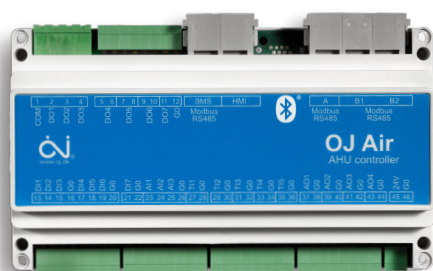


OJ Air AHU Control System



AHC-3000-B

- Simple and scalable
- OJ Air Cloud® via **Bluetooth®**
- Touch Screens
- BasicBMS and remote units
- Modbus RTU
- QuickPlug™ modbus

AHC-3000-B is a simple and scalable control for decentralised and compact ventilation systems and is used together with intuitive colour touch screens.

AHC-3000-B comes programmed with everything that is needed for control of the fans and regulation of temperature. The product is complete and ready for use with built-in energy efficiency and monitoring during operation.

The operation of AHC-3000-B can be monitored and optimised wirelessly with a Smart Phone connection to OJ Air Cloud®, BasicBMS or BMS modbus interface. Everything is built-in as standard and ready to use.

Simple and scalable

The standard configuration is simple control of two fans and heat recovery with a 0-10V signal. Pre-programmed options and automatic configuration with QuickPlug™ modbus components make it easy to fulfil a clients needs for more advanced fan regulation, filter monitoring or temperature regulation with a 0-10V controlled heating and/or cooling surface.

Wireless connection to OJ Air Cloud®

Use **Bluetooth®** on your tablet or smart phone to make a wireless connection from AHC-3000-B to the internet, and get free access to log data and optimisation of the operation from a personal OJ Air cloud® account. Access can be shared with others, e.g. a service partner for quick and effective service.

BasicBMS and remote units

In buildings with decentralised ventilation there are many ventilation systems to service and maybe several in the same room. With BasicBMS 25 rooms can easily be monitored from a common 3.5" panel, and the satellite function automatically coordinates the operation of 14 remote units in every single room.

Built-in functions

Air change

The fans are controlled as standard with a 0-10V signal and can be set to 3 different set points in %.

The volumetric flow rate of air is shown in m³/h, l/s or CFM.

Temperature

Supply air temperature can be set from 5 to 40°C.

Room and extract air temperature can be set from 5 to 40°C. Temperature can be displayed as °C or °F.

Timer operation and calendar

The built-in timer and weekly program can automatically change the fan set point 6 times a day with individual settings each day of the week.

Exceptions like e.g. vacation periods and holidays are set in the calendar function, which can handle 10 different time periods or repetitions.

PIR input

Used when a connected PIR sensor needs to automatically start or increase ventilation when there are people present.

Start input

Used if the fan needs to be started manually with a switch.

Summer/Winter input

Used for control of the combination heating/cooling coil if there is e.g. a central heating pump in the building which produces heat in the winter and cooling in the summer.

Summer nights cooling

The function automatically reduces the heat in the building with cold outside air during the night thereby resulting in increased comfort with low energy use.

Free cooling

The function automatically utilises cold outside air for energy effective cooling.

Fire & Smoke

The fans can be stopped by a smoke detector in the duct system. If there is a fire, the fans are individually controlled to a pre-installed set point in the range 0 to 100%.

Languages

Danish, Norwegian, Swedish, English, Russian, Finnish German, Dutch, Polish, French, Italian, Spanish.

Pre-programmed applications

Extract air fan

Options

Fan regulation

- Pressure set point up to 2500 Pa
- CO₂ set point up to 2000 ppm
- Moisture set point up to 100 %RH.
- Air flow set point up to 100,000m³/h

Filter

- Filter monitored with timer
- Filter monitored with pressure switch
- Filter monitored with pressure measurement

Energy

- Display of fan consumption
- Measurement of air flow rate

Supply Air Unit

Options

Fan regulation

- Pressure set point up to 2500 Pa
- CO₂ set point up to 2000 ppm
- Moisture set point up to 100 %RH.
- Air flow set point up to 100,000m³/h

Temperature regulation

- Constant supply air temperature
- Constant room temperature

Heating/cooling coils

- Electrical heating coil
- or water heating coil
 - Capillary tube frost protection
 - Return water frost protection
- and/or water cooling coil
- or combination water heating/cooling coil
 - Capillary tube frost protection
 - Return water frost protection

Filter

- Filter monitored with timer
- Filter monitored with pressure switch
- Filter monitored with pressure measurement

Energy

- Display of fan consumption
- Measurement of air flow rate

Rotor exchanger AHU

The rotor exchanger is controlled as standard with 0-10V signal and is used both for heating and cooling recovery.

Options

Fan regulation

- The same as supply Air Unit
- The extraction air fan set point corresponds to the supply air flow rate.
- The supply air fan set point corresponds to the extraction air flow rate.

Temperature regulation

- Constant supply air temperature
- Constant extract air temperature
- Constant room temperature

Heating/cooling coils

- The same as supply Air Unit

Filter

- The same as supply Air Unit

Summer nights cooling

- Outside temperature transmitter
- Room temperature transmitter

Energy

- Display of extraction fan air consumption
- Display of supply fan air consumption
- Display of rotor exchanger consumption

Counter flow heat exchanger AHU

The counter flow heat exchanger is controlled as standard with a 0-10V signal to a by-pass damper mounted in the by-pass duct from fresh air to supply air and is used both for heating and cooling recovery. The exchanger is protected as standard against icing up by overriding the by-pass damper at low exhaust temperature.

Options

- The same as the rotor exchanger AHU
- Protection against icing by pressure measurement across heat exchanger

Cross exchanger AHU

The same functions as the counter flow heat exchanger AHU

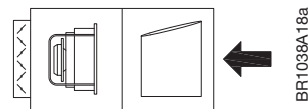
Mixed air AHU

The mixing dampers are controlled as standard with a 0-10V signal. Mixed air is used both for heating and cooling recovery.

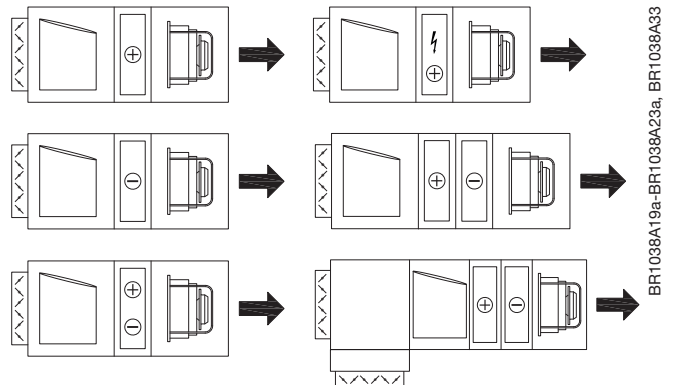
Options

- The same as the rotor exchanger AHU

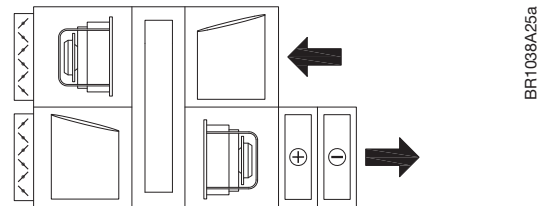
Extract air fan



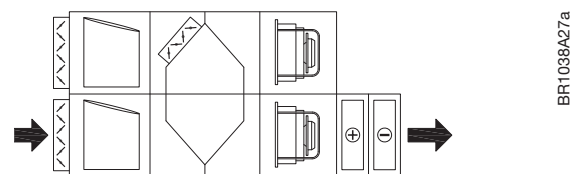
Supply Air Unit



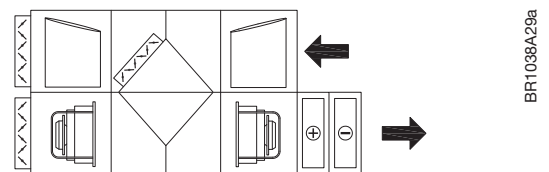
Rotor exchanger AHU



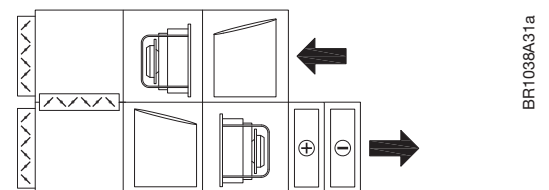
Counter flow heat exchanger AHU

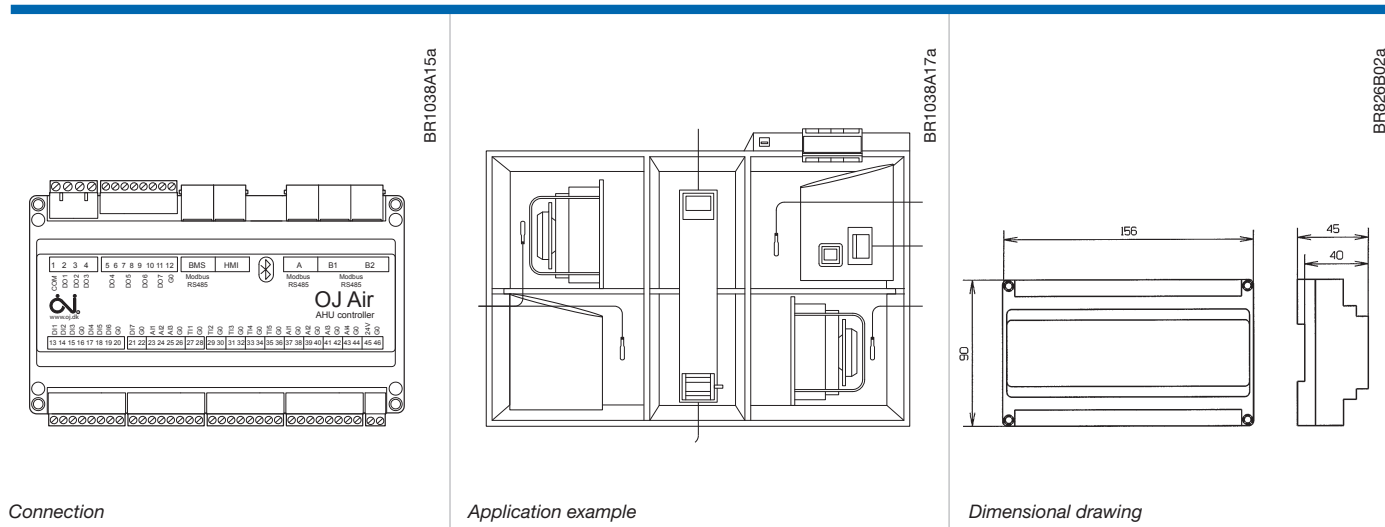


Cross exchanger AHU



Mixed air AHU





Connection

Application example

Dimensional drawing

INSTALLATION

Installation of the control

AHC-3000-B is mounted on 35mm DIN rails in an enclosure, which corresponds to the installation locations classification. The control is to be supplied with 24 V AC or 24 V DC.

Cable connections

Cables are connected by screw terminals and may max. be 4mm² on terminals 1 to 4. Other terminals max. 1.5 mm². If there is a BMS system, it is connected with a twisted pair cable, which is mounted on a RJ-12 connector, or via an OJ-Air2 Split Cable adapter.

PRODUCT PROGRAM

Type	Product
AHC-3000-S	OJ-Air AHU control standard
AHC-3000-T	OJ-Air AHU control TCP/IP
AHC-3000-B	OJ-Air AHU control Bluetooth [®]
AHC-CONNECT-K1	OJ-Air Mating connector kit
AHC-3000-HMI-35T	OJ-Air Touch HMI 3.5 inch
OJ-Air2-HMI-20T	OJ-Air2 Touch Screen
PTH-3202	Pressure transmitter
PTH-6202	QuickPlug [™] pressure transmitter
PTH-6202-2	QuickPlug [™] dual pressure transmitter
VTH-6202	QuickPlug [™] VOC transmitter
HTH-6202	QuickPlug [™] humidity transmitter
TTH-6040-W	QuickPlug [™] room temperature transmitter
TTH-6040-O	QuickPlug [™] outside temperature transmitter
OJ-Air2Ext	QuickPlug [™] I/O add-on module
OJ-DV	QuickPlug [™] Motor control for fans
OJ-DRHX	QuickPlug [™] Motor control for rotor heat recovery
ETF-xx98	PT-1000 temperature sensor
ETF-xx22/44	NTC 12K temperature sensor
OJ-Air2PWR80	230 V to 2 x 24 V AC transformer
OJ-AIR2SPLIT	Cable adapter

TECHNICAL DATA

Supply voltage	24 V AC ±10%, 24V DC ±1V
Unit consumption	2 VA @24V AC, 1W @24V DC
Max. consumption	25 VA @24V AC, 11W @24V DC
Electrical connection	Screw terminals 1 – 4: Max. 4mm ² Screw terminals 5 - 46: Max. 1.5mm ²
OJ Air Cloud [®]	Wireless via Bluetooth [®] to Tablet or Smart Phone Via PC service tool
Bluetooth [®] Smart	Version 4.0, 10 m range
BMS protocols	Modbus RTU
Modbus RS485 port	5 x RJ12 (6P6C)
Digital inputs	7 x internal pull-up 3 x potential free contact relay, 230 V AC 3A/ 24 V DC 3 A, 3 x potential free contact relay, 24 V AC/DC 3A 1 x solid state connected to G0 24 V AC/DC 1A
Digital outputs	
Analogue inputs	3 x 0-10V
Analogue outputs	4 x 0-10V
Sensor inputs	5 x PT-1000 / NTC 12K
Ambient temperature, operation	-40/+50°C
Ambient temperature, storage	-50/+70°C
Dimensions	156 x 96 x 45 mm
Enclosure	IP20, ABS
Weight	250 g

CE marking

AHC-3000-B complies with the requirements of the following directives:

The EMC directive EN-61000-6-2
 EN-61000-6-3

The low voltage directive EN 60730-1

The RED directive ETSI EG 203 367