

# OJ Air AHU control system



## AHC-3000-S

- Simple and scalable
- 2" touch screen panel
- 3.5" touch screen panel
- BasicBMS – 25 room network
- BMS modbus RTU

**AHC-3000-S is a simple and scalable control for decentralised and compact ventilation systems and is used together with an intuitive colour touch screen.**

**AHC-3000-S is pre-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.**

**AHC-3000-S has built-in BasicBMS so several systems can be monitored from a common 3.5" touch screen panel. Alternatively a classic BMS system can be connected via modbus RTU.**

### **Simple and scalable**

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

### **Intuitive user interface**

The colour touch screen panel is chosen depending on the clients need. Use the 2" panel for the daily operation. Or choose the 3.5" panel with advanced functions and password protected access to installation and service functions.

### **BasicBMS – 25 room network**

In buildings with decentralised ventilation there are many ventilation systems to operate optimally and maintain. With BasicBMS up to 25 systems can be easily monitored from a common 3.5" panel. Service requirements like e.g. filter change-out can be monitored centrally and without additional cost in a classic BMS system.

## 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 %.

### 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 1000 Pa
- CO<sub>2</sub> set point up to 2000 ppm
- Moisture set point up to 100 %RH.

Filter

- Filter monitored with timer
- Filter monitored with pressure switch

### Supply Air Unit

#### Options

Fan regulation

- Pressure set point up to 1000 Pa
- CO<sub>2</sub> set point up to 2000 ppm
- Moisture set point up to 100 %RH.

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
- or water cooling surface
- or combination water heating/cooling coil
  - capillary tube frost protection
  - Return water frost protection

Filter

- Filter monitored with timer
- Filter monitored with pressure switch

**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

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

**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

**Cross exchanger AHU**

The same functions as the counter flow heat exchanger AHU

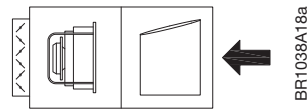
**Mixed air AHU**

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

Options

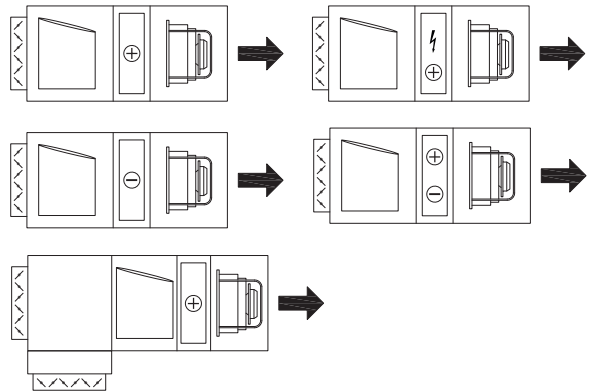
- The same as the rotor exchanger AHU

Extract air fan



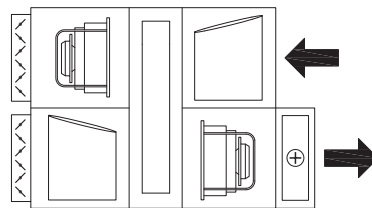
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Supply Air Unit



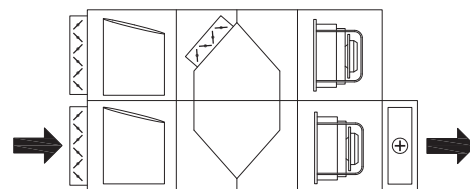
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Rotor exchanger AHU



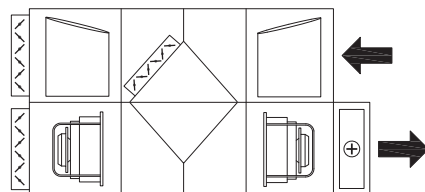
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Counter flow heat exchanger AHU



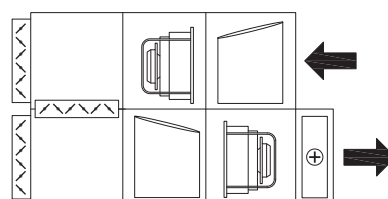
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Cross exchanger AHU

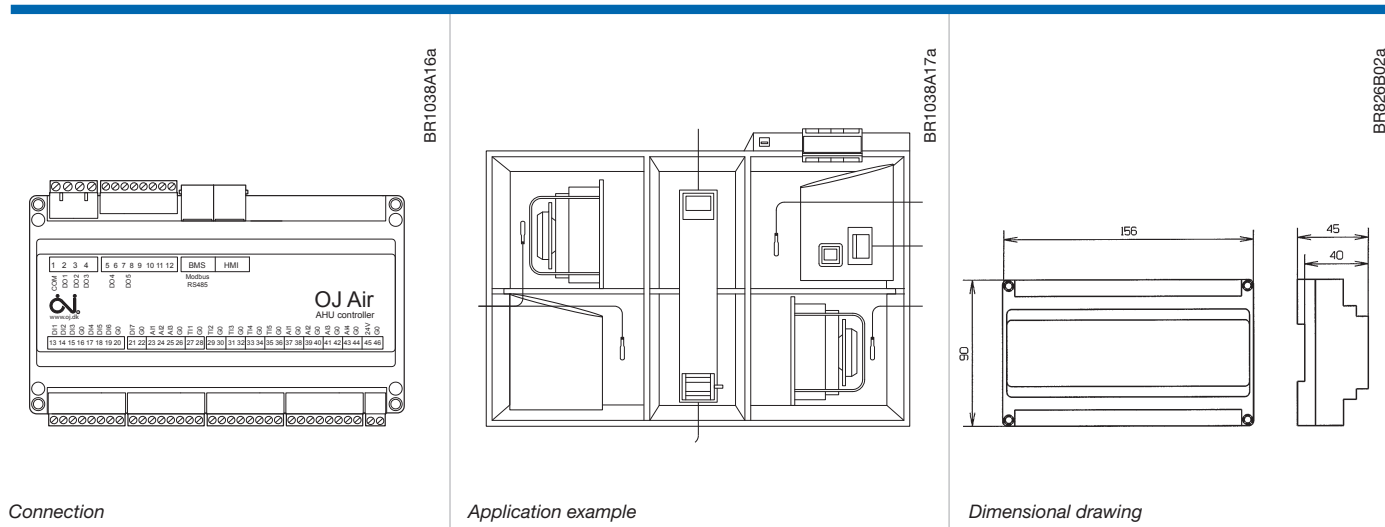


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Mixed air AHU



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## INSTALLATION

### Installation of the control

AHC-3000-S 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 4mm<sup>2</sup> on terminals 1 to 4. Other terminals max. 1.5 mm<sup>2</sup>. 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 <b>Bluetooth®</b>
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
ETF-xx98	PT-1000 temperature sensor
ETF-xx22/44	NTC 12K temperature sensor
OJ-DV	Motor control for fans
OJ-DRHX	Motor control for rotor heat recovery
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	9 VA @24V AC, 4W @24V DC
Electrical connection	Screw terminals 1 – 4: Max. 4mm <sup>2</sup> Screw terminals 5 - 46: Max. 1.5mm <sup>2</sup>
OJ Air Cloud®	Via PC service tool
BMS protocols	Modbus RTU
Modbus RS485 port	2 x RJ12 (6P6C)
BMS protocols	Modbus RTU
Digital inputs	7 x internal pull-up
Digital outputs	3 x potential free contact relay, 230 V AC 3A/ 24 V DC 3 A, 2 x potential free contact relay, 24 V AC/DC 3A
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	230 g

### CE marking

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

The EMC directive	The low voltage directive
EN-61000-6-2	EN 60730-1
EN-61000-6-3	