

# CONDENSATE REMOVAL SYSTEM FOR AIR CONDITIONERS

## Secura-Split® XS 5000

The Condensate Removal System  
with the smallest sensor



### EN Installation and Operating Instructions

#### PRODUCT DESCRIPTION

The Condensate Removal System **Secura-Split® XS 5000** has been developed especially for Minisplit wall-hung air conditioners with a cooling capacity of up to 10 kW. It can, however, also be used for other types of air conditioners such as ceiling-mounted units.

##### The Secura-Split® XS 5000 system includes:

- 1 sensor housing (SENSOR-UNIT)
- 1 pump (PUMP-UNIT)
- 1 power unit with alarm relay output (POWER-UNIT)
- 1 line filter

The very small sensor housing fits into every air conditioner and installation is easy. It is connected via the line filter at the condensate water drain hose of the air conditioner.

As soon as the sensor housing is filled up with sufficient condensate water, the pump is switched on and pumps the water out, until only a small amount of water is left over. If in case of a defect or a blockage of the pump, the sensor housing is filled up with water, the alarm relay in the power unit switches over, and the air conditioning unit can be turned off.

The sensor operates using capacitive level measurement, and has been specially developed for air conditioning systems. It also functions with lower conductivity of the condensate, but, above all, for water that is contaminated by dirt, oil or algae.

Unlike conventional condensate pumps with float switches, the system **Secura-Split® XS 5000** has no moving parts in the sensor housing that could be blocked by dirt or algae. In addition, this electronic sensor also operates in a sloping position (unlike float switches).

The pump is an extremely quiet, powerful and self-priming oscillating piston pump. The pump is fitted with a non-return valve and an integrated temperature protection switch. In addition, this pump is also encased in insulating plastic to reduce the noise level.

Since the flow rate of each pump is reduced by even very low dirt accumulation, the system has a line filter and a built in metallic tissue filter in the sensor housing.

#### TECHNICAL DATA

|  |                     |
|--|---------------------|
| Power supply:                              | 230 Vac, 50 Hz      |
| Power consumption:                         | max. 50 Watts       |
| Alarm relay:                               | 16 A / max. 250 Vac |
| Thermal protection pump:                   | 95 °C               |
| Index of protection power unit:            | IP 20               |
| Index of protection sensor housing / pump: | IP 54               |
| Ambient temperature:                       | 0 - 45 °C           |
| Noise level pump:                          | max. 19 dB(A)       |

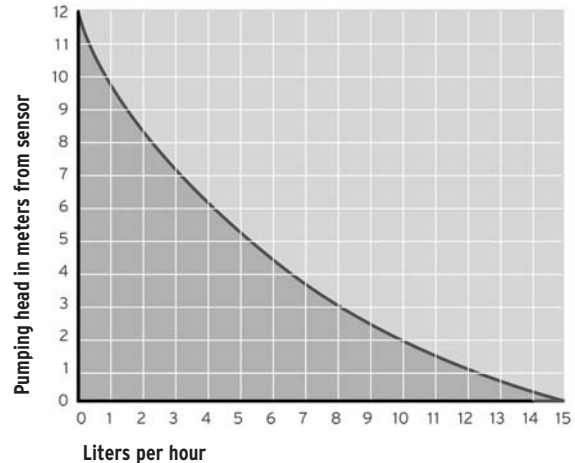
#### FLOW RATE

|                                |        |
|--------------------------------|--------|
| Max. flow rate:                | 15 l/h |
| Max. pumping head:             | 12 m   |
| Max. suction head:             | 2 m    |
| Max. horizontal head distance: | 30 m   |
| Max. water temperature:        | 45 °C  |

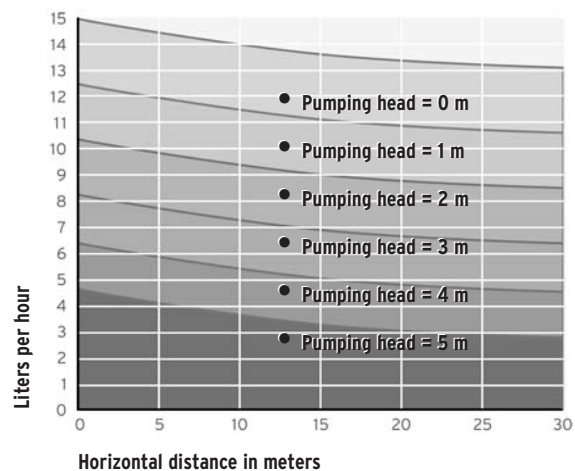
##### Attention:

In continuous operation the maximum flow rate is reduced by approx. 10 %.

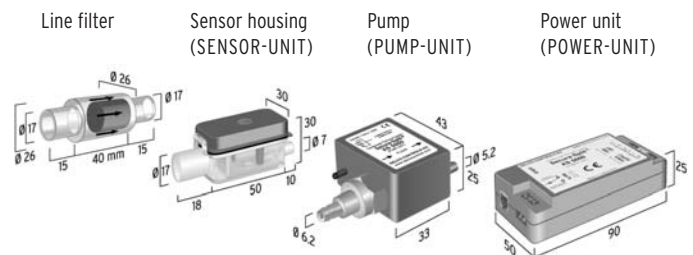
##### Maximum flow rate



##### Maximum flow rate



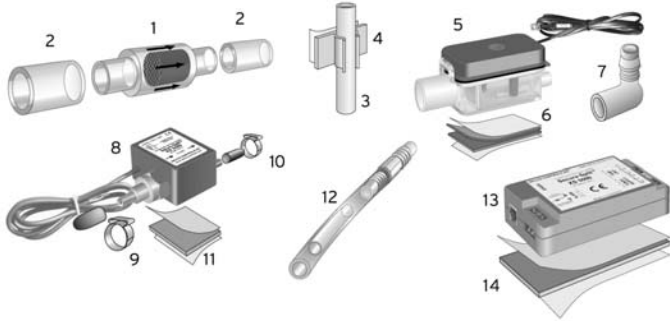
#### DIMENSIONS



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## DELIVERY PACKAGE / ACCESSORIES



- No. 1 Line filter
- No. 2 2 connectors, silicone, L = 35 mm, Øi = 15 mm
- No. 3 Venting hose, PVC, L = 30 cm, Øi = 4 mm
- No. 4 Self-adhesive hose clip for venting hose
- No. 5 Sensor housing (SENSOR-UNIT) with connection cable (1,5 m), incl. metallic tissue filter
- No. 6 Self-adhesive VELCRO tape (20 x 40 mm) to fasten the sensor housing
- No. 7 Angled adapter (90°) for the vertical connection of the hose to the sensor housing
- No. 8 Pump (PUMP-UNIT) with connection cable (1 m), incl. 2 protective sleeves
- No. 9 Hose clamp (10 mm) for pump entry
- No. 10 Hose clamp (7 mm) for pump exit
- No. 11 Self-adhesive plastic foam tape (33 x 43 x 5 mm), to fasten the pump
- No. 12 Hose, PVC, L = 30 cm, Øi = 4 mm, incl. cross section reducer and hose connecting piece (4/6 mm)
- No. 13 Power unit with alarm relay output (POWER-UNIT)
- No. 14 Self-adhesive plastic foam tape (40 x 80 x 2 mm), to fasten the power unit

### Attention:

The hoses (Øi = 6 mm) for the connections from the sensor housing to the pump and from the pump to the drainpipe are not part of the delivery package.

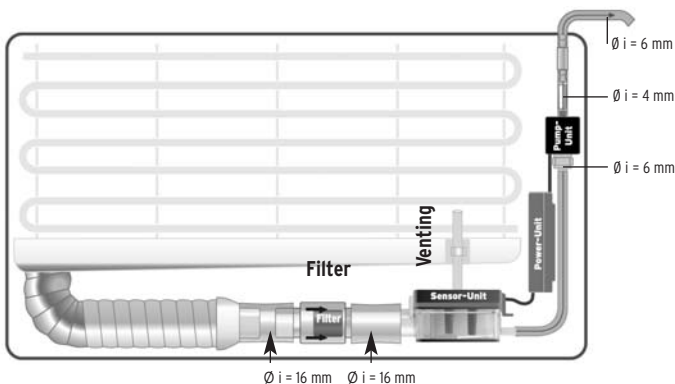
## INSTALLATION

### Attention:

- This system has been developed and is approved for use in a closed device (air conditioner), in an installation duct or in a ceiling construction. An open installation is not allowed.
- Appropriate coverings (air conditioner coverings) must prevent access to the system.
- This system may only be installed in dry rooms.
- Only specialized personnel may install this system.

### SAFETY TIP:

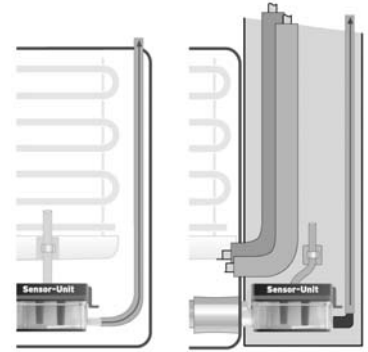
Before beginning with the installation, always switch off the power supply!



### A) Line filter:

Since the flow rate of each pump is reduced by even very low dirt accumulation, the use of filters is highly recommended:

- Fasten the connecting pieces (No. 2) supplied with the system to the line filter (No. 1) and install the line filter, as shown in the figure, at the entry of the sensor housing (No. 5).
- Check the correct mounting position of the filter. Check whether the water circulates in the direction of the arrows shown on the label.
- Run the condensate drain hose (possibly shorten it) from the collection tray of the air conditioner to the inlet of the line filter.
- The condensate water should automatically flow from the collection tray through the filter in the sensor housing (possibly slight slope).



### B) Sensor housing:

- Mount the sensor housing (No. 5) as horizontally as possible in the lower part of the air conditioner using the enclosed VELCRO tape (No. 6).
- When mounting the sensor in an elbow installation duct, the angled adapter (No. 7) is clipped onto the sensor output and the hose is led away vertically upwards.

**It is important that the sensor housing does not directly contact the housing of the air conditioner; otherwise vibrations could be transmitted from the pump.**

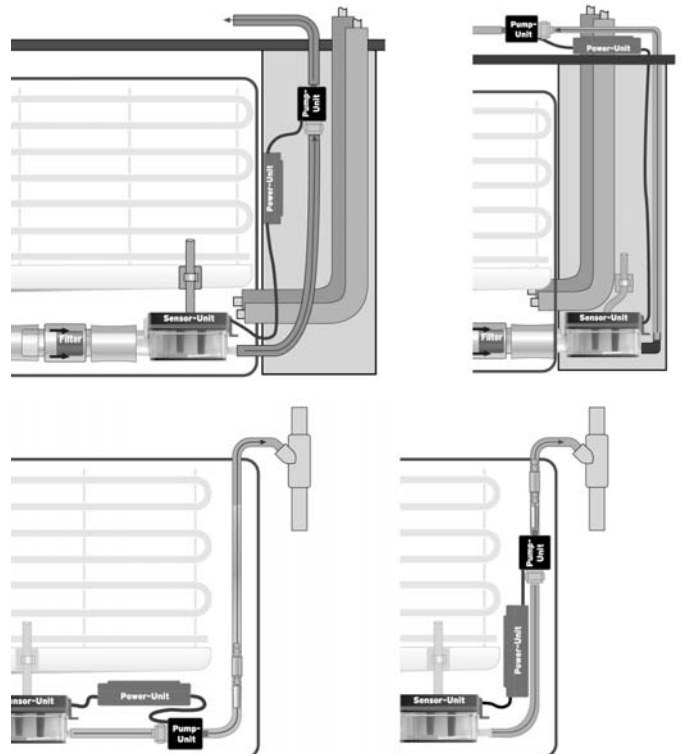
### C) Venting:

In order that the sensor housing can fill itself with water or air can escape, venting is required.

- Fasten the venting hose (No. 3) as shown in the figure to the sensor housing (No. 5).
- Run the hose directly and as steeply as possible upwards to a level above the condensate collection tray of the air conditioner.
- Fasten the venting hose by means of an auto-adhesive hose clip (No. 4) at an appropriate point.

### D) Pump:

- Mount the pump (No. 8) at a free place in the air conditioner, in an installation duct



or in a ceiling construction, max. 2 m above the sensor housing by means of the enclosed plastic foam tape (No. 11).

- Remove the protective sleeves at pump entry and exit.

**Attention:**

- Be sure that the water flows horizontally through the pump, or preferably from bottom to the top.
- Be sure that the mounting position of the pump is correct. Check that the water circulates in the direction of the arrows shown on the label.

Be sure that the pump does not contact the housing of the air conditioner in order that no vibrations can be transmitted. If there are noise problems, the pump should be insulated with foam material.

**E) Hose connections:**

- Install a hose (not included with the delivery package) with an inside diameter of 6 mm (6 x 10 mm) from the exit of the sensor housing (No. 5) to the entry of the pump (No. 8).
- Fasten the hose to the pump with the enclosed 10 mm hose clamp (No. 9).
- Fasten the enclosed 4 mm hose (No. 12) at the exit of the pump by means of the enclosed 7 mm hose clamp (No. 10). For pressing these variable ear hose clamps, you need a pair of pincers or a commercial standard vise grip wrench.



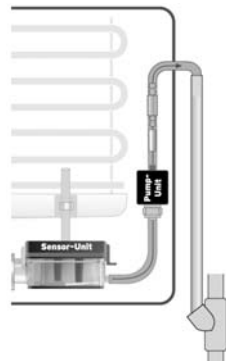
At the end of this piece of hose (No. 12) a hose connector for 6 mm hoses is fitted.

- Install a hose (not included with the delivery package) with an inside diameter 6 mm (6 x 10 mm) from this connector to the exit.

If you use a 4 mm hose for the line from the pump to the draining outlet, this can be connected directly to the pump. Cut the cross section reduction out from the piece of hose (No. 12) and introduce this piece into your 4 mm hose.

This cross section reduction reduces the noise level of the pump.

The end of the drain line should be at a level higher than the sensor housing to prevent self-discharging after the pump has been switched off (suction effect). If the drain outlet is lower than the sensor housing, the drain hose from the pump should be inserted into a hose of larger diameter in the drain zone.



**Be careful** that all hoses are installed horizontally or preferably ascending upwards in order that no air bubbles in the hose can form (noise problems).

**Be careful** that the hoses do not contact the housing of the air conditioner to prevent vibration transmissions from the pump. If there are noise problems, insulate the hoses with foam material.

**F) Power unit / Electrical connections / Alarm:**

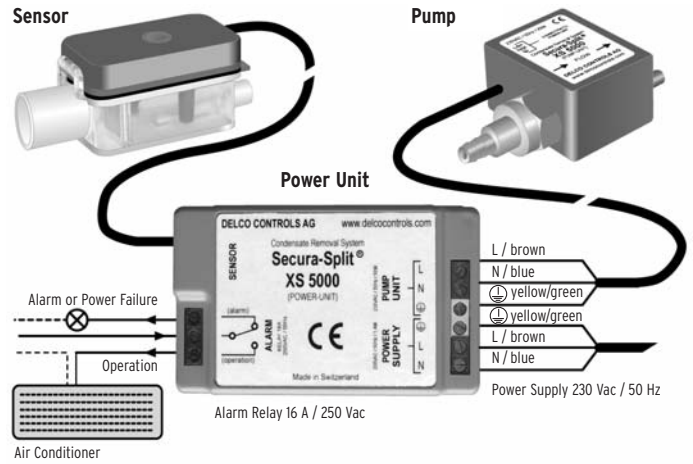
**SAFETY TIP:**



**Before beginning with the installation, always switch off the power supply!**

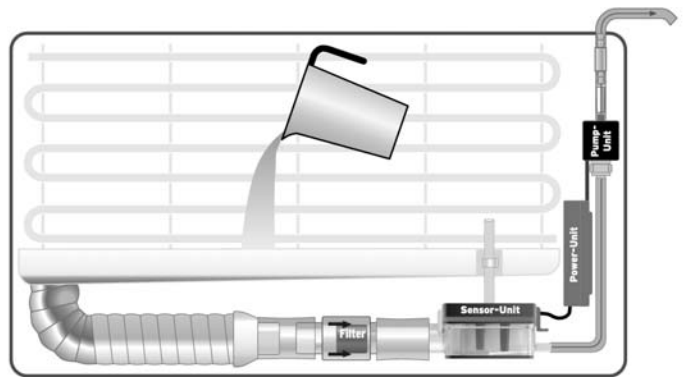


- Mount the power unit (No. 13) at a free position in the air conditioning system, in the installation duct or in the ceiling construction. Use the enclosed piece of foam adhesive tape for this (No. 14).
- Lead the connecting cable of the sensor housing (No. 5) to the power unit and insert the plug into the socket with the designation «SENSOR». Ensure that the plug is correctly seated.
- Lead the connecting cable from the pump (No. 8) to the power unit (No. 13) and connect the three wires to the terminals with the designation «PUMP-UNIT» (Line, Neutral, Earth) according to the circuit diagram.
- The mains power connection (from the air conditioning, room installation or control cabinet) will be connected to the terminals with the designation «POWER SUPPLY» according to the circuit diagram (Line, Neutral, Earth).
- If the alarm functions are used with the alarm relay, wire the alarm relay corresponding to its use according to the circuit diagram.



Power unit without power supply      Power unit with power supply (operation)      Power unit during alarm condition

**PUTTING INTO OPERATION**



- ✓ Inspect the complete installation as well as all connections and interconnections.
- ✓ Switch on the electrical power supply of the condensate removal system and of the air conditioner.
- ✓ With an appropriate container carefully empty water into the collection tray of the air conditioner. As soon as the sensor housing is filled with water, the pump switches on and pumps water from the sensor housing.

**Since air is sucked in by the pump, the pump is very loud for a short moment. As soon as there is water in the pump, the noise level reduces drastically. This occurs only during the first start-up.**

- ✓ Check the correct switching on and off of the pump depending on water level.
- ✓ Be sure that when switching on the pump no air is sucked from the sensor housing. In this case the sensor housing has been installed in a too inclined position.
- ✓ Carefully empty water once more into the collection tray (pump ON without interruption) until the hose is filled from the pump to the drain outlet. No more air may be in the hoses (noise problems).
- ✓ Check the correct switching on and off of the alarm relay or its alarm function (e.g. switching off the air conditioning, fault lamp, alarm system, etc.).

**Attention:** The alarm is delayed for 3 seconds.

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## MAINTENANCE / CLEANING

### SAFETY TIP:



Before beginning with the maintenance always switch off the power supply!



#### Line filter:

Check the line filter at regular intervals. Replace it promptly to prevent a back-up. Spare filters are available from your dealer.

#### Sensor housing (SENSOR-UNIT):

When maintaining the air conditioner or putting it into operation in spring, the sensor housing should be inspected and, if necessary, cleaned depending on use and dirt accumulation.

- Interrupt the power supply of the condensate removal system and of the air conditioner.
- Pull the plug out of the power unit and loosen all the hose connections to the sensor.
- Remove the cover, and, if necessary, also the seal.
- Now the metallic tissue filter can be pulled upwards and cleaned with water and a brush.
- The base pan and the sensor can be cleaned and rinsed carefully with water and a small brush.
- Now place the cleaned metallic tissue filter in its original position.
- Check the correct seating of the seal and clip the cover into the corresponding position.

Now you can continue as described in the chapters «INSTALLATION» and «PUTTING INTO OPERATION».

## SAFETY

#### Water alarm:

It is recommended that a separate water alarm signaling device be installed if there is danger of water damages due to clogged drain hoses or other operation faults.

## EC DECLARATION OF CONFORMITY

This system fulfills the provisions of the following directives:

#### 73/23/EEC with revisions

«Council directive of 19 February 1973 on the harmonization of the laws of the member states relating to electrical equipment designed for use within certain limits.»

#### 89/336/EEC with revisions

«Council directive of 3 May 1989 on the approximation of the laws of the member states relating to electromagnetic compatibility.»

## GUARANTEE

For the quality of design and execution of this system, **DELCO CONTROLS AG** undertakes, for the duration of two years from the date of delivery, to guarantee that all goods which have proved to be unserviceable or defective due to defective material or design, will at our discretion either be repaired free of charge in our workshop or replaced as necessary by new ones, or we will grant an adequate price reduction to a maximum level of the paid purchase price.

All other guarantee claims and damages claims exceeding the above guarantee are excluded.

Notifications of defects must be lodged immediately and in writing. The purchaser shall bear all shipping costs for rejected, repaired or replaced goods.

## PROPER USE

Before using this system, the user should assure himself that the product is suitable for the intended use (condensate water) as well as or the way it should be used (air conditioner).

The **Secura-Split® XS 5000** system has been developed for the use in the air conditioning technology and for condensate water.

For safe function of this system it must be installed and operated according to the information in these operating Instructions.

It may only be installed in dry rooms.

Applications differing from the intended use are not allowed.

For damages to our systems due to conversion, change or modification of the product, incorrect application, false installation, missing maintenance or missing or clogged filters, our guarantee will become void and **DELCO CONTROLS AG** is dispensed from any liability.

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