine concentration.*
- *In rooms with water which shows a pH-value outside of 7,0 to 7,4. **Remark:** In the case of lower pH-value, corrosion occurs at all metals and damages 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.*

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

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

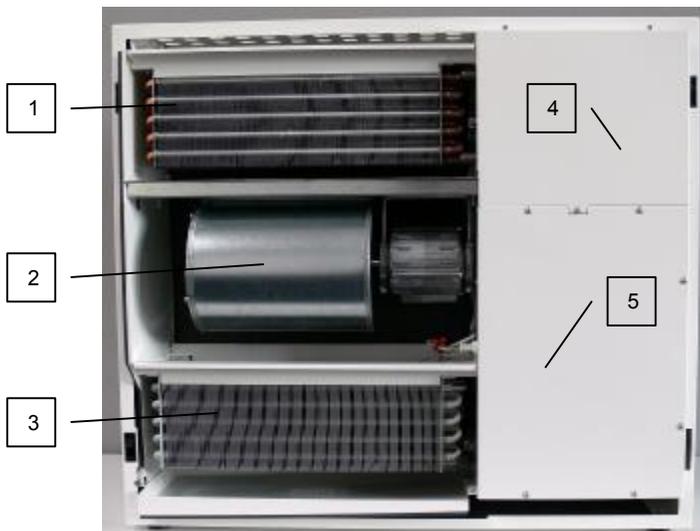
5. Figures

5.1 View from rear



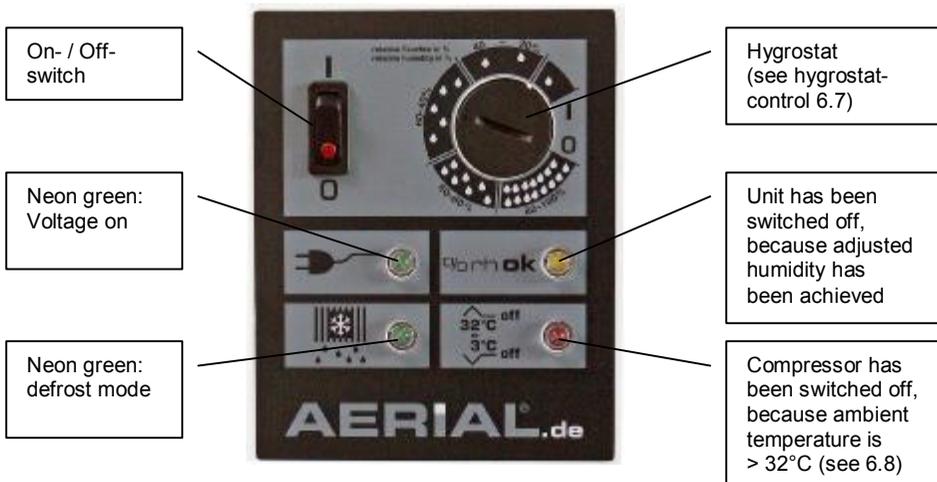
- 1 Aperture for hygrosat-sensor (measuring point)
- 2 Wall mounting bar (see 6.2)
- 3 Connection box for electrical supply (see 6.3)
- 4 Cable entries (see 6.3)
- 5 Room-temperature sensor for ThermoLogic (see 6.9)
- 6 Spacer / distance to the wall
- 7 Bleed air / fresh air aperture (see 6.5)
- 8 Apertures for changing the position of condensate outlet (see 6.4)
- 9 Aperture to chill the compressor

5.2 Fron view (without cover)

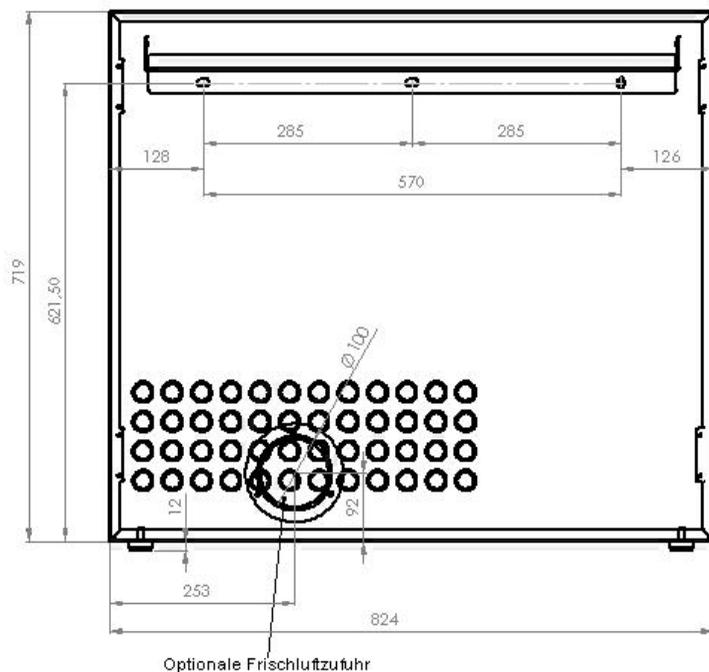


- 1 Condenser (heat exchanger)
- 2 Radial fan with motor
- 3 Evaporator (epoxy-coated)
- 4 Cover for e-box
- 5 Cover for compressor

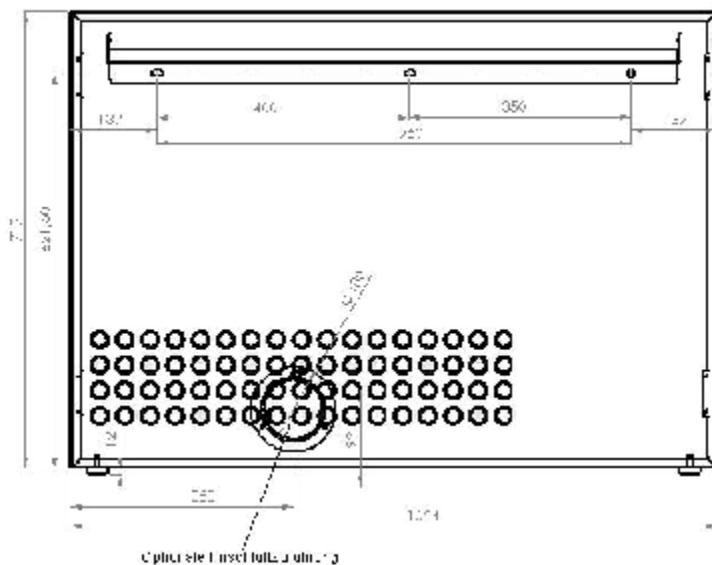
5.3 Operation panel



5.4 Dimensions AP 50



5.5 Dimensions AP 70



6. Installation and transport

The AP-series is planned for the stationary effort. The units are for wall mounted using. During the setting up and transportation of the dehumidifier, the following items are to be considered:

- That dehumidifier can be transported upright or laid flat! The upright transportation is to be preferred if possible. Secure against tilting!
- That dehumidifier must be installed so that the air can circulate without obstruction through him. The air apertures – also the dorsal - must not be covered. The open space before the main inlet and outlet apertures (front and top) must at least conduct 1 meter. For an optimal air circulation it should be clearly more than 1 mtr.
- The appliance must be used exclusively for air drying.
- The machine is to be fastened in each case to a wall. The mounting accessories provided are to be used. The machine must be aligned with a spirit level on all axles accurately.

ATTENTION:

The dryer is not suitable as seat furniture! Damages by inappropriate treatment and use lead to expiring the guarantee!

6.1 Place of Installation

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!

The suitable location for the AP-dryer should have / should be with:

- Electrical connection 230 V / 50 Hz.
- Above and in front of the dryer at least 1 meter free space, better more!
- Disposal possibility for the resulting condensate, if necessary with trap/siphon.

Select the location in such a way that the air of the dryer can circulate as optimally as possible in the room. The dryer should be fastened to a wall. In the case of use directly on the ground, the machine has to be fixed, too.

6.2 Fixing at a wall

- Mark the necessary boreholes for the mounting bar (lies with) at the wall.
- Align the bar thereby with a spirit level.
- Fasten the mounting bar reliably with the pegs and screws provided to the wall.
- The dryer is hung up later at this bar

6.3 Electrical connection

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

- Does the mains voltage coincide with the voltage of the appliance? (Voltage at AP 50 and AP 70 is 230V / 50 Hz)
- Adequate fusing of supply system?
- Has the required residual-current-operated circuitbreaker (r.c.c.b) been installed in case of swimming baths?

- For the electrical connection of the dryer is the cover of the connection box to remove (left above on the back of the dryer, see to figure 4.1 - pos. 3).
- Behind it the connecting terminals for 230 V / 50 Hz are placed.
- The mains cable is led by the cable entries placed under the connection box into the connection box. (see figure 4.1, pos. 4)
- The connection may take place only via a trained electrician.

6.4 Condensate removal

At the condensate connector (factory-installed left down at the machine) the enclosed hose (15 x 2 mm) has to be fixed with a clamp.

Lead the hose with downward gradient (at least 5%, i.e. 5 cm/per meter) away from the dryer into a discharge.

-
- The condensate connector is factory-installed left down at the machine. Depending on the situation in the room, the connector can also be changed to the right side of the dryer:
 - Remove front cover (without tool, pull off simply)
 - Down at the front you find two screws for the condensate sump. Remove these screws.
 - Remove the two rubber-plugs at the reverse side of the unit (see figure 5.1, Pos. 8) Remove the screws behind the rubber-plugs.
 - Now the condensate sump can be removed. Turn it from left to right and insert it back.
 - Fix the four screws again (front and reverse side). Insert the rubber-plugs again.
 - Fix the front cover again.
 - Fix the hose now at connector the right side as explained above.

ATTENTION:

- *The end of the hose must be situated lower than the beginning of the hose (runoff socket)(minimum 5 cm slope on each metre).*
- *The hose end should not be in water, since it can come in such a way to a water back pressure in the hose.*
- *The hose must never be bent!*
- *No objects must be placed onto the hose!*
- *Check regularly whether the condensate can flow off certainly. Otherwise, a new hose might be mounted.*

6.5 Add fresh air (option)

- The series AP is fitted with an aperture for additional air. (Figure 5.1 - Pos. 7)
- With the help of a flange D= 100 mm (optional accessories, article no. 6109-0020) fresh air can be added over this opening. In addition an appropriate wall opening (D = 80 mm) is to be created behind the equipment, over which fresh air will then be sucked from outside

6.6 Putting into operation

- After a transport and the installation the dryer should rest in it's final position for approx 15 minutes. During this period of time, the oil inside the refrigerating system, that was foamed during transport will return into the compressor. We recommend this procedure since it extends the service life of the compressor.
- If the dryer has been installed correct, it should start automatically with hygrostat in Pos. I and On-/Off-switch in pos. I (figure 5.3). First the compressor starts and after a while the fan will also start. This function is to avoid to high starting current.

6.7 Hygrostat control

The air dryers of the AP-series dispose of a hygrostat for setting the required humidity value. This hygrostat is located in the operation panel. 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 unit.

Pos. 0 = Switched off

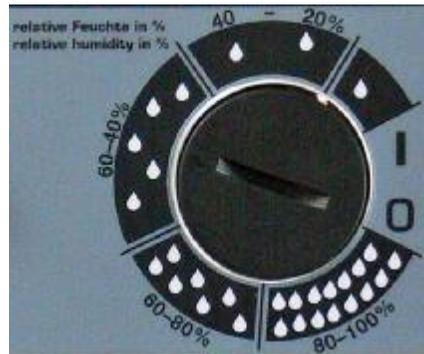
Pos. 1 = Continues working

80-100% = The dehumidifier switches off when a humidity of approx. 80-95% r.h. has achieved. And switches on again when humidity is higher than 80 - 95%.

60 - 80% = The dehumidifier switches off when a humidity of approx. 60-80% r.h. has achieved. And switches on again when humidity is higher than 60 - 80%.

40 - 60% = The dehumidifier switches off when a humidity of approx. 40 - 60% r.h. has achieved. And switches on again when humidity is higher than 60 – 60% r.h.

20 - 40% = The dehumidifier switches off when a humidity of approx. 20- 40% r.h. has achieved. And switches on again when humidity is higher than 20 – 40% r.h.



The smooth setting option of the hygrostat makes a very convenient humidity control possible for you. If very precise values are requested, you should match the hygrostat with the information on a precise hygrometer.

Please consider:

Humidity values of a minimum of 40 % - 45 % r.h. can be achieved with a condensation dryer. In a swimming pool room a humidity of approx. 60% r.h. is recommended.

6.8 Automatic defrost

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 air-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 fan works and the compressor does not work. That means the ice is defrosted by the ambient air.
- When the ice is defrosted, the dehumidifier will start again with dehumidifying.

6.9 Thermal protection

The AP-series are equipped with the thermal protection „ThermoLogic“. The “ThermoLogic” switches the compressor off if the ambient temperature is higher / lower than the allowed working range. (> +32°C / < +3°C). As soon as the allowed temperature has reached, the compressor switches on again automatically. If the ThermoLogic switched the compressor off, this is indicated to the red signal light by permanent lighting up.

7. Service and maintenance

ATTENTION

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

In order to guarantee a troublefree function of the dryer the device should be cleaned regularly. The following procedure is instead recommended:

- Check function of connected hygrostat.
- Switch the unit off at the main power switch
- Remove the cover. No tool is necessary, pull off simply. The cover must be put down cautiously on a tender subsoil that they do not topple over and it can not come to disadvantages at the surface.
- Clean the heat exchangers (evaporator and condenser) for example with a brush or with air. Remove the dust from the lamellae. **Attention: The lamellae are sharp-edged. Risk of injury!**
- Check the drain and the hose. Make sure that the condensate can flow off certainly.
- Mount the cover.
- Clean the case with a moist towel. Do not use aggressive Detergent.
- Switch on the main power switch.

This cleaning is required 4 x a year!

No other maintenance work is required for the air dryer.

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:

Operational range: +10°C up to + 32°C / 40% r.h. up to 95% r.h.
 Protection class: IP X4
 Voltage : 230 V / 50 Hz
 Fusing in swimming halls: residual-current-operated circuitbreaker (r.c.c.b) has to be installed

AP 50

Air volume	875 m ³ /h			
Noise level	50 dB(A)			
dimensions (width/height/depth)	824 mm / 740 mm / 261 mm			
weight	54 kg			
refrigerant (CFC-free)	R134a / filling charge see type plate			
Capacity in acc. to DIN EN 810 E				
Temperature / relative humidity	capacity l/day	Power consump. Watt	l/kW	kW/l
30°C / 80%r.h.	47,0	770	2,6	0,393
30°C / 60%r.h.	29,0	715	1,7	0,596
27°C / 60%r.h.	27,0	670	1,68	0,596
20°C / 60%r.h.	24,0	630	1,6	0,630

AP 70

Air volume	1000 m ³ /h			
Noise level	52 dB(A)			
dimensions (width/height/depth)	1024 mm / 740 mm / 261 mm			
weight	64 kg			
refrigerant (CFC-free)	R134a / filling charge see type plate			
Capacity in acc. to DIN EN 810 E				
Temperature / relative humidity	capacity l/day	Power consump. Watt	l/kW	kW/l
30°C / 80%r.h.	66,2	1.050	2,6	0,38
30°C / 60%r.h.	46,0	990	1,9	0,516
27°C / 60%r.h.	34,6	920	1,57	0,638
20°C / 60%r.h.	32,0	870	1,53	0,652

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 +10°C. The using of the dryer is uneconomical in the case of these conditions. It is recommended to disconnect the dryer. **Tip:** Put the built-in hygostat on an attainable value (e.g. approx. 60%r.F. in swimming pool rooms), with it the dryer punctually may switch off.
- The heat exchangers are soiled. Not enough air flows through the dryer. **Tip:** Lead regularly maintenance as described in point 8!

2) The compressor of the dehumidifier does not work.

- The unit is in defrost mode. In this case the fan still runs and the compressor does not run. After some minutes, the unit will start with regular working.(see 6.8)
- The ambient temperature in that room is lower than +3°C or higher than +32°C. The unit will start again when the temperature in that room has achieved normal conditions between +3°C and +32°C (see 6.9).

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

- Is the unit supplied with voltage? Check the main cable and the main fuse.
- The humidity value adjusted at the hygostat is achieved. The dryer will start again after exceeding the adjusted humidity.(see 6.7)

4) The humidity adjusted at the hygostat does not become achieved and/or the device does not switch off automatic:

- Is the hygostat adjusted on a value lower than 40 – 45% r.h.? Humidity values with a minimum of 40 % - 45 % r.h. can be achieved with a condensation dryer. Adjust the hygostat to a reachable value. (in swimming halls for exa,ple 60% r.h.)
- Is the unit with enough capacity for your application? The ambient temperature, the water temperature, water movement and the open water surfaces decide among other things on the dampness load in the area. 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

5) Water runs beside the dryer:

- Make sure that the dryer stands accurately straight on all axles (spirit level!)
- Make sure that the drain hose is surely fastened to hose connector.
- Make sure the drain hose is shifted away from the unit with enough slope.
- Examine whether the drain hose is free from the inside. In the course of the time it can be blocked by algae.
- Make sure that the hose end is not in the water

ATTENTION

The appliance must be repaired by 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 get in touch with your supplier.

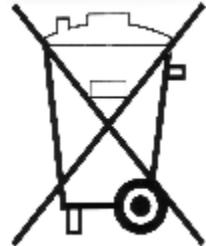
The producer AERIAL GmbH you reach under 0049-40-526879-0 or www.aerial.de

10. Disposal

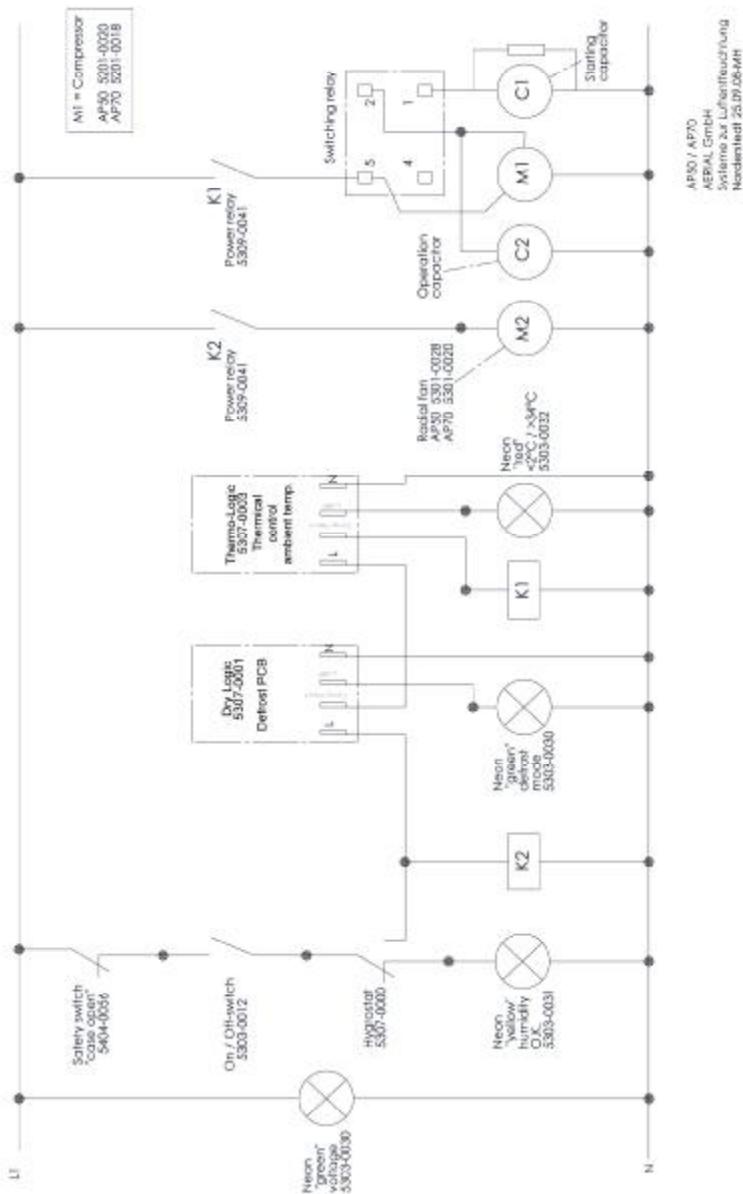
Please do not dispose this unit with the domestic waste and please do not dispose this unit in the environment.

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 AP 50 / AP 70



AP50 / AP70
 REPAL GmbH
 Systeme zur Luftentfeuchtung
 Nordentfernt 25, D-70669

12. Manufacturer's declaration

(EU-directive 98/37/EG)
(EU-directive 2004/108/EG)
(EU-directive 73/23/EWG)

manufacturer: AERIAL GmbH - Systeme zur Luftbehandlung
Oststraße 128, D-22844 Norderstedt

Product description: swimming pool dryer AP 50 / AP 70

capacity: 47,0 / 66,2 l/day

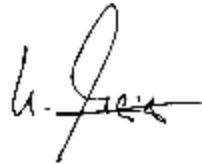
The product described above is an ambient air dryer ready for connection.

Related standards: EN ISO 12100 Safety of Machinery
EN 61 000 Electromagnetic Compatibility (EMC)
Basic Specification "Emitted
Interference"
EN 60 335-2-40 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, 01.12.2010

sign / stamp



Karsten Meier – General Manager

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