

## Installation Manual

Type : HomEvap Direct



### KEEP WITH THE PRODUCT

This product may be used by children aged 8 years and over, persons with reduced mental capacity, physical limitations or lack of experience and knowledge if they are supervised or have been instructed in the use of the product safely and are aware of the possible hazards. Children should not play with the product.

Cleaning and maintenance by the user may not be carried out by children without supervision.

Country origin: NL

<b>1</b>	<b>Safety regulations</b>	<b>2</b>
1.1	Safety measures taken	2
1.2	Hazard symbols	2
<b>2</b>	<b>Delivery</b>	<b>3</b>
2.1	Scope of supply	3
<b>3</b>	<b>Operation</b>	<b>4</b>
3.1	Principle of operation	4
3.2	Safety	4
<b>4</b>	<b>Use</b>	<b>5</b>
4.1	Description of components	5
<b>5</b>	<b>Technical specifications</b>	<b>6</b>
5.1	Specifications	6
5.2	Illustrations	7
<b>6</b>	<b>Setup</b>	<b>8</b>
6.1	Order of operation	8
6.2	Order of use	9
<b>7</b>	<b>Faults</b>	<b>11</b>
<b>8</b>	<b>Maintenance</b>	<b>12</b>
8.1	Procedure for replacing cassette	12
<b>9</b>	<b>Wiring diagram</b>	<b>13</b>
<b>10</b>	<b>Service</b>	<b>14</b>
10.1	Service products	14
<b>11</b>	<b>Warranty provisions</b>	<b>15</b>
<b>12</b>	<b>Liability</b>	<b>16</b>

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The information applies for the standard product design. HomEvap BV cannot therefore be held liable for any damage arising from product specifications deviating from the standard design. The available information has been compiled with every possible care, but HomEvap BV cannot be held liable for any errors in the information or for the consequences of this. HomEvap BV cannot be held liable for damage arising from work carried out by third parties.

Subject to modifications.

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## Section 1 – Safety regulations

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HomEvap B.V. accepts no liability for damage or injury caused by not (strictly) complying with the safety regulations and instructions, or by carelessness during the installation and/or use of the product.

This product is not intended for use by persons (including children) with reduced physical, sensory or mental capacity, or lack of experience and knowledge, unless they are supervised or instructed in the use of the product by a person who is responsible for their safety.

### 1.1 Safety measures taken

- The Direct is constructed in such way that it is not possible to come into contact with moving or live parts during normal use and without specific actions.
- The Direct meets the statutory requirements that are laid down for electrical equipment for light household use, protection class II.

The following safety measures must be taken into account:

- Before starting work always turn off the power to the product by removing the power cable from the socket and turning off the water supply.
- Use appropriate/suitable tools.
- Fitting the product above open electrical installations such as power distribution cabinets, sockets, etc. should be avoided at all times. If this is not possible provisions should be taken to prevent damage and/or hazardous situations due to water leaks.
- The Direct shall be installed in accordance with the national wiring regulations.
- If the main supply cord is damaged, it must be replaced by authorised persons.
- Only use the product for an application for which the product is designed as described in Sections 11 – ‘Warranty provisions’ and 12 – ‘Liability’ and follow the fitting instructions as described in these installation instructions. Any adjustment to the product connections are for the risk and account of third parties.

### 1.2 Hazard symbols

The Direct bears the following recognisable and clear hazard symbols to warn you:



This symbol warns you of contact and risk of electrical voltage or water contact.



#### **HIGH VOLTAGE**

The components under the bottom cover are live, if power supply is connected. Careful operation is required.

Remove the plug from the socket before you dismantle/remove the cover!



#### **WARNING**

This symbol warns you of an electrical hazard. Careful operation is required.

## Section 2 – Delivery

Check the packaging on receipt and before opening for visible damage. Damage must be reported to HomEvap in writing within 48 hours after delivery.

### 2.1 Scope of supply

The Direct consists of:

2 EPP housings fitted with 2 round connections of R200 mm.

The following components have been fitted in/on the HomEvap housing humidifier:

- One fibreglass (1) absorbent matrix cassette with LegioSafe water filter
- One (1) PTC electric heating element
- One (1) cord with connection adapter for SHC80 sensor (L=1m)
- One (1) water supply hose black(L=1m; Ø=4mm; adapter 3/4" outside)
- One (1) cord with coupling for cord with mains plug (L=1m)
- One (1) cord fitted with a pt1000 temperature sensor T3 (L=2m)
- One (1) cord for connecting the humidifier with the basic cooler



Fan:

- One ventilator
- One (1) cord for connecting the cooler with the humidifier
- One (1) water supply hose black(L=1m; Ø=4mm)

Supplied separately are:

- One (1) combined humidity-temperature sensor (SHC80)
- One (1) cord with coupling for cord with mains plug (230VAC; L=1m)
- One (1) splitter to connect the main plug with the two cords



- One (1) controller



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## Section 3 – Operation

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**The purpose of the unit is to humidify dry air passing through a wetted media in an energy-efficient, silent and safe way. The adiabatic humidification/cooling process is carried out in the humidifier and cooler itself and increases the humidity in the air supply to the room/ house or cools the temperature.**

### 3.1 Principle of operation

The purpose of the HomEvap Direct is; energy-efficient, quiet and safe air cooling and humidifying the house if there is no WTW present. The cooling function is to keep the house at a pleasant temperature during the summer. The humidifier will keep the house at a good relative humidity in the winter.

The Direct is placed - out of sight - above the door of, for example, your meter cupboard, storage room or attic. The humidified and cooled air is blown in through a grid

#### Principle of operation

The HomEvap Direct is an adiabatic air cooler and humidifier. The warm air from the house goes through a humidified matrix. As a result, the air cools down to very close to the wet bulb temperature of this air, for example 29C / 30% is cooled to 20C / 75%. The adiabatic air cooler has an efficiency of 80%.

#### Humidifier

If the moisture content of the outside air becomes too low, the HomEvap starts humidifying this supplied air, achieving a maximum efficiency of 80%. The air does cool off according to the line of enthalpy of the Mollier diagram \*. The maximum capacity is 5 l / h \*.

#### Cooler

The Direct also provides cooling and only operates when the outdoor temperature is too hot and the setpoint is lower than the measured temperature in the home.

ATTENTION: the effect on the room temperature is limited by the limited air volume.

### 3.2 Safety

The water is legionella-safe because of the built-in, patented, legionella-free LegioSafe water filter and distributor. The supply water first passes through the LegioSafe before it moistens the matrix. As a result there is no risk for the inhabitants of houses or building. Only fresh water is used. There is no recycling of water. The matrix is completely dry if there is no demand for cooling/humidification.

The SHC80 duct sensor supplied also measures the relative humidity and temperature in the duct after the humidifier. This position guarantees the best efficiency and safe operation, no condensate in ducts under the normal conditions of use of our design.

The built-in PTC air heater has several safety devices:

1. A mechanical safety device that ensures that the air heater demands no more power after exceeding a maximum temperature of 85°C.
2. An extra temperature sensor in the humidifier that switches the air heater off at too high a temperature.

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## Section 4 – Use

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### Application

The HomEvap Direct can be used anywhere as long as the unit is connected to a water supply, drain and power.

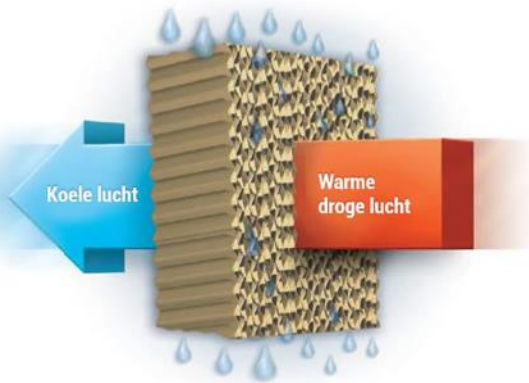
### 4.1 Description of components

The main components of the HomEvap Direct are:

#### The casing

The Direct consists of two enclosures of EPP (expanded polypropylene) with a round channel connection of 200mm on both sides. The advantages of EPP is that it is light, waterproof and recyclable. It consists of a unit with the humidifier / cooler and a unit with the fan that provides the airflow.

Both units have an upper and a lower housing that are attached to each other by two rings. At the bottom of the humidifier / cooler is the compartment with the water valve and mainboard, sealed by an EPP lid. The control is located at the bottom of the fan box.



#### Internal construction

The internal construction of the humidifier / cooler unit is designed so that the airflow is optimal and is humidified in a safe way. It consists of a cassette in which the patented Legionella safe filter, LegioSafe and the matrix are located. The supply water passes through the filter after which it is filtered to wet the matrix. The supplied air passes through the matrix and is moistened. Excess water is drained. The PTC heater, mounted in the ring, heats the supplied air if it is below the set point.



The internal construction of the fan box consists of a fan that is controlled from 0-10 volts.

The HomEvap is controlled by the wireless control panel that comes with the Direct. As soon as the sensor in the control panel measures a different temperature or air humidity, the water valve will open and close modularly for optimum efficiency and minimum water consumption. This process will repeat until the setpoint is reached.

The control system is equipped with an anti-static water control as extra protection for legionella formation and an over-moisture protection.

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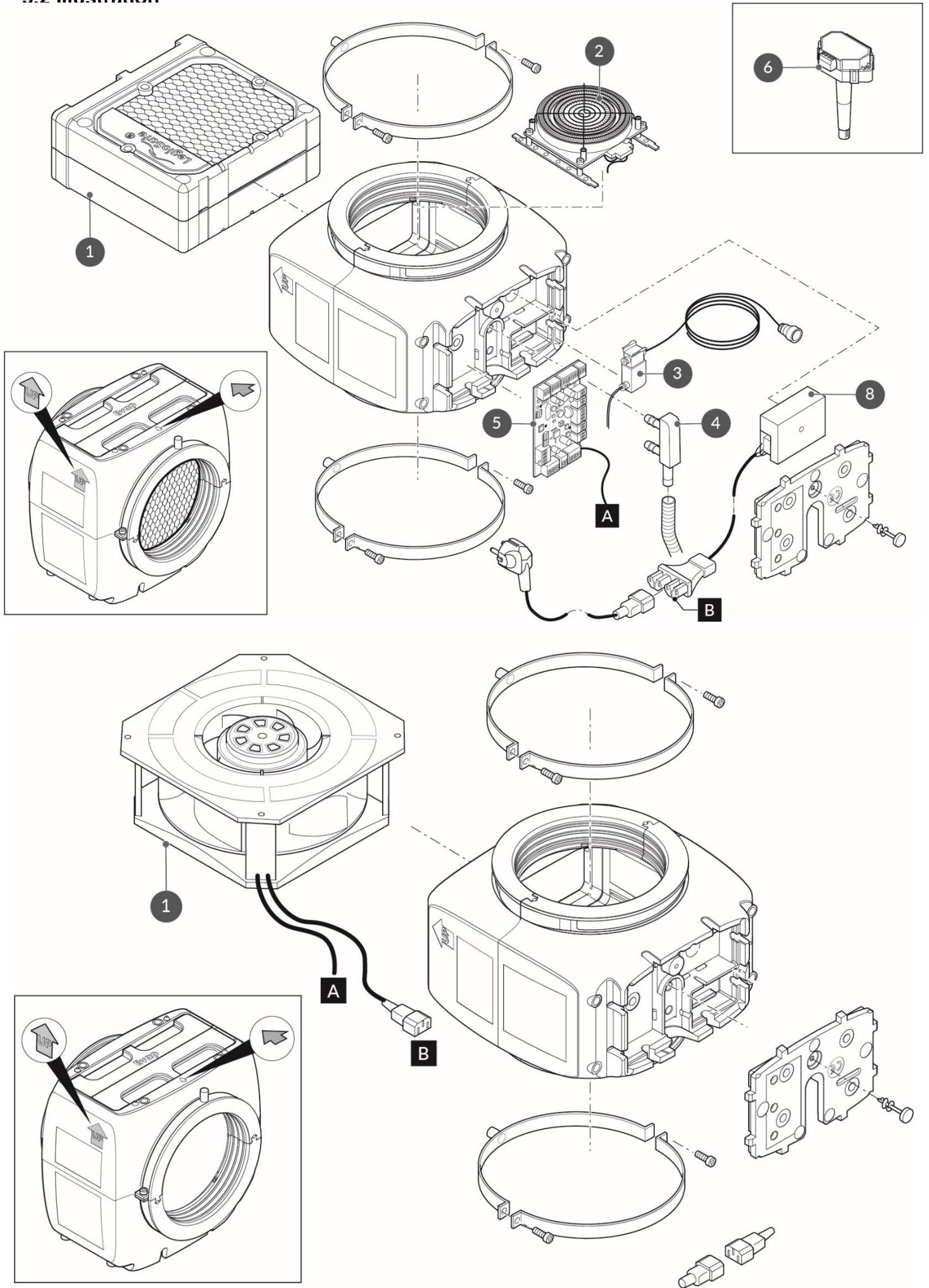
## Section 5 – Technical specifications

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### 5.1 Technical specifications

	<b>HomEvap Direct</b>
Dimensions LxWxH	258 x 344 x 335 mm 2x
Maximum humidifying-capacity	4 liter
Maximum cooling-capacity	1950 watt
Electricity use	20 VA
Maximum water usage	5 liter per uur
Watersupply duct connector	4 mm
Waterdrain connection	16 mm hose
Maximum airvolume	650 m <sup>3</sup> /u
Ductconnection	R150 - R200 mm

5.2 Illustration






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## Section 6 – Installation

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 The direct connection must be made to a water extraction point fitted in accordance with NEN6526.

**The HomEvap Direct consists of 3 modules;**

1. HomEvap Humidifier - This is the EPP unit with 2 times around 200 connections and contains the matrix. At the bottom is a cord with a plug, 1 shc80 duct sensor cord, 1 connection cord to Fan box. 50cm 16mm drain hose, 1.5m 4mm water inlet hose (black)
2. The fan box - This is the EPP unit with 2 times around 200 connection and contains the fan. At the bottom there is a cord with a plug which is connected to the power cord of the HE humidifier. Use the supplied splitter for this.
3. The control panel - This is the controller which is equipped with an internal moisture and temperature sensor.

**The wireless control has its own user manual.**

**ATTENTION the control panel and humidifier are UNIQUE linked together make sure they do not get exchanged. !!!!**

### 6.1 Order of operation



**NOTE: The units must be level!**

#### Physical suspension

1. Determine the location of the Direct in the home. For optimum efficiency the Direct should be installed in a place where the exiting air can easily flow through the house. E.g. hall, attic in staircase, closet in kitchen or storage room to large living room.
2. Determine whether the units can be installed freely together, connected to a piece of hose, or coupled with a pitch ring r200.
3. The HE is equipped with a mounting bracket with an m8 threaded bush. This can be used for suspension via a threaded rod.
4. Free space around should be such that the humidifier is too horizontal to turn during a service.

#### **Water connection**

5. Connect the black 4 mm hose with the ¾ adapter to the water supply connection of the water supply via a washing machine tap ¾ bu wire with check valve.

Ensure that the water pressure is between 1.5 bar and max. 5 bar.

#### **Water drain connection**

6. The HE is supplied with a 16mm drain hose on a compression fitting.



**This should be connected with the sewerage in an odorless manner.**

**ATTENTION** the water consumption is a maximum of 1ltr/min. In the event of a line break in the appliance, normal use max. 2 l / h min. drain 25mm.

#### **Duct humidity and temperature sensor**

Mount the SHC80 sensor directly into the air supply channel after the HE.



**CAUTION that the sensor is not damaged!**

## 6.2 Order in use:

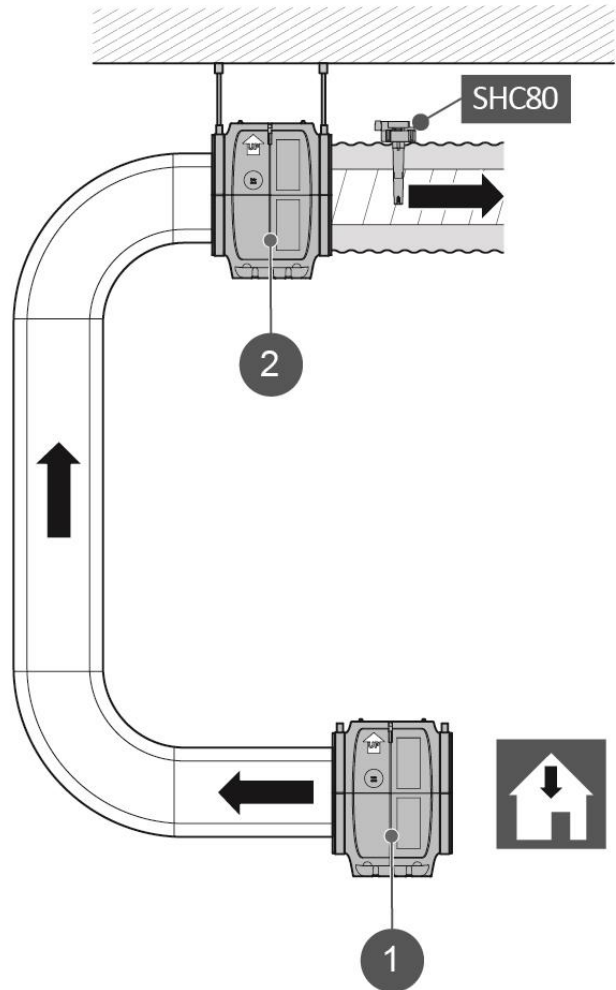
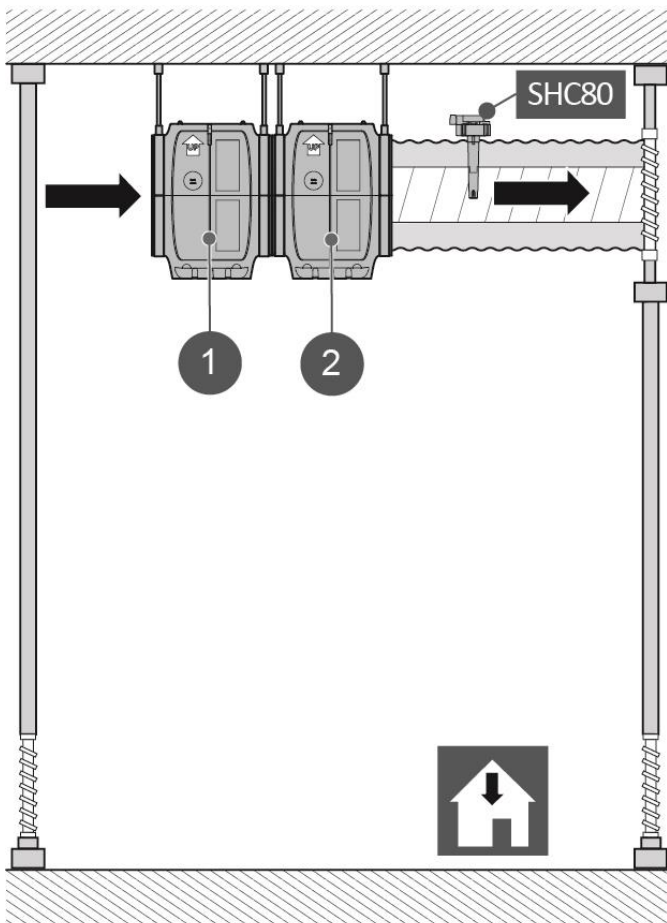
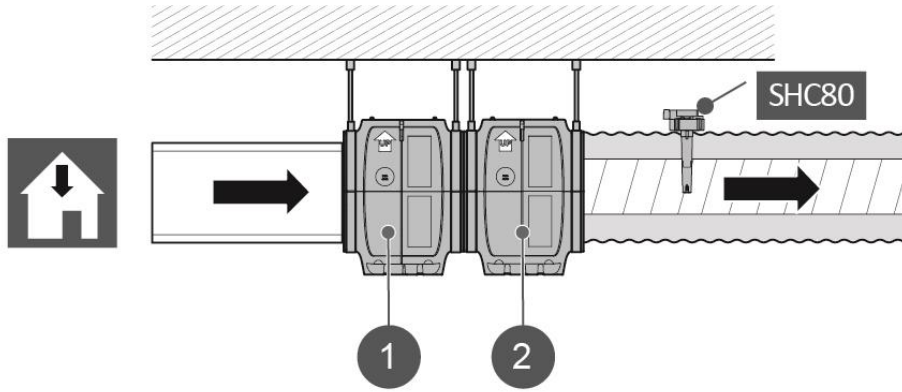
Open the water supply tap and check for leaks on water supply. Check again after 1 hour.

- 1) Insert the plug of HomEvap Direct into the socket.
- 2) Open the water supply tap.
- 3) Insert the plug into the socket. The service light goes on / off for 5 seconds, which means that a test is automatically performed. The water valve opens for 90 seconds and the heater is switched on. The test takes about 3 minutes.
- 4) The HomEvap Direct is now ready for operation.
- 5) Now take the control panel of the Wireless control panel, to do your personal settings.



**PAY ATTENTION!** It is normal for water to flow through the drain after about 10 minutes. This is never more than 1 to 2 l / U, depending on the air supply temperature and relative humidity.

1= Humidifier  
2= Fanbox



## Section 7 – Faults

When the control in the unit detects a fault, this is displayed at the bottom of the product by the alarm symbol (bell) by means of an LED. To reset the alarm the product must be briefly disconnected from the power supply by removing the plug from the socket and then replacing this in the socket after 10 seconds.

The Table below shows different causes of an alarm and the repair or control action.

Alarm LED	Display Tekst	Meaning	Action
Alarm LED on	<i>M OFF</i>	Contact main enable broken, unit switches off	Restore contact main enable, see wiring diagram
Alarm LED blinks 3 times	<i>SENSUP</i>	Contact with SHC80 sensor broken	Check SHC80 wiring and if necessary repair, check that the light on SCH80 sensor flashes regularly, if not replace faulty sensor.
Alarm LED blinks 5 times	<i>OUTDEF</i>	T3 sensor outside air faulty	Check wiring for break or wear, in case of doubt replace. Testing can be done by keeping the sensor at 8°C or colder in water or air; the Evap must then be activated because the water valve opens.
Alarm LED blinks 9 times	<i>WATER</i>	No rise of RH in duct	<p>Check that the water tap is open</p> <ul style="list-style-type: none"> <li>If tap is open and there is a demand (outside air below 12°C) disconnect the black hose on top on the knee joint and activate the water valve by switching the voltage off and back on again, water should now come out of the hose; if valve does not respond, replace valve.</li> </ul> <p>If valve is working and matrix material does not get wet after switching, then the LegioSafe filter is blocked and must be replaced. Order product code 351025 from your dealer.</p>
Alarm LED blinks 11 times	<i>NOAIR</i>	No airflow Cooler	Check if HRAV is working
Alarm LED blinks 13 times	<i>NOCOOL</i>	No water Cooler	<p>Check that the water tap is open.</p> <ul style="list-style-type: none"> <li>If the faucet is open and there is a demand (for the combination comfort outside temperature must be below 12 ° C) disconnect the black supply hose from the knee on the unit, and reset the unit by plugging the plug in and plugging it in again. ; if water comes out and the water valve does not respond, the water valve is defective, replace the water valve.</li> <li>Does the water valve work and the matrix does not get wet after the valve has switched, then the legionella filter is clogged; replace the cassette.</li> </ul>
Alarm LED blinks 15 times	<i>HEATER</i>	Heating faulty	Check air temperature after the humidifier, this must be >8°C, if not air heater is faulty. Call installer for replacement.
Alarm LED blinks 17 times	<i>AIRFLW</i>	No airflow	Check if HRV is working.
Alarm LED blinks 19 times	<i>T2Def</i>	T2 sensor outside air faulty	Check wiring for break or wear, in case of doubt replace. Testing can be done by keeping the sensor at 8°C or colder in water or air; the Evap must then be activated because the water valve opens.
Service LED continuously on	<i>Service</i>		The cassette must be replaced

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## Section 8 – Maintenance

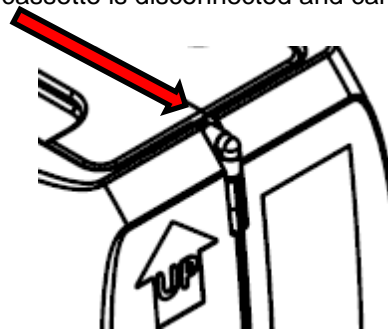
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The humidifier is equipped with a removable cassette in which a matrix and LegioSafe filter are fitted. The matrix cannot be cleaned. The humidifier cassette must be replaced at least every year to guarantee safe and healthy humidification. A service message is triggered that is visible by a LED coming on (next to the lock symbol) at the bottom of the humidifier.



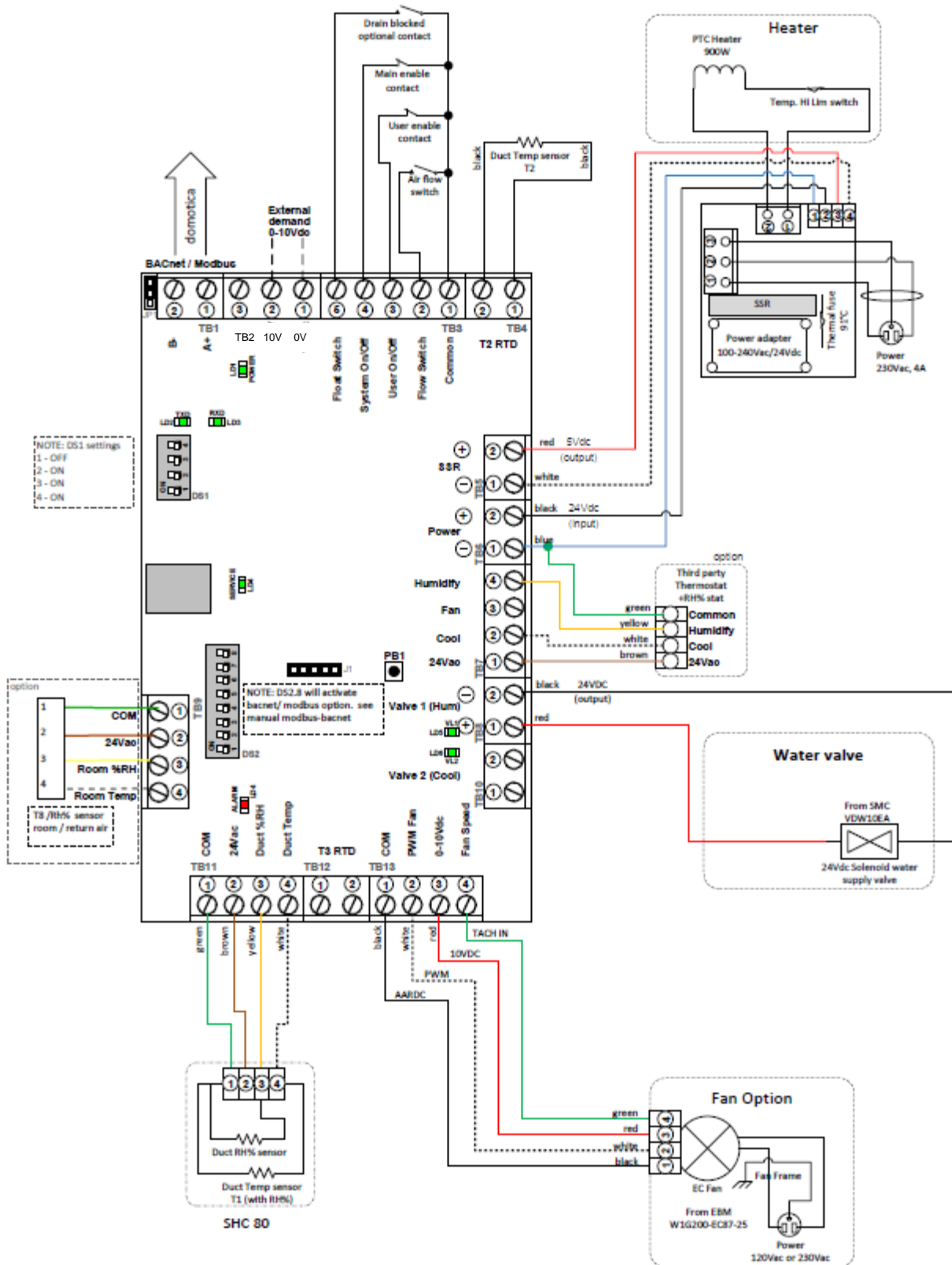
### 8.1 Procedure for replacing cassette

1. Remove the plug from the socket.
2. Disconnect the water supply.
3. Make sure that the drain hose is free and can move with the movement that is necessary to gain access to the top.
4. Make sure that the water supply hose has sufficient room to move with it, or disconnect from the tap.
5. Undo the screws on the side of the brackets so that the humidifier can be turned in the bracket. Use a crosshead 2 or 3 screwdriver.
6. Turn the humidifier 90° so that the cassette is accessible. Take into account any leakage water from the side of the unit!
7. Disconnect the cassette from the water supply by pushing in the ring of the knee joint (on side of the housing) and sliding the whole knee off of the black hose. In this way the cassette is disconnected and can be removed.
8. Pull/slide the cassette out of the humidifier.  
For this use the tool supplied with it or water pump pliers!
9. Clean the inside of humidifier with a soft cloth if necessary.  
**Do NOT use a cleaning product!**
10. Remove the new cassette from the packaging.
11. Push/slide this into the unit.
12. Push the black hose of the new cassette into the knee joint.
13. Turn the humidifier again such that **it hangs level**.
14. Tighten the brackets.
15. Open the water supply duct
16. Insert the plug into the socket.
17. Your humidifier is again safe, reliable and ready for a new period!



**NB:** The whole used cassette can be disposed of with the residual waste.

## Section 9 – Wiring diagram



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## Section 10 – Service

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When ordering components in addition to the product code the serial number (if present) and the name of the component must be stated.

### 10.1 Service products

Product description	Product code
Humidifier cassette	HECASH
Humidifier air heater	HEPTC
Humidifier water valve	HEVDW12EA
Humidifier drain	HEAFVOER
Humidifier PCB 3	HEMAIN

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## Section 11 – Warranty provisions

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- 11.1 HomEvap warrants that the supplied goods and/or their components shall for a set period after delivery be free of faults that are the direct consequence of material, production and/or construction faults. The duration of the warranty shall be:
- 2 years from the installation date on all components of this product, except for any filter present, which is not covered by the warranty;
  - 5 years from the installation date on any heat exchanger present (except for enthalpy exchangers; for this the warranty period of 2 years shall apply).
- 11.2 Based on various technical standards and requirements for each country the warranty provided by HomEvap shall only be valid if the product is installed in the country of first purchase.
- 11.3 In derogation of the provision in paragraph 1 of this Article the warranty for goods that HomEvap has obtained from third parties or has had developed and/or manufactured by third parties shall be limited to the warranty that these third parties have given to HomEvap.
- 11.4 A claim under warranty shall only be considered by HomEvap if this is submitted to HomEvap in writing within 14 days after the fault is discovered or should reasonably have been discovered.
- 11.5 All warranty claims shall lapse if:
- the other party has himself made modifications or repairs to the goods supplied or had them made by third parties without the prior consent of HomEvap;
  - there has been improper use and/or use for purposes other than the original, normal use;
  - the fitting instructions or user manual have not been strictly followed;
  - upon fitting, components other than the original (and included) HomEvap components have been used;
  - the fault is the result of causes other than material, production and/or construction faults;
  - delivery of used (2nd hand) materials, components or goods is agreed;
  - no maintenance, or incorrect or insufficient maintenance has been carried out;
  - the fault is a result of normal wear and tear.
- 11.6 Minor deviations in size, colour, weight or number shall not form grounds for a claim under warranty.
- 11.7 The costs of repairs to the goods supplied, that the other party has carried out himself or had carried out by third parties without the prior consent of HomEvap, shall never be for account of HomEvap.
- 11.8 As a result of its warranty obligations, HomEvap shall only be obliged to repair or replace goods or components supplied by it for its account, at the discretion of HomEvap, if the product is installed in the country of first purchase. HomEvap reserves the right to charge to the other party additional costs such as for example travel, accommodation and wage costs and the costs of dispatch and (dis)assembly.
- 11.9 If HomEvap replaces goods or their components to comply with its warranty obligation, the replaced goods or components shall become the property of HomEvap at the time of replacement.
- 11.10 Returns shall only be accepted after prior written consent of HomEvap. Return shall be carried out for account and risk of the other party.



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## *Section 12 – Liability*

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### **Use according to intended purpose**

The product, described in this documentation, has been designed for the adiabatic humidification of frost-free rooms in high-rise and low-rise buildings. Any other use falls outside the intended use of the product. No liability can be accepted for damage arising due to incorrect use.

- 12.1 For faults in goods supplied only the warranty described in Section 11 (Warranty) shall apply.
- 12.2 HomEvap shall under no circumstances be liable to the other party and/or third parties for consequential damage, such as damage in the form of loss of profit, loss suffered including production loss, costs of shutdown or delay, penalties and other indirect damage.
- 12.3 The liability of HomEvap shall be limited to a maximum of the amount for which HomEvap has covered liability by insurance.
- 12.4 If HomEvap's insurer does not make a payment in any case or the damage is not covered by the insurance, the liability of HomEvap shall be limited to the invoice value of the relevant agreement.
- 12.5 The other party shall indemnify HomEvap for claims of third parties to reimbursement of damage for which HomEvap is not liable based on the previous paragraphs of this Article.
- 12.6 The other party shall inform HomEvap as soon as possible in writing of claims for compensation as described in this Article.