HITACHI

–
Catalogue
2022

air

Cooling & Heating

Exclusive to Hitachi: all our System Free indoor units are compatible with the outdoor units Sigma, Set Free Mini, VRF Centrifugal, Utopia Prime, Micro VRF IVX Prime and IVX Comfort, in VRF or Split versions. They can be operated by a wide range of remote controls, from the simplest to the most sophisticated, to meet any requirement. The option to adjust the power of these indoor units brings a unique flexibility to the market, responding to the scalability of buildings at a lower cost.

SYSTEM FREE
indoor units

SYSTEM FREE indoor units

A new range of indoor units compatible with refrigerants R32 and R410A.
FSR: R410A/R32

All our Set Free indoor units will be updated, with the exception of consoles RPF/RPFI and > 6Hp ducted units, which will remain compatible with R410A only.

4-way cassette unit

R410A REFRIGERANT   R32 REFRIGERANT   NEW   GENTLE COOL

600 X 600
RCIM-...FSRE

800 X 800
RCI-...FSR

- Available from 1.1 to 16 kW.
- 600 x 600 flush cassette unit.
- Save energy with the motion sensor (optional).
- Control each fan louvre separately.
- Up to 850 mm lift for condensate.

2-way cassette unit

R410A REFRIGERANT   R32 REFRIGERANT   NEW   GENTLE COOL

RCD-...FSR

- Available from 2.2 to 16 kW.
- Save energy with the optional motion sensor.
- Up to 850 mm lift for condensate.
- Control each louvre separately.

Ducted unit

R410A REFRIGERANT   R32 REFRIGERANT   NEW

AIR ZONE   GENTLE COOL

RPIL/RPI/RPIH-0.4~6FSRE
RPI-8~20FSN

- Available from 1.1 to 56 kW.
- Up to 850 mm lift for condensate.
- Up to 220 Pa available static pressure.

Wall unit

R410A REFRIGERANT | R32 REFRIGERANT | NEW | GENTLE COOL

RPK-...FSRM

– Available from 1.1 to 11.2 kW.
– Optional deported electronic expansion valve.
– 4 fan speeds available.
– Integrated infrared receiver.

Console

R410A REFRIGERANT | SYSTEM FREE

RPF-...FSN2E

- Available from 2.2 to 7.1 kW.
- Cased and un-cased version.
- Depth of just 220 mm.
- Integrated remote control (on cased model).

Ceiling unit

R410A REFRIGERANT | R32 REFRIGERANT | GENTLE COOL |

NEW

RPC-...FSR

- Available from 3.8 to 16 kW.
- Air flow suitable for large premises.
- 4 fan speeds.
- Pipe connections from 3 directions.

Hydro Free

R410A REFRIGERANT | 45° | DHW 80°

High-temperature
RWHT-5.0VNF1E

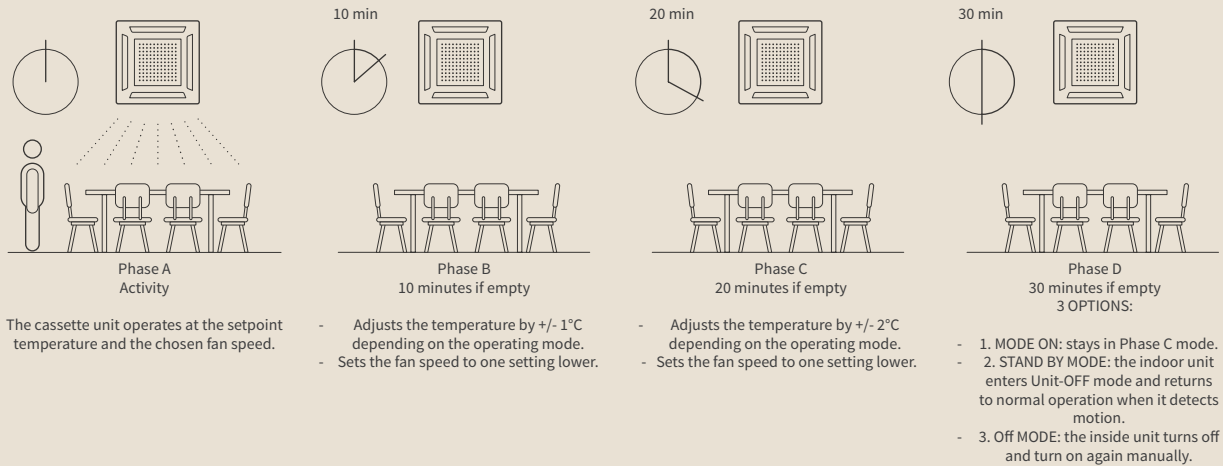## Low-temperature
RWLT-5.0~10VN1E

- Compatible with VRF SIGMA and Set Free Mini
- Perfect for a thermodynamic DHW solution
  (high-temperature module, 80°C).
- Perfect for a water heating solution in addition
  to DX comfort (low-temperature module).

Benefits
SYSTEM FREE indoor units

1 Save energy with the motion sensor

10 min 20 min 30 min

Phase A
Activity

The cassette unit operates at the setpoint temperature and the chosen fan speed.

Phase B
10 minutes if empty

- Adjusts the temperature by +/- 1°C depending on the operating mode.
- Sets the fan speed to one setting lower.

Phase C
20 minutes if empty

- Adjusts the temperature by +/- 2°C depending on the operating mode.
- Sets the fan speed to one setting lower.

Phase D
30 minutes if empty
3 OPTIONS:

- 1. MODE ON: stays in Phase C mode.
- 2. STAND BY MODE: the indoor unit enters Unit-OFF mode and returns to normal operation when it detects motion.
- 3. Off MODE: the inside unit turns off and turn on again manually.

The motion sensor regulates the indoor unit according to the number of people in the room. Achieve up to 14% energy savings by avoiding unnecessary consumption when the room is unoccupied.* Option available for: 600 x 600 cassette unit, 800 x 800 cassette unit, ducted unit, ceiling unit.

2 Perfect integration

Modular suspended ceiling
600 x 600 mm

Dimensions
4-way cassette unit

570 mm

570 mm
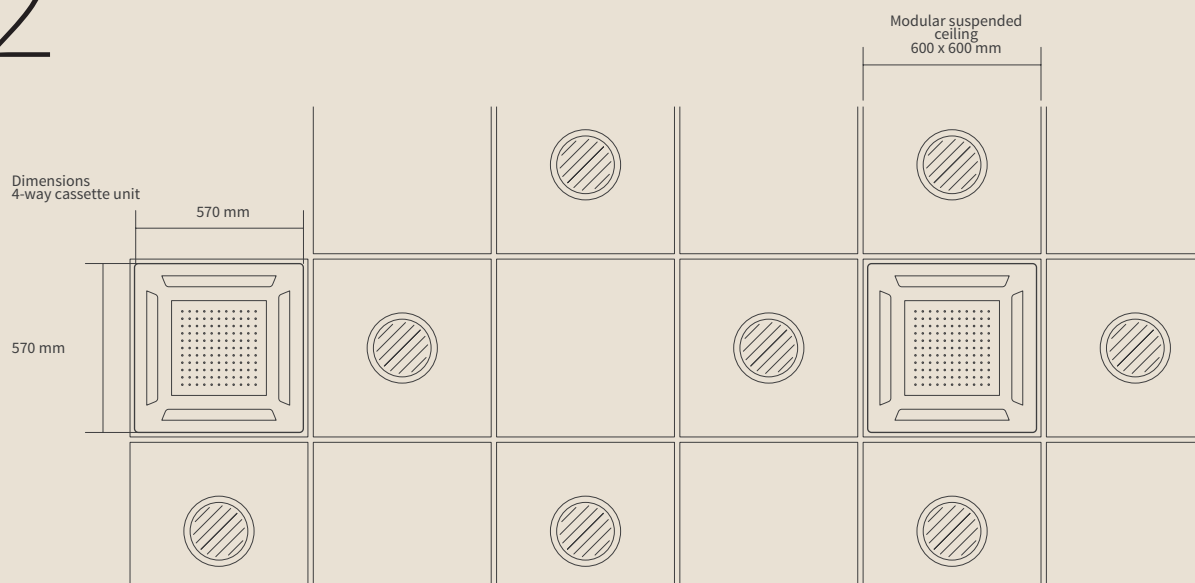
The 600x600 4-way cassette is designed to fit seamlessly into suspended ceilings.

These indoor units fit perfectly into any small space.

3 Extended height for condensate extraction

Integrated as standard on cassette and ducted units (optional on ceiling units), the extraction pump can handle as much as 850 mm of condensation. The pump automatically triggers as soon as cooling mode is selected. Self-powered condensing pump: any fault on a unit's condensing pump will not affect the rest of the system.
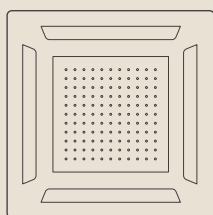
850 mm
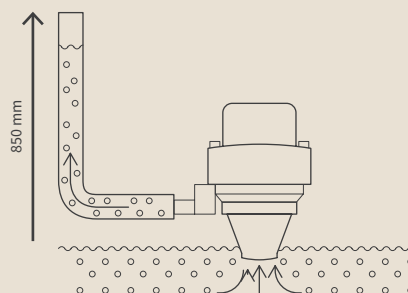
# 4 Low noise with the separate EEV

With indoor wall units, you can place the EEV outside of the room, significantly reducing noise levels for the best acoustic comfort.

5 Higher air flow rate

Same duty but more air flow than competitor's cassette, wall, and ducted units. Our indoor units have 4 fan speeds to adapt the airflow and ensure more comfort in any room.

6 Range compatibility

Wall unit   Ceiling unit   Ducted unit

Cassette unit   Console   Hydraulic module
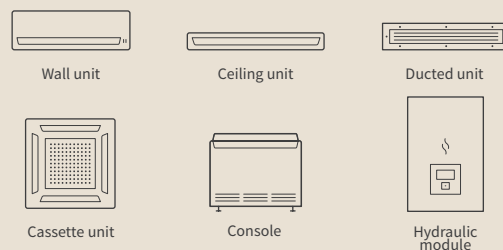
All our System Free indoor unit ranges are compatible with all our outdoor units (Set Free Sigma, Set Free Mini, Centrifugal, Utopia Prime, IVX Prime, and IVX Comfort). Hydrofree compatible with SIGMA and Set Free Mini only.

* For more information, please refer to the technical documentation.

600 x 600 4-way cassette unit

SYSTEM FREE | GENTLE COOL | 0.4 HP | POWER SWITCH | R410A REFRIGERANT | R32 REFRIGERANT | NEW

Installation time

The 600 x 600 cassette unit has a compact design and flush front panel to integrate perfectly into suspended ceilings (570 x 570mm casing). In addition, it is equipped as standard with a pump to remove condensation up to 850 mm.

Low noise level

With 4 fan speeds, this 600 x 600 cassette unit is one of the most silent on the market.

Energy-saving

The motion sensor (optional) automatically optimizes the level of comfort while limiting the energy consumption in rooms only occupied occasionally.
It continuously analyzes thermal disparities as well as the presence of people in the room, adjusting its setting temperature (+/- 2°C), fan speed, and airflow direction to suit.

Unrivaled comfort

The GENTLE COOL function, accessible on the wired remote control PC-ARFP1E, adjusts the min. air off temperature. In summer, cold air drafts are avoided as you can set the air off temperature to the maximum setting.

Flexibility

Our 600 x 600 cassette units have an impressive range of 1.1 to 7kW, offering flexibility like no other on the market.
You can also use the adjustable power settings to respond precisely to each project: 4 settings to choose from, with huge ranges in airflow.

Potential for discomfort

GentleCool → No cold drafts

Ultimate comfort

>8°C → COLD AIR DRAFT

>12°C

>14°C

>16°C

GentleCool: OFF

GentleCool: LOW

GentleCool: MEDIUM

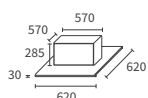**GentleCool: HIGH**

Min. Temp° control on the air off with the remote control PCARFP1E or the CSNET monitoring system

Indoor units

570
570
285
30
620
620

RCIM-0.4FSRE   RCIM-1.5FSRE
RCIM-0.6FSRE   RCIM-2.0FSRE
RCIM-0.8FSRE   RCIM-2.5FSRE
RCIM-1.0FSRE

600 x 600 4-way cassette

| Indoor units	Unit	RCIM-0.4FSRE	RCIM-0.6FSRE	RCIM-0.8FSRE	RCIM-1.0FSRE	RCIM-1.5FSRE	RCIM-2.0FSRE	RCIM-2.5FSRE
Power (adjustable)	Hp	0.40	0.60	0.80	1	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50
Nominal Cooling capacity UTOPIA Prime & IVX	kW	not available		2.00	2.50	3.60	5.00	5.60
Nominal Heating capacity UTOPIA Prime & IVX	kW	not available		2.20	2.80	4.00	5.60	6.30
Nominal Cooling capacity SET FREE	kW	1.10	1.70	2.20	2.80	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10
Nominal Heating capacity SET FREE	kW	1.25	1.90	2.50	3.20	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50
Sound pressure in Cooling mode (EL/L/M/H)[1][3]	dB(A)	24.5 / 25 / 27 / 29	24.5 / 28 / 30 / 34	24.5 / 29 / 33 / 36	24.5 / 30 / 34 / 38	27.5 / 33 / 37 / 41	31 / 35 / 39 / 45	35 / 39 / 43 / 47
Sound power	dB(A)	43	47	50	51	54	56	60
Airflow in Cooling mode (EL/L/M/H)[4]	m³/h	360 / 414 / 468 / 510	360 / 450 / 510 / 600	360 / 480 / 570 / 660	360 / 510 / 600 / 720	420 / 570 / 660 / 780	480 / 600 / 720 / 900	600 / 720 / 840 / 960
Condensate pump	-	Yes						
Max. elevation	mm	850						
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2					3/8 - 5/8	
Condensate outlet diameter (ext.)	mm	32						
Dimensions (H x W x D)	mm	285 x 570 x 570						
Fascia panel dimensions (H x W x D)	mm	30 x 620 x 620						
Weight of the unit + fascia panel	kg	16 + 2.50				17 + 2.50		
Power supply	-	1 ~ 230V 50Hz						
Cable width (EN 60 335-1) [2]	mm²	3 x 0.75						
Recommended fuse size	A	5						
Part number of the front panel	-	P-AP56NAM						

[1] Sound pressure is measured under the following conditions: 1.50 m below the unit.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
[3] High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.
[4] Very low speed is available in Thermo-off mode.
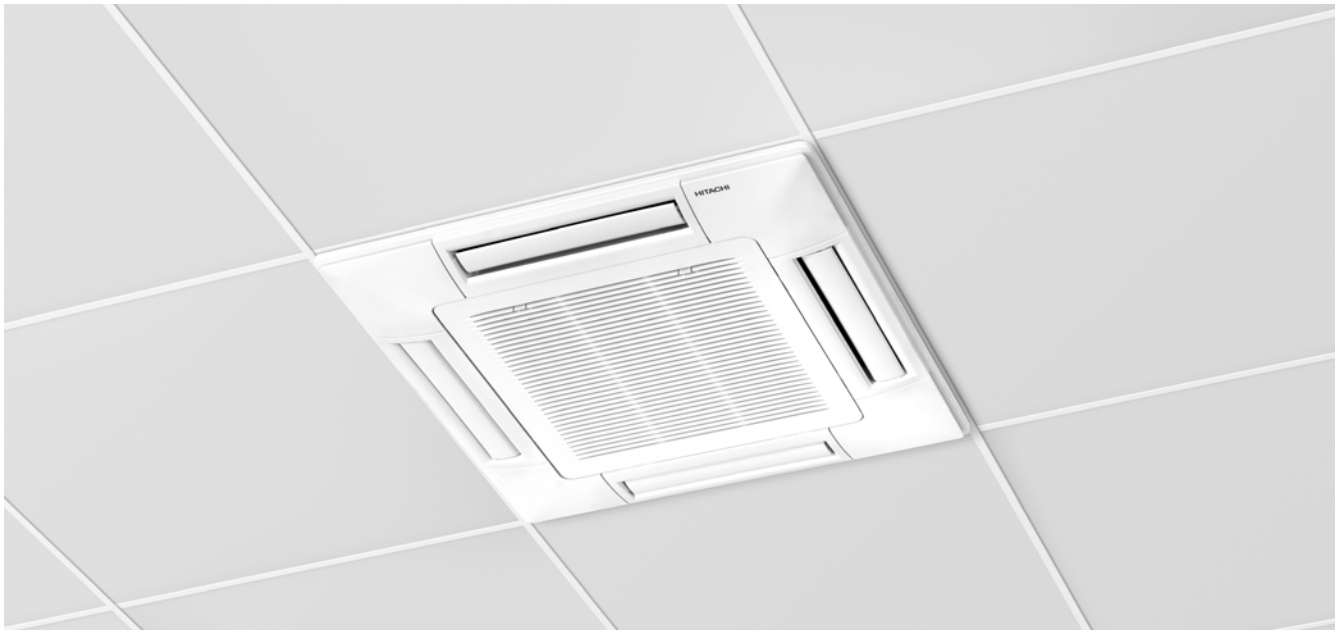
| You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop". |

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired control
PC-ARFP1E
(PC-ARFG-E available in 2022)

Remote sensor
THM-R2AE

Infrared receiver
PC-ALHC1 (integrated) / PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

Motion sensor
SOR-NEC

Connectors
PCC-1A

Fresh air kit
PD-75C

Silent-Iconic fascia panel for cassette unit 800x800

NEW

Design White

Design Black

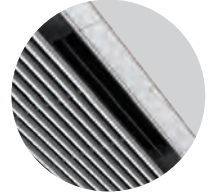Discover Silent-Iconic

Features

A design that fits perfectly into any space
Designed to harmonize with the room – the shutter-like intake flaps are placed centrally and the fan blades are darkened to complete the discrete look.
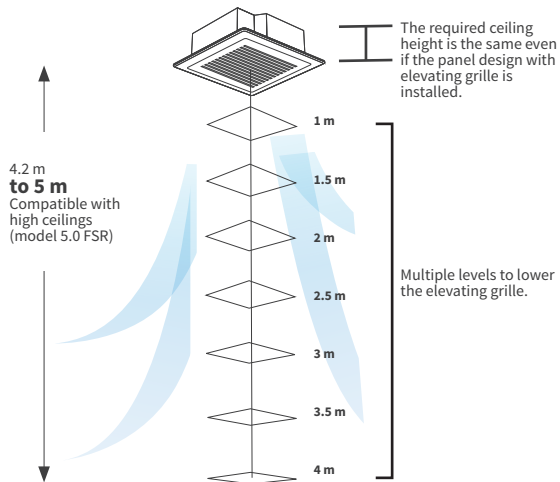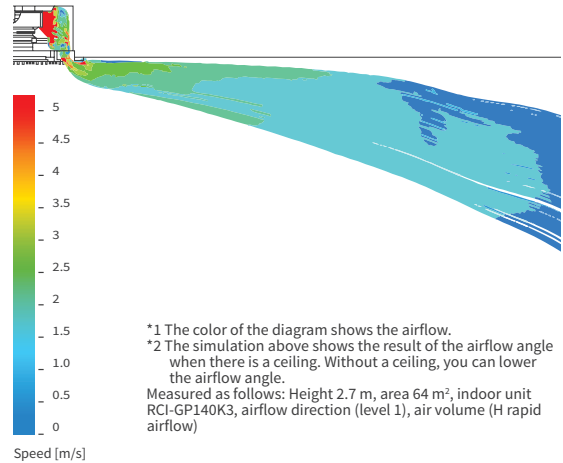
Air extraction grid

Concealed fan blades

Easy-clean filter
The "fascia panel design with elevating grille" makes it easy to clean the filter. The lowering distance can reach 4 m, and the Silent-Iconic fascia panel can be installed in buildings with a high suspended ceiling heights.

The required ceiling height is the same even if the panel design with elevating grille is installed.

4.2 m **to 5 m** Compatible with high ceilings (model 5.0 FSR)

1 m
1.5 m
2 m
2.5 m
3 m
3.5 m
4 m

Multiple levels to lower the elevating grille.

Guaranteed ease-of-use
The all-new fascia panel louvre design and air outflow shape enhance the Coanda effect, which significantly improves user comfort by avoiding the direct impact of cold air circulation.

5
4.5
4
3.5
3
2.5
2
1.5
1.0
0.5
0

Speed [m/s]

*1 The color of the diagram shows the airflow.
*2 The simulation above shows the result of the airflow angle when there is a ceiling. Without a ceiling, you can lower the airflow angle.
Measured as follows: Height 2.7 m, area 64 m², indoor unit RCI-GP140K3, airflow direction (level 1), air volume (H rapid airflow)

Easy-to-install front panels
Sliding edges make installation easier – just add the screws.

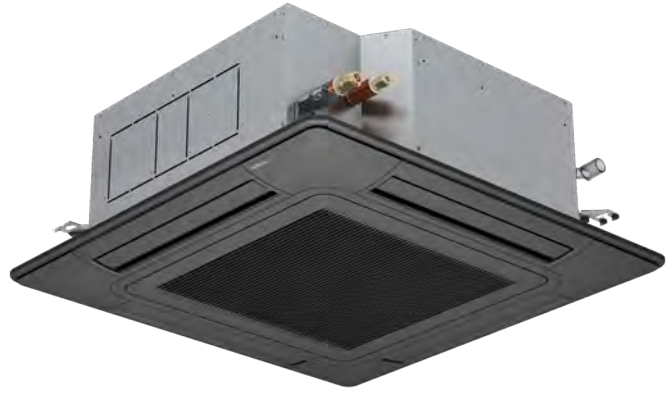**Designed to align with the ceiling surface**
The small gap between the fascia panel and the ceiling gives a visual effect of "lightness" and blends in with the ceiling.

800 x 800 4-way cassette unit

SYSTEM FREE · GENTLE COOL · POWER SWITCH · R410A REFRIGERANT · R32 REFRIGERANT · NEW

Standard White front panel

Standard Black front panel

Installation time

The 800 x 800 cassette unit fits perfectly into suspended ceilings thanks to its low recess height (248 mm) as well as in high ceilings with a possible installation of up to 4.20 m, depending on the model. In addition, it is equipped as standard with a pump to remove condensation up to 850 mm.

Unrivaled comfort

The GENTLE COOL function, accessible on the wired remote control PC-ARFP1E, adjusts the min. air off temperature.

In summer, cold air drafts are avoided as you can set the air off temperature to the maximum setting.

Energy-saving

The motion sensor (optional) automatically optimizes the level of comfort while limiting the energy consumption in rooms only occupied occasionally.
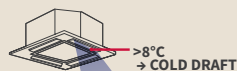It continuously analyzes thermal disparities as well as the presence of people in the room, adjusting its setting temperature (+/- 2°C), fan speed, and airflow direction to suit.

Flexibility

Our 800 x 800 cassette units have an impressive range of 2.8 to 16 kW, offering flexibility like no other on the market.
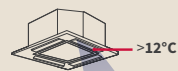You can also use the adjustable power settings to respond precisely to each project: 4 settings to choose from, with huge ranges in airflow.
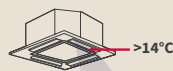

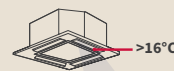**Potential for discomfort**

GentleCool → **No cold drafts**

Ultimate comfort

>8°C → COLD DRAFT

>12°C

>14°C

>16°C
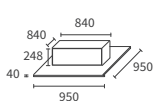
GentleCool: OFF

GentleCool: LOW

GentleCool: MEDIUM

GentleCool: HIGH

Min. Temp° control of the air off with the remote control PC-ARFP1E or the CSNET monitoring system

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Indoor units

840 · 840 · 248 · 40 · 950 · 950

RCI-1.0FSR
RCI-1.5FSR
RCI-2.0FSR
RCI-2.5FSR

840 · 840 · 298 · 40 · 950 · 950

RCI-3.0FSR
RCI-4.0FSR
RCI-5.0FSR
RCI-6.0FSR

800 x 800 4-way cassette

Indoor units	Unit	RCI-1.0FSR	RCI-1.5FSR	RCI-2.0FSR	RCI-2.5FSR	RCI-3.0FSR	RCI-4.0FSR	RCI-5.0FSR	RCI-6.0FSR
Power (adjustable)	Hp	1.00	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50	3.00	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	2.50	3.60	5.00	5.60	7.10	10.00	12.50	14.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	2.80	4.00	5.60	6.30	8.00	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	2.80	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10	8.00	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	3.20	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50	9.00	12.50	16.00	18.00
Sound pressure in Cooling mode (EL/L/M/H)[1][3]	dB(A)	27 / 28 / 30 / 33	27 / 30 / 31 / 35	27 / 30 / 32 / 37	28 / 32 / 36 / 42		33 / 39 / 43 / 48	35 / 40 / 45 / 48	37 / 41 / 46 / 48
Sound power	dB(A)	52	53	55	56	57	64	64	65
Airflow in Cooling mode (EL/L/M/H)[4]	m³/h	540 / 660 / 780 / 900	660 / 840 / 1020 / 1260	660 / 840 / 1020 / 1320	840 / 1080 / 1380 / 1620	840 / 1080 / 1380 / 1620	1200 / 1440 / 1860 / 2220	1260 / 1560 / 1980 / 2220	1320 / 1680 / 2100 / 2220
Condensate pump	-	Yes							
Max. elevation	mm	850							
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2			3/8 - 5/8				
Condensate outlet diameter (ext.)	mm	32							
Dimensions (H x W x D)	mm	248 x 840 x 840			298 x 840 x 840				
Fascia panel dimensions (H x W x D)	mm	40 x 950 x 950							
Weight of the unit + fascia panel	kg	20 + 6.50	21 + 6.50		22 + 6.50	26 + 6.50			
Power supply	-	1 ~ 230V 50Hz							
Cable width (EN 60 335-1) [2]	mm²	3 x 0.75							
Recommended fuse size	A	5							
Part number for standard White front panel (Black)	-	**P-N23NA2 (P-AP160KA3)**							

[1] Sound pressure is measured under the following conditions: 1.50 m below the unit.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
[3] High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.
[4] Very low speed is available in Thermo-off mode.

Silent-Iconic front panel

	Natural White		Black
Type of fascia panel	White fascia panel design	White fascia panel design with self-elevating grille	Black fascia panel design
Part number	**P-GP160NAP**	**P-GP160NAPU**	**P-GP160KAP**
Dimensions (H x L x D)	52 x 950 x 950 mm		

Fascia panel lift	d7	01	02	03	04	05	06	07
Control lowering on wired remote control PC-ARFP1E	Lowers in 7 stages	1.0 m	1.5 m	2.0 m	2.5 m	3.0 m	3.5 m	4.0 m

You can have multiple contacts with the connector PCC-1A : progress report, error report, thermostat control, remote "Start/Stop".

Controles and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller — PC-ARH1E	Infrared controller — PC-AWR	Hard wired remote — PC-ARFP1E (PC-ARFG-E available in 2022)
Remote sensor — THM-R2AE	Infrared receiver — PC-ALH3 (integrated) PC-ALHZ1 (external)	Multi-tenant card — PC-AMTB
Motion sensor — PS-MSK2	Connectors — PCC-1A	Remote blower connection kit — PDF-71C1 / PDF-160C1

Fresh air kit — PD-75A

2-way cassette unit

SYSTEM FREE — GENTLE COOL — POWER SWITCH — R410A REFRIGERANT — R32 REFRIGERANT — NEW

Unrivaled comfort

The GENTLE COOL function, accessible on the wired remote control PCARFP1E, adjusts the min. air off temperature. In summer, cold air drafts are avoided as you can set the air off temperature to the maximum setting.

Stand-out solution

Our choice of 2-way cassettes, ranging from 2.2 to 16 kW, is the perfect solution for larger rectangular spaces.
You can also use the adjustable power settings to respond precisely to each project.

Installation time

This unit is easy to install thanks to its light weight (23 kg) and the lift pump (850 mm) built-in as standard.

Energy-saving

The motion sensor (optional) automatically optimizes the level of comfort while limiting the energy consumption in rooms only occupied occasionally. It continuously analyzes thermal disparities as well as the presence of people in the room, adjusting its setting temperature (down to 2°C), fan speed, and airflow direction to suit.
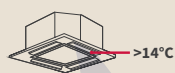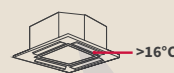
Potential for discomfort
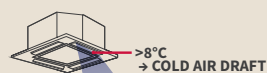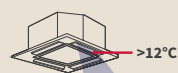
GentleCool → No cold drafts

Ultimate comfort

>8°C → COLD AIR DRAFT

>12°C

>14°C

>16°C

GentleCool: OFF

GentleCool: LOW

GentleCool: MEDIUM

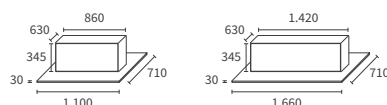**GentleCool: HIGH**

Min. Temp° control of the air off with the remote control PC-ARFP1E or the CSNET monitoring system

Indoor units

860 · 630 · 345 · 30 · 710 · 1.100

1.420 · 630 · 345 · 30 · 710 · 1.660

RCD-0.8FSR
RCD-1.0FSR
RCD-1.5FSR
RCD-2.0FSR
RCD-2.5FSR
RCD-3.0FSR

RCD-4.0FSR
RCD-5.0FSR
RCD-6.0FSR

2-way cassette unit

Indoor units	Unit	RCD-0.8FSR	RCD-1.0FSR	RCD-1.5FSR	RCD-2.0FSR	RCD-2.5FSR	RCD-3.0FSR	RCD-4.0FSR	RCD-5.0FSR	RCD-6.0FSR
Power (adjustable)	Hp	0.80	1.00	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50	3.00	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	2.00	2.50	3.60	5.00	5.60	7.10	10.00	12.50	14.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	2.20	2.80	4.00	5.60	6.30	8.00	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	2.20	2.80	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10	8.00	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	2.50	3.20	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50	9.00	12.50	16.00	18.00
Sound pressure in Cooling mode (EL/L/M/H)[1][3]	dB(A)	27 / 28 / 29 / 30	27 / 28 / 29 / 31	30 / 31 / 34 / 37	30 / 33 / 36 / 39	33 / 36 / 39 / 42	33 / 38 / 42 / 45	34 / 37 / 40 / 43	35 / 41 / 44 / 47	39 / 42 / 45 / 48
Sound power	dB(A)	45	48	51	52	55	58	57	60	61
Airflow in Cooling mode (EL/L/M/H)[4]	m³/h	390 / 450 / 540 / 600	420 / 510 / 570 / 660	600 / 690 / 780 / 900	630 / 750 / 870 / 990	750 / 870 / 990 / 1110	750 / 960 / 1110 / 1260	1200 / 1380 / 1590 / 1800	1260 / 1620 / 1860 / 2100	1440 / 1710 / 1950 / 2220
Condensate pump	-	yes								
Max. elevation	mm	850								
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2				3/8 - 5/8				
Condensate outlet diameter (ext.)	mm	32								
Dimensions (H x W x D)	mm	345 x 860 x 630						345 x 1420 x 630		
Fascia panel dimensions (H x W x D)	mm	30 x 1100 x 710						30 x 1660 x 710		
Weight of the unit + fascia panel	kg	23 + 7.50		25 + 7.50				39 +10.50		
Power supply	-	1~ 230V 50Hz								
Cable width (EN 60 335-1) [2]	mm²	3 x 0.75								
Recommended fuse size	A	5								
Part number of the fascia panel	-	P-AP90DNA						P-AP160DNA		

(1) Sound levels (pressure) are measured in an anechoic chamber at 1.50 m under the unit.
(2) Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility.
(3) High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.
(4) Very low speed is available in Thermo-off mode.

You can have multiple contacts with the connector PCC-1A : progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired controller
PC-ARFP1E
(PC-ARFG-E available in 2022)

Remote sensor
THM-R2AE

Infrared receiver
PC-ALHD1 (integrated) / PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

Motion sensor
SOR-NED

Connectors
PCC-1A

Fresh air kit
PD-150D

Ducted unit

SYSTEM FREE · GENTLE COOL · POWER SWITCH · R32 REFRIGERANT · 0.4 HP · AIR ZONE · R410A REFRIGERANT · NEW

GENTLE COOL air off temperature setting for ultimate comfort

The GENTLE COOL air off temperature setting, accessible on the wired remote control PC-ARFP1E, adjusts the min. air off temperature. There is minimal risk of condensation forming, which improves the air quality. It also stops any summer drafts.

Flexible installation

Our new ducted units offer greater flexibility when it comes to installation. The electrical box can be moved. The 100Pa model has rear pipework connections so it can easily fit into small spaces, and the pump can be disconnected onsite.

Easy maintenance

Up to 850 mm lift for condensate. Filter is accessible from below or the side (0.4 to 6 hp).

Compatible with Airzone solution

Thanks to its partnership with Airzone, Hitachi is able to offer you precision step-by-step temperature control.

30% fresh air supply

All Hitachi ducted units can work on 30% fresh air to provide the best quality and cleanest air.

Available in sizes 45 and 56 kW

The most extensive range on the market, from 1.1kW to 56 kW.

EXCLUSIVE

Slim ducted unit 100 Pa 1.1 to 4 kW

- Integrated and removable condensate pump.
- Filter accessible from below or from the right side.
- Low-height: 197 mm.
- Pipe connections from the rear.
- Electric box (can be moved)
- Air return from the rear or from below (optional).

Ducted unit 150 Pa 4 to 16 kW

- Condensate pump included.
- Air retrun from the rear or below (optional).
- Optional motion sensor.
- Height: 240 mm.
- Electric box (can be moved, sizes 1.5 and 2 hp).
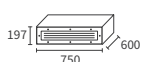- Filter accessible from below or from the left or right side.

Ducted unit 200 Pa 11 to 16 kW

- Condensate lift pump included.
- Air retrun from the rear.
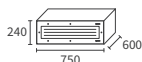- Filter accessible from below or from the left or right side.

High-Pressure High-Capacity ducted unit 22 to 56 kW

- Up to 220 Pa available static pressure.
- Sizes 8, 10, 16 and 20 hp.

Indoor units

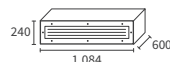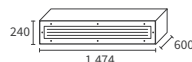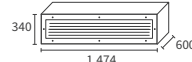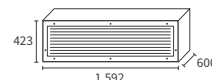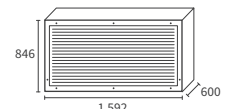| 197 / 750 / 600	240 / 750 / 600	240 / 1.084 / 600	240 / 1.474 / 600	340 / 1.474 / 600	423 / 1.592 / 600	846 / 1.592 / 600
RPIL-0.4FSRE RPIL-0.6FSRE RPIL-0.8FSRE RPIL-1.0FSRE RPIL-1.5FSRE	RPI-1.5FSRE RPI-2.0FSRE	RPI-2.5FSRE RPI-3.0FSRE	RPI-4.0FSRE RPI-5.0FSRE RPI-6.0FSRE	RPIH-4.0FSRE RPIH-5.0FSRE RPIH-6.0FSRE	RPI-8.0FSN3E(-f) RPI-10.0FSN3E(-f)	RPI-16.0FSN3PE RPI-20.0FSN3PE

Slim ducted unit, height 197mm (up to 100 Pa available pressure)

Indoor units	Unit	RPIL-0.4FSRE	RPIL-0.6FSRE	RPIL-0.8FSRE	RPIL-1.0FSRE	RPIL-1.5FSRE
Power (adjustable)	Hp	0.40	0.60	0.80	1.00	1.30 ← 1.50
Nominal Cooling capacity UTOPIA Prime & IVX	kW	not available	not available	2.00	2.50	3.60
Nominal Heating capacity UTOPIA Prime & IVX	kW	not available	not available	2.20	2.80	4.00
Nominal Cooling capacity SET FREE	kW	1.10	1.70	2.20	2.80	3.80 ← 4.00
Nominal Heating capacity SET FREE	kW	1.30	1.90	2.50	3.20	4.20 ← 4.80
Sound pressure in Cooling mode (L / M / H)[1][3]	dB(A)	22 / 23 / 24	23 / 25 / 27	23 / 25 / 28		25 / 28 / 30
Sound power	dB(A)	48	51	52		53
Airflow in Cooling mode (L / M / H) (SP02)[4]	m³/h	300 / 330 / 360	330 / 390 / 438	342 / 390 / 462		390 / 474 / 528
Rated static pressure (min-max)	Pa	15 (0~100)		25 (0~100)		
Condensate pump	-	yes (can be removed to use a gravity drain kit)				
Max. elevation	mm	850				
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2				
Condensate outlet diameter (ext)	mm	32				
Dimensions (H x L x D)	mm	197 x 750 x 600				
Weight	kg	23				
Power supply	-	1~ 230V 50Hz				
Cable width (EN 60 335-1)[2]	mm²	3 x 0.75				
Recommended fuse size	A	5				

Compact ducted unit (up to 150 Pa available pressure)

Indoor units	Unit	RPI-1.5FSRE	RPI-2.0FSRE	RPI-2.5FSRE	RPI-3.0FSRE	RPI-4.0FSRE	RPI-5.0FSRE	RPI-6.0FSRE
Power (adjustable)	Hp	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50	3.00	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	3.60	5.00	5.60	7.10	10.00	12.50	14.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	4.00	5.60	6.30	8.00	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10	8.00	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50	9.00	12.50	16.00	18.00
Sound pressure in Cooling mode (L / M / H)[1][3]	dB(A)	29 / 30 / 32	29 / 30 / 32	30 / 32 / 34	31 / 33 / 35	35 / 38 / 39	36 / 38 / 40	36 / 38 / 40
Sound power	dB(A)	55	58	57	59	62	64	64
Airflow in Cooling mode (L / M / H) (SP02)[4]	m³/h	600 / 690 / 840	630 / 720 / 840	900 / 1020 / 1200	960 / 1140 / 1290	1680 / 2070 / 2160	1920 / 2100 / 2220	1950 / 2130 / 2250
Rated static pressure (min-max)	Pa	25 (0~150)		37 (0~150)			50 (0~150)	
Condensate pump	-	yes						
Max. elevation	mm	850						
Diameter of pipes (Liq / Gas)	inches	1/4 - 5/8		3/8 - 5/8				
Condensate outlet diameter (ext)	mm	32						
Dimensions (H x L x D)	mm	240 x 750 x 600		240 x 1084 x 600		240 x 1474 x 600		
Weight	kg	26		32		42		
Power supply	-	1~ 230V 50Hz						
Cable width (EN 60 335-1)[2]	mm²	3 x 0.75						
Recommended fuse size	A	5						

High-Pressure ducted unit (up to 200 Pa available pressure)

Indoor units	Unit	RPIH-4.0FSRE	RPIH-5.0FSRE	RPIH-6.0FSRE
Power (adjustable)	Hp	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	10.00	12.50	14.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	12.50	16.00	18.00
Sound pressure in Cooling mode (L / M / H)[1][3]	dB(A)	35 / 38 / 39	36 / 38 / 40	36 / 38 / 40
Sound power	dB(A)	62	64	64
Airflow in Cooling mode (L / M / H) (SP00)[4]	m³/h	1740 / 1890 / 2100	2160 / 2040 / 2160	1920 / 2040 / 2160
Rated static pressure (min-max)	Pa	155 (0~200)		
Condensate pump	-	yes		
Max. elevation	mm	850		
Diameter of pipes (Liq / Gas)	inches	3/8 - 5/8		
Condensate outlet diameter (ext)	mm	32		
Dimensions (H x L x D)	mm	340 x 1474 x 600		
Weight	kg	44		
Power supply	-	1~ 230V 50Hz		
Cable width (EN 60 335-1)[2]	mm²	3 x 0.75		
Recommended fuse size	A	5		

[1] Sound levels (pressure) are measured in an anechoic chamber at 1.50 m under the unit (without a ceiling under the unit), with an extraction duct at 1 m and discharge duct at 2 m.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility.
[3] Ultra high-speed access is possible with remote controls PC-ARFP1E (or PC-ARFG-E available second half of 2021) and PC-ARH1E.
[4] SP: external static pressure (defined with the optional function "C5" on the remote control: 00: standard, 01: external static high-pressure, 02: external static low-pressure).

High-Capacity ducted unit (up to 220 Pa available pressure)
# (sizes 16 and 20 hp: unique on the market)

Indoor units	Unit	High-pressure		High-power	
		RPI-8.0FSN3E	RPI-10.0FSN3E	RPI-16.0FSN3PE	RPI-20.0FSN3PE
Power (adjustable)	Hp	8.00	10.00	16.00	20.00
Nominal Cooling capacity Micro VRF IVX COMFORT	kW	20.00	25.00	40.00	50.00
Nominal Heating capacity Micro VRF IVX COMFORT	kW	22.40	28.00	44.80	56.00
Nominal Cooling capacity SET FREE	kW	22.40	28.00	45.00	56.00
Nominal Heating capacity SET FREE	kW	25.00	31.00	50.00	63.00
Sound pressure in Cooling mode (L / M / H) [1][3]	dB(A)	51 / 54 / 54	52 / 55 / 55	53 / - / 56	54 / - / 57
Sound power	dB(A)	77	78	79	80
Airflow in Cooling mode (L/M/H)	m³/h	3570 / 3960 / 3960	4056 / 4500 / 4500	7200 / - / 7920	8220 / - / 9000
Rated static pressure (min-max)	Pa	200 (180 - 220)		180 (220)	
Dehumidification	l/h	7.70	8.80	15.00	17.00
Condensate pump	-	no			
Diameter of pipes (Liq / Gas)	inches	3/8 - 3/4	3/8 - 7/8	2 x 3/8 - 3/4 (requires a E-162SN4)	2 x 3/8 - 7/8 (requires a E-242SN3)
Condensate outlet diameter (ext)	mm	25		2 x 25	
Dimensions (H x L x D)	mm	423 x 1592 x 600		846 x 1592 x 600	
Weight	kg	85	87	171	175
Power supply	-	1~ 230V 50Hz			
Cable width (EN 60 335-1)[2]	mm²	3 x 2.50		2 x (3 x 2.50)	
Recommended fuse size	A	10		25	

(1) Sound pressure is measured under the following conditions: at 1.50 m below the unit (no ceiling under the unit), with an extraction duct at 1 m and a discharge duct at 2 m.
(2) Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
(3) High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.

Plenums (stand-alone)
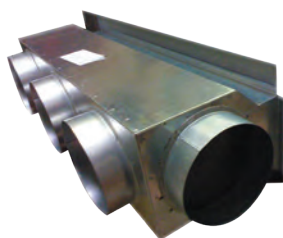
Type of Plenum	Number of outputs / diameter (mm)	Part number	Compatibility
Supply and return air	2 / Ø 200	PL-RPIL-FSRE	RPIL-0.4~1.5FSRE
Supply and return air	3 / Ø 200	PL-RPI1.5/2FSRE	RPI-1.5~2.0FSRE
Supply and return air	5 / 3 / Ø 200	PL-RPI2.5/3FSRE	RPI-2.5~3.0FSRE
Supply and return air	5 / 4 / Ø 200	PL-RPI4-6FSRE	RPI-4.0~6.0FSRE

You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired controller
PC-ARFP1E
(PC-ARFG-E available in 2022)

Motion sensor
All sizes of ducted units
SOR-MSK

Remote sensor
THM-R2AE

Infrared receiver
PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

Connectors
PCC-1A

Gravitational condensation unit connection kit
D-DGK15R

Kit air return from below
D-ICA15R → RPIL (100 Pa)
D-ICA20R → RPI 1.5 to 2.0 hp (150 Pa)
D-ICA30R → RPI 2.5 to 3.0 hp (150 Pa)
D-ICA60R → RPI 4.0 to 6.0 hp (150 Pa)

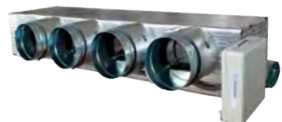# Compatibility table: airzone plenum with ducted units RPIL and RPI

STANDARD

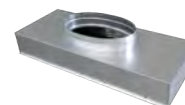Height 300 mm, with fresh-air intake, air outlet 200 mm in diameter

MEDIUM

Height 250 mm, without fresh-air intake, air outlet 200 mm in diameter

SLIM

Height 210 mm, with fresh-air intake, air outlet 150 mm in diameter

		Supply air plenum	2 air outlets	3 air outlets	4 air outlets	5 air outlets	6 air outlets	Return air plenum
RPIL-FSRE	1.0-1.5 (750 x 197 mm)	Slim	-	AZEZ6HITSL08L3	AZEZ6HITSL08L4	AZEZ6HITSL08L5	-	AZCEZHIPR08XS
		Medium	AZEZ6HITBS08XS2	AZEZ6HITBS08XS3	-	-	-	
RPI-FSRE	1.5-2.0 (750 x 240 mm)	Standard	AZEZ6HITST08S2	AZEZ6HITST08S3	AZEZ6HITST08S4	-	-	AZCEZHIPR08S
		Medium	AZEZ6HITBS08S2	AZEZ6HITBS08S3	AZEZ6HITBS08S4	-	-	
	2.5-3.0 (1084 x 240 mm)	Standard	-	AZEZ6HITST08M 3	AZEZ6HITST08M4	AZEZ6HITST08M5	AZEZ6HITST08M6	AZCEZHIPR08M
		Medium	-	AZEZ6HITBS08M 3	AZEZ6HITBS08M4	AZEZ6HITBS08M5	AZEZ6HITBS08M6	
	4.0-5.0-6.0 (1474 x 240 mm)	Standard	-	-	-	AZEZ6HITST08L5	AZEZ6HITST08L6	AZCEZHIPR08L
		Medium	-	-	-	AZEZ6HITBS08L5	AZEZ6HITBS08L6	

Connected and intuitive interfaces

Airzone Blueface Thermostat

Wired connection / 3.5" touchscreen: Configurable as a general thermostat or by zone. A number of features and settings, ideal for ultimate control of your entire system, for more efficient and responsible heating. End-to-end, intuitive interface. Eco-adapt and standby function for tangible energy saving. Control the temperature, mode, and fan speed. Weekly programming. Access to weather forecasts (with Airzone Cloud webserver login) to anticipate changes in temperature.

Airzone Think thermostat

Wired or wireless connection / 2.7" screen: Configurable as a general thermostat or by zone. Low-energy device that makes it easy to reduce energy costs. Stylish and intuitive interface. Control the temperature, mode, and fan speed. Access to weather forecasts (with Airzone Cloud webserver login) to anticipate changes in temperature.

Thermostat Airzone Lite

Wired or wireless connection: In systems with the Blueface thermostat, this solution is perfect for quick access to essential functions. Its modern and fun interface makes it easier to use, with colors indicating the mode and temperature of the area. Start/ Stop function. Control the setting temperature in increments of 1°C with a scope of ±3°C.
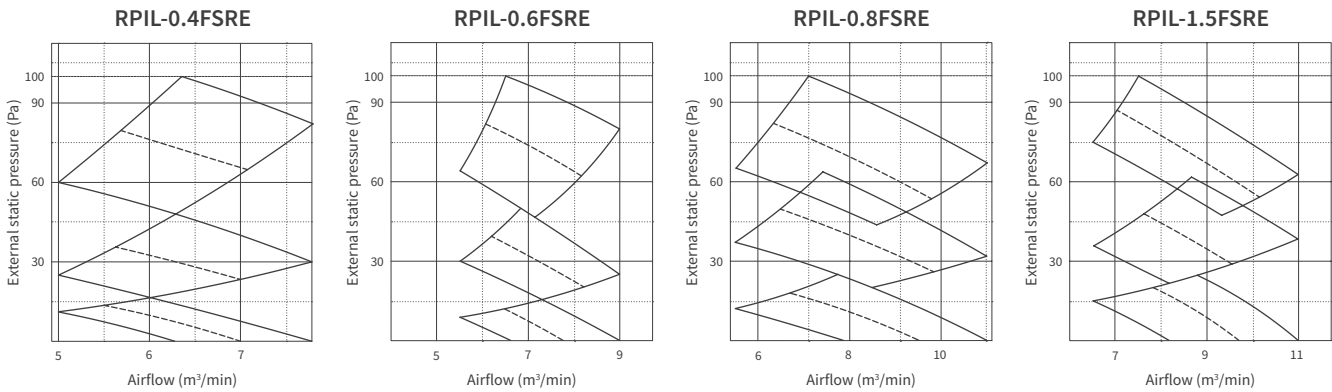
Webserver Airzone Cloud

The Airzone Cloud app, compatible on your smartphone, tablet, and PC, offers complete remote control of the installation; anywhere, anytime. You can control multiple servers at once and up to 32 systems on a single webserver. All the features of your thermostats are combined on the cloud: Control the temperature, weekly programming, weather forecasts, login authorization…

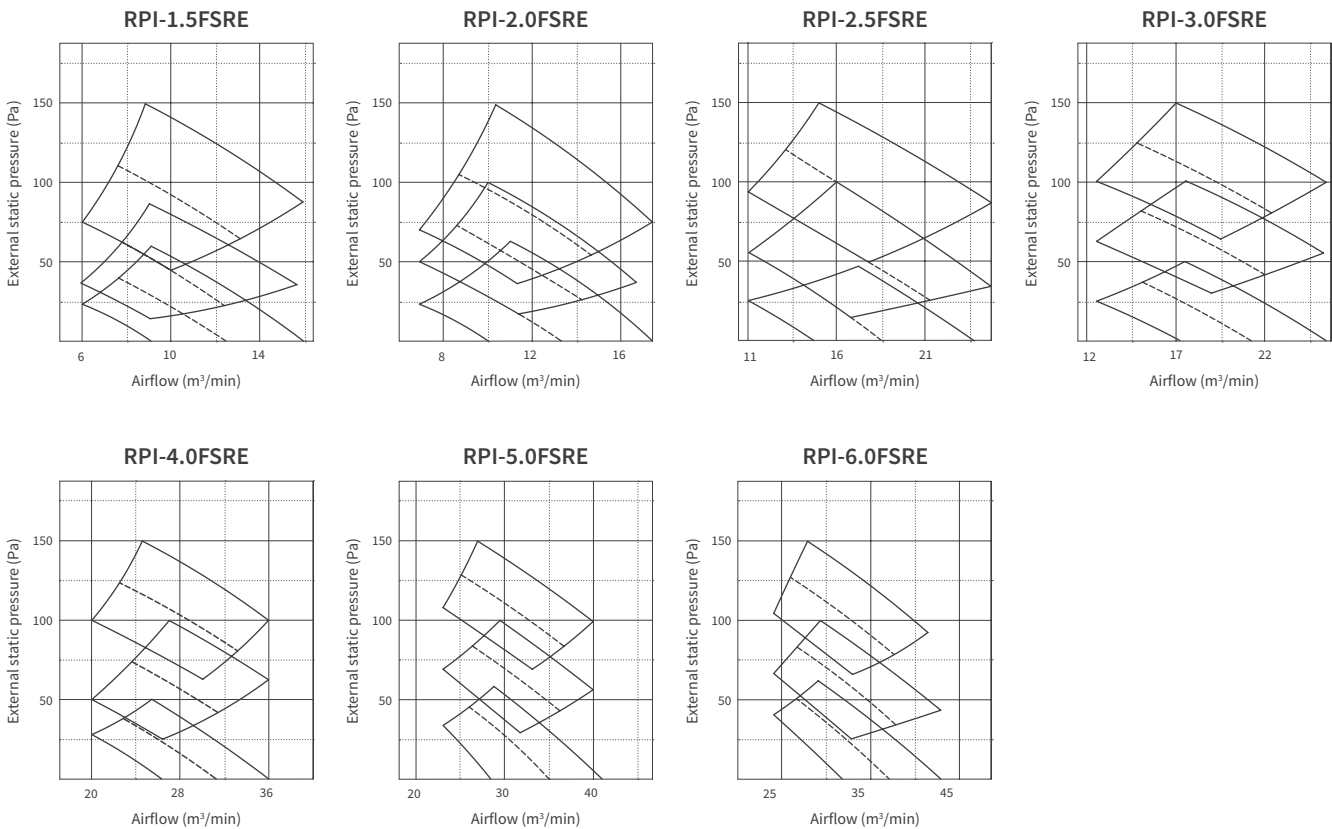|			
AZCE6BLUEFACEB	AZCE6THINKCB	AZCE6LITECB	AZX6WSCLOUDDINC
-	AZCE6THINKRB	AZCE6LITERB	AZX6WSCLOUDDINR
AZX6CABLEBUS10	AZX6CABLEBUS10	AZX6CABLEBUS10	AZX6CABLEBUS10

Static pressure curve

Ducted unit 100 Pa (RPIL-0.4~1.5FSRE)

RPIL-0.4FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPIL-0.6FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPIL-0.8FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPIL-1.5FSRE

External static pressure (Pa) vs Airflow (m³/min)

Ducted unit 150 Pa (RPI-1.5~6FSRE)

RPI-1.5FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-2.0FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-2.5FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-3.0FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-4.0FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-5.0FSRE

External static pressure (Pa) vs Airflow (m³/min)

RPI-6.0FSRE

External static pressure (Pa) vs Airflow (m³/min)

Ducted unit 200 Pa (RPIH-4~6FSRE)

RPIH-4.0FSRE

RPIH-5.0FSRE

RPIH-6.0FSRE

High-Capacity ducted unit

RPI-8.0FSN3E(-F)

RPI-10.0FSN3E(-F)

RPI-16.0FSN3PE(-F)

RPI-20.0FSN3PE(-F)

Wall unit

SYSTEM FREE | 0.4 HP | ◁× | POWER SWITCH

GENTLE COOL | R410A REFRIGERANT | R32 REFRIGERANT | NEW
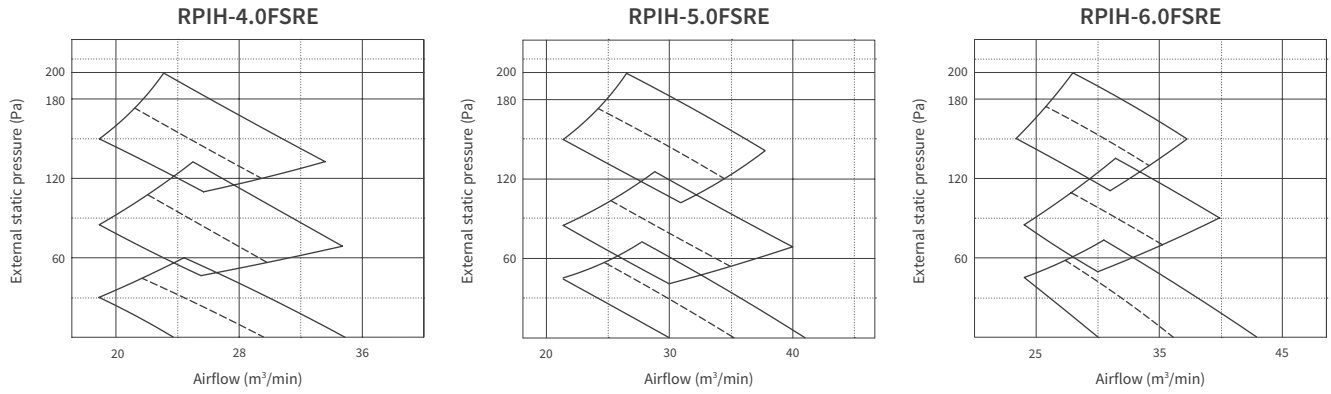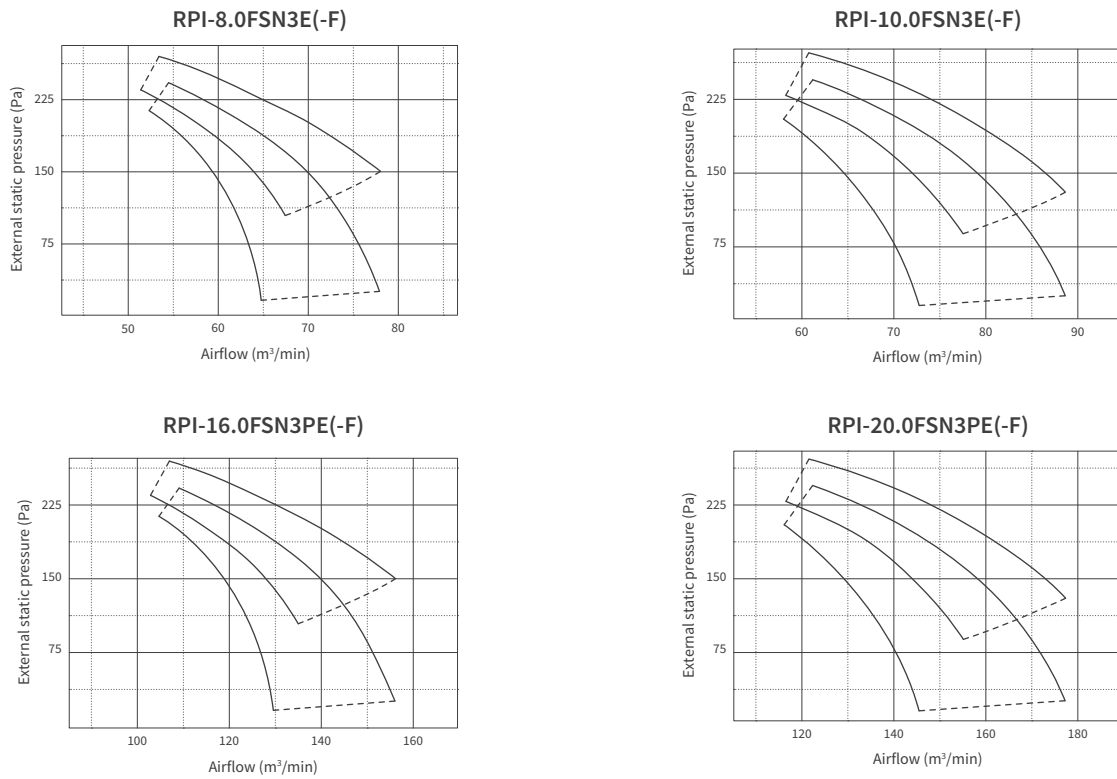
One of the most extensive ranges on the market: 17 models

With models ranging from 0.4 hp to 4.0 hp, Hitachi offers one of the biggest ranges on the market, with a harmonized design across all models. You can also use the adjustable power settings to respond precisely to each project.

Easy and discreet integration

Our units are so compact and lightweight that you can easily install them discreetly above a doorway.
To help with maintenance work, the fan motor on the 2 hp to 4 hp models can be replaced without disassembling the exchanger.

Unrivaled comfort

The "GENTLE COOL" air off temperature setting, accessible on the wired remote control PC-ARFP1E, adjusts the min. air off temperature. In summer, cold air drafts are avoided as you can set the the air off temperature to the maximum setting.

Silent operation

0.4 to 1.5 hp units can be ordered without an expansion valve (version H) to keep the expansion valve apart from the unit (part no. EV-1.5N1 order separately) for even quieter comfort. As such, our units are ideal for hotel use.
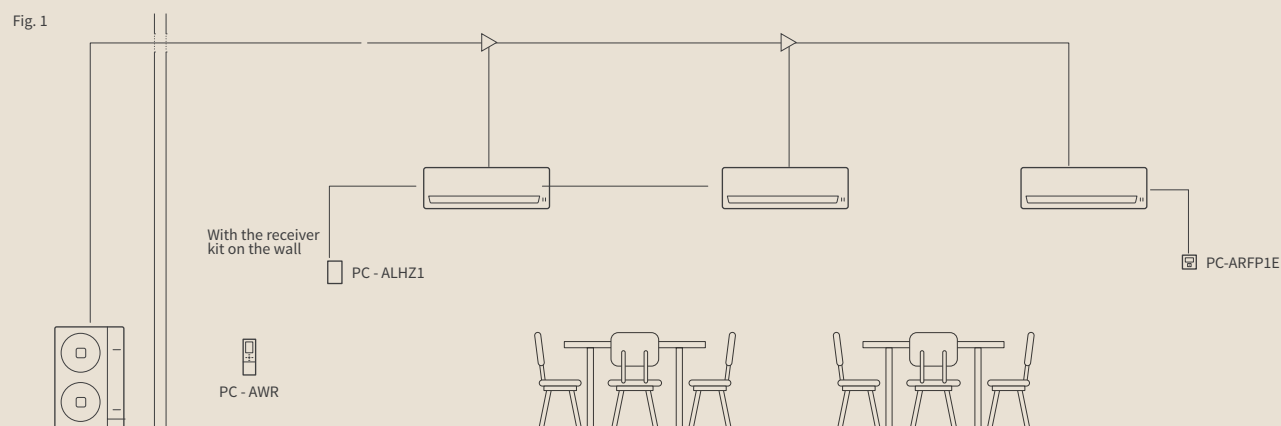
Central control

Our wall units are compatible with all types of remote control and feature an integrated infrared receiver as standard. Available as an option, with the PC-ALHZ1 infrared receiver you can operate multiple units on the same remote control. (Fig.1)
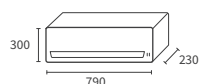
Higher airflow rate

Use the 4 fan speeds to adapt the airflow for comfort in every room.

Fig. 1

With the receiver kit on the wall
PC - ALHZ1

PC - AWR

PC-ARFP1E

Indoor units

300	790	230
300	900	230
300	1.100	260

RPK- 0.4FSRM   RPK- 0.4FSRHM
RPK- 0.6FSRM   RPK- 0.6FSRHM
RPK- 0.8FSRM   RPK- 0.8FSRHM   RPK- 1.5FSRM   RPK-2.0FSRM
RPK- 1.0FSRM   RPK- 1.0FSRHM   RPK- 1.5FSRHM   RPK-2.5FSRM
RPK-3.0FSRM
RPK-4.0FSRM

Wall unit
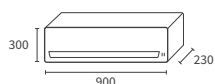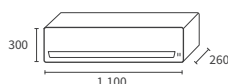
Indoor units	Unit	RPK-0.4FSR(H)M	RPK-0.6FSR(H)M	RPK-0.8FSR(H)M	RPK-1.0FSR(H)M	RPK-1.5FSR(H)M	RPK-2.0FSRM	RPK-2.5FSRM	RPK-3.0FSRM	RPK-4.0FSRM
Power (adjustable)	Hp	0.40	0.60	0.80	1.00 → 1.30	1.50	1.8 ← 2.00	2.30 ← 2.50	3.00	4.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	not available	not available	2.00	2.50	3.60	5.00	5.60	7.10	10.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	not available	not available	2.20	2.80	4.00	5.60	6.30	8.00	11.20
Nominal Cooling capacity SET FREE	kW	1.10	1.70	2.20	2.80 → 3.80	4.00	5.20 ← 5.60	6.70 ← 7.10	8.00	11.20
Nominal Heating capacity SET FREE	kW	1.30	1.90	2.50	3.20 → 4.20	4.80	5.60 ← 6.30	7.50 ← 8.50	9.00	12.50
Sound pressure in Cooling mode (EL/L/M/H)[1][3]	dB(A)	29 / 30 / 31 / 32	29 / 31 / 32 / 35	30 / 32 / 35 / 39		33 / 36 / 40 / 46	31 / 34 / 37 / 40	35 / 38 / 42 / 45	35 / 40 / 44 / 47	39 / 44 / 48 / 51
Sound power	dB(A)	45-46-48-49		45-47-49-53		47-50-54-58	47-50-53-55	51-54-58-60	51-56-60-63	54-60-64-65
Airflow in Cooling mode (EL/L/M/H) [4]	m³/h	360 / 402 / 438 / 450	360 / 420 / 450 / 480	390 / 420 / 480 / 600		450 / 540 / 660 / 840	570 / 660 / 780 / 870	720 / 840 / 990 / 1110	750 / 930 / 1050 / 1200	870 / 1050 / 1200 / 1380
Condensate pump included	-	No								
Diameter of pipes (Liq / Gas)	inches	1/4 / 1/2						3/8 / 5/8		
Condensate outlet diameter (ext)	mm	20								
Dimensions (H x L x D)	mm	300 x 790 x 230				300 x 900 x 230		300 x 1100 x 260		
Weight	kg	9		10		11	14.5	15		
Power supply	-	1~ 230V 50Hz								
Cable width (EN 60 335-1) [2]	mm²	3 x 0.75								
Recommended fuse size	A	5								

[1] Sound pressure is measured under the following conditions: 1 m under the unit, 1 m from the discharge louvre.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
[3] High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.
[4] Very low speed is available in Thermo-off mode.

EEV
EV-1.5N1

RPK- 0.4~1.5FSRHM

PC-ARFP1E
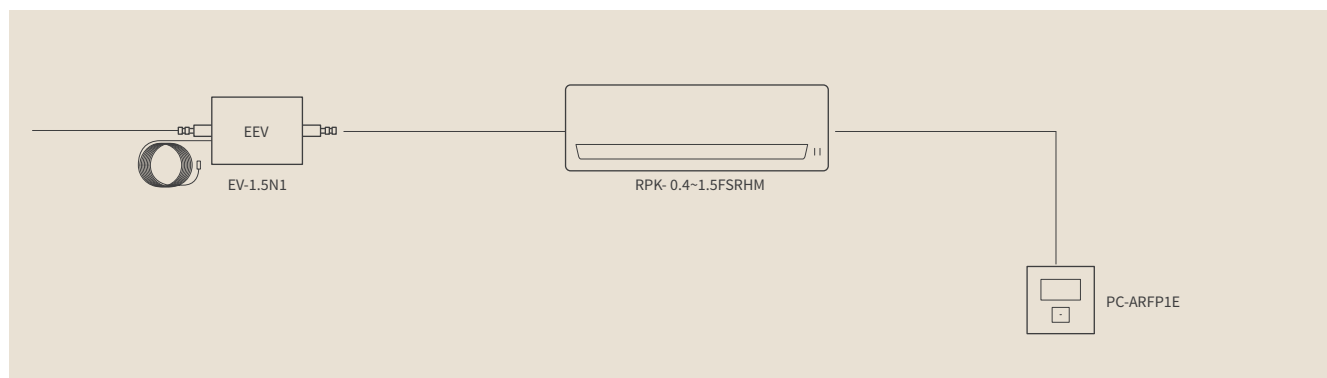
You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired controller
PC-ARFP1E
(PC-ARFG-E available in 2022)

Connectors
PCC-1A

Remote sensor
THM-R2AE

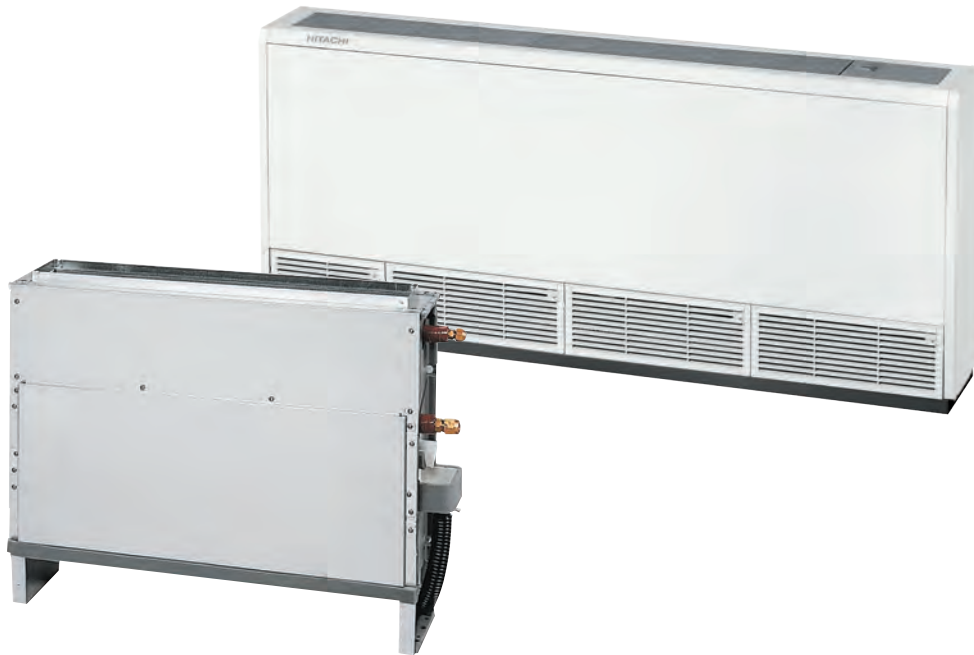**Infrared receiver**
PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

External EEV
EV-1.5N1

Floor mounted

R410A REFRIGERANT · SYSTEM FREE · POWER SWITCH

Unrivaled comfort

The GENTLE COOL air off temperature setting, accessible on the wired remote control PC-ARF1E, adjusts the min. air off temperature. In summer, cold air drafts are avoided as you can set the air off temperature to the maximum setting.

Even greater flexibility

To suit any requirement, the console comes in an uncased version (horizontal or vertical blowing) as well as cased. You can also use the adjustable power settings to respond precisely to each project.

Compact design

Just 220 mm deep, uncased units can be installed anywhere on the wall, taking up very little floor space. The 630 mm height makes it an ideal solution for air-conditioning or heating a room.

Integrated remote control

For easier access, the remote control can be integrated into the console itself (Fig.1)

Adapted air circulation

On Hitachi uncased consoles, you can change the blowing direction to suit any need. (Fig.2)

Fig. 1
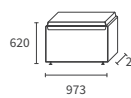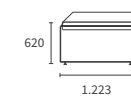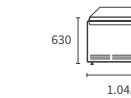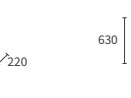
Fig. 2

Indoor units

620 / 220	620 / 220	620 / 220	630 / 220	630 / 220	630 / 220
848	973	1.223	1.045	1.170	1.420
RPFI-1.0FSN2E	**RPFI-1.5FSN2E**	**RPFI-2.0FSN2E** **RPFI-2.5FSN2E**	**RPF-1.0FSN2E**	**RPF-1.5FSN2E**	**RPF-2.0FSN2E** **RPF-2.5FSN2E**

Floor mounted

Cased console	Unit	RPF-1.0FSN2E	RPF-1.5FSN2E	RPF-2.0FSN2E	RPF-2.5FSN2E
Power (adjustable)	Hp	0.80 ← 1.00	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50
Nominal Cooling capacity UTOPIA Prime & IVX	kW	2.50	3.60	5.00	5.60
Nominal Heating capacity UTOPIA Prime & IVX	kW	2.80	4.00	5.60	6.30
Nominal Cooling capacity SET FREE	kW	2.20 ← 2.80	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10
Nominal Heating capacity SET FREE	kW	2.50 ← 3.20	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50
Sound pressure in Cooling mode (L / M / H) [1][3]	dB(A)	29 / 32 / 35	31 / 35 / 38	32 / 36 / 39	34 / 38 / 42
Sound power	dB(A)	57		60	
Airflow in Cooling mode (L/M/H)	m³/h	360 / 420 / 510	540 / 600 / 720	660 / 840 / 960	
Dehumidification	l/h	1.10	1.60	2.30	2.70
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2		1/4 - 5/8	3/8 - 5/8
Condensate outlet diameter (ext)	mm		18.50		
Dimensions (H x L x D)	mm	630 x 1045 x 220	630 x 1170 x 220	630 x 1420 x 220	
Weight	kg	25	28	33	34
Power supply	-		1~ 230V 50Hz		
Recommended fuse size	A		5		
Cable width (EN 60 335-1) [2]	mm²		3 x 0.75		

Uncased console	Unit	RPFI-1.0FSN2E	RPFI-1.5FSN2E	RPFI-2.0FSN2E	RPFI-2.5FSN2E
Power (adjustable)	Hp	0.80 ← 1.00	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50
Nominal Cooling capacity UTOPIA Prime & IVX	kW	2.50	3.60	5.00	5.60
Nominal Heating capacity UTOPIA Prime & IVX	kW	2.80	4.00	5.60	6.30
Nominal Cooling capacity SET FREE	kW	2.20 ← 2.80	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10
Nominal Heating capacity SET FREE	kW	2.50 ← 3.20	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50
Sound pressure in Cooling mode (L / M / H) [1][3]	dB(A)	29 / 32 / 35	31 / 35 / 38	32 / 36 / 39	34 / 38 / 42
Sound power	dB(A)	57		60	
Airflow in Cooling mode (L/M/H)	m³/h	360 / 420 / 510	540 / 600 / 720	660 x 840 x 960	
Dehumidification	l/h	1.10		2.30	2.70
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2		1/4 - 5/8	3/8 x 5/8
Condensate outlet diameter (ext)	mm		18.50		
Dimensions (H x L x D)	mm	620 x 848 x 220	620 x 973 x 220	620 x 1223 x 220	
Weight	kg	19	23	27	28
Power supply	-		1~ 230V 50Hz		
Recommended fuse size	A		5		
Cable width (EN 60 335-1)[2]	mm²		3 x 0.75		

[1] Sound levels (pressure) are measured in an anechoic chamber at 1 m in front of the unit and at 1 m from the floor.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility.
[3] High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.

You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired controller
PC-ARFP1E
(PC-ARFG-E available second half of 2022)

Connectors
PCC-1A

Remote sensor
THM-R2AE

Infrared receiver
PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

Ceiling unit

GENTLE COOL · SYSTEM FREE · POWER SWITCH

R410A REFRIGERANT · R32 REFRIGERANT · NEW

Energy-saving

The motion sensor (optional) automatically optimizes the level of comfort while limiting the energy consumption in rooms only occupied occasionally. It continuously analyzes thermal disparities as well as the presence of people in the room, adjusting its setting temperature (+/- 2°C), fan speed, and airflow direction to suit.

Wide operating ranges

4 fan speeds to suit every need, provide comfort, and make savings.

Flexible implementation

Condensing pumps are offered as an option to provide a high level of installation flexibility.

Unrivaled comfort

The GENTLE COOL air off temperature setting, accessible on the wired remote control PC-ARFP1E, adjusts the min. air off temperature. In summer, cold air drafts are avoided as you can set the air off temperature to the maximum setting.

Potential for discomfort

GentleCool → No cold drafts

Ultimate comfort

>8°C → COLD AIR DRAFT

>12°C

>14°C

>16°C
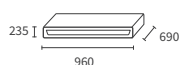
GentleCool: OFF

GentleCool: LOW

GentleCool: MEDUIM

GentleCool: HIGH

Min. Temp° control on the air off with the remote control PCARFP1E or the CSNET monitoring system

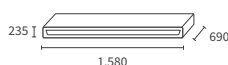### Indoor units

235 | 690
960

235 | 690
1.270

235 | 690
1.580
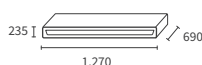
RPC-1.5FSR
RPC-2.0FSR

RPC-2.5FSR
RPC-3.0FSR

RPC-4.0FSR
RPC-5.0FSR
RPC-6.0FSR

Ceiling unit

Indoor units	Unit	RPC-1.5FSR	RPC-2.0FSR	RPC-2.5FSR	RPC-3.0FSR	RPC-4.0FSR	RPC-5.0FSR	RPC-6.0FSR
Power (adjustable)	Hp	1.30 ← 1.50	1.80 ← 2.00	2.30 ← 2.50	3.00	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA Prime & IVX	kW	3.60	5.00	5.60	7.10	10.00	12.50	14.00
Nominal Heating capacity UTOPIA Prime & IVX	kW	4.00	5.60	6.30	8.00	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	3.80 ← 4.00	5.20 ← 5.60	6.70 ← 7.10	8.00	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	4.20 ← 4.80	5.60 ← 6.30	7.50 ← 8.50	9.00	12.50	16.00	18.00
Sound pressure in Cooling mode (EL/L/M/H) [1][3]	dB(A)	28 / 31 / 35 / 37	28 / 31 / 35 / 38		29 / 33 / 37 / 40	32 / 37 / 42 / 44	35 / 41 / 45 / 48	36 / 42 / 47 / 49
Sound power	dB(A)	53	54	54	56	60	64	65
Airflow in Cooling mode (EL/L/M/H) [4]	m³/h	540 / 660 / 780 / 900		690 / 840 / 990 / 1140	750 / 930 / 1110 / 1260	1020 / 1320 / 1590 / 1800	1200 / 1530 / 1860 / 2100	1260 / 1620 / 1950 / 2220
Condensate pump	-	No (optional accessory)						
Max. elevation	mm	600						
Diameter of pipes (Liq / Gas)	inches	1/4 - 1/2	1/4 - 5/8	3/8 - 5/8				
Condensate outlet diameter (ext)	mm	32						
Dimensions (H x L x D)	mm	235 x 960 x 690		235 x 1270 x 690		235 x 1580 x 690		
Weight	kg	26	27	35		41		
Power supply	-	1~ 230V 50Hz						
Recommended fuse size	A	5						
Cable width (EN 60 335-1) [2]	mm²	3 x 0.75						

[1] Sound levels (pressure) are measured in an anechoic chamber at 1 m under the unit, 1 m from the air louvre.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility.
[3] High-speed access is possible with remote controls PC-ARFP1E and PC-ARH1E.
[4] Very low speed is available in Thermo-off mode.

You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories (see the tab VRF TWIN Controls)

Simple wired controller
PC-ARH1E

Infrared controller
PC-AWR

Hard wired controller
PC-ARFP1E
(PC-ARFG-E available in 2022)

Remote sensor
THM-R2AE

Infrared receiver
PC-ALHP1 (integrated) / PC-ALHZ1 (external)

Multi-tenant card
PC-AMTB

Motion sensor
SOR-NEP

Connectors
PCC-1A

Condensate drainage pump
DUPC-63K1 (extraction pump RPC-1.5FSR)
DUPC-71K1 (extraction pump RPC-2.0FSR)
DUPC-160K1 (extraction pump RPC-(2.5-6.0)FSR)

Hydro Free Low-Temperature

Heating mode only

R410A REFRIGERANT · SYSTEM FREE · 45°

Heating applications

The Hydro Free module (low temperature, 45°C) is compatible with underfloor heating and fan coil units. This solution ensures maximum thermal comfort with the DX/hydraulic combined solution.
This compact and ultra-silent module offers the most comfort for renovation projects.

Compactness

A single solution: the VRF installation is made even easier with the Plug-Play system. The module has all the necessary equipment as standard: pump, filter, expansion tank, purges, manometer ...

Setup example

Outdoor unit VRF Sigma

CH box (optional)

CH box (optional)

Low-Temperature hydraulic module

DHW tank (optional)

Indoor units

Heating mode

Indoor units

712 (782)
275
450
RWLT-3.0VN1E

890 (960)
360
520
RWLT-5.0VN1E

890 (960)
360
670
RWLT-10.0VN1E

Compatible with outdoor units SET FREE SIGMA: RAS-FSXNSE, RAS-FSXNPE and SET FREE Mini L (8/10/12hp).

Hydro Free Low-Temperature
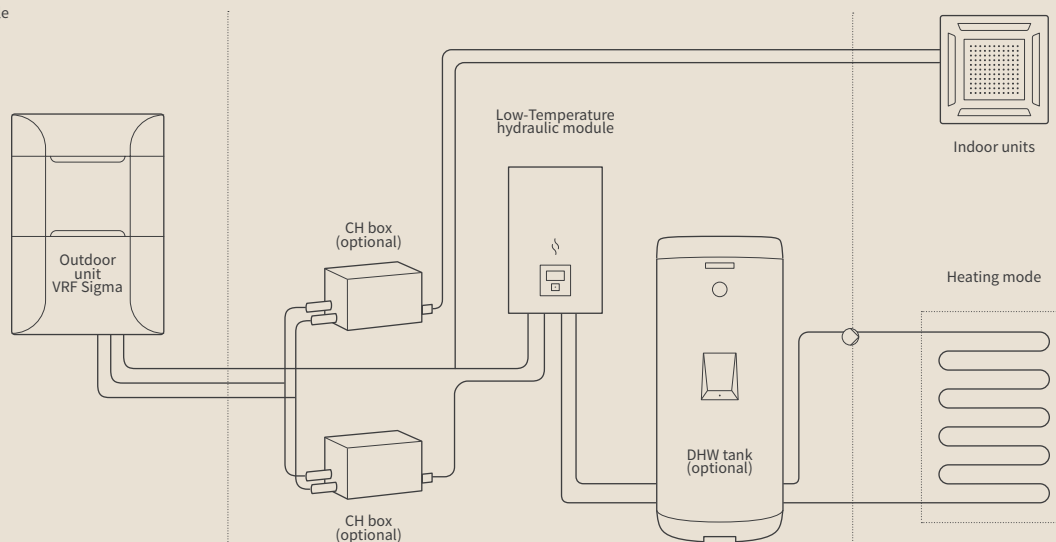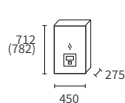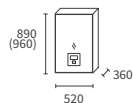
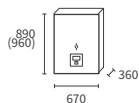| Indoor units		Unit	RWLT-3.0VN1E	RWLT-5.0VN1E	RWLT-10.0VN1E
Rated power Heating (7°C outside / 35°C water)		kW	9	16	27
Heating capacity (-7°C outside / 35°C water)		kW	5.5	11.5	17.7
Heating capacity (-7°C outside / 45°C water)		kW	5.2	11.1	15.61
Sound power		dB(A)	37	39	47
Net weight		kg	35	50	62
Unit dimensions	Height (with connections)	mm	712 (782)	890 (960)	890 (960)
	Width	mm	450	520	670
	Depth	mm	275	360	360
Water flow	Nominal	m³/h	1.5	2.7	4.7
Min. system water capacity		L	100	150	180
Power supply		-	1~ 230V 50Hz		
Max. consumption		kW	0.05	0.08	0.14
Refrigeration connection type		-	Flare nut	Flare nut	Liq: Flare nut - Gas: Brazed
Diameter of pipes (Liq - Gas)		inches	3/8" - 5/8"	3/8" - 5/8"	3/8" - 7/8"
Hydraulic connections (male/male valves supplied)		inches	1"	1 - 1/4"	1 - 1/4"
Hydrofree connection rate		-	0 ~ 100%		
Min. overall index of DX* units		-	50%		
General connection rate of Hydrofree + DX units	2-pipe VRF*	-	50% ~ 130%		
	3-pipe VRF*[2]	-	RAS-FSXNSE: 50% ~ 150%		
		-	RAS-FSXNPE: 50% ~ 200%		
Max. number of indoor units with Hydrofree installed [1]		-	38		
Temperature range of water outlet in heating mode		-	20°C ~ 45°C		

* Important: simultaneous operation can never be higher than 100% in heat pump mode.
  Simultaneous operation in the same mode can never exceed 100% for a VRF system in heat recovery mode.
[1] The maximum number of indoor units is the recommended quantity of indoor units for every size of outdoor unit. For more information, please refer to the technical catalog of the outdoor unit.
[2] See Section 9.5.2.2 "Function of DIP switches and dial switches" in the technical catalog for more information on Pin 3 of the DSW8 with a connection rate of > 180%.

You can have multiple contacts with the connector PCC-1A: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories

ON/OFF wireless thermostat
ATW-RTU-04

Controller enclosure
ATWFCP-01

Temperature sensors
ATW-2OS-02
ATW-ITS-01
ATW-WTS-02Y

Hydro Free High-Temperature

Heating mode only

R134A REFRIGERANT R410A REFRIGERANT SYSTEM FREE 80°

For a variety of applications

- High-temperature heating: combined with the VRF Sigma or SET FREE Mini 2/3-pipe.
- Constant DHW production: combined with the VRF Sigma or 3-pipe SET FREE Mini.
- Timed DHW production: combined with the VRF Sigma or 3-pipe SET FREE Mini.

The Hydro Free high-temperature system is ideal for high-temperature hot water needs for renovation projects, as heat is recovered via the CH box on indoor units operating in coooling mode.

2-in-1 system

A single unit to meet 2 needs: **heating and DHW**. The High-Temperature Hydro Free system produces hot water up to 80°C from renewable energy (no anti-legionella cycle required).

Smart operation

High-Temperature Hydro Free models are equipped with 2 compressors operating on a smart cascading system, and 2 refrigeration cycles (R-410A and R-134A): the second cycle occurs only if the inlet temperature is greater than or equal to 30°C or when the outlet temperature is greater than or equal to 45°C.

Setup example with 3-pipe system

Indoor units

Outdoor unit VRF Sigma

CH box

CH box

High-Temperature hydraulic module

DHW tank (optional)

Indoor units

751 (802)
623
600
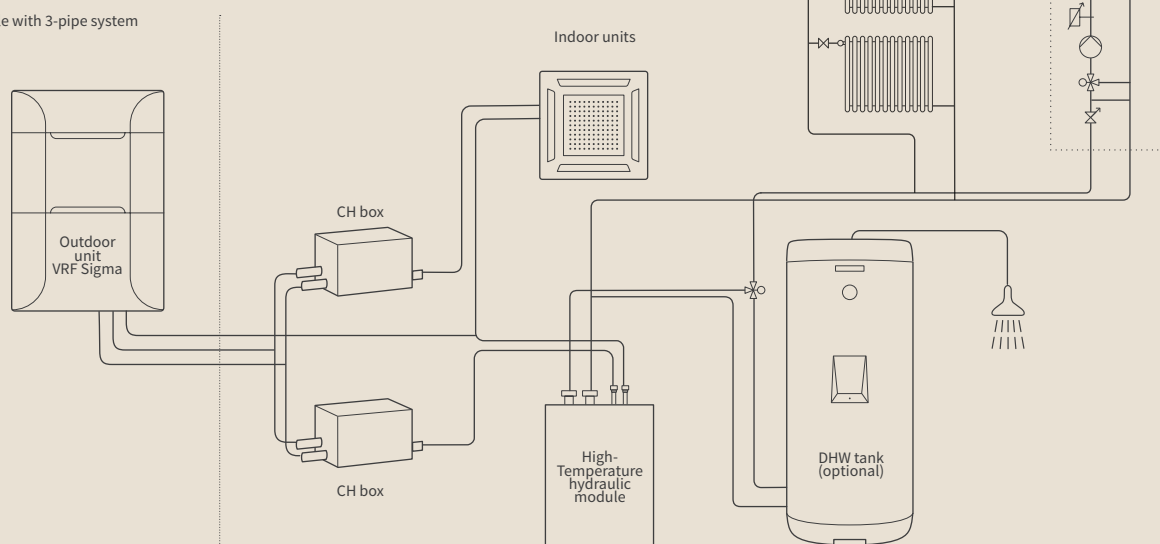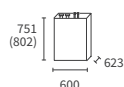
RWHT-5.0VNF1E

Hydro Free High-Temperature

Indoor units		Unit	RWHT-5.0VNF1E
Rated power Heating (7°C outside / 35°C water)		kW	16
Heating capacity (-7°C outside / 65°C water)		kW	13.9
Heating capacity (-7°C outside / 80°C water)		kW	12.4
Sound power		dB(A)	57
Net weight		kg	129
Unit dimensions	Height (with connections)	mm	751(802)
	Width	mm	600
	Depth	mm	623
Water flow	Nominal	m³/h	2.8
Min. system water capacity		L	80
Power supply		-	1~ 230V 50Hz
Max. consumption		kW	6.23
Refrigeration connection type		-	Flare nut
Diameter of pipes (Liq - Gas)		inches	3/8" - 5/8"
Hydraulic connections (male/male valves supplied)		inches	1-1/4" - 1-1/4"
Refrigerant		-	R134A
Compressor		-	Scroll
Hydro free connection rate		-	0 ~ 100%
Total ratio of DX when installed with Hydro free*		-	50% ~ 130%
Total connection rate Hydrofree + DX	2-pipe* VRF	-	50% ~ 130%
	3-pipe* VRF	-	RAS-FSXNSE: 50% ~ 150%
		-	RAS-FSXNPE: 50% ~ 200%
Max. number of indoor units with HM installed		-	38
Max. temperature range of water outlet		-	25°C ~ 80°C
Remote control		-	PC-ARFWE (mounted locally)

* Important: simultaneous operation can never be higher than 100% in heat pump mode.
Simultaneous operation in the same mode can never exceed 100% for a heat recovery system.
(1 *) The maximum number of indoor units is the recommended quantity of indoor units for every size of outdoor unit. For more information, please refer to the technical catalog of the outdoor unit.
(* 2) See Section "9.5.2.2 Function of DIP switches and dial switches" for more information on Pin 3 of the DSW8 with a connection rate of > 180%.

You can have multiple contacts with the PCC-1A connector: progress report, error report, thermostat control, remote "Start/Stop".

Controls and compatible accessories

Controller
PC-ARFWE

ON/OFF wireless thermostat
ATW-RTU-04

Temperature sensors
ATW-2OS-02
ATW-ITS-01
ATW-WTS-02Y

Hitachi wants to bring more and more comfort to its customers. The user interface is key to that objective. This extensive range of controls is perfect for the needs of anything from small to large public sector projects. It offers more features than any other range on the market, in unique versions as standard. Installation is quick and easy.

Managing the systems Utopia Prime, IVX, and VRF

Selection guide
Central controls

		airCloud Pro	PSC-A32MN	PSC-A64GT	CSNET Lite	CSNET Manager 2
Technical data of the gateway or interface	Indoor unit per interface	64 indoor units	32 remote control units / 160 indoor units	64 remote control units / 160 indoor units	64 indoor units	64 indoor units
	Outdoor unit per interface	16	32	64	64	64
	Interface per H-Link	1	8	8	1	1
	Max. amount of IDU per user interface	Unlimited (with multiple interfaces)	160	160	64	1024
	Cloud access	●	-	-	-	-
	Web application	●	-	-	●	●
	Mobile app	●	-	-	-	-
Connectivity	Standard connectivity	Ethernet	-	-	Ethernet	Ethernet
	4G connectivity	Option	-	-	-	-
	Interface updated remotely online	●	-	-	●	●
System access	Main access	Cloud	Local	Local	Local	Local
	Local setup access: can be used to control units in a backup solution if access to the server is no longer available	● limited features	●	●	●	●
	Remote access	●	-	-	●	●
	Type pf server	Cloud	-	-	Local web server	Local web server
	Internet connection mandatory	●	-	-	-	-
User and site management	Multi-user management	●	-	-	●	●
	User accounts with limited access to indoor units / functions	-	-	-	●	●
	Multi-site management	●	-	-	-	-
Basic functions	Basic indoor unit control	●	●	●	●	●
	Installation dashboard	●	-	-	●	●
	Weekly programming	●	-	-	-	-
	Annual programming	-	-	-	●	●
	Reset filter sign	●	●	●	-	-
	Alarm log	●	●	●	●	●
Advanced features	Min./max. setpoint temperature	-	●	-	●	●
	Outdoor unit power use setback (manual, contact, or programmable)	-	●	-	●	●
	Cumulative operating time	●	●	●	-	-
	System status (running data for outdoor unit and indoor unit)	●	-	-	●	●
	Data archive	-	-	-	●	●
	Order log & direct data	-	-	-	●	●
	Electrical consumption readings for Hitachi indoor unit	●	-	-	●	●
	Consumption readings from third-party watt meters	-	-	-	●	●
	Interlock	-	-	-	●	●
	Comfort features (Gentle Cool, heat draft (winter comfort) SetBack (reduced heating/Cooling mode))	-	-	-	●	●
	Alarm notifications	Expected in 2021	-	-	●	●
	Local server management	-	-	-	●	●
	Smart control and advanced maintenance	Expected in 2021	-	-	-	-
BMS connection	Input/output switches	-	●	●	●	●
	Tenant billing	Expected in 2021	-	-	●	●
	BMS connection	Expected in 2021	-	-	●	●

Selection guide to controls

Specific remote controls

Hard wired
PC-ARFP1E

Intuitive interface.
Manage 1 to 16 indoor units as masters and/or slaves.
Built-in temperature sensor.
Adjust optional settings.

New features
- To optimize energy consumption: ECO button, energy consumption display.
- For more comfort: setpoint adjustable to -/-0.5°C, GENTLE COOL function, frost protection function, night setback for outdoor unit.
- For more flexibility: new Master/Slave function which allows multiple indoor units to have the mode changed and be set by one remote control.

Ideal for maximum flexibility in all commercial applications.

Simplified wired
PC-ARH1E

Manage 1 to 16 indoor units as masters and/or slaves.
Simplified access to essential functions.
Adjust optional settings.

New features
- For more comfort: setpoint adjustable to +/-0.5°C, frost protection function.

Ideal for hotels, shops, when simplicity is key.

Infrared
PC-AWR

Manage 1 to 16 indoor units as masters and/or slaves.
Simplified access to key functions.
Infrared receiver function.

IR receiver	Compatibility with indoor units	
Include with the unit	Wall units	RPK-FSRM / RPK- FSRHM
PC-ALHC1 PC-ALH3 PC-ALHD1	4-way 600x600 cassette unit 4-way 800x800 cassette unit 2-way cassette unit	RCIM-FSRE RCI-FSR RCD-FSR
PC-ALHZF1 (external)	Ducted units Consoles	RPI / RPIM / PPF / RPFI / RCI RCIM / RCD / RPK / RPC
PC-ALHP1	Ceiling units	RPC

Ideal for renovations.

Centralised controls

Touch screen controls
PSC-A32MN
PSC-A64GT

Manage up to 160 indoor units:
- **PSC-A32MN** > up to 32 groups of 16 indoor units, max. 160.
- **PSC-A64GT** > up to 64 groups of 16 indoor unit, max. 160. Up to 8 touch controllers per H-Link bus.
5" (PSC-A32MN) and 8.5" (PSC-A64GT) color touchscreen.
Up to 100 stored alarms.
Available contacts: start/stop, fault report, function report.
Demand control possible from external contact to reduce capacity.
In the case of using PSC-6RAD, max. 16 units allowed.

Ideal for monitoring small and medium-sized systems.

Building management systems

	CSNET Manager 2		CSNET Lite	airCloud PRO
Range	with screen	without screen (web)	web	web
User interface	10" or 15" high-resolution touchscreen CSNET Manager 2T10 or CSNET Manager 2T15	Interface without screen, access data on the PC, tablet or smartphone on all CSNET, 2T10, 2T15 (as well as the screen) and on the 2SL (model without screen)	PC, tablet, smartphone	PC, tablet, smartphone + mobile app / web app
H-Link interface	HC-A64NET		CSNET Lite	HC-IOTGW
Compatibility	H-Link units: - VRF & IVX Prime - Hydrofree - YUTAKI - Utopia Prime RAC units with adapters:			Main HLINK units: - VRF / IVX - RAC units with adapters (some limitations)
Functions	- Version 2.0 of the CSNET software (managing the Yutaki, server room function, pulse meters on the CSNET Lite, electricity and water metering for third-party systems, etc.) - VRF + air/water heat pump unit control (H-Link systems) - Multi-tenant access with specific rights/privileges for different functions or indoor unit control - Advanced control functions (Comfort, Interlock...) - Multi-tenant installations, flexibility for office applications - Energy metering for VRF units – third-party systems - Use of dry input/output contacts on indoor units or CSNET Lite - Connection to the BMS system (Modbus, BACnet, or KNX)		- Same features as CSNET Manager, applied to small or medium-sized systems - Manage up to 64 indoor units	- Monitor units VRF, IVX, and Utopia (HLINK unit) - Simple unit control with Web or mobile applications - Alarm notifications and alarm log available for remote maintenance - Perfect solution for small public applications and businesses needing basic control functions
Applications	Medium and large-size systems		Small and medium-size systems	Small and large-size systems

BMS interfaces

MODBUS interface
HC-A16MB
HC-A64MB

- Up to 16 / 64 indoor units per interface.
- Optional function management, view outdoor unit settings.

KNX interface
HI-AC-KNX-16
HI-AC-KNX-64

- up to 16 / 64 indoor units par interface.
- Fast integration: KNX-certified.
- Easy maintenance: USB port available, function and communication LEDs.
- KNX interfaces compatible with CSNET Manager.

BACNET interface
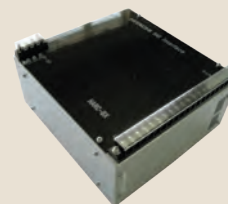HI-AC-BAC-16
HI-AC-BAC-64

- Up to 16 / 64 indoor units per interface.
- Fast integration: BACnet-certified, direct H-Link communication – BACnet.
- Easy maintenance: USB port available, function and communication LEDs.
- BACNET interface compatible with CSNET Manager.

LON interface
HARC-BX E(A)
HARC-BX-E(B)

-Up to 32 (version E(B)) / 64 (version E(A)) indoor units per interface

Selection guide for Individual remote controls

		Advanced wired controller PC-ARFP1E
Selection	Max. number of indoor units per remote control	1 to 16
	Type of master/slave connection	Non-polarized bus
Main functions	Start/Stop	●
	Mode selection	●
	Auto Heating/Cooling mode	● (best used with 3-pipe VRFs)
	Dehumidification mode	●
	Set point selection	● (19°C to 30°C in Cooling mode / 17°C to 30°C in Heating mode)
	Adjust set point by +/-0.5°C	●
	Adjusting the fan speed	● (up to 5 according to the indoor unit type)
	Louvre control	●
	Individual louvre control	●
	Weekly timer	● (Up to 5 daily programs)
	Daily timer	●
	Holiday mode	-
	ECO mode	●
	Auto-restart after a power outage	●
	Built-in temperature sensor	●
Advanced management features	Lock function mode	●
	Lock the setpoint temperature ranges	●
	Lock the remote control buttons with the exception of Start/Stop	●
	Stop the fan in Thermo OFF Heating mode	●
	Stop the fan in Thermo OFF Cooling mode	●
	Thermistor selection (rcs, return air, average)	●
	Night set back (outdoor unit at lower noise level)	●
	Temperature set back: in Heating mode or in Cooling mode	●
	Gentle Cool (summer comfort): limit the air off Temp° in Cooling mode	●
	Auto Boost: rapid rise in temperature at startup	●
	Manage the motion sensor	●
	Adjust the temperature differential in Heating mode	●
	Show ambient room temperature	●
	Show outside temperature	●
	View the estimated energy consumption of the outdoor unit	●
	Demand control (auto or by zone)	●
Advanced maintenance features	Error code log	● (max. 30)
	After-sales contact details	●
	Information: defrost in progress	●
	Information: filter needs cleaning	●
	Self-test indoor unit and remote control electronic boards	●
	Check mode (view system parameters)	●
	Test Run mode	●
	Setting optional functions	●

ECO mode

Easy to use, this key takes you straight to "Energy Saving" functions.
You can access the following options:
- Activation / Deactivation
- 3 energy-saving levels: HIGH> MED> LOW applied continuously or following a weekly schedule.
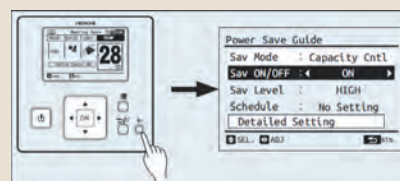
Simplified wired control PC-ARH1E	Infrared PC-AWR
1 to 16	1 to 16
Non-polarized bus	Non-polarized bus
●	●
●	●
● (best used with VRF 3 pipes)	● (best used with VRF 3 pipes)
●	●
● (19°C to 30°C in Cooling mode / 17°C to 30°C in Heating mode)	● (19°C to 30°C in Cooling mode / 17°C to 30°C in Heating mode)
●	-
● (up to 5 according to the indoor unit type)	● (up to 5 according to the indoor unit type)
●	●
-	-
-	-
-	● (daily)
-	-
-	-
●	-
●	-
●	-
●	-
●	-
●	-
●	-
●	-
-	-
●	-
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●	-
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-	-
●	-
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-	-
-	-
-	-
●	-

Simple functions to customize your comfort: GENTLE COOL and Auto Boost
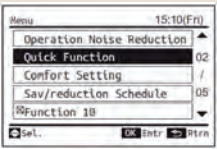
When you quickly need to reach a room's set temperature, select Auto Boost.

When you want to ensure more comfort by avoiding Cold drafts in summer, select the Comfort function called GENTLE COOL and customize your comfort: HIGH>MED >LOW.

Setpoint adjustable by +/- 0.5°C

Show outside or room temperature

Define the master remote control to make the changeover even easier

New feature accessible with remote control PC-ARFP1E: change the mode from any 'master' remote control.

Controller A (Master)   Controller B (Slave)   Controller C (Slave)
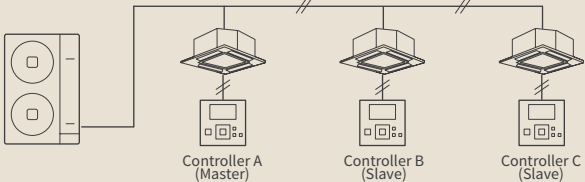
Selection guide
Centralised controls
Touchscreen or web based

Suitable for different sized projects allowing for faster monitoring, setup, and maintenance.

PSC-A32MN

Manage up to 32 groups of 16 indoor units, max. 160.
5" color touchscreen.

PSC-A64GT
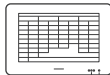
Manage up to 64 groups of 16 indoor units, max. 160.
8.5" color touchscreen.

airCloud Pro

Application
Web & mobile

NEW

Cloud server

Ethernet / 4G
(4G module: option available
in 2021)

H-Link

POWER
ERROR
H-LINK
UPLINK
4G-LINK

POWER   LAN   RS485 H-LINK

Connect up to 64 indoor units and 16 outdoor units
Compatible with H-Link II
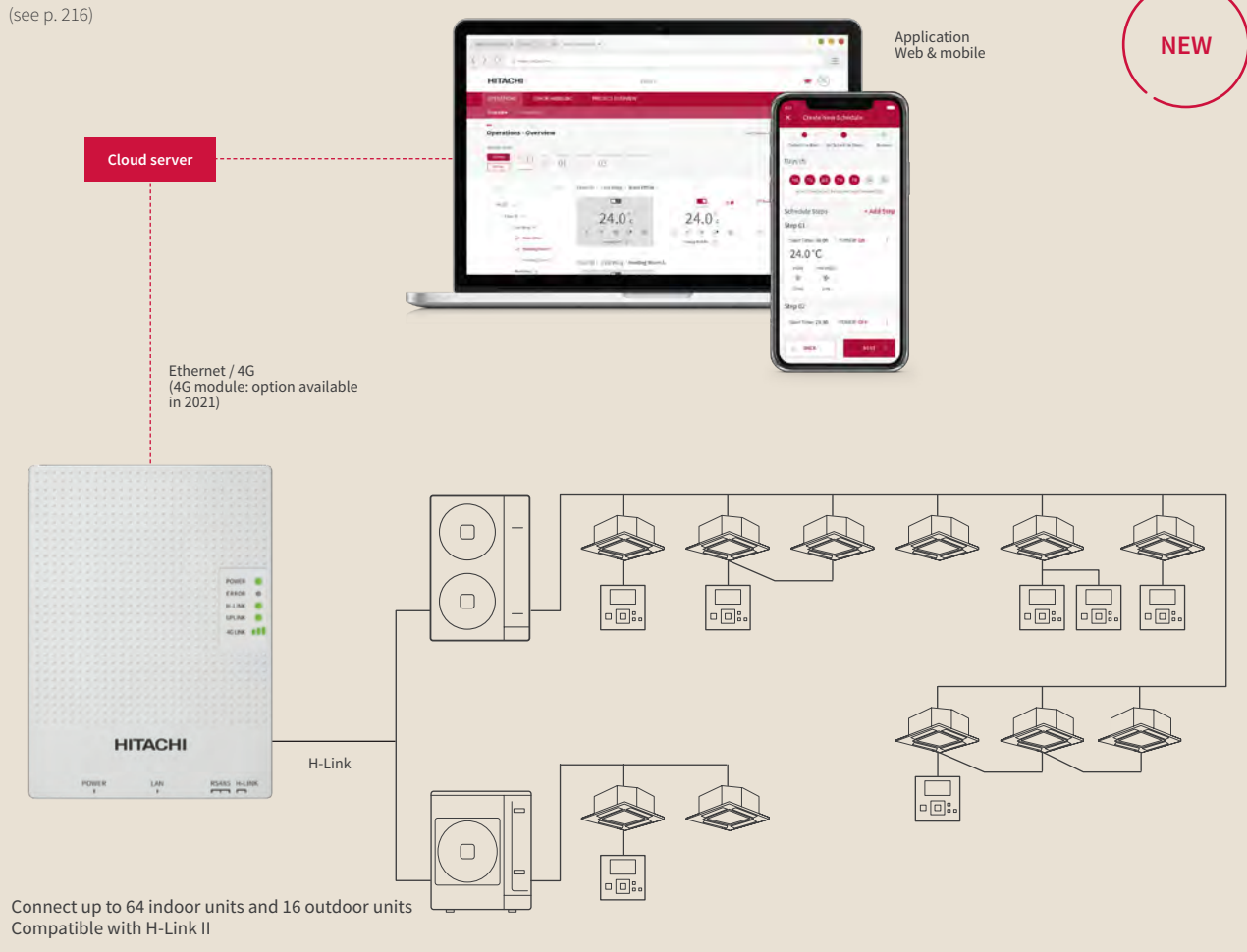
	Centralised, touchscreen PSC-A32MN	Centralised, touchscreen PSC-A64GT
Selection	Manage up to 32 units of 16 indoor units, max. 160.	Manage up to 64 units of 16 indoor units, max. 160.
	5" color touchscreen	8.5" color touchscreen
	Up to 8 centralized controllers per H-Link bus	Up to 8 centralized controllers per H-Link bus
Functions **Key functions**		
Access levels	2 (user, professional)	
Define groups (set of indoor units connected on the same remote control)	●	
Define blocks (sets of groups)	●	
Mode selection	● by indoor unit / unit or block	
Dehumidification mode	●	
Set point selection	● by indoor unit / unit or block	
Adjust set point by +/-0.5°C	-	
Adjusting the fan speed	● by indoor unit / unit or block	
Louvre control	● by indoor unit / unit or block	
Individual louvre control	-	
Weekly timer	● (Up to 10 daily programs)	
Daily timer	-	
Holiday mode	-	
Filter indication (light on according to timer)	● by indoor unit	
ECO mode	-	
Advanced management functions		
Lock remote control apart form the Start/Stop button	● by indoor unit / unit or block	
Limit and lock setpoint ranges (in Heating mode / in Cooling mode)	● by indoor unit / unit or block – on PSC-A32MN only	
Night setback (outdoor unit at lower noise level)	-	
Temperature setback	-	
GENTLE COOL function (summer comfort)	-	
Adjust the temperature differential in Heating mode	-	
Auto Heating/Cooling mode	● by indoor unit / unit or block	
View energy consumption	-	
View operating hours	● by indoor unit/ unit or block	
Demand control	● (reduce the electical consumption of the outdoor unit following a weekly schedule or using an external signal (contact on the central controller))	
Advanced maintenance features		
Error code log	● (up to 100: show error code, date and time of the failure, unit(s) affected	
After-sales contact details	●	
Reset Filter LED	● by indoor unit / unit or block	
Set optional functions (installer menu)	●	

airCloud Pro

You're in control

IoT technology

24/7 control at your fingertips, via your smartphone app or web

Intuitive simplicity

airCloud Pro is designed to make it easier for you. This open-access mobile app makes it easier than ever to manage your air-conditioning systems.

Control from anywhere

Enjoy remote access from your smartphone or PC. airCloud Pro lets you remotely control an unlimited number of variable coolant flow systems (VRF) from a single app, which means you can stay right where you are.

Ideal applications

OFFICE SCHOOL / UNIVERSITY FACTORY / WAREHOUSE HOSPITAL HOTEL RETAIL RESTAURANT

Technical speification CE	HC–IOT GW
Dimensions (W x H x D)	138 x 200 x 41 mm
Net weight	540 g
Connection capacity	16 outdoor units + 64 indoor units
Power supply	230V	50Hz
Max. power consumption	10W
Communication port	1 H-Link, 1 port RS485
Internet connection	Local network (Ethernet) or 4G[3]
External interface (data storage)	1 micro SD card slot

A simple yet powerful tool

Make your life easier

Central control
Control either the entire VRF system or specific zones all at the touch of a button.

Simplified troubleshooting
Clear error code history, brief summary of the problem, and reminder to clean filter.

Smartphone alerts
To report any serious malfunction.

Flexible user management
Add unlimited users and customise access restrictions.

Save more energy

Energy consumption data
View your electricity consumption in simple graphs to monitor the units with heavy-usage in your system (available in 2022).

Intuitive planning
Plan service visits around your working day and exceptions such as holidays.

Individual controller lock
Block any inappropriate use by occupants.

Create a pleasant climate

Easily adjust the **temperature, fan speed, and operating modes** for complete comfort and an ideal ambient climate throughout the building.

A **built-in weather forecaster** helps you define the conditions most suited to different indoor spaces throughout the year.

Plug & play system

The airCloud interface makes installation easy.
Just connect to airCloud via the **3G/4G**[2] **or Ethernet** network and pair your VRF systems by scanning the QR code. With **automatic detection of indoor units** and an optimised installer view, configuring your site and zones has never been quicker.

+ data security

- **The highest standards:** Protocol TLS v1.2, HTTPS 2038 encryption
- **Minimal personal information requested:** You only need your name, email address, and phone number to log in
- **Regularly updated and enhanced with new features,** airCloud Pro ensures you're always up to date.

How airCloud Pro works

air Cloud Pro

Ethernet or 3G/4G network[2]

H-LINK

From the internet or mobile app

airCloud interface

To your VRF system

Compatible with old and new Hitachi variable refrigerant flow systems [1]

Available on the App Store

ANDROID APP ON Google Play

Go to: aircloudproapp.com

[1]Check the compatibility of your VRF system with your Hitachi Cooling & Heating representative.
[2] 4G module available (second half of 2021) as an accessory.

airCloud Pro features

		airCloud Pro
Interface features	Indoor units per interface	64 indoor units
	Outdoor units per interface	16
	Interface per H-Link	1
	Max. amount of indoor units per user interface	Unlimited (with multiple interfaces)
	Cloud access	●
	Web application	●
	Mobile app	●
Connectivity	Prime connectivity	Ethernet
	4G connectivity	Option (available second half of 2021)
	Interface updated remotely online	●
	10 years of connection fees	●
System access	Main access	Cloud
	Local access or emergency access to configuration if server access is down	● With limited features
	Remote access	●
	Type of server	Cloud
	Internet connection mandatory	●
User and site management	Multi-user management	●
	User accounts with limited access to indoor units / functions	-
	Multi-site management	●
Basic functions	Basic indoor unit control	Start/Stop
		Heating/Cooling mode
		Setpoint temp.
		Fan speed
		Remote control lock
		Setup remote control groups
	Zone management	Create unlimited zones
	Installation dashboard	●
	Weekly programming	●
	Reset filter sign	●
	Alarm log	●
Languages	App languages	English
		French
		German
		Italian
		Portuguese
		Spanish

Selection guide
CSNet centralized controls

The CSNET range comes in two versions: a WEB version that offers flexibility and a touchscreen version for usability.
This range is ideally suited to the needs of any size project:
from small to large commercial buildings. It offers more functionality than any other range on the market as standard without add-ons. Installation is quick and easy. Guided configuration makes things even easier.

Central control

Centralised control with touchscreen

CSNET Manager 2T10 / 2T15
+ HC-A64NET interface

Manage up to 1,024 indoor units.
Manage 1 to 64 indoor units per HC-A64NET gateway and up to 16 gateways via CSNET. The HC-A64NET gateway can be replaced with CSNET Lite.
Comes with a 10" (2T10) or 15" (2T15) screen.
- True maintenance tool: mail notifications, alarm log, data archive.
- Multi-site remote management and control tool with the web server function.
- Tool for managing and breaking down energy consumption.
- Interlock option: smart programming of IFTTT actions.
- Compatible with Fidélio software: perfect for the hotel industry.
Interface compatible with smartphones, tablets, PCs connected to the local network or or via the web.

New features
- Next-generation touchscreen for a more enjoyable user experience.
- New, more intuitive responsive user interface that offers the same features on any screen.
- Wizard function for easier, faster commissioning.
- Master/slave operation of indoor units: no electrical wiring needed for a more flexible and less expensive installation.

Ideal for managing large installations with maximum comfort for occupants and ease of access for maintenance teams.

Accessories
Wall bracket – Part no.: WALL SUPPORT 2
Base – Part no.: STAND SUPPORT

Centralised control, Web version

CSNET Manager SL +
interface HC-A64NET

Manage up to 1,024 indoor units.
Manage 1 to 64 indoor units on the HC-A64NET gateway and up to 16 gateways via CSNET. The HC-A64NET gateway can be replaced with CSNET Lite.
With the same features as the CSNET Manager 2T10/2T15, this SL version is a web version.
System control is done on smartphone, tablet, or PC only, connected to the local network or via the web.

New features
- More flexible installation: Ethernet port, 2 USB ports, HDMI port.

Ideal for managing large facilities.

Accessory
DIN rail support

Centralised control standalone web version

CSNET Lite

Standalone gateway to run up to 64 indoor units.
Has limited functionality of CSNET Manager 2.
Compatible with smartphones, tablets, PCs connected to the local network or via the web. For multi-site monitoring, CSNET Lite is compatible with CSNET Manager 2T10/2T15 and SL

Ideal for managing small and medium-sized facilities.

With this CSNET range, you can manage 1 to 64 indoor units on the interface and up to 1024 indoor units, locally or remotely on the WEB.

CSNET Manager 2 is a management and monitoring interface for Hitachi heating and air-conditioning systems. It features new touchscreen technology as well as a responsive display, for an improved user experience.

The CSNET Manager 2 T10 / 2 T15 range, includes 2 screens, 10" and 15".

The system is managed on two H-Link interfaces of your choice, HC-A64NET or CSNET Lite, capable of managing up to 64 indoor units. CSNET Manager 2 can manage up to 16 H-Link interfaces.

For installation extensions, CSNET Manager 2 is also compatible with the old CSNET Web (limited for certain options).

The 320 GB storage capacity allows you to store a virtually unlimited amount of system applications and histories.

Selection guide to CSET centralized controls

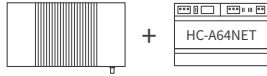|		**WEB version with touchscreen** CSNET Manager 2T10/ 2T15 + HC-A64NET
Selection	Max. number of indoor units per H-Link interface	Up to 64
	Max. number of indoor units	Up to 1,024
	Max. number of outdoor units	64 outdoor units per interface
	Touchscreen	● 2T10(10") / 2T15 (15")
	Web server	●
	Compatible user interfaces	Smartphone Tablet PC equipped with a web browser
	Compatible BMS	● MODBUS interface included as standard KNX - BACNET via dedicated interfaces
Advanced management features	Number of user access levels	Unlimited
	Create monitoring zones (e.g multiples tenants)	●
	Energy consumption monitoring	●
	Energy consumption distribution breakdown	●
	Demand control	●
	Compatible with MICROS FIDELIO	●
	Unlimited annual programming integrating public holidays and leave	●
	Annual calendar synchronized with Outlook	●
	Set the optional functions of indoor units	● with up-to-date HLINK interfaces (CSNET Lite v2.0 or HC-A64NET v2.0)
	Master/Slave control	●
	MODBUS compatibility included	●
	Interlock function (IFTTT concept)	●
	Hotel applications (window contact & temperature setback settings)	●
Advanced display features	Floor plan schematic upload	● (image format)
	Virtual individual remote control	● (control, display ambient T)
Advanced comfort features	Set Back (frost protection)	●
	GENTLE COOL (summer comfort)	●
	Heat Draft (winter comfort)	●
	Demand control	●
	Night setback (lowers noise of outdoor unit)	●
Maintenance features	Fault notifications by email	●
	Operating history	2Gb
	Error log	6 months
	Emergency stop button	-
	Fault indicator button	-
	Check mode (view system parameters)	●
	Refrigeration diagram showing technical data	●
	Wizard (commissioning assistant)	●

CSNET Manager 2: Advanced management tool

WEB version CSNET Manager 2 SL	Standalone WEB version CSNET LITE
+ HC-A64NET	CSNET LITE
Up to 64	Up to 64
Up to 1,024	Up to 64
64 outdoor units per interface	64 outdoor units
-	-
●	●
Smartphone Tablet PC equipped with a web browser	Smartphone Tablet PC equipped with a web browser
● MODBUS interface included as standard KNX - BACNET via dedicated interfaces	● MODBUS interface included as standard KNX - BACNET via dedicated interfaces
Unlimited	Unlimited
●	●
●	●
●	●
●	●
●	-
●	●
●	-
● with updated HLINK interfaces (CSNET Lite v2.0 or HC-A64NET v2.0)	●
●	●
●	●
●	● (limited actions)
●	-
● (image format)	-
● (manage, display ambient T)	● (manage, display ambient T)
●	●
●	●
●	●
●	●
●	●
●	●
2Gb	256 Mb
6 months	6 months
-	●
-	●
●	●
●	●
●	●

New user + ergonomic interface

Menu

A unique menu zone for more intuitive navigation

An intuitive dashboard: 3 available formats

Dashboard

Icon view

List view

CSNET Manager 2:
Advanced management tool

Stand out with quality service

Maintenance is essential because it ensures a long term life cycle of the system. Preventing faults and being responsive in the event of a fault by reducing intervention time with remote analysis tools are the key to meeting end user requirements.

Better control of energy consumption

To offer its customers a secure solution, HITACHI has fully tested and validated select meters with CSNET Manager and VRF systems in the factory. This standard feature allows you to measure, record, and display the energy consumption of all or some of the indoor units and outdoor units managed by CSNET.
This consumption is shown in kWh or in £/€ if the user enters their hourly energy cost.

SIEMENS 7KM
PAC3200

SOCOMEC Countis
E27 & E28

Electrical protection   Electric meter

Power supply (400V/3/50Hz)

L1
L2
L3
N

Local Ethernet network

Monitoring energy consumption means first and foremost access to information. Various interfaces are available in the 2021 version of CSNET, offering different dashboards with different levels of analysis: from general to specific, monthly to daily.

This feature also allows for multiple tenants to distribute energy consumption per user and by use (Heating or Cooling mode).

On board security:
Interlock function

The embedded interlock function, standard in all CSNET interfaces, allows a multitude of interlock scenarios to be easily programmed, providing automated safety in more industrial applications.

For example, a backup air-conditioning unit installed in a server room can be automatically switched on in case of a temperature deviation: If the ambient temperature > 20°C unit 2 will start up with a set point of 18°C.

New feature:
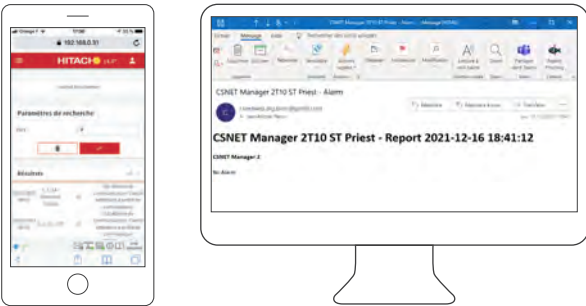Server room management feature in CSNET Manager version 2.0

Fault alerts

An email server can send an email alert if an error code appears on the system.

An alarm log is automatically generated by CSNET Manager 2 as soon as the first fault occurs. This log can be exported at any time.

Have remotely accessible analytics tools via the WEB SERVER function for PC, tablet, or smartphone

Access the installation's operating history. These configurable reports allow the user to plot graphs monitoring how the system performs at chosen settings and to create intervention reports.
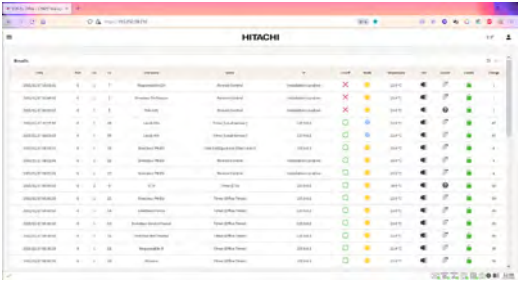
Investigate a discomfort complaint reported by a customer and solve it remotely by changing operating settings.

A new Customer Experience with a unique and customizable level of comfort

Air off temperature setting, GENTLE COOL

This feature provides unsurpassed comfort levels for every user in Cooling mode by giving them the option to set their own tailored air off temperature.

- With CSNET, Cold drafts that can be a source of discomfort in the summer are a thing of the past in offices, thanks to the option of selecting a high air off temperature.
- With CSNET, an occasionally occupied meeting room can be quickly brought up to temperature by using an unlimited annual schedule synchronized with the calendar in Outlook.

Hotel function

This intelligent on-board programming function, included as standard in all CSNET interfaces, can combine several input signals triggering actions according to IFTTT logic.

- This function can customize comfort levels in rooms, both in summer and winter. When a guest arrives in their room (key insertion), a predetermined setpoint temperature can be activated.
- When opening the bedroom window, the indoor unit can be stopped or the set point adjusted.

Application for hotel rooms

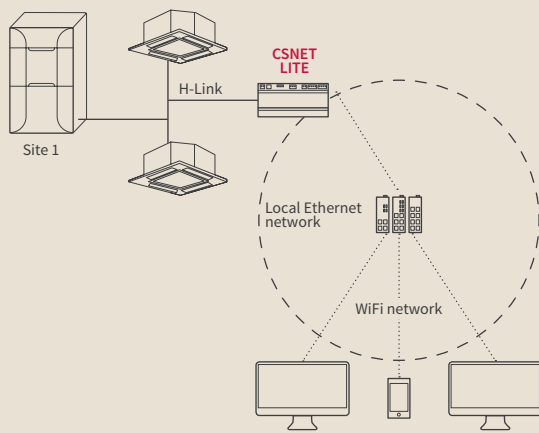- The CSNET is also compatible with MICRO FIDELIO software.

micros FIDELIO
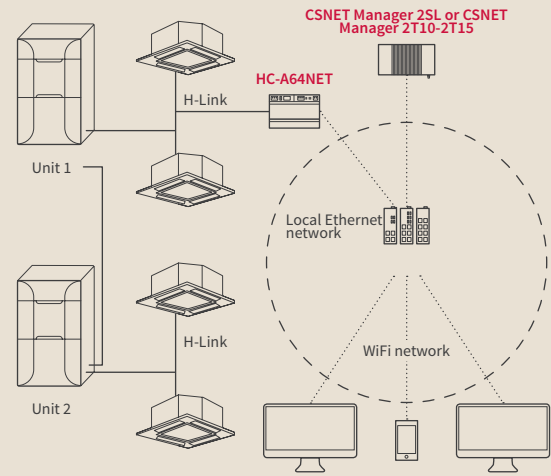
Manage your spare parts with Hi Parts
Log in any time, 24/7.

CSNET wiring

An example of a small site setup (< 64 indoor units)

Site 1

H-Link

CSNET LITE

Local Ethernet network

WiFi network

Site 1: Access the local network with a **screenless interface**. Access from a computer, a smartphone on the same local network, or via the web.

An example of a medium site setup (> 64 indoor units)

CSNET Manager 2SL or CSNET Manager 2T10-2T15

HC-A64NET

H-Link

Unit 1

Local Ethernet network

H-Link

WiFi network

Unit 2

For large-scale systems, you can install up to 16 interfaces on an H-Link bus to run up to 16 x 64 indoor units (or 1,024 indoor units).

Site 2: Access the local network with a **screenless interface**. Access from a computer, a smartphone on the same local network, or via the web.
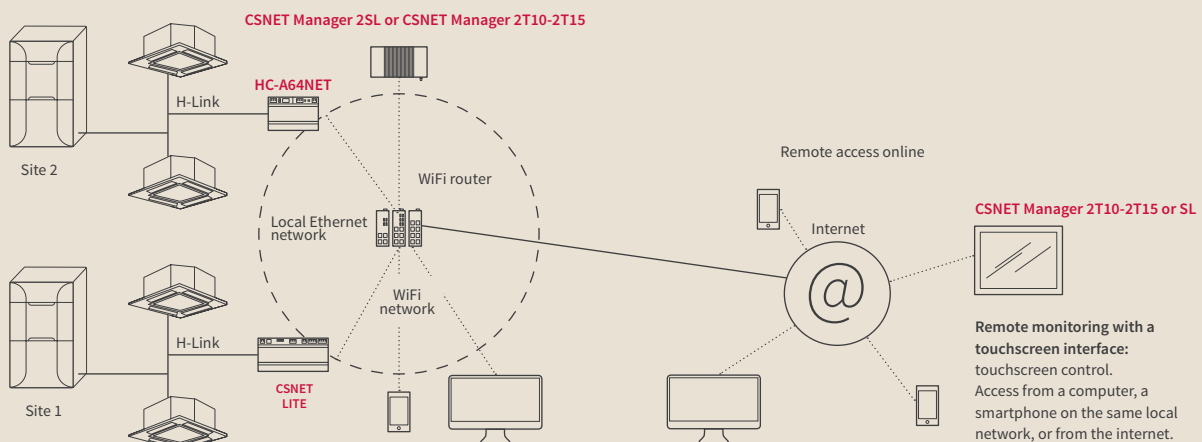
Example of the setup of 2 separate sites equipped with VRFs with centralized CSNET control and monitored remotely

CSNET Manager 2SL or CSNET Manager 2T10-2T15

H-Link

HC-A64NET

Site 2

WiFi router

Remote access online

Local Ethernet network

Internet

CSNET Manager 2T10-2T15 or SL

WiFi network

H-Link

CSNET LITE

Site 1

Remote monitoring with a touchscreen interface: touchscreen control. Access from a computer, a smartphone on the same local network, or from the internet.
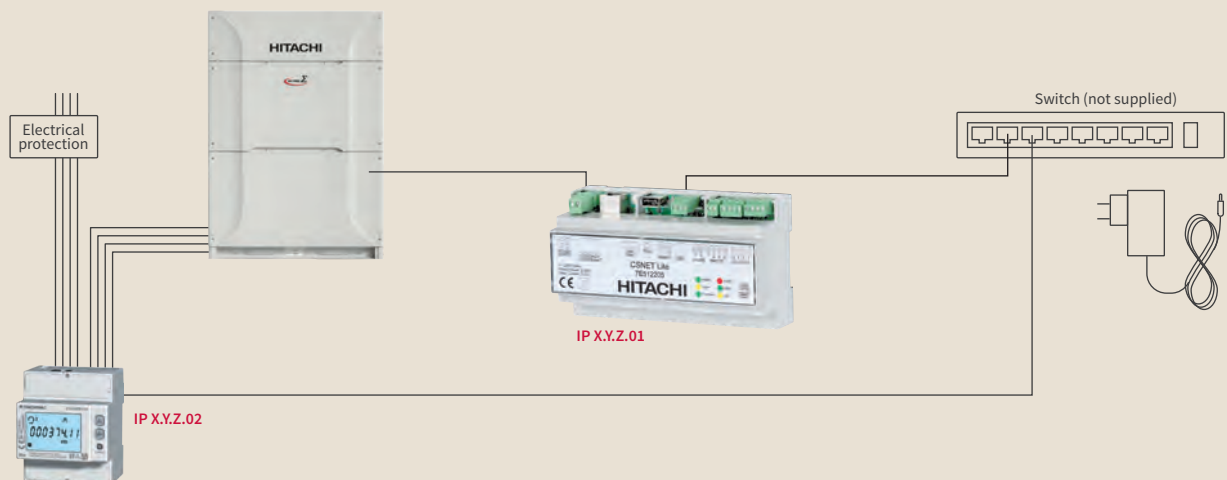
Connection of a CSNET Manager 2 T10 + 2 energy meters

2 separate VRF units = 2 refrigeration cycles

IP X.Y.Z.01

Switch (not supplied)

Electrical
protection

IP X.Y.Z.02

IP X.Y.Z.03

HC-A64NET
7E512300
HITACHI

Electrical
protection

IP X.Y.Z.04
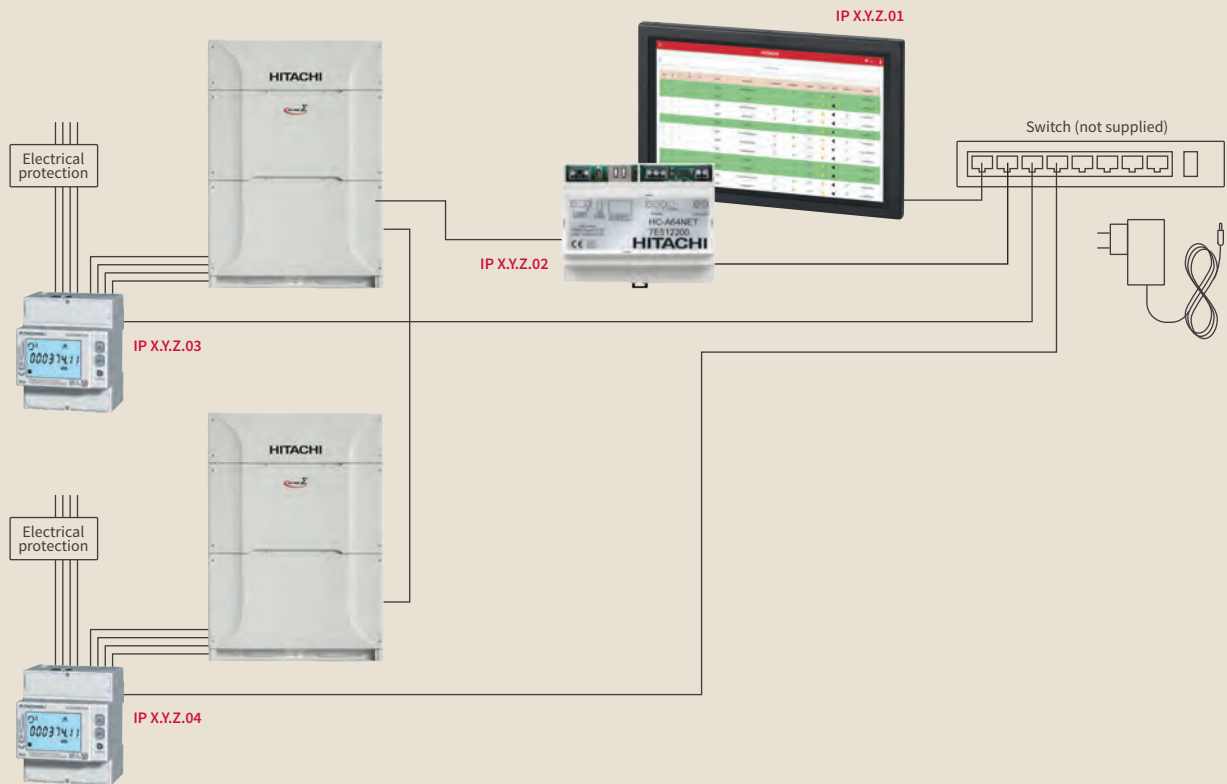
Connection of CSNET Lite + 1 energy meter

Switch (not supplied)

Electrical
protection

CSNET Lite
7E512300
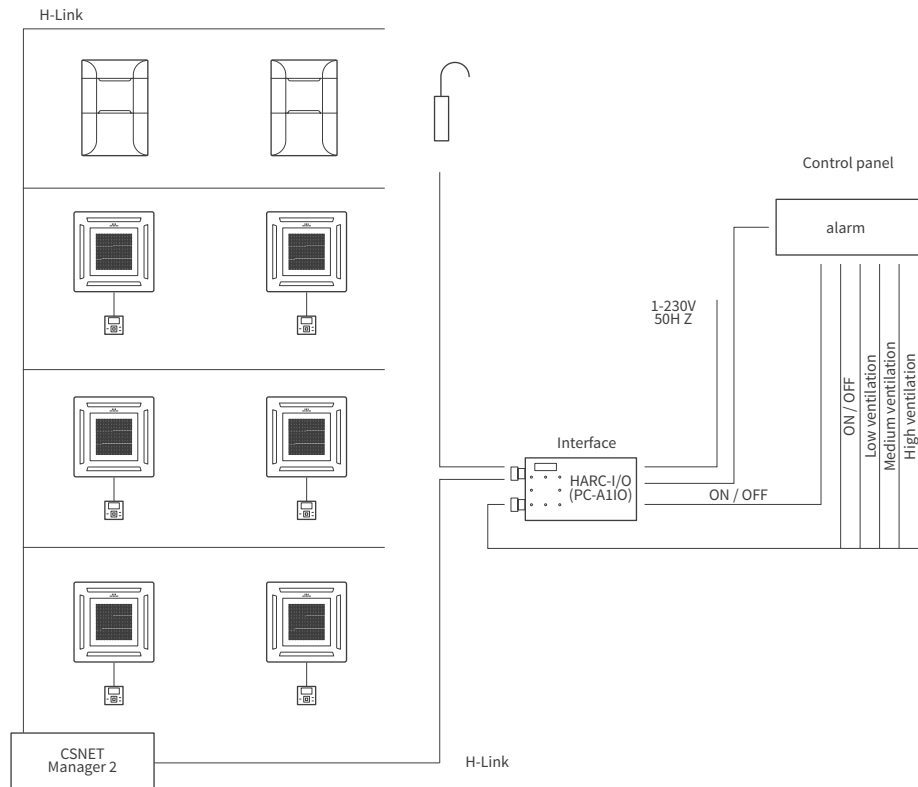HITACHI

IP X.Y.Z.01

IP X.Y.Z.02

HARC-I/O interface (part no. PC-A1IO) to manage and communicate with third-party equipment

This interface integrates external equipment such as AHUs or ventilation units into a Hitachi system and controls them like Hitachi appliances via CSNET. E.g.: Ventilation, air handling unit, cooling units, etc.

Functions:

- DI1: M/A management via dry contact.
- DI5: error display via dry contact.
- The interface should be addressed as an additional indoor unit of the outdoor unit.

H-Link

Control panel

alarm

1-230V
50H Z

Interface

HARC-I/O
(PC-A1IO)

ON / OFF

ON / OFF
Low ventilation
Medium ventilation
High ventilation

CSNET
Manager 2

H-Link

Communication interfaces

HITACHI offers a full range of communication interfaces with most open protocols on the market.

Fire alarm Lighting Ventilation Air-handling units

H-Link

BMS

Communication interface
MODBUS or KNX or BACNET or LONWORKS
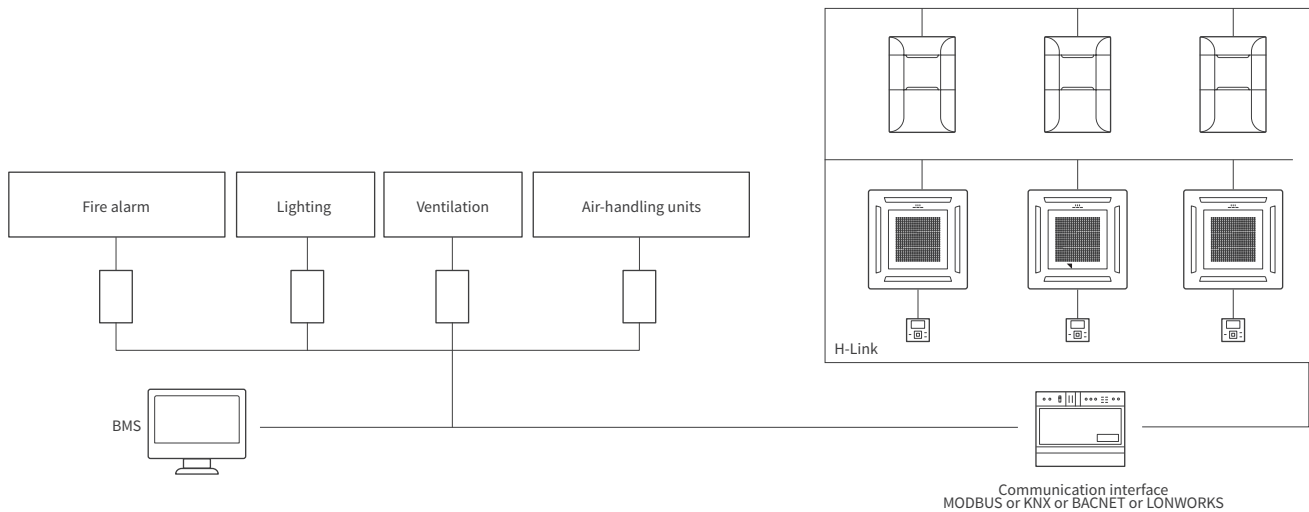
Open protocols

MODBUS® protocol (Modbus® RTU or TCP/IP)

Most centrally managed sites with BMS feature a Modbus® connection.
HITACHI interfaces manage 8, 16 or 64 units per gateway.
They connect at any point on the H-link bus.
They are RTU or IP in auto-detection.
Economic BMS solution: perfect for medium and small public sector buildings.

KNX protocol

KNX® is a "building"-dedicated bus, standardized and independent of manufacturers (lighting, heating, security, energy management, metering, etc.).
New certified interfaces manage 16 or 64 units each.
Based on standard buses, EIB, EHS, Batibus, KNX® guarantees the interoperability of products bearing the KNX® logo. It is an ISO standard.
BMS solution: perfect for medium and large commercial buildings.

BACnet®/IP protocol

The widely used BACnet/IP was designed to allow the protocol to use TCP/IP networks.
New certified interfaces directly manage 16 or 64 units each.
BMS solution: perfect for large commercial buildings.

LONWORKS protocol

Created by ECHELON CORPORATION, Lonworks is a recognized and accepted standard in Building Management (IEA 709.1/2/3).
These interfaces manage 32 or 64 units each.
The interoperability of equipment makes it possible to provide facilities with better thought-out services and maintenance.
BMS solution: perfect for medium and large public sector buildings.

Interface references

HC-A16MB (16 indoor units)

HC-A64 MB (64 indoor units)

HI-AC-KNX-16 (16 indoor units)

HI-AC-KNX-64 (64 indoor units)

HI-AC-BAC-16 (16 indoor units)

HI-AC-BAC-64 (64 indoor units)

HARC-BXE(B) (32 indoor units)

HARC-BXE(A) (64 indoor units)

(end-of-life product, limited stock).

Our extensive range of Hitachi VRF systems are ideallly suited for all building types across small and large developments. Connect up to 64 indoor units per outdoor unit, with each one independently controlled.

VRF
outdoor units

Selection guide

VRF system

(1) **OUTDOOR UNITS** (2) **COOLING CAPACITY**

OUTDOOR UNITS	Hp													
	4	5	6	8	10	12	14	16	18	20	22	24	72	96
Micro VRF (IVX Prime & IVX Comfort) Refrigerant R32 (4-6 Hp) Refrigerant R410A (4-12 Hp)	●	●	●	●	●	●								
SET FREE Mini Refrigerant R410A	●	●	●	●	●	●								
SET FREE Sigma Standard Refrigerant R410A				●	●	●	●	●	●	●	●	●	●	●
SET FREE Sigma High-performance Refrigerant R410A		●	●	●	●	●	●	●	●	●	●	●		
VRF IVX Centrifugal Refrigerant R410A	●	●	●	●	●									

Controls

Individual controls

PC-ARFP1E (hard wired)

PC-ARH1E (simplified wired)

PC-AWR (infrared)

Central controls

PSC-A32MN (touch)

PSC-A64GT (touch)

Aircloud Pro

CSNET Lite (web)

CSNET Screenless (web)
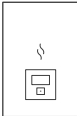
CSNET Manager 2T10 (web and touch)
CSNET Manager 2T15 (web and touch)

③ **FEATURES**　　　　　　　　　　　　　　　　　　④ **INDOOR UNITS**

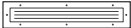| Technology	Supply voltage	Connection rate range	Max. number of connected indoor units	Min. power of connected indoor units	Max. pipe length	Max. level difference between outdoor unit and indoor unit (outdoor unit above / below)	Max. level difference between indoor units	Operating ranges
Single split or 2-pipe VRF	400V / 3 / 50Hz and 230V / 1 / 50Hz (depending on the model)	90 - 115%* depending on the application	4	0.8 Hp (2 kW cooling)	50 to 100 m	30 m / 20 m	3 m	Heating -20° ~ 18°C WB cooling -5°C (-15°C: optional) ~46°C DB
2-pipe & 3-pipe heat recovery VRF (depending on the model)	400V / 3 / 50Hz and 230V / 1 / 50Hz (depending on the model)	50 - 130%	39	0.4 Hp (1.1 kW cooling)	85 to 125 m	50 m / 40 m (depending on the model)	15 m	Heating -20° ~ 15°C WB Cooling -5° ~ 48°C DB
2-pipe & 3-pipe heat recovery VRF	400V / 3 / 50Hz	50 - 130%	64	0.4 Hp (1.1 kW cooling)	165 m	50 m / 40 m	30 m	Heating -20° ~ 15°C WB Cooling -10° ~ 48°C DB
2-pipe & 3-pipe heat recovery VRF	400V / 3 / 50Hz	50 - 150%* depending on the application	64	0.4 Hp (1.1 kW cooling)	165 m	50 m / 40 m	30 m	Heating -20° ~ 15°C WB Cooling -10° ~ 52°C DB
Single split or 2-pipe VRF	400V / 3 / 50Hz	75 - 120%	6	0.8 Hp (2 kW cooling)	75 to 100 m (depending on the model)	30 m / 20 m	10 m	Heating -15° ~ 15°C WB Cooling -5° ~ 46°C DB

INDOOR UNITS

1.1 to 56 kW

+100 models

Cassette units

Ducted

Wall unit

Console

Ceiling unit

Hydrofree module

* Please refer to the technical documentation for more details on the combinations allowed.

Communication protocol

MODBUS　　BACNET　　KNX　　LONWORKS

Hitachi exclusive features

Set Free Mini VRF with heat recovery (8 to 12Hp)

The most compact 3-pipe VRF in the world!

EXCLUSIVE TO HITACHI

Simultaneous heating and cooling

Outdoor unit

Indoor unit in Cooling mode

CH box

— High/medium pressure gas
···· Liquid

Indoor unit in
Heating mode

Indoor unit in
Cooling mode
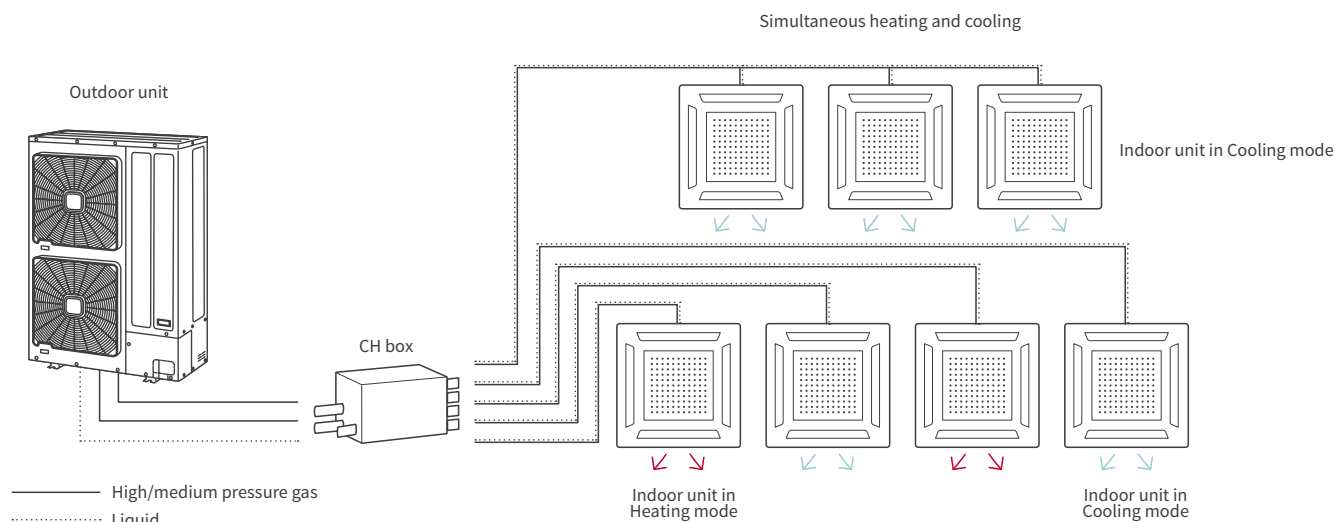
The **+** points of the Hitachi solution

Energy recovery box

- No addressing to do on our CH boxes.
- **Low noise level: down to 31 dB(A) on multi-box and 33 dB(A) on single-box.**
- **The most compact on the market: Single box HxWxD: 191x301x214, multi box HxWxD: 260x303x352.**
- **Install** in a **corridor to ease distribution to indoor units.**
- Positioning the CH box close to the units reduces the complexity of the pipe networks and therefore uses less refrigerant.
- Electronic expansion valves in the boxes: more gradual opening to limit noise levels.
- **Optimal operation:** the CH box provides heating and cooling air simultaneously without the need for a minimum % of units being in each mode. 1 unit can be in cooling mode while the rest are in heating mode. Traditional solutions need a cooling demand of 25% or 30% to unlock simultaneous controls.
- **No condensate connection!**
- Box connections provided with flare connection: ideal for sensitive areas where there is a risk of fire ... can be brazed onsite if necessary.

Set Free Mini 8 to 12Hp

- Outdoor unit with low amount of refrigerant: 8Hp (pre-charged with 4.2kg), 10 and 12Hp (pre-charged with 5.5kg).
- Meets EN 378 relating to the level of gas concentration in the premises.
- Small footprint: up to 37% less compared to top flow VRF.
- Easy to install: on a balcony, big-foot support, wall-mounted on the façade with brackets.
- Great flexibility: up to 500m length of piping.
- Low noise level.
- Reducing the cost of installation.
- Compatible with single branch boxes and Multi-branch boxes.

Centrifugal VRF (4 to 10Hp)
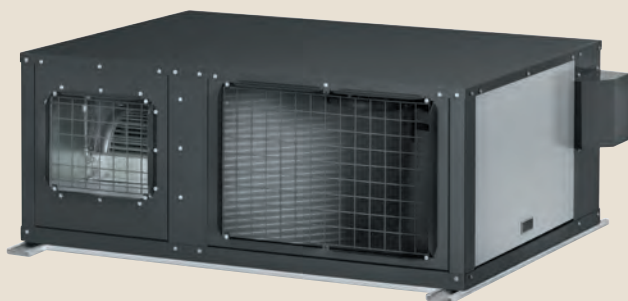
EXCLUSIVE TO HITACHI

The **+** points of the Hitachi solution

- No outdoor units visible on the façade of the building so ideal for listed buildings where planning permission is normally required.
- Connect up to 6 indoor units.
- **Available pressure of 120Pa on the fan.**
- **Install in a suspended ceiling or technical room.**
- **Height < 600mm.**
- Individual control of indoor units.
- Ideal for city-center high street businesses as no need to obtain permits to shut the road for a crane lift.
- Compatible with all ranges of HITACHI VRF indoor unit and DX KIT.

Smart oil management

Controls compressor oil level without sensors

Oil returns by suction:
the oil flows to the bottom of the casing, then rises by a difference in pressure between the HP and LP to the bearings and rollers.

Suction — HP pressure switch

Discharge

EXCLUSIVE TO HITACHI

Oil balance pipe
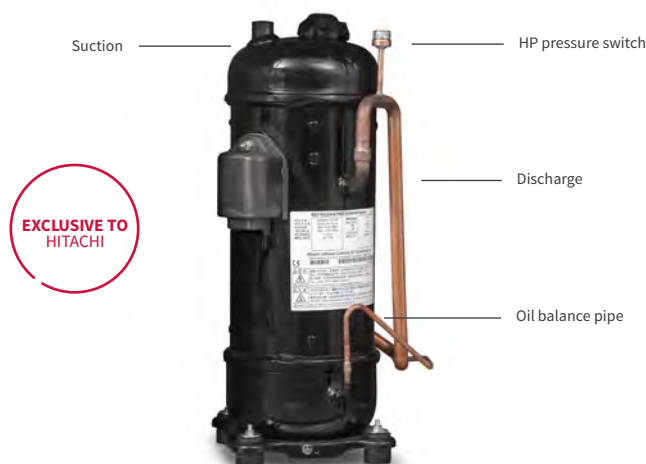
The **+** points of the Hitachi solution

Optimal lubrication

- Maintain the perfect oil level in the operating compressor, and in shutdown.
- Ensure the right oil level when restarting the compressor.
- Hitachi's high pressure scroll ensures oil naturally migrates from high pressure side to low pressure side lubricating the bearings.
- If any liquid returns to the compressor the high pressure, high temperature environment evaporates it ensuring the liquid doesn't damage the compressor.
- Reduce energy costs.
- Less wear and tear on the compressor.

Suction gas

LP

SCROLL

Discharge gas

P1

ΔP
P1 > P2

HP

Oil

H

P2

1st oil separation
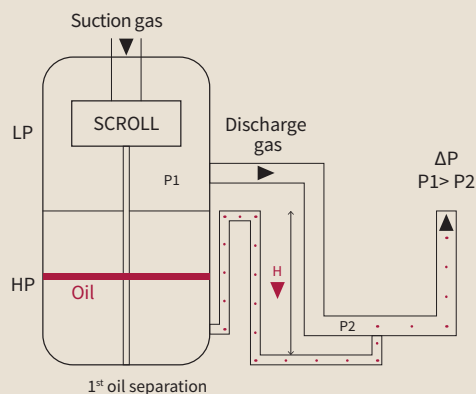
Smooth Drive control 2.0

Inverter frequency adjusted by 0.1 Hz for accuracy.

NEW

100%

11 Hz ~ 110 Hz
990 increments
(at 0.1 Hz)

Control capacity of inverter compressor

Compressor
DC inverter

10%

Max.   Cooling load   Min.

Temp°   Smooth Drive Control 2.0

30
29
28
27
26
25
24
23
22
21
20

0.0   20.0   40.0   60.0   80.0   100.0   120.0   Min

40% less energy

Performance at 25% partial load

Cooling capacity = 7.88 kW
Power input = 1.13kW
EER = 6.96

- - - Indoor unit 1 Temp°   —— Indoor unit 2 Temp°
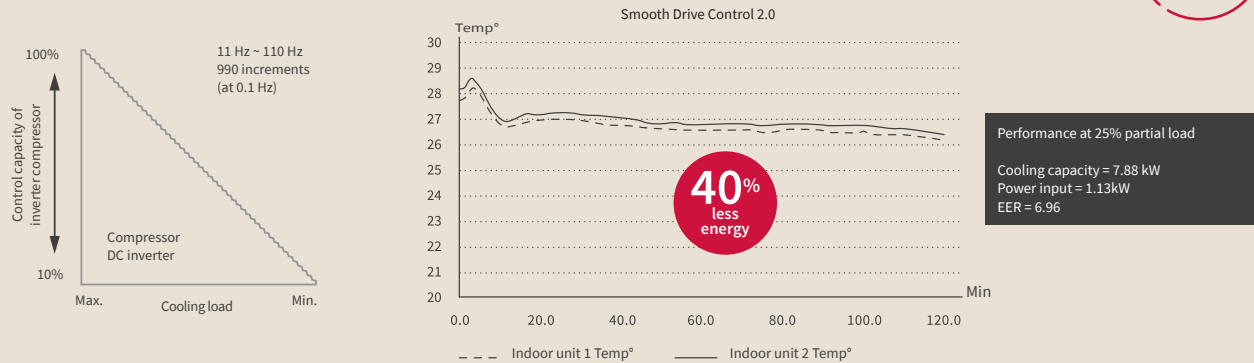
The **+** points of the Hitachi solution

- Ambient temperature monitored in 0.1K increments compared to a 1K increment with Smooth Drive Control 1.0.
- Compressor power will ramp down to a minimum of 10% ensuring just 1 unit in a system can be operated.
- Improved partial-load performance: EER up to 6.96 (25% load).
- The setpoint temperature is quickly reached and maintained with frequent monitoring, at an accuracy of 0.1Hz.

Variable evaporating temperature

Smart Control automatically changes the evaporation temperature of the refrigerant according to the actual thermal requirements of the premises and the outside temperature.

The + points of the Hitachi solution
- Increased seasonal energy efficiency.
- High COPs and EERs at partial loads.
- Ultimate comfort.

30% less energy use

Cooling load required (theoretical)

20°C   25°C   30°C   35°C   Outside Temp°

12°C   Variation in evaporating temperatures (6°C to 12°C)

6°C

20°C   25°C   30°C   35°C   Outside Temp°

Increase in seasonal efficiency

20°C   25°C   30°C   35°C   Outside Temp°
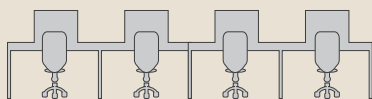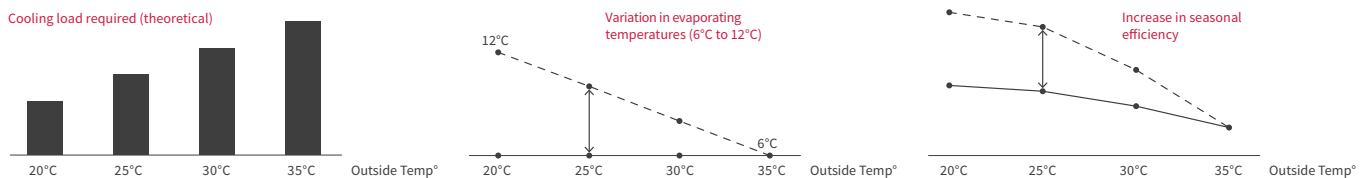
A meeting room in mid-season

High cooling needs: variable occupancy, computers, and sun.

The evaporating temperature is decreased.
• The air off temperature = 8ºC.
• Cooling capacity - 100% load, with nominal energy consumption.

A separate office

Low cooling needs: stable occupancy.

The evaporating temperature is increased.
• The air off temperature = 16ºC.
• Cooling capacity = 53% load, with 30% energy savings.

Smart defrost for continuous comfort

Smart defrost

- Continuous analysis of defrosting cycle durations and the system self-adapts to minimize them to between 3 to 9 min max.
- System optimized to detect the amount of ice on the outdoor unit's coils. (SIGMA, Set Free mini, Micro VRF and IVX Prime).

Operation in defrost mode

Operation in defrost mode

Heating operating time (t)

Heating operating time (t)

+a

Estimated amount of icing up ▶▶▶

If the amount of icing up is less than previous time, heating operating time is increased.

The **+** points of the Hitachi solution

- Runs for up to 4 hours without defrosting!
- Defrosting time limited to 3 to 9 min to maintain comfort.
- Indoor unit fans stop during defrost, then start again when air off T°s > 30°C (user comfort maintained).
- **Maintains the lower part of the external heat exchanger at temperatures between 5°C and 20°C.**

More consistent comfort

Heating (4h)

Defrosting (3~9mn)

Heating (4h)

Defrosting (3~9mn)

Heating (4h)

Ambient temperature

+ comfort

No draft (fan stop)

No draft (fan stop)

Defrost prevention

The system monitors the level of ice buildup in Heating mode. The refrigerant returning from the indoor unit defrosts the lower part of the outdoor unit heat exchanger. In Heating mode, the refrigerant returns to the outdoor unit at an average temperature of 5-20ºC. This temperature is sufficien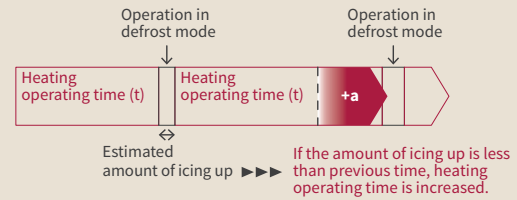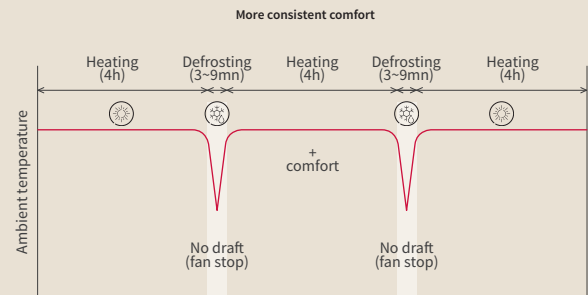t to carry out a preliminary defrost and by radiation it heats the upper part of the heat exchanger. Finally, the expansion valve of the outdoor unit decreases the pressure to complete the refrigeration cycle.

Improvement!

ice

no ice
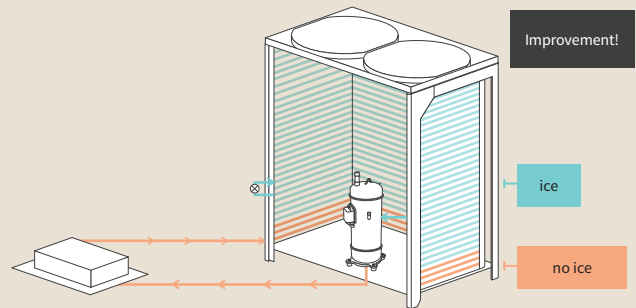
Enhanced protection from corrosion – 3 layers

EXCLUSIVE TO HITACHI

3 coating layers

3 - Epoxy resin layer
2 - Waterproof film layer
1 - Lubricant layer
Aluminum
Lubricant layer
Waterproof film layer
Epoxy resin layer
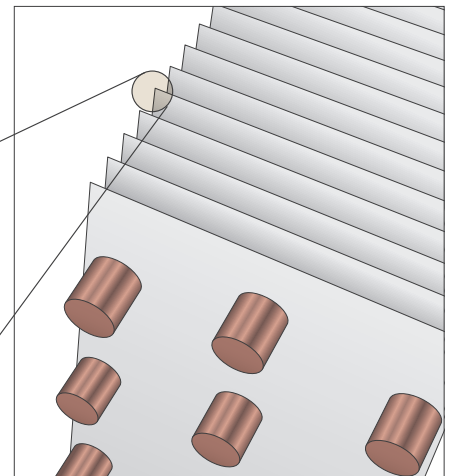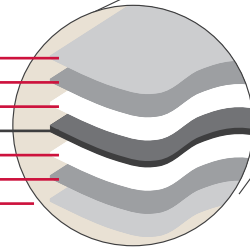
- Lubricant coating (1) protects against rust and limits corrosion.
- Hydrophilic coating (2) that prevents the concentration of water droplets and allows water to flow over the surface.
- Anti-corrosion coating (3) consisting of a chromium phosphate film or an epoxy resin to protect against corrosion.

The **+** points of the Hitachi solution

- Extending the life of the equipment.
- Maintaining energy performance over time.
- Protecting against aggressive environments: pollution in the city center, industrial sites, storage warehouses, salt spray.
- Units should still be installed more than 300 m from the ocean, without specific Blygold treatment.
- Hitachi outdoor units (IVX, Set Free Mini, SIGMA) offer the best protection on the market.

Air off temperature control
Gentle Cool

EXCLUSIVE TO HITACHI

Potential for discomfort
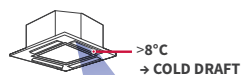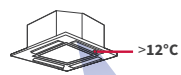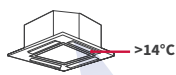
GentleCool → **No cold drafts**

Ultimate comfort

>8°C → COLD DRAFT

>12°C

>14°C

>16°C

GentleCool: OFF

GentleCool: LOW

GentleCool: MEDIUM

GentleCool: HIGH

HITACHI
25.5°C
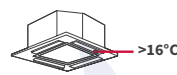
Min. Temp° control of the air off with the remote control PCARFP1E or the CSNET monitoring system

Rest of the market:
- Users feel cold drafts.
- Ducted units => Problems with condensation forming (poor quality of air).

The **+** points of the Hitachi solution:
- No more cold drafts
- Clean quality of air => No condensation in the ducts (ducted units), for improved quality of air inside.
- Available on all Hitachi indoor units.

FrostWash
VRF SIGMA only

FrostWash's operating process is carried out in three stages: frosting, defrosting and cleaning the indoor unit's heat exchanger to remove built-up dirt and impurities. This improves air quality and maintains performance over time.

Freezes water in the air around the heat exchanger.

Melts the ice to remove dust and other dirt from the heat exchanger

EXCLUSIVE TO HITACHI

NEW

Available in 2022

The + points of the Hitachi solution
- Maintain the efficiency of the heat exchanger.
- Improve air quality by reducing the accumulation of dust and mold by up to 87%.
- Operation (<40 mins): Manual, Auto, and programmable.
- Only available on new outdoor units with Smooth Drive Control 2.0 (SIGMA).
- New remote control compatible with FrostWash function (PC-ARFG-E).

Compatible units:
800 x 800 cassette units: RCI-FSR
600 x 600 cassette units: RCIM-FSRE
2-way cassette units: RCD-FSR
Ducted units: RPI(L/H)-FSRE
Under ceiling unit: RPC-FSR

The biggest range of ducted units on the market (1.1kW to 56kW)

DUCTED
THE MOST
COMPACT
ON THE MARKET!
197 mm in height

Medium and high-pressure ducted unit

1.1 to 4kW: up to 100Pa
4 to 18 kW: up to 150Pa
11 to 18 kW: up to 200Pa

NEW

The **+** points of the Hitachi solution

- Extensive range of duties
  (1.1 to 18 kW in cooling).
- Low-height: 197 mm
  (RPIL-FSRE range: 100Pa).
- 30% fresh air intake.
- Refrigerant connections from the rear
  (RPIL model).
- "Gentle cool" regulated air off temperature setting to stop cold drafts and improve air quality.
- Easier filter removal
  (from below or from the side).
- Option to move the electrical box to other side of unit or to the wall (sizes 0.4 to 2Hp).
- Hitachi plenums available as an option.
- Compatible with Airzone plenums for zoning.
- Condensate pumps can be disconnected (RPIL)

High-pressure ducted unit

(220Pa) for high-power units "16 and 20Hp"

EXCLUSIVE TO
HITACHI

The **+** points of the Hitachi solution

- 30% fresh air intake.
- Highest capacity on the market at 56 kW in cooling mode.
- Highest air flow flow on the market under 220 Pa at 9,000 m3/h.
- 100% redundancy on RPI 16 and 20Hp with connection to two separate and independent units.
- Filtration as standard.
- Temperature control: average between return air sensors and remote control sensor.
- Suitable for large-scale applications: warehouses, supermarkets, etc.

SILENT ICONIC design panel
for cassette units 800x800

iF DESIGN AWARD 2020

GOOD DESIGN AWARD 2020

reddot design award

EXCLUSIVE TO HITACHI

NEW

The **+** points of the Hitachi solution

- Sleak design that fits into the interior of any room.
- Design of the blades and shape of the louvres improve air distribution through the Coandă effect.
- Gentle Cool air off temperature setting for more comfort and energy savings.

- Compatible with R32 and R410A ranges (VRF and Utopia Prime air/air heat pump).
- Standard cassette version (white or black).
- Iconic Design cassette version (white or black).
- Installation in premises with high ceilings.

Size 0.4 Hp (1.1kW)

Available as a ducted unit

Available as a 600x600 cassette unit

Available as a wall unit

The **+** points of the Hitachi solution

- A response to new building standards with better insulated buildings.
- Heating and cooling capacity adapted to the thermal needs of small premises.
- More comfort: no overheating.
- Smaller units reduce the amount of refrigerant in the system which can eliminate the need for leak detection under EN378.
- Wall units, cassette units, ducted units have 4 speed settings.
- More air flow at the same capacity as competitor products: higher circulation rate.

Self-powered condensate pump
(indoor units)
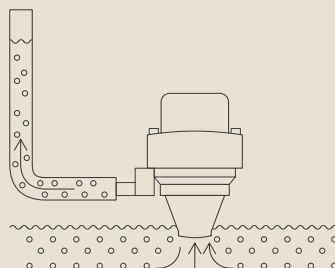
The **+** points of the Hitachi solution

- If the lift pump of one indoor units is faulty, the other units keep running.
- No impact on the facility as a whole.

Cooling accessories

VULKAN LOKRING
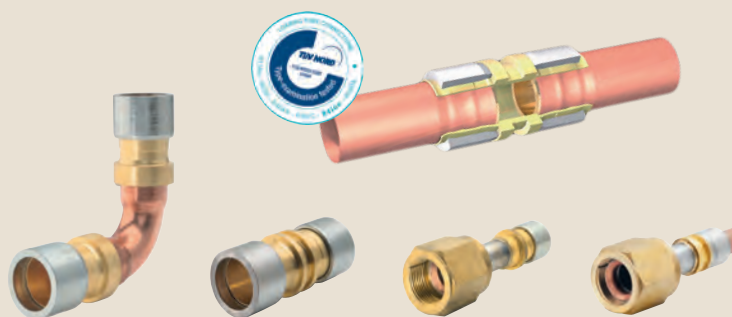
Hitachi sanctions the use of pipework without brazing, LOKRING or others. However, the use of such technology for piping is the responsibility of the installer alone. And Hitachi cannot be held responsible for leakage problems.

Applicable pipe connections:
- Connections and reducers.
- Flare connections.
- Large radius elbows.
- Reduced elbows.

> The use of original Hitachi Multikit components are mandatory.

Hitachi Multikit pipe kits

The **+** points of the Hitachi solution

- The shape of the multikit pipe kits promotes the flow of fluid compared to the widely used T-joint.
- **Energy performance guarantee.**
- Easier to install: the main line can be laid as a straight line.
- More space between the main line and the indoor unit line; makes it easier to use a pipe cutter to cut one of the pipes.

New remote control, hard wired design
PC-ARFG-E
Available from 2022

NEW

The **+** points of the Hitachi solution

- Elegant and modern design in a curved shape.
- Screen with parameters displayed in 5 different colours for ease of understanding.
- Functions: Cooling/heating mode, auto mode, dehumidification, fan speed, setpoint adjustment, weekly programming, show power consumption, Eco mode.
- More intuitive interface: easy access to menu functions, settings, FrostWash...
- Description of each function shown on the screen, no need to print out the manual.
- Special functions for hotel applications!
- Password-protected Service & Installation menu.

Solution for control and monitoring

NEW

Aircloud Pro

air Cloud Pro

Ethernet or 4G

H-LINK

Managed via Web PC, smartphone

HC-OTGW cloud interface

Outdoor unit (VRF and Utopia Prime)
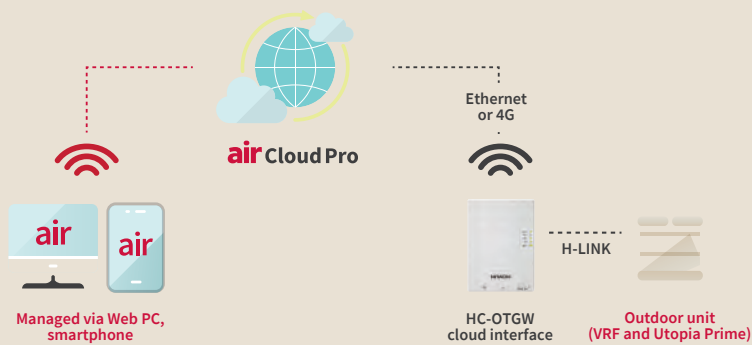
The **+** points of the Hitachi solution

- Connected central control solution via a server (Cloud) and web apps.
- Remote management functions and simple hourly programming, alarm notifications.
- Easy to maintain: alerts to show when the filter needs cleaning.
- Manage user accounts and multiple interfaces/sites for site managers.
- **More functions to be added over the year:** show energy consumption, compatibility with energy meter, 4G…
- IoT technology brings the power of the Cloud to your fingertips.

CSNET Manager 2 (version 2.0)

The **+** points of the Hitachi solution

- New features of version 2.0 of the CSNET software (managing the Yutaki, server room function, pulse meters on CSNET Lite, electricity and water metering for third-party systems...)
- Plug&Play management and monitoring solution.
- Modbus output available as standard.
- Air off temperature setting Gentle Cool.
- Local or remote management and monitoring.
- Alarm notifications by email.
- Visualization of the energy consumption.
- **No license required.**
- Large-scale systems: web version and touch tablet (CSNET Manager 2).
- Small systems: web version (CSNET Lite).

VRF outdoor units

Micro VRF
(IVX Prime and IVX Comfort)

- **New 4 to 6Hp range with R32 and R410A**
- Available from 10 to 30 kW.
- Option to control up to 4 indoor units
  independently.
- Compact and lightweight units.
- Perfect for small application: residential
  and commercial.

VRF SET FREE Mini

EXCLUSIVE TO
HITACHI
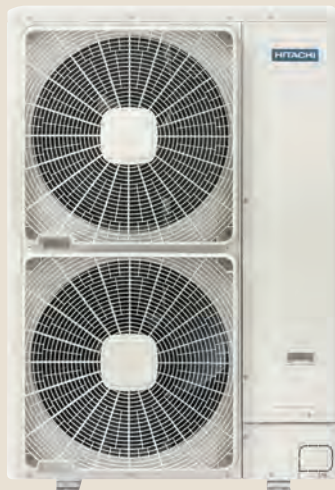
- **2-pipe: (4 to 12Hp)**
- **3-pipe: (8 to 12Hp)**
- Available from 12 to 33 kW.
- Available ESP: 30 Pa.
- Exclusive: large selection of compatible
  indoor units from 0.4 Hp.
- Connect up to 39 indoor units.
- Perfect for small, medium, and large-scale
  public applications.

VRF SET FREE
Sigma

Sigma 2.5: available in 2022

- Available from 14 to 268 kW.
- 2-pipe / 3-pipe VRF solution available from the same universal outdoor unit.
- Standard range and high-efficiency range.
- Save space and money (single-module up to 67 kW).
- Exclusive comfort: GENTLE COOL function and smooth Drive Control.
- Available ESP: 80 Pa.
- Perfect for medium and large-scale commercial applications.

VRF IVX Centrifugal

EXCLUSIVE TO HITACHI
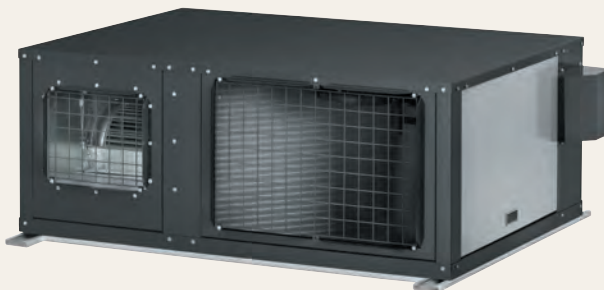
- Available from 10 to 24 kW.
- Perfect solution for city center retail: invisible outdoor units , installed in suspended ceilings so ideal for listed buildings where permits would normally need to be obtained to shut the road for a crane lift.
- Option to individually control up to 6 indoor units.
- Perfect for small and medium projects in areas with restricted planning permission.

Benefits
Micro VRF
(IVX Prime and IVX Comfort)

1 The smallest VRF on the market, in the most extensive range of its category.

Small businesses and offices have a variety of air-conditioning requirements and demand the best level of comfort. Available from 10 kW to 30 kW, the Micro VRF range meets the needs of any projects, no matter how much space is available.

2 External static pressure available on IVX for flexible installations
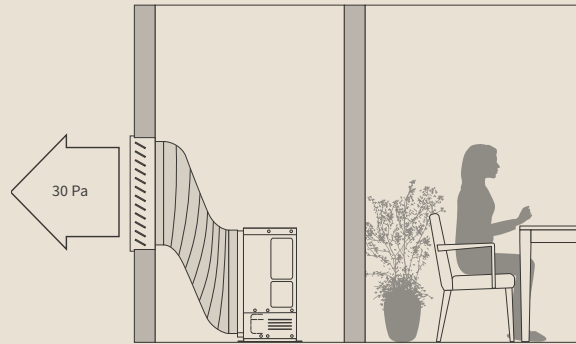
30 Pa

The new 4 to 6 Hp single-fan range features 30Pa of static pressure. A unit of 14kW (6 Hp), with a single fan, has a footprint of just 0.35 m^2. No static pressure available on IVX Comfort units (8 to 12Hp).

3 Independently control indoor units IVX Prime and IVX Comfort

OFF   21ºC   25ºC   19ºC
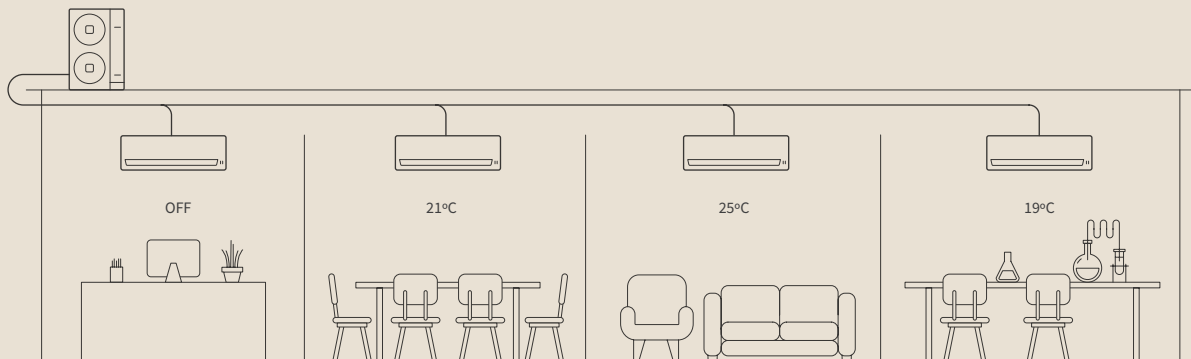
A comfortable indoor environment is achievable thanks to the ability to set different temperature set points. In many buildings, due to the orientation, the heating/cooling load may vary for each area. In such cases the option to individually set the temperature of each indoor unit is very useful.

Hitachi's Micro VRF range meets the comfort needs of every area, with individual temperature control. This solution is ideal for small and medium-sized commerical premises, with a single outdoor unit providing thermal comfort in 4 different rooms.

4 A wide choice of indoor units

In the same building, the requirements in terms of aesthetics, space, and temperature are different in each room. So it fits into any space, the Micro VRF range is compatible with all SYSTEM FREE indoor units: Wall, ducted, cassette, console and under ceiling units.

5 Less refrigerant piping, more savings

The Micro VRF range is an interesting alternative to typical multi-split installations because it is easier to install. The refrigerant piping is in a single line with the same diameter throughout the main run. Multikits then branch off to the different indoor units, each with their own pipe sizes. This reduces the amount of refrigerant piping used and saves time as well as installation costs.

6 Even greater flexibility
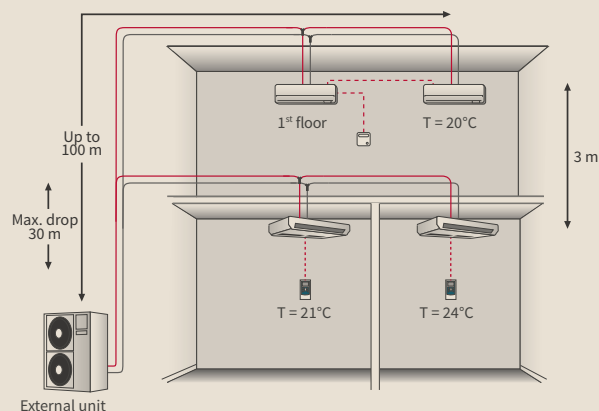
The Micro VRF units have a total pipe run of up to 100 m and a 30-m level difference between the indoor unit and the outdoor unit. This makes it much easier to place the outdoor unit in a suitable location, such as on the roof of the building, without interfering with the aesthetics of the premises.
It's also possible to install indoor units on different floors connected to the same pipe run. For example, a single outdoor unit can provide air-conditioning to a 2- floor commercial space.

Micro VRF
(IVX Prime & IVX Comfort)

SEER **8.35**   SCOP **4.75**   GENTLE COOL

EUROVENT CERTIFIED PERFORMANCE

THE FIRST HITACHI VRF WITH R32 (4~6HP)

IVX Prime (R32 or R410A)
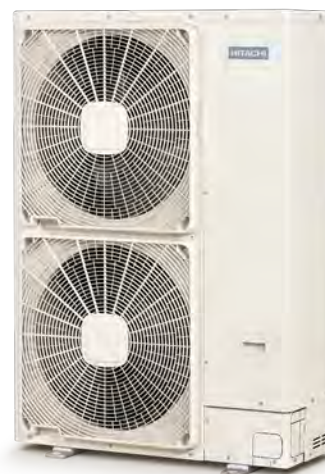
IVX Comfort (R410A)

Micro VRF with R32, the green choice

The R32 refrigerant has a number of advantages over the R410A refrigerant. Although both are "fluorinated greenhouse gases covered by the Kyoto Protocol," the R32 has a lower global warming potential (GWP = 675) compared to the R410A (GWP = 2088). In addition, the use of R32 reduces the refrigerant charge by 7% to 12% compared to the equivalent installation on R410A. This reduces its environmental impact by 75% compared to R410: low GWP and less load on the system. This means it has a lower TeqCO2 equivalence, and a lower charge will still achieve better results because of its better thermodynamic characteristics. Another advantage of the R32 over the R410 is its greater ease of recovery and reuse, taking into account the fact that the installation and maintenance are very similar.

Flexible installation

The new 4 to 6Hp range with R32 and R410A has an external static pressure of 30Pa. This allows the condenser to be installed inside and ducted to outside. Connect up to 4 indoor units in the Set free range (size 0.8Hp units compatible).

Large operating ranges

The Micro VRF will keep performing in extreme temperatures: down to -20°C in heating and -15°C to 46°C in cooling (-5°C to 46°C for 4 to 6Hp). Features that make this a product perfect for year-round comfort.

Advanced anti-corrosion treatment

Epoxy resin layer
Waterproof film layer
Lubricant layer
Aluminum
Epoxy resin layer
Waterproof film layer
Lubricant layer
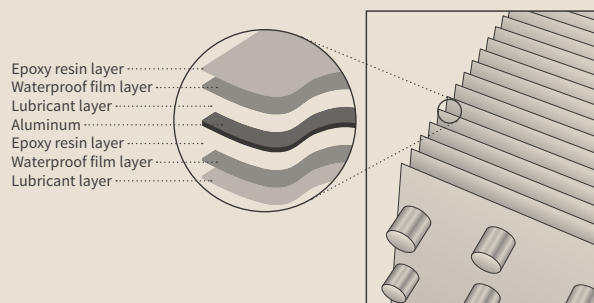
Customizable personal comfort

The air off temperature on each indoor unit can be independently set according to requirements. Customize your comfort with the GENTLE COOL setting on the latest wired remote controls. In summer, cold drafts can be avoided as you can set the air off temperature to the maximum setting.

Outdoor units

1,140   370   950

1,380   370   950

1,650   390   1,100
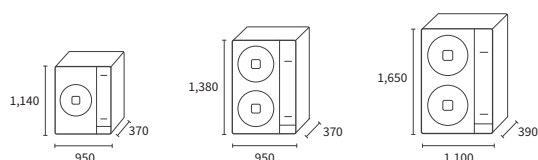
RAS-4H(V)N/RP2E
RAS-5H(V)N/RP2E
RAS-6H(V)N/RP2E

RAS-8HNCE
RAS-10HNCE

RAS-12HNC

Micro VRF IVX PRIME

Performance, cooling	Unit	Version R32 (4 ~ 6Hp)			Version R410A (4 ~ 6Hp)		
		RAS-4H(V)RP2E	RAS-5H(V)RP2E	RAS-6H(V)RP2E	RAS-4H(V)NP2E	RAS-5H(V)NP2E	RAS-6H(V)NP2E
Nominal cooling capacity (min-max)	kW	10.00 (4.50 - 11.20)	12.50 (5.70 - 14.00)	14.00 (6.00 - 16.00)	10.00 (4.50 - 11.20)	12.50 (5.70 - 14.00)	14.00 (6.00 - 16.00)
Rated power input cooling	kW	2.51	3.42	4.32	2.81	3.83	4.91
EER	-	3.98	3.66	3.24	3.56	3.26	2.85
SEER (average climate)[2]	-	7.31(V) - 6.96	8.35(V) - 8.20	7.35(V) - 7.25	7.04(V) - 6.72	7.80(V) - 7.67	7.01(V) - 6.92
Seasonal energy class (cooling)	-	A++	-		A++	-	
Working range in Cooling [*]	-	-5°C / 46°C (DB)			-5°C / 46°C (DB)		

Performance, heating	Unit						
Nominal heating capacity (min-max)	kW	11.20 (5.00 - 14.00)	14.00 (5.00 - 18.00)	16.00 (5.00 - 20.00)	11.20 (5.00 - 14.00)	14.00 (5.00 - 18.00)	16.00 (5.00 - 20.00)
Rated power input heating	kW	2.60	3.39	3.64	2.56	3.39	3.64
COP	-	4.31	4.13	4.40	4.38	4.13	4.40
SCOP (average climate)[2]	-	4.60	4.75	4.73	4.64	4.68	4.71
Seasonal energy class (heating)	-	A++	-		A++	-	
Working range in heating	-	-20°C / 18°C (WB)			-20°C / 18°C (WB)		

Technical features	Unit						
Airflow (cooling)	m³/h	4800	4800	4800	4800	4800	4800
Sound pressure in Cooling (night mode)	dB(A)	54 (51)	56 (51)	56 (51)	54 (51)	56 (51)	56 (51)
Sound power	dB(A)	70	72	72	70	72	72
Net weight	kg	86 (84)			86 (84)		
Dimensions (H x L x D)	mm	1140 x 950 x 370			1140 x 950 x 370		
Min. power of indoor unit	Hp	0.8			0.8		
Number of units that can be connected (min - max)	-	1 - 4 [V*]			1 - 4 [V*]		
Available static pressure	Pa	30			30		
Connectable index (min.-max.)	%	90% - 115%			90% - 115%		
Compressor	-	Inverter DC rotary unit			Inverter DC rotary unit		

Refrigeration characteristics	Unit						
Max. length / additional charge	m/g/m	75 / 45			75 / 60		
Initial refrigerant charge	kg	3.0			3.2		
Pre-charged for	m	30			30		
Min. length	m	5			5		
Max. level difference (outdoor unit above / below)	m	30 / 20			30 / 20		
Diameter of pipes (Liq / Gas)	inches	3/8 - 5/8			3/8 - 5/8		
Refrigerant	-	R32			R410A		

Electrical features, outdoor unit	Unit						
Power supply	-	3N~ 400V 50Hz (1~ 230V 50Hz)			3N~ 400V 50Hz (1~ 230V 50Hz)		
Max. current	A	15.0 (22.5)			15.0 (22.5)		
Recommended fuse size	A	20.0 (25.0)			20.0 (25.0)		
Cable width (EN 60 335-1)[1]	mm²	5 x 4.00 (3 x 6.00)			5 x 4.00 (3 x 6.00)		
Indoor/outdoor connection (shielded)[2*]	mm²	2 x 0.75			2 x 0.75		

[1] It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and applicable standards.
[2] Performance values are stated for RCI-FSR cassette units in accordance with Eurovent benchmarks.
[V] Single-phase version

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controls and compatible accessories (see the tab VRF TWIN controls)

Condensation drainage kit

DDB-26 (models IVX Prime and IVX Comfort 4 / 5 / 6 / 8 / 10 / 12 Hp)
DDB-12L (Comfort models 2 / 2.5 / 3 Hp)

Multi kit

Micro VRF IVX Comfort

Performance, cooling	Unit	RAS-8HNCE	RAS-10HNCE	RAS-12HNC
Nominal Cooling capacity (min-max)	kW	20.00 (8.00 - 22.40)	25.00 (10.00 - 28.00)	30.00 (11.20 - 33.50)
Rated power input in Cooling mode [5*]	kW	5.95	8.28	11.67
EER	-	3.36	3.02	2.57
SEER (average climate) [3]	-	6.79	6.61	5.30
Seasonal energy class	-		-	
Working range in cooling	-	(OPT -15°C)* -5°C / 46°C (DB)		

Performance, heating				
Nominal Heating capacity (min-max)	kW	22.40 (6.30 - 28.00)	28.00 (8.00 - 35.00)	33.50 (9.00 - 37.50)
Rated power input heating	kW	5.88	7.71	9.46
COP	-	3.81	3.63	3.54
SCOP (average climate) [3]	-	4.19	3.79	3.66
Seasonal energy class	-		-	
Working range in heating	-	-20°C / 15°C (WB)		

Technical features				
Airflow (cooling)	m³/h	7620	8040	9780
Sound pressure in Cooling (night mode)	dB(A)	57 (55)	58 (56)	59 (56)
Sound power	dB(A)	76		77
Net weight	kg	136	138	168
Dimensions (H x L x D)	mm	1380 x 950 x 370		1650 x 1100 x 390
Min. power of indoor unit	Hp	1.8		
Number of units that can be connected (min - max)	-	1 - 4		
Connectable index (min.-max.)	-	See following page		
Compressor	-	SCROLL Inverter		

Refrigeration characteristics				
Max. length / additional charge	m/g/m	100 / to be calculated according to technical documentation		
Initial refrigerant charge	kg	5.7	6.2	6.7
Pre-charged for	m	30		
Max. level difference (outdoor unit above / below)	m	30 / 20		
Diameter of pipes (Liq / Gas)	inches	3/8 - 1 1/8 [1]	1/2 - 1 1/8	
Refrigerant	-	R410A		

Electrical features, outdoor unit				
Power supply	-	3N ~ 400V 50Hz		
Max. current	A	24		
Recommended fuse size	A	32		
Cable width (EN 60 335-1) [4*]	mm²	5 x 6.00		
Indoor/outdoor connection (shielded)) [2*]	mm²	2 x 0.75		

* To ensure cooling mode at -15°C, use the "cooling only" and "master/slave" switch settings.
[1*] If longer than 70 m, halve the diameter of the liquid pipe.
[2*] Shielding must be renewed every 300 m.
[3] Performance values are stated for RCI-FSN4 cassette units in accordance with Eurovent benchmarks.
[4] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
(V) Single-phase version.

controls and compatible accessories (see the tab VRF TWIN controls)

Condensation drainage kit

DDB-26 (IVX Comfort models 4 / 5 / 6 / 8 / 10 / 12 Hp) DDB-12L
(Comfort models 2 / 2.5 / 3 Hp)

Multi kit

Installation rules
Micro VRF (IVX Prime and IVX Comfort)

Quantity of indoor units

Outdoor unit (Hp)	4	5	6	8	10	12
Max. number of indoor units		4*			4	
Min. power of indoor unit		0.8			1.8	

Permitted connection rate

External unit	Hp	4	5	6	8	10	12
Max. number of indoor units	1		90~115%			90~115%	
	2	3.6 to 4.6 Hp	4.5 to 5.75 Hp	5.4 to 6.9 Hp	7.2 to 9.2 Hp	9 to 11.5 Hp	10.8 to 13.8 Hp
	3 or 4		90~100%				
		3.6 to 4 Hp	4.5 to 5 Hp	5.4 to 6 Hp			

Units 4 to 12 Hp: permitted installation (1 to 4 indoor units)

Installation with multikits. 1 main line. Constant diameter.

Multikit

L3₁ L3₂ L3₃ L3₄ L2 L4 L1

Installing 3 Hp outdoor units is not permitted
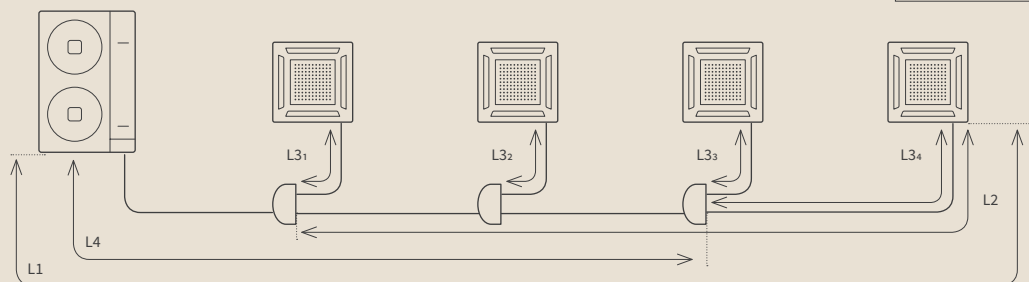
External unit		Hp	4	5	6	8	10	12
Max. length between outdoor unit and the furthest indoor unit	Actual length	m	75	75			100	
	Equivalent length	m	95	95			125	
Max. level difference outdoor unit to indoor unit (H) (outdoor unit above/below)		m			30/20			
Max. level difference from indoor unit to indoor unit		m			3			
Max. level difference from Multikit to indoor unit / Multikit to Multikit		m			3			
Total length of the pipe		m	85 (with 2, 3, or 4 indoor units)	85 (with 2, 3, or 4 indoor units)		100	145	
Max. length of indoor unit to Multikit		m		10			15	
Max. length of first Multikit to indoor unit		m		15			25	
Length of main branch A		m	A > B, C, D, E, F, G					
Max. imbalance between branches	B-C	m	< 10m					

Multikit part numbers		Hp	E-102SN4		E-162SN4	
Diameter of the main line				Constant diameter		
Diameter of outdoor unit - first multikit	Liq/Gas	-	3/8 - 5/8	3/8** - 1 1/8	1/2 - 1 1/8	

Power of indoor unit	Hp	< 1.5	1.8 to 2	2.3 to 6
Diameter of the indoor unit multikit	-	1/4 - 1/2	1/4 - 5/8	3/8 - 5/8

Note: It is not possible to connect 8 Hp or 10 Hp indoor units.
* Caution: When connecting RCI cassette units, the max. number is limited to two on 6 Hp model. **If the pipe is longer than 70m, use a 1/2" liquid line instead of 3/8".

Benefits
VRF SET FREE Mini

1 Choice of 2-pipe / 3-pipe (8 to 12 Hp)

EXCLUSIVE TO HITACHI

CH single or multi - boxes

Meeting room

Office

Reception – with underfloor heating

Technical room
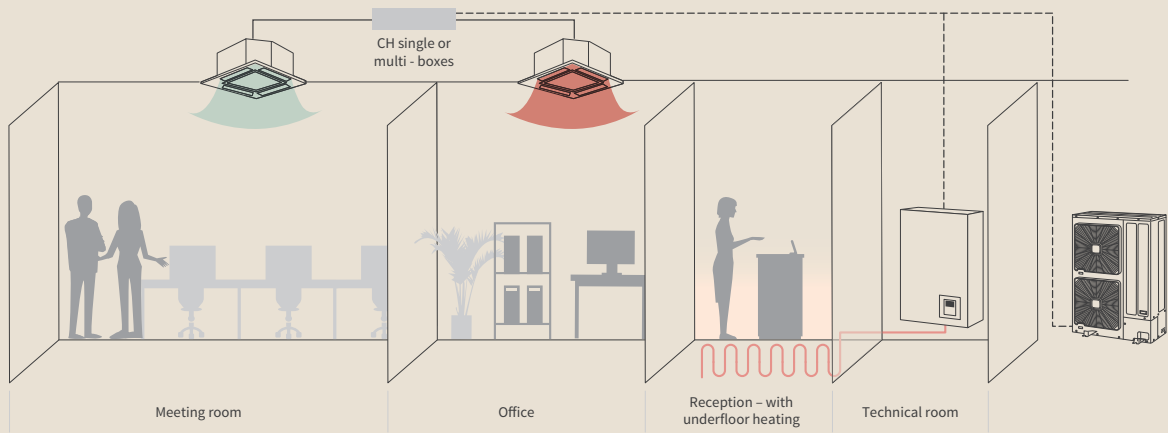
Hitachi has redefined mini VRF with its sideflow heat recovery system offering unparalleled comfort and flexibility. The new SET FREE Mini range from 8 to 12 Hp is exclusively compatible with a 2-pipe or 3-pipe installation and both from the same universal outdoor.

The SET FREE Mini is perfect when the outdoor space is limited but simultaneous heating and cooling is still required.

2 The most compact 3-pipe mini VRF in the world

-37% FOOTPRINT

784mm

390mm
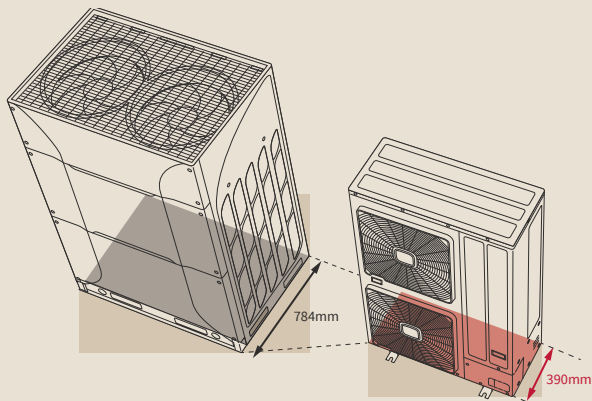
With its greatly reduced footprint, the SET FREE Mini can be installed discreetly for maximum discretion.

3 High number of indoor units that can be connected

Outdoor unit (Hp)	Number of indoor units that can be connected
4	13
5	16
6	18
8	26
10	32
12	39

The new SET FREE Mini can connect up to 39 indoor units! **Exclusive:** even more flexibility with a wide choice of units from 0.4Hp.

4 External static pressure available

30PA
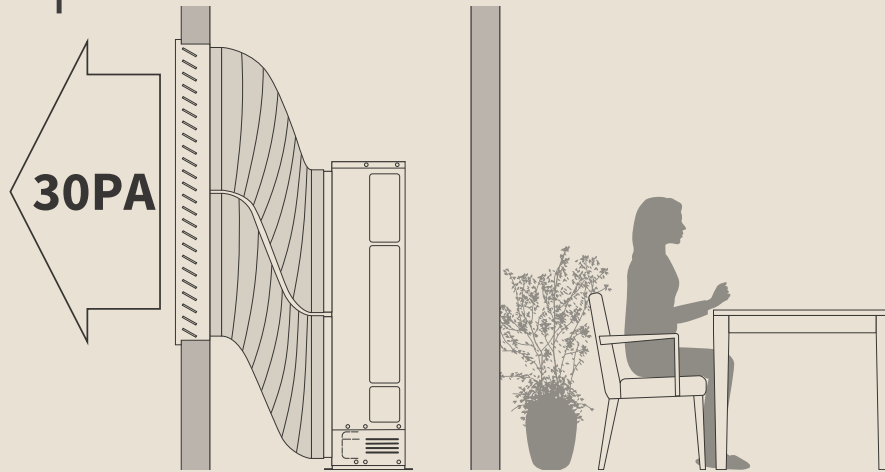
Thanks to the external static pressure now available, our SET FREE Mini units can be installed inside a plant room while preserving the aesthetics of your buildings.

5 Compatible with all Set free indoor units with the Gentle Cool air off setting for more comfort

GENTLE COOL

The GENTLE COOL air off temperature setting, accessible on the wired remote control PC-ARFP1E, adjusts the minimum blown air off temperature for your comfort. In summer, cold drafts are avoided as you can set the air off temperature to the maximum setting.
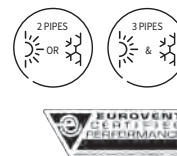
VRF SET FREE Mini

Advanced anti-corrosion treatment

With its triple coating, the SET FREE MINI offers the best protection on the market for use in tough environments.

Epoxy resin layer
Waterproof film layer
Lubricant layer
Aluminum
Epoxy resin layer
Waterproof film layer
Lubricant layer
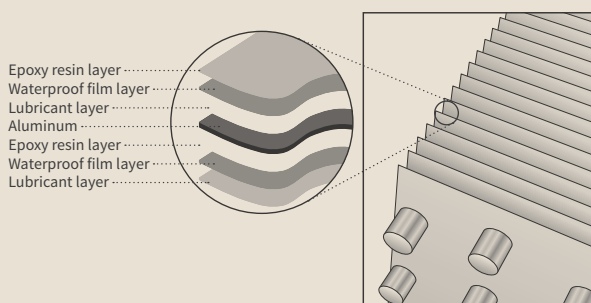
Precise temperature control is maintained with Smooth Drive Control

Ultra-precise compressor frequency control (0.1Hz) ensures optimum outdoor unit performance under partial loads and a consistent indoor temperature. This new feature allows a single 1.1kW (0.4Hp) unit to operate on its own if required.

Smart Defrost

The smart defrost feature ensures a longer heating period without defrosting. This period automatically adjusts to the defrosting time of previous cycles and can extend up to 240 minutes, improving the comfort level as well as the heating capacity.

Easier maintenance

Direct access to the 7-segment display to perform tests and diagnostics. Real-time operating conditions and installation error codes are displayed for ease of servicing.

Large operating range

Outside temperature operating range

-20°C Heating 15°C

-5°C Air conditioning 48°C

-20°C   -10°C   -10°C   0°C   10°C   20°C   30°C   40°C   50°C

Smooth Drive Control 2.0

Room Temp°

30
29
28
27
26
25
24
23
22
21
20

0.0   20.0   40.0   60.0   80.0   100.0   120.0   Min

40% less energy

– – – Indoor unit 1 Temp°   Indoor unit 2 Temp°
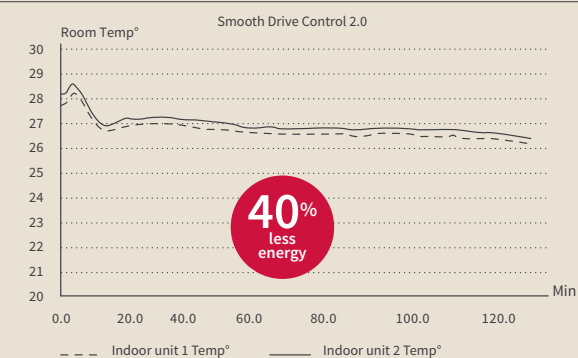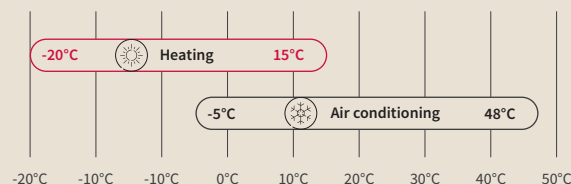
Performance at 25% partial load
Cooling capacity = 7.88 kW
Power input = 1.13kW
EER = 6.96

Outdoor units

1,380
370
950
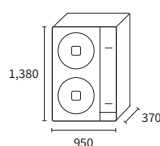
SET FREE Mini S
RAS-4FS(V)NME
RAS-5FS(V)NME
RAS-6FS(V)NME

1.650
390
1.100
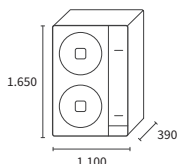
SET FREE Mini L
RAS-8FSXNME
RAS-10FSXNME
RAS-12FSXNME

Performance, cooling	Unit	S RAS-4FS(V)NME	S RAS-5FS(V)NME	S RAS-6FS(V)NME	L RAS-8FSXNME	L RAS-10FSXNME	L RAS-12FSXNME
Nominal Cooling capacity	kW	12.10	14.00	16.00	22.40	28.00	33.50
Rated power input cooling	kW	2.97	3.26	4.35	6.25	7.27	9.36
EER	-	4.07	4.29	3.68	3.60	3.85	3.58
SEER Three-phase / Single-phase	-	6.61 / 6.67	6.61 / 6.64	6.37 / 6.40	7.59	8.31	8.26
Working range in Cooling	-	-5°C / 48°C (DB)					

Performance, heating

	Unit						
Nominal Heating capacity	kW	12.50	16.00	18.00	25.00	31.50	37.50
Rated power input heating	kW	2.89	3.57	4.30	5.32	6.89	9.15
Heating capacity at -7°C	kW	8.6	10.8	12.0	18.6	21.5	25.5
Heating capacity at -15°C	kW	7.3	8.7	10.0	16.2	17.7	21.1
COP	-	4.33	4.48	4.19	4.70	4.57	4.10
SCOP	-	4.15	4.40	4.25	5.62	4.72	4.66
Working range in heating	-	-20°C / 15°C (WB)					

Technical features

	Unit						
Airflow	m³/h	8,700			9,900	11,100	
Available static pressure	Pa	30					
Number of fans	-	2					
Sound power in Cooling mode	dB(A)	69	72	74	76	77	
Sound pressure in Cooling mode	dB(A)	52		53	55	59	60
Dimensions (H x L x D)	mm	1380 x 950 x 370			1650 x 1100 x 390		
Net weight of single-phase / three-phase	kg	114 / 115	118 / 119		- / 188	- / 194	- / 196
Type of compressor	-	Scroll Inverter					
Compressor number	-	1					
Max. number of connectible units	-	13	16	18	26	32	39
Connection ratio (min - max)	%	50-130					

Refrigeration characteristics

	Unit						
Refrigerant	-	R410A					
Refrigerant charge	kg	3.7	4.1	4.1	4.2	5.5	

Diameter of pipes		Unit						
	Liquid	inches	3/8					1/2
	Low pressure gas	inches	-			3/4	7/8	1 1/8
	High pressure gas	inches	5/8			5/8	3/4	7/8

Electrical features

Power supply	Three-phase (Single-phase)	-	3N ~400V 50 Hz (1 ~230V 50 Hz)			3N ~400V 50 Hz		
Max. current	Three-phase (Single-phase)	A	16 (23.5)			18	19	23
Recommended fuse size		A	20 (25)			20		25
Indoor/outdoor connection (shielded)		mm	2 x 0.75					

controls and compatible accessories (see the tab VRF TWIN controls)

Condensate drain kit

DBS-26

Multi kit

Piping rules
VRF SET FREE Mini

Installation flexibility

● Multikit   ▭ CH box
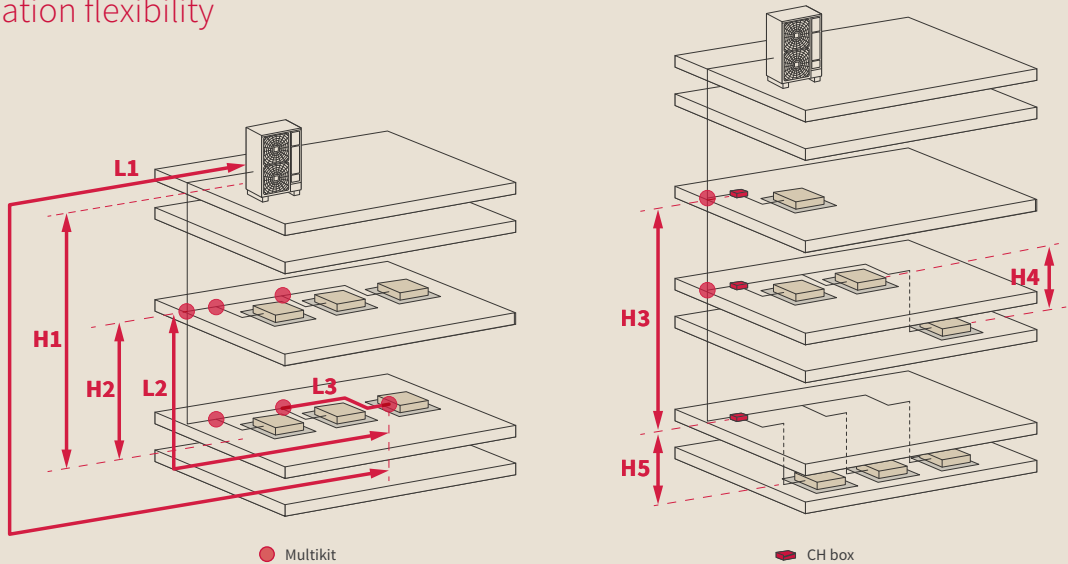
			4 to 6 Hp	8 to 12 Hp	8 to 12 Hp (heat recovery)
Max. length of piping	Total	-	180	500	500
	Between outdoor unit and the furthest indoor unit	L1	85	125	125
	Between the first multikit branch and the furthest indoor unit	L2	40	90*	90*
	Between the multikit and the indoor unit	L3	15	40	40
	Between the CH box and the indoor unit	-	-	-	40
Max. level difference	Between the outdoor unit and the indoor unit	Outdoor unit above the indoor unit	H1	30	50	50
		Indoor unit above the outdoor unit	-	30	40	40
	Between indoor units	H2	15	15	15
	Between CH boxes	H3	-	-	15
	Between indoor units connected to a CH box (same branch)	H4	-	-	4
	Between the CH box and the indoor unit	H5	-	-	15

(*) 40 m over the recommended number of indoor units.

Part numbers of piping accessories

Multikit

2P	3P
E-102SN4	E-102XN3
E-162SN4	E-162XN3

Header

2P	3P
MH-84AN1	MH-108XN
MH-108AN	-

Benefits
VRF SET FREE Sigma

1 Smart Defrost for uninterrupted comfort

Smart defrost optimizes the defrosting cycle and stops the indoor unit fans during the defrost to ensure there are no cold drafts.

Constant comfortable temperature

Heat capacity / Time

| Heating 4 hours | Defrosting 3~9mn | Heating 4 hours | Defrosting 3~9mn | Heating 4 hours |

Heating duration more than twice as long

More efficient and comfortable

No interruption to your comfort during defrosting: stops the indoor unit fans, takes around 3 minutes

Improvement!

frost

no frost
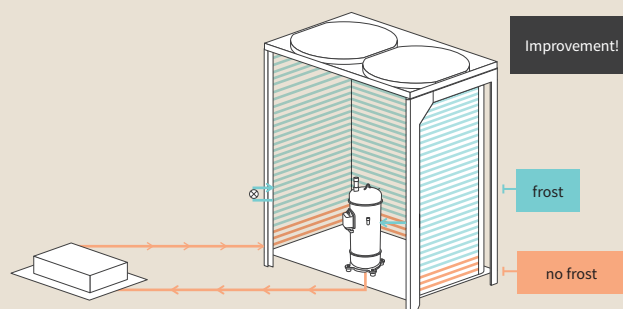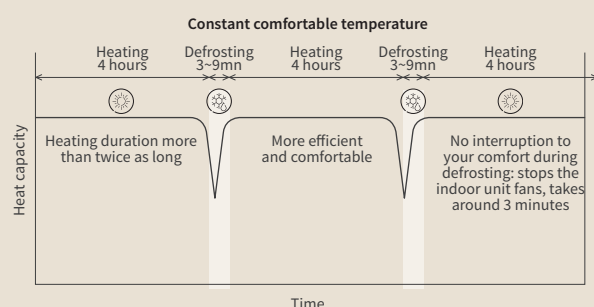
SIGMA's new smart defrost mode provides a defrost-free heating period that is twice as long as the previous model. This period automatically adjusts to the defrosting time of previous cycles and can extend up to 240 minutes. The system also monitors the level of ice buildup when in Heating mode. A hot gas bypass continuously defrosts the underside of the outdoor unit heat exchanger to ensure that when units go into defrost they complete the process within 3 minutes.

2 Smooth drive control

Smooth Drive Control 2.0

Room. Temp°

30 / 29 / 28 / 27 / 26 / 25 / 24 / 23 / 22 / 21 / 20

0.0   20.0   40.0   60.0   80.0   100.0   120.0   Min

40% less energy

- - - Indoor unit 1 Temp°   —— Indoor unit 2 Temp°
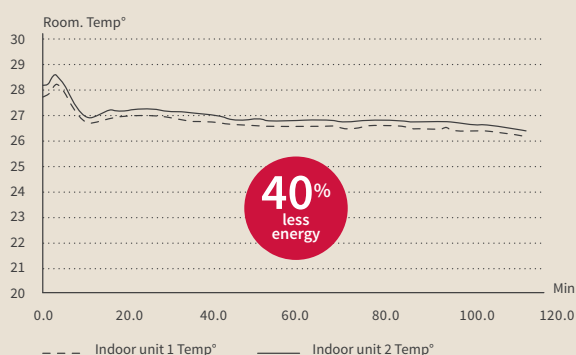
Performance at 25% partial charge

Cooling capacity = 7.88 kW
Power input = 1.13kW
EER = 6.96

Ultra-precise compressor operation system adjusts the capacity in steps of 0.1Hz. This ensures the best outdoor unit performance under partial loads and a consistent indoor temperature. This new feature can, among other things, individually run just one 0.4 Hp (1.1 kW) unit.

3 Variable evaporation temperature

Smart Control automatically changes the evaporation temperature according to the actual heating requirements of the premises and the outside temperature, for fantastic energy savings.

4 Very low noise level

Sound power

86 dB(A) Standard mode

72 dB(A) Silent mode Step 3
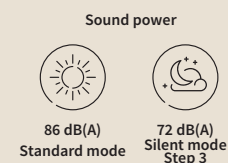
Silent mode	18 Hp Sound power	42 Hp Sound power
Standard	86	90
Step 1	82.5	86
Step 2	77.5	81
Step 3	72.5	76

So it fits perfectly into any type of environment, the SET FREE SIGMA comes with Silent mode as standard. This makes it the quietest VRF on the market.

* JOHNSON CONTROLS - HITACHI AIR CONDITIONING EUROPE SAS participates in the Eurovent Certification Program for AC / VRF / LCP-HP categories; data from certified models are listed in the Eurovent Annual Report (www.eurovent-certification.com).

5 Versatile

80 PA

Outdoor unit
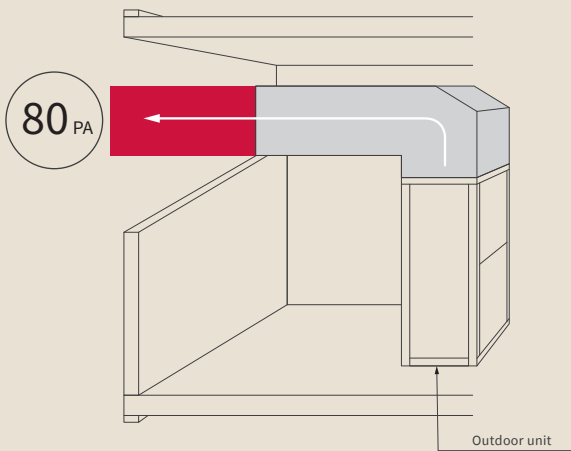
Thanks to 3 static pressure settings: 30 Pa, 60 Pa, 80 Pa, the SET FREE SIGMA can be installed both outside and inside a plant room to meet the needs of even the most complex setups.

6 Energy saving
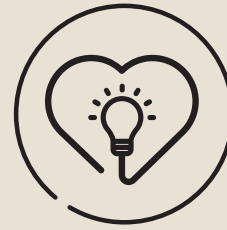
With ambitious climate change policies aiming to reduce emissions to net zero by 2050 reducing the energy consumption of buildings will be essential. The SET FREE SIGMA was designed to accompany this green commitment with its very high energy performance and its 0.4Hp (1.1kW) indoor units.

7 Heat recovery systems that are easy to install

High/low pressure gas
Low pressure gas
Liquid

Single-port CH box | Single-port CH box | Single-port CH box | Single-port CH box

cooling | Heating | cooling | Heating

High/low pressure gas
Low pressure gas
Liquid

Multi-port CH box

cooling | Heating | cooling | Heating
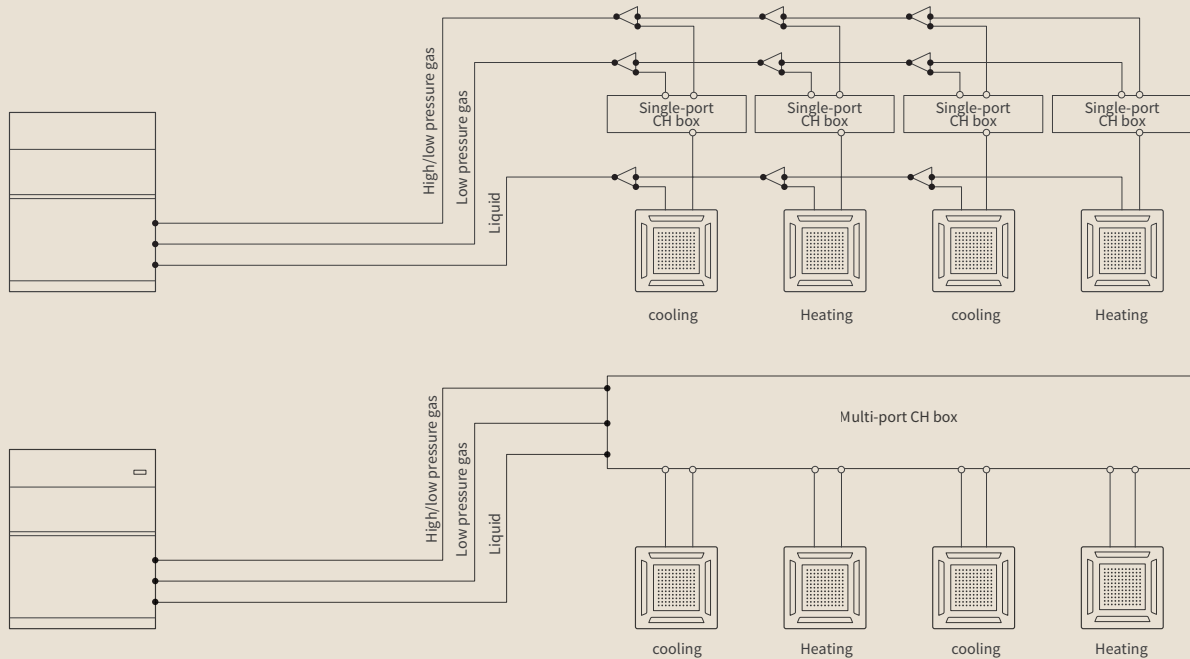
A wide range of CH boxes are available in both single and multi versions with up to 16 ports for maximum flexibility; the lightest and most compact on the market. These boxes do not require a drain connection, making the installer's work much easier. Always with user comfort in mind, these boxes are also very quiet.

VRF SET FREE SIGMA with heat recovery
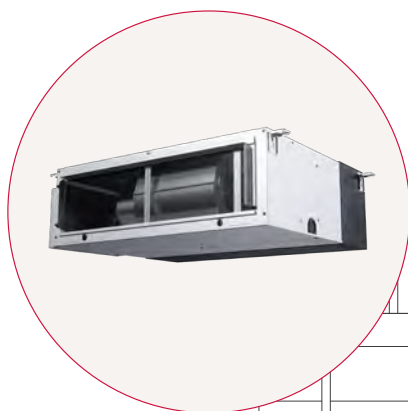
0.4 Hp indoor unit Ideal for low-consumption buildings

HOTEL

CH box with 16 ports

5 Hp outdoor unit market exclusive

Max. pipe length
165m

Max. level difference
110m

Piping

Floor 3 with
16 rooms

Piping

VRF SET FREE Sigma Standard

GENTLE COOL | SEER 7.50 | SCOP 4.48 | 2 PIPES OR | 3 PIPES &

EUROVENT CERTIFIED PERFORMANCE
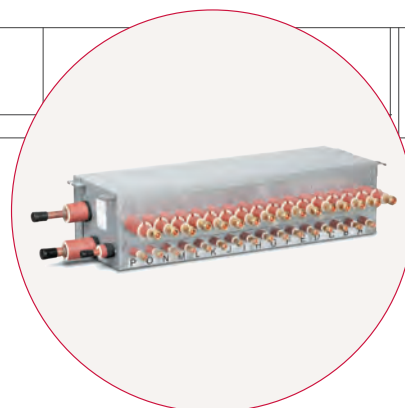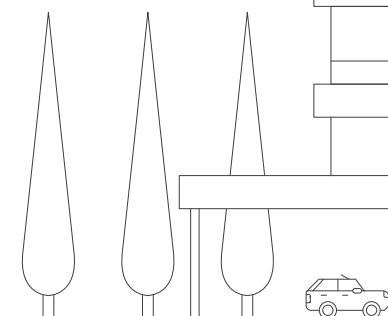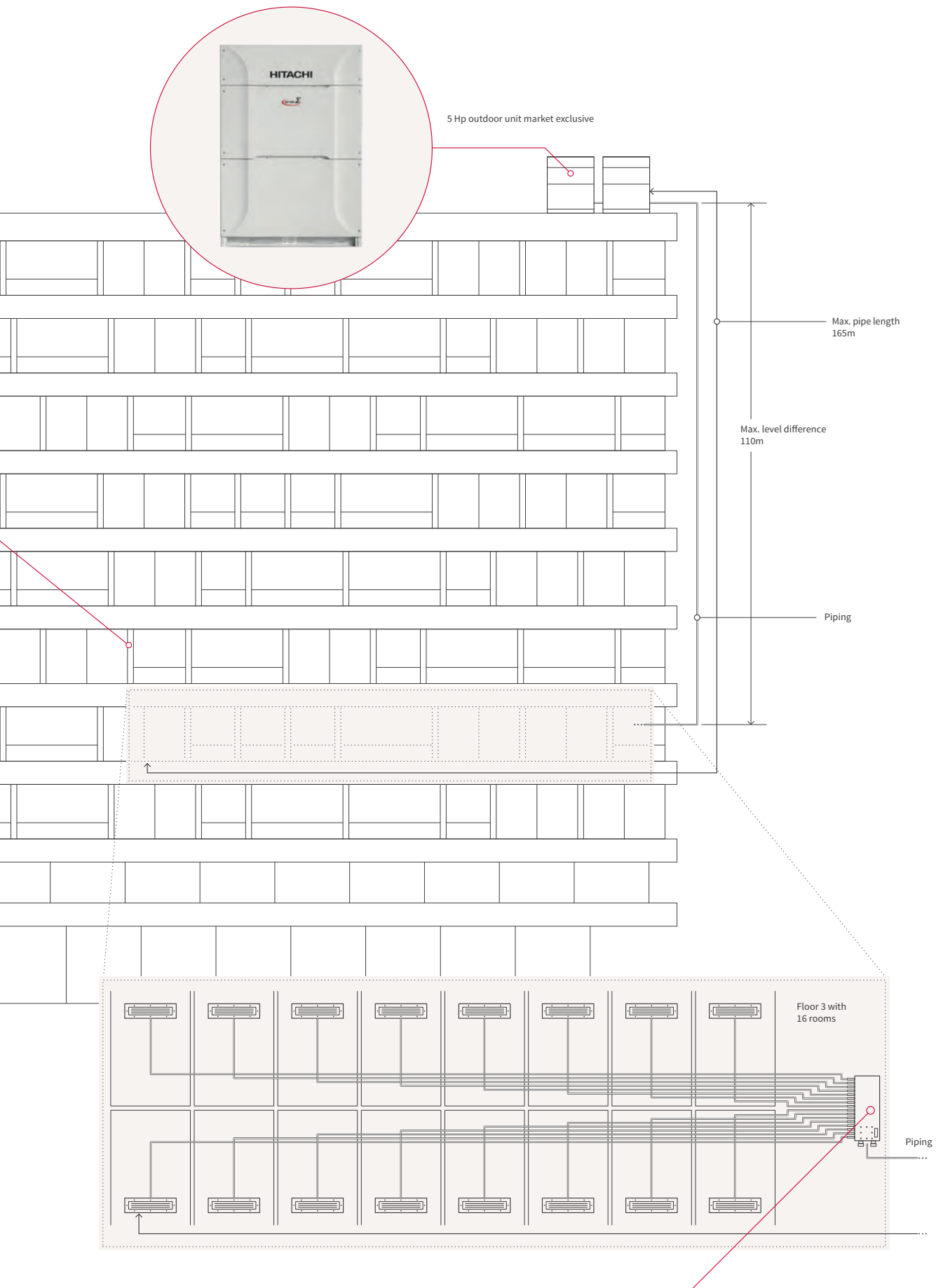
The widest single-module range on the market

Compact and lightweight the SET FREE SIGMA Standard Hitachi range is exclusively available in single modules from 8 Hp to 24 Hp models.

Exclusive solution

3-pipe / 2-pipe universal outdoor unit meets the needs of both energy recovery applications and reversible heat pump ones from the same outdoor, allowing for sites to be retrofitted from heat pump to heat recovery or vice versa without having to change the outdoor.

Advanced anti-corrosion treatment

With its triple coating, SIGMA VRF offers the best protection on the market for use in tough environments.

Epoxy resin layer
Waterproof film layer
Lubricant layer
Aluminum
Epoxy resin layer
Waterproof film layer
Lubricant layer

Large operating ranges

Outside temperature operating range

-20°C — Heating — 15°C
-10°C — Air conditioning — 48°C

-20°C   -10°C   -10°C   0°C   10°C   20°C   30°C   40°C   50°C

Variable evaporation temperature

The control logic built into SIGMA VRF units saves more energy and increases user comfort the whole year round. If the thermal requirements of the internal rooms are low then the system will automatically select a high evaporating temperature which will increase seasonal efficiency and reduce cold drafts. If the thermal needs of indoor rooms change, like a meeting room is needed with a high occupancy level, the system will automatically detect this and decrease the evaporating temperature. This will ensure the cooling load of the room can be met quickly and occupants remain comfortable. This smart refrigerant control is complemented by the GENTLE COOL setting, in which users set the minimum air off temperature per fan coil to avoid cold drafts at all times, SIGMA is now the most comfortable VRF on the market.

Backup function

An outdoor unit can be isolated for maintenance while other units continue to operate.

Outdoor units

1,725 | 784 | 959

RAS-8FSXNSE
RAS-10FSXNSE
RAS-12FSXNSE

1,725 | 784 | 1,219

RAS-14FSXNSE
RAS-16FSXNSE
RAS-18FSXNSE

1,725 | 784 | 1,609

RAS-20FSXNSE
RAS-22FSXNSE
RAS-24FSXNSE

VRF SET FREE Sigma Standard
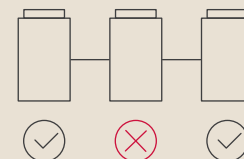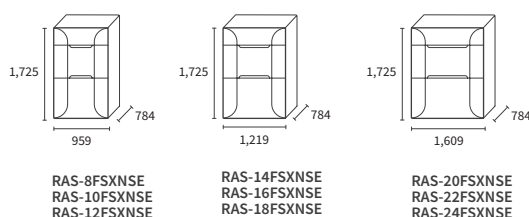
Performance, cooling	Unit	RAS-8FSXNSE	RAS-10FSXNSE	RAS-12FSXNSE	RAS-14FSXNSE	RAS-16FSXNSE	RAS-18FSXNSE	RAS-20FSXNSE	RAS-22FSXNSE	RAS-24FSXNSE
Nominal Cooling capacity	kW	22.4	28	33.5	40	45	50	56	61.5	67
Rated power input Cooling	kW	5.40	7.27	8.89	12.12	13.85	14.9	18.6	20.4	22.4
EER	-	4.15	3.85	3.77	3.30	3.25	3.35	3.01	3.01	2.99
SEER	-	7.50	7.17	6.97	7.47	7.30	6.96	6.29	6.76	6.20
Working range in Cooling	-	-10°C / 48°C DB								

Performance, heating	Unit									
Nominal Heating capacity	kW	25	31.5	37.5	45	50	56	63	69	77.5
Rated power input Heating	kW	5.26	6.89	9.15	12.03	15	17	19	22	23
Power at -7°C [1]	kW	19.92	25.1	26.46	33.08	35.57	39.73	44.70	48.95	51.7
Power at -15°C (or -20°C) [1]	kW	15.8	19.8	20.3	25.5	27	30.20	34	37.30	39.5
COP	-	4.75	4.57	4.10	3.74	3.37	3.29	3.35	3.19	3.4
SCOP	-	4.17	4.11	4.29	4.48	4.42	4.18	4.14	4.43	4.43
Working range in Heating	-	-20°C / 15°C WB								

Technical features	Unit									
Airflow	m³/h	9900	10200	11400	14340	15360	15360	19740	19740	20880
Adjustable static pressure	Pa	30 / 60 / 80								
Number of fans	-	1				2				
Sound power	dB(A)	80	82	82	85	85	86	86	84	86
Sound pressure [2] (Night mode)	dB(A)	58 (53)	60 (53)	59 (54)	63 (57)	63 (57)	65 (57)	65 (59)	64 (59)	66 (59)
Dimensions (H x L x D)	mm	1725 x 959 x 784			1725 x 1219 x 784			1725 x 1609 x 784		
Net weight	kg	210		233	287	329	330	382	398	399
Type of compressor	-	DC Scroll Inverter								
Compressor number	-	1				2				
Max. number of indoor units that can be connected	-	26	32	39	45	52	58	64		
Connection ratio (min - max) [3]	-	50 - 130%								

Refrigeration characteristics	Unit									
Refrigerant	-	R410A								
Refrigerant charge	kg	5		7.20	8.90	9.90	10.70	11.30	11.30	11.6
Diameter of pipes — Liquid	inches	3/8		1/2		1/2	5/8			
Diameter of pipes — Low pressure gas	inches	3/4	7/8	1		1 - 1/8				
Diameter of pipes — High pressure gas	inches	5/8	3/4	7/8					1	

Electrical features	Unit									
Power supply	-	3N - 400V 50Hz								
Max. current	A	15.50	21.50	24	29.50	33	37.50	44.50	45	53
Recommended fuse size	A	20.0	25.0		32.0	40.0		50		63
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75								

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.

controls and compatible accessories (see the tab VRF TWIN controls)

Condensate drain kit

DBS-TP10A

Compatible with
FSXNSE and FSXNPE

Multi kit

See page 264
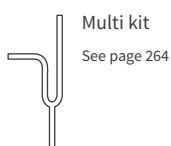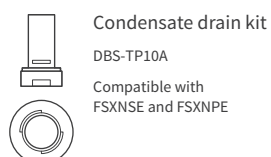
		RAS-26FSXNSE	RAS-28FSXNSE	RAS-30FSXNSE	RAS-32FSXNSE	RAS-34FSXNSE	RAS-36FSXNSE	RAS-38FSXNSE	RAS-40FSXNSE
Unit 1 name		RAS-12FSXNSE	RAS-12FSXNSE	RAS-12FSXNSE	RAS-14FSXNSE	RAS-16FSXNSE	RAS-18FSXNSE	RAS-14FSXNSE	RAS-18FSXNSE
Unit 2 name		RAS-14FSXNSE	RAS-16FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE	RAS-24FSXNSE	RAS-22FSXNSE
Performance, cooling	Unit								
Nominal Cooling capacity	kW	73	77.5	85	90	95	100	106	112
Rated power input Cooling	kW	23.38	22.44	24.24	29.58	28.77	29.85	36.71	35.52
EER	-	3.12	3.45	3.51	3.04	3.30	3.35	2.89	3.15
SEER	-	7.30	7.10	7.11	7.36	7.18	7.20	6.63	6.93
Working range in Cooling	-	-10°C / 48°C DB							
Performance, heating									
Nominal Heating capacity	kW	82.5	90	95	100	106	112	118	125
Rated power input Heating	kW	21.18	24.67	26.59	28.77	31.86	34.04	33.55	38.65
Power at -7°C [1]	kW	59.54	63.70	67.25	72.09	76.41	79.46	81.66	88.68
Power at -15°C (or -20°C) [1]	kW	45.8	48.65	51.31	55.15	58.46	60.40	62.61	67.50
COP	-	3.90	3.65	3.57	3.48	3.33	3.29	3.52	3.23
SCOP	-	4.39	4.35	4.22	4.30	4.28	4.18	4.45	4.30
Working range in Heating	-	-20°C / 15°C WB							
Technical features									
Airflow	m³/h	11140 + 14340	11140 + 15360		14340 + 15360	15360 + 15360		14340 + 20280	15360 + 19740
Adjustable static pressure	Pa	30 / 60 / 80							
Number of fans	-	3			4				
Sound power	dB(A)	87			89				88
Sound pressure [2] (Night mode)	dB(A)	64.50 (58)	64.50 (58.50)	66 (58)	67 (60)	67 (62)	68 (60)	68 (61)	67.50 (61.50)
Dimensions (H x L x D)	mm	1725 x 2198 x 784			1725 x 2458 x 784			1725 x 2848 x 784	
Net weight	kg	233 + 287	233 + 329	233 + 330	287 + 330	329 + 330	330 + 330	287 + 399	330 + 398
Type of compressor	-	DC Scroll Inverter							
Compressor number	-	2		3			4		
Max. number of indoor units that can be connected	-	64							
Connection ratio (min - max) [3]	-	50 - 130%							
Refrigeration characteristics									
Refrigerant	-	R410A							
Refrigerant charge	kg	16.1	17.1	17.9	19.6	20.6	21.4	20.5	22
Diameter of pipes — Liquid	inches	3/4							
Diameter of pipes — Low pressure gas	inches	1 - 1/4						1 - 1/2	
Diameter of pipes — High pressure gas	inches	1 - 1/8						1 - 1/4	
Electrical features									
Power supply	-	3N - 400V 50Hz							
Max. current	A	53	56.5	61	66.5	70.5	75	82.5	82
Recommended fuse size	A	63			80			100	
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75							

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.

VRF SET FREE Sigma Standard

		RAS-42FSXNSE	RAS-44FSXNSE	RAS-46FSXNSE	RAS-48FSXNSE	RAS-50FSXNSE	RAS-52FSXNSE	RAS-54FSXNSE
Unit 1 name		RAS-18FSXNSE	RAS-22FSXNSE	RAS-22FSXNSE	RAS-24FSXNSE	RAS-14FSXNSE	RAS-16FSXNSE	RAS-18FSXNSE
Unit 2 name		RAS-24FSXNSE	RAS-22FSXNSE	RAS-24FSXNSE	RAS-24FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE
Unit 3 name		-	-	-	-	RAS-18FSXNSE	RAS-18FSXNSE	RAS-18FSXNSE
Performance, cooling	**Unit**							
Nominal Cooling capacity	kW	118	122	128	136	140	145	150
Rated power input Cooling	kW	37.65	40.53	42.67	45.48	44.5	43.7	44.78
EER	-	3.13	3.01	3	2.99	3.15	3.32	3.35
SEER	-	6.57	6.75	6.45	6.19	7.30	7.18	7.20
Working range in Cooling	-	-10°C / 48°C DB						
Performance, heating								
Nominal Heating capacity	kW	132	140	145	150	155	160	165
Rated power input Heating	kW	39.37	43.89	43.97	44.12	45.49	48.28	50.15
Power at -7°C [1]	kW	90.38	99.32	99.62	100.06	111.10	113.51	117.06
Power at -15°C (or -20°C) [1]	kW	68.9	75.58	76.01	76.45	84.81	86.32	88.98
COP	-	3.35	3.19	3.30	3.40	3.41	3.31	3.29
SCOP	-	4.31	4.42	4.43	4.43	4.26	4.25	4.18
Working range in Heating	-	-20°C / 15°C WB						
Technical features								
Airflow	m³/h	15360 + 20880	19740 + 19740	19740 + 20880	20880 + 20880	14340 + 15360 + 15360		
Adjustable static pressure	Pa	30 / 60 / 80						
Number of fans	-	4				6		
Sound power	dB(A)	89	87	88	89	90	90	91
Sound pressure [2] (Night mode)	dB(A)	68.50 (61)	67 (62)	68 (62)	69 (62)	69 (62)	69 (62)	70 (62)
Dimensions (H x L x D)	mm	1725 x 2848 x 784	1725 x 3238 x 784	1725 x 3238 x 784	1725 x 3238 x 784	1725 x 3697 x 784	1725 x 3697 x 784	1725 x 3697 x 784
Net weight	kg	330 + 399	398 + 398	398 + 399	399 + 399	287 + 330 + 330	329 + 330 + 330	330 + 330 + 330
Type of compressor	-	DC Scroll Inverter						
Compressor number	-	4				5	6	
Max. number of indoor units that can be connected	-	64						
Connection ratio (min - max) [3]	-	50 - 130%						
Refrigeration characteristics								
Refrigerant	-	R410A						
Refrigerant charge	kg	22.30	22.60	22.90	23.20	30.30	31.30	32.10
Diameter of pipes — Liquid	inches	3/4						
Diameter of pipes — Low pressure gas	inches	1 - 1/2						
Diameter of pipes — High pressure gas	inches	1 - 1/4						
Electrical features								
Power supply	-	3N - 400V 50Hz						
Max. current	A	90.50	89.50	98	106	104	108	112
Recommended fuse size	A	100			125			
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75						

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.
To find out the features of **56 Hp** to **96 Hp** outdoor units, please refer to the technical documentation.

Pipe kits
VRF SET FREE Sigma Standard

Composition of multi-module outdoor units

Outdoor unit	2-pipe combination	Multikit	Outdoor unit	3-pipe combinations.	Multikit
RAS-8FSXNSE	Single module	-	RAS-8FSXNSE-3P	Single module	-
RAS-10FSXNSE	Single module	-	RAS-10FSXNSE-3P	Single module	-
RAS-12FSXNSE	Single module	-	RAS-12FSXNSE-3P	Single module	-
RAS-14FSXNSE	Single module	-	RAS-14FSXNSE-3P	Single module	-
RAS-16FSXNSE	Single module	-	RAS-16FSXNSE-3P	Single module	-
RAS-18FSXNSE	Single module	-	RAS-18FSXNSE-3P	Single module	-
RAS-20FSXNSE	Single module	-	RAS-20FSXNSE-3P	Single module	-
RAS-22FSXNSE	Single module	-	RAS-22FSXNSE-3P	Single module	-
RAS-24FSXNSE	Single module	-	RAS-24FSXNSE-3P	Single module	-
RAS-26FSXNSE	RAS-14FSXNSE - RAS-12FSXNSE	MC-21AN1	RAS-26FSXNSE-3P	RAS-14FSXNSE - RAS-12FSXNSE	MC-21XN1
RAS-28FSXNSE	RAS-16FSXNSE - RAS-12FSXNSE	MC-21AN1	RAS-28FSXNSE-3P	RAS-16FSXNSE - RAS-12FSXNSE	MC-21XN1
RAS-30FSXNSE	RAS-18FSXNSE - RAS-12FSXNSE	MC-21AN1	RAS-30FSXNSE-3P	RAS-18FSXNSE - RAS-12FSXNSE	MC-21XN1
RAS-32FSXNSE	RAS-18FSXNSE - RAS-14FSXNSE	MC-21AN1	RAS-32FSXNSE-3P	RAS-18FSXNSE - RAS-14FSXNSE	MC-21XN1
RAS-34FSXNSE	RAS-18FSXNSE - RAS-16FSXNSE	MC-21AN1	RAS-34FSXNSE-3P	RAS-18FSXNSE - RAS-16FSXNSE	MC-21XN1
RAS-36FSXNSE	RAS-18FSXNSE - RAS-18FSXNSE	MC-21AN1	RAS-36FSXNSE-3P	RAS-18FSXNSE - RAS-18FSXNSE	MC-21XN1
RAS-38FSXNSE	RAS-24FSXNSE - RAS-14FSXNSE	MC-21AN1	RAS-38FSXNSE-3P	RAS-24FSXNSE - RAS-14FSXNSE	MC-21XN1
RAS-40FSXNSE	RAS-22FSXNSE - RAS-18FSXNSE	MC-21AN1	RAS-40FSXNSE-3P	RAS-22FSXNSE - RAS-18FSXNSE	MC-21XN1
RAS-42FSXNSE	RAS-24FSXNSE - RAS-18FSXNSE	MC-21AN1	RAS-42FSXNSE-3P	RAS-24FSXNSE - RAS-18FSXNSE	MC-21XN1
RAS-44FSXNSE	RAS-22FSXNSE - RAS-22FSXNSE	MC-21AN1	RAS-44FSXNSE-3P	RAS-22FSXNSE - RAS-22FSXNSE	MC-21XN1
RAS-46FSXNSE	RAS-24FSXNSE - RAS-22FSXNSE	MC-21AN1	RAS-46FSXNSE-3P	RAS-24FSXNSE - RAS-22FSXNSE	MC-21XN1
RAS-48FSXNSE	RAS-24FSXNSE - RAS-24FSXNSE	MC-21AN1	RAS-48FSXNSE-3P	RAS-24FSXNSE - RAS-24FSXNSE	MC-21XN1
RAS-50FSXNSE	RAS-18FSXNSE - RAS-18FSXNSE - RAS-14FSXNSE	MC-30AN1	RAS-50FSXNSE-3P	RAS-18FSXNSE - RAS-18FSXNSE - RAS-14FSXNSE	MC-30XN1
RAS-52FSXNSE	RAS-18FSXNSE - RAS-18FSXNSE - RAS-16FSXNSE	MC-30AN1	RAS-52FSXNSE-3P	RAS-18FSXNSE - RAS-18FSXNSE - RAS-16FSXNSE	MC-30XN1
RAS-54FSXNSE	RAS-18FSXNSE - RAS-18FSXNSE - RAS-18FSXNSE	MC-30AN1	RAS-54FSXNSE-3P	RAS-18FSXNSE - RAS-18FSXNSE - RAS-18FSXNSE	MC-30XN1

Part numbers of pipe kit accessories

Multikit

2 pipes	3 pipes
E-102SN4	E-52XN3
E-162SN4	E-102XN3
E-242SN3	E-162XN3
E-302SN3	E-202XN3
MW-NP2682A3	E-242XN3
	E-322XN3

Header

2 pipes	3 pipes
MH-84AN1	MH-108XN
MH-108AN	

Compatible accessories
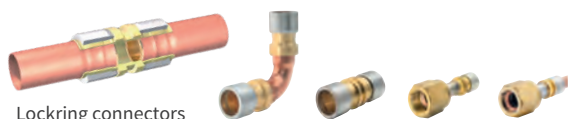
Lockring connectors

VRF SET FREE
Sigma High-Efficiency

GENTLE COOL

SEER 8.33

SCOP 5.06

2 PIPES OR

3 PIPES &

EUROVENT CERTIFIED PERFORMANCE

Highly energy-efficient

Thanks to its seasonal energy efficiency performance (SEER 8.33 and SCOP 5.06), the High-Efficency Sigma range will guarantee running cost savings over standard ranges.
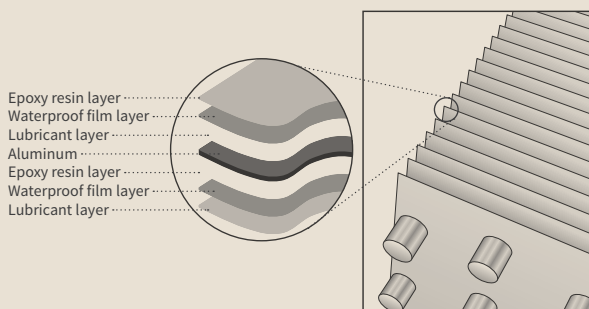
The biggest range

Exclusive to Hitachi with single modules from 5 Hp and a possible combination of up to 54 Hp for 3-pipe and 72 Hp for 2-pipe versions.

Exclusive solution

3-pipe / 2-pipe universal outdoor unit meets the needs of both energy recovery applications and reversible heat pump ones from the same outdoor, allowing for sites to be retrofitted from heat pump to heat recovery or vice versa without having to change the outdoor.

Advanced anti-corrosion treatment

With its triple coating, SIGMA VRF offers the best protection on the market for coastal locations.

Epoxy resin layer
Waterproof film layer
Lubricant layer
Aluminum
Epoxy resin layer
Waterproof film layer
Lubricant layer

Large operating ranges

Outside temperature operating range

-20°C ☀ Heating 15°C

-10°C ❄ Air conditioning 52°C

-20°C   -10°C   -10°C   0°C   10°C   20°C   30°C   40°C   50°C

Variable evaporation temperature

The control logic built into SIGMA VRF units saves more energy and increases user comfort the whole year round. If the thermal requirements of the internal rooms are low then the system will automatically select a high evaporating temperature which will increase seasonal efficiency and reduce cold drafts. If the thermal needs of indoor rooms change, like a meeting room is needed with a high occupancy level, the system will automatically detect this and decrease the evaporating temperature. This will ensure the cooling load of the room can be met quickly and occupants remain comfortable. This smart refrigerant control is complemented by the GENTLE COOL setting, in which users set the minimum air off temperature per fan coil to avoid cold drafts at all times, SIGMA is now the most comfortable VRF on the market.

Backup function

Isolates an outdoor unit for maintenance while other units continue to operate.

✓   ✕   ✓

Outdoor units

1,725   784   959
RAS - 5FSXNPE
RAS - 6FSXNPE

1,725   784   1,219
RAS - 8FSXNPE
RAS - 10FSXNPE
RAS - 12FSXNPE
RAS - 14FSXNPE

1,725   784   1,609
RAS - 16FSXNPE
RAS - 18FSXNPE

VRF SET FREE Sigma High-Performance
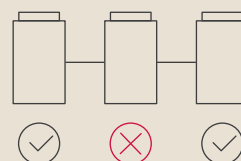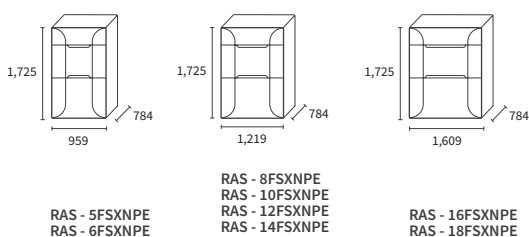
Performance, cooling	Unit	RAS-5FSXNPE	RAS-6FSXNPE	RAS-8FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Nominal Cooling capacity	kW	14	16	22.4	28	33.5	40	45	50
Rated power input Cooling	kW	2.90	3.37	5.05	6.18	8.44	11.53	11.51	12.79
EER	-	4.82	4.75	4.44	4.53	3.97	3.47	3.91	3.91
SEER	-	8.33	8.00	7.97	8.06	7.91	7.69	7.76	7.60
Working range in Cooling	-	-10°C / 52°C DB							

Performance, heating

Performance, heating	Unit	RAS-5FSXNPE	RAS-6FSXNPE	RAS-8FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Nominal Heating capacity	kW	16.00	18.00	25.00	31.50	37.5	45	50	56
Rated power input Heating	kW	2.80	3.52	5.08	6.65	8.01	10.84	12.92	14.97
Power at -7°C [1]	kW	13.38	15.04	20.92	25.10	27.78	34.93	40.06	41.46
Power at -15°C (or -20°C) [1]	kW	10.70	12.10	16.80	19.80	21.40	30.20	31.50	31.90
COP	-	5.72	5.12	4.92	4.74	4.68	4.15	3.87	3.74
SCOP	-	5.06	4.58	4.55	4.73	4.81	4.63	4.84	4.81
Working range in Heating	-	-20°C / 15°C WB							

Technical features

Technical features	Unit	RAS-5FSXNPE	RAS-6FSXNPE	RAS-8FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Airflow	m³/h	9000	10200	11100	13140		14580	19560	21720
Adjustable static pressure	Pa	30 / 60 / 80							
Number of fans	-	1		2					
Sound power	dB(A)	75	78	77	82	83	85	85	86
Sound pressure [2] (Night mode)	dB(A)	54 (49)	56 (51)	55 (50)	59 (54)	60 (55)	62 (57)	65 (60)	65 (60)
Dimensions (H x L x D)	mm	1725 x 959 x 784		1725 x 1219 x 784				1725 x 1609 x 784	
Net weight	kg	210		274	278	282	292	369	384
Type of compressor	-	DC Scroll Inverter							
Compressor number	-	1						2	
Max. number of indoor units that can be connected	-	16	19	26	32	39	45	52	58
Connection ratio (min - max) [3]	-	50 - 150%							

Refrigeration characteristics

Refrigeration characteristics		Unit	RAS-5FSXNPE	RAS-6FSXNPE	RAS-8FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Refrigerant		-	R410A							
Refrigerant charge		kg	4.7	5	8.5	8.5	9.3	9.3	10	10.6
Diameter of pipes	Liquid	inches	3/8				1/2			5/8
	Low pressure gas	inches	5/8	3/4		7/8	1-1/8			
	High pressure gas	inches	1/2	5/8		3/4	7/8			

Electrical features

Electrical features	Unit	RAS-5FSXNPE	RAS-6FSXNPE	RAS-8FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Power supply	-	3N - 400V 50Hz							
Max. current	A	11.5	12.0	15.0	19.0	23.0	28.0	33.0	34.5
Recommended fuse size	A	16			20	25	32	40	
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75							

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.

Controls and compatible accessories (see the tab VRF TWIN controls)

Condensate drain kit

DBS-TP10A

Compatible with
FSXNSE and FSXNPE

Multi kit

See page 270
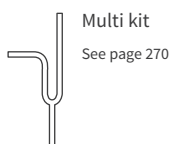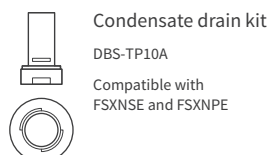
VRF SET FREE Sigma High-Performance

		RAS-20FSXNPE	RAS-22FSXNPE	RAS-24FSXNPE	RAS-26FSXNPE	RAS-28FSXNPE	RAS-30FSXNPE	RAS-32FSXNPE	RAS-34FSXNPE	RAS-36FSXNPE
Unit 1 name		RAS-10FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-10FSXNPE	RAS-12FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Unit 2 name		RAS-10FSXNPE	RAS-12FSXNPE	RAS-12FSXNPE	RAS-16FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE
Performance, cooling	**Unit**									
Nominal Cooling capacity	kW	56	61.5	67	73	77.5	85	90	95	100
Rated power input Cooling	kW	12.36	14.62	16.88	17.69	19.69	21.61	24.32	24.30	25.58
EER	-	4.53	4.21	3.97	4.13	3.94	3.93	3.70	3.91	3.91
SEER	-	8.06	7.97	7.91	7.92	7.71	7.49	7.62	7.83	7.60
Working range in Cooling	-	-10°C / 52°C B								
Performance, heating										
Nominal Heating capacity	kW	63	69	77.5	82.5	90	95	100	106	112
Rated power input Heating	kW	13.29	14.66	16.56	19.81	21.53	23.35	25.56	27.89	29.95
Power at -7°C [1]	kW	50.2	52.88	57.41	65.96	69.76	70.35	75.64	81.52	82.92
Power at -15°C (or -20°C) [1]	kW	39.6	41.2	44.23	51.93	54.39	54.16	61.49	63.40	63.80
COP	-	4.74	4.71	4.68	4.17	4.18	4.07	3.91	3.80	3.74
SCOP	-	4.76	4.76	4.81	4.78	4.82	4.71	4.63	4.72	4.64
Working range in Heating	-	-20°C / 15°C WB								
Technical features										
Airflow	m³/h	13140 + 13140			13140 + 19560		13141 + 21720	14580 + 21720	19560 + 21720	21720 + 21720
Adjustable static pressure	Pa	30 / 60 / 80								
Number of fans	-	4								
Sound power	dB(A)	85	86	86	87		88		89	
Sound pressure [2] (Night mode)	dB(A)	62 (57)	62.5 5 (57.5)	63 (58)	66 (61)		66 (61)	67 (62)	68 (63)	
Dimensions (H x L x D)	mm	1725 x 2458 x 784			1725 x 2848 x 784			1725 x 3238 x 784		
Net weight	kg	278 + 278	278 + 282	282 + 282	278 + 369	282 + 369	282 + 384	297 + 384	369 + 384	384 + 384
Type of compressor	-	DC Scroll Inverter								
Compressor number	-	2			3			4		
Max. number of indoor units that can be connected	-	64								
Connection ratio (min - max) [3]	-	50 - 150%								
Refrigeration characteristics										
Refrigerant	-	R410A								
Refrigerant charge	kg	17	17.8	18.6	18.5	19.3	19.9	19.9	20.6	21.2
Diameter of pipes — Liquid	inches	5/8			3/4					
Diameter of pipes — Low pressure gas	inches	1-1/8			1-1/4					1-1/2
Diameter of pipes — High pressure gas	inches	7/8	1		1-1/8					
Electrical features										
Power supply	-	3N - 400V 50Hz								
Max. current	A	38.0	42.0	46.0	51.5	55.5	57.0	62.0	67.0	68.5
Recommended fuse size	A	40	50		63				80	
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75								

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.

VRF SET FREE Sigma High-Performance

		RAS-38FSXNPE	RAS-40FSXNPE	RAS-42FSXNPE	RAS-44FSXNPE	RAS-46FSXNPE	RAS-48FSXNPE	RAS-50FSXNPE	RAS-52FSXNPE	RAS-54FSXNPE
Unit 1 name		RAS-12FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-12FSXNPE	RAS-14FSXNPE	RAS-16FSXNPE	RAS-18FSXNPE
Unit 2 name		RAS-12FSXNPE	RAS-14FSXNPE	RAS-14FSXNPE	RAS-14FSXNPE	RAS-14FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE
Unit 3 name		RAS-14FSXNPE	RAS-14FSXNPE	RAS-14FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE	RAS-18FSXNPE

Performance, cooling	**Unit**									
Nominal Cooling capacity	kW	106	112	118	122	128	136	140	145	150
Rated power input Cooling	kW	28.12	31.11	34.01	32.36	35.29	34.65	37.10	37.08	38.36
EER	-	3.77	3.60	3.47	3.77	3.63	3.92	3.77	3.91	3.91
SEER	-	7.67	7.67	7.67	7.64	7.64	7.61	7.61	7.75	7.60
Working range in Cooling	-	-10°C / 52°C DB								

Performance, heating										
Nominal Heating capacity	kW	118	125	132	140	145	150	155	160	165
Rated power input Heating	kW	26.40	29.14	31.80	34.2	36.41	38.09	40.27	42.34	44.12
Power at -7°C [1]	kW	88.98	95.73	102.47	105.30	110.57	114.09	116.36	121.47	122.17
Power at -15°C (or -20°C) [1]	kW	71.78	80.19	88.59	84.41	91.67	85.48	92.80	94.12	93.99
COP	-	4.47	4.29	4.15	4.09	3.98	3.94	3.85	3.78	3.74
SCOP	-	4.17	4.68	4.63	4.68	4.63	4.68	4.64	4.70	4.64
Working range in Heating	-	-20°C / 15°C WB								

Technical features										
Airflow	m³/h	13140 + 13140 + 14580	13140 + 14580 + 14580	14580 + 14580 + 14580	13140 + 14580 + 21720	14580 + 14580 + 21720	13140 + 21720 + 21720	14580 + 21720 + 21720	19560 + 21720 + 21720	21720 + 21720 + 21720
Adjustable static pressure	Pa	30 / 60 / 80								
Number of fans	-	6								
Sound power	dB(A)	89	89	90	90	90	90	90	91	91
Sound pressure [2] (Night mode)	dB(A)	65.5 (60.5)	66 (61)	67 (62)	67.5 (62.5)	68 (63)	68.5 (63.5)	69 (64)	70 (65)	70 (65)
Dimensions (H x L x D)	mm	1725 x 3697 x 784			1725 x 4087 x 784		1725 x 4477 x 784		1725 x 4867 x 784	
Net weight	kg	282 + 282 + 297	282 + 297 + 297	297 + 297 + 297	282 + 297 + 384	297 + 297 + 384	282 + 384 + 384	297 + 384 + 384	369 + 384 + 384	384 + 384 + 384
Type of compressor	-	DC Scroll Inverter								
Compressor number	-	3	3	3	4	4	5	5	6	6
Max. number of indoor units that can be connected	-	64								
Connection ratio (min - max) [3]	-	50 - 150%								

Refrigeration characteristics										
Refrigerant	-	R410A								
Refrigerant charge	kg	27.9	27.9	27.9	29.2	29.2	30.5	30.5	31.2	31.8
Diameter of pipes — Liquid	inches	3/4								
Diameter of pipes — Low pressure gas	inches	1 - 1/2								
Diameter of pipes — High pressure gas	inches	1 - 1/4								

Electrical features										
Power supply	-	3N - 400V 50Hz								
Max. current	A	73.5	78.5	83.0	85.0	89.5	91.0	96.0	101.0	103.0
Recommended fuse size	A	80	80	100	100	100	100	100	125	125
Indoor/outdoor connection (shielded) [4]	mm	2 x 0.75								

[1] When set to 20°C with a connection rate of 100%. [2] Anechoic chamber readings taken 1 m from the front of the appliance.
[3] Depending on the application; refer to the technical documentation. [4] Shielding must be renewed every 300 m.
To find out the features of 56 Hp to 72 Hp outdoor units, please refer to the technical documentation.

Pipe kits
VRF SET FREE SIGMA High-Performance

Composition of multi-module outdoor units

| Outdoor unit	2-pipe combination	Multikit	Outdoor unit	3-pipe combinations.	Multikit
RAS-5FSXNPE	Single module	-	RAS-5FSXNPE-3P	Single module	-
RAS-6FSXNPE	Single module	-	RAS-6FSXNPE-3P	Single module	-
RAS-8FSXNPE	Single module	-	RAS-8FSXNPE-3P	Single module	-
RAS-10FSXNPE	Single module	-	RAS-10FSXNPE-3P	Single module	-
RAS-12FSXNPE	Single module	-	RAS-12FSXNPE-3P	Single module	-
RAS-14FSXNPE	Single module	-	RAS-14FSXNPE-3P	Single module	-
RAS-16FSXNPE	Single module	-	RAS-16FSXNPE-3P	Single module	-
RAS-18FSXNPE	Single module	-	RAS-18FSXNPE-3P	Single module	-
RAS-20FSXNPE	RAS-10FSXNPE - RAS-10FSXNPE	MC-20AN1	RAS-20FSXNPE-3P	RAS-10FSXNPE - RAS-10FSXNPE	MC-20XN1
RAS-22FSXNPE	RAS-10FSXNPE - RAS-12FSXNPE	MC-20AN1	RAS-22FSXNPE-3P	RAS-10FSXNPE - RAS-12FSXNPE	MC-20XN1
RAS-24FSXNPE	RAS-12FSXNPE - RAS-12FSXNPE	MC-20AN1	RAS-24FSXNPE-3P	RAS-12FSXNPE - RAS-12FSXNPE	MC-20XN1
RAS-26FSXNPE	RAS-16FSXNPE - RAS-10FSXNPE	MC-21AN1	RAS-26FSXNPE-3P	RAS-16FSXNPE - RAS-10FSXNPE	MC-21XN1
RAS-28FSXNPE	RAS-16FSXNPE - RAS-12FSXNPE	MC-21AN1	RAS-28FSXNPE-3P	RAS-16FSXNPE - RAS-12FSXNPE	MC-21XN1
RAS-30FSXNPE	RAS-18FSXNPE - RAS-12FSXNPE	MC-21AN1	RAS-30FSXNPE-3P	RAS-18FSXNPE - RAS-12FSXNPE	MC-21XN1
RAS-32FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE	MC-21AN1	RAS-32FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE	MC-21XN1
RAS-34FSXNPE	RAS-18FSXNPE - RAS-16FSXNPE	MC-21AN1	RAS-34FSXNPE-3P	RAS-18FSXNPE - RAS-16FSXNPE	MC-21XN1
RAS-36FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE	MC-21AN1	RAS-36FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE	MC-21XN1
RAS-38FSXNPE	RAS-14FSXNPE - RAS-12FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-38FSXNPE-3P	RAS-14FSXNPE - RAS-12FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-40FSXNPE	RAS-14FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-40FSXNPE-3P	RAS-14FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-42FSXNPE	RAS-14FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-42FSXNPE-3P	RAS-14FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-44FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-44FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-46FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-46FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-48FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-48FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-50FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-50FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-52FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-16FSXNPE	MC-30AN1	RAS-52FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-16FSXNPE	MC-30XN1
RAS-54FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-18FSXNPE	MC-30AN1	RAS-54FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-18FSXNPE	MC-30XN1

Part numbers of cooler accessories

Multikit

2 pipes	3 pipes
E-102SN4	E-52XN3
E-162SN4	E-102XN3
E-242SN3	E-162XN3
E-302SN3	E-202XN3
MW-NP2682A3	E-242XN3
	E-322XN3

Header

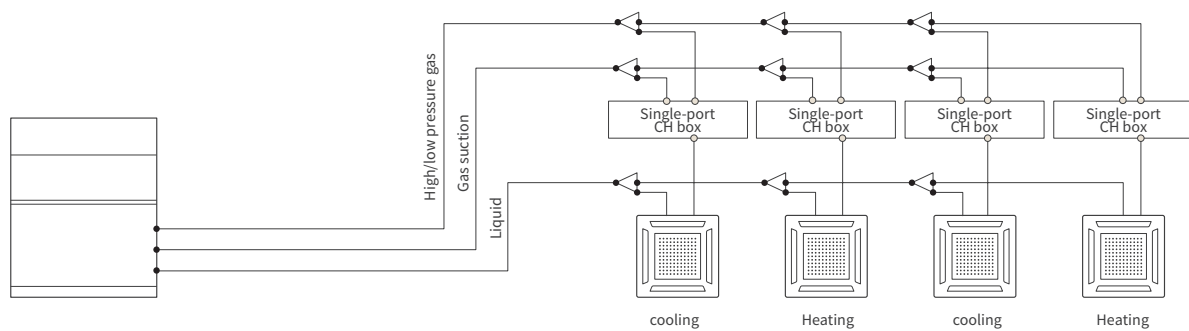| 2 pipes	3 pipes
MH-84AN1	MH-108XN
MH-108AN	

Compatible accessories
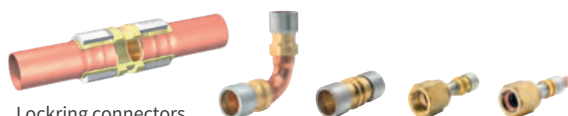
Lockring connectors

VRF SET FREE Single CH boxes

Compatible with Sigma and SET FREE Mini 3-pipe ranges (8 to 12 Hp)

Description

- CH box range with 1 port.
- Up to 8 indoor units per CH box.
- Compact.
- Lightweight.
- Connect 2-pipes only (gas pipes).
- No condensate connection.

- Long pipe lengths possible.
- Very low sound level: 33 dB(A).
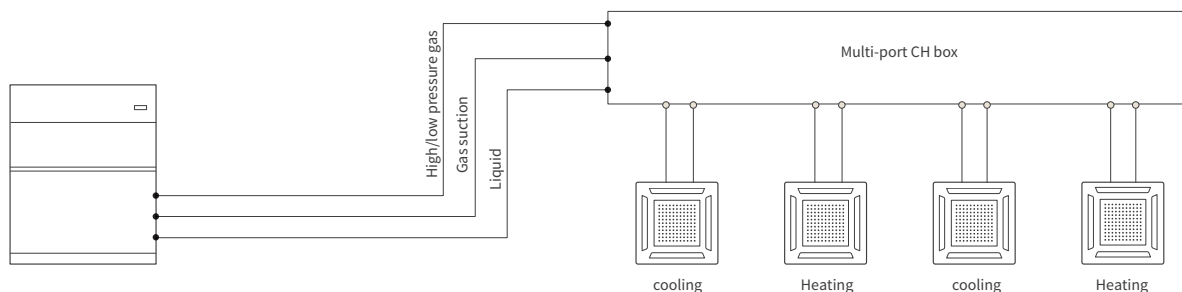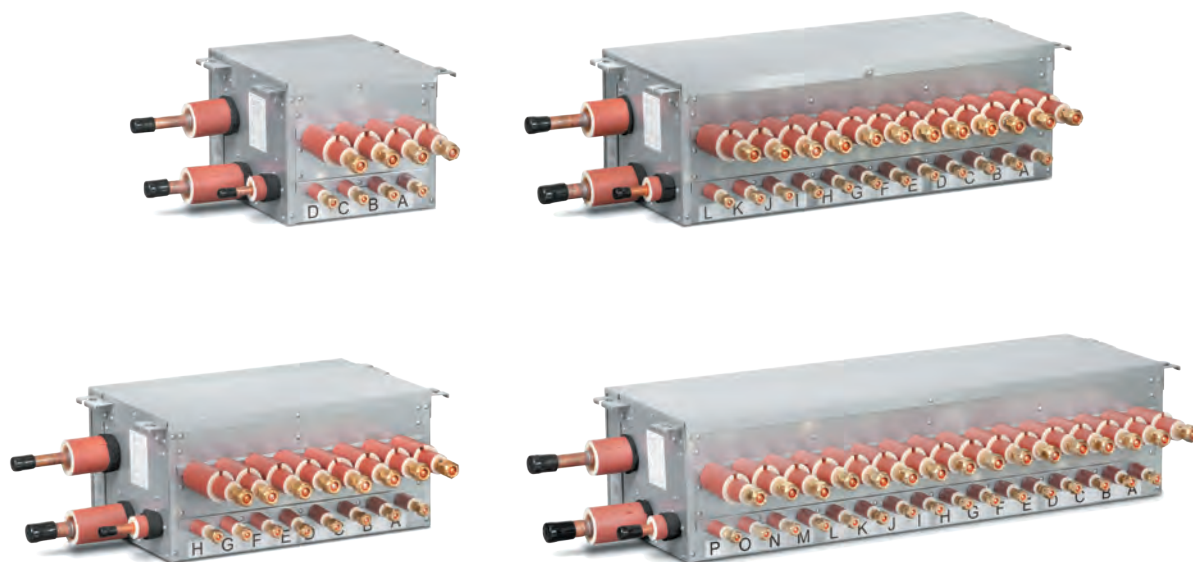- Flare type pipe connections.

Mono CH boxes	Part no.	CH-AP160SSX	CH-AP280SSX
Max. capacity in cooling mode	Hp (kW)	16.0	28.0
Number of indoor units that can be connected*		1 ~ 7	1 ~ 8
Max. pipe length between CH box and Indoor units	m	40	
Difference in height of indoor units connected to the same CH box	m	< 4	
Height difference between each CH box or between a CH box and an indoor unit	m	< 15	
Dimensions (H x L x D)	mm	191 x 301 x 214	
Weight	kg	6	
Diameter of refrigeration pipes – outdoor unit - Gas only	inches	5/8 - 3/4	
Diameter of refrigeration pipes – indoor unit - Gas only	inches	5/8	3/4
Sound pressure level	dBA	33 (46 max**)	

* If connecting multiple indoor units per branch, use the Hitachi multikits referenced P. 270.
** Max. noise means the maximum operating noise level of the CH box emitted when the unit is in simultaneous cooling and heating or in defrost mode.

VRF SET FREE Multi CH boxes

Compatible with Sigma and SET FREE Mini 3-pipe ranges (8 to 12 Hp)

Description

- Range of multi-port CH boxes.
- Up to 96 indoor units per CH box.
- Low-height.
- Low volume.
- No condensate connection.

- Lightweight.
- Very low sound level: 31 dB(A).
- Refrigerant pipe connections brazed (outdoor unit) and flare type (indoor unit).

Multi CH boxes	Part no.	CH-AP04MSSX	CH-AP08MSSX	CH-AP12MSSX	CH-AP16MSSX
Number of branches		4	8	12	16
Number of units per branch*		1 ~ 6	1 ~ 6	1 ~ 6	1 ~ 6
Total max. Cooling capacity per CH box	kW	44.8	85	85	85
Total max. Cooling capacity per branch	kW	16			
Max. pipe length between CH box & indoor units	m	40			
Difference in height of indoor units connected to the same CH box	m	< 4			
Height difference between each CH box or between a CH box and an indoor unit	m	< 15			
Dimensions (H x L x D)	mm	260 x 303 x 352	260 x 543 x 352	260 x 783 x 352	260 x 1023 x 352
Weight	kg	14	25	36	47
Diameters of refrigeration pipes – outdoor unit (Dis - Suc - Liq)	inches	7/8 - 1 1/8 - 1/2	7/8 - 1 1/8 - 1/2	1 - 1 1/8 - 5/8	1 1/8 - 1 1/4 - 3/4
Diameters of refrigeration pipes – indoor unit (Gas - Liq)	inches	5/8 - 3/8			
Sound pressure level	dBA	31 (43 max**)	31 (46 max**)	34 (48 max**)	34 (49 max**)

* If connecting multiple indoor units per branch, use the Hitachi multikits referenced P. 270.
** Max. noise means the maximum operating noise level of the CH box emitted when the unit is in simultaneous cooling and heating or in defrost mode.

Design rules for refrigeration piping

| Item		Symbol	Permissible length of pipes	
			≤ Number of indoor units recommended*	≥ Number of indoor units recommended*
Total length of piping		Actual total length of liquid piping	≤ 1000m[3]	≤ 300m[3]
Max. pipe length	Actual length	L1	≤ 165m	≤ 165m
	Equivalent length		≤ 190m	≤ 190m
Max. length of piping between the multi-kit of the first branch and each indoor unit		L2	≤ 90m	≤ 40m
Max. pipe length between multi-kits and indoor units		L3	≤ 40m	≤ 30m
Total pipe length between the CH-Box and each indoor unit		L4 (e + f + g + h + i)	≤ 40m	≤ 30m
Pipe length between the piping connection kit 1 and each outdoor unit		La, Lb, Lc	≤ 10m	≤ 10m
Height difference between outdoor units and indoor units	Outdoor unit is higher	H1	≤ 50m[1]	≤ 50m[1]
	Outdoor unit is lower		≤ 40m	≤ 40m
Height difference between indoor units		H2	≤ 30m	≤ 30m
Height difference between the CH box and indoor unit		H3	15m[2]	
Difference in height between indoor units connected to the same CH box branch		H4	≤ 4m	≤ 4m
Height difference between CH boxes		H5	≤ 15m	≤ 15m
Difference in height between the outdoor units		H6	≤ 0.1m	≤ 0.1m

(*) See the technical manual for the recommended number of indoor units (TC). [1] Longer piping (up to 110 m) is available for all models. Remember, you must obtain prior approval from Hitachi's Customer Service team if the difference in height is greater than 50 m. Please contact Hitachi's Customer Service department to provide them with the necessary features of the system so that they can carry out a feasibility study. [2] The recommended height difference between the CH box and the indoor unit must be no more than 15 m. If the height difference is greater, it could compromise the operating performance. [3] If following the recommended number of indoor units, the total length of piping must be less than 1,000 m due to the additional coolant load limit. If you exceed the recommended number of indoor units, the restrictions for the total length of the pipes apply.
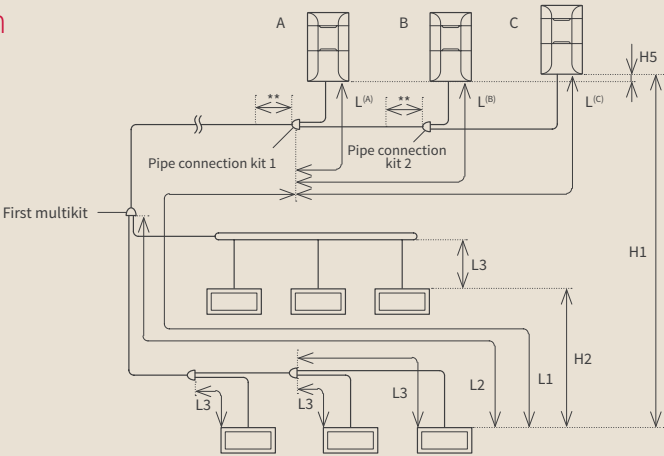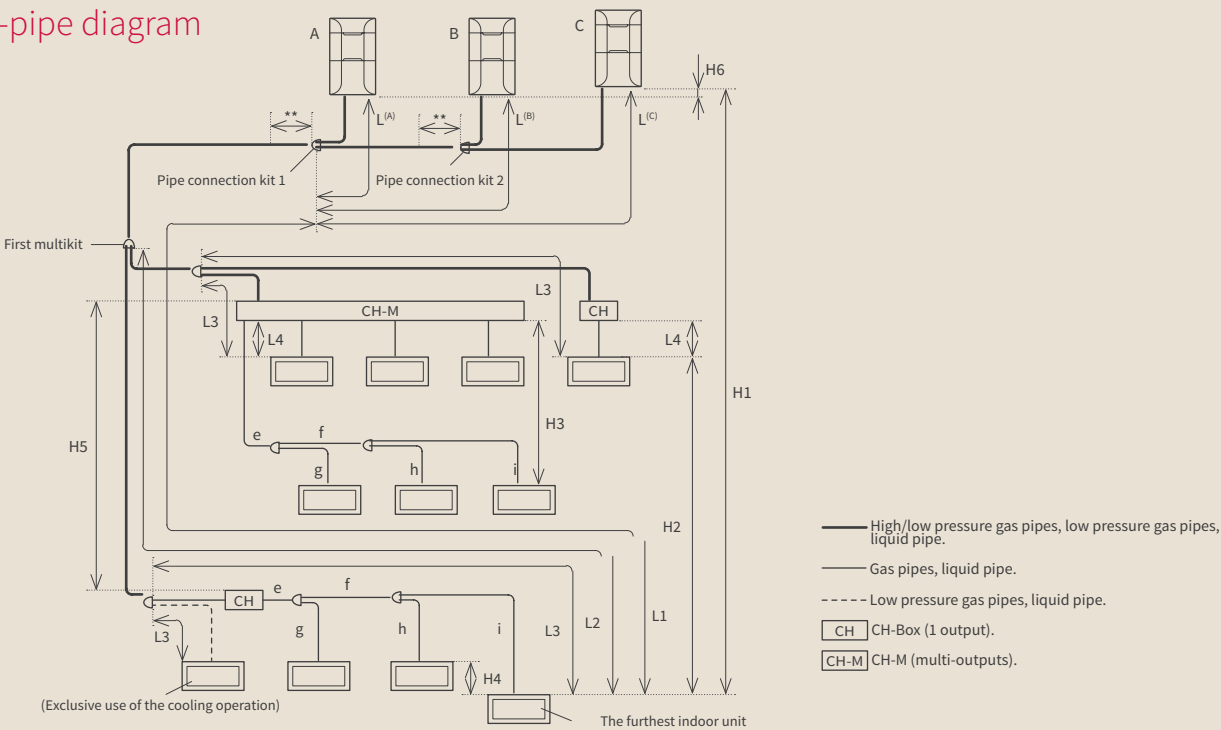
* These maximum values may vary depending on the maximum number of indoor units connected. Refer to current technical documentation.
** Keep a straight distance of 500 mm or more downstream of the connection kit.

VRF IVX Centrifugal

SEER **5.60**

SCOP **3.98**

EUROVENT CERTIFIED PERFORMANCE

Ideal solution for city centers

Installed in suspended ceilings, units are invisible from the outside. Perfect for retail units and buildings in areas with restrictive local planning regulations such as listed buildings.

Easy to position

Suspended single-block system: less footprint. Air intake and air outlet can be adjusted to suit the site's needs (same side or at right angle). Available static pressure up to 120 Pa. The air intake and outlet grilles are also interchangeable, increasing your installation options in any part of the building. No need to obtain permits to shut the road for a crane lift.

More comfort

The IVX Centrifugal VRF can provide air-conditioning for up to 6 different zones, all of which can be individually controlled depending on the needs of the occupants.The premium compressor installed on these units provides smart defrosting. This lengthens the heating period and ensures a more comfortable environment.
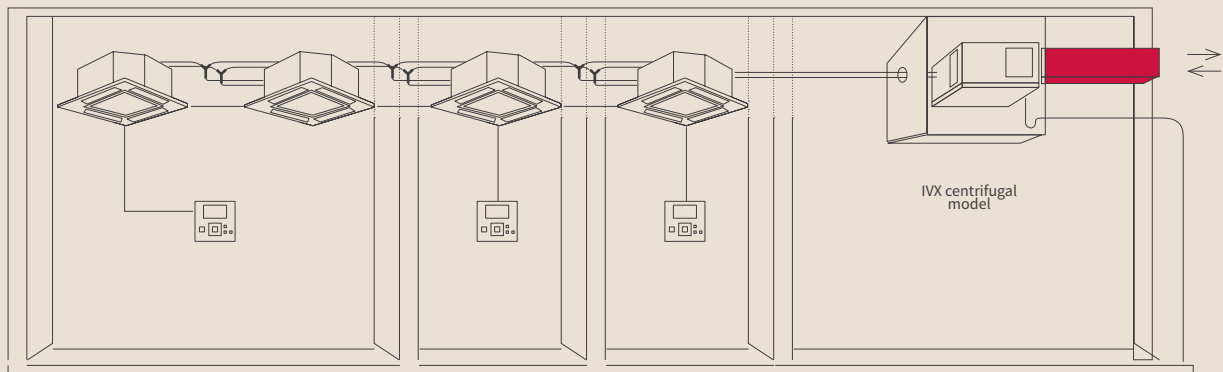
Silent

Fans are equipped with a variable frequency driver, which achieves sound levels unmatched on the market.

Compatible with all SYSTEM FREE indoors and controls:

From individual hard wired controls to central controls and communication interfaces for direct integration into a BMS.

Installation

You can opt for 2 branches with up to 4 indoor units or up to 6 indoor units on one single line. Connect up to a maximum of 5 different indoor units for RASC-(4-6)HNPE or 6 indoor units for RASC-(8/10) HNPE. Also compatible with DX KIT.

IVX centrifugal model

Outdoor units

555 / 1,015 / 1,415

620 / 1,360 / 1,850

RASC-4HNPE
RASC-5HNPE
RASC-6HNPE

RASC-8HNPE
RASC-10HNPE

VRF IVX Centrifugal

Performance, cooling	Unit	RASC-4HNPE	RASC-5HNPE	RASC-6HNPE	RASC-8HNPE	RASC-10HNPE
Nominal Cooling capacity	kW	10.00	12.50	14.00	20.00	24.00
Rated power input cooling	kW	2.99	3.98	5.09	7.41	9.02
EER	-	3.35	3.14	2.75	2.7	2.66
SEER (average climate) *	-	5.6	5.43	5.22	5.39	5.48
Seasonal energy class	-	A			-	
Working range in Cooling mode	°C			-5°C / +46°C (DB)		

Performance, heating						
Nominal Heating capacity	kW	11.20	14.00	15.50	22.40	26.00
Rated power input heating	kW	2.95	4.12	5.74	7.00	8.52
COP	-	3.8	3.4	2.7	3.2	3.05
SCOP (average climate) *	-	3.98	3.74	3.66	3.51	3.71
Seasonal energy class	-	A			-	
Working range in Heating mode	°C			-15°C / +15.5°C (WB)		

Technical features						
Airflow (cooling)	m³/h	3300	3600		6900	
Available static pressure (rated / max.)	Pa	56 / 90	72 / 100	100 / 100	84 / 120	102 / 120
Sound power	dB(A)	70	71	72	74	75
Sound pressure in Cooling mode (night mode)	dB(A)	52 (48)		53 (49)	55 (51)	56 (52)
Net weight	kg		192		300	303
Dimensions (H x L x D)	mm		555 x 1415 x 1015		620 x 1850 x 1360	
Diameter of pipes (Liq / Gas)	inches		3/8 - 5/8		3/8 - 1 1/8	1/2 - 1 1/8
Compressor	-			SCROLL		
Grille dimension (air intake)	-		444 x 642		509 x 925	
Grille dimension (air outlet)	-		288 x 334		337 x 398	
Min. power of indoor unit	Hp			0.8		
Number of connectible units (min - max)	-		1 - 5		1 - 6	

Refrigeration characteristics						
Refrigerant	-			R410A		
Initial refrigerant charge	kg	4.1	4.2		5.7	6.2
Max. length / Additional charge	m/g/m		75 / see technical documentation		100 / see technical documentation	
Pre-charged for	m			30		
Max. level difference (outdoor unit above)	m			30 / 20		

Electrical features						
Power supply	-			400V / 3 Ph + N / 50Hz		
Max. current	A		14.1	16.0	24.7	
Recommended fuse size	A		20		32	
Cable width (EN 60 335-1) [1]	mm²		5 x 4.00		5 x 6.00	
Indoor/outdoor connection (shielded)	mm²			2 x 0.75		

[1] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.
* The RASC-4HNPE, follows EcoDesign ErP Lot10. Its seasonal performance follows standard EN14825 (2013). HITACHI Centrifugal units are VRF-certified, so the specified performance applies for units only.

Controls and compatible accessories (see the tab VRF TWIN controls)
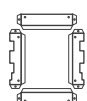
Fan duct accessory for optional air outlet position

FD-RASC46
FD-RASC810

Multi kit

See next page

Installation rules
VRF IVX Centrifugal

Quantity of indoor units

External unit	Hp	4	5	6	8	10
Max. number of indoor units			5		6	
Min. power of indoor unit				0.8		

Permitted connection ratio

External unit	Hp	4	5	6	8	10
Max. number of indoor units	1 to 4			75~120%		
		3 to 4.8 Hp	3.8 to 6 Hp	4.5 to 7.2	6 to 9.6 Hp	7.5 to 12 Hp
	5			75~100%		
		3 to 4 Hp	3.8 to 5 Hp	4.5 to 6 Hp	6 to 8 Hp	7.5 to 10 Hp
	6		-		75~100%	
			-		6 to 8 Hp	7.5 to 10 Hp

* If more than 4 indoor units are connected, the power of the indoor units must be balanced out according to the table below.

Authorized combinations of indoor units for all outdoor units

The most powerful unit in the combination	0.80	1.00	1.30	1.50	1.80	2.00	2.30	2.50	3.00	4.00	5.00	6.00
The least powerful unit in the combination		0.80				1.00			1.30	1.50	1.80	2.00

RASC-10HNPE: Special combinations allowed for the outdoor unit

	Power combinations of authorized indoor units (Hp)					
Max. number of indoor units	2	8 + 3	8 + 2	10 + 3	10 + 2	-
	3	8 + 2 + 2	8 + 1.5 + 1.5	8 + 1 + 1	10 + 1.5 + 1.5	10 + 1 + 1

4 to 10 Hp units:
Permitted installation (1 to 6 indoor units)

- Line branch installation.
- 1 or 2 lines with a constant diameter.
- Installation with more than 4 indoor units: branch connections off one main permitted line
  (2 branches not allowed).

Multikit
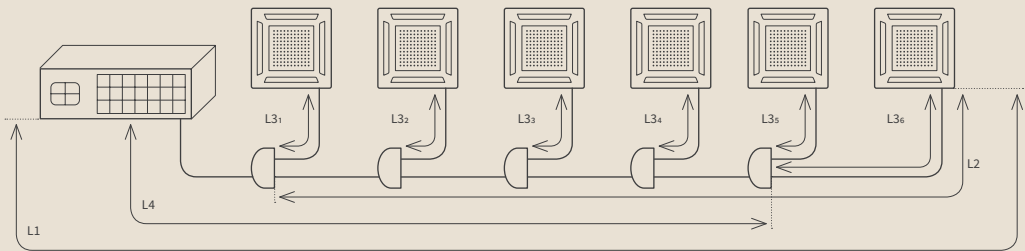
Design rules for refrigeration piping

External unit		Hp	4	5	6	8	10
Max. length between outdoor unit and the furthest indoor unit	Actual length	m		75		100	
	Equivalent length	m		95		125	
Max. level difference from outdoor unit to indoor unit (H) (outdoor unit above/below)		m			30/20		
Max. level difference from indoor unit to indoor unit		m			10		
Max. level difference from Multikit to indoor unit / Multikit to Multikit		m			3		
Total length of the pipe		m		95		100	145
Max. length of indoor unit to Multikit		m		10		15	
Max. length of first Multikit to furthest indoor unit		m		30		40	

Multikit part numbers		Hp	E-102SN4	E-162SN4	
Diameter of the main line			-	Constant diameter	
Diameter of outdoor unit - first multikit	Liq/Gas	inches	3/8 - 5/8	3/8* - 1 1/8	1/2 - 1 1/8

**If the pipe is longer than 70m, use a 1/2" liquid line instead of 3/8".

Power of indoor unit		Hp	< 1.5	1.8 to 2	2.3 to 6	8	10
Diameter of multikit - indoor unit	Liq/Gas	inches	1/4 - 1/2	1/4 - 5/8	3/8 - 5/8	3/8 - 3/4	3/8 - 7/8

Renewing the indoor air in buildings is essential to create a healthy environment. Hitachi's fresh air range ensures excellent indoor air quality and saves energy.

Air treatment and ventilation

Air treatment

DX air curtains

FRICO

DX FRICO air curtains.
Thermodynamic heating air curtain for door entrance areas of any size.

Heat recovery units

240 Pa

M1

With energy recovery.
Ventilation system with energy recovery.
KPI-252~2002E4E / KPI-502~2002E4E

Heat recovery units with DX coils

200 Pa

13 KW

M1

With energy recovery.
Ventilation system with energy recovery and built-in DX coil.
KPI-502~1002X4E

FRICO

DX kit

Control system for DX coil.
Example of use:
air handling unit with DX coil.
EVX.2.0-10E2

Free cooling kit for ducted units

Fresh air solution for ducted units.
EF-456N1E

DX air curtains

FRICO

Hitachi / Frico

- Hitachi and Frico have come together to offer DX air curtains compatible with the Hitachi units in the Prime/IVX range.
- The factory assembly of the expansion valves, control box and a lift pump allows for ultra-fast installation.
- Frico's Linea DXH and AZR DXH air curtain ranges combine with a Hitachi split heat pump for 3.5m high installations.

Functions

- The DX air curtain creates a thermal barrier all year round and provides comfort in both summer and winter with minimal energy expenditure.
- No need for a filter, with the microperforated intake grille.
- Max. air off temperature: 35°C.

Advantages

- Quick return on investment.
- Energy efficiency, reduced operating costs.
- Low CO_2 emissions.
- 2 versions available: recessed and surface mounted models.
- Model available in all RAL colors.
- Reversible range (heating or cooling operation).
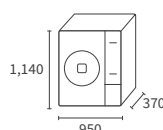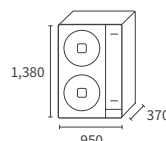- Also compatible with outdoor unit X-Premium.

Air curtains

1000
1500
2000
2500

Surface mounted curtain

1000
1500
2000
2500

Recessed curtain

Outdoor units

600

792   300

RAS-3HVNC1

1,140

950   370

**RAS-4H(V)NC2E
RAS-6H(V)NC2E**

1,380

950   370

**RAS-8HNCE
RAS-10HNCE**

DX air curtains

Surface mounted curtain				
Linea M DXH compatible with Hitachi, height of up to 3 m, 230V~				
Part number	**Power**	**Air flow rate**	**Voltage**	**Weight**
	kW	**m³/h**	**(V)**	**kg**
LINEAM1000DXH3	9	1560	230	52
LINEAM1500DXH4	12	2170	230	83
LINEAM2000DXH6	18	3100	230	113
LINEAM2500DXH8	22	4400	230	145

Recessed curtain				
AZR M DXH compatible with Hitachi, height of up to 3 m, 230V~				
Part number	**Power**	**Air flow rate**	**Voltage**	**Weight**
	kW	**m³/h**	**(V)**	**kg**
AZRM1000DXH3	9	1560	230	52
AZRM1500DXH4	12	2170	230	83
AZRM2000DXH6	18	3100	230	113
AZRM2500DXH8	22	4400	230	145

Hitachi-compatible outdoor units
Split installation: Compatible outdoor units (requires the remote control PC-ARFP1E)
Utopia Prime / IVX
Model Ref
RAS-3HVNC1
RAS-4H(V)NC2E
RAS-6H(V)NC2E
RAS-8HNCE

Linea G DXH compatible with Hitachi, height of up to 3.5 m, 230V~				
Part number	**Power**	**Air flow rate**	**Voltage**	**Weight**
	kW	**m³/h**	**(V)**	**kg**
LINEAG1000DXH4	12	2170	230	55
LINEAG1500DXH6	15	3100	230	85
LINEAG2000DXH8	22	4400	230	115
LINEAG2500DXH10	26	5450	230	147

AZR M DXH compatible with Hitachi, height of up to 3.5 m, 230V~				
Part number	**Power**	**Air flow rate**	**Voltage**	**Weight**
	kW	**m³/h**	**(V)**	**kg**
AZRG1000DXH4	12	2170	230	55
AZRG1500DXH6	15	3100	230	85
AZRG2000DXH8	22	4400	230	115
AZRG2500DXH10	26	5450	230	147

Utopia Prime / IVX
Model Ref
RAS-4H(V)NC2E
RAS-6H(V)NC2E
RAS-8HNCE
RAS-10HNCE

Part number	**Height**	**Length**	**Depth**
LINEA1000DXH	140+260	1000	480
LINEA1500DXH	140+260	1500	480
LINEA2000DXH	140+260	2000	480
LINEA2500DXH	140+260	2500	480

Part number	**Height**	**Length**	**Depth**
AZR1000DXH	130+260	1000	700
AZR1500DXH	130+260	1500	700
AZR2000DXH	130+260	2000	700
AZR2500DXH	130+260	2500	700

Ventilation units

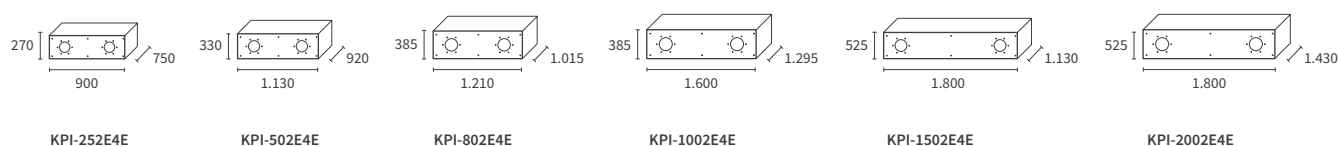## With energy recovery

240 Pa

M1

Functions and features

- Suitable for a wide variety of buildings applications.
- Option to connect a CO_2 sensor (not supplied) and automatically regulate air quality based on a pre-set maximum CO_2 concentration.
- High-efficiency F7 filters are available (optional).
- The Hitachi heat recovery ventilation system adjusts the temperature and humidity of incoming fresh air to match the indoor environment.
- Automatic ventilation mode where the KPI controls which mode to operate within to ensure maximum energy efficiency.
- Forced bypass mode where 100% fresh air is supplied for free cooling
- KPI units can alter a room's pressurisation level if required to either help keep air in or extract air depending on the requirement.

Advantages

- Temperature exchange efficiency up to 83%.
- Low-consumption electronic fan motors.
- Sound pressure from 25 dB(A).
- All insulation with these KPIs is M1-certified (NF-P92-501).
- Up to 240 Pa available static pressure.

KPI

270 / 900 / 750	330 / 1.130 / 920	385 / 1.210 / 1.015	385 / 1.600 / 1.295	525 / 1.800 / 1.130	525 / 1.800 / 1.430
KPI-252E4E	**KPI-502E4E**	**KPI-802E4E**	**KPI-1002E4E**	**KPI-1502E4E**	**KPI-2002E4E**

Celluloid paper heat exchanger	Unit	KPI-252E4E	KPI-502E4E	KPI-802E4E	KPI-1002E4E	KPI-1502E4E	KPI-2002E4E
Nominal air flow	m³/h	250	500	800	1000	1500	2000
Exchange efficiency (H / M / L)	%	74 / 77 / 79	74 / 77 / 78	75 / 76 / 78	78 / 81 / 83	73 / 76 / 80	76 / 78 / 80
Airflow rate (H / M / L)	m³/h	250 / 208 / 180	500 / 420 / 360	800 / 650 / 540	1000 / 800 / 620	1500 / 1250 / 950	2000 / 1450 / 1200
Sound pressure level (H / M / L)	dB(A)	28 / 27 / 25	33 / 31 / 30	35 / 34 / 33	37 / 34 / 32	39 / 37 / 35	40 / 39 / 36
Available static pressure (H / M / L)	Pa	55 / 35 / 30	80 / 50 / 37	90 / 60 / 40	95 / 65 / 40	100 / 70 / 45	120 / 65 / 40
Maximum external pressure (nominal)	Pa	240	210	120	190	200	170
Dimensions (H x W x D)	mm	270 x 900 x 750	330 x 1130 x 920	385 x 1210 x 1015	385 x 1600 x 1295	525 x 1800 x 1130	525 x 1800 x 1430
Weight	kg	34	46	51	79	97	106
Power supply	-	1~230V 50Hz					
Recommended fuse size	A	5			10		

Controls and compatible accessories (see the tab VRF TWIN controls)

Wired remote control weekly timer

PC-ARFP1E

Noise attenuator

SLT-30-200-L600:
Compatible with KPI-502E4E

SLT-30-250-L600:
Compatible with KPI-802E4E

SLT-30-300-L600:
Compatible with KPI-1002E4E

SLT-30-355-L600:
compatible with KPI-1502-2002E4E

High-efficiency filter

HEF-252:
Compatible with KPI-252E4E

HEF-502:
Compatible with KPI-502E4E

HEF-802:
Compatible with KPI-802E4E

HEF-1002:
Compatible with KPI-1002E4E

HEF-1502:
Compatible with KPI-1502E4E

HEF-2002:
Compatible with KPI-2002E4E

Ventilation with DX coil

With energy recovery

(200 Pa) (13 KW) (M1)
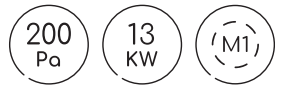
Functions and features

- System dedicated to the handling of fresh air.
- Suitable for a wide range of building applications, especially in areas with lower outside temperatures.
- Option to connect a CO_2 sensor (not supplied) and automatically regulate air quality based on a pre-set maximum CO_2 concentration.
- High-efficiency F7 filters are available (optional).
- The Hitachi heat recovery ventilation system adjusts the temperature and humidity of incoming fresh air to match the indoor environment.
- Automatic ventilation mode where the KPI controls which mode to operate within to ensure maximum energy efficiency.
- Forced bypass mode where 100% fresh air is supplied for free cooling
- KPI units can alter a room's pressurisation level if required to either help keep air in or extract air depending on the requirement.

Advantages

- Temperature exchange efficiency up to 83%.
- Low-consumption electronic fan motors.
- All insulation in these KPIs is M1 certified (NF-P92-501).
- Compatible with Utopia IVX, Set Free Mini, Centrifugal, or VRF SIGMA.
- Sound pressure from 29 dB(A).
- Up to 200 Pa available static pressure.
- Heating capacity up to 13 kW.

KPI active

330 | 920 | 1,435
KPI-502X4E

385 | 1,015 | 1,513
KPI-802X4E

385 | 1,295 | 1,904
KPI-1002X4E
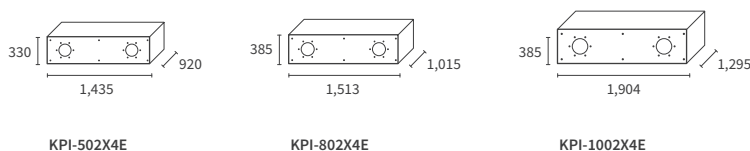
KPI active

Celluloid paper heat Exchanger with DX coil	Unit	KPI-502X4E	KPI-802X4E	KPI-1002X4E
Nominal cooling capacity (recovery)	kW	5,32 (of which is recovered: 1.81)	7,96 (of which is recovered: 2.94)	10,83 (of which is recovered: 3.73)
Nominal heating capacity (recovery)	kW	6,92 (of which is recovered: 2.12)	9,79 (of which is recovered: 3.49)	12,93 (of which is recovered: 4.43)
Exchange efficiency (H / M / L)	%	74 / 77 / 78	75 / 76 / 78	78 / 81 / 83
Sound pressure level (H / M / L)	dB(A)	32 / 30 / 29	34 / 33 / 32	36 / 33 / 31
Airflow rate (H / M / L)	m^3/h	500 / 430 / 380	800 / 700 / 590	1000 / 820 / 740
Available static pressure (H / M / L)	Pa	90 / 82 / 60	110 / 80 / 57	170 / 105 / 80
Maximum external pressure (nominal)	Pa	200	110	170
Dimensions (H x W x L)	mm	330 x 1435 x 920	385 x 1513 x 1015	385 x 1904 x 1295
Weight	kg	62	69	100
Power supply	-	1~230V 50Hz		
Recommended fuse size	A	5		10

Controls and compatible accessories (see the tab VRF TWIN controls)

Wired remote control
weekly timer

PC-ARFP1E

Noise attenuator

SLT-30-200-L600:

SLT-30-250-L600:

SLT-30-300-L600:

SLT-30-355-L600:

SLT-30-450-L600

High-efficiency filter

HEF-252:   HEF-1002

HEF-502:   HEF-1502

HEF-802:   HEF-2002

DX kit

Air-handling unit.

11 TO 28 KW **10 TO 25 KW**

The kit includes:

- 4 temperature sensors with extensions (THM1: air inlet sensor and THM2: air outlet sensor. THM3 and THM4: sensors at liquid and gas lines).
- 1 electronic expansion valve box.
- 1 electrical box.
- 1 harness jumper.

Not included:

- Remote control PCARFP1E.
- PCC-1A connectors.

Functions and features

- An "expansion valve / control box" kit that connects an Hitachi unit to a 3rd party system with a DX heat exchanger coil (AHU, ventilation, air curtain, etc.) and manages it like an Hitachi indoor unit.
- Modular operation: Combine up to 5 DX interfaces to works as a group on the same DX coil (up to 50HP with outdoor unit IVX PREMIUM only).
  The Master unit has 4 temperature sensors. Slave units have only gas and liquid sensors (heat exchanger pipes).
- Synchronized defrosting between the units.
- Precise temperature: the combination of the DX kit with RAS-XH(V)NP1E guarantees the highest levels of precision on the market in terms of maintaining the target temperature.
- The control of capacity demand can be done by inlet air temperature, outlet air temperature, incremental reference duty control and absolute reference duty control, depending on the needs of the installation

Important

- Do not stop the air flow through the DX coil while defrosting the outdoor units. You can add an electrical heater battery to avoid blowing cold air (not managed or sold by Hitachi). A 12Vdc relay (not sold by Hitachi) to serve the heater battery must be provided.
- 12Vdc relay must be used for heating/cooling mode selection if the AHU has inputs to select heating/cooling mode.
- If the AHU has outputs for managing the mode (heating/cooling), these must connect to the inputs (dry contact) of the outdoor unit.
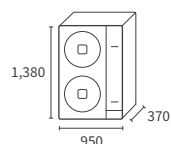
DX kit

431

103

199

Expansion valve box

291
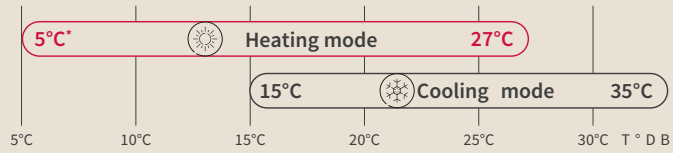
341

127
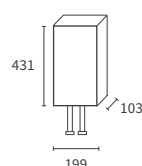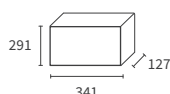
Control box

**Outdoor units**

1,380

950

370

RAS-4XH(V)NP1E
RAS-5XH(V)NP1E
RAS-6XH(V)NP1E
RAS-8XHNPE
RAS-10XHNPE

Extended DX coil operating range

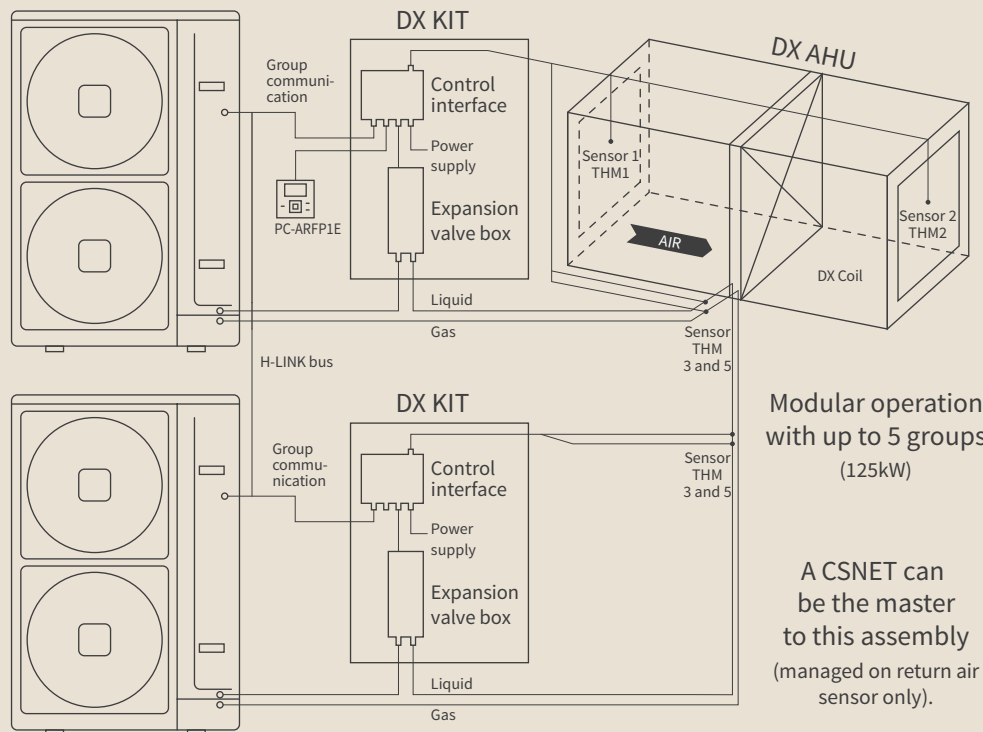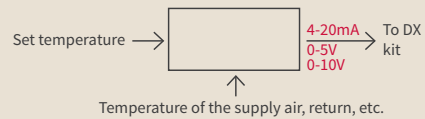**T° of DX coil air inlet**
(Installation with X PREMIUM unit)

5°C*	☀ Heating mode			**27°C**		
		15°C	❄ Cooling mode		**35°C**	
5°C	10°C	15°C	20°C	25°C	30°C	T ° D B

T° of DX coil air inlet
(Installation IVX Prime, IVX Comfort,
SET FREE MINI and SIGMA).

		15°C* ☀ Heating mode		**27°C**		
			21°C ❄ Cooling mode		**32°C**	
5°C	10°C	15°C	20°C	25°C	30°C	T ° D B
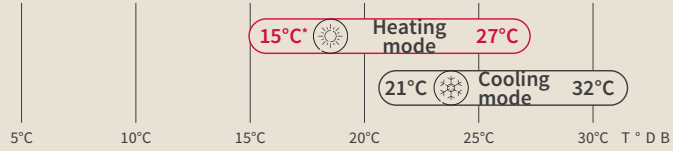
Below these values, provide an electrical heater battery or a heat recovery system upstream of the DX coil.

Ultimate control

• **Compatible with X PREMIUM units RAS-4~10XH(V)NP1E only.**
- A 0-10V, 0-5V/4-20mA input for external control can be utilised.
- Capacity control possible on the return or supply air temperature.
- External control with a 0-10V signal to precisely control the frequency of the compressor.

• **Compatible with units IVX Prime, IVX Comfort and FREE Mini and SIGMA units.**
- Control based on return air only.

Set temperature ⟶ [ ] ⟶ 4-20mA / 0-5V / 0-10V To DX kit

Temperature of the supply air, return, etc.

DX KIT

Group communication

Control interface

Power supply

PC-ARFP1E

Expansion valve box

Liquid

Gas

H-LINK bus

DX AHU

Sensor 1 THM1

AIR

DX Coil

Sensor 2 THM2

Sensor THM 3 and 5

DX KIT

Group communication

Control interface

Power supply

Expansion valve box

Liquid

Gas

Sensor THM 3 and 5

Modular operation with up to 5 groups
(125kW)

A CSNET can be the master to this assembly
(managed on return air sensor only).

Optimal defrosting

- Installation with 3 units: only one unit in defrosting mode.
- Installation with 5 units: 2 units in defrosting mode and 3 units operating.

DX kit

Part number of DX KIT		EXV-2.0E2	EXV-2.5E2	EXV-3.0E2	EXV-4.0E2	EXV-5.0E2	EXV-6.0E2	EXV-8.0E2	EXV-10.0E2
Nominal Cooling capacity	kW	5.0	6.0	7.1	10.00	12.50	14.00	20.00	25.00
Nominal Heating capacity	kW	5.6	7.0	8.0	11.20	14.00	16.00	22.40	28.00
Control box									
Colour	-	Natural Gray (Munsell 1.0Y8.5/0.5)							
Dimensions (H x W x D)	mm	291 x 341 x 127							
Weight	kg	3							
Power supply	-	1~230 V 50hz							
Max. fan current	A	3.5							
Expansion valve box									
Dimensions (H x W x D)	mm	431 x 199 x 103							
Weight	kg	2.0	2.7					4.5	
Pipe diameter (Liq.)	inches	1/4	3/8						
Remote control (not included)	-	PC-ARFP1E							
Outdoor unit	Hp	2	2.5	3	4.0	5.0	6.0	8.0	10.0
		Ask technical for details	Ask technical for details	RAS-3XHVNP1E	RAS-4XH(V)NP1E	RAS-5XH(V)NP1E	RAS-6XH(V)NP1E	RAS-8XHNPE	RAS-10XHNPE

COMPATIBILITY TABLE FOR DX KITS WITH OUTDOOR UNITS

DX kit part no.	Mode	Allowed Heat exchanger capacity (kW)			Heat Exchanger inner volume (L)			Recommended Airflow (m³/h)	
		Min	Nominal	Max	Min	Max	Max Outdoor unit X-Premium only	Min	Max
EXV-2.0E2	Cooling Heating	4.0 4.5	5.0 5.6	5.6 7.1	0.57	1.16	-	480	1260
EXV-2.5E2	Cooling Heating	4.8 5.6	6.0 7.0	6.3 7.1	0.89	1.35	-	690	1560
EXV-3.0E2	Cooling Heating	5.7 6.4	7.1 8.0	9.0 11.2	1.03	1.57	2.89	750	1800
EXV-4.0E2	Cooling Heating	8 9	10 11.2	11.2 12.5	1.51	2.37	4.56	1200	2160
EXV-5.0E2	Cooling Heating	10 11.2	12.5 14	14 16	1.92	2.37	4.56	1380	2490
EXV-6.0E2	Cooling Heating	11.2 12.8	14 16	16 18	1.92	2.92	5.11	1500	2550
EXV-8.0E2	Cooling Heating	16 17.9	20 22.4	22.4 25	2.92	3.89	6.93	3540	4680
EXV-10.0E2	Cooling Heating	20 22.4	25 28	28 31.5	3.89	4.76	10.73	4080	5340

The capacity of the heat exchanger must match the specified rated capacity of each DX KIT under the following temperature conditions. Failure to comply with the heat exchanger's capacity can result in a system malfunction. Data applies under the following conditions:

Nominal conditions	Heating mode	Nominal conditions	Cooling mode
Indoor air inlet temperature	20ºC(DB)	Indoor air inlet temperature	27ºC(DB)/19ºC(WB)
Outdoor temperature	7ºC(DB)/6ºC(WB)	Outdoor temperature	35ºC(DB)
Condensing temperature	40ºC ~ 45ºC	Evaporation temperature	6ºC
Subcooling temperature	3ºC	Superheating temperature	5ºC

(DB): dry bulb - (WB): wet bulb

Combination with VRF:
Control based on return air only.
Installing the VRF SIGMA as a single-split unit + DX KIT is not allowed.
It is possible to install several DX KITs (DX KIT only) with a SIGMA unit. But the maximum connection rate allowed is 100%.
With a combined installation of a DX KIT + Air/Air indoor units with VRF SIGMA, the connection rate is: 30% DX KIT and 70% Air/Air.

Outdoor units specific to DX Kit

	Unit	RAS-4XH(V)NP1E	RAS-5XH(V)NP1E	RAS-6XH(V)NP1E	RAS-8XHNPE	RAS-10XHNPE
Performance, cooling						
Nominal cooling capacity (min-max)	kW	10.0 (4.5-11.2)	12.5 (5.7-14.0)	14.0 (6.0-16.0)	20.0 (8.0-22.4)	25.0 (10.0-28.0)
Rated power input cooling	kW	2.14	3.28	4.11	5.62	8.14
EER	-	4.68	3.81	3.41	3.56	3.07
Working range in Cooling outdoor unit	°C			-5 /+46		
Performance, heating						
Nominal heating capacity (min-max)	kW	11.2 (5.0-14.0)	14.0 (5.0-18.0)	16.0 (5.0-20.0)	22.4 (6.3-28.0)	28.0 (8.0-35.0)
Rated power input heating	kW	2.17	3.08	3.78	5.32	7.29
COP	-	5.16	4.55	4.23	4.21	3.84
Working range in Heating outdoor unit	-			-20 /+15		
Technical features						
Airflow (cooling)	m³/h	4,800	5,400	6,000	7,620	8,040
Sound pressure in Cooling mode (night mode)	dB(A)	47 (43)	48 (44)	48 (45)	57 (55)	58 (56)
Sound pressure in Heating mode	dB(A)	49		50	59	60
Sound power	dB(A)	63	64	65		76
Net weight	kg		103		136	138
Dimensions (H x L x D)	mm			1380 x 950 x 370		
Diameter of pipes (Liq / Gas)	inches		3/8 - 5/8		3/8 - 1 1/8	1/2 - 1 1/8
Compressor	-			Scroll Inverter		
Refrigeration characteristics						
Min. pipe length	m			5		
Pre-charged for	m			30		
Initial refrigerant charge	kg	4.1	4.2	4.2	5.3	6
Additional charge	Kg		calculate based on the method indicated in the installation technical documentation [1]			
Max. pipe length	m		75		100	
Expansion valve box installation	-			Within 5 m MAX of DX Coil		
Max. level difference (outdoor unit above / below)	m			30 / 20		
Refrigerant	-			R410A		
Technical features						
Power supply	-		3N ~ 400V 50Hz (1 ~ 230V 50Hz)		3N ~ 400V 50Hz	
Max. current	A		14.0 (30.5)	16.0 (30.5)	24	
Recommended fuse size	A		16 (32)	20 (32)	32	
Cable width (EN 60 335-1) [2]	mm²		5 x 2.5 (3 x 6.00)		5 x 6.00	

(1) The values of "Additional charge needed" are determined on a case by case basis. To find out these values, see the "DX interface coolant refill and max. pipe lengths" section listed in the Technical Catalogue.
(2) Data shown is for indication purpose only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility and current standards.

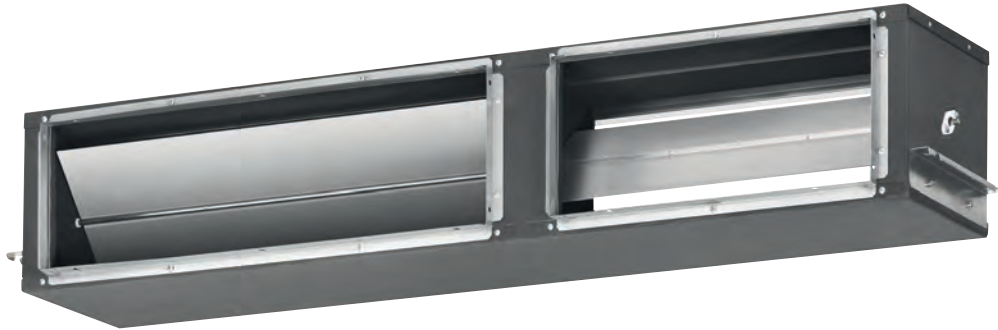# Controls and compatible accessories (see the tab VRF TWIN controls)

Wired remote control weekly timer
PC-ARFP1E

Adjustable input/output contact connections
PCC-1A
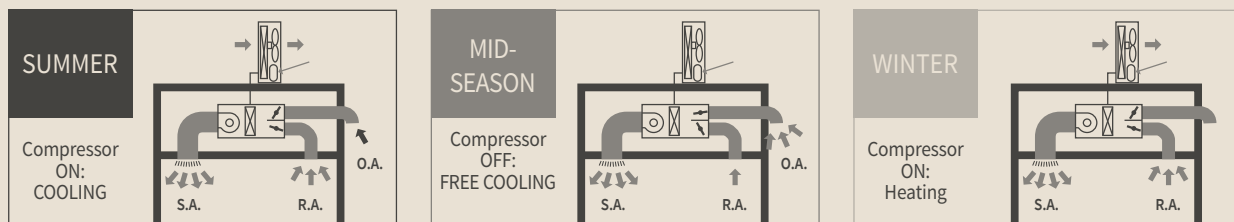
Econofresh
Free cooling for ducted units
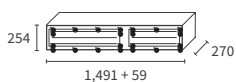
Functions and features

- The EconoFresh is a module that is added to the return air of a RPI unit (sizes 4-6 HP only). It can supply up to 100% fresh air and is able to provide natural 'free cooling' through a set of dampers when the outdoor air temperature is lower than the set indoor temperature.
- It can operate in conjunction with a CO2 sensor or an enthalpy sensor (taking into account latent heat) to ensure air quality in a room.
- The intelligent EconoFresh continuously modifies the damper opening to ensure the set point is always maintained, and where possible shut the compressor down to save on running costs and energy use.

Advantages

- Compatible with Utopia Prime, IVX Comfort / Set Free Mini / VRF Sigma / VRF Centrifugal.
- 3 standard speeds.
- 3 adjustable levels of static pressure.
- Easily accessible filters.
- Automatic regulation (damper position and compressor speed).
- Free-cooling mode in mid-season.
- Potential 100% fresh air mid-season.
- 40% energy savings possible with use of EconoFresh compared to standard installations.

SUMMER	MID-SEASON	WINTER
Compressor ON: COOLING	Compressor OFF: FREE COOLING	Compressor ON: Heating
O.A. S.A. R.A.	O.A. S.A. R.A.	S.A. R.A.

Econofresh kit

254 | 270 | 1,491 + 59

EF-456N1E

Medium-pressure ducted unit 150 Pa compatible with Econofresh

150Pa ducted indoor units	Unit	RPI-4.0FSN6E-EF	RPI-5.0FSN6E-EF	RPI-6.0FSN6E-EF
Power	Hp	4.00	5.00	6.00
Nominal Cooling capacity UTOPIA	kW	10.00	12.50	14.00
Nominal Heating capacity UTOPIA	kW	11.20	14.00	16.00
Nominal Cooling capacity SET FREE	kW	11.20	14.00	16.00
Nominal Heating capacity SET FREE	kW	12.50	16.00	18.00
Sound pressure (L / M / H) [1][3]	dB(A)	35 / 38 / 39	36 / 38 / 40	36 / 36 / 40
Sound power	dB(A)	62	64	64
Airflow (L/M/H)	m³/h	1680 / 2070 / 2160	1920 / 2100 / 2220	1950 / 2130 / 2250
Rated static pressure (min-max)	Pa	37 (0~150)	50 (0~150)	50 (0~150)
Condensate pump		Yes		
Max. elevation	mm	850		
Diameter of pipes (Liq/Gas)	inches	3/8 - 5/8		
Condensate outlet diameter (ext)	mm	32		
Dimensions (H x L x D)	mm	240 x 1474 x 600		
Weight	kg	42		
Power supply	-	1~ 230V 50Hz		
Cable width (EN 60 335-1)[2]	mm²	3 x 0.75		
Max. current	A	3.2	3.5	
Recommended fuse size	A	5		
Remote control	-	PC-ARFP1E		

[1] Sound levels (pressure) are measured in an anechoic chamber at 1.50 m below the unit (no ceiling under the unit), with an extraction duct at 1 m and a discharge duct at 2 m.
[2] Data shown is for indication purposes only. It is the installer's responsibility to ensure that these cable widths meet the needs of the facility.
[3] Ultra high-speed access is possible with remote controls PC-ARFP1E (or PC-ARFG-E available second half of 2021) and PC-ARH1E.

Econofresh kit	Unit	EF-456N1E
Dimensions (H x L x D)	mm	254 x (1491 + 59) x 270
Weight	kg	13.7
Power supply	-	via the board of the indoor unit

controls and compatible accessories (see the tab VRF TWIN controls)

Wired remote control
weekly timer
PC-ARFP1E

Technical tables additional notes

Yutaki air source heat pumps

The nominal heating and cooling capacities are based on Standard EN 14511:

- Cooling: water input temperature 12ºC, output temperature 7ºC and outside temperature 35ºC DB.
- Heating: water input temperature 30ºC, output at 35ºC and outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 7.5 metres; Height of pipes: 0 metres.

The heating capacity and performance are shown with integrated values (with defrost correction factor included).

The acoustic data are based on the following conditions:

- Outdoor ambient temperature (DB/WB): 7/6 ºC.
- Water input/output temperature: 30/35 ºC.
- Unit distance from measuring point: 1 metre from the front surface of the unit and 1.5 metres above ground level.

The acoustic pressure level has been measured in an anechoic chamber, meaning reflected sound must be taken into account when installing the unit.

The acoustic power level has been measured in a reverberant room in accordance with Standard EN12102. The environmental conditions used are those specified in Standard EN14511 for performance testing.

The SCOP heating seasonal performance values are calculated in accordance with ERP Directive 2009/125/CE, and more specifically with Standard 813/2013 (LOT 1) according to UNE EN 14825.

The seasonal performance value in domestic hot water production is calculated in compliance with ERP Directive 2009/125/CE, and more specifically with Regulation 814/2013 (LOT2) according to Standard UNE EN 16147.

All energy efficiency documents and the energy label (LOT 1 AND LOT 2) can be downloaded from the website: **https://www.hitachi-hvac.co.uk/apps**

Domestic 1x1 range units

(cooling power < 12kW)

The nominal heating and cooling capacity is the combined capacity of HITACHI's standard Split system, and is based on Standard ISO 5151:

- Cooling: indoor temperature 27ºC DB, 19ºC WB, outside temperature 35ºC DB.
- Heating: indoor temperature 20ºC DB, outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 5 metres; Height of pipes: 0 metres.

The acoustic pressure level in indoor units is based on the following conditions:

- Wall-mounted units: 0.8 metres below the height centre of the indoor unit and 1 metre from discharge grille.
- Console units: half the height of the unit and 1 metre from the discharge grille
- Ducts: 0.8 metres below the height centre of the indoor unit and 1.5 metres from the discharge grille.
- Cassette: 0.8 metres below the height centre of the indoor unit and 1.5 metres from the discharge grille.

This data has been measured in an anechoic chamber and takes into account the reflected sound of the location.

The acoustic pressure level in outdoor units is based on the following conditions:

- 1 metre from the front surface of the unit and 1 metre above ground level

The SEER/SCOP seasonal cooling and heating values are calculated in compliance with Directive ERP 2009/125/CE, and more specifically with Standard 206/2012 (LOT 10), according to UNE EN 14825.

All energy efficiency documents and the energy label (LOT 10) can be downloaded from the website: https://www.hitachi-hvac.co.uk/apps

Commercial 1x1 range and VRF Systems units

(cooling capacity > 12kW)

The nominal cooling and heating capacity is the combined capacity of the outdoor unit and the indoor units, and is based on Standard EN14511, under the following operating conditions:

- Cooling: indoor temperature 27ºC DB, 19ºC WB, outside temperature 35ºC DB.
- Heating: indoor temperature 20ºC DB, outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 7.5 metres; Height of pipes: 0 metres.

The acoustic pressure level in indoor units is based on the following conditions:

- Wall-mounted units: 1 m below the unit and 1.5 m from the discharge grille.
- Console units: 1 m above ground level and 1 m from the front of the unit.
- Ducts: 1.5 m below the unit (without a ceiling below it) with the suction duct at 1 m and the discharge duct at 2 m.
- Cassette: 1.5 m below the unit
- Ceiling: 1 m below the unit and 1 m from the discharge grille.

The acoustic pressure level has been measured in an anechoic chamber, meaning reflected sound must be taken into account when installing the unit.

The acoustic pressure level in outdoor units is based on the following conditions:

- The measurement point is 1.5 metres above the ground and 1 m from the front surface of the unit.
- Units operating at their rated voltage.

The acoustic pressure level has been measured in an anechoic chamber, meaning reflected sound must be taken into account when installing the unit.

The acoustic power level has been measured in a reverberant room in accordance with Standard EN12102. The environmental conditions used are those specified in Standard EN14511 for performance testing.

The SEER/SCOP seasonal cooling and heating performance values are calculated in compliance with ERP Directive 2009/125/CE, and more specifically with Standard 2281/2016 (LOT 21), in accordance with Standard UNE EN 14825 and calculated with RCI-FSN4 model cassette units.

All the energy efficiency documents (LOT 21) can be downloaded from the website: **https://www.hitachi-hvac.co.uk/apps**

The energy label (LOT 10) can be downloaded from the website: **https://www.hitachi-hvac.co.uk/apps**

System Free Indoor units

The nominal cooling and heating capacity is the combined capacity of the outdoor unit and the indoor units, and is based on Standard EN14511, under the following operating conditions:

- Cooling: indoor temperature 27ºC DB, 19ºC WB, outside temperature 35ºC DB.
- Heating: indoor temperature 20ºC DB, outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 7.5 metres; Height of pipes: 0 metres.

The indoor units have different cooling and heating capacities in the Utopia Prime & IVX and VRF Set Free systems dependent on which outdoor unit they are installed with.

The acoustic pressure level has been measured in an anechoic chamber under the following conditions:

- Indoor units RCI (M), RCD: 1.5 m below the unit.
- RPI indoor units (M): 1.5 metres below the unit (no ceiling below the unit), with the suction duct at 1 m and the discharge duct at 2 m.
- RPC and RPK indoor units: 1 m below the unit, 1 m from the discharge grille.
- RPF indoor units (I): 1 m above ground level, 1 m from the front of the unit.

The acoustic power level has been measured in a reverberant room in accordance with Standard EN12102. The environmental conditions used are those specified in Standard EN14511 for performance testing.

Dx-Kit

The nominal cooling and heating capacity is the combined capacity of the outdoor unit and the associated DX interface (EXV-0E2), and is based on Standard EN14511, under the following operating conditions:

- Cooling: indoor temperature 27ºC DB, 19ºC WB, outside temperature 35ºC DB.
- Heating: indoor temperature 20ºC DB, outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 7.5 metres; Height of pipes: 0 metres.

The acoustic pressure level in outdoor units is based on the following conditions:

- The measurement point is 1.5 metres above the ground and 1 m from the front surface of the unit.
- Units operating at their rated voltage.

The acoustic pressure level has been measured in an anechoic chamber, meaning reflected sound must be taken into account when installing the unit.

The acoustic power level has been measured in a reverberant room in accordance with Standard EN12102. The environmental conditions used are those specified in Standard EN14511 for performance testing.

The outdoor units of the "RAS-XH (V)NP(1)E" series have been designed for specific applications that require the combination of a Series 2 DX Interface and are not Eurovent certified. They may vary depending on each particular application.

UK Cooling conditions

- For RAC products:
  Indoor temperature = 22ºC DB, 16ºC WB, outside temperature = 27ºC DB
- For Primairy products:
  Indoor temperature = 22ºC DB, 18ºC WB, outside temperature = 27ºC DB
- For Utopia Prime products:
  Indoor temperature = 23ºC DB, 16ºC WB, outside temperature = 30ºC DB

Hydraulic module

The heating and cooling nominal capacities are based on Standard EN 14511 and show the data in integrated values (with defrost correction factor included).

The acoustic data are based on the following conditions:

- Outdoor ambient temperature (DB/WB): 7/6 ºC.
- Water input/output temperature: 30/35 ºC.
- Unit distance from the measuring point: 1 metre from the front of the unit and 1.5 metres above ground level.

The measurements were made in a reverberant room in accordance with Standard EN12102. The environmental conditions used are those specified in Standard EN14511 for performance testing.

Units in the air renewal range – KPI and KPI Active

The sound pressure level has been measured in an anechoic chamber, with the measuring point located 1.5 m below the unit, without a ceiling over it and using a soundproof duct. Suction duct at 1 m and discharge duct at 2 m.

Reflected sound should be considered when installing the unit. The sound pressure level measured in the installation may be higher than specified.

In the case of KPI-X4E units with direct expansion coil, the nominal cooling and heating capacity is the combined capacity of the outdoor and indoor units of the system and is based on Standard EN14511, under the following operating conditions:

- Cooling: indoor temperature 27ºC DB, 19ºC WB, outside temperature 35ºC DB.
- Heating: indoor temperature 20ºC DB, outside temperature 7ºC DB, 6ºC WB.
- Pipe length: 7.5 metres; Height of pipes: 0 metres.
- Active KPI unit operating at its nominal air flow.

Chiller range units

The capacity data are based on European standard EN14511 under the following conditions:

In cooling mode:

- Cold water input/output temperature: 12/7 ºC.
- Condenser input air temperature: 35 ºC.

In heating mode:

- Hot water input/output temperature 40/45ºC.
- Condenser input air temperature: 6ºC (WB).

All sound pressure level data are measured at a height of 1.5 m, at 1 m from the front panel of the unit.

The low water temperature option requires brine (ethylene glycol or propylene glycol-type antifreeze mixture).

For more information, please see the technical manuals for each range at https://www.hitachi-hvac.co.uk/resources

Terms and Conditions of Sale
Johnson Controls - Hitachi Air Conditioning Europe SAS

1. DEFINITIONS

In these conditions;

(1) "HITACHI" means: Johnson Controls Hitachi Air Conditioning Europe SAS, UK Branch, (registration no. BR015653), with registered office located at Building 7, Foundation Park, Roxborough Way, Maidenhead, SL6 3UD, United Kingdom.

(2) "Buyer" means: the person, firm or company specified overleaf, to whom HITACHI's Quotation, Sales Confirmation or Invoice is addressed.

(3) "Goods" means: the goods to be sold by HITACHI to the Buyer under the Contract.

(4) "Contract" means: the contract of sale hereby formed between HITACHI and Buyer.

2. CONSTRUCTION OF CONTRACT

(1) The terms of the Contract shall consist of the particulars overleaf and these conditions. Any term overleaf which is at variance with these conditions shall prevail over these conditions, which shall be construed accordingly, except with regard to price in respect of which provisions of sub clause 6 (2) shall prevail.

(2) No other terms (whether contained in any document issued by the Buyer or in any written or oral communication between the parties) shall apply to the Contract nor shall these conditions or the particulars overleaf be modified without HITACHI's written agreement.

3. QUOTATIONS AND ORDERS

(1) Unless accepted before lapse or withdrawal, or renewed in writing by HITACHI, quotations shall lapse automatically after 30 days, but may be withdrawn earlier by HITACHI.

(2) Quotations are for information only and are not firm offers. There shall be no binding contract until HITACHI has accepted the buyer's order by dispatching HITACHI's official sales confirmation.

4. DELIVERY

(1) The scope of supply by HITACHI under the Contract shall be strictly limited to those specified overleaf, and no other goods or services are included.

(2) HITACHI will use all reasonable endeavours to deliver the Goods on or before the delivery date specified overleaf, however, HITACHI does not undertake, guarantee or warrant that delivery will be made on the delivery date specified.

(3) Any such delivery date specified shall be extended by any period or periods during which the manufacture or delivery of the Goods or other work by HITACHI in connection with this Contract is prevented, hindered, delayed or rendered uneconomic by reason of a *Force Majeure Event* (as defined in clause 18 below).

(4) The Buyer acknowledges that, in the case of semiconductor products, optoelectronic products and other electronic components, due to the advanced technology in the Goods and the specialist nature of the manufacturing process, manufacture of the Goods by HITACHI's normal means may result in a loss of yield. In the event of such a loss of yield HITACHI shall notify the Buyer and shall use its reasonable endeavours to supply the Goods in accordance with this Contract. If due to a *Force Majeure Event* or due to loss of yield HITACHI has insufficient stocks to meet all its commitments HITACHI may apportion stock between its customers at its sole discretion.

(5) If any delivery time specified overleaf is so extended by more than 90 days then the Buyer shall be entitled to give written notice to HITACHI requiring the Goods to be delivered within 30 days of the date of such notice, failing which the Buyer shall have the right to give further written notice determining the Contract forthwith.

(6) HITACHI shall be entitled to deliver the Goods in one or more instalments. Where delivery is effected by instalment each instalment shall be treated as a separate contract. Delay in delivery or other default of any instalment shall not relieve the Buyer of its obligations to accept and pay for the remaining deliveries.

(7) In the case of the Buyer residing in the United Kingdom, unless otherwise stated, HITACHI will at its own expense deliver to the Buyer's premises. In the case of exports, unless otherwise stated, delivery will be FOB (Incoterms 2010) at a UK port designated by HITACHI.

(8) The delivery by HITACHI of a greater or lesser quantity of the Goods than the quantity provided for in the Contract, the delivery of other goods not provided for in the Contract, or the delivery of the Goods only some of which are defective, shall not entitle the Buyer to reject all of the Goods delivered. In order that HITACHI can comply with its carrier's conditions any claim in respect of error in quantity or type of Goods or in respect of damage to the Goods in transit must be made in writing to HITACHI and the carrier notified in both cases within 3 days of receipt of the Goods. Failure to make such claim shall constitute unqualified acceptance of the Goods and waiver by the Buyer of all claims relating to error in quantity or type of goods delivered or relating to the condition of Goods delivered. Similarly, if any Goods invoiced by HITACHI are not delivered, in order that HITACHI can claim against its carriers where appropriate the Buyer must notify HITACHI within 10 days of the date of invoice, failing which the Buyer will be liable to pay for the Goods in full. Where liability for error in quantity, or type of Goods or in respect of damage to the Goods in transit is accepted by HITACHI, HITACHI's only obligation shall be, at its option, to make good any shortage or non-delivery and/or as appropriate to replace or repair any Goods found to be damaged or defective and/or to refund the cost of such Goods to the Buyer.

(9) If the Buyer refuses or fails to take delivery of Goods tendered in accordance with this Contract HITACHI shall be entitled to terminate this Contract with immediate effect, to dispose of the Goods as HITACHI may determine, and to recover from the Buyer any loss and expenses incurred as a result of such refusal or failure.

(10) Section 32 (2) of the Sale of Goods Act 1979 shall not apply. HITACHI shall not be required to give the Buyer the notice specified in Section 32 (3) of the Act.

(11) Unless expressly agreed in writing by HITACHI, all Goods shall be packed in accordance with HITACHI's standard practice. The Buyer shall meet the costs of any special packaging requested by the Buyer or any packaging rendered necessary by delivery by any means other than HITACHI's normal means of delivery.

5. RISK AND TITLE

(1) NOTWITHSTANDING DELIVERY, PROPERTY IN THE GOODS SUPPLIED SHALL REMAIN WITH HITACHI UNTIL THOSE GOODS HAVE BEEN PAID FOR IN FULL (TOGETHER WITH ANY ACCRUED INTEREST).

(a) RISK IN THE GOODS SHALL PASS ON DELIVERY. The Buyer shall store the Goods separately or in such a way as will show clearly that they are HITACHI's property and the Buyer will ensure that they are kept in good condition and insured against loss or damage for HITACHI's benefit. Until property in the Goods passes to the Buyer, the Buyer shall hold the proceeds of any claim on the insurance policy on trust for HITACHI and shall immediately account to HITACHI with the proceeds.

(b) THE BUYER SHALL HOLD THE GOODS IN A FIDUCIARY CAPACITY AND AS BAILEE FOR HITACHI WHO MAY WITHOUT PREJUDICE TO ANY OTHER OF ITS RIGHTS REPOSSESS THE GOODS TO WHICH IT HAS RETAINED TITLE AS AFORESAID and thereafter re-sell the same and for this purpose the Buyer hereby grants an irrevocable right and license to HITACHI's servants and agents to enter upon all or any of its premises with or without vehicles during normal business hours for the purpose of inspecting and/or repossessing Goods to which it has retained title. This right shall continue to subsist notwithstanding the termination of this Contract for any reason and is without prejudice to any accrued rights of HITACHI hereunder or otherwise.

(c) The Buyer agrees to provide HITACHI, within twenty-four hours of a written request made by HITACHI, a certificate stating (i) the Goods that the Buyer still holds and that the Buyer has its custody, directly or through a third party depositary; and (ii) the names and contact information (address, telephone number and email) of any subsequent purchasers of the Goods, and the amounts owed by such purchasers to the Buyer.

(d) HITACHI may at any time detach or separate any of its Goods which may have been incorporated in or attached to goods belonging to the Buyer or any third party.

(2) HITACHI reserve the right, exercisable at its option by notice in writing to the Buyer, to waive the provisions of sub clause 5 (1) above at any time before payment has been made for the Goods supplied by the Buyer and to declare that property in the Goods shall have passed to the Buyer.

(3) Notwithstanding that property in the Goods shall not have passed to the Buyer, HITACHI, without prejudice to any other of its rights, may sue for the price of the Goods supplied in the event that payment is not made on the due date.

(4) Any return of Goods wholly or partly by the Buyer to HITACHI, except in the case of defective Goods pursuant to Clause 8, shall be subject to HITACHI's prior written consent and Buyers payment to HITACHI of interest charges for the period from the date of HITACHI's shipment of such Goods to the Buyer to the date of HITACHI's receipt of such Goods. Freight, insurance and any other expenses incurred in connection with such return shall be borne by the Buyer.

6. PRICES

(1) Unless otherwise stated overleaf, prices of the Goods shall be exclusive of VAT, export

duty and foreign import duty and any other import or other taxes, which shall where applicable be paid by the Buyer.

(2) Prices stated in any quotation or in HITACHI's Sales Confirmation are provisional only and subject to adjustment to take account of increases in HITACHI's costs and overheads, including, without limitation,costs of carriage and labour costs. The Contract price shall be HITACHI's price ruling at the date of dispatch. All quotations/sales confirmations and invoices are issued subject to the unconditional reservation of HITACHI's right to adjust prices in respect of the following:-

(a) Changes in the prevailing exchange rate between the currency in which the price is to be paid and the Japanese Yen;

(b) Changes in the current EU or UK's import duty.

7. PAYMENT

(1) If HITACHI has granted the Buyer credit facilities, the payment of the price must be made in full within 30 days of the date of invoice, unless otherwise specified overleaf or agreed to by HITACHI. Any extension of credit allowed for the Buyer may be changed or withdrawn at any time. Where no credit has been granted, payment must be made in full in cash prior to delivery. Payment shall be made in full direct to HITACHI in the currency invoiced. The Buyer shall not be entitled to exercise any right of set-off, counter claim, abatement or analogous deduction against payment due to HITACHI. Time of payment is of the essence of a Contract. HITACHI reserves the right to suspend the provision of Goods to the Buyer where any amounts are overdue under any Contract with the Buyer until all such amounts have been paid.

(2) HITACHI is authorized to invoice daily interest (penalties for late payment) on any amount unpaid at the rate stipulated by the Late Payment of Commercial Debt Regulations 2013 (as amended) from the due date until the date of actual payment of all unpaid amounts (including interest) (after, as before,judgment). Costs in excess may also be claimed if justified.

(3) If, in the opinion of HITACHI, the creditworthiness of the Buyer shall have deteriorated prior to the delivery, HITACHI may require full or partial payment of the price prior to delivery or the provision of security for payment in full (including any accrued interest) by the Buyer in a form acceptable to HITACHI notwithstanding any credit terms that may have been agreed between HITACHI and the Buyer.

(4) Not withstanding any purported contrary appropriation by the Buyer, all payments made by the Buyer to HITACHI shall be appropriated first to Goods which have been resold by the Buyer and then to Goods which remain in the possession or under the control of the Buyer.

(5) HITACHI is entitled to offset any amount owing to it from the Buyer against any amount owed to the Buyer by HITACHI.

8. WARRANTIES

(1) If the Goods are defective on delivery, and the defects arise from faulty materials or workmanship and are not caused by fair wear and tear, abnormal or unsuitable conditions of storage, transportation or use, or the combination of the Goods with any goods not supplied by HITACHI or any act, neglect or default of the Buyer or any third party and HITACHI is given written notice of the defects promptly upon discovery by the Buyer and at any rate within six months (or such other period of time as may specifically be agreed to by HITACHI for certain types of Goods) after delivery then, unless otherwise specified overleaf, HITACHI's sole obligation shall be (at its option) to repair or replace the defective item or allow the Buyer the price thereof and to pay or reimburse the reasonable carriage charges for the return of defective Goods to the Buyer and for delivery of the replaced or repaired item.

(2) Unless otherwise agreed between HITACHI and the Buyer, if any of the Goods are not HITACHI made, the provisions of sub clause 8 (1) above shall apply only to the extent covered by any warranty made by the supplier of such Goods to HITACHI.

(3) The Buyer shall retain the Goods at its premises until instructed by HITACHI to return them. Goods alleged to be defective shall be subject to inspection and testing by HITACHI at its own or (if HITACHI so chooses) at the Buyer's premises and the Buyer shall allow HITACHI adequate facilities at the Buyer's premises to investigate the complaint.

(4) Subject to sub clause 8 (1) above, HITACHI gives no representation or warranty and there is not incorporated in the Contract any condition whether express or implied, statutory or otherwise, as to the Goods other than the statutory warranty of title, and any such representations, conditions or warranties are hereby expressly excluded and HITACHI shall be under no liability to the Buyer for any loss, damage or injury (including special, direct, indirect or consequential loss and loss of profit) resulting from defective materials, faulty workmanship or otherwise howsoever arising and whether or not caused by the negligence of HITACHI, its employees or agents SAVE THAT HITACHI shall accept liability for death or personal injury caused by the negligence of HITACHI.

(5) Subject to sub clause 8 (1), the warranty for RAC products shall be 36 months after delivery of the Goods or from the date of invoice ,whichever is earlier.

(6) Subject to sub clause 8 (1), the warranty for Utopia, IVX, Yutaki and Set Free Systems shall be 60 months from delivery of Goods or from the date of invoice, whichever is earlier.

(7) For further information on UK warranty terms, please visit the following website https://warranty-eu.jci-hitachi.com/warranty/

9. INSOLVENCY AND DEFAULT

If the Buyer fails to pay HITACHI in accordance with these conditions, breaches any other of these conditions or is the subject of collective insolvency proceedings, HITACHI may, without prejudice to its other rights, postpone delivery or manufacture of the Goods until such payment has been made or other breach rectified and/or (at its option) to terminate the Contract (and/or any other such contracts) and to recover payment for all deliveries already made and for the cost of materials and labour already expended for the purpose of future deliveries (less any allowance of the value thereof as utilized by HITACHI for other purposes) and also to recover from the Buyer a sum equivalent to HITACHI's loss of profit arising out of such termination. The exercise of HITACHI's option to postpone delivery or manufacture shall not prevent the subsequent exercise of HITACHI's option to terminate the Contract and/or any other such contracts.

10. THIRD PARTY RIGHTS

(1) In this clause 10 "Third Party Rights" shall mean any rights under letters patent, registered or unregistered designs, trademarks, copyright or any other intellectual property rights and rights in know-how whether or not capable of being protected by statute, which are owned or controlled by any third party.

(2) Where any of the Goods are produced to the Buyer's specification or where the Buyer's use of the Goods infringes any Third Party Rights notwithstanding that the Goods themselves do not constitute such an infringement, the Buyer shall indemnify HITACHI against all actions, claims, costs, damages or losses arising from any infringement of such rights in respect of the Goods so produced or the use to which the Buyer has put the Goods as the case may be.

(3) Any reference by HITACHI to patents, copyright,registered designs, trademarks and analogous forms of protection shall not constitute a warranty of the validity thereof.

(4) HITACHI does not warrant that the Goods do not infringe any Third Party Rights, and all warranties to that effect whether express or implied, statutory or otherwise are hereby excluded. If at any time it is alleged that the Goods infringe any Third Party Rights,or if in HITACHI's reasonable opinion such an allegation is likely to be made, HITACHI may at its option and at its own expense:

(a) modify or replace the Goods without detracting from the overall performance of the Goods,so as to avoid the infringement; or

(b) procure for the Buyer the right to continue to use the Goods; or (c) repurchase the Goods at the price paid by the Buyer.

(5) HITACHI shall have no liability to the Buyer in the event of Goods infringing or being alleged to infringe any Third Party Rights. In the event that the Goods are or may be the subject of Third Party Rights, HITACHI shall be obliged to transfer to the Buyer only such right, title or interest as HITACHI may have.

(6) The Buyer shall notify HITACHI forthwith of any claim made or action brought or threatened alleging infringement of any Third Party Rights. HITACHI shall have control over and conduct any such proceeding sin such manner as it shall determine. The Buyer shall provide all such reasonable assistance in connection therewith as HITACHI may request.

11. SPECIFICATIONS AND INFORMATION

(1) Unless expressly agreed in writing by HITACHI, all drawings, designs, specifications and particulars of dimensions and weights and other such information submitted by HITACHI are approximate only and HITACHI shall have no liability in respect of any deviation there from.

(2) HITACHI accepts no responsibility for any errors, omissions or other defects in any drawings, designs or specifications prepared by, or on behalf of, the Buyer or the Buyer's agents, sub-contractors or employees,and HITACHI shall be indemnified by the Buyer against any and all liabilities and expenses incurred by HITACHI arising there from.

(3) All drawings, designs, specifications and information submitted by HITACHI are confidential and shall not be disclosed to any third party without HITACHI's written consent.

12. LIMITATION OF LIABILITY

(1) HITACHI shall not be liable for any indirect

or intangible loss, such as: loss of revenue, loss of goodwill, loss of data, operating loss and/or loss of anticipated savings in each case howsoever caused.

(2) Without prejudice to sub clause 12(1) HITACHI shall not be liable to the Buyer for any loss or damage whether for negligence, breach of contract, misrepresentation or otherwise, for a sum greater, in aggregate, than the amount actually paid by the Buyer to HITACHI under the Contract.

(3) The limitation of liability in sub clauses 12(1) and 12(2)above shall not operate to exclude or restrict HITACHI's liability for fraud or deceit or for death or personal injury caused by its negligence.

(4) For the avoidance of doubt HITACHI will have no liability to the Buyer for any delays in deliveries due to circumstances described in sub clauses 4(3) and 4(4)of these conditions.

13. ASSIGNMENT

Neither party shall without the prior written consent of the other party (which shall not be unreasonably withheld) assign or sub-contract any of its rights or duties under the Contract and upon such consent being given shall furnish copies of any such assignments to the other party.

14. LICENSES AND CONSENTS

(1) If any license or consent of any government or other authority shall be required for the acquisition, carriage or use of the Goods by the Buyer, the Buyer shall obtain the same at its own expense and if necessary produce evidence of the same to HITACHI on demand. Failure to do so shall not entitle the Buyer to withhold or delay payment of the price. Any additional expenses or charges incurred by HITACHI resulting from such failure shall be for the Buyer's account.

(2) If HITACHI needs to obtain an export license from the competent authorities of any country, the Buyer shall furnish HITACHI with all information required by HITACHI for such purpose, including, but not limited to, the country of ultimate destination and the name and address of the end-user and any consignee(s), and shall warrant that such information is true, accurate and sufficiently detailed. The Buyer further agrees to take all necessary procedures to act in full compliance with all applicable governmental requirements, including but not limited to applicable economic sanctions and constraints administered by the U.S. Department of the Treasury and applicable export control measures administered by the U.S. Departments of Commerce and State, any other U.S. government agencies, and measures administered by the European Union or the government agencies of any other countries. This includes the acquisition of international import certificates, licenses, permits and delivery verifications, as applicable. In the event that any of the Goods, or any materials, parts or components incorporated in them, or relevant technical data supplied by HITACHI are of United States origin,the Buyer agrees to comply with the U.S. Export Administration regulations.

(3) The Buyer shall not directly or indirectly sell, transfer, export, re-export or make available the Goods, (wholly or partly), any relevant technical data (including software), technology or services to Cuba, Iran, North Korea, Sudan, Syria and Crimea or any other destination, person or organization subject to U.S, United Nations, EU and/or national sanctions or restrictions, including any entities or persons in those countries,

representing those countries, or who ever held citizenship in those countries, either directly or indirectly.

(4) The Buyer shall not sell, transfer, export, re-export or make available the Goods, (wholly or partly), any relevant technical data (including software), technology or services to a person or entity subject to governmental restrictions or prohibitions.

(5) The Buyer confirms that the Goods or any relevant technical data will not be used:

(a) For purposes related to any weapons of mass destruction, nuclear, rocket system, unmanned air vehicle, missile, chemical and biological, military (if destined for China, Russia or Venezuela), maritime nuclear propulsion end-uses;

(b) For end-use on a vessel or aircraft, unless the country of location, country of registration, and the country in control (including leasing or chartering) are all authorized.

(6) The Buyer shall keep documentation from the date of HITACHI's shipments and at least for the minimum legal retention period consistent with the local laws, as evidence that all Goods supplied to the Buyer have been received in the destination permitted under the laws of the government issuing the export license, and the Buyer will produce such evidence upon HITACHI's request.

(7) HITACHI's obligations under any Contract shall be conditional upon all necessary licenses or consents being obtained from the relevant authorities and the ability of HITACHI to supply such the Goods consistent with the laws and regulations of the U.S. and other governments.

(8) The Buyer shall separately confirm to HITACHI the strict observation hereof of this clause 14 (Notice of Confirmation).

15. WAIVER

Failure by HITACHI to exercise or enforce any rights hereunder shall not be deemed to be a waiver of any such right nor operate so as to bar the exercise or enforcement thereof at any time or times thereafter.

16. NOTICES

(1) Any notice hereunder shall be deemed to have been duly given if sent by pre-paid normal post, telex, or telefax to the party concerned as its last known address. Notices sent by normal post shall be deemed to have been given seven days after dispatch and notices sent by telex or telefax shall be deemed to have been given on the date of dispatch.

(2) Buyer must promptly notify Hitachi in writing of any: (i) criminal conviction; (ii) debarment; (iii) indictment or other charge of violating criminal statues or regulations; (iv) ineligibility to contract with or to receive a license or other form of authorization for a government agency; or (v) denial, suspension, or revocation of eligibility to be involved in exports, imports, or conduct business.

17. CANCELLATION

The contract may be cancelled or rescheduled by the Buyer only with HITACHI's written consent. In the event of such cancellation the Buyer shall pay to HITACHI a cancellation charge, equal to HITACHI's cost incurred up to the date of cancellation plus HITACHI's loss of profit. The amount of such charge shall be notified to the Buyer upon HITACHI's written acknowledgement of cancellation and shall be paid within 30 days of such notification.

18. FORCE MAJEURE

(1) If HITACHI is prevented, hindered or delayed from or in supplying the Goods in accordance with these conditions by a *Force Majeure Event* HITACHI may, at its option:

(a) suspend deliveries while the *Force Majeure Event* continues;

(b) if HITACHI has insufficient stocks to meet its commitments, apportion available stocks between its customers as it decides; or

(c) terminate any contract so affected with immediate effect by written notice to the Buyer; and HITACHI shall not be liable for any loss or damage suffered by the Buyer as a result.

(2) In this clause "*Force Majeure Event*" means an event beyond the reasonable control of HITACHI including, without limitation, strike, lock-out, labour dispute or shortage of labour, act of God, war, riot, civil commotion, malicious damage, compliance with a law or governmental order, rule, regulation or direction, accident, breakdown of plant or machinery, fire, flood, storm, earthquake, shortage of utilities, materials or other circumstances affecting the supply of materials from HITACHI's normal source of supply for materials for the Goods.

19. ENVIRONMENTAL

The Buyer shall be responsible for all obligations, financial or otherwise, imposed in respect of the Goods, on either of the parties, under any environmental legislation applicable to the parties, including but not limited to Directive 2012/19/UE on waste of electrical and electronic equipment and any legislation enacted pursuant to it.

20. LAW AND JURISDICTION

The law of the Contract shall be English law and the parties hereby submit to the jurisdiction of the English Courts save that HITACHI shall be entitled to bring proceedings against the Buyer in the courts of any jurisdiction where the Buyer resides or carries on business.

21. INTELLECTUAL PROPERTY RIGHTS

The Buyer agrees that it shall not obtain any right, title or interest in or to any intellectual property (including, without limitation, patents, trademarks, registered or unregistered designs, copyrights and rights in designs or inventions) in the Goods and that it shall not do or permit anything to be done in its use of such intellectual property in the Goods which would or could jeopardize their validity.

22. GENERAL

(1) Headings herein are for easy reference purpose only, and shall not be construed as defining the scope or meaning of any provisions.

(2) The invalidity, illegality or unenforceability of the whole or part of a condition does not affect or impair the continuation in force of the remainder of these conditions.

(3) A person who is not a party to this contract has no right under the Contracts (Rights of Third Parties) Act 1999 to enforce any of its terms but this does not affect any right or remedy of a third party which exists or is available apart from that Act.

(4) A reference to a statutory provision includes a reference to the statutory provision as modified or re-enacted or both from time to time and any subordinate legislation made under the statutory provision.

Notes

Commercial warranty terms

- Every precaution has been taken during the design and manufacture of Hitachi Air Conditioning equipment to ensure our products conform to the highest standards.

- In the event of a warranty fault the owner should advise their installer. The following sets out the current Hitachi Air Conditioning warranty policy:

RAC products

For all RAC products the warranty period shall be for 36 months (3 years) from date of invoice.

- S-Premium
- Shirokuma
- Summit
- Performance
- Standard
- Multi-split*
- Console
- Light Commercial

Yutaki, Utopia, IVX and Set Free products

For all Yutaki, Utopia, IVX and Set Free products the warranty period shall be 60 months (5 years) from date of invoice.

- System Free indoor units
- Set Free outdoor units*
- Changeover boxes
- Branch kits
- Primairy Systems*
- Utopia Prime
- IVX Prime*
- IVX Centrifugal outdoor units*
- Total Heat Exchanger
- Econofresh
- Yutaki-M
- Yutaki-S
- Yutaki-SCombi
- Yutaki-S80

Samurai Chillers

For all Samurai L Chillers the warranty period shall be 36 months (3 Years) from the date of invoice. For Samurai M & S chillers the warranty shall be 18 months from the date of invoice.

- Hi Efficiency Air Cooled Samurai L
- Hi Efficiency Water Cooled Samurai L
- Hi Efficiency Condenserless Samurai L
- Air Cooled Samurai M
- Air Cooled Samurai S

Central Control Systems

For all Central Control Systems the warranty period shall be 36 months (3 years) from the date of invoice.

- CS Net Web / Manager
- Modbus
- I-O
- BACNet
- KNX
- HARC LonWorks®
- Wired / Wireless controller
- Hikumo / aircloud.

- For all spare parts, the warranty period shall be 12 months (component replacement only no labour allowance included).

- Within the above specified time periods, all products are guaranteed against manufacturing faults in workmanship and material. The faulty component will be replaced free of charge provided the correct procedures are complied with and a labour contribution can be claimed during the first 3 years**(Details can be found on next page).

- The warranty policies are subject to the following conditions.
The Hitachi Air Conditioning equipment is installed using the correct working practices, and installed within the parameters set out in the technical manuals for each unit, and maintained regularly (minimum of every 6 months, site dependant, by a qualified installer. Yutaki requires a minimum of an Annual service in accordance with the manufacturer's recommendations.

**TO SUBMIT A WARRANTY CLAIM:
HITACHI OFFERS AN ONLINE WARRANTY CLAIMS SERVICE.**

- Contact your HITACHI representative and ask for your account to be opened on the JCH WARRANTY website: https://warranty-eu.jci-hitachi.com/

- You can then track the progress of your claim "live" online, and gain access to tracking and dispatch details*** and receive email notification of your warranty progression.

- If any of the information is not available at the time of claim, then the part can be ordered via an official purchase order and a credit arranged retrospectively, when all the information is available. (This must be within 60 days of the original date of failure).

- All warranty claims must be made within 60 days of failure. Any claim submitted after the 60 day period WILL NOT be considered for approval.

- Parts should be held by the customer for a period of 30 days during which time if required, Hitachi Air Conditioning can request the return of the parts at our cost for inspection and an RMA number will be issued. If it is deemed to have failed "out of warranty" the part will be invoiced to the customer at our standard spare parts rate.

- All components requested to be returned should be sent to Hitachi Air Conditioning (Warranty Department), Unit 7, Foundation Park, Roxborough Way, Maidenhead. SL6 3UD. Clearly marked with the Warranty number. Components returned without a valid Warranty number will not be accepted.

- Repeat warranty requests will be subject to Hitachi Air Conditioning investigation and possible site visit. An official purchase order will be required to purchase the part, pending a decision on the validity of the claim. All parts will be inspected within 14 days, and a credit issued if the warranty is accepted. For warranty claims rejected following inspection, the part will be returned and invoiced to the customer at our standard spare parts rate and, if applicable, a site visit charged.

- Normal wear and tear is excluded.

- Any claim not submitted in accordance with Hitachi Air Conditioning procedures WILL NOT be considered for credit.

* Approved combinations only.

** Except spares which are parts only.

***HiParts Access is required

Labour Contribution

RAC, Utopia, IVX, Centrifugal, Primairy, Yutaki Heating range and System Free component replacements	Price
Repair of Refrigerant Leak	£95.00
Replacement of Refrigeration Circuit Component(s)	£110.00
Replacement of Outdoor Unit/Evaporator Fan Motor(s)	£40.00
Replacement of Outdoor Unit/Evaporator Fan Blade(s)	£30.00
Replacement of Electrical Component(s)	£40.00
Replacement of Panel(s)	£40.00
Replacement of Swing Louvre Motor(s)	£35.00
Replacement of In-Built Water Lift Pump	£55.00
Replacement of Complete Unit	£130.00
Compressors – up to 2.5HP	£130.00
Compressors – 3.0 to 4.0HP	£160.00
Compressors – 5.0 to 6.0HP	£180.00
Compressors – 8.0 to 12HP	£220.00

All warranty claimants will also be entitled to a site attendance fee of £50.00 to cover the cost of travelling time and mileage.***

Set Free VRF compressor replacement	Price
Set Free 3.0HP to 6.0HP	£180.00
Set Free 8.0HP to 20HP	£220.00
Set Free 22HP to 32HP	£240.00
Set Free 34HP to 54HP	£300.00

Set Free VRF component replacement	Price
Replacement of Refrigeration Circuit Component	£180.00
Replacement of Outdoor Unit Fan Motor	£50.00
Replacement of Outdoor Unit Fan Blade	£35.00
Replacement of Electrical Component	£50.00
Repair of Refrigerant Leak	£140.00
Replacement of CH Box	£180.00
Replacement of Panels	£40.00

Samurai Chiller component replacement	Price
Replacement Compressor	£550.00
Replacement of Fan Motor	£70.00
Replacement of Fan Blade	£50.00
Replacement of Refrigeration Component	£300.00
Replacement of Electrical Component	£70.00
Repair of Refrigerant Leak (brazed joint)	£400.00
Repair of Refrigerant Leak (mechanical joint)	£200.00
Replacement of Covers/Panels	£70.00

All warranty claimants will also be entitled to a site attendance fee of £50.00 to cover the cost of travelling time and mileage.****

e.g., a fan motor and louvre motor replacement on Utopia outdoor unit would be:

1 x Attendance @ £50.00 attendance fee
1 x Fan Motor @ £40.00 labour allowance
1 x Swing Louvre Motor @ £35.00 labour allowance giving a total allowance of £125.00 for the claim.

This will be credited to your account upon request.
All requests must be made within 60 days of the original failure date.

If two components fail in the same category i.e., PCB and Transformer or fan motor and blade, then the labour allowance would only be applicable once.

****One attendance fee per serial number or site, per month will be accepted. Hitachi Air Conditioning reserves the right to amend the warranty policy procedure without notice.

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