

Operating and installation manual

Pluggit Avent P300(N)/P450

Please observe and complete the commissioning protocol on page 29!

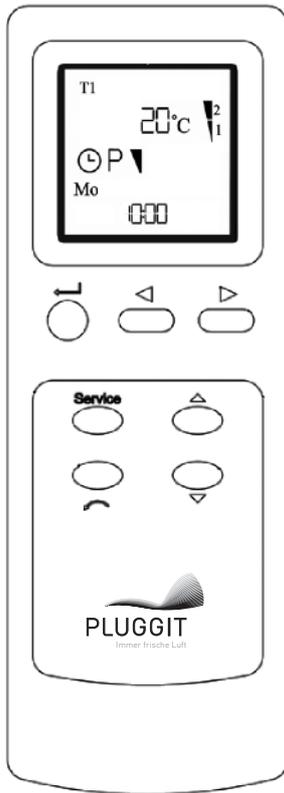


Best possible air quality and highest ventilation efficiency

- High-performance heat exchangers made of aluminium: energy savings through optimum heat recovery, highly effective thermal conductivity and extremely low pressure losses
- Backward bent ventilator blades made of plastic: maximum efficiency, highly resistant to soiling, easily cleaned and long service life
- DC motors: low power consumption and extremely quiet
- Pressure-controlled constant-volume flow rate regulation with integrated automatic ServoFlow calibration for the best-possible balancing and monitoring of the system
- Cordless remote control with timer, wire-free installation
- An automatic summer bypass unit is standard in the models AP300 and AP450 (allows the outside air to completely bypass the heat exchanger)
- Passive house certified



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- T1: Outside air temperature in the device in °C
(summer bypass)
- T2: Fresh air supply temperature in °C
- T3: Exhaust air temperature in °C
- T4: Outlet air temperature in °C

- S1: Volume flow rate – exhaust air
- S2: Volume flow rate – fresh air supply

Commissioning

Connect the device to the power supply – **ERROR 01** – the device will shut down after two (2) hours if it is not calibrated.

Calibrating

Press and hold down the **SERVICE** and LEFT ◀ buttons for 10 s. The device calibrates (10 min); CAL is displayed in the display.

Set day/time

Press ENTER ↵ , press ENTER ↵
 Use the LEFT and RIGHT ◀ / ▶ buttons to select the day; press ENTER ↵ to confirm,
 Use the UP and DOWN ▲ / ▼ buttons to select the hour; press ENTER ↵ to confirm,
 Press RIGHT ▶ once,
 Use the UP and DOWN ▲ / ▼ buttons to set the minutes; press ENTER ↵ to confirm.

Set volume flow rate, reference level II

Press and hold down the **SERVICE** and DOWN ▼ buttons for 10 s,
 Use the UP and DOWN ▲ / ▼ buttons to select, then press ENTER ↵ to confirm
 (Level I = -30% of Level II)
 (Level III = +30% of Level II)

Ventilation fan speeds

(value for commissioning protocol)
 Press the RIGHT ▶ button to access **S1** or **S2**; press **SERVICE** for three seconds. Displayed value e.g., 180 x 10 = 1800 rpm

Volume flow rate

(value for commissioning protocol)
 Press the RIGHT ▶ button to access **S1** or **S2**.
 Displayed value m³/h

Non room-sealed, solid-fuel burning heating appliances

Press the **SERVICE** and RIGHT ▶ buttons
 Position 0c = not active
 1c = active

Use the UP and DOWN ▲ / ▼ buttons to select, then press ENTER ↵ to confirm your selection.

Avent P fresh air units with heat recovery functionality provide ventilation for dwelling areas and remove used air from so-called wet-rooms such as bathrooms, toilets and kitchens. This means that the planned and required minimum air change is guaranteed through a constant supply of fresh air. At the same time this prevents mould forming and damage due to damp.

Without a fresh air unit you would have to open all the windows every two hours to achieve the same result.

Damp, stale and contaminant laden air is extracted. The heat contained within this air is used to heat the fresh incoming air. Please note that heat recovery can only work properly if the building is well sealed and the windows closed.

However, it is still possible to air rooms quickly by opening the window if the rate at which the air is changed is not sufficient for any particular reason (cigarette smoke, kitchen smells, party ...).

The system should not be used during the building phase as the ductwork, filters and ventilator fans can become soiled with building dust. The system should be commissioned after all other installation work has been completed. Furthermore, the device was not designed to dry-out newly built structures. There is too much condensation during this phase; intensive heating is necessary in addition to thorough airing by opening the windows or a special dehumidifier has to be used. Please seek advice from your architect.

GENERAL/REMOTE CONTROL

Your fresh air unit is equipped with a wireless remote control. To reduce battery drain, the remote control enters the sleep mode after approx. two minutes inactivity. To prevent radio waves being constantly transmitted throughout the house information from the remote control to the device is sent only if a button is pressed. Press any button to activate the remote control to access information or operate the system!

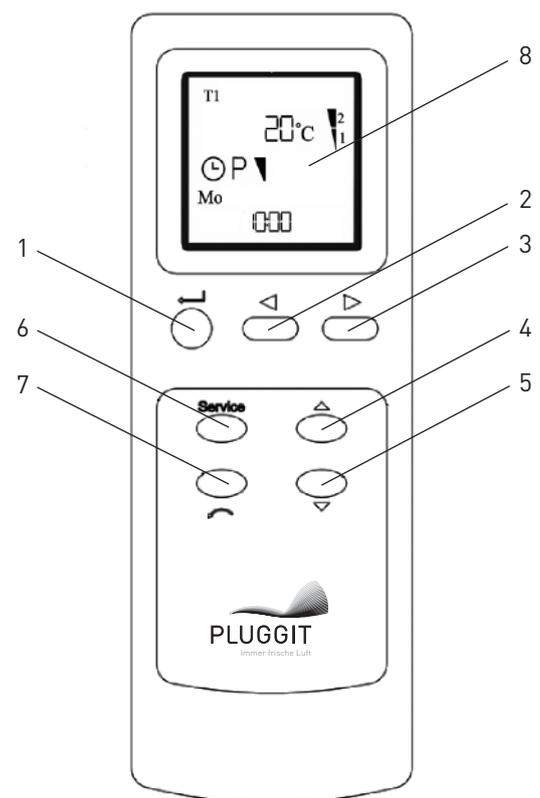
The amount of air required for your house was determined during the planning stage and programmed by a technician. By using the UP and DOWN Δ / ∇ buttons you can choose between the following three levels on the main display:

Level 1: Minimum ventilation if you are going to be absent for a longer period of time (for example work, holiday) and outside temperatures are very low (below $-5\text{ }^{\circ}\text{C}$).

Level 2: Basic ventilation for normal use.

Level 3: Super ventilation, for example when cooking, smoking cigarettes or when the shower is used a lot. If level 3 is selected manually the system automatically reverts to level 2 after four hours.

Ventilation level settings can be altered automatically with the weekly programme.



- 1) INPUT/ENTER \leftarrow
- 2) LEFT \triangleleft
- 3) RIGHT \triangleright
- 4) UP Δ
- 5) DOWN ∇
- 6) SERVICE \curvearrowright
- 7) BACK/ESCAPE \curvearrowleft
- 8) Standard display mode

We would like to congratulate you on purchasing this high-quality Pluggit Avent P fresh air unit with heat recovery (HR). The unit is part of the Pluggit 2Q fresh air system that offers you, the user, many advantages with regard to your health and general well-being, it saves a lot of energy and protects the very fabric of your building.

- Guarantees a minimum change of air to § 6 EnEV (German Energy Saving Ordinance)
- Constant supply of fresh air
- Reliable protect against damage due to damp and prevents mould forming
- Constant removal of damp, stale air
- High levels of heat recovery
- High standards of hygiene, certified cleanability

Pluggit products are manufactured to strict quality standards, are highly efficient and have a very long service life.

Please read the instructions carefully to guarantee that your system functions flawlessly and serves you for many years to come. Caution! To guarantee flawless operation, please read the instructions carefully to fully understand how the unit functions and is calibrated.

Important information:

- Always keep filters and air inlets clean.
- The unit should be left on all the time.
- If the outside air temperature is very low it can prove practicable to set the unit to run at Level 1 (basic ventilation) – at least when no one is at home – to prevent the air humidity in the house from sinking too low.
- Alterations that influence the system pressure (adding or removing components) can lead to faults occurring!
- Please do not make arbitrary alterations to the basic settings of the remote control. Keep the remote control out of reach of children.
- The unit is equipped with a 'constant volume flow rate control' that adjusts the actual volume flow rate to the desired level **every Monday at 10.00** and at the same time checks the level of soiling of the filters. For this purpose the system is operated for a short period with 200 m³/h (AP300(N)) and 300 m³/h (AP450); this can be audible in smaller houses. During this time CAL is displayed on the remote control display.

SAFETY INFORMATION

The unit has been built according to European safety standards. Improper use can lead to damage or injuries. Please read the whole of this document carefully and adhere to the instructions, in particular if the device is open (for example when changing filters):

- The unit shuts down automatically when opened. Nevertheless, you must disconnect the unit from the power supply before beginning any work on the unit.
- Wait until all ventilator fans stop rotating.
- Observe local regulations (installation and use) when using the ventilation unit in a house with an open heating appliance or other non room-sealed heating appliances.
- Do not operate the unit without filters or when the filters are soiled.
- Be aware of the natural flow of air in the ventilation system when turning off the unit at cold times of the year, as this can lead to condensation problems.

- Do not make any modifications to the inside of the device.
- All maintenance work (except to change filters) must be carried out by skilled technicians.



The Avent P300N is same as the Avent P300 in every detail except it is not equipped with an integrated summer bypass as standard. The automatic summer bypass unit APSS3 can be retrofitted at any time. All details in these Operating Instructions relating to the Avent P300 also apply to the Avent P300N. The differences are indicated.



Caution!!!

The work described below, in particular that regarding changes to the settings, must be carried out by a specialist company. Alterations to the basic settings, for example using the **SERVICE** buttons to alter the temperature settings, can result in situations that endanger life and the building (heating appliance setting) and lead to the guarantee being declared null and void. Any servicing necessary to restore the basic settings in such a case will be subject to a charge.

GENERAL

Avent P fresh air units guarantee the required air change in accordance with the Energy Saving Ordinance (German). Fresh air is fed into dwelling areas and stale air is extracted from bathrooms, toilets, kitchens and utility rooms.

When planning and installing the system observe the relevant technical regulations, such as:

- **DIN 1946 Part 6** Ventilation of resident buildings incl. quoted standards
- **DIN EN 13779** Ventilation of non-resident buildings
- **EnEV** (German) Energy Saving Ordinance
- **DIN 4109** Sound insulation
- **VOB** (German) Tendering and performance stipulations – construction works
- **LBO** (German) State building regulations
- **FeuVO** (German) State regulations governing heating installations

- **BRL** (German) Building construction guidelines governing the ventilation of windowless kitchens, bathrooms and toilet rooms in dwellings
- **BRBL** (German) Building construction guidelines governing fire-resistance requirements for ventilation systems

The system should not be used during the building phase as the ductwork, filters and ventilator fans can be soiled with building dust. The system should be commissioned after all other installation work has been completed. Furthermore, the device was not designed to dry-out newly built structures. There is too much condensation during this phase; intensive heating is necessary in addition to thorough airing by opening the windows or a special dehumidifier has to be used. Please seek advice from your architect.

INSTALLATION LOCATION

Observe the following points when selecting the installation location:

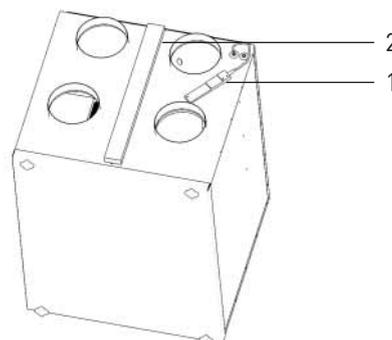
- The ventilation unit must be accessible at all times for maintenance purposes, in particular to replace filters.
- Allow 1.2 m of free space above the unit for the connections.
- The wall to which the unit is to be mounted must be stable and able to bear the load (an exterior wall if possible)
- Ensure there is sufficient mass and sound insulation when mounting on the floor (wood flooring), concrete slabs or similar.

- The place of installation must not cool down below +7 °C even in winter and the condensate outlet must be frost-proof.

The units Avent P300 and P300N are designed to be mounted on walls. A wall bracket (Type No.: APK01) is required to mount the Avent P450 on the wall. This is available from Pluggit GmbH as an accessory; it can also be utilised when installing the P300 for improved vibration-free mounting.

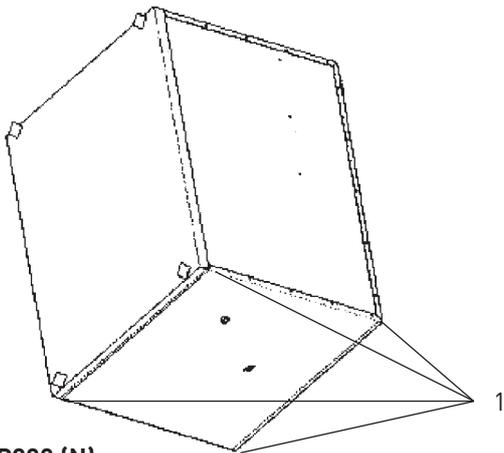
UNPACKING

The carton contains the following items: ventilation unit with antenna (1) secured to the top of the unit, a plastic bag (2) containing the remote control and the wall rail, four rubber feet with washers and screws.



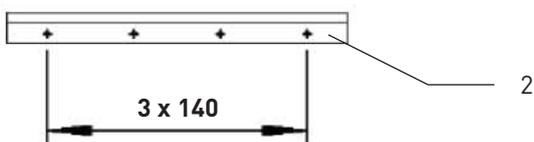
1. Using the screws and washers supplied, attach the rubber feet (1) as shown in the graphic.

Caution! This applies even if the unit is to be mounted on a wall: the feet protect the housing and the condensation connection during further installation work.



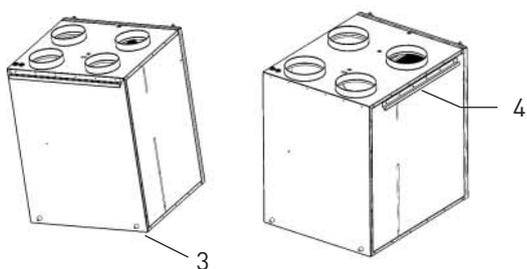
AP300 (N)

2. Attach the wall rail (applies to AP300 only) (2) horizontally to the wall using four screws and raw plugs suitable for the type of wall construction.

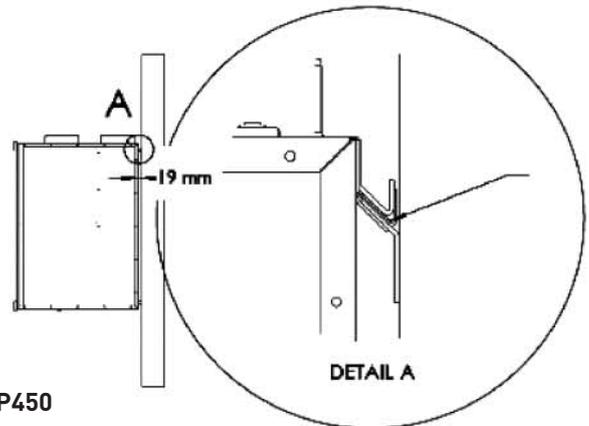


3. Mounting on a wall

a. fix the two self-adhesive rubber spacers (3) to the bottom of the device on the side facing the wall.

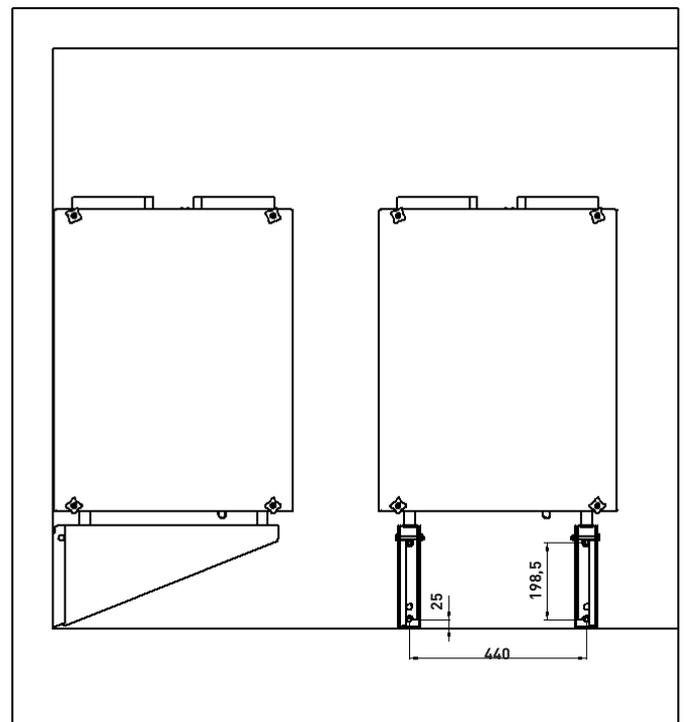


Place the rubber strips (4) onto the wall rail and mount the unit. Caution: ensure the unit is correctly aligned both horizontally and vertically otherwise any condensate cannot drain off!).

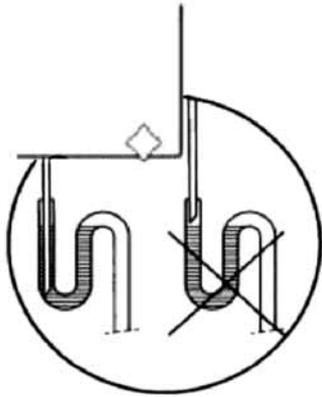


AP450

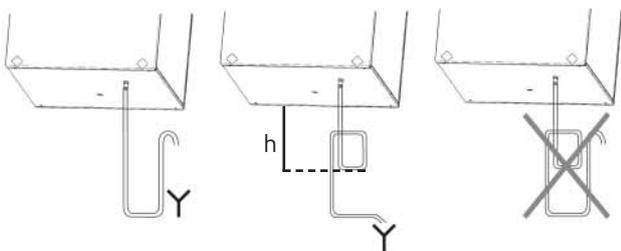
b. The fresh air unit AP450 is always mounted on a wall bracket (Type No.: APK01). This bracket is required to mount the AP450 onto the wall. Please refer to the drawing for details. Ensure the rubber feet are suitably mounted, depending on if they are affixed to the front or the side.



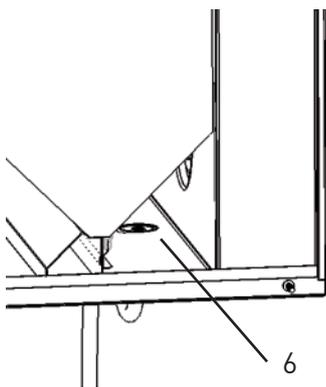
4. Condensate-waste water connection: Use the hose and the clamp supplied for the purpose. The design of the cut-out – viewed from below – makes it easier to tighten the clamp.



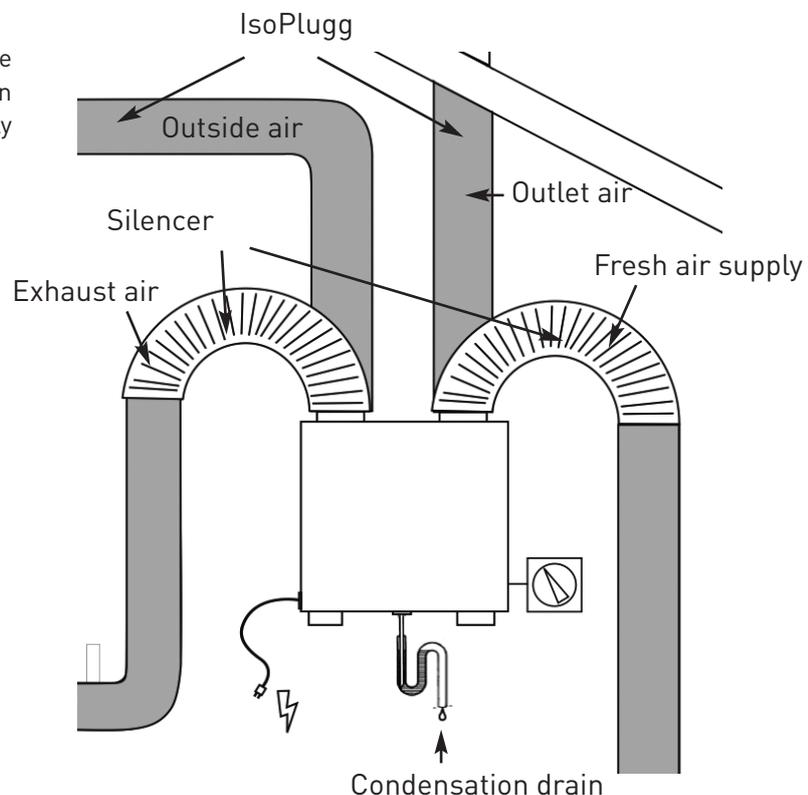
Using the special clamp, connect the supplied condensate hose (1/2") to the condensate spigot; install a siphon with water trap to ensure that no surrounding air can be drawn into the unit via the condensate hose. Observe the installation specifications detailed in the graphic above and ensure that the required minimum drainage height $h > 100 \text{ mm}$ is maintained.



5. Pour approx. 0.5 litres of water into the condensate trough (6) of the unit to check that the water can drain without hindrance and that all connections are properly sealed.



6. Use screws to position and secure the antenna of the unit (already assembled on the unit) to the wall. The antenna should not lie on the unit. The working range of the antenna/remote control depends on the construction of the building. The best place to mount the remote control should be determined on-site. Generally speaking, the remote control can remain close to the unit to facilitate setting a programme to meet individual requirements. Problems may arise if, in special cases, the remote-control signals are to be transmitted through several storeys/ ceilings with large amounts of iron reinforcement or across extended distances. In this event an antenna is available with a longer cable (7 m, Type No.: APAM2) to allow the antenna to be located in a more favourable position.
7. Connect all required ducting (for fresh air, supply, exhaust and outlet air) to the suitably marked connecting pipes on the top of the unit in accordance with the system specifications of the Pluggit 2Q fresh air system. The connections must be made in a manner that ensures the device can be easily dismantled for servicing. Ensure the pipes are insulated as required. Generally speaking, outside and outgoing air ducting must be insulated vapour-tight. Fresh air supply and exhaust air ducting should also be thermally insulated if they are routed through unheated rooms.



- T1: Outside air temperature in the ventilation unit (does not apply if the summer bypass is open)
- T2: Fresh air supply temperature
- T3: Exhaust air temperature
- T4: Outlet air temperature

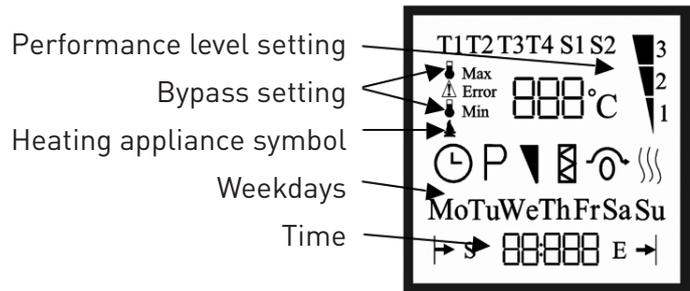
- S1: Volume flow rate – exhaust air
- S2: Volume flow rate – fresh air supply

Clock: please refer to 'set day/time'

P Programming: please refer to 'Setting the weekly programme'

Setting the volume flow rate: this must be undertaken by a skilled service technician only!

Filter warning: flashes when filters are soiled. Please refer to 'Changing filters'.



Bypass: flashes when an internal signal 'Bypass open' is received (even when no bypass is fitted)

Preheating: flashes if preheating is selected (even if no preheater is fitted)

S Start time for a programme: please refer to 'Setting the weekly programme'; flashes when the performance level for a programme is being determined

E End time for a programme: Please refer to 'Setting the weekly programme'

COMMISSIONING

- Insert the batteries supplied (2 x LR03 [AAA]) into the remote control.
- Insert mains plug or switch on the power at the fuse.
- Press any button to activate the remote control. The following is displayed in the remote control display:

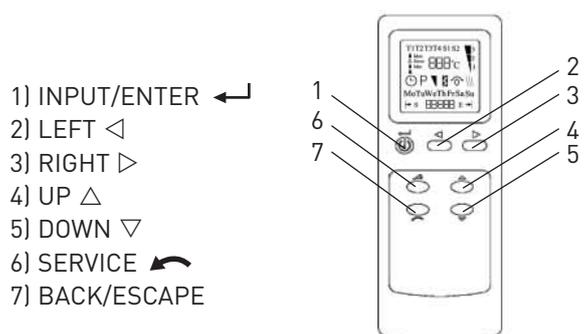


ERROR 01 means that no calibration procedure has been carried out. 7.200 seconds (2 hours) is the time remaining until the unit switches off, if it is not calibrated.

After a few seconds the unit switches to the start-up mode in which it runs for two hours. It is possible to alter the factory-set ventilator fan speed. For the AP300(N) the setting is approx. 160 m³/h exhaust air and 150 m³/h fresh air at 100 Pa external pressure; for the AP450 the setting is approx. 230 m³/h exhaust air, 215 m³/h supply air at 100 Pa.

To make alterations to the settings proceed as described in the section 'Setting the volume flow rate': press and hold down the SERVICE and DOWN buttons for 10 seconds and then adjust the speed using the 'arrow keys'. Please note that the ventilator fan speed is altered and not the volume flow rate.

It is possible to repeat the two-hour start-up mode operation within a few seconds by switching off the power to the unit and switching it on again. The idea behind the start-up mode is to allow the technician time to set the bypass dampers to the right setting or, if necessary, to clean the filters and test the system **before calibrating** the unit. All other installation work in the house must be complete before the unit is commissioned. That avoids building dust from being unnecessarily sucked into the ducting. It is of course possible to start the calibration procedure immediately!



**Functional principle behind
'constant volume flow rate control':**

The air at the heat exchanger causes a certain loss of pressure, which depends on the volume flow rate. The unit measures this loss of pressure and sets the ventilator fan speed to achieve the pressure loss that corresponds to the set volume flow rate. This setting is made during the **first calibration** procedure and by the **weekly automatic calibration** (Mondays at 10.00). To increase control accuracy calibration is always undertaken based on a pressure differential of 50 Pa. The speed required for the set volume flow rate is calculated from the values determined. A frost-protection cycle is initiated if outside temperatures are low (fresh air fan is turned off), to thaw any ice from the heat exchanger.

The ventilator fan speed required to achieve the value 200 m³/h during the first calibration procedure is stored in the unit controls; speeds measured later on are compared with this value. If a higher speed is required then this is interpreted as an increase in the external loss of pressure resulting from **soiling of the filter**. Any decrease in the speed of the exhaust air fan is interpreted as a **build-up of ice. Therefore, it is important that no changes are made to the system following the first calibration procedure that may alter the system pressure or that a new first calibration procedure is undertaken following any such alteration to the system, such as replacing the filters** (including in the exhaust air extractors, geothermal heat exchangers and so forth).

First calibration

To initiate the first calibration procedure press and hold down the SERVICE and LEFT ◀ buttons for 10 seconds. The first calibration procedure lasts for approx. 5 to 10 minutes. The remote control cannot be used during this time! The following is displayed in the display:



Weekly calibration

This is started automatically every Monday at 10.00 (if the right time is set via the remote control); it also lasts for approx 5 to 10 minutes and CAL is also displayed in the display.

A new first calibration procedure must be carried out if any changes are made to the system; for example, the bypass dampers are reset or the distributor is extended and so forth. This is started by again by pressing and holding down the SERVICE and LEFT ◀ buttons.

SETTING THE VOLUME FLOW RATE

Press and hold down the SERVICE and DOWN ▾ buttons for 10 seconds – 2 : 160 flashes in the display.

The display signalises the factory setting: Level 2 = 160 m³/h exhaust air (applies to AP300). The volume flow rate can now be adjusted between 120 and 230 m³/h or between 180 and 350 m³/h if you have purchased the model AP450. Level 1 is automatically set to 70% of the value set for Level 2; Level 3 is automatically set to 130% of the value set for Level 2. Press ← to confirm your entry and complete the procedure.

Altering the ventilation levels

Press the UP and DOWN Δ / ∇ buttons to toggle manually between the Levels Off, 1, 2 and 3. The standard setting is Level 2.

The set speed increment is indicated by the bar graph on the top of the display:

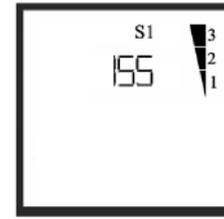
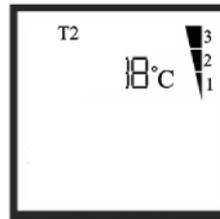


Viewing temperatures, the volume of air and the ventilator fan speed

The standard display mode of the remote control displays the outside air temperature T1 in the top line, on the left-hand side; the current temperature is displayed in the line below. Press the RIGHT \triangleright button once to display the current temperature T2 of the fresh air being supplied. There is a slight delay between pressing the button and the response in displaying the required value, because the remote control first compares the command with the feedback control in the ventilation unit. Press the RIGHT \triangleright or LEFT \triangleleft button to view the other values. The respective temperatures are measured before or after the heat exchanger as appropriate. The actual temperature of the fresh air being supplied is slightly higher due to the heat being dissipated by the ventilator fan.

When the last temperature value T4 is displayed, press the RIGHT \triangleright button again to display the current volume flow rate for the exhaust air in units of m³/h. From here, press the SERVICE button to view the corresponding ventilator fan speed. The value displayed represents the speed divided by 10 (thus, 155 indicates a speed of 1550 rpm). Press the RIGHT \triangleright button again to display the volume flow rate of the fresh air supply; press the SERVICE button to display the corresponding ventilator fan speed. Please write down the volume flow rates and the corresponding ventilator fan speeds in the commissioning protocol; this will enable you to be aware of changes to the system at a later date.

- T1 Outside air temperature
- T2 Fresh air supply temperature
- T3 Exhaust air temperature
- T4 Outlet air temperature
- S1 Current volume flow rate – exhaust air
- S2 Current volume flow rate – fresh air supply



Factory settings

The air amounts for ventilation levels 1, 2 and 3 have been factory set as follows:

AP300(N) – control range: 120–230 m³/h

- Level 1: 112 m³/h exhaust air (70% of Level 2)
- Level 2: 160 m³/h exhaust air
- Level 3: 208 m³/h exhaust air (130% of Level 2)

AP450 – control range: 180–350 m³/h exhaust air

- Level 1: 161 m³/h exhaust air (70% of Level 2)
- Level 2: 230 m³/h exhaust air
- Level 3: 300 m³/h exhaust air (130% of Level 2)

Turning off performance level control:

2-hour standby function

To set the unit for 2 hours into standby press the DOWN ∇ button whenever to reach the OFF position which is displayed after Level 1. After two (2) hours the unit starts automatically at Level 2. When the unit is switched to the standby mode all other functions are deactivated; that means that the unit will not react to programmed functions or external inputs, hygrostat control and so forth.

To make use of the weekly programme at the required times the time and weekday must be reset every time filter maintenance is carried out or the power supply to the unit is turned off (please refer to the section 'Setting the time and weekday')! Your remote control supports 20 different daily and time-dependent programmed settings for each of the three performance levels.

Example 1: Level 3 is to be activated every day of the week when meals are prepared. This requires a programme (programme 1: Mo to Su - 12:00 to 14:00 - Level 3).

Example 2: In addition, Level 1 should run from Friday to Sunday evening from 00.00 to 10.00. This requires a further programme (programme 2: Sa + Su - 00:00 to 10:00 - Level 1).

Please note that

- **Levels 1 and 3 only can be programmed. This is because Level 2 is set as standard and the system automatically reverts back to Level 2 when no programme is active.**
- **It is not possible to set a programme that runs from one day into the next. For example: a certain setting is to be active from Monday evening until Tuesday morning. Two programmes are necessary (one for the time until Mo 23.59 and one from Tu 00.00 onwards)**
- **There must be a break of one (1) minute between the two programmes to allow the second programme to be recognised.**
- **During the times in which no programme is active the unit operates at the last selected level (default: Level 2).**

Example 3: If, in addition, Level 1 runs from Sunday to Friday from 22.00 until 06.00 respectively, then two programmes are required (programme 3: Mo to Th + Su 22:00 until 23:59 Level 1, programme 4: Mo to Fr 00:00 until 06:00 Level 1).

To alter the performance levels when a programme is active press the UP and DOWN Δ / ∇ buttons. Once the programme is complete the unit switches back to the previously set level.

Example 4: Level 1 should operate between 08.30 and 16.30 from Monday to Friday as all occupants are away from home at those times. This requires the following input:

Fig. 1

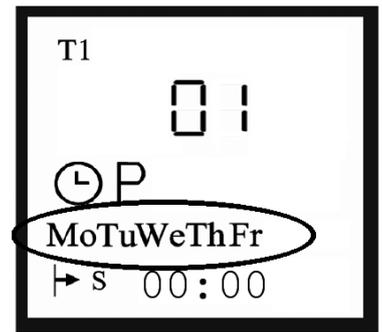


Fig. 2

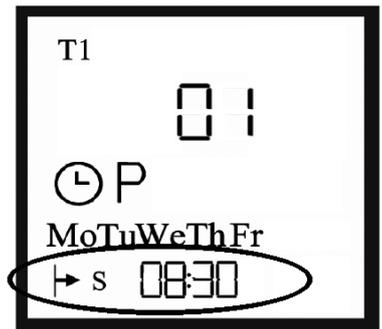


Fig. 3

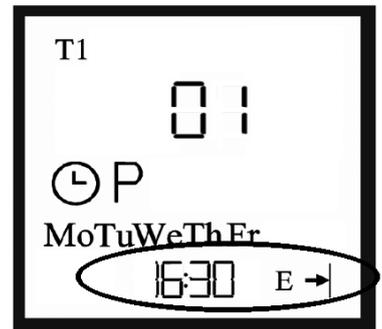
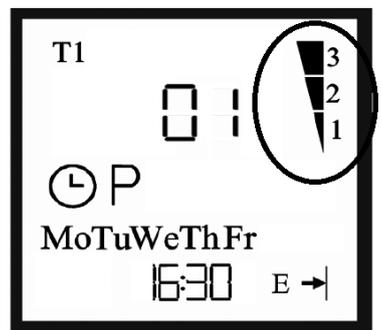


Fig. 4



- | | |
|---|---|
| 1. Activate the remote control | (Press any button) |
| 2. Press ENTER | (Clock symbol flashes) |
| 3. Press the RIGHT | (P flashes in the display) |
| 4. Press ENTER | (0 <u>1</u> flashes in the display) |
| 5. Using the RIGHT button, another if necessary select programme number X | (0 <u>X</u> flashes in the display) |
| 6. Press the ENTER button to confirm | (<u>M</u> o flashes in the display) |
| 7. If desired, press the UP button to activate the day | (M <u>o</u> lights continually,
T <u>u</u> flashes in the display) |
| 8. If you do not want the programme to apply to that day press the RIGHT button to move to the next day | (T <u>u</u> flashes in the display) |
| 9. Repeat steps 7 and 8 until all the desired days are activated (Mo to Fr) – (please refer to Fig. 1)
To deactivate selected days press the DOWN button! | |
| 10. Press the ENTER button to confirm selected days | (S lights up continually;
00:00 flashes) |
| 11. Using the UP button select the 'start' hour | (0 <u>8</u> :00 flashes in the display) |
| 12. Press the RIGHT button to switch to the minutes display | (08:0 <u>0</u> flashes in the display) |
| 13. Using the UP button select the 'start' minute | (08:3 <u>0</u> flashes in the display,
please refer to Pic 2) |
| 14. Press the ENTER button once to confirm | (E lights up continually;
08:30 flashes) |
| 15. Repeat the steps 11 to 13 to set the 'stop' times (please refer to Pic 3) | |
| 16. Press the ENTER button once to confirm | (3
2
1 flashes in the display,
please refer to Pic 4) |
| 17. Press the DOWN button to select Level 1 | (1 flashes in the display) |
| 18. Press the ENTER button once to confirm | (standard display mode,
please refer to the
remote control) |

Using the steps described above you can programme a total of 19 additional performance level settings. To check programme settings proceed as described above without altering the programme. Level 0 (2-hour standby function) cannot be inserted into a programme sequence.

Proceed as follows to delete wrong or outdated programmes:

1. Activate the remote control (Press any button)
2. Press the ENTER  button once (Clock symbol  flashes)
3. Press the RIGHT  button once (P flashes in the display)
4. Press the ENTER  button once (P and 01 flash in the display)
5. Using the UP  button select programme number X (0X flashes in the display)
6. Press and hold down the SERVICE  button until the display reverts to standard display mode (please refer to 'Remote control'). E is displayed for a short period of time

CHANGING FILTERS / MAINTENANCE

The outside and exhaust air is cleaned via one or several filters. These must be checked regularly to keep the air and the ducting clean as well as to ensure the system operates quietly. Depending on the level of contamination of the outside air cleaning or replacing the filter(s) can become necessary just two weeks after commissioning (for example due to heavy building-site dust levels in new development areas) or after six months. You can determine if it is necessary to clean or replace the filter(s) if the noise level of the ventilator fans in the unit increases, by visually checking the filter(s) or when the filter symbol on the remote control flashes.

If you fail to notice the flashing filter symbol on the remote control and the filters becomes increasingly clogged up the unit will automatically shut down and ERROR 02 will be displayed.

The filter(s) must now be cleaned or replaced to allow the unit to function flawlessly. The remote control will then automatically revert to the standard display mode.

We recommend:

Check the ventilation unit carefully once a year (for example in spring) independent of the filter alarm function and, if necessary, clean the unit and replace all filters.

The air ducting, particularly the air supply ducts should be checked every 10 years and cleaned, if necessary.

If you wish to fit different types of filters than previously fitted (for example fine filters instead of the standard G4 filters) the unit must be recalibrated to allow it to be optimally adapted to the new system conditions. The calibration procedure should be carried out by an authorised specialist company.

REPLACING FILTERS

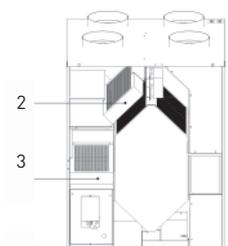
The user is allowed to replace or clean the filters:

1. Remove the mains plug from the socket or switch off the power at the fuse
2. Remove the four hand screws from the front of the unit and remove the unit cover
3. Pull the filters (2, 3) to the front and withdraw
4. Insert cleaned or new filters with the grid facing downwards (arrow indicating the direction of flow facing down)
5. Replace the unit cover and secure with the four hand screws
6. Insert mains plug or switch on the power at the fuse

If the Filter warning symbol  continues to flash, this will stop automatically following the regular Monday calibration procedure. As a reminder when you last cleaned or replaced the filters we recommend that you write down the date on the last page of these Operating Instructions and place the manual on top of the unit for easy access.

Caution!

Please check all of the filters in the system and clean or replace if necessary! There are other filters in the system in addition to those in the unit, possibly in the exhaust air inlets (kitchen, bathroom, WC, utility room and similar) or in the air-intake tower of the geothermal heat exchanger. Thanks to our holistic filter monitoring concept the unit also reacts to soiled filters in other positions in the system.



Avent P300
as well as Avent P300N and Avent P450

The summer bypass is a part of the ventilation units Avent P300 and P450. It can be optionally retrofitted to the Avent P300N (Type No.: APSS3)! The summer bypass set for retrofitting consists of a damper flap and a servomotor.

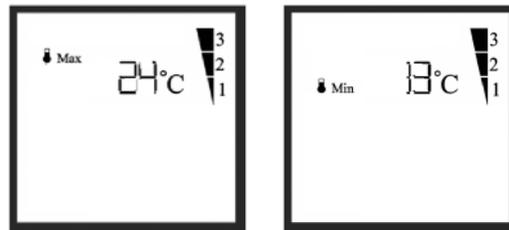
The bypass circuits are always active, even when no bypass is fitted. The bypass opens if the following three conditions are fulfilled:

1. Cooling is required (exhaust air temperature > T Max; factory setting: +24°C)
2. Cooling is desirable (intake or outside air temperature < exhaust air temperature - 2°C)
2K
3. Cooling is permissible. The intake or outside air temperature has not fallen below a set value, below which draughts and condensation could occur (outside air temperature > T Min; factory setting: +13°C)

It is possible to see if the bypass is active by viewing the temperature display. An additional flashing symbol  indicates the bypass function in some software versions.

The factory settings have been selected so that no alterations are required under normal circumstances.

T Max indicates the exhaust air temperature value, above which the bypass valve should open to provide cooling (summer operation). **T Min** indicates the temperature value of the fresh air supply, below which the bypass valve should close to prevent draughts or condensation occurring.



It is possible to alter the values T Max (20 – 30 °C) and T Min (10 – 20 °C), if required.

Function check – bypass

Damper flap position left = opening to the heat exchanger open = winter operation

Damper flap position right = opening to the heat exchanger closed = summer operation

Proceed as follows to alter the maximum and minimum temperatures:

Example: alter **T Max** to 22 °C; alter **T Min** to 14 °C

1. Press any button to activate the remote control
2. Press the  button 1 x ( flashes in the display)
3. Press the RIGHT  button 3 x ( flashes in the display)
4. Press the  button 1 x (displays  Max; 24 °C)
5. Press the DOWN  button 2 x (displays  Max; 22 °C)
6. To confirm, press the  button 1 x (displays  Min; 13 °C)
7. Press the UP  button 1 x (displays  Min; 14 °C)
8. To confirm, press the  button 1 x (display reverts to standard display mode)

FROST PROTECTION

Moisture in the exhaust air condenses in the heat exchanger. To prevent the heat exchanger freezing up the fresh air fan is restricted and turned off for a short period if the temperature of the outlet air falls below +2 °C (outside air temperature below -6 °C). This ensures that no further cold air is fed into the system and allows the exhaust air to thaw the heat exchanger.

The pressure monitoring system senses if the heat exchanger does freeze up under extreme conditions, and a longer frost protection cycle is initiated.

If a non room-sealed solid-fuel heating appliance or similar heating system is installed there is a danger that the under-pressure generated in the building by the ventilation system can lead to flue gas escaping. The following measures can be taken to prevent this happening:

1. Use of a room-sealed heating appliance (with DIBT approval (German)).
2. Automatic shut-down of the ventilation system when the heating appliance is being operated (alternating operation in particular when an open fireplace is seldom in use).
3. Installation of monitoring equipment to monitor the extraction of exhaust gas (monitoring of underpressure). The ventilation unit is switched off should the extraction equipment malfunction.
4. Individual solution following consultation with a qualified engineer.

In each case the combustion air to the heating appliance should be fed from outside through a separate duct and the ventilation unit should be fitted with a preheater (geothermal heat exchanger or electric heating device). Without this preheating facility and assuming a constant volume flow rate of exhaust air the supply of cold air to the ventilation unit (meaning the supply of outside air) would have to be restricted to protect the heat exchanger from frost, which in turn would result in underpressure. In addition, you can alter the heating appliance setting of Avent P ventilation units from No (0 – factory setting) to Yes (1). Should the preheating device fail or some boundary conditions are under-dimensioned the ventilation unit is shut down completely for four hours, instead of the usual frost protection cycle, when the heating appliance setting is activated.

Proceed as follows to alter the settings:

1. Press any button to activate the remote control
2. Press and hold down the SERVICE and RIGHT ▷ buttons for 10 seconds
3. Using the UP △ and DOWN ▽ buttons select one of the values displayed on the remote control.
0c = not active
1c = active
Press the ENTER ◀ button to confirm your selection
4. Press the ◀ button to confirm



(heating appliance symbol is displayed)

(▲, 1c is displayed)

(display reverts to standard display mode)

Caution: We recommend that you seek advice from a qualified engineer regarding the proposed solution.

OPTIONAL EXTERNAL PREHEATING DEVICE APHR300/450

The optional, external preheating device prevents the exhaust air from cooling below frost protection levels, which in turn prevents condensing moisture from freezing. The device starts up when the device would normally enter a frost-protection cycle triggered by internal temperature monitoring. That ensures the system is operated economically.

Without the preheating device or preheating via a geothermal heat exchanger the frost-protection circuit integrated in the device would restrict the supply of cold fresh air. This restriction of supply air results in an imbalance in the volume flow rates when outside temperatures are very low and leads to underpressure in the building.

OPTIONAL EXTERNAL POST HEATING DEVICE

External post heating devices with integrated controls are sometimes used to heat a passive house via the fresh air supply. To prevent any hot water coil solution from freezing and also to prevent condensation from forming on the outside of the fresh-air supply ducting in the event of a malfunction the ventilation unit is switched off for 60 minutes if the

temperature of the fresh air being supplied falls below +6 °C; ERROR 08 is displayed. After this time has elapsed the unit performs a two-minute test to determine the temperature. Please note that the postheating device is not the same type as the Pluggit frost protection preheating device APHR300/450.

OPTIONAL HUMIDITY SENSOR/HYGROSTAT

Pluggit GmbH offers a humidity sensor (Type No.: APFS1) as an accessory. This can be utilised to set the fresh air unit to Level 3 when humidity levels are high (recommended setting: winter > 60%, summer > 80%), for example to dehumidify the air in the bathroom or in winter to set the ventilation unit to Level 1 to retain humidity levels, for example in the living room, when humidity levels are low (< 30%). The device automatically switches to the previously set level when humidity levels fall below or exceed the set humidity limit.

The hygrometer (potential-free switch) is connected to the main PCB module of the unit by means of the 'cable harness for additional functions' (Type No.: APKB1).

The hygrometer user manual describes three (3) positions:

- L = supply phase = 12 V Pin No. 3 (green)
- E = dehumidification = Pin No. 4 (yellow) (= Level III)
- B = alternative humidification

That means either dehumidification or humidification must be chosen. Under normal circumstances 'dehumidification' is selected. The following termination is required for the position 'humidification'.

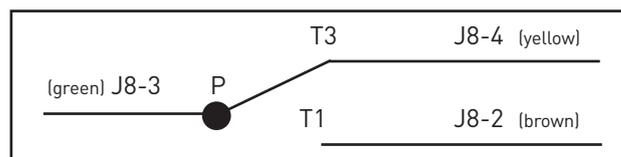
- L = supply phase = 12 V Pin No.1 (white)
- B = humidification = Pin No. 2 (brown) (= Level I)

OPTIONAL EXTERNAL CONTROLLER (3-STAGE SWITCH, BUS)

The fresh air unit can be controlled externally in conjunction with the following options and the additional cable (Type No.: APKB1):

1. 3-stage switch: The unit is set to Level 2 via the remote control. Connecting J8-3 (green) with J8-4 (yellow) switches the unit to Level 3; the unit runs at Level 1 when J8-3 (green) is connected with J8-2 (brown). Consequently, when connecting the Pluggit 3-stage switch J8-3 must be wired to P, J8-4 to T3 and J8-2 with T1.
2. A BUS system can achieve the same change-over via actuators. In addition, the relay between the contacts J3-3 and J3-6 can be utilised for signalling faults.

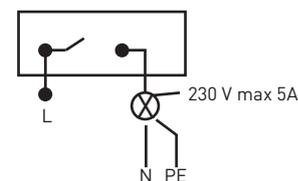
3. Applying 3 Volt (potential-free) to the terminals J8-7 (positive terminal, blue) and J8-8 (negative pole, red) switches the unit to Level 1; 6 Volt Level 2 and 9 Volt Level 3. This facilitates setting several units to a certain level, for example.



OPTIONAL EXTERNAL ALARM RELAYING

An alarm is relayed when a fault alarm occurs on the ventilation unit. It is not possible to differentiate between the various fault alarms.

Connection J3-3 (input) brown
Connection J3-6 (output) yellow



OPTIONAL POTENTIAL-FREE OUTPUT

Alternatively, a brine pump for winter operations or a heating device (max. 900 W) that does not allow 0-10 V control (e.g.: third-party manufacturer; On/Off) can be connected to the terminal J3.

Caution!

The maximum permissible load for each of the two respective potential-free outputs is 230 V and 5 A. If one of these values is exceeded control must be executed via a separate relay installed on-site. Failure to comply with this condition will lead to the guarantee being declared null and void.

- | | |
|---------------------------|--------------------------------|
| | Control |
| ON = T1 below +0°C 2°C | Connection J3-1 (input) white |
| OFF = T1 above +1°C > 2°C | Connection J3-4 (output) green |

An additional remote control can be utilised to meet special requirements; a new remote control may be required in case of loss or damage. This is set on-site so that it can only

communicate with the PCB of a single ventilation unit. Once this connection has been created the remote control cannot be utilised in conjunction with any other PCB.

PRIORITIES

Control commands for the ventilation unit are prioritised as follows:

1. Hygrostat Level 3
2. Hygrostat Level 1
3. 3-9 V control switching
4. Manual
5. Programme

Example: If Level 1 is actuated via a hygrostat (alternatively a 3-stage switch or a BUS controller at the same terminal) it is not possible to alter the level manually. If at the same time a signal is received from the bathroom requesting Level 3 to dehumidify the bathroom then Level 3 is actuated.

CLEANING AND REPLACING THE HEAT EXCHANGER

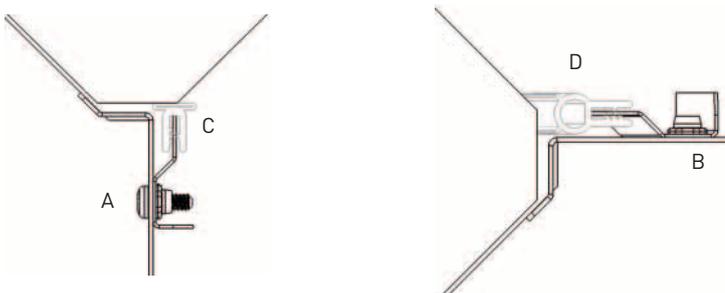
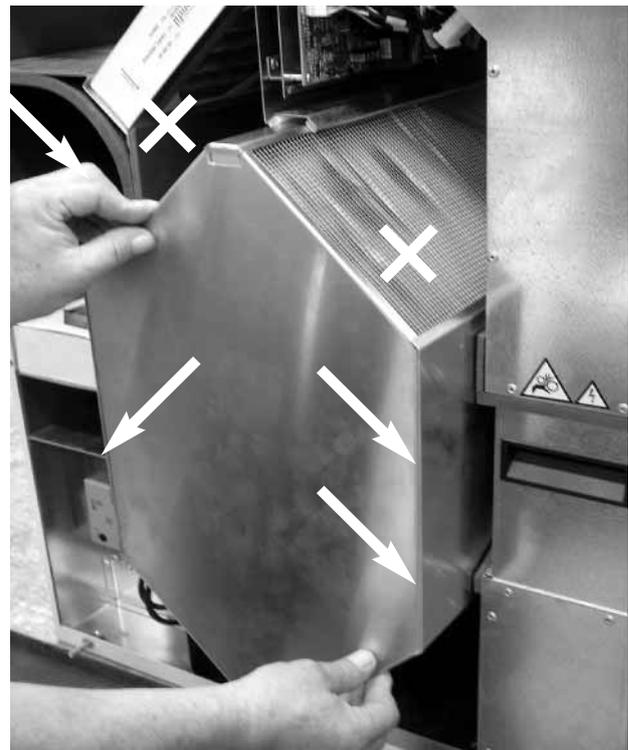
The heat exchanger can be easily withdrawn from the ventilation unit. To do so, remove the two screws **A** and **B** securing the heat exchanger.

Caution: Do not touch the heat exchanger fins; either grasp the side panels of the heat exchanger or hold it at the front edges using the tips of your fingers.

To clean, place the heat exchanger in a shower/bath tub and spray with hot water with a hand-held showerhead.

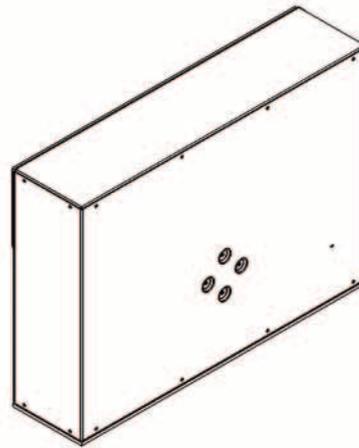
Caution: Ensure the insulation at the sides of the heat exchanger is not damaged when re-inserting; avoid bending or jamming the temperature sensors and pressure hoses at the rear of the heat exchanger.

Position the rubbers **C** and **D** and replace and tighten the screws.



The ventilator fan casings can be easily withdrawn from the unit after disconnecting the two electrical plug-in connectors. We recommend that you first remove the heat exchanger. To remove the lower (outlet air) fan it is necessary to remove the upper fresh air supply fan first; after removing the electrical plug-in connectors grasp the handle of outlet air fan and pull upwards – this does not require a lot of force.

To remove the ventilator fans it is necessary to remove the plugs from the housing as well as the four screws securing the ventilator fans. To remove the ventilator fans from the casing you must slightly bend the front edge of the casing upwards.



REPLACING A PCB

The PCB is located behind the heat exchanger. To insert a new PCB it is necessary to first remove the heat exchanger and, if necessary, the upper ventilator fan from the unit. All plug-in connections (see wiring diagram) are marked on the PCB; for example, P1 for the outside air pressure hose. The positions are self-explanatory because the position of the cables and pressure hoses is dictated by their routing in the panel. Thermostat symbol for the connector with temperature sensors (8 connectors – 4 white, 4 brown) and fan symbol (8 connectors; 2 blue, red, yellow, white) for the connectors to the fan controller.

- P1 = Outside air
- P2 = Fresh air supply (without hose)
- P3 = Exhaust air
- P4 = Outlet air

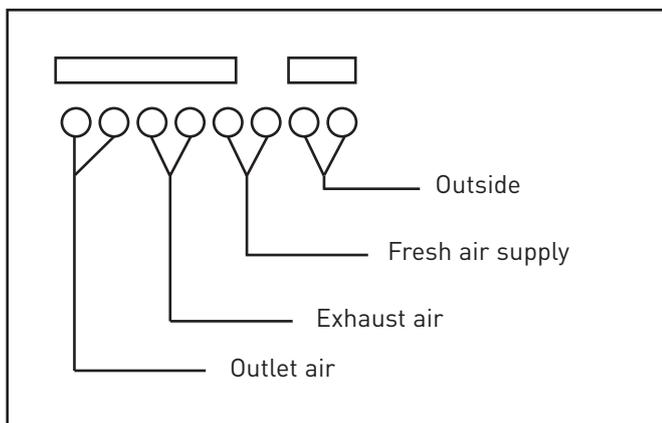
Important! Once you have inserted the PCB into its final position check that none of the pressure hoses are caught up or kinked.

PRESSURE SENSORS

The pressure PCBs can be adjusted if error messages are issued and to meet requirements. Please contact Pluggit GmbH if this should be necessary.

TEMPERATURE SENSOR RESISTANCES

To check the temperature sensors please use the table provided.



Temperatures in °C	Resistance in Ω
-20	26020
-15	19580
-10	14860
-5	11380
0	8790
5	6842
10	5366
15	4239
20	3372
25	2700
30	2176
35	1764

Faults or defects are displayed on your remote control by means of error codes; for example, ERROR 03. Please note the error codes simplify troubleshooting procedures. Error messages can also be indicated optically or visually (please refer to 'Changing filters').

The error message can be reset by briefly disconnecting the ventilation unit from the power supply or opening the front panel.

If there is a malfunction in the remote control this can be restarted by briefly removing and reinserting the batteries. The PCB can also be reset to the original factory settings.

Please contact Pluggit GmbH if this should be necessary.



Display	Error	Cause	Remedy
ERROR 01	No calibration	Not yet commissioned	Calibrate unit
ERROR 02	Bypass damper does not close during calibration	<p>The remote control issues the code ERROR 02 if the ventilator fans rotate faster than 2500 rpm to obtain 35 Pa during the second (Low Point Calibration) 'first calibration procedure'. Generally, the reason is the system pressure in the ducting is too high</p> <p>The unit will shut down due to soiled filters or changes made to the system after the first calibration</p> <p>Error displayed as  (filter symbol). Light soiling influenced by wind load at the filter during the calibration process. Allow a week to pass before the next calibration</p> <p>ERROR 04 causes ERROR 02 to be issued. Pressure PCB deviation or damaged in transport</p>	<p>Check ducting. Check bypass. Clean or replace filters (also outside of unit). If necessary, carry out first calibration procedure after replacing all internal and external filters</p> <p>Adjust pressure plate</p>
ERROR 03	Fault temperature sensor (symbol T1, T2, T3 or T4 flashes)	Cable break in temperature sensor	Check plug connection of temperature sensor on the PCB replace sensor if necessary
ERROR 04	Fault pressure sensor	Kink in hose; pressure sensor defective or requires adjusting	Check hose routing. Replace hose or the main PCB module if necessary. Adjust pressure sensor

Display	Error	Cause	Remedy
ERROR 05	Ventilator fan fault (S1 flashes - outlet air; S2 flashes - fresh air)	Ventilator fan defective; cable break Connector not properly seated	Check plug connection of ventilation fans on the PCB; replace fan if necessary
ERROR 06	Frost protection cycle despite high outside air temperatures	Heat exchanger soiled; Changes made to system after first calibration; temperature sensor defective	Check heat exchanger, clean if necessary (rinse). Replace all filters if necessary (incl. in geothermal heat exchanger, exhaust-air inlets etc) and carry out a renewed first calibration procedure
ERROR 07	Heat exchanger 'ices over' during calibration	Cold outside temperatures; Soiled heat exchanger: changes to system made since first calibration	Unit automatically initiates restart after 4 hours. Check heat exchanger if fault is repeated and recalibrate if necessary
ERROR 08	Fresh air supply temperature < 6°C, automatic shutdown for 1 hour	Exhaust air rooms or installation location too cold or exhaust air duct is blocked	Heat up house (if necessary allow unit to run for longer period before first calibration – max. 2 hours)
SOS	Display for operating mode that should only be activated following consultation with Pluggit	Accidental button combination pressed (SERVICE and ENTER ← pressed and held down for 5 sec.)	Briefly interrupt the power supply to the ventilation unit
00	No communication with the ventilation unit	Antenna cable loose or remote control belongs to different unit	Briefly remove batteries; reset the PCB following consultation with Pluggit GmbH; replace antenna if necessary
000	No communication with the ventilation unit	The remote control has not yet been assigned to the unit (PCB)	Wait until display enters sleep mode; briefly interrupt power supply to ventilation unit and then press any button on the remote control within one minute
CAL	Standard display for first and weekly calibration	If calibration lasts longer than 5-10 minutes one of the ducts is blocked or a pressure hose in the unit is kinked	Check pressure hoses; check system for blockages (possibly undertake pressure measurements after reset following consultation with Pluggit)
No display	Batteries empty		Insert two standard LR03 (AAA) batteries

ERROR CORRECTION – Test Mode

ERROR 01

ERROR 01 is displayed during test operations and means that the unit has not yet been calibrated. To rectify the error, initiate the calibration procedure (please refer to Chapter 'Calibration').

ERROR CORRECTION – Filter Blockages

ERROR 02

The unit will shut down and ERROR 02 is displayed if the filters are not cleaned or replaced and continue to be soiled even further despite the 'Filter warning' symbol being displayed. To rectify the error, clean or replace the filters (please refer to the Chapter 'Changing filters'). This can also be displayed if changes are made to the pressure balance of the system after the first calibration procedure has been carried out (flap settings and so forth). In such an event all filters (including in the geothermal heat exchanger, exhaust air extractors and so forth) must be cleaned or replaced and a new first calibration procedure carried out.

ERROR CORRECTION – Temperature Sensor

ERROR 03

The symbol for a temperature sensor flashes if it is not functioning, has been short-circuited or is not available. ERROR 03 is displayed. To rectify the error, check the plug connections (please refer to the wiring diagram) or call technical service to replace the sensor in question.

ERROR CORRECTION – Pressure Sensor

ERROR 04

To avoid undesirable pressure imbalances and prevent the risk of frost damage the ventilation unit shuts down if one of the pressure sensors is defective or a pressure hose is kinked or damaged. ERROR 04 is displayed. It is possible to initiate a restart by briefly interrupting the power supply to the ventilation unit. To rectify the error, check the pressure hoses, adjust or replace the pressure sensors or replace the main PCB module (main board and pressure PCB).

Caution! It is necessary to recalibrate and set the volume flow rate after replacing the main PCB module! When carrying out a recalibration ensure that all filters (including those in the system outside of the unit) are clean or, even better, new.

ERROR CORRECTION – Ventilator Fan Fault

ERROR 05

To avoid undesirable pressures and temperatures building up within the system the ventilation unit shuts down if one of the two ventilator fans is not functioning. Depending on which fan is defective S1 (outlet air) or S2 (fresh air) flashes in the display. ERROR 05 is displayed. To rectify the error, check the plug connection on the PCB or change the fan.

ERROR CORRECTION when system pressure drops

ERROR 06

ERROR 06 is displayed if the unit controls determine that the heat exchanger is iced up although the outside temperature is above +5 °C. The cause may be a change to the system following calibration (for example removing the filters or forgetting to insert new ones) or the heat exchanger is soiled. To rectify the error, reinsert or replace missing filters or clean the heat exchanger (rinse with water as described in the Chapter 'Cleaning and replacing the heat exchanger').

End customer:

Filter maintenance

If the filter maintenance symbol is displayed on the remote control display the weekly programme must be read-out of the remote control and noted. Then all filters in the system (in the ventilation unit, exhaust air inlets in the dwelling) must be cleaned or replaced as required.

ERROR 02

If ERROR 02 is displayed the system must be reset via the remote control.

Specialist company:

System maintenance

Read-out the weekly programme via the remote control and write it down. Then carry out the following checks and cleaning procedures on the system:

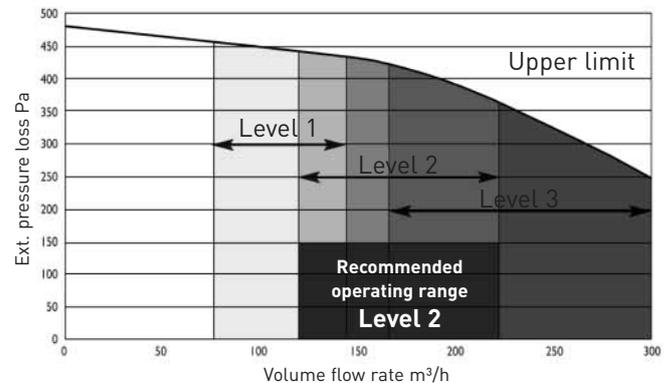
- Check all filters in the system
- Clean the heat exchanger – rinse with water, if necessary
- Clean the ventilator fans with a brush or, if necessary, using compressed air
- Check that the temperature sensors are correctly positioned
- Clean the condensate drain and trough to ensure condensate can drain away freely. After cleaning ensure there is a water trap in the siphon.
- Check the operational sequence of the ventilation unit
- Check the ducting for soiling (if possible)

After completing the maintenance work set the weekday and time before replacing the front cover.

Technical data

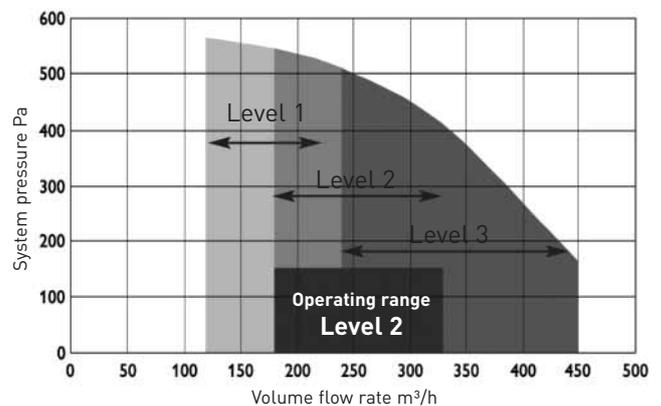
Type: AP300/300N

Line voltage:	230 V AC, 50 Hz
Current:	10–235 W
Current consumption:	38 W at 150 m³/h and 100 Pa
DC ventilator fans:	2 x, backward bent
Protection class:	IP41
Nominal air volume max.:	300 m³/h at 250 Pa
Thermal efficiency:	up to 95% with condensate
Filtration:	G4
Weight:	49 kg (AP300N 47 kg)
Dimensions (W x H x D):	588 x 753 x 561 mm
Remote control:	Included
Summer bypass:	Included (with AP300; can be retrofitted in AP300N)

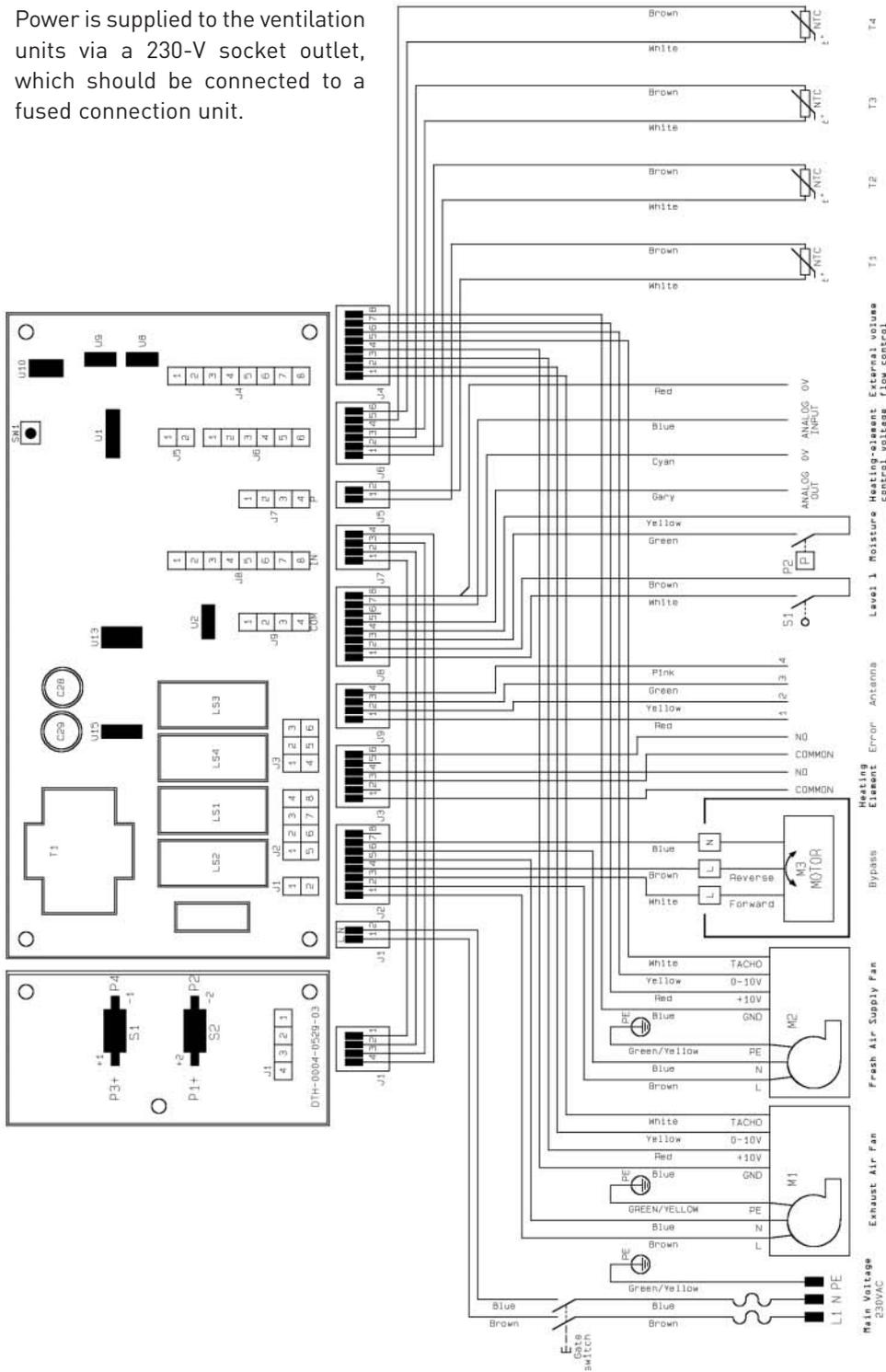


Type: AP450

Line voltage:	230 V AC, 50 Hz
Current:	10–235 W
Current consumption:	68 W at 260 m³/h and 100 Pa
DC ventilator fans:	2x, backward bent
Protection class:	IP41
Nominal air volume:	450 m³/h at 150 Pa
Thermal efficiency:	up to 95% with condensate
Filtration:	G4
Weight:	62.5 kg
Dimensions (W x H x D):	588 x 753 x 722 mm
Remote control:	Included
Summer bypass:	Included



Power is supplied to the ventilation units via a 230-V socket outlet, which should be connected to a fused connection unit.



Electrical connections

J1 230 V AC

- 1. L
- 2. N

J2 voltage output

- 1. Ventilator fan 1 – L
- 2. Ventilator fan 2 – L
- 3. Summer bypass
- 4. Winter bypass
- 5. Ventilator fan 1 – N
- 6. Ventilator fan 2 – N
- 7. Bypass – N
- 8. Not connected

J3 relay

- 1. Potential-free output A-1
- 2. Not connected
- 3. Error A-1
- 4. Potential-free output A-2
- 5. Not connected
- 6. Error A-2

J4 ventilator fan control

- 1. Tacho 1
- 2. PWM control voltage 1
- 3. 10 V (ventilator fan 1)
- 4. 0 V
- 5. Tacho 1
- 6. PWM control voltage 2
- 7. 10 V (ventilator fan 2)
- 8. 0 V

J5 Temperature sensor 1

- 1. NTC T1
- 2. NTC T1 outside air

J6 Temperature sensor 2-4

- 3. NTC T2
- 4. NTC T2 fresh air supply
- 5. NTC T3
- 6. NTC T3 exhaust air
- 7. NTC T4
- 8. NTC T4 outlet air

J7 Pressure

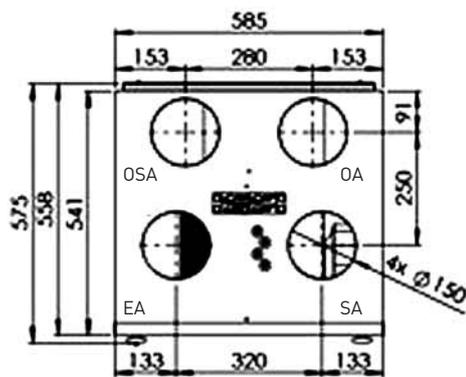
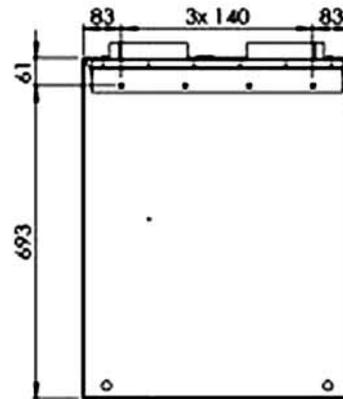
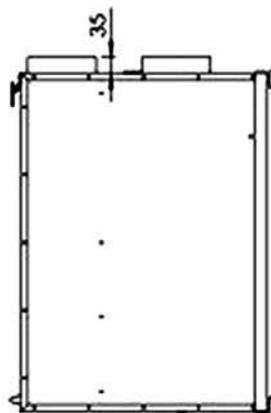
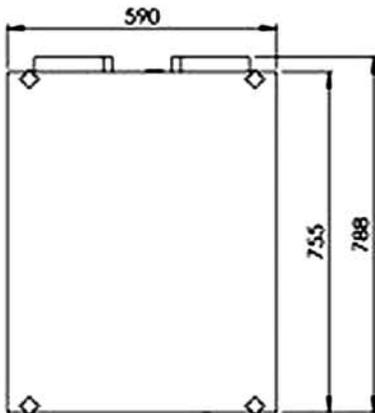
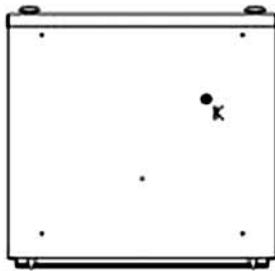
- 1. 12 Volt
- 2. Sensor 1
- 3. Sensor 2
- 4. 0 V

J8 Additional terminals

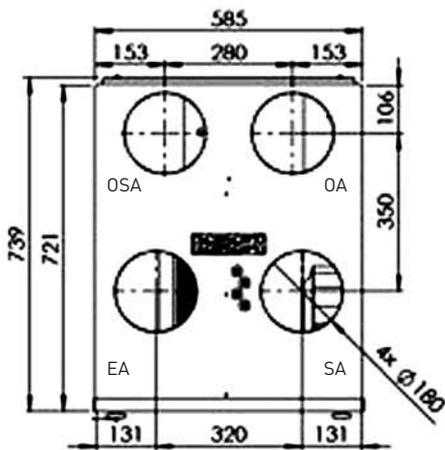
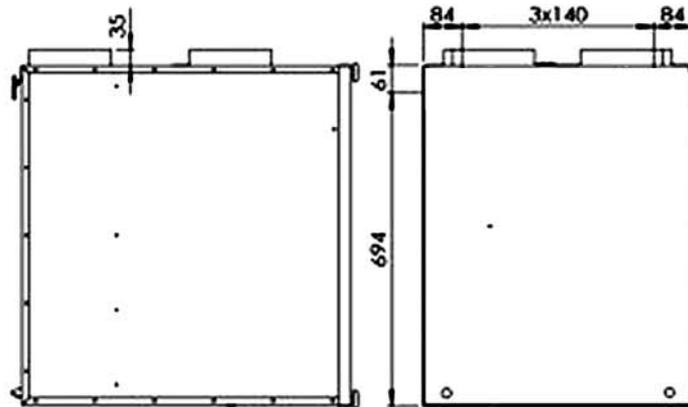
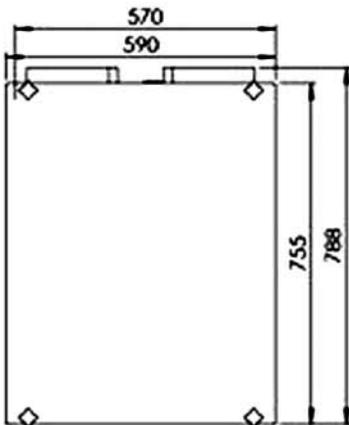
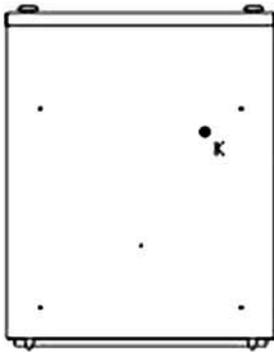
- 1. 12 Volt
- 2. Air quality
- 3. 12 Volt
- 4. Humidity
- 5. Heating element control voltage (0–10 Volt DC)
- 6. Not connected
- 7. External volume flow control (0–10 Volt DC signal)
- 8. 0 V

J9 Communication

- 1. 12 Volt
- 2. Transmit
- 3. Receive
- 4. 0 V



- OSA = Outside air
- SA = Supply air
- EA = Exhaust air
- OA = Outlet air



- OSA = Outside air
- SA = Supply air
- EA = Exhaust air
- OA = Outlet air

CE



 PLUGGIT

Immer frische Luft

CE - Konformitätserklärung

Pluggit GmbH
 Wamslerstr. 2
 D - 81829 München

Tel: +49 89 357731-0
 Fax: +49 89 357731-79

Konformitätserklärung für
 folgende Geräte zur
 kontrollierten Wohnraumlüftung
 mit Wärmerückgewinnung:

Avent P180 (AP180)
 Avent P300 (AP300)
 Avent P450 (AP450)

Oben beschriebene Produkte stimmen mit den folgenden Richtlinien überein:

98/37/EEC	Maschinenrichtlinie
73/23/EEC	Niederspannungsrichtlinie
89/336/EEC	EMV-Richtlinie.

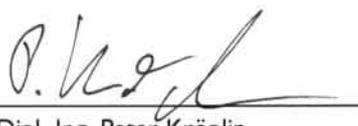
Sie wurden in Übereinstimmung mit den folgenden harmonisierten Normen produziert:

EN 292	Sicherheit von Maschinen
EN 50 081-82	EMV (Störaussendung und -festigkeit)
EN 60 335-1	Sicherheit elektrischer Geräte

München, den 25.8.2005



 Peter Feichtinger,
 Geschäftsführung Pluggit GmbH



 Dipl.-Ing. Peter Kröplin
 Produktmanagement Pluggit GmbH

Replacement filters are available from your specialist dealer: _____

**Available filters:
Outside air**

- Ventilation unit
- Air-intake tower, geothermal heat exchanger
- Allergenic filter AF400
- Other: _____

Exhaust air

- Exhaust air inlets
- Ventilation unit
- Other: _____

Please note: Cleaning the filters is part of the inspection process.
 We recommend that the filters are replaced once a year!

Check	Replaced	Date
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Check	Replaced	Date
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Pluggit member of staff		Name/address of specialist company	
Unit type			
Serial number			
Date			Tel.:
Construction project/client			Tel.:
Street/postcode/town			

The system has been fully installed and commissioned with particular attention paid to the following measures (tested). Particular factors that need to be observed to ensure the system operates flawlessly have been noted.

Inspected/carried out	Completed	Remarks
Ventilation unit is noise decoupled (air and structure borne) and mounted in an accessible, frost-free location (> 7°C)		
Condensate drain installed properly and frost-proof with a wastewater hose DN40 and siphon		
Outside wall grille and all filters inspected and found to be clean; roof cover is securely mounted		
Ducting is securely mounted OSA/OA ducting insulated vapour-tight, SA/EA ducting thermally insulated, if necessary		
Fresh air distributor and exhaust air collection unit inspected		
Fresh air outlets, exhaust air inlets (filters) inspected/checked and found to be clean		
Silencers for supply and exhaust air mounted		
Pluggmar properly installed. Nominal width pipe /channel		
Ventilation unit calibrated, outside air is above -5 °C		
Ventilation unit set to Level 2 (Level 1 and Level 3 adjust automatically) (Level 1 = 30% lower than Level 2; Level 3 = 30% higher than Level 2)		<u>Level 2:</u> Volume flow rate: EA (S1): ____ SA (S2): ____ m ³ /h Speed: EA (S1): ____ SA (S2): ____ rpm
All filters have been pointed out and how to clean and replace them has been explained. The filter symbol in the remote control has been pointed out.		Filter class, fresh air: _____ Filter class, exhaust air: _____
Ventilation openings have been pointed out and the joint operation of ventilation systems and non room-sealed heating appliances explained.		
The operating instructions have been handed over		
How the system functions and how to operate it has been explained.		
Accessories (geothermal heat exchanger, preheating device, others) have been explained		
Special advice:		

The system has been handed over in perfect working order and without any reservations. A relevant note has been made in this protocol of the incorrect or poor performance of any other installation included in the construction project. The client/end user has been informed that any changes to the ventilation system (except for the work that the user may carry out as described in the first part) may lead to damage, be a source of danger and risk the guarantee being declared null and void.

.....
Signature Pluggit member of staff

.....
Date/signature client/end user

Please keep this protocol safe for future reference. In case of a complaint during the guarantee period the protocol must be produced at the request of Pluggit GmbH or the authorised dealer as proof you are entitled to receive a replacement under the conditions of the guarantee.

Service articles

APFG4-300	Cartridge filter for AP300, filter class G4, 2 x
APFG4-450	Cartridge filter for AP450, filter class G4, 2 x
APFF7-300	Cartridge filter for AP300, filter class F7, 2 x
APFF7-450	Cartridge filter for AP450, filter class F7, 2 x

Spare parts

APFB1	Remote control (please supply the stock number – visible on rear of device)
APAK1	Antenna, 2 meters (please supply version number – visible on the rear)
APPL1MK2	PCB, complete
APWT300	Heat exchanger AP300
APWT400	Heat exchanger AP450
APVE8	Ventilator fan AP300
APVE1	Ventilator fan AP450
APFDS1	Cross-recess screw nut for front cover
APSS3	Summer bypass for AP300
APSS4	Summer bypass for AP450
APTS3-MK2	Temperature sensor (NTC), kit
APKO-MK2	Mounting kit AP300
APKO4-MK2	Mounting kit AP450

Accessories

APKB1	Additional cable harness, connector J8
APKB2	Additional cable harness, connector J3
APAM2	Antenna, 7 meters

The technology makes the difference.

2Q

By laying the concealing ventilation in the floor and through ideal placing of the air outlets, a perfectly aligned cross-ventilation is created. Displacement ventilation means that fresh air is transported into the room, without the risk of draughts, without any annoying noises, and without any pressure, and during the cold months, pre-heated.

allfloor

allfloor – in ceilings, walls, above or beneath concrete and screed – the system concept from Pluggit offers maximum flexibility when installing ventilation ducts and therefore is as ideal for use in new buildings as it is in building renovations.



ServoFlow

This innovative technology facilitates the supply of exactly the required or desired amount of fresh air through a highly sensitive sensor and control. After installation, the system can be set at a push of a button to the system characteristics, to save time and money, and recalibrates itself automatically at regular intervals.

EE

Energy efficiency – a high degree of heat recovery alone makes a ventilation system appear high-performing and energy-efficient only superficially. Instead, what is important for the assessment is the ratio of energy used to the degree of heat recovery achieved – called the electrical energy efficiency. As a result of the high density, a consumption-optimised device-design and the latest heat exchanger technology, our ventilation systems achieve excellent values in terms of heat recovery and energy efficiency.

CleanSafe

The principle of CleanSafe guarantees an almost impossible potential for dirt in our distribution system through technically smooth surfaces and, additionally, a problem-free cleaning concept, the convincing results of which have been confirmed by an independent testing institute.



Please download the current texts for invitation to tender in the format data norm, excel or text from our homepage www.pluggit.com or request them at info@pluggit.com!

Do you love fresh air? For more information about the company, the intelligent technology of the Pluggit 2Q-Fresh Air Systems, references and distribution partners, go to www.pluggit.com or for dialogue go to www.lueftungsblog.de