Light Commercial & Commercial

AIR HANDLING UNIT

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EUROVENT CERTIFIED PERFORMANCE
AHU N° 20.12.006
Range AHU for VRF
www.eurovent-certification.com

FUJITSU GENERAL (Euro) GmbH participates in the ECP program for AHU.
Check ongoing validity of certificate:
www.eurovent-certification.com

System Overview

Air handling applications available in Fujitsu General VRF system realize high energy efficiency and superior comfort to flexibly adapt to the stringent air conditioning requirements and installation conditions of a wide variety of facilities.

The system consists of VRF outdoor units of 10 to 48 HP and thermal ventilation and air conditioning units for civil and industrial use, covering airflow ranges from 4,300 to 18,100 m³/h with cooling capacities from 25 to 96 kW.

- For AHU control: AHU controller (Only For AHU)
'- For mixed connection control: System controller, or third-party controller with MODBUS® converter

Advantages of the System

Full comfort

This system provides clean, Fresh air with advanced filtration and balanced temperatures to increase comfort and air quality in a building.

Simple design, easy installation

Equipped with a DX kit (Electronic Expansion Valve and PCB), AHU facilitates installation design. The AHU model can be easily configured using the Selection Software.

Total solution concept

Integrating an AHU into the building climate control system simplifies the design and installation processes based on a single, common technology. From project follow-up through to installation, commissioning, and maintenance, all procedures are simplified. The above features allow a single installation company to carry out design, installation, and commissioning.

VRF Lineup

Fujitsu General's VRF series is a multi-type air conditioning system for buildings tailored to the scale and application of the building.

Capacity (kW)		28.0	33.5	40.0	45.0	50.4	55.9	61.5	67.0	73.5	78.5	85.0	90.0	95.0	100.5	107.0	112.0	118.5	123.5	130.0	135.0
HP		10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
J-IVL Series		AJY090 LELDH	AJY108 LELDH	AJY126 LELDH	AJY144 LELDH	AJY162 LELDH															
V-IV Series Heat Pump	Space Saving Set Model	AJY090 LALDH	AJY108 LALDH	AJY126 LALDH	AJY144 LALDH	AJY162 LALDH	AJY180 LALDH	AJY198 LALDH	AJY216 LALDH	AJY234 LALDH	AJY252 LALDH	AJY270 LALDH	AJY288 LALDH	AJY306 LALDH	AJY324 LALDH	AJY342 LALDH	AJY360 LALDH	AJY378 LALDH	AJY396 LALDH	AJY414 LALDH	AJY432 LALDH
	Energy Efficiency Set Model				AJY144 LALDHH		AJY180 LALDHH		AJY216 LALDHH	AJY234 LALDHH	AJY252 LALDHH	AJY270 LALDHH	AJY288 LALDHH	AJY306 LALDHH	AJY324 LALDHH	AJY342 LALDHH	AJY360 LALDHH	AJY378 LALDHH	AJY396 LALDHH		

*Actual product's design may be different from the images.

VRF J-IVL
for Small Offices

Fujitsu General provides air conditioning systems for a wide range of applications, from residences, small offices, hotels, to large retailers.

VRF V-IV
for Large Office

Smart, cutting-edge design Available in a wide range of models from 10 to 48 HP in 2 HP increments, with the capacity ratio of indoor units connectable up to 100%.

Air handling units Overview

The Air handling unit (AHU) is designed to be connected with VRF series outdoor units for thermal ventilation and air conditioning of civil and industrial buildings.
With airflow rates ranging from 4,300 to 18,100 m³/h and cooling capacities from 25 to 96 kW, a variety of models and multiple additional modules are available to meet diverse installation needs.

The AHU is made of extruded aluminum profiles and nylon angle bars. The "sandwich-type" double-skin panels (50 mm thick), made of surface coating pre-painted galvanized sheets and high-density polyurethane foam insulation, are fixed to the unit by an aluminum snap-in locking system.

The AHU fan section in the EC inverter Plug Fans provides constant airflow and constant available static pressure with an automatic control system. An electronic device with a pressure sensor mounted in the system and a control sensor on the EC inverter Plug Fans adjust the airflow rate and the available static pressure to keep the airflow constant.

5 configurations are available

Configuration A
In line with Front damper
For fresh air operation up to 100% external air

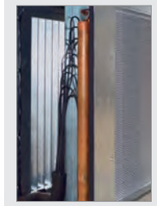
Configuration B
In line with Top inlet damper
For fresh air operation up to 100% external air

Configuration C
In line with Inlet mixing box
For fresh air operation up to 20% external air

Configuration D
Double deck with Cross-flow heat exchanger

Configuration E
Double deck with heat wheel

Fan section



Coil section including built-in expansion valve with PCB control

Electrical heating section

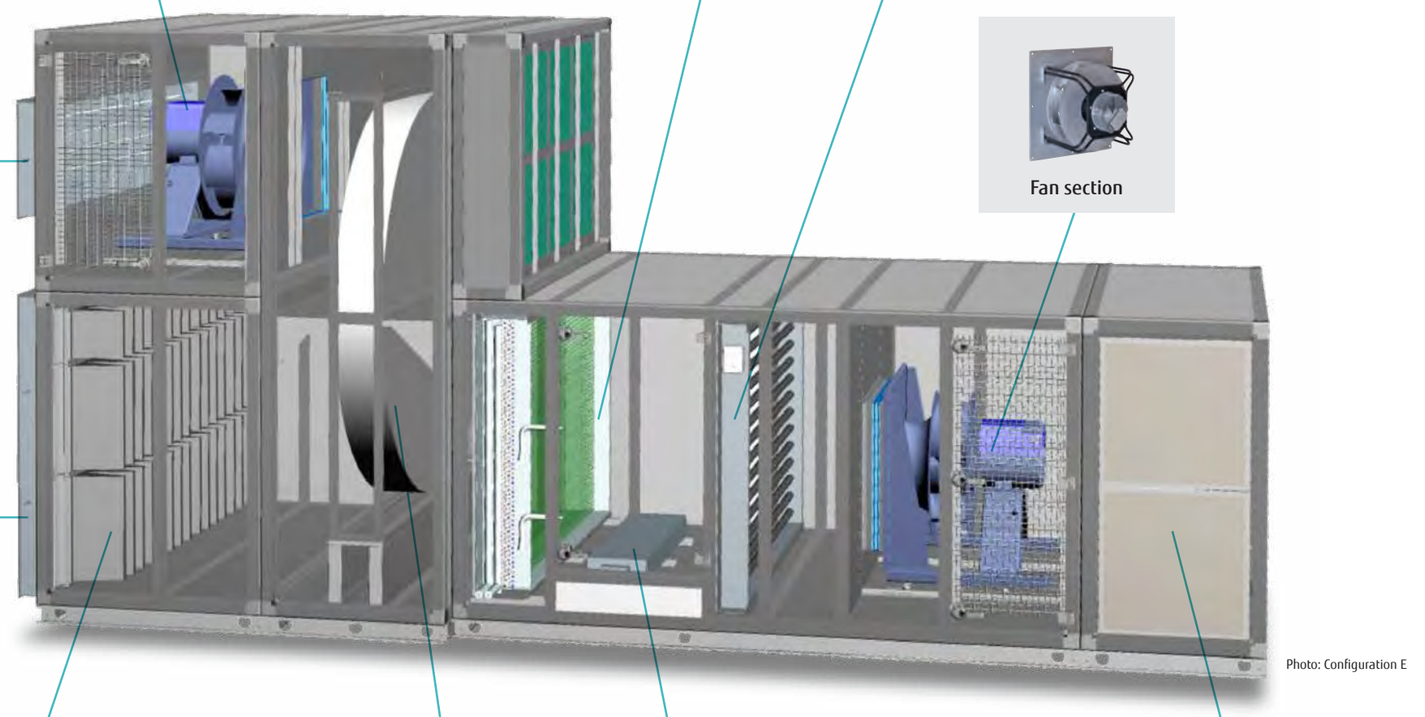


Photo: Configuration E

Fan section

Air inlet sections

Filters section

Humidification sections

Heat recovery Cross-flow type

Heat recovery Heat wheel type

Sound attenuator sections

Feature

Photo: Configuration C

Structure

Section of extruded profile 62 × 62 mm (SNAP-IN system)

- The Air handling units are manufactured with a bearing framework and sandwich paneling.
- The frame is made of extruded anti-corrosive aluminum alloy profile, AlMgSi 0.5- UNI 9006/1.

Mechanical characteristics of extruded aluminium alloy

Denomination	Specific weight (kg/dm^3)	Unitary load of traction break R (kg/mm^2)	Yielding load S (0,2) (kg/mm^2)	Stretch (%)	Brinell hardness (kg/mm^2)
ANTICORODAL 050 UNI 9006/1 EX UNI 3569 (6060) ISO = Al Mg Si 0.5	2,70	20 ÷ 23	16 ÷ 20	12 ÷ 15	60 ÷ 70

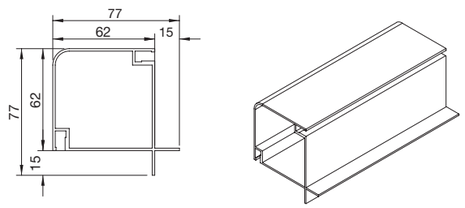
Profile

- Fujitsu General's proprietary bearing has an actual size of 62 × 62 mm and an aluminum locking panel system (SNAP-IN system). This system enables uniform tightness of the panels that has not been achieved with the previous self-drilling screw fasteners, and thus ensures a degree of adhesion in excess of 2,500 Pa (10 in.W.G.). This profile, with no internal or external screws, provides a stronger and more beautiful appearance.
- The actual size of the panel used is 50 mm, due to the dimensions of the profile.
- In addition, the profile has no external sharp edges as prescribed by safety and accident prevention guidelines.
- The AHU is certified as meeting the most stringent performance standards.

ErP LOT6 - 2018

- Fujitsu General units and all the internal components comply with ErP EcoDesign Directive 2018 Lot 6.
- Fujitsu General units comply with the European Standards UNE EN 1886 with respect to thermal and mechanical performances.

(Unit: mm)



Paneling

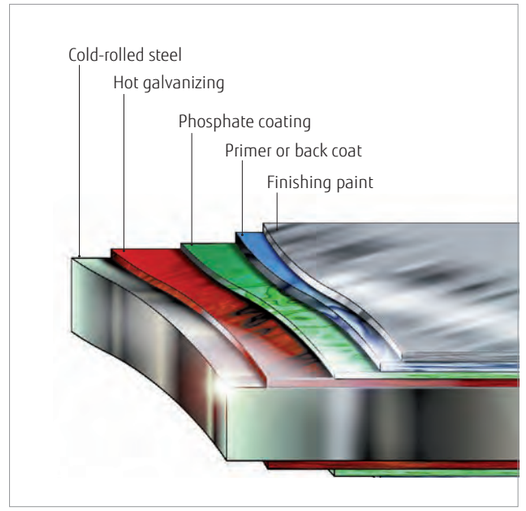
The panels are a double-skin sandwich type made of galvanized steel, with polyurethane foam insulation of a minimum density of 45 kg/m³ and an actual thickness of -50 mm.

The composition of the panel is as follows:

Inner skin: hot-dip galvanized sheet (galvanization thickness of not less than 140 g/m^2), 5/10 mm thick

Insulation: rigid polyurethane foam (minimum density of 45 kg/m³, thermal conductivity 0.018 ÷ 0.024 $w/m^2 \cdot °C$)

Outer skin: hot-dip, pre-painted galvanized sheet (galvanizing thickness of not less than 140 g/m^2), 6/10 mm thick



PRE-PAINTED GALVANIZED STEEL SHEET

Features of steel sheets

Hot-dipped galvanized steel sheet Fe P02 GZ 140 UNI EN 10142 with galvanization of not less than 140 g/m^2, 6/10 mm thick

Pre-painted steel sheet, 6/10 mm thick, with base support made of hot-dip galvanized steel with galvanization of not less than 140 g/m^2 EURONORM 142-79, a white-grey coating with excellent weather resistance. The protective system consists of a dry film of 25 µm on the exposed skin, and of a dry film of 5 µm on the non-exposed skin.

Film hardness: F on the Koh-i-Noor scale

Other chemical and physical properties:

- Resistance to salt spray exceeding 250 hours
- Resistance exceeding 1,000 hours in 100% relative humidity (ASTM D 714)
- Film resistance to cleaving and adhesion after bending (ECCA T7).

The exposed surface of the steel plate is covered with a self-adhesive PVC film to prevent damage during the manufacturing process and transportation.

Base frame

The bearing base frame is made of galvanized steel, the outline of which is pressure bent, bolted or welded, depending on the configuration of the unit.

Each part can be elevated and lowered, making it suitable for water and drain pipe.

The perimeter base frame is 100 mm high, C-shaped and bolted on all units.

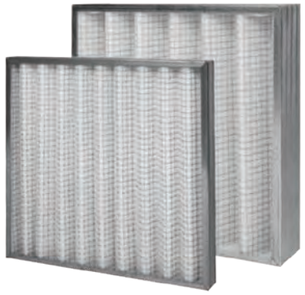
The base frames for all of the above solutions are made of galvanized steel with a thickness of at least 2 mm.

SECTION VIEW
The baseframe is flush with the panel.

Covering Roof (TT - Accessory)

- Units that are installed outdoors or that are frequently exposed to the weather can be fitted with a hot galvanized steel roof (with a galvanization of 140 g/m^2 or higher) as an accessory element.
- The roof overhang relative to the outer length of the unit is about 100 mm.
- All roof corners are equipped with protectors to prevent accidents.

Filtration
Plate Filters COARSE 55%



The plate filter filters air at low and medium efficiency.

- Plate filters are generally used as pre-filters to maintain the efficiency of the filters installed downstream for longer.
- Plate filters are installed on guides fixed inside the unit. In this case, the air by-pass will be minimal.

Plate filters are widely used due to the following features:

- Easy to remove
- Easy to obtain spare parts
- Highly regenerable, they can be cleaned with warm water and soap or common household detergent.

Features of Plate filters

- Galvanized steel sheet frame 48 mm thick
- Support containing net made of galvanized electrowelded wire
- Filtering material made of synthetic fiber with a filtration efficiency of COARSE 55%

Filtration
Bag Filters ePM1 50%

N.B.: ePM1 50% bag filters are mandatory to comply with ECODESIGN ErP 2016.

Bag filters are characterized by a large filtration area due to their bag-like shape, which greatly reduces the airflow velocity as the air passes through the filter.

The bags are installed on a galvanized slide and can be removed from the side. This filtering section includes an access door.

Features of soft bag filters

- Efficiency of ePM1 50%
- 287 mm deep
- Filter material made of fiberglass
- Galvanized steel sheet frame
- 80% of the material is recyclable
- Can be used even at 100% relative humidity.

Thermal Exchange Sections
DX Coil

Contents

- DX coil with copper tubes and aluminum fins, specifically designed to ensure a high thermal exchange rate and an excellent ratio of sensible and latent heat;
- One distributor and one electronic expansion valve for each circuit are connected to the control PCB, and the control PCB is located in close proximity to avoid interference, immunity, and electromagnetic interference problems;
- The temperature probes installed at the front, rear, and middle of the coil provide data to the control PCB, which in turn determines the opening of the electronic expansion valve according to the work point and the setpoint;

In multi-module units, the cooling circuits are interlaced to ensure full utilization of the exchange surface and the uniformity of the air being processed even under partial loads. The section includes the control PCB.

Thermal Exchange Sections
Electrical heating

Electrical heating section is used for heating and post-heating processing

The thermal exchange sections consist of:

- Galvanized steel sheet flanged containing frame
- Finned steel tubular heaters on base insulators
- Safety fix thermostat with manual reset
- Electric heating is assumed to have a capacity of up to 36 kW at 400 V/3-phase/50 Hz system.

Fan Section

EC Inverter Plug-Fan

The fan section is equipped with an EC Inverter Plug-Fan.

- EC Inverter Plug-Fans are electronically controlled to adjust the fan speed to provide airflow and static pressure according to the system capacity. By varying the airflow according to the required heat load, the system reduces energy consumption and noise, which is effective especially when partial loads are applied.
- The EC Inverter Plug-Fans allow the user to set various working conditions to meet the needs of the unit directly on site from the control panel on the Electrical Board section. If the wind is weaker than expected, for example, the operating conditions can be changed and adjusted with ease.
- Compared to traditional plug fans, the use of EC inverter technology has greatly improved the overall efficiency and acoustic properties of fans. The blade geometry with a diagonal trailing edge has positive effects on the aerodynamic performance and on the smoothness of fan rotation. The same holds true for the contour of the mounted nozzle.
- By integrating the EC motor directly into the impeller with the fan, the overall dimensions of the section can be minimized. There is no need for the commonly used belt drive between the motor and the fan. This reduces the amount of installation required and associated installation work.
- The EC inverter Plug Fans substantially exceed the requirements for energy efficiency class A+ requirements listed in the German Manufacturers Association RLT Directive 01 "General Requirements for Ventilation and Air Conditioning Equipment" and in the ErP2015 standards respectively.
- The EC inverter Plug Fans used in the fan section of the AHU provide constant airflow and constant available static pressure with an automatic control system. An electronic device with a pressure sensor mounted in the system and a control sensor on the EC inverter Plug Fans adjust the airflow rate and the available static pressure to keep the airflow constant.

Humidifier

Electrode humidifiers specifically designed for installation inside Air handling units

- The humidifier consists of two electrically connected parts: a hydraulic part and a control unit based on a microprocessor board. The hydraulic part is completely inserted into the AHU, and sits on top of the drain tank immediately downstream of the cooling coil.
- This control is fully integrated into the microprocessor in the AHU.
- The hydraulic boiler consists of a plastic polypropylene channel with a cross section of 33 cm × 16 cm high and a length proportional to the width of the AHU. Stainless steel electrodes are placed vertically inside the boiler, connected to the power supply, and are easily removable. The plastic lid is inclined so that any condensation will drain into the boiler in order to avoid power losses.
- Narrow longitudinal slots between the plastic sections allow air to fill the entire length of the AHU section by outputting the generated steam.
- This prevents condensate from being generated in the pipes and also prevents the steam pressure in the boiler from rising due to clogging of the steam pipes.

On one side of the kettle, there is a body for hydraulic management of the system, which can be easily accessed after installation.

- Maximum water level sensor
- The drainage block is specially designed to empty the tank of water and limestone debris without blocking the tank or interrupting the flow of water, allowing the work to be done without applying pressure.

An electronic rotation sensor grafted to the pivot motor communicates with the microprocessor to manage correct operation, and any malfunctions are indicated on the display.

Heat Recovery Section

Cross-flow heat recovery

The efficiency of the recovery unit is up to 85%.

- The fixed plate static recovery units are air-to-air with no moving parts, making the system reliable and safe. The air moves in a cross flow, where heat is transferred directly from the hotter stream to the cooler stream. The efficiency of the recovery unit is up to 85%.
- This type of heat exchanger is made of pressed aluminum sheets and is housed at various intervals depending on the type of use.
- The edges are sealed to prevent renewed air from being contaminated from polluting agents contained in exhaust air.

Normal supply is assumed to be as follows:

- Recovery units with aluminum fins
- Cell prefilters COARSE 55% (85% efficiency) installed on the fresh air side
- Galvanized steel sheet drain pan to collect possible condensation

Heat Recovery Section

Heat Wheel Recovery Units

The principle of operation is as follows:

- The exhaust air travels across the semi-circular rotor sector, transferring some of its heat to the metal mass. As the exhaust passes through the half circular rotor sector, it transfers heat to the metal parts, which in turn transfers the heat to the fresh, cool air drawn in from outside through the other side of the half circular rotor sector, thus allowing ventilation without cooling the room. When the rotor is of the hygroscopic type, the humidity contained in the exhaust air will also be partially transferred to the regenerative air.
- The terms "warm air" and "cold air" as used above are valid for the winter operating cycle; in the summer operating cycle, the functions of heat and humidity transfer and absorption are reversed.

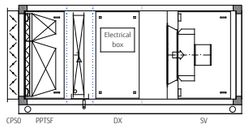
Typically, these types of recovery units consist of:

- Aluminum rotor
- Galvanized steel sheet frame
- Constant speed electric gearmotor

Dimensions

Configurations A

1



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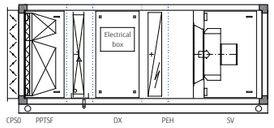

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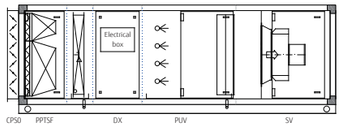

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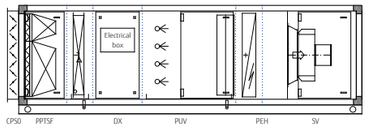
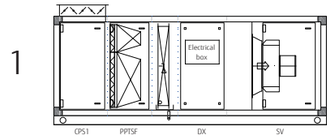


Model name	Config.	H (mm)	W (mm)	L (mm)	kg	L (with silencer) (mm)
AHYA025GWAA	1	1,064	1,154	2,619	611	3,529
AHYA025GWAB	2	1,064	1,154	3,109	679	4,019
AHYA025GWAC	3	1,064	1,154	2,619	629	3,529
AHYA025GWAD	4	1,064	1,154	3,109	697	4,019
AHYA040GWAA	1	1,199	1,354	2,749	844	3,659
AHYA040GWAB	2	1,199	1,354	3,319	931	4,229
AHYA040GWAC	3	1,199	1,354	2,749	865	3,659
AHYA040GWAD	4	1,199	1,354	3,319	952	4,229
AHYA048GWAA	1	1,309	1,574	2,749	921	3,659
AHYA048GWAB	2	1,309	1,574	3,319	1,023	4,229
AHYA048GWAC	3	1,309	1,574	2,749	944	3,659
AHYA048GWAD	4	1,309	1,574	3,319	1,046	4,229
AHYA080GWAA	1	1,544	2,074	3,189	1,542	4,099
AHYA080GWAB	2	1,544	2,074	3,839	1,701	4,749
AHYA080GWAC	3	1,544	2,074	3,189	1,570	4,099
AHYA080GWAD	4	1,544	2,074	3,839	1,729	4,749
AHYA096GWAA	1	1,789	2,250	3,189	1,691	4,099
AHYA096GWAB	2	1,789	2,250	3,839	1,869	4,749
AHYA096GWAC	3	1,789	2,250	3,189	1,724	4,099
AHYA096GWAD	4	1,789	2,250	3,839	1,899	4,749

Configurations B

1



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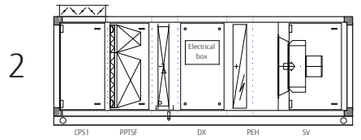

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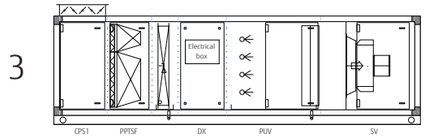

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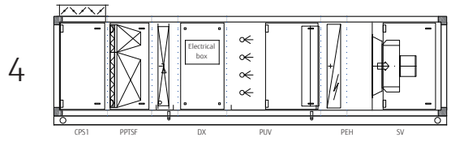

Model name	Config.	H (mm)	W (mm)	L (mm)	kg	L (with silencer) (mm)
AHYB025GWAA	1	1,179	1,154	2,854	628	3,764
AHYB025GWAB	2	1,179	1,154	3,344	696	4,254
AHYB025GWAC	3	1,179	1,154	2,854	646	3,764
AHYB025GWAD	4	1,179	1,154	3,344	714	4,254
AHYB040GWAA	1	1,314	1,354	3,084	873	3,994
AHYB040GWAB	2	1,314	1,354	3,654	960	4,564
AHYB040GWAC	3	1,314	1,354	3,084	894	3,994
AHYB040GWAD	4	1,314	1,354	3,654	981	4,564
AHYB048GWAA	1	1,424	1,574	3,084	953	3,994
AHYB048GWAB	2	1,424	1,574	3,654	1,055	4,564
AHYB048GWAC	3	1,424	1,574	3,084	976	3,994
AHYB048GWAD	4	1,424	1,574	3,654	1,078	4,564
AHYB080GWAA	1	1,659	2,074	3,624	1,591	4,534
AHYB080GWAB	2	1,659	2,074	4,274	1,749	5,184
AHYB080GWAC	3	1,659	2,074	3,624	1,619	4,534
AHYB080GWAD	4	1,659	2,074	4,274	1,777	5,184
AHYB096GWAA	1	1,904	2,250	3,724	1,760	4,634
AHYB096GWAB	2	1,904	2,250	4,374	1,936	5,284
AHYB096GWAC	3	1,904	2,250	3,724	1,790	4,634
AHYB096GWAD	4	1,904	2,250	4,374	1,966	5,284

Configurations C

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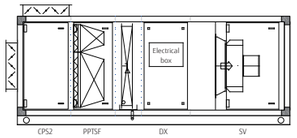

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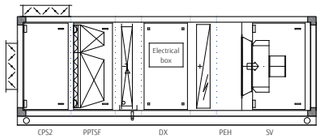

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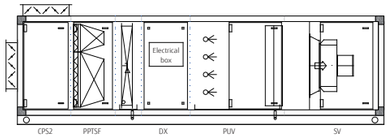

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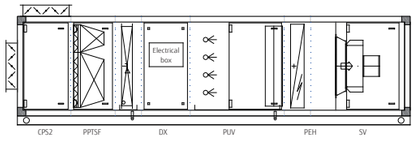
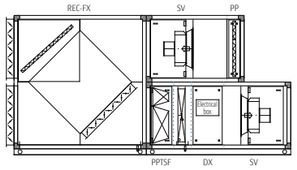


Model name	Config.	H (mm)	W (mm)	L (mm)	kg	L (with silencer) (mm)
AHYC025GWAA	1	1,179	1,154	2,969	650	3,879
AHYC025GWAB	2	1,179	1,154	3,459	718	4,369
AHYC025GWAC	3	1,179	1,154	2,969	668	3,879
AHYC025GWAD	4	1,179	1,154	3,459	736	4,369
AHYC040GWAA	1	1,314	1,354	3,199	899	4,109
AHYC040GWAB	2	1,314	1,354	3,769	986	4,679
AHYC040GWAC	3	1,314	1,354	3,199	920	4,109
AHYC040GWAD	4	1,314	1,354	3,769	1,007	4,679
AHYC048GWAA	1	1,424	1,574	3,199	980	4,109
AHYC048GWAB	2	1,424	1,574	3,769	1,082	4,679
AHYC048GWAC	3	1,424	1,574	3,199	1,003	4,109
AHYC048GWAD	4	1,424	1,574	3,769	1,105	4,679
AHYC080GWAA	1	1,659	2,074	3,739	1,624	4,649
AHYC080GWAB	2	1,659	2,074	4,389	1,782	5,299
AHYC080GWAC	3	1,659	2,074	3,739	1,652	4,649
AHYC080GWAD	4	1,659	2,074	4,389	1,810	5,299
AHYC096GWAA	1	1,904	2,250	3,839	1,799	4,749
AHYC096GWAB	2	1,904	2,250	4,489	1,975	5,399
AHYC096GWAC	3	1,904	2,250	3,839	1,829	4,749
AHYC096GWAD	4	1,904	2,250	4,489	2,005	5,399

Configurations D

1



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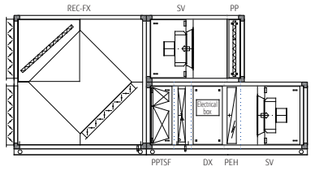

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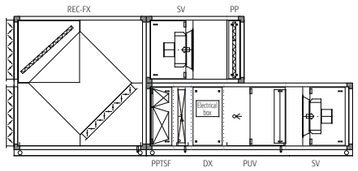

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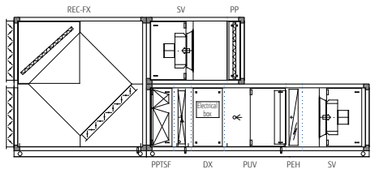
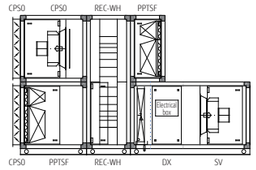


Model name	Config.	H (mm)	W (mm)	L (mm)	kg	L (with silencer) (mm)
AHYD025GWAA	1	2028/1064	1424/1154	4,311	1,259	5,221
AHYD025GWAB	2	2028/1064	1424/1154	4,801	1,327	5,711
AHYD025GWAC	3	2028/1064	1424/1154	4,311	1,277	5,221
AHYD025GWAD	4	2028/1064	1424/1154	4,801	1,345	5,711
AHYD040GWAA	1	2298/1199	1574/1354	4,871	1,750	5,781
AHYD040GWAB	2	2298/1199	1574/1354	5,441	1,837	6,351
AHYD040GWAC	3	2298/1199	1574/1354	4,871	1,771	5,781
AHYD040GWAD	4	2298/1199	1574/1354	5,441	1,858	6,351
AHYD048GWAA	1	2518/1309	1824/1574	4,871	1,978	5,781
AHYD048GWAB	2	2518/1309	1824/1574	5,348	2,080	6,258
AHYD048GWAC	3	2518/1309	1824/1574	4,778	2,001	5,688
AHYD048GWAD	4	2518/1309	1824/1574	5,348	2,103	6,258
AHYD080GWAA	1	2988/1544	2,074	6,161	3,361	7,071
AHYD080GWAB	2	2988/1544	2,074	6,811	3,520	7,721
AHYD080GWAC	3	2988/1544	2,074	6,161	3,389	7,071
AHYD080GWAD	4	2988/1544	2,074	6,811	3,548	7,721
AHYD096GWAA	1	3478/1789	2,250	6,451	3,849	7,361
AHYD096GWAB	2	3478/1789	2,250	7,008	4,025	7,918
AHYD096GWAC	3	3478/1789	2,250	6,451	3,879	7,268
AHYD096GWAD	4	3478/1789	2,250	7,008	4,055	7,918

Configurations E

1



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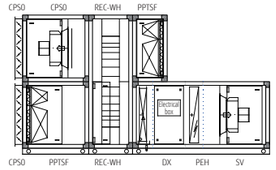

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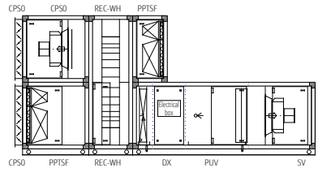

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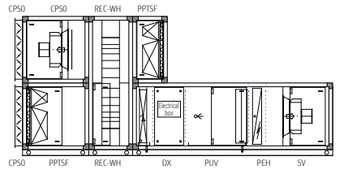
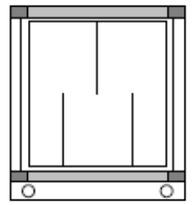
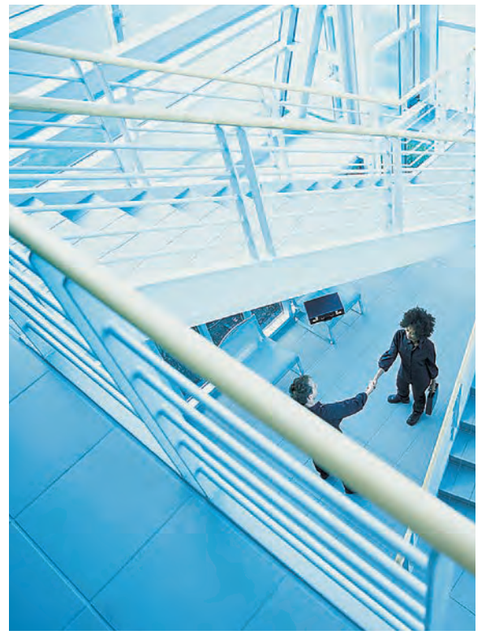


Model name	Config.	H (mm)	W (mm)	L (mm)	kg	L (with silencer) (mm)
AHYE025GWAA	1	2028/1064	1429/1154	3,813	1,150	4,723
AHYE025GWAB	2	2028/1064	1429/1154	4,303	1,226	5,213
AHYE025GWAC	3	2028/1064	1429/1154	3,813	1,168	4,723
AHYE025GWAD	4	2028/1064	1429/1154	4,303	1,244	5,213
AHYE040GWAA	1	2298/1199	1729/1354	4,073	1,571	4,983
AHYE040GWAB	2	2298/1199	1729/1354	4,643	1,658	5,553
AHYE040GWAC	3	2298/1199	1729/1354	4,073	1,592	4,983
AHYE040GWAD	4	2298/1199	1729/1354	4,643	1,679	5,553
AHYE048GWAA	1	2518/1309	1829/1574	4,073	1,696	4,983
AHYE048GWAB	2	2518/1309	1829/1574	4,643	1,798	5,553
AHYE048GWAC	3	2518/1309	1829/1574	4,073	1,719	4,983
AHYE048GWAD	4	2518/1309	1829/1574	4,643	1,821	5,553
AHYE080GWAA	1	2988/1544	2374/2074	4,953	2,753	5,863
AHYE080GWAB	2	2988/1544	2374/2074	5,603	2,912	6,513
AHYE080GWAC	3	2988/1544	2374/2074	4,953	2,781	5,863
AHYE080GWAD	4	2988/1544	2374/2074	5,603	2,940	6,513
AHYE096GWAA	1	3478/1789	2582/2250	4,953	3,035	5,863
AHYE096GWAB	2	3478/1789	2582/2250	5,603	3,211	6,513
AHYE096GWAC	3	3478/1789	2582/2250	4,953	3,065	5,863
AHYE096GWAD	4	3478/1789	2582/2250	5,603	3,241	6,513

Silencer PI



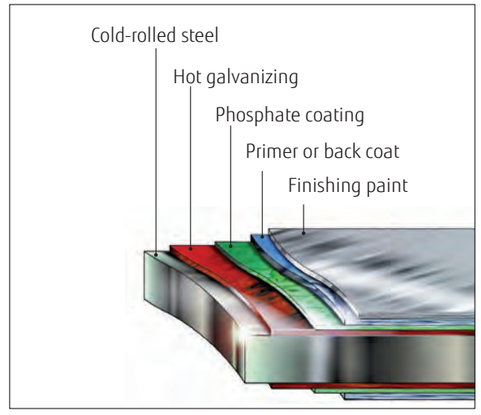
Connectable AHU model name	H (mm)	W (mm)	L (mm)	Kg
AHY* 025GWA*	1064	1154	910	209
AHY* 040GWA*	1199	1354	910	233
AHY* 048GWA*	1309	1574	910	274
AHY* 080GWA*	1544	2074	910	280
AHY* 096GWA*	1789	2250	910	444



Loose Accessories

Galvanized metal sheet roof

Units that are installed outdoors or that are frequently exposed to the weather can be fitted with a hot galvanized steel roof (with a galvanization of 140 g/m² or higher) as an accessory element.
The roof overhang relative to the outer length of the unit is about 100 mm. All roof corners are equipped with protectors to prevent accidents.



Total Pressure Drop Calculation

Air handling units (AHUs) controlled by EC inverter Plug Fans meet a high range of required airflows and static pressures.

The EC Inverter Plug-Fans allow the user to set various working conditions to meet the needs of the unit directly on site from the control panel on the Electrical Board section. If the wind is weaker than expected, for example, the operating conditions can be changed and adjusted with ease.

Selection procedure

- Select the most suitable AHU model according to the airflow rate.
- Based on the required airflow and overall static pressure value, identify the operating point of the airflow static pressure on the curve for the selected fan.

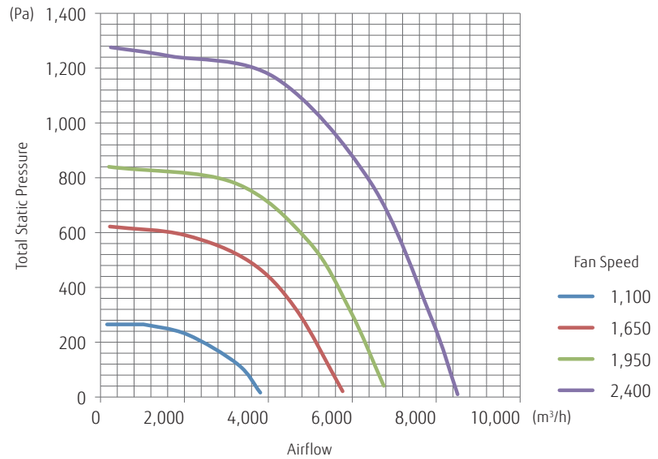
To calculate the overall static pressure value, refer to the component pressure drop table and add the net static pressure required for the plant.

Component pressure drop table

ODU	AHU SIZE	MIN. NOM. MAX.	Airflow	Inlet damper (Config. A-E)	Inlet damper (Config. B-C)	COARSE 55% filters - supply	ePM1 50% filters	DX coil	Silencer	PHE + dampers + COARSE 55% filters - supply	PHE + damper - exhaust	COARSE 55% filters - exhaust (Config. D)	Heat wheel - supply	COARSE 55% filters - supply (Config. E)	ePM1 50% filters (Config. E)	Heat wheel - exhaust	COARSE 55% filters - exhaust (Config. E)	Exhaust damper (Config. E)	Humidifier	Electrical heater
			m³/h	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa
10HP	025	MIN.	4,300	1	12	91	156	55	26	206	120	91	162	93	144	159	84	7	-	-
		NOM.	4,500	1	13	98	158	59	28	210	122	95	167	93	146	165	95	8	-	-
		MAX.	5,000	2	16	99	164	71	36	235	147	96	187	95	150	185	96	10	-	-
14 HP	040	MIN.	5,000	1	4	91	138	37	4	154	70	91	116	89	135	114	91	4	-	-
		NOM.	7,200	2	13	87	149	68	10	240	145	87	172	93	144	169	94	8	-	-
		MAX.	8,000	2	16	96	153	82	12	243	165	96	193	94	147	190	96	9	-	-
18 HP	048	MIN.	8,100	1	12	96	153	50	10	225	139	92	167	94	147	165	92	9	-	-
		NOM.	8,600	1	13	97	156	55	11	241	155	93	178	95	149	176	93	10	-	-
		MAX.	9,100	2	15	98	159	60	13	257	171	93	189	95	152	187	93	11	-	-
2X 14 HP	080	MIN.	11,000	1	8	91	140	30	9	148	62	90	121	90	137	119	90	6	-	-
		NOM.	14,500	2	14	94	148	47	16	188	101	93	163	93	143	161	93	10	-	-
		MAX.	16,100	2	17	96	153	56	19	209	122	94	183	94	147	180	94	13	-	-
2X 18 HP	096	MIN.	16,000	1	10	96	152	37	16	157	74	91	146	92	142	144	91	10	-	-
		NOM.	17,300	1	11	97	156	42	19	168	86	92	159	93	145	157	92	11	-	-
		MAX.	18,100	1	13	98	158	46	21	175	93	92	167	93	146	165	92	13	-	-

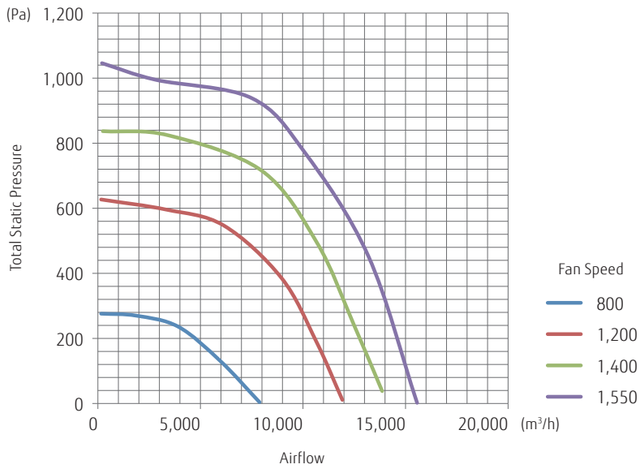
Fan characteristic curves

Fan type 400 mm



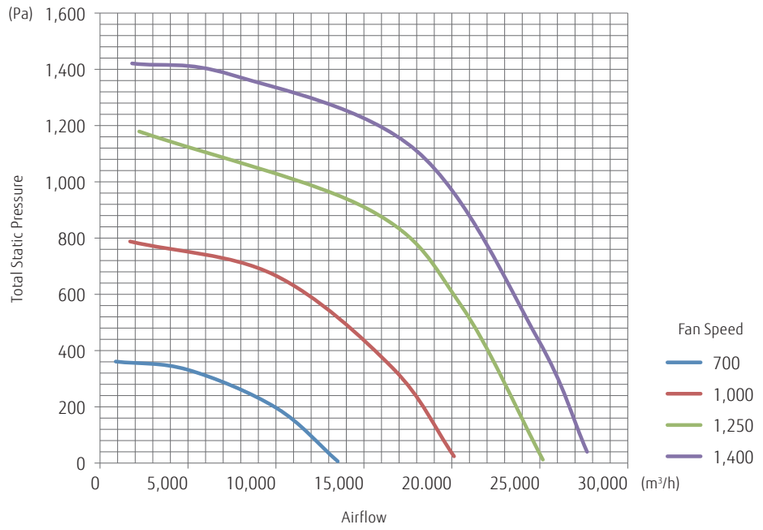
Air flow Rate	Total static pressure	Input power	Fan speed (n)	LwAin	LwAout
m³/h	Pa	W	rpm	dB	dB
156	265	124	1100	63	71
334	265	134	1100	63	70
1002	265	187	1100	62	69
1025	265	181	1100	62	69
2072	228	234	1100	58	66
3275	119	224	1100	62	69
3809	16	173	1100	69	74
223	622	352	1650	75	82
2005	591	642	1650	72	79
3564	493	767	1650	68	75
4656	321	708	1650	71	77
5770	21	487	1650	79	83
200	840	509	1950	79	86
3163	783	1154	1950	74	81
4946	570	1223	1950	74	80
5948	316	1027	1950	78	83
6750	41	773	1950	83	87
245	1276	921	2400	85	92
1649	1244	1497	2400	86	92
4163	1165	2223	2400	81	87
6438	783	2237	2400	81	87
7864	296	1738	2400	86	91
8510	10	1389	2392	89	93

Fan type 560 mm



Air flow Rate	Total static pressure	Input power	Fan speed (n)	LwAin	LwAout
m³/h	Pa	W	rpm	dB	dB
158	276	209	800	65	72
1861	270	345	800	65	71
3921	236	438	800	61	67
5980	130	452	800	62	67
7881	4	313	800	69	74
158	627	591	1200	77	83
3327	596	1164	1200	75	82
6139	547	1471	1200	71	77
8950	386	1473	1200	72	78
10653	190	1212	1200	76	82
11921	11	936	1200	80	85
238	837	901	1400	80	87
3446	824	1743	1400	80	87
8000	715	2403	1400	75	81
10693	493	2260	1400	76	82
12475	243	1859	1400	80	86
13861	38	1521	1400	85	89
198	1046	1210	1550	84	90
2812	995	2086	1550	84	91
7485	939	3131	1550	78	84
10059	774	3249	1550	77	84
13188	453	2901	1550	82	88
15564	2	1948	1550	91	94

Fan type 710 mm



Air flow Rate	Total static pressure	Input power	Fan speed (n)	LwAin	LwAout
m³/h	Pa	W	rpm	dB	dB
891	361	744	700	71	77
4975	332	1290	700	69	74
10025	196	1427	700	69	75
13515	6	880	700	77	83
1708	788	1693	1000	81	88
9876	670	3179	1000	77	83
16634	338	3084	1000	80	86
20124	24	2177	1000	87	93
2228	1179	3015	1250	87	94
15297	901	6054	1250	83	89
20495	563	5794	1250	86	92
25173	12	3857	1250	92	98
1821	1421	3716	1400	89	96
7500	1380	5851	1400	89	95
17996	1110	8301	1400	86	92
24855	445	6916	1400	91	98
27685	40	5271	1400	95	101

Specifications

		Configuration A-B-C				
Model FG		025	040	048	080	096
Model name		AHYA025GWA* AHYB025GWA* AHYC025GWA*	AHYA040GWA* AHYB040GWA* AHYC040GWA*	AHYA048GWA* AHYB048GWA* AHYC048GWA*	AHYA080GWA* AHYB080GWA* AHYC080GWA*	AHYA096GWA* AHYB096GWA* AHYC096GWA*
Casing						
Material		Outer skin: 0.6 mm thick pre-painted galvanized sheet; Inner skin: 0.6 mm thick galvanized sheet				
Insulation		Polyurethane foam, 50 mm thick, 45 kg/m³				
Performance						
Cooling capacity	kW	25	40	48	78	96
Heating capacity	kW	31.5	45	50	81.5	100
Available static pressure	Pa	200	200	200	200	200
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Airflow						
Max.	m³/h	5000	8000	9100	16100	18100
Rated	m³/h	4500	7200	8600	14500	17300
Min.	m³/h	4300	5000	8100	11000	16000
Cross-flow heat recovery						
Efficiency (*)	%	—	—	—	—	—
DX Coil						
Rows	n°	4				
Coil type		25 × 22 - 3/8"				
Coil duty		Cooling/Heating				
Fluid		R410A				
Pipe material		Copper				
Fin material		Aluminum				
Electrical heating						
Stages	n°	3				
Heating capacity	kW	9	15	18	30	36
Humidifier						
Fix steam capacity	kg/h	15	25	30	45	60
Fan						
Type		EC inverter Plug Fan				
Motor data	mm	400	560	560	710	710
	kW	2.4	3.4	3.4	7.3	7.3

Thermal transmittance of casing (TT) class		T3	T3	T3	T3	T3
Thermal bridging factor (TBF) class		TB3	TB3	TB3	TB3	TB3
Casing strength (CS) class		D2 (M)	D2 (M)	D2 (M)	D2 (M)	D2 (M)
Casing air leakage (CAL) class@-400Pa		L2 (M)	L2 (M)	L2 (M)	L2 (M)	L2 (M)
Casing air leakage (CAL) class@+700 Pa		> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)
Filter bypass leakage (FBL) class		F9 (M)	F9 (M)	F9 (M)	F9 (M)	F9 (M)

(*) at rated airflow

		Configuration D				
Model FG		025	040	048	080	096
Model name		AHYD025GWA*	AHYD040GWA*	AHYD048GWA*	AHYD080GWA*	AHYD096GWA*
Casing						
Material		Outer skin: 0.6 mm thick pre-painted galvanized sheet; Inner skin: 0.6 mm thick galvanized sheet				
Insulation		Polyurethane foam, 50 mm thick, 45 kg/m³				
Performance						
Cooling capacity	kW	25	40	48	78	96
Heating capacity	kW	31.5	45	50	81.5	100
Available static pressure	Pa	200	200	200	200	200
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Airflow						
Max.	m³/h	5000	8000	9100	16100	18100
Rated	m³/h	4500	7200	8600	14500	17300
Min.	m³/h	4300	5000	8100	11000	16000
Heat recovery						
Efficiency (*)	%	73.3	74.4	74.2	73.7	73.6
DX Coil						
Rows	n°	4				
Coil type		25 × 22 - 3/8"				
Coil duty		Cooling/Heating				
Fluid		R410A				
Pipe material		Copper				
Fin material		Aluminum				
Electrical heating						
Stages	n°	3				
Heating capacity	kW	9	15	18	30	36
Humidifier						
		15	25	30	45	60
Fan						
Type		EC inverter Plug Fan				
Motor data	mm					
	kW	2.4	3.4	3.4	7.3	7.3

Thermal transmittance of casing (TT) class		T3	T3	T3	T3	T3
Thermal bridging factor (TBF) class		TB3	TB3	TB3	TB3	TB3
Casing strength (CS) class		D2 (M)	D2 (M)	D2 (M)	D2 (M)	D2 (M)
Casing air leakage (CAL) class@-400Pa		L2 (M)	L2 (M)	L2 (M)	L2 (M)	L2 (M)
Casing air leakage (CAL) class@+700 Pa		> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)
Filter bypass leakage (FBL) class		F9 (M)	F9 (M)	F9 (M)	F9 (M)	F9 (M)

	Configuration E				
025	040	048	080	096
AHYE025GWA*	AHYE040GWA*	AHYE048GWA*	AHYE080GWA*	AHYE096GWA*
Outer skin: 0.6 mm thick pre-painted galvanized sheet; Inner skin: 0.6 mm thick galvanized sheet				
Polyurethane foam, 50 mm thick, 45 kg/m³				
25	40	48	78	96
31.5	45	50	81.5	100
200	200	200	200	200
400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
5000	8000	9100	16100	18100
4500	7200	8600	14500	17300
4300	5000	8100	11000	16000
75.6	74.7	74.2	75.3	75.6
4				
25 × 22 - 3/8"				
Cooling/Heating				
R410A				
Copper				
Aluminum				
3				
9	15	18	30	36
15	25	30	45	60
EC inverter Plug Fan				
2.4	3.4	3.4	7.3	7.3

T3	T3	T3	T3	T3	
TB3	TB3	TB3	TB3	TB3	
D2 (M)	D2 (M)	D2 (M)	D2 (M)	D2 (M)	
L2 (M)	L2 (M)	L2 (M)	L2 (M)	L2 (M)	
> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)	> L3 (M)	
F9 (M)	F9 (M)	F9 (M)	F9 (M)	F9 (M)	

(*) at rated airflow

Control system

AHU units include a built-in electrical panel and expansion valve with control PCB. Setpoint is fixed via standard wired control.
The cooling load is determined by the air return temperature and the setpoint of the wired control.

AHU Controller

UTY-TXUX

Features

- Easy to install. Control connects to AHU PLC.
- Controls can be installed after the building is decorated.
- Mode lock function: Allows users to lock the operating mode of the AHU.

Easy operation

This remote controller provides an intuitive user interface with a touch screen display.

Functions

- Schedule setting change
- Set temperature and humidity
- Ambient name
- Alarm setting
- Event setting

Specifications

Model name		UTY-TXUX
Format	mm	120 × 86 × 25
Screen resolution		Display touch color 3.5" 320 × 240
Power supply		24 V AC - 24 V AC/DC
Analogue inputs		1 × Integrated NTC
Connectivity		RS485 - MODBUS® SL, USB Micro-B (debug and programming)
Operating temperature		0 – +50 °C

System controller

UTY-APGXZ1 Software

Features

System controller enables advanced integrated monitoring and control of VRF network systems operating in small to large buildings.

- System controller controls up to 4 VRF network systems, 1,600 indoor units, and 400 outdoor units.
- To accommodate facility management needs, the system controller offers—in addition to precise air conditioning control—remote central control, electricity charge apportionment, schedule management, and energy-saving options for VRF network systems.

Max. Controllable
4 VRF network systems

Max. Controllable
400 outdoor units

Max. Controllable
1,600 indoor units

System controller Lite

UTY-ALGXZ1 + UTY-PLGXX2 Software

Features

System controller Lite offers a set of standard functions to manage
air conditioners operating in a small or midsize building.

- System controller Lite controls up to 1 VRF network system, 400 indoor units, and 100 outdoor units.
- In addition to precise air conditioning control, a variety of management-specific applications are available as options, enabling a wider range of control.

Max. Controllable
1 VRF network systems

Max. Controllable
100 outdoor units

Max. Controllable
400 indoor units

Centralized control is also possible to stop the operation of not only air conditioners, but also lighting and ventilation equipment.
These features are useful for managing the energy efficiency of the entire building.

Summary of functions

Function	Type		System controller		System controller Lite				
			UTY-APGXZ1	Option UTY-PEGXZ1	UTY-ALGXZ1	Option UTY-PLGXR2	Option UTY-PLGXA2	Option UTY-PLGXE2	Option UTY-PLGXX2
System specification	Max. number of VRF networks supported		4	–	1	–	–	–	–
	Max. number of indoor unit and remote controller groups per VRF network		400	–	400	–	–	–	–
	Max. number of outdoor units per VRF network		100	–	100	–	–	–	–
	Max. number of indoor units and remote controller groups per system controller		1600	–	400	–	–	–	–
	Max. number of outdoor units per system controller		400	–	100	–	–	–	–
Site supervision	Multiple site display		10	–	10	–	–	–	–
	Number of buildings per site		20	–	–	–	–	–	–
	Number of floors per site		200	–	–	–	–	–	–
	Number of floors per building		50	–	–	–	–	–	–
	3D graphical layout view		●	–	–	–	–	–	–
	2D graphical layout view		●	–	–	–	–	–	–
	List display		●	–	●	–	–	–	–
	Tree display		●	–	●	–	–	–	–
	Group display		●	–	●	–	–	–	–
Error management	Error notification		●	–	●	–	–	–	–
	Audible alarm		●	–	●	–	–	–	–
	E-mail notification of errors		●	–	●	–	–	–	–
History	Error history		●	–	●	–	–	–	–
	Operation history		●	–	●	–	–	–	–
	Control history		●	–	●	–	–	–	–
Operation control	Individual control	On/Off	●	–	●	–	–	–	–
		Operation mode*	●	–	●	–	–	–	–
		Room temperature	●	–	●	–	–	–	–
		Fan speed	●	–	●	–	–	–	–
		Airflow direction	●	–	●	–	–	–	–
		Economy mode	●	–	●	–	–	–	–
		Setting temperature range limitation	●	–	●	–	–	–	–
		Anti-freeze	●	–	●	–	–	–	–
		Low noise setting of outdoor units	●	–	●	–	–	–	–
	Individual management	Setting remote control prohibition	●	–	●	–	–	–	–
		Setting temperature range limitation	●	–	●	–	–	–	–
		Filter sign reset	●	–	●	–	–	–	–
	Other	Memory operations	●	–	●	–	–	–	–
		Pattern operations	●	–	●	–	–	–	–
Schedule	Annual Schedule		●	–	●	–	–	–	–
	Setting for a specific date		●	–	●	–	–	–	–
	On/Off per day		72	–	72	–	–	–	–
	On/Off per week		504	–	504	–	–	–	–
	Day off		●	–	●	–	–	–	–
	Minimum unit of timer setting (minutes)		10	–	10	–	–	–	–
	Weekly schedule for low noise mode		●	–	●	–	–	–	–
Remote management	Web operation		●	–	●	–	–	–	–
	Remote monitoring		●	–	–	●	–	–	–
	Remote operation control		●	–	–	●	–	–	–
	Remote function setting		●	–	–	●	–	–	–
Electricity charge apportionment	Apportionment charge/bill calculation		●	–	–	–	●	–	–
	Tenant (block) setting		●	–	–	–	●	–	–
	Common facilities apportionment setting		●	–	–	–	●	–	–
	Rated power consumption allotment setting		●	–	–	–	●	–	–
	Individual calculations for cooling and heating		–	●	–	–	●	–	–
	Electricity meter supported		–	●	–	–	●	–	–
Energy saving management	Indoor unit rotation		–	●	–	–	–	●	–
	Peak cut control		–	●	–	–	–	●	–
	Capacity saving for outdoor unit		–	●	–	–	–	●	–
	Record of energy saving operation		–	●	–	–	–	●	–
	Information on energy saving		–	●	–	–	–	●	–
	Power consumption monitor		–	●	–	–	–	●	–
	Electricity meter supported			●		–	–	●	–
Control of external devices	Monitor		●	–	–	–	–	–	●
	Control		●	–	–	–	–	–	●
Others	Importing and exporting databases		●	–	●	–	–	–	–
	Automatic clock adjustment		●	–	●	–	–	–	–
	Multiple language support		7 languages	–	7 languages	–	–	–	–
	Refrigerant leak detection function		●	–	●	–	–	–	–
	Power shutdown		●	–	●	–	–	–	–

●●: Available. - : Not available.

Computer requirements

The specifications required for the Computer are shown in the table below:

	System controller	System controller Lite
Operating system	• Microsoft® Windows® 7 Home Premium (32-bit or 64-bit) SP1, Windows® 7 Professional (32-bit or 64-bit) SP1 • Microsoft® Windows® 8.1 (32-bit or 64-bit), Windows® 8.1 Pro (32-bit or 64-bit) • Microsoft® Windows® 10 Home (32-bit or 64-bit), Windows® 10 Pro (32-bit or 64-bit) Supported languages: English, Chinese, French, German, Russian, Spanish, and Polish	
CPU	Intel® CoreTM i3 2 GHz or higher	
Memory	• 2 GB or more (for Windows® 7 [32-bit]) • 4 GB or more (for Windows® 7 [64-bit], Windows® 8.1, and Windows® 10)	
HDD	40 GB or more of free space	
Screen resolution	1024 × 768 or higher	
Interface	• Ethernet port (for getting access to the internet using LAN) or a modem (for getting access to the internet using a landline) • Up to 6 USB ports (Only required for a server Computer working as a VRF controller) –Maximum of 2 USB ports are required to connect to a White-USB-key/ WibuKey –Up to 4 USB ports required to connect to a Echelon® U10 USB network interface * Maximum number of required USB ports depends on the applicable system configuration.	• Ethernet port (for getting access to the internet using LAN) or a modem (for getting access to the internet using a landline) • Up to 6 USB ports (Only required for a server Computer working as a VRF controller) –Maximum of 4 USB ports are required to connect to a White-USB-key/ WibuKey –1 USB port is required for an Echelon® U10 USB Network Interface * The maximum number of required USB ports depends on the applicable system configuration.
Graphic accelerator	Microsoft® DirectX® 9.0c compatible	
Software	Adobe® Acrobat Reader® 9.0 or later	

• Echelon® U10 USB Network Interface – TP/FT-10 Channel (Model name: 75010R) (Required for each VRF Network)

Packing List

Type	For System controller		For System controller Lite				
	System controller	Option Energy manager	System controller Lite	Option Remote access	Option Electricity charge apportionment	Option Energy saving	Option Central Control
Model name	UTY-APGXZ1	UTY-PEGXZ1	UTY-ALGXZ1	UTY-PLGXR2	UTY-PLGXA2	UTY-PLGXE2	UTY-PLGXX2
White-USB-key	1	1	1	1	1	1	1

*1: Software protection key to be inserted in a USB slot running System controller or System controller Lite.
System controller or System controller Lite may only run on a Computer with a White-USB-key. However, a White-USB-key is not required for remote VRF Explorer software.