

AirUnit

Decentralised domestic ventilation



Installation instructions

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Symbols

The following symbols are used in the manual for labelling particular information:



General information / information



Warning information



Information: Hazard due to electrical voltage



Installation / maintenance information

1. General information



The **AirUnit** and **controller** are constructed according to state of the art technology and the recognised safety regulations.

Installation and maintenance work of the ventilation unit may only be implemented by **trained specialist personnel** under compliance with the regulations for occupational safety and accident prevention.



The electrical connection must be implemented according to VDE 0100. For installation and maintenance work, disconnection from the mains at all poles with at least a 3 mm contact opening width must be undertaken. The mains disconnection is to be secured against re-connection!

Use of this device is only permitted for the intended use. Incorrect usage, defectively implemented installation or maintenance work and design changes can impair the function and safety of the ventilation unit and lead to the termination of any warranty claims.

Prior to beginning installation / maintenance work, read this manual carefully and observe the information provided for installation and maintenance.

Prior to the installation of the device, check the delivery with regard to completeness and integrity, and in case of missing or damaged parts contact your supplier directly.

Intended use

AirUnit with heat recovery are designed for controlled room ventilation. The devices may only be used exclusively for the conveyance of air. The conveyance of aggressive, flammable or extremely dusty media is not permissible. Never operate the device without the filter which is inserted in the device.

The connection of ventilation ducts is not permissible. **AirUnits** are not suitable for construction drying; operation of the device should only be implemented after completion of the construction activity.

The operation of the device in connection with fireplaces possibly requires additional safety equipment (Feuerungsverordnung FeuV - German Fire Code Ordinance). Corresponding information can be obtained from the chimney sweep responsible for your region.

Device location

AirUnits may only be installed and operated indoors. When selecting the location for the device, take into consideration that the ventilation unit is accessible for inspection and maintenance work. Installation of the device in close proximity to flammable liquids or gases is not permissible. A mains connection (230 V / 50 Hz) is required to the **controller** for operation of the device.

Installation

For the installation of the **AirUnits**, the recognised rules of engineering (ARdT) are to be observed with regard to device installation, electrical work, fire protection etc. and the specifications for the ventilation of living spaces (DIN 1946-6).

2. Function



The **AirUnit** is a decentralised ventilation system for the control of room ventilation with heat recovery. The use of several devices in pairs makes the ventilation of complete residential units / building possible. For operation with heat recovery, the ventilation unit works in 2 time intervals. In the first interval (exhaust phase) the air in the room is led outside via the exhaust operation of the ventilator. In this process, the air flows through the ceramic heat accumulator contained inside the ventilation unit and is heated. In the second interval (air feed phase), the ventilation unit is inverted and fresh external air is led into the room via the ventilation unit. In this process, the air flows through the heat accumulator, which emits the previously stored heat to the air. In this way, heat recovery of up to 90% is achieved. The principle of loading and unloading a heat accumulator is designated as being regenerative. With the operation of a single device, a positive pressure (air feed phase) or a negative pressure (exhaust phase) is created in the room to be ventilated, depending on the operational phase. In order to ensure a balanced ratio between feed and exhaust air volumes, use of the **AirUnit** devices in pairs is recommended. The **controller** enables joint operation of up to three device pairs.

2.1 Planning information



Prior to the installation of **AirUnits**, a ventilation concept should be created in which the number of **AirUnits**, their installation location, the ventilation principle (cross-ventilation, single-room ventilation) and the position / number of the associated **controller** can be found. **AirUnits** enable the following ventilation variants:

- **The ventilation of a room** using a **AirUnit**, in intervals changing between feed / exhaust air mode with heat recovery, alternately feed* or exhaust air mode* (* depending on the electrical connection, see Page 10).
- **The ventilation of a room** or a utility unit using ventilation units operated in pairs, in intervals switching between feed / exhaust air operation with heat recovery (whilst one device of a device pair operates in feed mode the assigned second device operates in exhaust mode; the air direction of both devices alternates in the next interval), alternately feed* or exhaust air mode* (* depending on the electrical connection, see Page 10).

AirUnits should be operated in pairs if possible (see Function). The device pairs can be used either in one room or also for groups of rooms. Within an utility unit, an arrangement across different storeys is also possible. An air flow between the rooms to be ventilated must be enabled through sufficiently dimensioned overflow openings (e.g. door air grids or shortened doors). As a result, odour transfer into other rooms does not occur through the air blown in (feed phase ventilation unit); for the ventilation of kitchens, bathrooms or toilets with windows, two anti-cyclically operating devices should always be installed. In inner, windowless kitchens, bathroom and toilets, **AirUnit** devices may not be used, as connection of the device to a duct or pipe is not permissible. The use of an exhaust ventilator is recommended in this case acc. DIN 18017 T.3. Likewise, device installations in cellar rooms with light shafts is not possible, as recirculation of the exhaust air cannot be excluded. In order to prevent recirculation with the facade installation of devices, a minimum distance of 1.0 m should be maintained between the single devices. In case the building location is exposed to the wind (medium wind speed > 5 m/s), we recommend that you do not use this device. In order to prevent draft occurrence through the operation of the ventilation units, the devices should not be placed directly in areas where people stay for prolonged lengths of time (seating areas, beds). Ensure that the air flow in the room is not impaired by furniture or curtains.

3. Delivery units / scope of delivery



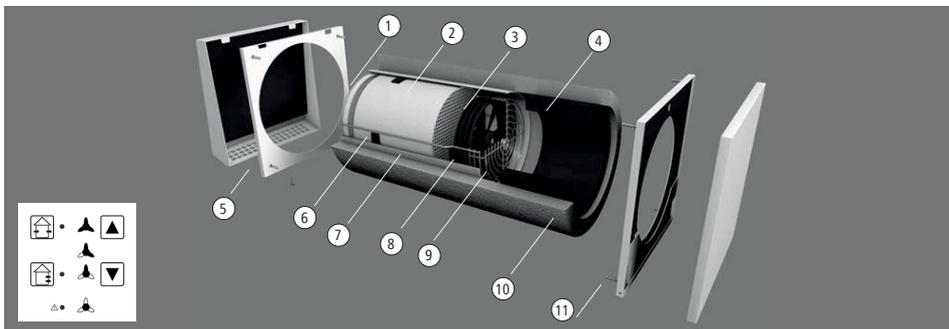
A complete **AirUnit** comprises of a NEOPOR® wall duct and a ventilator unit inserted into the wall duct.

The ventilator unit comprises of a reversible ventilator (12 V/DC), ceramic heat accumulator for heat recovery, a filter (G3) and sealing rings which are inserted into a wire assembly incl. protection grid and enclosed by a housing pipe. Furthermore, all ventilation units are delivered with an additional sound insulation mat.

The air flow in the room takes place via a closable and sound-insulated design screen. The exterior air flow occurs via a weather protection hood. The operation of the device occurs via the **controller** with operating panel (accessory). Up to six **AirUnits** (3 x feed 3 x exhaust) can be controlled via the **controller**. The installation of the **controller** occurs in a device double socket, e.g. flush-mounted, double cavity wall socket.

The following delivery units are available:

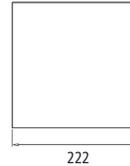
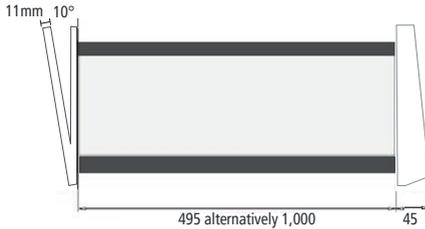
- **AirUnit 500**: Ventilation unit with wall duct 495 mm, ventilator unit, interior design screen (RAL 9016) and weather protection hood (RAL 9016).
- **AirUnit 500 stainless steel**: Ventilation unit with wall duct 495 mm, ventilator unit, interior design screen (RAL 9016) and weather protection screen made from stainless steel.
- **AirUnit 1000**: Ventilation unit with wall duct 1000 mm, ventilator unit, interior design screen (RAL 9016) and weather protection screen (RAL 9016).
- **AirUnit 1000 stainless steel**: Ventilation unit with wall duct 1000 mm, ventilator unit, interior design screen (RAL 9016) and weather protection screen made from stainless steel.
- **Controller**: For up to 6 **AirUnits** (3x feed, 3x exhaust) incl. cover frame.



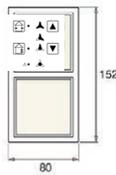
- | | | | |
|---|---|----|--|
| 1 | • Filter (G3) | 6 | • Sealing ring (heat accumulator) |
| 2 | • Ceramic heat accumulators for heat recovery | 7 | • Housing pipe |
| 3 | • Ventilator (12 V/DC) | 8 | • Sealing ring (ventilator) |
| 4 | • Sound insulation mat | 9 | • Wire assembly incl. protection grid |
| 5 | • Exterior hood (weather protection screen in RAL 9016 or stainless steel) | 10 | • Wall duct (495 or 1000 mm) |
| | | 11 | • Interior design screen |

4. Dimensions

- **AirUnit** (all dimension information in mm)



AirUnit interior screen



Controller



AirUnit weather protection screen

4.1 Technical data

	AirUnit
Air output	15 20 30 40 m ³ /h
Degree of efficiency of the heat exchanger	up to 90%
Supply voltage	230 V/50 Hz
Power consumption	0,8 1,1 1,7 2,7 W
Sound pressure level (1m)*	21 28 31 40 dB(A)
Sound pressure level (3m)*	12 18 22 30 dB(A)
Filter category	G3, regenerative
Permissible operating temperature	-20 bis +40 ° C
Protection class	III
Weight	~ 2.5 kg
ø wall duct (interior / exterior)	154 / 198 mm
Length of wall duct	495 / 1000 mm

* Internal measurement, average value of exhaust and supply phase | room-side

	Controller
Controller	controller 4 performance levels (optional 3 performance levels + OFF)
Operating modes	winter and summer mode
Power unit	up to 6 devices
Switch range	including cover frame 2 times and blank cap
Input	230 V / 50 HZ
Output	12 V DC 24 W
Protection class	IP 00 (without cover)

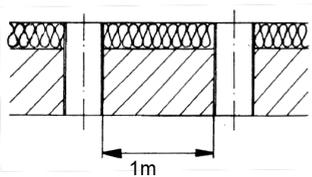
5. Selection of the installation location



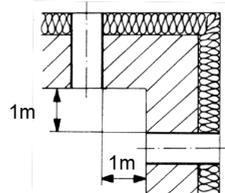
On selecting the installation location, observe the exterior view of the building. In order to harmoniously integrate the devices into the building facade, the devices should be installed at the same height / with the same distance to the windows, for example. Observe the dimensions of the exterior or room-side air passages. It is recommended that you maintain a **minimum distance of 200 mm around the wall duct to the neighbouring facade components / elements and room corners!**

The **AirUnits** devices may not be covered by furniture or curtains.

Recommended minimum distance for the installation of a device pair in a wall:



Recommended minimum distance for the installation of a device pair across a corner:



6. Installation wall duct

Wall ducts in two different lengths are available for the **AirUnits**:

- Pipe length 495 mm
- Pipe length 1000 mm

The **AirUnit** is delivered with 495 mm or 1000 mm-long wall ducts, all wall ducts are manufactured with an integrated gradient to the outside for the drainage of condensate (observe the room-side labelling, see Fig. below.)



6.1 Core drill hole wall duct



Prepare a core drill hole with a diameter ≥ 200 mm and create a cable slot for the connection lines.

6.2 Installation wall duct



Insert the wall duct into the wall opening and leave the wall duct protruding if required (e.g. for additional plaster or insulating layers) according to the room and facade. Observe that the **gradient slopes to the exterior** or the **room-side labelling** of the wall duct. Seal the wall duct with the masonry on the interior and exterior with an appropriate sealant. For larger wall openings, the cavities between the wall opening and the wall can be filled with **non-pressing** installation foam.

The wall duct can be trimmed flush with a carpet knife after the completion of the wall.



Caution:

In order to ensure tension-free installation / removal (maintenance) of the ventilator / heat accumulator in the wall duct, deformations of the wall duct through external pressure / tensions are to be avoided! Observe that the wall opening is installed with a gradient to the outside at all times.

6.3 Wall duct insertion, ventilation unit connection pipe



Insert the connection pipe (min. $3 \times 0.60 \text{ mm}^2$) laterally (room-side view) into the wall duct. Allow the connection pipe to protrude in **length past the wall duct**.



Close the wall duct on the interior and exterior side using the supplied wall covers (**see Page 14**), in order to prevent contamination of the wall duct.

7. Installation controller



The **controller** is designed for installation in a device double socket. It can be used to control up to six **AirUnits**.

The **controller** is to be connected as stationary equipment with permanently laid lines.

Electrical connection diagram, **see page 10**.

The **supply voltage** of the **controller** is **230 V/50 Hz**; a sheathed cable $3 \times 1.5 \text{ mm}^2$ (e.g. NYM-J $3 \times 1.5 \text{ mm}^2$) is recommended as a supply line.

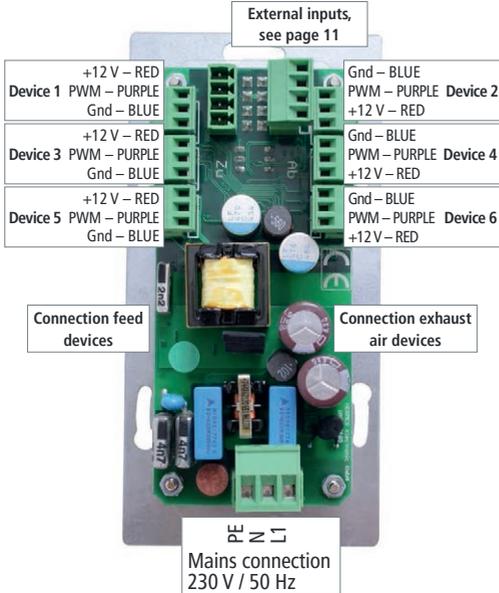
Control of the ventilation units occurs via **12 V DC**, therefore **under no circumstances** may the ventilation units be connected to the 230 V mains voltage of the control electronics. A sheathed cable min. $3 \times 0.60 \text{ mm}^2$ is recommended as a connection line for the **AirUnits**.

8. Electrical connection



The electrical connection must be implemented according to VDE 0100. For installation and maintenance work, disconnection from the mains on all poles with at least 3 mm contact opening width must be undertaken. The mains disconnection is to be secured against reconnection!

• Connection controller



The connection of several devices occurs arranged in pairs at the plug connectors **device 1 - device 2, device 3 - device 4, device 5 - device 6**; in paired operation one device of a device pair operates in feed mode, the second assigned device in exhaust air mode. The air flow direction of both devices is alternated at intervals.

The **AirUnits** connected to the plug connectors **device 1, 3 or 5** serve as feed devices in „summer mode“.

The **AirUnits** connected to the plug connectors **device 2, 4 or 6** become exhaust devices in „summer mode“. Therefore cross-ventilation can occur with the use of several devices i.e. in order to convey cool outside air into the building during summer nights.

With the use of a single device, the **AirUnit** can be used as a feed or exhaust device in „summer mode“.

8.1 Connection AirUnit(s) – controller



The connection of the **AirUnits** to the connection line of the **controller** is implemented via a plug connector contained within the scope of delivery of the ventilation units, as depicted previously. Please **observe the polarity feed / exhaust devices** (see Fig. above)!

8.2 Electrical connection of external control elements



The adjustment of operation mode on the **AirUnits** occurs as required by the user via the operating panel on the **controller**. Different operating variants with different performance levels can be selected.

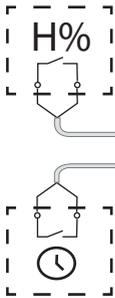
Through the connection of optional, external control elements, a time or humidity-dependent device operation can be additionally activated. The connection of external control elements occurs via connection plugs „**external inputs**“ on the rear side of the **controller** as depicted below. The device function with an external control is described from **Page 7 | Operating manual** onwards.

- **Connection of external control elements**

- **Optional external humidity control**

(e.g. hygostat)

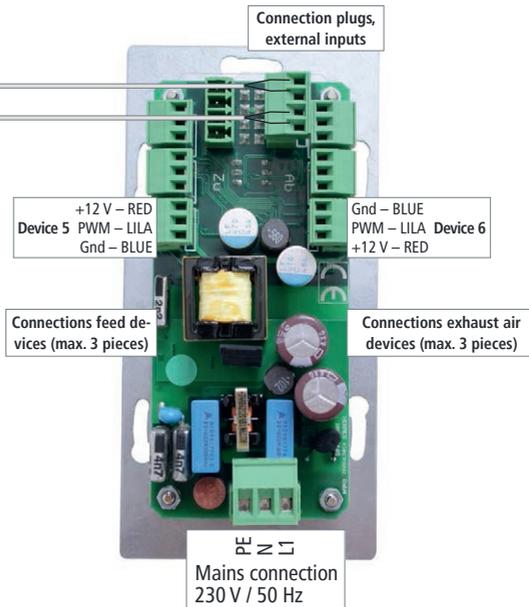
Function description, see **Page 7 | Operating manual**



- **Optional external switch-off**

(e.g. time switch)

Function description, see **Page 7 | Operating manual**



A data line is recommended (e.g. 2 x 2 x 0.6 (z. B. J-Y(ST)Y)) for the connection of external control inputs (potential-free contacts).

9.1 Complete installation



After completion of the insulation / plaster work, remove the wall covers on the interior and exterior side. Adapt the wall duct to the dimensions of the finished wall by trimming the wall duct flush with the **room** or **facade side** using a carpet knife or a hot wire. 



To protect against water penetration into the wall opening, the facade-side transition to the wall duct must be sealed **circumferentially** using a suitable sealant! 



Adhere the supplied sealing tape circumferentially to the rear side of the outer wall panel.



Subsequently, install the wall panel to the weather protection hood using suitable attachment elements.



Install the weather protection hood to the **AirUnit**. The hood is mounted onto the attached brackets on the upper edge of the wall panel and attached to the wall panel using the supplied attachment screws.



Install the inner wall panel using suitable attachment elements and carefully insert the ventilator unit (ventilator faces towards the room) into the wall. Observe that in the process the connection pipe of the ventilator is not bent / damaged. The ventilator unit can be aligned above the protection grid during the installation and be pulled back out of the wall duct again for maintenance purposes.



Subsequently, connect the plug connectors of the connection line to the **controller** (for details see Electrical connection **Page 10**).



Circumferentially insert the sound insulation mats with a distance of min. 3 cm to the ventilator unit on the room side.



Push the inner screen onto the hinge of the wall panel. The inner screen can be closed as required by means of the magnetic closures. In an open state, the inner screen is open at the top with an aperture angle of approx. 10°.

9.2 Function check

After completion of the installation work, the function of the device has to be checked. Prior to inspection, ensure that the air passages of the ventilation unit are free from installation debris / foreign objects, and that all electrical work has been implemented and completed professionally!



After switching on the power supply (normally via the automatic circuit breaker of the electrical installation), the **AirUnit** can be commissioned via the operating panel of the **controller**. During commissioning, check all the device functions described in the **Operating manual from Page 6** onwards. During the inspection, check for quiet, smooth operation of the ventilator motor.

Determined malfunctions or faults on the **AirUnit** must be rectified prior to final commissioning of the device; possible **error sources** and their rectification are described in the chapter Malfunctions (see **Page 11 | Operating manual**).

Document the properly-executed installation / function check of the ventilation unit(s) in the Commissioning log (**separate form**).

Wall cover folding instructions

