

# DESICCANT DEHUMIDIFIER DH3511 MANUAL

110V  
50Hz



**ECOR** PRO



CE ✓  
RoHS

## THANK YOU!

- Thank you for choosing this innovative dehumidifier.  
This manual describes the many benefits and advanced features that this unique product has to offer.  
This dehumidifier is a tough, industrial unit designed to be used almost anywhere that dry air is required. Desiccant/Absorption dehumidifiers are especially suited to applications where low relative humidities are needed and they work well over a wide temperature range.  
We specialise in complete indoor humidity control. Our world class products incorporate the latest technological developments and are designed to create a quality environment.  
It is important that you read these instructions carefully before installing and using your new dehumidifier.
- Please keep them in a safe place for future reference.

## SAFETY

- For safety reasons, read this information carefully before operating.  
Persons who are not familiar with this type of product must not use it.  
The dehumidifier is safe, however, as with other electrical appliances, use it with care.  
**This dehumidifier is designated for indoor operation. It must be earthed and should only be connected to an earthed 110V / 50Hz mains. The installation must be in accordance with the regulations of the country where the unit is used.**
  - This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.
  - Children should be supervised to ensure that they do not play with the appliance.
  - Disconnect from the mains when not in use.

## SAFETY (2)

- Disconnect from the mains before cleaning the unit or any of its components.
- Do not clean the dehumidifier by spraying it or immersing it in water.
- Do not insert any object into the opening of the dehumidifier.
- Any service other than regular cleaning, setting fan mode or filter replacement, should be performed by an authorized service representative. Failure to do so could result in a loss of warranty.
- Your dehumidifier is supplied with an electrical cable and an yellow industrial plug connected. Should it be necessary to replace this plug at any time, it must be done by a qualified electrician.



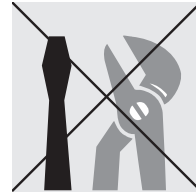
**Warning!** Never operate this appliance if it has a damaged cord or plug. If the cord is damaged an approved service representative or a similar qualified person must replace it in order to avoid any hazards.

There should be direct access to the electrical plug after connecting the power!



**Do not use your dehumidifier under the following conditions:**

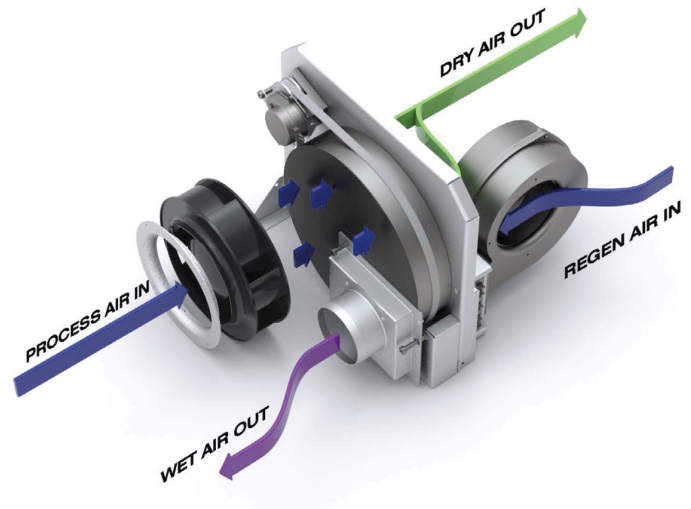
- Where the power cable may be easily damaged
- Near a heat source
- Where small children may be left unattended
- Where there is a risk of liquids falling on the unit
- Where it may be damaged by chemicals



**This product is  
not made for  
DIY repair.**

## HOW IT WORKS

- Your Desiccant dehumidifier removes moisture using a continuously rotating moisture absorbing wheel —this 'Desiccant Rotor' is literally a honeycomb of extremely hygroscopic membranes.  
A highly efficient yet low noise fan draws air into the unit (Process Air In) and forces it through a portion of the absorbent rotor. As the air passes through the rotor, the honeycomb of hygroscopic membranes absorb almost all of the moisture creating an extremely dry air stream; this air stream is discharged directly through the 'Dry Air Out' duct.  
A second fan pushes a separate air stream (Regen Air In) through a heater bank (Regen Heater) where it's temperature is raised. This air is then channelled back through a section of the rotor. As this air passes back through the membranes, its higher temperature drives-out the previously absorbed moisture and discharges it as warm wet air through the 'Wet Air Out' duct.  
As the wheel rotates, this process of collecting and discharging moisture is continuous.



- **PATENTED DESICCANT ROTOR**

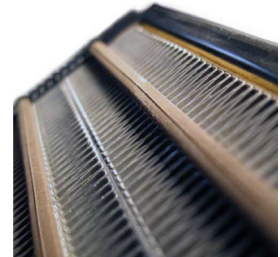
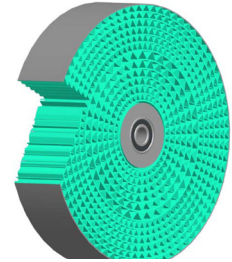
The Desiccant Rotor is the heart of the dehumidifier. It is an array of specially absorbent membranes arranged as a series of corrugations (as shown in the cut-away image) to give a vast surface area making it an extremely efficient. It is encased in a galvanized steel ring and turns on high quality sealed ball bearing units.

- **REGEN HEATER BANK**

The dehumidifier uses a ceramic PTC type regen heater. PTC (Positive Temperature Coefficient) heaters are based on a semi-conductor that changes resistance as it becomes hotter. The semi-conductor is designed so that it's resistance rises rapidly at a predesignated temperature, thus it maintains this temperature across a wide range of operational conditions. This characteristic means that the heating element can never over heat to hazardous temperatures, even if the regen airflow is completely blocked.

- **FAN SYSTEM**

The dehumidifier uses a patented "RadiCal" backward curved fan unit, this is a highly effective yet quiet system. It is designed to give a good balance of airflows for both 'Process' and 'Regen' airflows.



## POSITIONING

The dehumidifier is designed only for indoor use however, it can be placed inside or outside the room to be dried.

- **INTERNAL POSITIONING**

When positioning the unit inside the room, place it centrally, ensuring inlet and outlet ducts are clear of obstruction.

If required, ducts can be connected to the outlet and/or inlet to direct the drying to specific areas.

The Wet-Air-Out MUST be ducted outside the room.

- **EXTERNAL POSITIONING**

When positioning the unit outside the room, connect ducting to the outlet to direct the dry air stream into the room to be dried.

Optionally, the inlet may also be ducted to the room with the unit to give a re-circulation effect. In this case however, because the unit uses a portion of the inlet air for regeneration, provision must be made in the inlet duct to also draw air from outside the room.

**Note:**

As the Wet-Air-Out discharge is warm and very humid ensure it is directed where it will have no adverse effect on the immediate environment.

All ducting lengths should be kept to a minimum —longer lengths will reduce performance.

The Wet-Air-Out is warm and very humid, when a duct is attached, condensation may form on the inside of the duct. This duct should slope downwards away from the unit to prevent any condensation running back into the unit.

## OPERATION

### ● STAND-ALONE OPERATION

Connect the unit to a suitable mains supply.

Ensure the Remote Humidistat switch is set in the 'OFF' position.

Switch the Power switch to the 'ON' (I) position.

The fan will start and the Ammeter reading will rise. The ammeter indicates the current taken by the PTC heater bank. Its reading will depend on the 'Process' air temperature and the 'Regen' airflow. Typically, it will indicate between 4 and 6 amps, this will reduce if the airflow is low or the 'Process' air temperature is high.

### ● REMOTE OPERATION

For remote operation it is necessary to connect a switch or humidistat via the 'Remote Humidistat Connector' which can be accessed by removing the dust cap. A connection plug is available on request.

ATTENTION: The remote connector is mains voltage!

The remote switch/humidistat should be connected between pins 1 and 3.

The earth pin is connected to ground and can be used if required (see wiring diagram).

The Remote Humidistat switch should be set to the 'ON' position.

The unit will now operate according to the state of the remote switch/humidistat.

### ● AIR FILTER

The unit has an inlet air filter, this should be checked periodically and if necessary cleaned. It can be cleaned with a vacuum cleaner or washed in mild detergent.

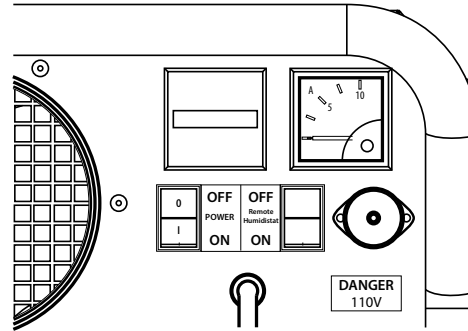
ATTENTION:

Do not run the unit without a filter fitted as dust will impair the performance of the Desiccant Rotor.

## CONTROLS

The controls are positioned on the front of the unit next to the air outlet. They are:

- Power Switch
- Ammeter
- Hour Meter
- Remote Humidistat Switch
- Remote Humidistat Connector



## TROUBLESHOOTING

### If the dehumidifier does not operate:

- Make sure the unit is plugged in.
- Check the fuse
- Check the remote humidistat setting
- Ensure the humidistat (if fitted) is turned on

### Low Airflow:

- Check inlet air filter
- Check inlet/outlets not obstructed
- Check ductwork (if fitted) is not obstructed
- Check voltage level
- Check fan is working

### If the unit is noisy:

- Check fan operation
- Check rotor drive
- Check for loose screws

### Low Dehumidifying Effect:

- Check airflows
- Check Amps reading
- Check rotor is turning

### Low Amps Reading:

- Check Regen airflow
- Check Over-Heat Protector
- Check Heater bank

### Rotor Not Turning

- Check belt tension
- Check drive-motor operation
- Check rotor alignment



## MAINTENANCE

### ● ATTENTION

- Maintenance should only be carried out by qualified personnel
- Unit should be disconnected from mains before removing covers
- If unit has just been running, the heater bank may still be hot

### ● DESICCANT ROTOR

The desiccant rotor is maintenance free, however, if it becomes blocked with dust (e.g. if it has been running without inlet air filter) it can be cleaned by vacuum cleaner or low pressure compressed air.

### ● HEATER BANK

The PTC heater bank is maintenance free however, if it becomes blocked with dust (e.g. if it has been running without inlet air filter) it can be cleaned by vacuum cleaner or low pressure compressed air.

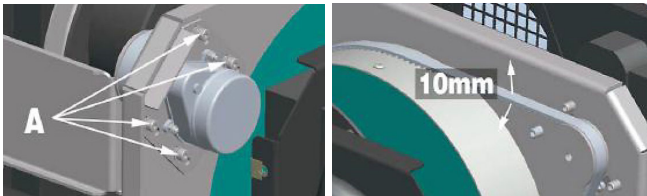
### ● OVER-HEAT PROTECTOR

In the event of total airflow loss, the over-heat protector will operate. If this happens it will need to be manually re-set after the airflow is restored.

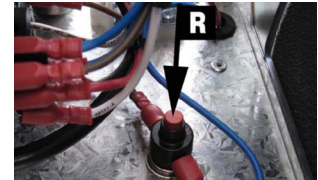
To reset, push the red button (R) down.

### ● DESICCANT ROTOR DRIVE

The desiccant rotor is driven by a geared motor via a toothed belt. The rotation speed is approximately 20 revolutions per hour. It can be seen turning during operation through the air outlet duct. If it appears to be slow or sticking, the belt can be re-tensioned using the 4 mounting screws at "A".



NOTE: Do NOT over-tension the belt. After tensioning it should have movement as shown in the image.



## TECHNICAL DATA

|                                                | <b>DH3511</b>          |
|------------------------------------------------|------------------------|
| Typical extraction @ 32C 90% relative humidity | 45L/ day               |
| Typical extraction @ 26C 60% relative humidity | 35L/ day               |
| Airflow (Dry Air Out)                          | 400 m <sup>3</sup> /hr |
| Airflow (Wet Air Out)                          | 125 m <sup>3</sup> /hr |
| Mains                                          | 110V ~ 1 phase • 50Hz  |
| Current                                        | 6.5A                   |
| Power                                          | 1500W                  |
| Operating temperature range                    | -20C — 40C             |
| Noise level                                    | 58dB                   |
| IP rating                                      | IPx2                   |
| Dimensions L x w x h cm                        | 56.0 x 35.2 x 34.5     |
| Weight net kg                                  | 20.5                   |

Made in PRC

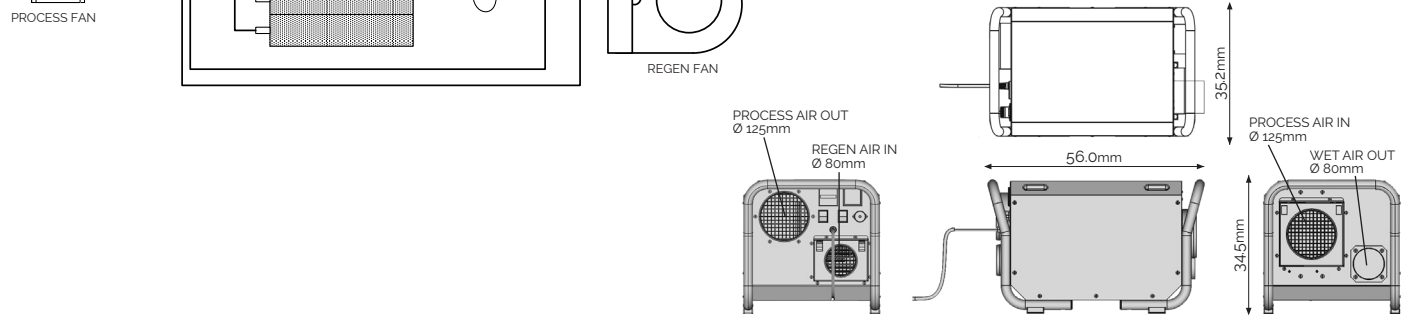
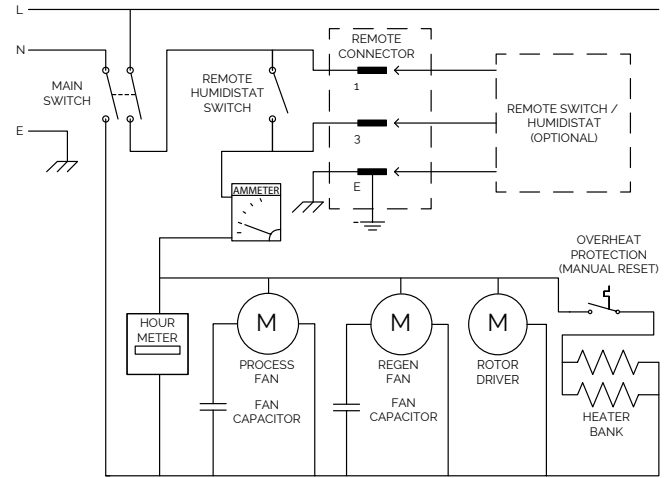
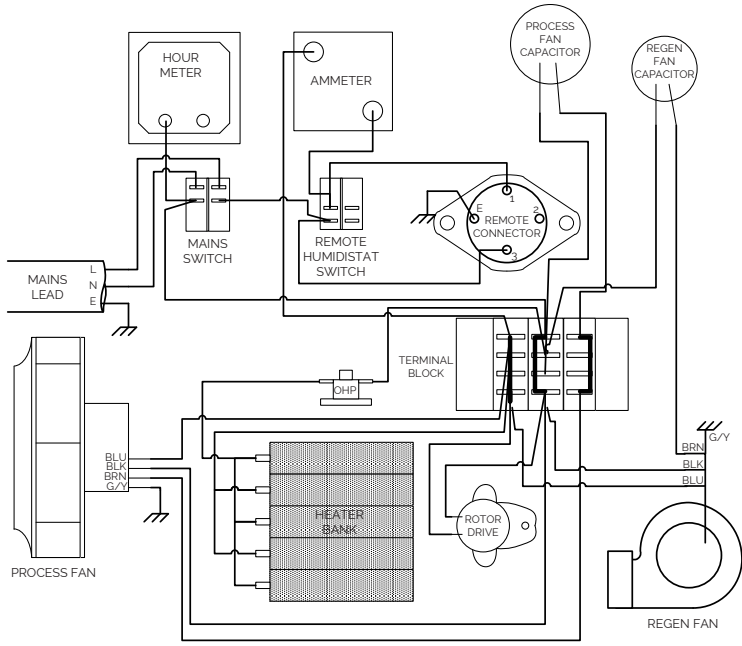
Subject to modifications without prior notice.



## OPTIONAL PARTS

- **Available from your supplier**
  - Flexible ducting Ø80mm, 3 or 6m
  - Flexible ducting Ø125mm, 3 or 6m
  - High voltage humidistat – 5m connecting cable and standard screw plug connected
  - Reticulated foam filter – pack of 3

# WIRING DIAGRAM AND SCHEMATIC, DIMENSIONS





**Ecor Pro**  
Ampèrestraat 18J  
3861 NC Nijkerk  
The Netherlands  
Tel +31 297 52 75 83  
[www.ecorpro.eu](http://www.ecorpro.eu)  
[info@ecorpro.eu](mailto:info@ecorpro.eu)

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