Warning

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User’s Manual carefully before using this product. The User’s Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any queries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.

Specifications, designs and other content appearing in this brochure are current as of August 2018 but subject to change without notice.
Features of VRV AHU

- Harnessing VRV VRT technology
- Inverter controlled system
- Can be easily controlled via standard wired remote control (BRC1E62) (only for standard model)
- Comes in double skin panel model (Single skin option available)
- Easily managed using intelligent Touch Manager central control system
  - Communication protocol using DIII-Net to communicate with all existing Daikin communication devices. (option to connect directly to BACnet® BMS)
- Can be placed indoor or outdoor*¹

6 Benefits of using VRV AHU

- Quality and warranty assured
  - VRV AHU are manufactured by Daikin factory.
- Ease of installation
  - No additional system such as cooling tower, chiller, and long water piping system are required. This also reduces the total system maintenance costs.
  - Flexible design of the ducting system.
- Cover large area with different ducting configuration.
- VRV AHU can provide ESP up to 500Pa*² (Standard Model)
- Total solution concept
  - Integrating an AHU into the total building climate system enables both design and installation procedures to be based on a single common technology. This simplifies project follow-up, installation, commissioning and maintenance since only one party is involved.
  - VRV AHU system can be combined with other types of indoor units to operate concurrently.

Options

- Wide range of options to meet design requirements. Please contact Daikin’s Sales Office on options below:
  - Fan Type
    - Backward Curve Aerofoil
    - Plug Fan
    - Electronically Commutated Fan (EC Fan)
  - Fan Motor control
    - VSD
    - Fixed Speed
  - AHU Coil Material Type
    - Copper Fin
    - Blue Fin
    - Epoxy Coated Fin and Coil
  - AHU Drain Pan Type
    - Acrylic Enamel with Steel Coating
    - Galvanized Steel
  - AHU Air Filter Type
    - Medium Filter
    - Extra Filter
    - Synthetic
    - Bag
    - HEPA
    - Aluminium
    - Cartridge
    - ULPA
  - Special Option
    - Electric Heater
    - Mixing Box
    - Outdoor Roof
    - Heat Pipes
    - Motor Starter Box
  - Customisation
    - Airflow
    - Capacity
    - ESP
    - Discharge Direction
    - Heat Recovery Wheel
    - Piping Outlet
  - Controller for Outdoor Air Series
    - MicroTech® III® (DDC)

Notes:

*¹ Optional items required
*² For ESP more than 500Pa, please contact Daikin’s Sales Office
*³ BACnet interface
VRV AHU Introduction
Daikin released 2 series of VRV AHU standard series model AHURS-DBV and outdoor air series model AHURS-DBL. It is a DX AHU that is specially designed to operate with VRV outdoor unit. This enabled the users to reduce maintenance costs and enjoy more space savings.

Daikin VRV AHU improves the indoor air quality caused by haze, pollutants, etc. with options of pre-filters and primary filters. This is the only total AHU solutions provided and manufactured completely by Daikin.

Total Daikin Solutions
(All products manufactured by Daikin Factory)

VRV AHU Application
From small to large commercial spaces, Daikin offers a wide range of R-410A inverter condensing units for use in conjunction with Air Handling Units (AHU) from 6 HP to 120 HP.

AHU provides large air volumes and high ESP (External Static Pressure) enabling the use of extensive ductworks. The refrigerant flows through the copper pipes using R-410A and operates like a large VRV fan coil unit.

What is VRV?
Daikin VRV system is a multi-split type air conditioner for commercial buildings that uses variable refrigerant flow control invented by Daikin.

It enables long piping length up to 165m and maximum level difference (between outdoor and indoor units) of 90m to provide more design flexibility which can match even large-sized buildings.

It allows one touch selection control using Intelligent Touch Manager and includes options to link with BACnet® to enhance the Building Management System (BMS).

VRV AHU System
Conventional AHU System
- Require Frequent Maintenance (Cooling Tower + Chiller)
- Higher Cost Due to Frequent Maintenance
- Require Larger Installation Space (AHU, Chiller, Cooling Tower)
- Complex System (HVAC Ducting, Chiller and Water Piping)
- Complex Control (Variable Frequency Device, Variable Air Volume Control)

VRV AHU System
- Easy Maintenance (same as common A/C System)
- No Additional Maintenance Cost
- Require Small Installation Space (AHU, VRV)
- Simple System (HVAC Ducting)
- Simple Control (Remote Control / Intelligent Touch Manager / MicroTech III Controller)

Comparison Table and Diagram for Conventional AHU System and VRV AHU System

VRV AHU System Schematic
VRV AHU Introduction Standard Series

The VRV AHU standard series are available from the capacity range of 6 HP to 120 HP, also with airflow ranging from 3,240 CMH - 59,760 CMH.

Expanded Line Up for Daikin VRV Indoor Series

Comparison for External Static Pressure and Capacity between VRV AHU and Duct Typed Unit

VRV AHU offers higher ESP and Capacity as compared to duct type fan coil unit.

VRV AHU Operation Range

VRV AHU AHURS-DBV operation is similar as other VRV indoor unit. Following table is the list of operation range for AHU.

Possible Z (Ts/Tr control):

Using Daikin wired remote controller (BRC1E62 - optional) Set point can be fixed via standard Daikin wired remote controller. Remote ON/OFF can be achieved by an optional adapter KRP4AA51.

No additional external controller is required. The cooling load is determined from the air suction temperature and set point on the Daikin remote controller.

VRV AHU Standard Series Evaporator

AHURS-DBV standard series model use DX coil. Each DX coil will be connected to an expansion valve and controlled by one standard series PCB.

VRV AHU Standard Series Evaporator Coils

- 6HP used on 6HP AHU unit
- 8HP used on 8HP AHU unit
- 10HP used on 10HP AHU unit
- 16HP used on 16HP, 32HP
- 20HP used on 20HP, 40HP, 60HP, 80HP, 100HP, 120HP AHU unit

VRV AHU System Structure (Maximum Allowable Piping Length and Height)

AHURS-DBV (Standard Series)

1. Longest Pipe Length = a + b + c + d = 165m
2. Longest Pipe Length after First Refnet = c + d = 40m
3. Total Pipe Length = a + b + c + d + e + f = 1,000m

*1 When level differences are 50m or more, the diameter of the main liquid piping size must be increased.
If the outdoor unit is above the indoor unit, a dedicated setting on the outdoor unit is required. Please contact Daikin’s Sales Office for more information.
VRV Connection to AHU Configuration

Single VRV System Configuration

Up to 120 HP
Max. 6 circuits

Each coil up to 20 HP
(Max combination of 6) = 120 HP

Multiple VRV System Configuration

*In case of more than 60 HP system, connection is Multiple VRV system
VRV AHU Outdoor Air Series

The VRV AHU Outdoor air series are available from the capacity range of 8 HP to 60 HP, also with airflow ranging from 2,040 CMH - 16,380 CMH.

VRV AHU Capacity

<table>
<thead>
<tr>
<th>Capacity</th>
<th>60 HP (168 kW)</th>
<th>48 HP (135 kW)</th>
<th>40 HP (114 kW)</th>
<th>32 HP (90.0 kW)</th>
<th>20 HP (55.9 kW)</th>
<th>16 HP (45.0 kW)</th>
<th>10 HP (28.0 kW)</th>
<th>8 HP (22.4 kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMH</td>
<td>17,000</td>
<td>13,200</td>
<td>10,400</td>
<td>8,600</td>
<td>5,800</td>
<td>4,000</td>
<td>2,200</td>
<td>1,400</td>
</tr>
</tbody>
</table>

Comparison for ESP and Capacity between VRV AHU, Ceiling Mounted Duct Type and Floor Standing Duct Type.

VRV AHU offers higher ESP and airflow rate as compared to duct type units.

External Static Pressure (Pa)

- FXMQ-V1: From 185 Pa to 235 Pa
- FXMQ: From 150 Pa to 480 Pa
- VRV AHU: 250 Pa to 500 Pa

*For ESP more than 500 Pa, please contact Daikin’s Sales Office.

VRV AHU Operation Range

VRV AHU AHURS-DBL operation is similar as other VRV indoor unit. Following table is the list of operation range for AHU.

<table>
<thead>
<tr>
<th>Entering Air Temperature to VRV AHU</th>
<th>Minimum: 14°C WB</th>
<th>Maximum: 35°C DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Unit</td>
<td>Minimum: -5°C DB</td>
<td>Maximum: 49°C DB</td>
</tr>
<tr>
<td>Expansion Valve</td>
<td>Minimum: -5°C DB</td>
<td>Maximum: 48°C DB</td>
</tr>
<tr>
<td>Outdoor air series PCB</td>
<td>Minimum: -10°C DB</td>
<td>Maximum: 40°C DB</td>
</tr>
</tbody>
</table>

VRV AHU System Structure (Maximum Allowable Piping Length and Height)

AHURS-DBL (Outdoor Air Series)

1. Longest Pipe Length = a + b + c + d = 165m
2. Longest Pipe Length after First Refnet = c + d = 40m

*1 When level differences are 50m or more, the diameter of the main liquid piping size must be increased.

If the outdoor unit is above the indoor unit, a dedicated setting on the outdoor unit is required. Please contact Daikin’s Sales Office for more information.

Possible X (Td/Tr control):

Precise air temperature control via MicroTech III (MT III) controller (option)

Room temperature is controlled as a function of the air handling unit suction or discharge air (customer selection). The MT III controller translates the temperature difference between set point and air suction temperature (or air discharge temperature or room temperature) into a reference voltage (0-10V) which is transferred to the Daikin Outdoor air series PCB.

This Reference voltage will be used as the main input value for the compressor frequency control.

MicroTech III controller (option)

MT III controller is recommended for Outdoor air series AHU controlling, switching and monitoring functions. This controller is programmed to optimize the performance and efficiency of VRV AHU automatically. It can also communicate with Daikin’s intelligent Touch Manager via BACnet protocol easily.
VRV AHU Configuration

1. **Casing / Insulation (DBL Series)**
   - 50mm Thickness Double Skin Polyurethane Insulated Sandwich Panel
   - 0.5mm thick Pre-Painted (white) Galvanised Steel Thermal Break System, Ozone friendly Polyurethane Foam 45±2kg/m³

2. **Weather Proof Roof**
   - SUS 304

3. **Casing-Frame (DBL Series)**
   - Extruded Aluminium Profile

4. **Coil**
   - DX Coil
   - Copper Tube

5. **Fin**
   - Aluminium Fin, 0.2mm, Corrugated Fin Pattern c/w Ripple Edge

6. **Copper Tube-Connect**
   - Copper Tube-Connect

7. **Header**
   - Copper Tube-Connect

8. **Frame**
   - Galvanised Steel

9. **Working Pressure**
   - 10Kg/cm²

10. **Fan**
    - (Brand = Elektrim)
    - Three-Phase Induction Motor Totally Enclosed Fan-Cooled Type
    - Protection = IP55
    - Insulation Class = F
    - Efficiency class IE3

11. **Vibration Isolator**
    - Spring Isolator

12. **Drain Pan**
    - 1.2mm (SUS 304)
    - The Drain Pan is Covered with PU Insulation 40Kg/m³ Density

13. **Air Filter**
    - (Brand = AAF)
    - Type = R29 Class = G3 (AFI = 80-85%) Synthetic Washable
    - Size = Full (24" x 24" x 2") Half (12" x 24" x 2")

**Outdoor Air Series AHURS-DBL**

**AHM Model and Dimensions**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions W x D x H (MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHURS08DBL</td>
<td>1300 x 1400 x 1200</td>
</tr>
<tr>
<td>AHURS10DBL</td>
<td>1500 x 1400 x 1200</td>
</tr>
<tr>
<td>AHURS16DBL</td>
<td>1800 x 1400 x 1200</td>
</tr>
<tr>
<td>AHURS20DBL</td>
<td>2100 x 1600 x 1200</td>
</tr>
<tr>
<td>AHURS32DBL</td>
<td>1800 x 1800 x 1600</td>
</tr>
<tr>
<td>AHURS40DBL</td>
<td>2100 x 1800 x 1600</td>
</tr>
<tr>
<td>AHURS48DBL</td>
<td>1800 x 1950 x 2300</td>
</tr>
<tr>
<td>AHURS60DBL</td>
<td>2100 x 1950 x 2300</td>
</tr>
</tbody>
</table>

**MT III Controller (option)**
### Outdoor Air Series AHURS-DBL

#### AHURS-DBL Specifications (AC Motor)

<table>
<thead>
<tr>
<th>Model</th>
<th>AHURS 08 DBL</th>
<th>AHURS 10 DBL</th>
<th>AHURS 15 DBL</th>
<th>AHURS 20 DBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Pressure Drop In Coil</td>
<td>800 mm</td>
<td>800 mm</td>
<td>800 mm</td>
<td>800 mm</td>
</tr>
<tr>
<td>Face Area Per Coil</td>
<td>700 mm</td>
<td>700 mm</td>
<td>700 mm</td>
<td>700 mm</td>
</tr>
<tr>
<td>Fan Type</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
</tr>
<tr>
<td>Power Supply</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
</tr>
<tr>
<td>Power Supply (IE3)</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
</tr>
<tr>
<td>Power Input</td>
<td>0.70 kW</td>
<td>0.94 kW</td>
<td>1.01 kW</td>
<td>1.06 kW</td>
</tr>
<tr>
<td>MTR/Min</td>
<td>0.34 kg cm³</td>
<td>0.61 kg cm³</td>
<td>0.92 kg cm³</td>
<td>1.25 kg cm³</td>
</tr>
<tr>
<td>Air Filter Size 34&quot; x 34&quot;</td>
<td>1 PCS.</td>
<td>1 PCS.</td>
<td>1 PCS.</td>
<td>1 PCS.</td>
</tr>
<tr>
<td>Air Pressure Drop In Filter</td>
<td>80 mm</td>
<td>80 mm</td>
<td>80 mm</td>
<td>80 mm</td>
</tr>
<tr>
<td>Fan Model</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
<td>FD20120 CM</td>
</tr>
<tr>
<td>Power Supply (IE4)</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
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<tr>
<td>Power Supply (IE5)</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
<td>415V/3PH/50Hz</td>
</tr>
<tr>
<td>Power Input</td>
<td>0.70 kW</td>
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<td>1 PCS.</td>
<td>1 PCS.</td>
<td>1 PCS.</td>
<td>1 PCS.</td>
</tr>
<tr>
<td>Air Pressure Drop In Filter</td>
<td>80 mm</td>
<td>80 mm</td>
<td>80 mm</td>
<td>80 mm</td>
</tr>
</tbody>
</table>

#### Technical Information

**MicroTech III Controller (Option)**

MicroTech III consists of 4 components in a fixed configuration.

**Features**

1. **Supply air control using the supply air sensor**
   - Used for temperature control.
2. **Air quality control – CO2 Levels**
   - The controls of the mixing damper can depend on the CO2 set point.
3. **Pressure control to meet the pressure set points in the duct**
4. **Monitoring points for other features**
   - i. Room humidity
   - ii. Electric heating coil
   - iii. Outside, room and return temperature
   - iv. VRV alarm

**Functions**

- **Direct (w/ inverters)**
- **Direct/Var(w/ inverters)**
- **Analog controlled variable speed drive with digital release**
- **Pressure control to meet the pressure set points in the duct**

**MicroTech III can connect to intelligent Touch Manager. (ITM Controller)**

Monitor and control devices related to AHU such as fan, sensors, and damper.