

System Free

HITACHI
Inspire the Next

Flexible air conditioning solutions with Split and VRF systems



Contents

Air conditioning systems from Hitachi: quality, efficiency and durability

Freely translated Hitachi means "A man sees the sunrise as a sign of the start of a better future". Namihei Odaira founded the Japanese company HITACHI Ltd. in Tokyo in 1910. His vision was to develop products, which would provide people with a more comfortable and productive environment. With over 100 years of company history we look with pride on our product range of over 20,000 products, which impress in all areas of life with high quality and a long service life. The corporate statement "Inspire the Next" shows our forward-looking perspective, which enables us to recognise and satisfy people's requirements at an early stage.

An important factor in the development and production of our various devices takes centre stage in the process: responsible handling of resources and the associated environmental protection.

The company is one of the top-five most environmentally conscious companies in Japan and, naturally, this approach is conveyed to all 934 subsidiaries and to the approx. 377,000 employees worldwide. Therefore, planners and users can be sure that the price-performance ratio is right and that environmental protection is a priority. See for yourself!

We, the Air Conditioning & Refrigerating Business Group (ARG for short), are convinced of the outstanding performance and quality of our products. They represent a long-term investment. We offer air conditioning systems for every need.

Our products range from industrial air conditioning systems, air conditioning for offices or diverse commercial operations, to room air conditioners and heat pumps for the private sector to water chillers and compressors. We have these made at our own factory in Barcelona. This lowers production costs, reduces delivery times and facilitates optimum, top-class service. In addition to our top-quality products, the service idea is a priority. This means consultation just as much as installation and later servicing. We achieve this through cooperation with well-trained authorised specialists, who are closely linked to us thanks to a strong bond of trust.

Today, saving on energy costs is a decisive criterion when choosing an air conditioning unit. We have recognised our clients' needs in relation to the climate change debate. Our products stand out today thanks to their high energy efficiency grades.

All our devices work with the DC Inverter technology developed by Hitachi. The system can quickly achieve the desired room temperature setting thanks to the inverter's variable speed. This means up to 30 percent of the energy consumption can be saved without sacrificing on comfort. At the same time, performance is improved by a good 10 percent thanks to a DC-operated motor. This is kind to the environment and your wallet.

Be inspired and impressed by our products. You will find extensive information on our devices on the following pages. Our expert partners will be happy to answer any questions you may have.

Company Profile	2	System Free Indoor Units	42
Contents	3	- Wall-Mounted Units	44
		- 4-Way Euro-Grid Cassette Units	48
System Free	4	- 4-Way Cassette Units	50
Quickfinder	6	- 2-Way Cassette Units	52
		- Ceiling-Mounted Units	54
Utopia Outdoor Units	8	- In the Ceiling	56
- Installation Features	10	- Floor-Mounted Units	60
- Utopia ES (Simultaneous Operation)	12	- Cross-Flow Heat Exchangers KPI	62
- Utopia IVX (Individual Operation)	16		
- Combination Table IVX	21	Remote Controls and Accessories	64
- Utopia RASC (Simultaneous Operation)	22	- Compatible Remote Controls & Receivers	66
		- Control and Monitoring	68
Set Free Outdoor Units – VRF 24		- Remote Controls + Accessories	70
- Technical Features VRF	26	- Cross-Flow Heat Exchangers / Refrigerant	71
- Technical Features VRF Light	30	- Distributors / Boxes	71
- Technical Features VRF		- Central Controls	72
Combi 2 & 3-Pipe FSXN	32		
- Outdoor Units Combi Kit			
FSXN / Distribution Boxes	34		
- VRF Combi 2 & 3-Pipe FSXN	35		
- VRF Mini FSVNE / FSN	38		
- VRF Light FSNM	39		
- VRF High COP FSN2	40		

System free

System Free – complete flexibility

Hitachi is particularly proud of its System Free which combines outdoor units from the Utopia, Utopia IVX and Set Free VRF models with different indoor units, which can all be controlled individually. This gives you enormous scope when planning your climate solution and facilitates an optimum room climate for all areas.

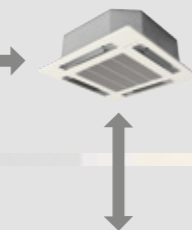
Utopia outdoor units

The Utopia Split Systems are ideal for office buildings and medium-sized operations (for example, boutiques, computer centres in all-year-round operation and shops). Their main strength is their high capacity with just one outdoor unit. Of course, a multi-split solution is also possible. The individual single room control makes this Utopia system particularly attractive. This has already won awards for its outstanding energy efficiency.



Indoor units

- Wall-mounted
- Cassette
- Ceiling-suspended
- In the ceiling
- Floor-mounted
- Cross flow heat exchanger



Set Free outdoor units

The Set Free units are air conditioning systems with variable refrigerant flow (VRF) and flexible range of capacity (3 to 42 hp) for many different applications. The small and compact units in the outside area particularly stand out. Set Free heat pumps and heat recovery units are easy to install and energy-efficient.



Remote controls: CS-Net Web

Hitachi offers the CS-Net Web for central monitoring and remote control of your System Free climate system. This autonomous central control regulates up to 128 indoor and 16 outdoor units simultaneously. You can control and monitor the units individually via LAN or the Internet.



Utopia outdoor units (with combinations of indoor units the total (in hp) must correspond to the total output of the outdoor unit)

hp	2.0	2.5	3.0	4.0	5.0	6.0	4.0	5.0	6.0	8.0	10.0	12.0	Seite
Power supply	230 V/1 Ph/50 Hz						400 V/3 Ph/50 Hz						
Nominal cooling capacity (kW)	5,0	6,0	7,1	10,0	12,5	14,0	10,0	12,5	14,0	20,0	25,0	30,0	
Nominal heating capacity (kW)	5,6	7,0	8,0	11,2	14,0	16,0	11,2	14,0	16,0	22,4	28,0	33,5	

Utopia ES Inverter (simultaneous operation)

RAS-2~3HVRN(2/S2)	1 IU	1 IU	1~2 IUs										14
RAS-4~6HVRNS2E				1~2 IUs	1~2 IUs	1~3 IUs							15
RAS-8~10HRNS2E							1~4 IUs	1~4 IUs					15

Utopia IVX Inverter (individual operation)

RAS-3~5HVRNM2E			1~2 IUs										18
RAS-2~12HRNM(2E)				1~3 IUs	1~4 IUs		1~3 IUs	1~4 IUs	1~4 IUs	1~4 IUs	1~4 IUs	2~4 IUs	19-20

Utopia RASC (simultaneous operation)

RASC-3HVRNE			1~2 IUs										23
RASC-5HVRNE					1~2 IUs								23
RASC-10HRNE										1~4 IUs			23

IU = indoor unit

System Free indoor units (connectable to Utopia outdoor units or Set Free outdoor units)

hp	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	3.0	4.0	5.0	6.0	8.0	10.0	Seite
Nominal cooling capacity (kW)	2,2	2,8	3,5	4,0	5,0	5,6	6,5	7,1	8,0	11,2	14,0	16,0	22,4	28,0	
Nominal heating capacity (kW)	2,5	3,2	3,5/4,3	4,8	5,5/5,7	6,3	7,8	8,5	9,0	12,5	16,0	18,0	25,4	31,5	
RPK-1.0~4.0FSN2M	▼*	■	▼	■	▼	■	▼	■	■	■					45
RPK-1.0~1.5FSNH2M+EV-1.5N	▼*	■	▼	■											47
RCIM-1.0~2.0FSN2	▼*	■	▼	■	▼	■									49
RCI-1.0~6.0FSN3E	▼*	■	▼	■	▼	■	▼	■	■	■	■	■	■	■	51
RCD-1.0~5.0FSN2	▼*	■	▼	■	▼	■	▼	■	■	■	■				53
RPC-2.0~6.0FSN2E					▼	■	▼	■	■	■	■	■			55
RPI-0.8~6.0FSN3E	■	■	▼	■	▼	■	▼	■	■	■	■	■			57
RPI-8.0~10.0FSN3E													■	■	58
RPIM-0.8~1.5FSN2E	■	■	▼	■											59
RPF-1.0~2.5FSN2E	▼*	■	▼	■	▼	■	▼	■							61
RPF1-1.0~2.5FSN2E	▼*	■	▼	■	▼	■	▼	■							61

■ Series model
 ▼ Larger model small change by DIP switch
 * We advise that you reduce this model to 0.8 hp if you want to heat as well (avoid cold draughts in heating mode)

Set Free outdoor units (nominal power input for the selected indoor units 50-130%)

hp	3	4	5	5	8	10	12	14	16	18	20	24	28	32	36	42	48	54	Seite	
Power supply	230 V/1 Ph/50 Hz					400 V/3 Ph/50 Hz														
Nominal cooling capacity (kW)	8,0	11,2	14,0	14,0	22,4	28,0	33,5	40,0	45,0	50,4	56,0	69,0	80,0	90,0	101,0	118,0	135,0	150,0		
Nominal heating capacity (kW)	9,0	12,5	16,0	16,0	25,0	31,5	37,5	45,0	50,0	56,0	63,0	77,5	90,0	100,0	113,0	132,0	150,0	165,0		
2 or 3-pipe FSXN					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	35-37
2-pipe system Mini FSVNE	■	■	■																	38
2-pipe system FSN				■																38
2-pipe system FSNM					■	■	■													39
2-pipe system FSN2					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	40-41

Set Free 2-pipe FSVNE, FSN, FSNM (number of connectable indoor units)

RAS-3FSVNE	1~4																			38
RAS-4~5FSVNE		1~6	1~7																	38
RAS-5FSN				1~8																38
RAS-8~12FSNM					2~10	2~10	2~10													39

Set Free 2 or 3-pipe FSXN (number of connectable indoor units)

RAS-8~12FSXN				2~13	2~16	2~19														35
RAS-14~18FSXN					2~23	2~26	2~26													35
RAS-20~36FSXN								2~33	2~40	2~47	2~53	2~59								36
RAS-38~54FSXN																	2~64	2~64	2~64	37

Set Free 2-pipe FSN2 (number of connectable indoor units)

RAS-8~12FSN2					2~13	2~16	2~16													40
RAS-14~24FSN2								2~20	2~20	2~20	2~20	2~27								40
RAS-28~42FSN2														2~31	2~32	4~34	5~42			41
RAS-48FSN2																			5~46	41

Utopia Outdoor Units

The Utopia range offers high performance and attractively priced systems for use in small buildings and commercial premises requiring intelligent environment facilities. The series is divided into three different model types - Utopia ES Inverter, Utopia IVX and Utopia RASC. For you this means: a broad selection and a design for your system that meets your needs exactly.

The **Utopia ES** Inverter impresses with its compact design. Its low height facilitates project solutions in the smallest space. The excellent price-performance ratio also makes this range stand out.

The Utopia IVX brings a variable refrigerant flow and independent control to the Utopia range. And at a fraction of the price of

conventional VRF systems. The IVX is available in models of three hp up to twelve hp for larger systems.

An extension to the Utopia range is the **Utopia RASC**, which has a duct connection and, thus, is ideal for indoor set-up.

All three models use the System Free indoor unit series, which allow you to design your system without thinking about the type of indoor units used. The Utopia Series is a system that is highly efficient, reliable and also has a wide range of choice allowing for maximum design flexibility and increased benefits for both installers and end users.

Outdoor Units

Utopia Series

ES Series (Simultaneous Operation)

IVX Series (Individual Operation)

RASC Series (Simultaneous Operation)

Compatible with the same indoor units and remote controls

Set Free Series

FSVNE Mini VRF

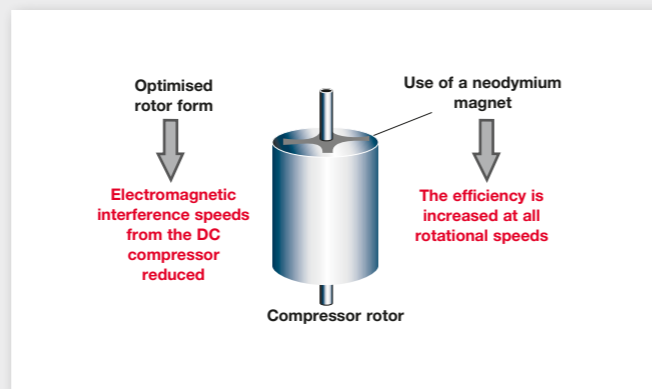
FSNM VRF light

FSXN VRF Combi(2- & 3-pipe)

Installation Features

DC compressor

The direct current compressor has improved efficiency in the most common operating range between 30 and 40 Hz. The compressor has a split rotor with alternated electrical poles – this prevents electromagnetic faults and noise development. By using a neodymium magnet at the same time, efficiency is also increased over the total rotational-speed range. The effect: improved performance and low speeds reduce consumption. This has a positive effect on annual operating costs.



Protection to allow for liquid return

When the compressor is not operating, the moving scroll rests on the casing. When the compressor starts to run, the pressure in the chamber under the scroll builds up and forces the scroll up against the housing and seals the compression chamber. If liquid returns to the compressor, the resulting increase in pressure forces the scroll downwards breaking the seal to allow the liquid to pass back into the compressor.

Reduced noise and vibration

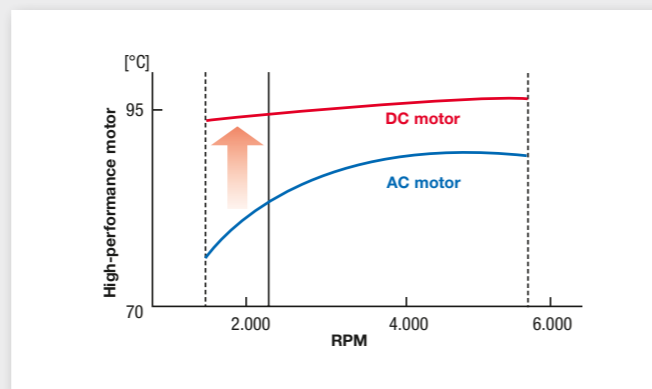
The compression points are evenly spread over compression stroke reducing sound and vibration levels. This is further enhanced by the minimal number of components used and the fact that the high pressure shell acts as a silencer.

Compressor technology

Performance is greatly improved by the high efficiency, high pressure, inverter-driven scroll compressor.

Features of the compressor:

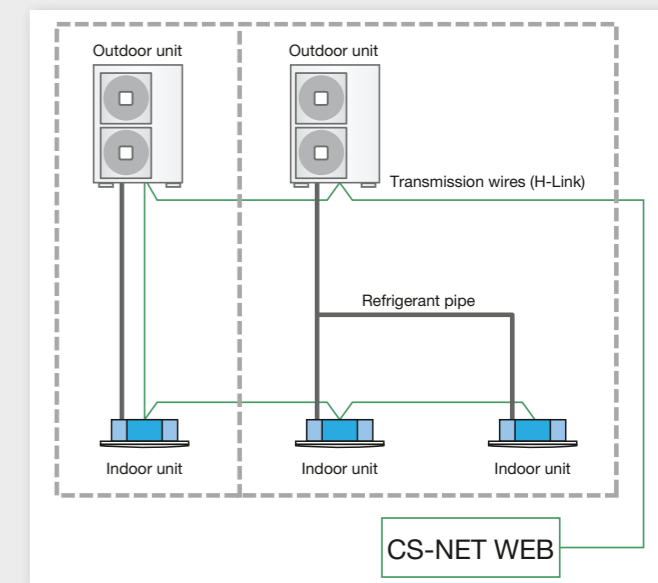
- Optimised bearing
- Asymmetric scroll lap
- Oil return circuit
- Improved lubrication system
- High pressure shell
- Protection to allow for liquid return
- Reduced noise and vibration



H-Link II

H-Link requires only two transmission wires connecting each outdoor unit for up to 64 refrigerant cycles and connecting wires for all indoor units and outdoor units in the series. The advantages of this system are:

- Flexible installation options
- No polarity requirements
- CS Net connection via indoor or outdoor unit
- Can connect up to 160 indoor units
- Possible to have cable lengths of up to 1,000m (5,000m with H-link Relay)



High-pressure shell

The high-pressure shell acts as an oil separator reducing the amount of oil circulating in the refrigeration system giving better heat exchanger efficiency. This also prevents the oil entering the shell during the off cycle; this prevents oil dilution and oil foaming at start-up.

In addition, the compressor intake gas does not circulate around the motor and, therefore, the heat of the motor is not added to the gas prior to compression. This is particularly important at low temperatures.

Improved lubrication system

The compressors use a pressure differential system for lubrication based on the difference between the intake and discharge pressure. Lubrication is very accurate and highly reliable throughout the operating range – even at low frequencies.

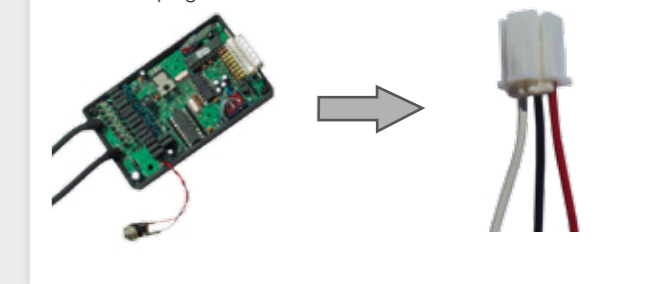
A plug offers all options

Using plug PCC1A makes standard additional printed circuit boards superfluous. Connection through this simple and universal plug is sufficient for use of the additional functions. With no additional effort. Functions facilitated by the standard inputs/outputs of Hitachi indoor and outdoor units include the following:

- Remote on/off
- Common alarm
- Fixing cooling/heating
- Operating signal
- Cool signal/heat signal
- Compressor stop

No circuit boards needed:

A universal plug for all control lines





- Compact design
- 230-volt connection
- Outstanding price-performance ratio
- Low height
- Common in/outputs

600mm



5,0–7,1 kW
RAS-2HVRN2
RAS-2.5HVRN2
RAS-3HVRNS2

800mm



10,0–14,0kW
RAS-4HVRNS2E
RAS-5HVRNS2E
RAS-4HRNS2E
RAS-5HRNS2E
RAS-6HRNS2E



RAS-8HRNSE
RAS-10HRNSE

Utopia ES Inverter



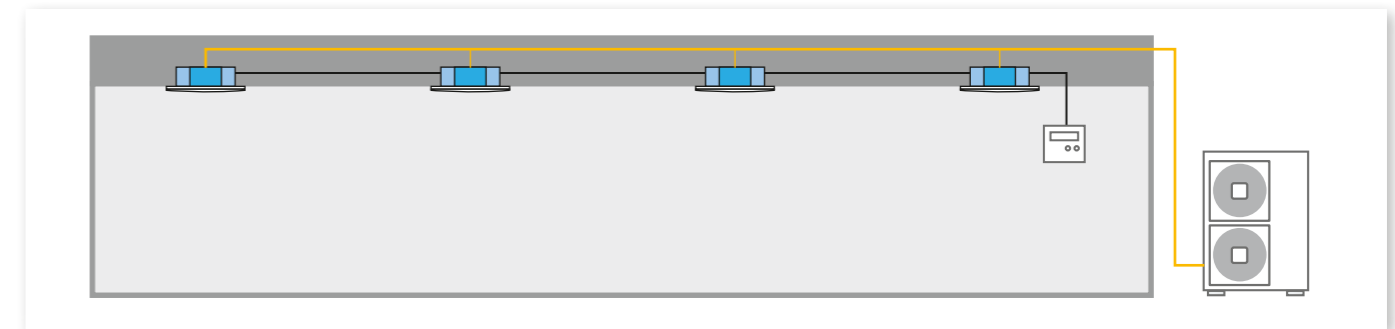
Ideal solution for small spaces

With a maximum width of 950mm and a maximum height of 800mm, the Utopia ES is ideally suited for use in small spaces. The 230-volt connection to all devices facilitates upto 14kW (11.2–28kW in 400V) flexible use for diverse applications. In total, you can connect up to three System Free indoor units of your choice. The Utopia ES Inverters are a versatile and economical solution for connected loads up to 28kW.

Utopia ES Series – compact and light

All Utopia ES Series outdoor units are now equipped with horizontal air ducts. The units are extremely compact, which facilitates easy installation and makes best use of the chosen position.

- Extremely compact design
- Low installation height and footprint
- Individual room air conditioning. All indoor units must be located in the same room.
- Outstanding price-performance ratio





Outdoor units: heat pumps 230 V/1 phase

Outdoor unit Utopia ES Series		RAS-2HVRN2	RAS-2.5HVRN2	RAS-3HVRN2	RAS-4HVRN2SE	RAS-5HVRN2SE
Cooling capacity ¹ (control range)	kW	5,0 (2,2~5,6)	6,0 (2,2~6,3)	7,1 (3,4~8,0)	10,0 (4,9~11,2)	12,5 (5,7~14,0)
Heating capacity ² (control range)	kW	5,6 (2,2~7,1)	7,0 (2,2~7,1)	8,0 (3,4~9,0)	11,2 (5,0~12,5)	14,0 (6,0~16,0)
Number of indoor units		1	1	1~2	1~2	1~2
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1	230/1
Nominal power consumption (cooling/heating)	kW	1,26/1,23	1,83/1,84	2,32/2,43	3,32/3,22	4,30/4,32
Energy efficiency grade (cooling/heating)		A/A	A/A	B/C	B/B	-/-
Efficiency EER/COP	W/W	3,97/4,55	3,28/3,80	3,06/3,29	3,01/3,48	2,91/3,24
Operating current cooling/heating (max.)	A	5,9/6,1 (13)	8,5/9,1 (16)	10,3/10,9 (18)	14,3/13,8 (24)	18,4/18,5 (26)
Fuse protection time-lag (starting current)	A	16 (less 13)	20 (less 16)	25 (less 18)	32 (less 24)	32 (less 26)
Outer dimensions (h × w × d)	mm	600 × 792 (+95*) × 300			800 × 950 × 370	
Net weight outdoor unit	kg	42	42	44	79	83
Sound pressure level outside ³ (cooling/heating)	dB(A)	45/47	46/48	48/50	50/52	52/54
Outdoor fan air flow rate (max.)	m ³ /h	2.100	2.100	2.460	4.500	4.500
Working range cool	°C	-5 °C ~ +43 °C DB (-15 °C with wind-protected set-up and connection ⁴)				
Working range heat	°C	-15 °C ~ +15 °C WB	-15 °C ~ +15 °C WB	-10 °C ~ +15 °C WB	-10 °C ~ +15 °C WB	-10 °C ~ +15 °C WB
Refrigeration system		R410A Refrigerant, electronic exp. valve				
Refrigerant charge R410A (to x m)	kg	1,6 (to 30 m)	1,6 (to 30 m)	1,9 (to 20 m)	2,8 (to 20 m)	2,9 (to 30 m)
Top-up quantity R410A (over 20/30 m)	g/m	30	30	30	40	60
Refrigerant piping length min.-max. (inner – outer)	m	5~50	5~50	5~30	5~50	5~50
Refrigerant piping length maximum total piping	m	50	50	Twin 40	Twin 60	Twin 60
Refrigerant piping length maximum (distributor - indoor unit)	m	-	-	10	10	10
Height difference maximum ⁵	m	30 (outdoor unit higher), 20 (outdoor unit lower), 0,5 (between indoor units)				
Liquid line (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line (flare connection) ⁶	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,88 mm)	5/8" (15,88 mm)	5/8" (15,88 mm)

Combination table (with figures (hp) for the indoor units)

	RAS-3HVRN2		Distributor	RAS-4HVRN2SE		Distributor	RAS-5HVRN2SE		Distributor
Single	3.0	-	-	4.0	-	-	5.0	-	-
Twin	1.5	1.5	TE-03N	2.0	2.0	TE-04N	2.5	2.5	TE-56N
Twin	-	-	-	2.3	2.0 (1.8)	TE-56N	3.0	2.0 (2.3)	TE-56N
Twin	-	-	-	2.5	2.0 (1.8)	TE-56N	-	-	-
Triple	-	-	-	-	-	-	-	-	-

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)

⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

⁵ The pipe cross sections for RAS-2~2.5HVRN1 correspond to those of the outdoor unit connections. An adapter for the reduction is included inside.

⁶ The height difference between indoor units must not exceed 3 m and the distributor must be positioned at the lowest point.

* The cable connections are outside, whereby the actual installation dimension increases by the specified value.

Other measuring conditions: the power consumption/efficiency relate to the connection of indoor cassette units. The values may change slightly with other designs. All connected indoor units must be situated in the same room. The selection of indoor unit is taken from the power factor of the model designation, which must always be the same. Ex.: RAS-4HVRN2SE with RCI-4.0FSN2E.

Outdoor units: heat pumps 400 V/3 phase

Outdoor unit Utopia ES Series		RAS-4HRN2SE	RAS-5HRN2SE	RAS-6HRN2SE	RAS-8HRN2SE	RAS-10HRN2SE
Cooling capacity ¹ (control range)	kW	10,0 (4,9~11,2)	12,5 (5,7~14,0)	14,0 (6,0~16,0)	20,0 (9,0~22,4)	25,0 (11,2~28,0)
Heating capacity ² (control range)	kW	11,2 (5,0~12,5)	14,0 (6,0~16,0)	16,0 (6,0~18,0)	22,4 (8,3~25,0)	28,0 (9,0~31,5)
Number of indoor units		1~2	1~2	1~3	1~4	1~4
Power supply 50 Hz	V/Ph	400/3	400/3	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	3,32/3,22	4,30/4,32	5,71/5,56	6,64/6,55	8,90/8,72
Energy efficiency grade (cooling/heating)		B/B	-/-	-/-	-/-	-/-
Efficiency EER/COP	W/W	3,01/3,48	2,91/3,24	2,45/2,88	3,01/3,42	2,81/3,21
Operating current cooling/heating (max.)	A	8,7/8,4 (10)	11,3/11,4 (14)	15,0/14,6 (18)	9,5/9,1 (20)	12,8/12,5 (23)
Fuse protection time-lag (starting current)	A	16 (less 10)	16 (less 14)	20 (less 18)	20 (less 20)	25 (less 23)
Outer dimensions (h × w × d)	mm	800 × 950 × 370			1.380 × 950 × 370	
Net weight outdoor unit	kg	79	83	83	135	141
Sound pressure level outside ³ (cooling/heating)	dB(A)	50/52	52/54	55/57	53/55	60/62
Outdoor fan air flow rate (max.)	m ³ /h	4.500	4.500	4.800	7.620	8.760
Working range cool	°C	-5 °C ~ +43 °C DB (-15 °C with wind-protected set-up and connection ⁴)				
Working range heat	°C	-10 °C ~ +15 °C WB				
Refrigeration system		R410A Refrigerant, electronic exp. valve				
Refrigerant charge R410A (to x m)	kg	2,8 (to 20 m)	2,9 (to 30 m)	2,9 (to 30 m)	6,0 (to 30 m)	6,2 (to 30 m)
Top-up quantity R410A (over 30 m)	g/m	40	60	60	65	120
Refrigerant piping length min.-max. (inner – outer)	m	5~50	5~50	5~50	5~50	5~50
Refrigerant piping length maximum total piping	m	Twin 60	Twin 60	Twin 60/Triple 70	Twin 60/Triple 70/Quad 80	Twin 60/Triple 70/Quad 80
Refrigerant piping length maximum (distributor - indoor unit)	m	10	10	10	10	10
Height difference maximum ⁵	m	30 (outdoor unit higher), 20 (outdoor unit lower), 0,5 (between indoor units)				
Liquid line (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm) ⁶
Gas line (flare connection)	inches	5/8" (15,88 mm)	5/8" (15,88 mm)	5/8" (15,88 mm)	1" (25,4 mm)	1" (25,4 mm)

Combination table (with figures (hp) for the indoor units)

	RAS-4HRN2SE		Distributor	RAS-5HRN2SE		Distributor	RAS-6HRN2SE		Distributor
Single	4.0	-	-	5.0	-	-	6.0	-	-
Twin	2.0	2.0	TE-04N	2.5	2.5	TE-56N	3.0	3.0	TE-56N
Twin	2.3	2.0 (1.8)	TE-56N	3.0	2.0 (2.3)	TE-56N	3.0	2.5	TE-56N
Twin	2.5	2.0 (1.8)	TE-56N	-	-	-	-	-	-
Triple	-	-	-	-	-	-	2.0	2.0 (1.8)	TRE-06N
Triple	-	-	-	-	-	-	2.5	1.5	TRE-06N

	RAS-8HRN2SE		Distributor	RAS-10HRN2SE		Distributor
Single	8.0	-	-	10.0	-	-
Twin	4.0	4.0	TE-08N	5.0	5.0	TE-08N
Triple	3.0	3.0	TRE-810N	-	-	-
Quad	2.0	2.0	TE-08N + 2 × TE-04N	2.5	2.5	TE-08N + 2 × TE-56N

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)

⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

⁵ The height difference between indoor units must not exceed 3 m and the distributor must be positioned at the lowest point.

⁶ The pipe diameter of the liquid line must be 1/2" (12.7 mm) for refrigerant piping lengths over 30 m. (1/2" top-up quantity: 50g/m)

Other measuring conditions: the power consumption/efficiency relate to the connection of indoor cassette units. The values may change slightly with other designs. All connected indoor units must be situated in the same room. The selection of indoor unit is taken from the power factor of the model designation, which must always be the same. Ex.: RAS-5HRN2SE with RCI-5.0FSN2E.



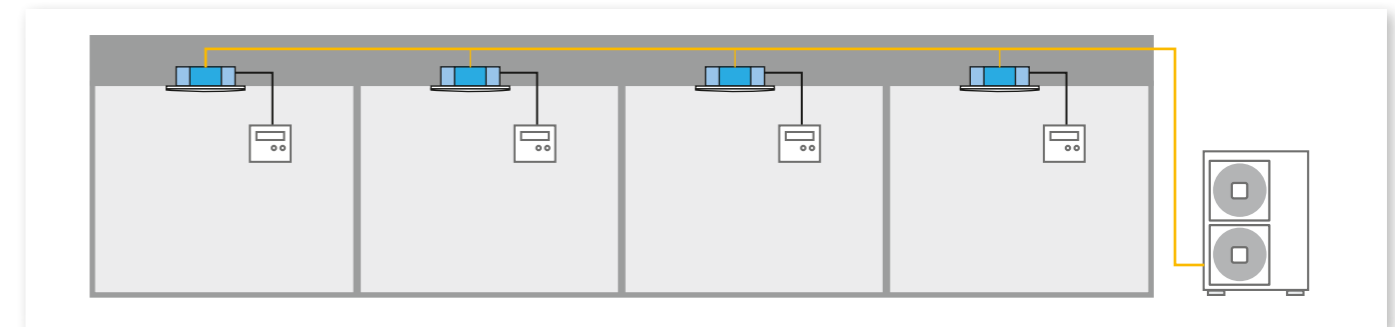
Utopia IXV Inverter



Utopia IXV Series – Greater installation flexibility and more efficient control

The outdoor units of the Utopia IXV Series offer a lot of performance with low consumption. This saves on energy costs and protects the environment. The Utopia IXV Series has even won an Energy Efficiency Award for its high COP values, which recognises the environmental performance of this unit.

- Extremely efficient and low consumption
- Small footprint compared to conventional VRF systems
- Zones and individual room air conditioning per connected indoor unit
- Good price-performance ratio compared to conventional VRF systems
- Improved combination possibilities



The Utopia IXV Inverters from Hitachi were the first systems worldwide that were able to reconcile high energy efficiency with compact dimensions. The latest model of the Utopia IXV is a powerful unit, which achieves an extremely high COP of 4.24 (8-hp models). It represents a development of the previous model and was awarded the Shoene Taishou Prize (energy-efficiency award) by the Japanese Government. A horizontal air duct facilitates the compact design and efficient use of the floor space.

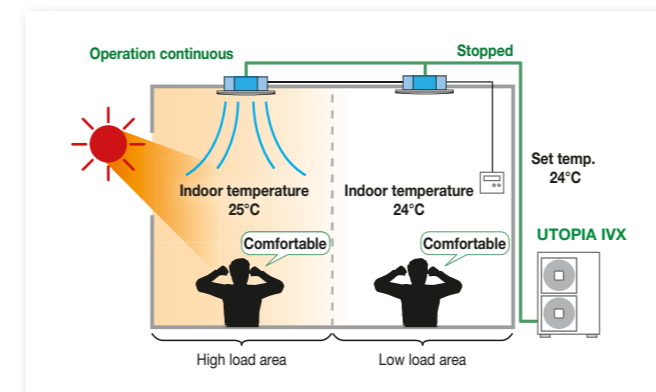
Features:

- Compact and light
 - Minimal use of refrigerants
 - Large range: -5°C cooling performance* and -20°C heating performance
 - Single room control
 - Multi-award-winning performance – high COP of 4.24 (8-hp models)
- * -15°C with wind-protected set-up and connection; only group control after connection

Greater Installation Flexibility

The Utopia IXV is the ideal choice for individual room and parallel operation. The device combination options are on p. 21. You will find details in the corresponding technical manual.

Twin, Triple and Quad distributors are available for installation. The maximum piping length is up to a total 100 metres, which means almost any installation option is possible.





- Very efficient
- 230-volt connection
- Single room control possible
- Pre-filled up to 30m
- Common in/outputs

Outdoor units: heat pumps 230 V/1 phase

Outdoor unit Utopia IX Series		RAS-3HVRNM2E	RAS-4HVRNM2E	RAS-5HVRNM2E
Cooling capacity ¹ (control range)	kW	7,1 (3,2~8,0)	10,0 (4,9~11,2)	12,5 (5,7~14,0)
Heating capacity ² (control range)	kW	8,0 (3,5~10,6)	11,2 (5,0~14,0)	14,0 (6,0~18,0)
Number of indoor units (Nennanschlussleistung)		1~2 (see table)	1~4 (free choice 90%~115%)	1~4 (free choice 90%~115%)
Special feature		The indoor units can be operated individually (different rooms).		
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Nominal power consumption (cooling/heating)	kW	1,94/1,98	2,56/2,73	3,45/3,45
Energy efficiency grade (cooling/heating)		A/A	A/A	-/-
Efficiency EER/COP	W/W	3,66/4,05	3,90/4,10	3,62/4,06
Operating current cooling/heating (max.)	A	8,2/8,4 (14)	10,9/11,6 (18)	15,0/14,7 (26)
Fuse protection time-lag (starting current)	A	20 (less 14)	25 (less 18)	32 (less 26)
Outer dimensions (h x w x d)	mm	800 x 950 x 370	1.380 x 950 x 370	1.380 x 950 x 370
Net weight outdoor unit	kg	67	98	105
Sound pressure level outside ³ (cooling/heating)	dB(A)	48/50	50/52	53/55
Outdoor fan air flow rate (max.)	m ³ /h	2.700	6.000	6.000
Working range cool	°C	-5 °C ~ +46 °C DB (-15 °C with wind-protected set-up and connection ⁴)		
Working range heat	°C	-20 °C ~ +15 °C WB		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Refrigerant charge R410A (to x m)	kg	2,4 (to 30m)	3,8 (to 30m)	4,4 (to 30m)
Top-up quantity R410A (over 30m)	g/m	40	60	60
Refrigerant piping length min.-max. (inner – outer)	m	5~50	5~70	5~75
Refrigerant piping length maximum total piping	m	Twin 60	Twin 80/Triple 90	Twin 85/Triple 95/Quad 95
Refrigerant piping length maximum (distributor - indoor unit)	m	10	10	10
Height difference maximum ⁵	m	30 (outdoor unit higher), 20 (outdoor unit lower), 3 (between indoor units)		
Liquid line (flare connection)	inches	3/8" (9,53mm)	3/8" (9,53mm)	3/8" (9,53mm)
Gas line (flare connection)	inches	5/8" (15,88mm)	5/8" (15,88mm)	5/8" (15,88mm)

Combination table (with figures (hp) for the indoor units)

	RAS-3HVRNM2E (3PS)	Distributor	RAS-4HVRNM2E (3,6~4,6PS)	RAS-5HVRNM2E (4,5~5,8PS)
Single	3.0	-	4.0	5.0
Twin	1.5	1.5	The indoor units can be combined freely (2~4 indoor units). The nominal capacity of all indoor units must be between 90~115%. Twin => Distributor TE-56N Triple => Distributor TRE-06N Quad => Distributor TE-56N for 2.3~6.0 hp and TE-03N for (0.8~2.0 hp)	
Triple	-	-	-	-
Quad	-	-	-	-

Cooling capacity: 1.3 is a downgraded unit 1.5, 1.8 is a downgraded unit 2.0, 2.3 is a downgraded unit 2.5

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.
² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.
³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)
⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection. It is then no longer possible to operate different indoor units individually.
⁵ The height difference between indoor units must not exceed 3 m and the distributor must be positioned at the lowest point.

Other measuring conditions: the power consumption/efficiency relate to the connection of RCI-xxFSN3E indoor units. The values may change slightly with other designs. All connected indoor units must be situated in the same room. The selection of indoor unit is taken from the power factor of the model designation, which must always be the same. Ex.: RAS-4HRNM2E mit RCI-4.0FSN3E.



- Very efficient
- 400-volt connection
- Single room control possible
- Pre-filled up to 30m
- Common in/outputs

Outdoor units: heat pumps 400 V/3 phase

Outdoor unit Utopia IX Series		RAS-4HRNM2E	RAS-5HRNM2E	RAS-6HRNM2E
Cooling capacity ¹ (control range)	kW	10,0 (4,9~11,2)	12,5 (5,7~14,0)	14,0 (6,0~16,0)
Heating capacity ² (control range)	kW	11,2 (5,0~14,0)	14,0 (6,0~18,0)	16,0 (6,0~20,0)
Number of indoor units		1~4 (free choice 90%~115%)	1~4 (free choice 90%~115%)	1~4 (free choice 90%~115%)
Special feature		The indoor units can be operated individually (different rooms).		
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	2,56/2,73	3,45/3,45	4,26/4,30
Energy efficiency grade (cooling/heating)		A/A	-/-	-/-
Efficiency EER/COP	W/W	3,90/4,10	3,62/4,06	3,29/3,72
Operating current cooling/heating (max.)	A	3,9/4,1 (7,0)	5,3/5,2 (11)	6,4/6,5 (13)
Fuse protection time-lag (starting current)	A	16 (less 7)	16 (less 11)	20 (less 13)
Outer dimensions (h x w x d)	mm	1.380 x 950 x 370	1.380 x 950 x 370	1.380 x 950 x 370
Net weight outdoor unit	kg	98	105	105
Sound pressure level outside ³ (cooling/heating)	dB(A)	50/52	53/55	53/55
Outdoor fan air flow rate (max.)	m ³ /h	6.000	6.000	6.000
Working range cool	°C	-5 °C ~ +46 °C DB (-15 °C with wind-protected set-up and connection ⁴)		
Working range heat	°C	-20 °C ~ +15 °C WB		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Refrigerant charge R410A (to x m)	kg	3,8 (to 30m)	4,4 (to 30m)	4,4 (to 30m)
Top-up quantity R410A (over 30m)	g/m	60	60	60
Refrigerant piping length min.-max. (inner – outer)	m	5~70	5~75	5~75
Refrigerant piping length maximum total piping	m	Twin 80/Triple 90	Twin 85/Triple 95/Quad 95	Twin 85/Triple 95/Quad 95
Refrigerant piping length maximum (distributor - indoor unit)	m	10	10	10
Height difference maximum ⁵	m	30 (outdoor unit higher), 20 (outdoor unit lower), 3 (between indoor units)		
Liquid line (flare connection)	inches	3/8" (9,53mm)	3/8" (9,53mm)	3/8" (9,53mm)
Gas line (flare connection)	inches	5/8" (15,88mm)	5/8" (15,88mm)	5/8" (15,88mm)

Combination table (with figures (hp) for the indoor units)

	RAS-4HRNM2E (3,6~4,6PS)	RAS-5HRNM2E (4,5~5,8PS)	RAS-6HRNM2E (5,4~6,9PS)
Single	4.0	5.0	6.0
Twin	The indoor units can be combined freely (2~4 indoor units). The nominal capacity of all indoor units must be between 90~115%. Twin => Distributor TE-56N Triple => Distributor TRE-06N Quad => Distributor TE-56N for 2.3~6.0 hp and TE-03N for (0.8~2.0 hp)		
Triple	-	-	-
Quad	-	-	-

Cooling capacity: 1.3 is a downgraded unit 1.5, 1.8 is a downgraded unit 2.0, 2.3 is a downgraded unit 2.5

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.
² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.
³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)
⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection. It is then no longer possible to operate different indoor units individually.
⁵ The height difference between indoor units must not exceed 3 m and the distributor must be positioned at the lowest point.

Other measuring conditions: the power consumption/efficiency relate to the connection of RCI-xxFSN3E indoor units. The values may change slightly with other designs. All connected indoor units must be situated in the same room. The selection of indoor unit is taken from the power factor of the model designation, which must always be the same. Ex.: RAS-4HRNM2E mit RCI-4.0FSN3E.



- Very efficient
- 400-volt connection
- Single room control possible
- Common in/outputs

Outdoor units: heat pumps 400 V/3 phase

Outdoor unit Utopia IVX Series		RAS-8HRNM	RAS-10HRNM	RAS-12HRNM
Cooling capacity ¹ (control range)	kW	20,0 (9,0~22,4)	25,0 (11,2~28)	30,0 (13,5~33,5)
Heating capacity ² (control range)	kW	22,4 (8,3~28)	28,0 (10,5~35)	33,5 (12,6~37,5)
Number of indoor units		1~4	1~4	2~4
Special feature		The indoor units can be operated individually (different rooms).		
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	5,73/5,06	7,58/6,88	9,32/8,39
Efficiency EER/COP	W/W	3,36/4,24	3,20/3,93	3,10/3,83
Operating current cooling/heating (max.)	A	10,0/9,2 (13,2)	13,0/11,9 (17,1)	15,9/14,5 (21,2)
Fuse protection time-lag (starting current)	A	20 (less 13)	20 (less 17)	25 (less 21)
Outer dimensions (h x w x d)	mm	1.650 x 1.100 x 390		
Net weight outdoor unit	kg	170	170	173
Sound pressure level outside ³ (cooling/heating)	dB(A)	52/54	55/56	58/60
Outdoor fan air flow rate (max.)	m ³ /h	7.260	9.000	9.780
Working range cool	°C	-5 °C ~ +43 °C DB (-15 °C with wind-protected set-up and connection ⁴)		
Working range heat	°C	-20 °C ~ +15 °C WB		
Refrigeration system		R410A Refrigerant, electronic exp. valve, oil separator, sub-cooler cycle		
Refrigerant charge R410A (to x m)	kg	7,3 (to 30 m)	7,8 (to 30 m)	8,5 (to 30 m)
Top-up quantity R410A (over 30 m)	g/m	The top-up quantity (over 30 m) must be calculated separately.		
Refrigerant piping length min.-max. (inner - outer)	m	5~70 (100 with 1/2" liq.) ⁵	5~100	5~100
Refrigerant piping length maximum total piping	m	Twin 115/Triple 130/Quad 145		
Refrigerant piping length maximum (distributor - indoor unit)	m	15	15	15
Height difference maximum ⁶	m	30 (outdoor unit higher), 20 (outdoor unit lower), 3 (between indoor units)		
Liquid line (flare connection)	inches	3/8" (9,53 mm) ⁵	1/2" (12,7 mm)	1/2" (12,7 mm)
Gas line (flare / flange)	inches	1" (25,4 mm)	1" (25,4 mm)	1" (25,4 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

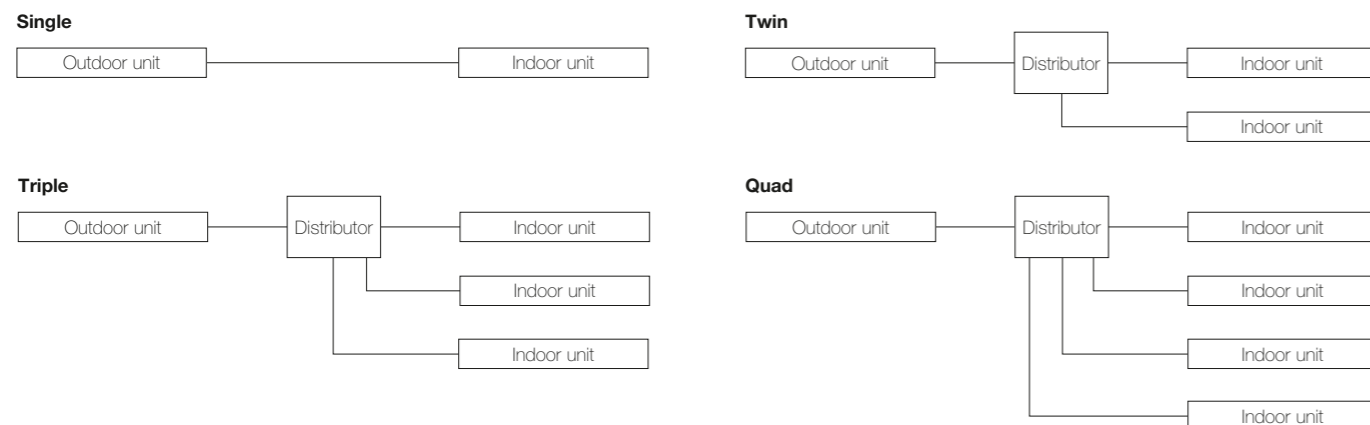
³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)

⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection. It is then no longer possible to operate different indoor units individually.

⁵ Up to 100 m using a 1/2" (12.7 mm) liquid line.

⁶ The height difference between indoor units must not exceed 3 m and the distributor must be positioned at the lowest point.

Other measuring conditions: the power consumption/efficiency relate to the connection of indoor cassette units. The values may change slightly with other designs. The connected indoor units can be situated in different rooms. Only combinations in accordance with the following table may be connected.



Combination table RAS-8HRNM

	Combinations of indoor units (hp)				Nominal power cooling 20.0 kW				Distributor
	1	2	3	4	Power-output distribution cooling (kW, maximum)				
Single	8.0	-	-	-	22,4	-	-	-	-
Twin	4.0	4.0	-	-	11,2	11,2	-	-	TE-08N
	5.0	3.0	-	-	14,0	8,4	-	-	TE-08N
Triple	3.0	3.0	3.0	-	7,5	7,5	7,5	-	TRE-810N
	3.0	3.0	2.5	-	7,9	7,9	6,6	-	TRE-810N
	3.0	2.5	2.5	-	8,4	7,0	7,0	-	TRE-810N
Quad	3.0	3.0	2.3	-	8,1	8,1	6,2	-	TRE-810N
	2.0	2.0	2.0	2.0	5,6	5,6	5,6	5,6	QE-810N
	2.5	2.0	2.5	2.0	6,2	5,0	6,2	5,0	QE-810N
	2.5	2.0	2.0	2.0	6,6	5,3	5,3	5,3	QE-810N
	2.5	1.8	2.5	1.8	6,5	4,7	6,5	4,7	QE-810N
	2.5	1.8	2.3	1.8	6,7	4,8	6,1	4,8	QE-810N
	2.5	1.8	2.0	2.0	6,8	4,9	5,4	5,4	QE-810N
	2.3	1.8	2.3	1.8	6,3	4,9	6,3	4,9	QE-810N
2.3	1.8	2.0	2.0	6,4	5,0	5,5	5,5	QE-810N	

Combination table RAS-10HRNM

	Combinations of indoor units (hp)				Nominal power cooling 25.0 kW				Distributor
	1	2	3	4	Power-output distribution cooling (kW, maximum)				
Single	10.0	-	-	-	28,0	-	-	-	-
Twin	6.0	4.0	-	-	16,0	11,2	-	-	TE-10N
	5.0	5.0	-	-	14,0	14,0	-	-	TE-10N
Triple	3.0	3.0	3.0	-	8,4	8,4	8,4	-	TRE-810N
	4.0	3.0	3.0	-	11,2	8,4	8,4	-	TRE-810N
Quad	2.5	2.5	2.5	2.5	7,0	7,0	7,0	7,0	QE-810N
	3.0	2.5	3.0	2.0	8,0	6,7	8,0	5,3	QE-810N
	3.0	2.5	2.5	2.5	8,0	6,7	6,7	6,7	QE-810N
	3.0	2.0	3.0	2.0	8,4	5,6	8,4	5,6	QE-810N
	3.0	2.0	2.5	2.5	8,4	5,6	7,0	7,0	QE-810N
	3.0	2.3	3.0	2.3	7,9	6,1	7,9	6,1	QE-810N
	3.0	2.3	3.0	2.0	8,2	6,3	8,2	5,4	QE-810N
3.0	2.3	2.5	2.5	8,2	6,3	6,8	6,8	QE-810N	

Combination table RAS-12HRNM

	Combinations of indoor units (hp)				Nominal power cooling 30.0 kW				Distributor
	1	2	3	4	Power-output distribution cooling (kW, maximum)				
Twin	6.0	6.0	-	-	16,0	16,0	-	-	TE-10N
Triple	4.0	4.0	4.0	-	11,2	11,2	11,2	-	TRE-810N
	3.0	3.0	3.0	3.0	8,4	8,4	8,4	8,4	QE-810N
Quad	4.0	2.5	3.0	3.0	10,7	6,7	8,0	8,0	QE-810N
	4.0	2.5	3.0	2.5	11,2	7,0	8,4	7,0	QE-810N
	3.0	3.0	3.0	2.5	8,4	8,4	8,4	7,0	QE-810N
	3.0	2.5	3.0	2.5	8,4	7,0	8,4	7,0	QE-810N
	4.0	2.3	4.0	2.3	10,6	6,1	10,6	6,1	QE-810N
	4.0	2.3	3.0	3.0	10,9	6,3	8,2	8,2	QE-810N
4.0	2.3	3.0	2.5	11,2	6,4	8,4	7,0	QE-810N	

Connection cables
 Indoor units => distributor: same diameter as the indoor unit connections
 Outdoor unit => distributor: same diameter as the outdoor unit connections
 (Always use 1/2" (12.7 mm) liquid lines for pipe distances over 70 m)
 The refrigerant piping lengths behind the distributor must be similar (length max. 15 m and max. 8 m difference).
 The distributor itself must be installed at the same height as the lowest indoor unit.



- Indoor set-up
- Duct connection
- Flat design
- Inverter compressor
- Common in/outputs



RASC-3HRNE
RASC-5HRNE
RASC-10HRNE

Utopia RASC centrifugal



The Utopia RASC units can be installed indoors with field supplied ductwork and are therefore ideal for situations where installations have to be hidden or where circumstances do not allow for the use of traditional outdoor units.

Flexible installation options

Different settings for inlet and outlet air are available - this gives you more options for installation. Side panels and grilles can be changed quickly on site. As a result, you can adjust the Utopia RASC perfectly to your installation conditions and can guarantee an optimum airflow. The RASC-HVRNE series also has a weight reduction of 48 kg and has been reduced in size by 125 mm.

Cooling performance also at low temperatures

The Utopia RASC stands out thanks to its large operating range. The standard fan speed controller facilitates cooling even at a low ambient temperature.

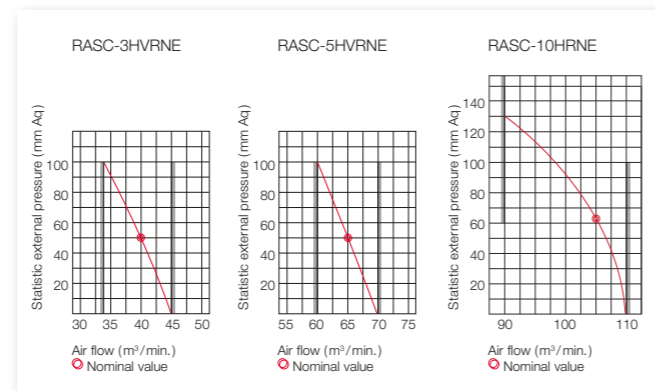
Compatibility with the System Free

The Utopia RASC is compatible with all indoor units of the Hitachi System Free series.

Simple control by H-Link connection

- H-LINK wiring system requires only two transmission wires connecting each indoor unit and outdoor unit for up to 16 refrigerant cycles, and connecting wires for all indoor units and all outdoor units in series.
- Total wiring length is noticeably reduced.
- Only one connection is required for the wiring between the indoor unit and outdoor unit.
- Easy wiring connection to the central controllers.

Fan performance curves



Outdoor units: heat pumps 400 V/3 phase

Outdoor unit Utopia RASC		RASC-3HRNE	RASC-5HRNE	RASC-10HRNE
Cooling capacity ¹ (control range)	kW	7,1 (3,2~8,0)	12,5 (5,7~14,0)	23,0 (10,3~25,0)
Heating capacity ² (control range)	kW	8,0 (3,5~9,0)	14,0 (5,0~16,0)	25,0 (9,4~26,0)
Number of indoor units		1~2	1~3	1~4
Power supply 50 Hz	V/Ph	230/1	230/1	400/3
Nominal power consumption (cooling/heating)	kW	2,45/2,58	4,61/4,52	8,49/8,59
Energy efficiency grade (cooling/heating)		C/D	-/-	-/-
Efficiency EER/COP	W/W	2,90/3,10	2,71/3,10	2,71/2,91
Operating current cooling/heating (max.)	A	11,3/11,9 (28,0)	22,0/21,6 (37)	20,1/20,2 (33)
Fuse protection time-lag (starting current)	A	25~35 (less 28)	35~40 (less 37)	25~35 (less 33)
Outer dimensions (h x w x d)	mm	430 x 1.250 x 1.300	430 x 1.250 x 1.300	640 x 1.850 x 985
Net weight outdoor unit	kg	168	176	262
Sound pressure level outside ³ (cooling/heating)	dB(A)	46/46	55/56	68/68
Outdoor fan air flow rate (nom.)	m³/h	2.400	3.900	6.300
External pressure (min./nom./max.)	Pa	(0/50/100)	(0/50/100)	(0/62/130)
Working range cool	°C	-5 °C ~ +43 °C DB (-15 °C with wind-protected set-up and connection ⁴)		
Working range heat	°C	-15 °C ~ +15 °C WB		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Refrigerant charge R410A (to x m)	kg	2,8 (20)	4,0 (30)	9,0 (30)
Top-up quantity R410A (over 20/30 m)	g/m	0,06	0,06	0,12
Refrigerant piping length min.-max. (inner - outer)	m	5~30	5~50	5~50
Refrigerant piping length maximum total piping	m	Twin 40	Twin 60/Triple 70	Twin 60/Triple 70/Quad 80
Refrigerant piping length maximum (distributor - indoor unit)	m	10	10	10
Height difference maximum ⁵	m	30 (outdoor unit higher), 20 (outdoor unit lower), 0,5 (between indoor units)		
Liquid line (flare connection)	inches	3/8" (9,53mm)	3/8" (9,53mm)	1/2" (12,7 mm)
Gas line (flare connection)	inches	5/8" (15,88mm)	5/8" (15,88mm)	1" (25,4mm)/Flansch

Combination table (details of power factors (hp) for indoor units)

	RASC-3HRNE		Distributor	RASC-5HRNE		Distributor	RASC-10HRNE		Distributor
Single	3.0	-	-	5.0	-	-	10.0	-	-
Twin	1.5	1.5	TE-03N	2.5	2.5	TE-56N	5.0	5.0	TE-10N
Twin	-	-	-	3.0	2.3	TE-56N	6.0	4.0	TE-10N
Triple	-	-	-	1.8	1.8	TRE-06N	4.0	3.0	TRE-810N
Quad	-	-	-	-	-	-	2.5	2.5	QE-810N
Quad	-	-	-	-	-	-	2.0	3.0	QE-810N
Quad	-	-	-	-	-	-	3.0	2.5	QE-810N
Quad	-	-	-	-	-	-	2.3	3.0	QE-810N

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1.5 m underneath and with air channels closed (measured in an anechoic chamber without reflections).

⁴ For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection. It is then no longer possible to operate different indoor units individually.

⁵ The height difference between indoor units must not exceed 0.5m and the distributor must be placed at the lowest point.

Other measuring conditions: the power consumption/efficiency relate to the connection of indoor cassette units. The values may change slightly with other designs. The connected indoor units cannot be situated in different rooms. The selection of indoor unit is taken from the power factor of the model designation, which must always be the same. Ex.: RASC-5HRNE with RCI-5.0FSN2E or RASC-10HRNE with 2 x RCI-5.0FSN2E.

Set Free outdoor units

Set Free outdoor units – VRF

The Set Free outdoor units offer enough power for efficient air conditioning of medium-sized and larger operations. Thanks to intelligent construction and control, the Set Free outdoor units are as powerful as they are energy-saving. This reduces energy costs and protects the environment.

The Set Free series has now been expanded with the flexible mini series FSVNE and FSNM for next-generation buildings. Using the Utopia IVX casing makes this mini series particularly compact, quick and easy to install.

The new FSXN facilitates a new dimension in flexibility. The choice between 2 or 3-pipe systems gives you a broad range of possibilities, which can be combined freely thanks to the modular design.

You can operate any combination of System Free indoor units with all Set Free outdoor units. Simply combine the indoor and outdoor units according to the necessary total output depending on the building size and installation situation. Thanks to simplified refrigerant construction and convenient options for central control, climate planning with Set Free is also extremely convenient for large projects.

Outdoor Units

Utopia Series

ES Series (Simultaneous Operation)

IVX Series (Individual Operation)

RASC Series (Simultaneous Operation)

Compatible with the same indoor units and remote controls

Set Free Series

FSVNE Mini VRF

FSNM VRF light

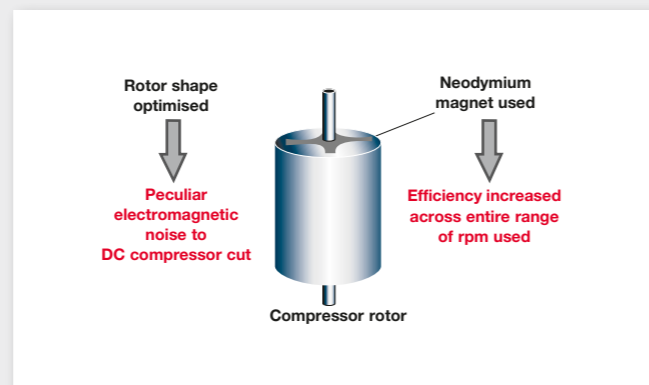
FSXN VRF Combi (2 & 3-pipe)

Compatible with the same indoor units and remote controls

Features and Benefits VRF

DC compressor

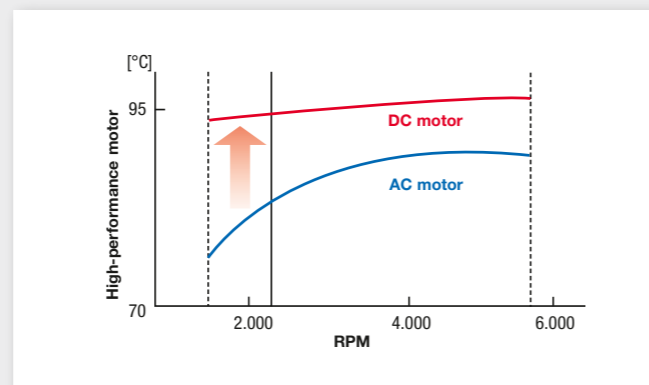
By using DC, the performance is improved at around 30–40Hz where the operation time of the inverter compressor is longest. Additionally, the rotor has been divided into two and the electric pole displaced to suppress electromagnetic noise interference and achieve quiet running. By using a neodymium magnet at the same time, efficiency is also increased over the total rotational-speed range. The effect: improved performance and low speeds reduce consumption. This has a positive effect on annual operating costs.



High COP

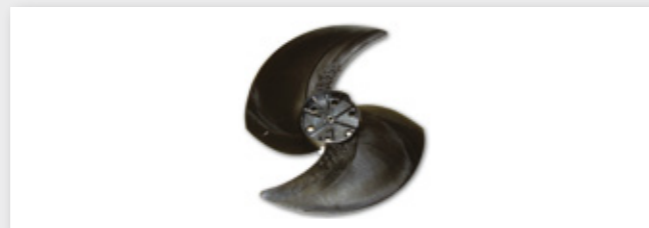
Performance is greatly improved by the high-efficiency, high pressure, inverter-driven scroll compressor.

- Reliability greatly improved by optimised bearing
- Intake loss and leakage loss largely reduced by asymmetric scroll lap
- Heat loss largely reduced by oil return structure
- Accurate oiling to the compressor by improved oiling system



Highly efficient, quiet twin-fan design

This unique fan with patented, twin-fan design was developed in-house by Hitachi. The reduction to just two fans clearly reduces the noise development. At the same time, specially formed longer fan blades increase air flow by 25%. This reduces the motor's energy need by 8%.



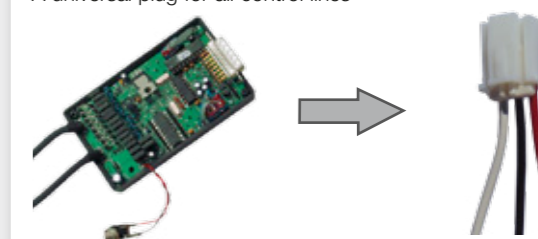
A plug offers all options

Using plug PCC1A makes standard additional printed circuit boards superfluous. Connection through this simple and universal plug is sufficient for use of the additional functions. With no additional effort. Functions facilitated by the standard inputs/outputs of Hitachi indoor and outdoor units include the following:

- Remote on/off
- Common alarm
- Fixing cooling/heating
- Operating signal
- Cool signal/heat signal
- Compressor stop

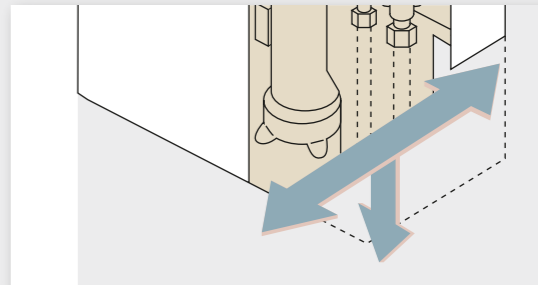
No circuit boards needed:

A universal plug for all control lines



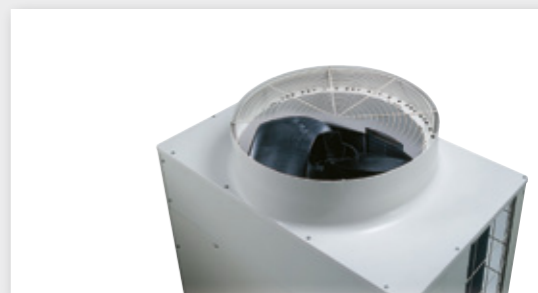
Refrigerant piping connections

In an outdoor unit piping connections are easily conducted from any of three directions: "front, rear or downwards"



High static pressure, Long duct bell mouth

- Fan motive energy is reduced by combining with a highefficiency fan
- External static pressure of 60 Pa as standard



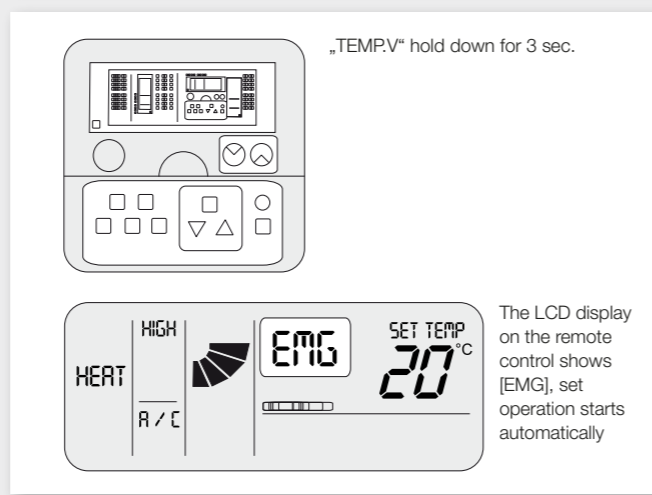
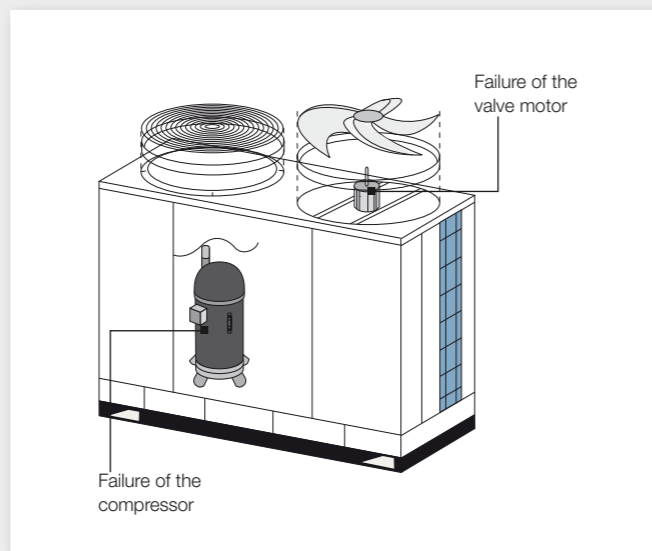
Functions FSN2 / FSXN

Failure safeguards in set operation

If at least two compressors are used, the FSN-2 system guarantees cooling performance even in the event of technical problems. If one of the compressors or fan motors has a fault, you can activate set operation by remote control. This ensures emergency operation until the fault is remedied.

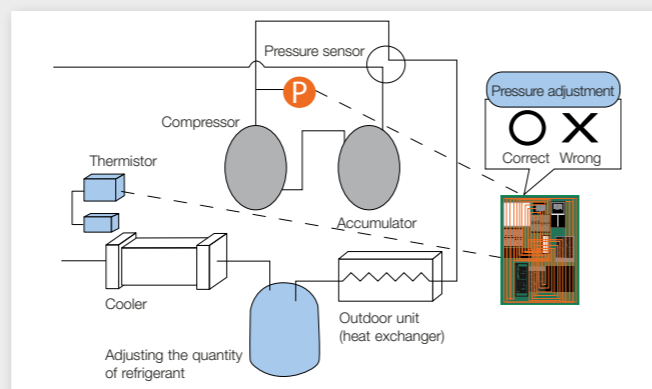
Set operation can be activated with the following alarm codes (from 14 hp):

1. Failure of inverter-compressor
 - 06 – Abnormal electric current at the Inverter
 - 23 – Defect of the discharge gas thermistor
 - 52 – Start of the Inverter overcurrent protection device
 - 51 to 54 – Defect of the Inverter power sensor, start of the transistor module protection device, failure of the Inverter cooling element temperature sensor
2. Defect of the non-inverter
 - 23 – Defect of the discharge gas thermistor
 - 39 – Abnormal current consumption by the non-inverter
3. Failure of outdoor unit fan motor
 - 56 to 58 – Abnormal operation of the outdoor unit ventilating motor



Controlling the refrigerant function

This function simplifies startup and service of the FSN2 units. The system tells you whether there is sufficient refrigerant via a pressure sensor and a temperature-controlled compressor resistance. However, it does not tell you if it is overfilled.



Installation Features FSN2

Flexible refrigerant construction and complex connection possibilities

The FSN2 gives you increased flexibility in the design by increasing the piping length to a maximum 1,000m.

The diagram shows how much scope the Set Free outdoor units give you for your installation planning, using the example of the FSN2.

- 1 Max. piping length: 150m → 165m
- 2 Max. length after 1st distributor: 40m → 90m
- 3 Max. length after distributor: 40m → 50m
- 4 Max. height difference between indoor units: 15m
- 5 Height difference between indoor unit (IU) and outdoor unit (OU)
OU higher than IU: 40m, IU higher than OU: 30m

Power outdoor unit (hp)	8	10, 12	14-22	24	26	28	30, 32	34, 36	38, 40	42, 44	46, 48
Connectable indoor units	13	16	20	27	29	31	32	34*	38*	42*	46*

*New: far more indoor units can now be connected (34-48 hp models)

The following new technologies have led to an increased COP:

- New generation of the DC Inverter compressor
- Greater capacity of the FixSpeed compressor
- High-efficiency heat exchanger
- Double DC fan motor
- HI-stream & high-efficiency fan
- Improved blow-out nozzles

Particularly energy-saving
These new technologies facilitate the leading COP values across the whole industry:

- Double DC fan motors
- Particularly efficient HI-stream fan
- Tubular air outlet

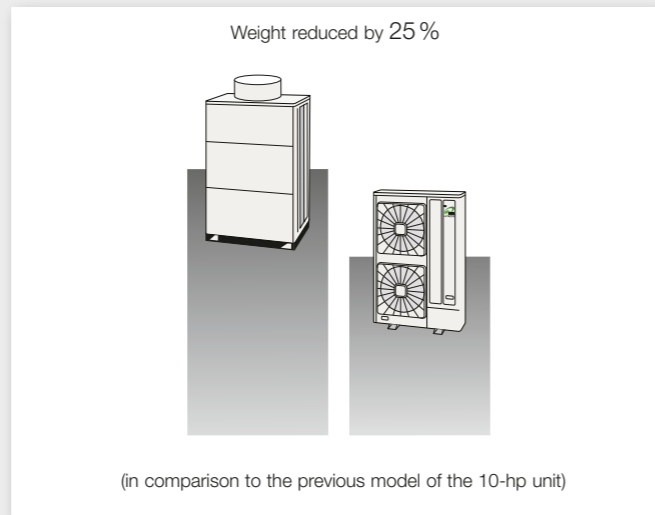
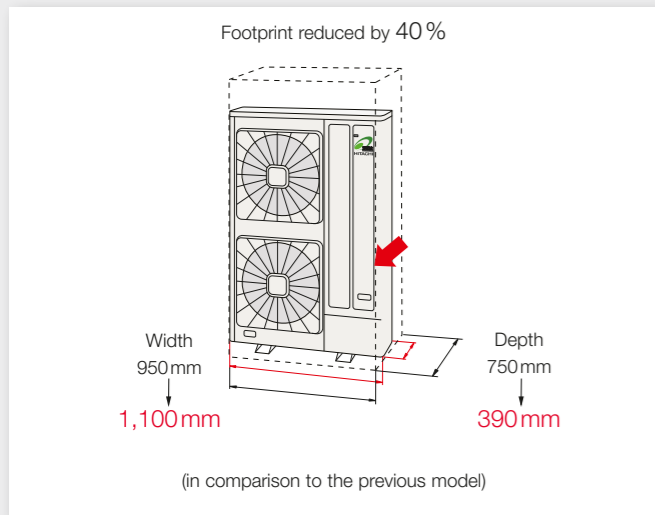
Highly efficient heat exchanger with particularly efficient heat exchange fins

Installation Features Set Free Mini

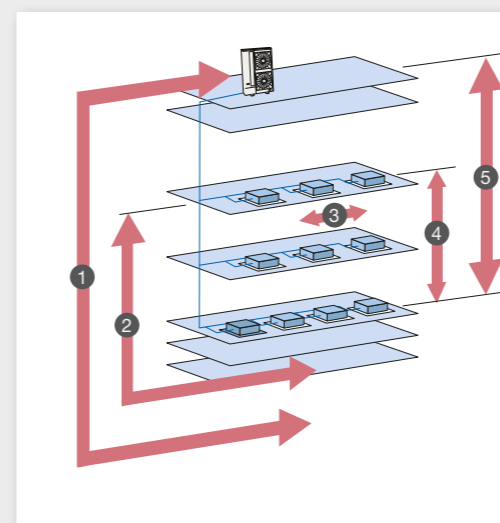
Compact solutions

The Set Free Mini has been expanded by the introduction of the FSNM. The advantages of the Utopia IVX have been combined with the strengths of the Set Free. The footprint has been reduced by 40% thanks to use of the IVX casing. Instead of a fan at the top, Hitachi have placed the ventilation laterally, as is standard for the Utopia. At the same time, the net weight has been reduced by 25% to 168kg (refers to a 10-hp unit).

The compact design brings additional benefits. For example, the reduced net weight facilitates lighter and more cost-effective transport. Heavy building cranes are no longer required, because the units can easily be moved in a standard lift.

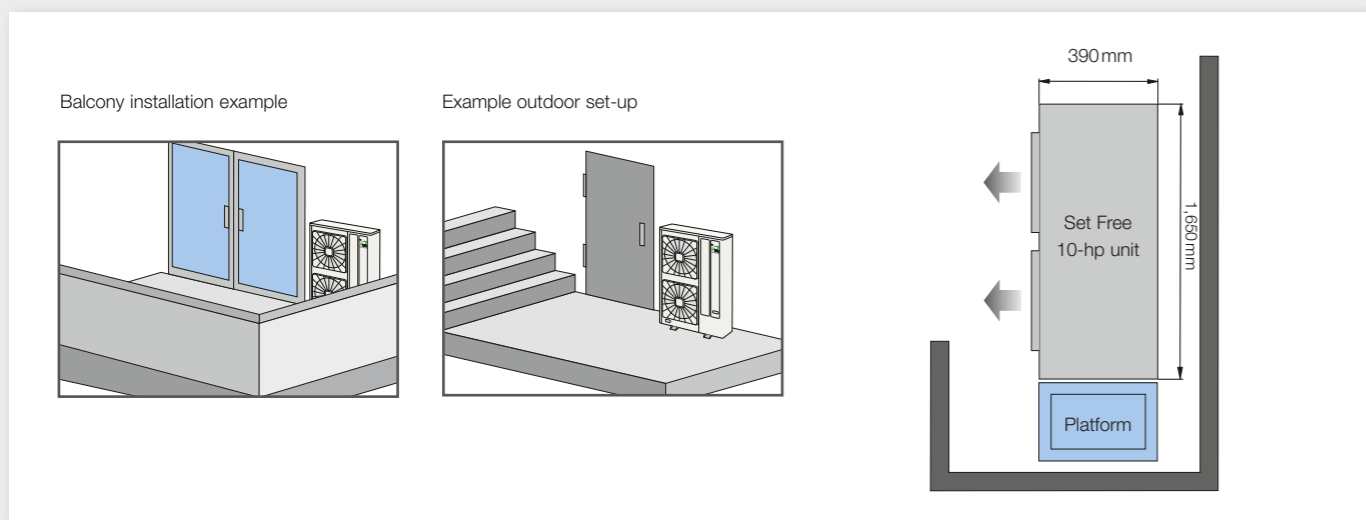


Flexible installation



- Max. piping length: 250m
- ① Piping length: 100m
- ② Max. length after 1st distributor: 30m
- ③ Max. length after distributor 15m
- ④ Height difference 15m
- ⑤ Height difference between indoor unit (IU) and outdoor unit (OU)
OU higher than IU: 40m, IU higher than OU: 30m

The small design enables additional flexible set-up options

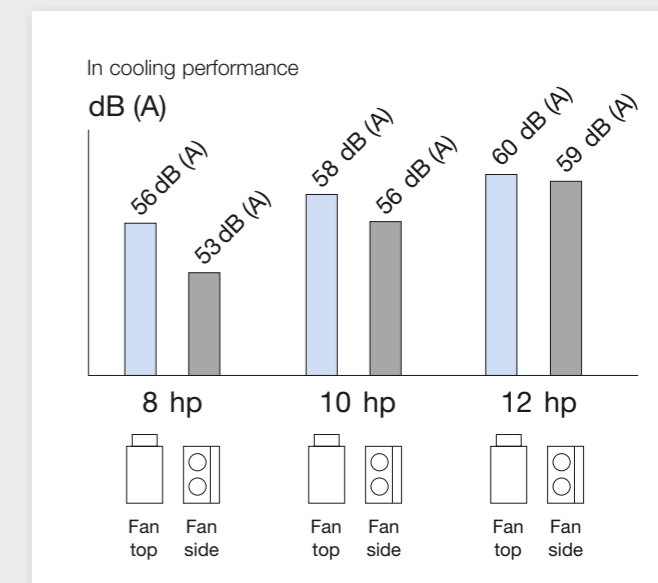


More variations

The FSNM Mini is a practical example of combining the installation features of the Utopia IVX and Set Free FSN1. This also clearly expands the scope for variations in the VRF system.

Modell	Utopia IVX HRNM	Set Free Mini FSNM	Set Free FSN1
Piping length	100 m (120 m)	100 m (120 m)	165 m (190 m)
Max. piping length	145 m	250 m	300 m
Height difference IT -> AT	30 m (20 m)	40 m (30 m)	50 m (40 m)
Combination	4 IT	10 IT (exception: 0.8~1.0 hp=8 unit)	8 hp: 13 IT 10 hp: 16 IT 12 hp: 16 IT
Range of capacity Rating	100%	8,10 hp: 50~130 % 12 hp: 50~110 %	50~130 %
Minimum Indoor unit capacity	1.5~2.3 hp	0.8 hp	0.8 hp

Sound pressure level in comparison FSN1 -> FSNM



Set Free FSXN VRF Combi 2 & 3-Pipe

New in the Set Free range: the FSXN – your flexible VRF system

An integrated approach to air conditioning is increasingly in demand for today's modern offices. Hitachi's new FSXN satisfies the desire for greater flexibility, so that air conditioning systems can adapt to changing requirements, and the increasing demand for units that are as kind as possible to the environment. The optimised environmental impact is guaranteed by a management system that enables users to control their air conditioning units simply and effectively. This system prevents unnecessary energy wastage, e.g. due to overheating, subcooling and by monitoring empty areas. This system combines the previous FSN and FXN systems.

Can be operated as a 3-pipe and 2-pipe heat pump

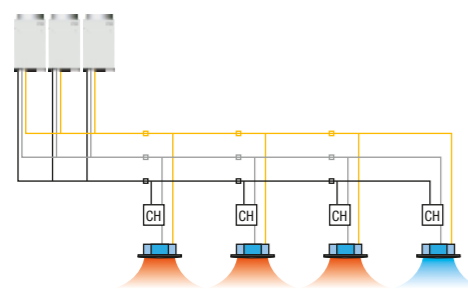
Hitachi's outdoor units are equipped with a heat recovery system and a 2-pipe heat pump system. Revisions are unnecessary thanks to the design of the system layout. This also reduces the time and labour required for installation at the chosen site.

Hitachi's outdoor units can be operated both as 3-pipe (heat recovery) and 2-pipe units. The corresponding system is determined by the number of connected pipes. Additional switch boxes have to be installed for a 3-pipe system. The system has become even more flexible thanks to the modular design up to 18 hp.

Current system (3-pipe heat pump system)

In heat recovery mode the heat is effectively used as a heat source.

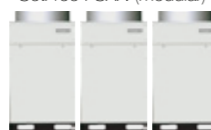
3-pipe heat pump system



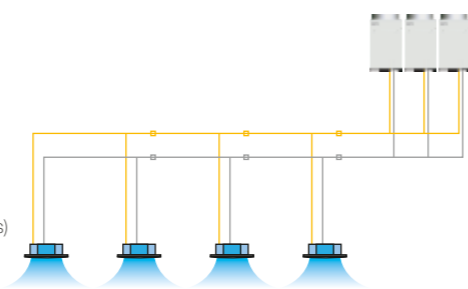
Existing system (2-pipe heat pump system)

Several 2-pipe heat pump units are required for differing air conditioning requirements in one building.

SetFree FSXN (modular)



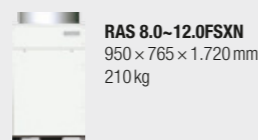
2-pipe heat pump system



Operate as a heat recovery system and 2-pipe heat pump - joint unit

- 8 to 54 hp
- 24 modules (outdoor unit: 6 models)

The heat recovery system and the 2-pipe heat pump system cannot be switched after installation is complete.



RAS 8.0-12.0FSXN
950 × 765 × 1.720 mm
210 kg



RAS 14.0-18.0FSXN
1.210 × 765 × 1.720 mm
295 kg (14-16PS)/315 kg (18PS)

Combination options

PS	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	
RAS 8.0-12.0FSXN	1x	1x	1x	-	-	-	2x	1x	1x	1x	-	-	-	-	-	2x	2x	2x	1x	1x	1x				
RAS 14.0-18.0FSXN	-	-	-	1x	1x	1x	-	1x	1x	1x	2x	2x	2x	2x	2x	1x	1x	1x	2x	2x	2x	3x	3x	3x	

Flexible Programming

Examples: inputs and outputs on the FSXN series

We are the only company on the market offering flexible programming of input and output signals for the Set Free systems. The FSXN has, for example, three input signals, which can be programmed on the circuit board of the outdoor unit. Of the nine input signals, three can be selected and configured. In addition, two of the four output signals can be programmed and fixed.

The signals can be changed at any time and the corresponding needs and requirements can be adjusted. So you get customised control signals that are precisely tailored to the environment.

Available ports

The system has the following input and output ports:

Contents	Configuration of the ports on the outdoor unit circuit boards
Inputs	1 Contact 1-2 on CN17
	2 Contact 2-3 on CN17
	3 Contact 1-2 on CN18
Outputs	1 Contact 1-2 on CN16
	2 Contact 1-3 on CN16

Variable configuration

The FSXN units have different signals, which are described in the following table. These signals are set on the outdoor unit circuit board.

Input signals:

Number	Output signal	Application
1	Permanent setting heating mode	This signal allows advance permanent setting of the operating mode (heating performance in this case) independently of what the indoor unit requests. This function supports the opportunity of setting a single operating mode.
2	Permanent setting cooling mode	This signal allows advance permanent setting of the operating mode (cooling performance in this case) independently of what the indoor unit requests. This is very advantageous for computer rooms where the cooling mode is required all year round.
3	Requirement	This signal allows you to stop the compressor. The indoor units continue to work on fan.
4	Snow sensor	This solution is of huge benefit in colder regions where snow falls frequently, which can cause the unit to shut down.
5	Enforced stoppage	This signal can be used to stop the compressor and the fan on the indoor and outdoor units. This is a huge advantage in combination with use of an alarm signal in a fire protection system.
6	Current control demand 60/70/80/100 %	This signal facilitates regulation of the power consumption and setting an average consumption to 60/70/80/100 % of the nominal value. This is very advantageous for systems that are connected to an energy management system.
7	Quiet running 1/2/3	Noise reduction by 2 / 5 / 8 dB(A) on the rated value (e.g. for night setback)

Output signals:

Number	Signal	Application
1	Operating signal	This signal acts as an operating signal system. It displays the system operation.
2	Alarm signal	This signal acts as an alarm signal system. It announces a triggered alarm.
3	Compressor ON signal	This signal acts as the operating signal of the compressor.
4	Thaw signal	This signal acts to record the unit's defrost operation signal.

Almost all System Free units have the flexible programming described above. This applies to both outdoor and indoor units. Ask our specialist partners about the exact parameters - they will give you expert advice.



RAS-8-12FSXN



RAS-14-18FSXN

- Choose between 2 & 3-pipe system
- Flexible installation
- Freely combined modular system
- Common inputs / outputs available

Outdoor Units Combi Kit FSXN

These distributors are required to connect external parts. Please see the corresponding datasheets for more details.

Outdoor Units Combi Kit FSXN	2-pipe systems			3-pipe systems		
	MC-20AN	MC-21AN	MC-30AN	MC-20XN	MC-21XN	MC-30XN
Usage	2-pipe systems (cooling or heating)					
Set comprises	Distributor liquid line and gas line					
Total of the nominal capacities (outdoor units)	hp	20~24*	26~36*	38~54*		
Number of outdoor units		2	2	3		
Refrigerant piping length maximum	m	10 m (branch - outdoor unit) 0.1 m (height difference between outdoor units)				
Configuration		CU pipe flow-enhancing refrigerant distributor; reductions can also be soldered in				

Distribution boxes Set Free FSXN (3-pipe system)

Distribution boxes Set Free FSXN (3-pipe system)		CH-6.0N1	CH-10.0N1
Connectable capacity	hp	0,8~6,0*	6,1~10,0*
Number of indoor units (min.-max.)		1~7	1~8
Power supply 50 Hz	V/Ph	230/1	230/1
Power input (fuse protection time-lag)	W	20	20
Absicherung träge	A	10	10
Dimensions (h x w x d)	mm	191 x 301 x 214	191 x 301 x 214
Weight	kg	7	7
Sound pressure level ¹	dB(A)	to be confirmed	to be confirmed
Usage limitations		Only suitable for use in closed and noise-insensitive rooms	
Refrigeration system		For R410A - valves with step motor - capillary tube	
Refrigeration system design (connections)		To outside 2 and to inside 1. The liquid line is not connected.	
Refrigerant piping length maximum	m	30 (indoor unit(s) - box)	10 (indoor unit(s) - box)
Height difference maximum	m	4 (zwischen Inneneinheiten an einer CH-Box) 15 (zwischen CH-Boxen)	
Refrigerant connections flare	mm	3 x 15,9 (5/8") (indoor unit / gas / hot gas line)	19,1 (3/4") (indoor unit / gas / hot gas line)

¹ Sound pressure level measured at a distance of 1.5 m (measured in an anechoic chamber without reflections).

* hp = total power factors for indoor units.

All indoor units connected to this box have the same operating mode. The unit should not be installed in a noise-sensitive zone.

The outdoor unit A must be positioned as the first unit (after the indoor units), B as the second and C as the third. Additionally, the gas line between the outdoor units must be on a downward slope to the first distributor. If the outdoor units are more than 2 m apart, then an oil siphon (height 200 mm) must be integrated into the gas line between each outdoor unit. You must follow all other guidelines in the Installation Manual.

¹ Nominal cooling capacity at room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Nominal heating capacity at room temp. 20 °C and ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ Cooling performance is generally not advised for individual indoor units (plant rooms) during winter (WT too high=> this can lead to control problems. The nominal cooling capacity must be triggered for at least 50 %). For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

⁵ If the refrigerant piping length after the first distributor exceeds 40 m or to an indoor unit 30 m or the whole network exceeds 300 m, then the maximum number of indoor units is limited. A maximum refrigerant piping length of up to 90 m behind the first distributor is only permitted if the number of pre-distributors does not exceed 1 and the ratio of the piping runs is similar (maximum 40 % to 60 %). The number of pre-distributors is not limited if the outgoing piping runs do not exceed 30 m. If individual piping runs are between 30~40 m long, a maximum of 2 pre-distributors may be used.

* hp = total power factors for indoor units.

Other measuring conditions: measuring on connection of indoor units at the same capacity as the outdoor unit (i.e. of 100 %). The efficiency is specified for when all devices cool or heat. Energy savings of up to 50 % are possible with simultaneous cooling or heating (only with CH boxes).

Outdoor units: heat pumps FSXN 400 V / 3 phase **NEW**

Outdoor unit Set Free FSXN		RAS-8FSXN	RAS-10FSXN	RAS-12FSXN
Cooling capacity ¹	kW	22,4	28,0	33,5
Heating capacity ²	kW	25,0	31,5	37,5
Number of indoor units (limited ⁵)		2~13 (8*)	2~16 (10*)	2~19 (10*)
Nominal power input min.-max. (hp)	%	50~130 % (4~10,4*)	50~130 % (5~13,0*)	50~130 % (6~15,6*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	5,82/6,0	7,39/7,66	9,82/10,42
Efficiency EER/COP (100 %)	W/W	3,85/4,17	3,79/4,11	3,41/3,60
Operating current cooling/heating (max.)	A	9,3/9,6 (12)	11,9/12,3 (16)	15,7/16,7 (22)
Rec. fuse protection time-lag (starting current)	A	20 (8)	20 (8)	25 (8)
Outer dimensions (h x w x d)	mm	1.720 x 950 x 765	1.720 x 950 x 765	1.720 x 950 x 765
Net weight unit (refrigerant charge R410A)	kg	210 (6,5)	210 (6,5)	210 (7,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	58/60	58/60	60/62
Outdoor fan air flow rate (max.)	m³/h	9.300	10.200	10.500
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB		
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve		
Refrigeration system design		2 or 3-pipe system: simultaneous cooling and heating is only possible in combination with CH boxes.		
Refrigerant piping length maximum (limited ⁵)	m	165 indoor - outdoor, 1.000 (300) whole network, 90 (40) after first branch, 40 (30) branch - inside		
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)		
Pipe connections (FL/SL/HG)	mm	9,53/19,10/15,88	9,53/22,20/19,05	12,70/25,40/22,2

Outdoor unit Set Free FSXN		RAS-14FSXN	RAS-16FSXN	RAS-18FSXN
Cooling capacity ¹	kW	40,0	45,0	50,0
Heating capacity ²	kW	45,0	50,0	56,0
Number of indoor units (limited ⁵)		2~23 (16*)	2~26 (16*)	2~26 (16*)
Nominal power input min.-max. (hp)	%	50~130 % (7~18,2*)	50~130 % (8~20,8*)	50~130 % (9~23,4*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	12,31/11,57	13,93/12,82	14,84/14,70
Efficiency EER/COP (100 %)	W/W	3,25/3,89	3,23/3,90	3,37/3,81
Operating current cooling/heating (max.)	A	20,2/18,8 (26)	22,6/20,8 (29)	24,1/23,8 (31)
Rec. fuse protection time-lag (starting current)	A	35 (95)	35 (95)	35 (113)
Outer dimensions (h x w x d)	mm	1.720 x 1.210 x 765	1.720 x 1.210 x 765	1.720 x 1.210 x 765
Net weight unit (refrigerant charge R410A)	kg	295 (9,0)	295 (9,0)	315 (10,5)
Sound pressure level outside ³ (cooling/heating)	dB(A)	62/64	62/64	63/65
Outdoor fan air flow rate (max.)	m³/h	10.700	10.700	10.700
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB		
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve		
Refrigeration system design		2 or 3-pipe system: simultaneous cooling and heating is only possible in combination with CH boxes.		
Refrigerant piping length maximum (limited ⁵)	m	165 indoor - outdoor, 1.000 (300) whole network, 90 (40) after first branch, 40 (30) branch - inside		
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)		
Pipe connections (FL/SL/HG)	mm	12,7/25,4/22,2	12,7/28,6/22,2	15,9/28,6/22,2

Measuring conditions see page 34



- Choose between 2 & 3-pipe system
- Flexible installation
- Freely combined modular system
- Common inputs / outputs available



Outer parts can be combined

Outdoor units combi-kit FSXN outdoor units: heat pumps FSXN 400 V / 3 phase **NEW**

System combination FSXN		RAS-20FSXN	RAS-22FSXN	RAS-24FSXN	RAS-26FSXN	RAS-28FSXN
Outdoor unit Set Free FSXN		RAS-8FSXN	RAS-8FSXN	RAS-10FSXN	RAS-12FSXN	RAS-14FSXN
Outdoor unit Set Free FSXN		RAS-12FSXN	RAS-14FSXN	RAS-14FSXN	RAS-14FSXN	RAS-14FSXN
Rohrleitungs-Verbindungs-Kit FSXN		MC-20AN (2-pipe system) or MC-20XN (3-pipe system)			MC-21AN (2-pipe) or MC-21XN (3-pipe)	
Cooling capacity ¹	kW	56,0	61,5	69,0	73,0	80,0
Heating capacity ²	kW	63,0	69,0	77,5	82,5	90,0
Number of indoor units (limited ³)		2~33 (18*)	2~36 (20*)	2~40 (26*)	2~43(26*)	2~47 (32*)
Nominal power input min.~max. (hp)	%	50~130% (10~26*)	50~130% (11~28,6*)	50~130% (12~31,2*)	50~130% (13~33,8*)	50~130% (14~36,4*)
Power supply 50 Hz	V/Ph	400/3 Each outdoor unit is connected separately. See values for the individual outdoor unit.				
Nominal input capacity system cooling/heating	kW	15,64/16,54	17,00/17,06	20,47/19,94	21,58/21,99	24,62/23,14
Efficiency EER/COP (100%)	W/W	3,58/3,81	3,62/4,04	3,37/3,89	3,38/3,75	3,25/3,89
Rec. fuse protection time-lag (starting current)	A	Each outdoor unit is connected separately. See values for the individual outdoor unit.				
Dimensions system (h x w x d)	mm	1.720 x 1.920 x 765	1.720 x 2.180 x 765	1.720 x 2.180 x 765	1.720 x 2.180 x 765	1.720 x 2.440 x 765
Net weight unit (refrigerant charge R410A)	kg	210 + 210 (13,5)	210 + 295 (15,5)	210 + 295 (15,5)	210 + 295 (16,0)	295 + 295 (18,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	62/64	63/65	63/65	64/66	65/67
Outdoor fan air flow rate (max.)	m ³ /h	19.800	21.000	21.900	22.200	23.400
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB				
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve				
Refrigeration system design		2 or 3-pipe system: simultaneous cooling and heating is only possible in combination with CH boxes.				
Refrigerant piping length maximum (limited ⁵)	m	165 indoor – outdoor, 1.000 (300) whole network, 90 (40) after first branch, 40 (30) branch – inside				
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units) 0,1 (zwischen Außeneinh.)				
Pipe connections system (FL/SL/HG)	mm	15,88/28,6/22,2	15,88/28,6/25,4	15,88/28,6/25,4	19,05/31,75/25,4	19,05/31,75/28,6

System combination FSXN		RAS-30FSXN	RAS-32FSXN	RAS-34FSXN	RAS-36FSXN
Outdoor unit Set Free FSXN		RAS-14FSXN	RAS-16FSXN	RAS-16FSXN	RAS-18FSXN
Outdoor unit Set Free FSXN		RAS-16FSXN	RAS-16FSXN	RAS-18FSXN	RAS-18FSXN
Rohrleitungs-Verbindungs-Kit FSXN		MC-21AN (for 2-pipe systems) or MC-21XN (for 3-pipe systems)			
Cooling capacity ¹	kW	85,0	90,0	95,0	100,0
Heating capacity ²	kW	95,0	100,0	106,0	112,0
Number of indoor units (limited ³)		2~50 (32*)	2~53 (32*)	2~56 (32*)	2~59 (32*)
Nominal power input min.~max. (hp)	%	50~130% (15~39,0*)	50~130% (16~41,6*)	50~130% (17~44,2*)	50~130% (18~46,8*)
Power supply 50 Hz	V/Ph	400/3 Each outdoor unit is connected separately. See values for the individual outdoor unit.			
Nennleistungsaufnahme System Kühlen/Heizen	kW	26,24/24,39	27,86/25,64	28,77/27,52	29,68/29,40
Efficiency EER/COP (100%)	W/W	3,24/3,90	3,23/3,90	3,30/3,85	3,37/3,81
Rec. fuse protection time-lag (starting current)	A	Each outdoor unit is connected separately. See values for the individual outdoor unit.			
Abmessungen System (H x B x T)	mm	1.720 x 2.440 x 765			
Net weight unit (refrigerant charge R410A)	kg	295 + 295 (18,0)	295 + 295 (18,0)	295 + 315 (19,5)	315 + 315 (21,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	65/67	65/67	66/68	66/68
Outdoor fan air flow rate (max.)	m ³ /h	23.400	23.400	23.400	23.400
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB			
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve			
Refrigeration system design		2 or 3-pipe system: simultaneous cooling and heating is only possible in combination with CH boxes.			
Refrigerant piping length maximum (limited ⁵)	m	165 indoor – outdoor, 1.000 (300) whole network, 90 (40) after first branch, 40 (30) branch – inside			
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units), 0,1 (zwischen Außeneinh.)			
Rohrleitungsanschlüsse System (FL/SL/HG)	mm	19,05/31,75/28,6	19,05/31,75/28,6	19,05/31,75/28,6	19,05/31,75/28,6

Measuring conditions see page 34



Outer parts can be combined

- Choose between 2 & 3-pipe system
- Flexible installation
- Freely combined modular system
- Common inputs / outputs available

Outdoor units combi-kit FSXN outdoor units: heat pumps FSXN 400 V / 3 phase **NEW**

System combination FSXN		RAS-38FSXN	RAS-40FSXN	RAS-42FSXN	RAS-44FSXN	RAS-46FSXN
Outdoor unit Set Free FSXN		RAS-12FSXN	RAS-12FSXN	RAS-12FSXN	RAS-12FSXN	RAS-12FSXN
Outdoor unit Set Free FSXN		RAS-12FSXN	RAS-12FSXN	RAS-12FSXN	RAS-14FSXN	RAS-16FSXN
Outdoor unit Set Free FSXN		RAS-14FSXN	RAS-16FSXN	RAS-18FSXN	RAS-18FSXN	RAS-18FSXN
Rohrleitungs-Verbindungs-Kit FSXN		MC-30AN (for 2-pipe systems) or MC-30XN (for 3-pipe systems)				
Cooling capacity ¹	kW	109,0	112,0	118,0	125,0	132,0
Heating capacity ²	kW	118,0	125,0	132,0	140,0	145,0
Number of indoor units (limited ³)		4~64 (38*)	4~64 (38*)	4~64 (38*)	4~64 (38*)	4~64 (38*)
Nominal power input min.~max. (hp)	%	50~130% (19~49,4*)	50~130% (20~52,0*)	50~130% (21~54,6*)	50~130% (22~57,2*)	50~130% (23~59,8*)
Power supply 50 Hz	V/Ph	400/3 Each outdoor unit is connected separately. See values for the individual outdoor unit.				
Nennleistungsaufnahme System Kühlen/Heizen	kW	33,12/30,47	33,57/33,66	35,52/36,20	38,20/37,35	41,78/39,04
Efficiency EER/COP (100%)	W/W	3,29/3,87	3,34/3,71	3,32/3,65	3,27/3,75	3,16/3,71
Rec. fuse protection time-lag (starting current)	A	Each outdoor unit is connected separately. See values for the individual outdoor unit.				
Abmessungen System (H x B x T)	mm	1.720 x 3.150 x 765	1.720 x 3.150 x 765	1.720 x 3.150 x 765	1.720 x 3.410 x 765	1.720 x 3.410 x 765
Net weight unit (refrigerant charge R410A)	kg	210+210+295 (23,0)	210+210+295 (23,0)	210+210+315 (24,5)	210+295+315 (26,5)	210+295+315 (26,5)
Sound pressure level outside ³ (cooling/heating)	dB(A)	66/68	66/68	66/68	67/69	67/69
Outdoor fan air flow rate (max.)	m ³ /h	32.700	32.700	32.700	33.900	33.900
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB				
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve				
Refrigeration system design		2 or 3-pipe system: simultaneous cooling and heating is only possible in combination with CH boxes.				
Refrigerant piping length maximum (limited ⁵)	m	165 indoor – outdoor, 1.000 (300) whole network, 90 (40) after first branch, 40 (30) branch – inside				
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units) 0,1 (zwischen Außeneinh.)				
Rohrleitungsanschlüsse System (FL/SL/HG)	mm	19,05/38,1/31,75	19,05/38,1/31,75	19,05/38,1/31,75	19,05/38,1/31,75	19,05/38,1/31,75

Measuring conditions see page 34



- Small footprint
- Side air outlet
- 2-pipe system



Outdoor units: heat pumps MINI FSVNE 230 V/1 phase, FSN 400V/3 phase

Outdoor unit Mini Set Free		RAS-3FSVNE	RAS-4FSVNE	RAS-5FSVNE	RAS-5FSN
Cooling capacity ¹ (control range)	kW	8,0 (2,2-8,5)	11,2 (2,2-11,9)	14,0 (2,2-14,9)	14,0 (2,2-14,4)
Heating capacity ² (control range)	kW	9,0 (2,5-10,2)	12,5 (2,5-14,1)	16,0 (2,5-18,1)	16,0 (2,5-18,5)
Number of indoor units min.-max.		1-4	1-6	1-7	1-8
Nominal power input min.-max. (hp)	%	50-130 % (1,5-3,9*)	50-130 % (2-5,2*)	50-130 % (2,5-6,5*)	50-130 % (2,5-6,5*)
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	400/3
Nominal power consumption (cooling/heating)	kW	2,22/2,47	3,13/3,19	3,94/4,11	4,63/4,43
Energy efficiency grade (cooling/heating)		A/A	A/A	A/A	-/-
Efficiency EER/COP (100 %)	W/W	3,60/3,64	3,58/3,92	3,55/3,89	3,02/3,61
Operating current cooling/heating (max.)	A	10,0/11,5 (25,0)	14,3/16,4 (32,0)	18,0/21,4 (32,0)	7,3/7,0 (9,6)
Fuse protection time-lag (starting current)	A	25 (7)	32 (11)	32 (16)	16 (8)
Outer dimensions (h x w x d)	mm	800 x 850 x 315	1.240 x 950 x 315	1.240 x 950 x 315	1.645 x 630 x 750
Net weight unit (refrigerant charge R410A)	kg	66 (1,75)	98 (2,8)	102 (3,0)	160 (5,4)
Sound pressure level outside ³ (cooling/heating)	dB(A)	46/47	47/48	50/51	52/54
Outdoor fan air flow rate (max.)	m ³ /h	3.120	5.280	5.940	5.220
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB			
Refrigeration system		R410A, electr. exp. valve, liquid separator, sub-cooler cycle			
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.			
Refrigerant piping length maximum inside - outside (total)	m	50 (65)	75 (135)	75 (135)	150 (300)
Refrigerant piping length maximum indoor unit - branch	m	10	10	10	40
Height difference maximum	m	25 (indoor - outdoor), 10 (between indoor units), 5 (indoor unit - branch)			50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)
Pipe connections (FL/SL)	mm	9,53 mm/15,88 mm	9,53 mm/15,88 mm	9,53 mm/15,88 mm	9,53 mm/15,90 mm

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heiznennleistung bei: Raumtemp. 20 °C u. Außenlufttemp. 7 °C (6 °C WB); Rohrlänge 7,5 m; Höhenunterschied 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)

⁴ In principle, cooling performance from individual indoor units (plant rooms) is not advised in winter (WT too big => it can lead to control problems. At least 50 % of the nominal cooling capacity must be triggered.). For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

* hp = total power factors for indoor units.

Other measuring conditions: measuring on connection of indoor units at the same capacity as the outdoor unit (so at 100 %).



- 2-pipe system
- Small footprint
- Common inputs/outputs available
- max. 10 indoor units

Outdoor units: heat pumps FSNM 400 V/3 phase

Outdoor unit Set Free FSNM		RAS-8FSNM	RAS-10FSNM	RAS-12FSNM
Cooling capacity ¹ (control range)	kW	22,4 (2,2-22,4)	28,0 (2,2-28,0)	33,5 (2,2-33,5)
Heating capacity ² (control range)	kW	25,0 (2,5-25,0)	31,5 (2,5-31,5)	37,5 (2,5-37,5)
Number of indoor units min.-max.		2-10	2-10	2-10
Nominal power input min.-max. (hp)	%	50-130 % (4-10,4*)	50-130 % (5-13,0*)	50-130 % (6-15,6*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	6,3/5,9	8,3/7,8	10,7/9,9
Efficiency EER/COP (100 %)	W/W	3,56/4,24	3,37/4,04	3,13/3,79
Operating current cooling/heating (max.)	A	10,3/9,6 (14,0)	13,6/12,4 (18,0)	17,3/16,0 (23,0)
Fuse protection time-lag (starting current)	A	20 (8)	20 (8)	25 (8)
Outer dimensions (h x w x d)	mm	1.650 x 1.100 x 390	1.650 x 1.100 x 390	1.650 x 1.100 x 390
Net weight unit (refrigerant charge R410A)	kg	170 (5,0)	170 (5,5)	173 (6,5)
Sound pressure level outside ³ (cooling/heating)	dB(A)	53/55	56/58	59/61
Outdoor fan air flow rate (max.)	m ³ /h	7.260	9.000	9.780
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB		
Refrigeration system		R410A, electr. exp. valve, liquid separator, sub-cooler cycle		
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.		
Refrigerant piping length maximum	m	100 (indoor - outdoor), 250 (whole network), 40 (after first branch)		
Height difference maximum	m	40 (outdoor unit higher), 30 (outdoor unit lower), 15 (between indoor units)		
Pipe connections (FL/SL)	mm	9,53 mm/19,05 mm		12,7 mm/22,2 mm / 12,7 mm/25,4-28,6 mm

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections)

⁴ In principle, cooling performance from individual indoor units (plant rooms) is not advised in winter (WT too big => it can lead to control problems. At least 50 % of the nominal cooling capacity must be triggered.). For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

* hp = total power factors for indoor units.

Other measuring conditions: measuring on connection of indoor units at the same capacity as the outdoor unit (so at 100 %).



- 2-pipe system
- Very efficient
- Long pipe distances
- Common in/outputs



RAS-8FSN2
RAS-10FSN2
RAS-12FSN2



RAS-14FSN2
RAS-16FSN2
RAS-18FSN2
RAS-20FSN2
RAS-24FSN2

Outdoor units: heat pumps FSN2 400 V/3 phase

Outdoor unit Set Free FSN2		RAS-8FSN2	RAS-10FSN2	RAS-12FSN2	RAS-14FSN2
Cooling capacity ¹ (control range)	kW	22,4 (2,2–23,1)	28,0 (2,2–28,8)	33,5 (2,2–33,5)	40,0 (2,2–42,0)
Heating capacity ² (control range)	kW	25,0 (2,5–27,5)	31,5 (2,5–33,1)	37,5 (2,5–37,5)	45,0 (2,5–47,3)
Number of indoor units min.–max.		2–13	2–16	2–16	2–20
Nominal power input min.–max. (hp)	%	50–130 % (4–10,4*)	50–130 % (5–13,0*)	50–130 % (6–15,6*)	50–130 % (7–18,2*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	5,5/5,3	6,9/6,8	8,7/9,4	10,2/9,9
Efficiency EER/COP (100 %)	W/W	4,10/4,72	4,04/4,65	3,86/4,01	3,91/4,54
Operating current cooling/heating (max.)	A	9,0/8,7 (12,0)	11,4/11,2 (15,0)	14,2/15,3 (20,0)	17,2/16,7 (22,0)
Rec. fuse protection time-lag (starting current)	A	20 (8)	25 (8)	25 (8)	35 (54)
Outer dimensions (h × w × d)	mm	1.670 × 1.080 × 830	1.670 × 1.080 × 830	1.670 × 1.080 × 830	1.670 × 1.850 × 830
Net weight unit (refrigerant charge R410A)	kg	275 (10,0)	275 (10,5)	275 (11,0)	470 (18,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	56/58	58/60	60/62	58/60
Outdoor fan air flow rate (max.)	m ³ /h	8.280	10.320	11.100	16.200
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB			
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve			
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.			
Refrigerant piping length maximum	m	165 (indoor – outdoor), 1.000 (whole network), 90 ⁵ (after first branch)			
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)			
Pipe connections (FL/SL)	mm	9,53/19,1	9,53/22,2	12,7/25,4	12,7/25,4

Outdoor unit Set Free FSN2		RAS-16FSN2	RAS-18FSN2	RAS-20FSN2	RAS-24FSN2
Cooling capacity ¹ (control range)	kW	45,0 (2,2–47,3)	50,4 (2,2–52,9)	56,0 (2,2–58,8)	69,0 (2,2–71,1)
Heating capacity ² (control range)	kW	50,0 (2,5–51,5)	56,0 (2,5–58,8)	63,0 (2,5–64,9)	77,5 (2,5–77,5)
Number of indoor units min.–max.		2–20	2–20	2–20	2–27
Nominal power input min.–max. (hp)	%	50–130 % (8–20,8*)	50–130 % (9–23,4*)	50–130 % (10–26*)	50–130 % (12–31,2*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	11,5/11,3	13,2/12,5	15,2/15,3	19,1/18,8
Efficiency EER/COP (100 %)	W/W	3,90/4,44	3,83/4,47	3,69/4,13	3,61/4,13
Operating current cooling/heating (max.)	A	19,4/18,9 (25,0)	22,5/21,4 (29,0)	25,7/25,8 (34,0)	32,1/31,5 (43,0)
Rec. fuse protection time-lag (starting current)	A	35 (54)	35 (59)	50 (59)	63 (84)
Outer dimensions (h × w × d)	mm	1.670 × 1.850 × 830	1.670 × 1.850 × 830	1.670 × 1.850 × 830	1.670 × 1.850 × 830
Net weight unit (refrigerant charge R410A)	kg	470 (18,0)	540 (19,5)	540 (19,5)	580 (20,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	58/60	62/64	62/64	62/64
Outdoor fan air flow rate (max.)	m ³ /h	16.200	21.600	21.600	21.600
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB			
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve			
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.			
Refrigerant piping length maximum	m	165 (indoor – outdoor), 1.000 (whole network), 90 ⁵ (after first branch)			
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)			
Pipe connections (FL/SL)	mm	12,7/28,6	15,9/28,6	15,9/28,6	15,9/28,6

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ In principle, cooling performance from individual indoor units (plant rooms) is not advised in winter (WT too big => it can lead to control problems. At least 50 % of the nominal cooling capacity must be triggered.). For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

⁵ The biggest distance of 90 m relates to the installation of a pre-distributor with a branch division of a maximum 40 % to 60 %. The length reduces to 40 m for greater differences.

* hp = total power factors for indoor units.

Other measuring conditions: measuring on connection of indoor units at the same capacity as the outdoor unit (so at 100 %).



RAS-28FSN2
RAS-32FSN2
RAS-36FSN2
RAS-42FSN2



RAS-48FSN2

- 2-pipe system
- Very efficient
- Long pipe distances
- Common in/outputs

Outdoor units: heat pumps FSN2 400 V/3 phase

Outdoor unit Set Free FSN2		RAS-28FSN2	RAS-32FSN2	RAS-36FSN2
Cooling capacity ¹ (control range)	kW	80,0 (2,2–84,0)	90,0 (2,2–94,5)	101,0 (2,2–106,1)
Heating capacity ² (control range)	kW	90,0 (2,5–90,0)	100,0 (2,5–103,0)	113,0 (2,5–113,0)
Number of indoor units min.–max.		2–31	2–32	4–34
Nominal power input min.–max. (hp)	%	50–130 % (14–36,4*)	50–130 % (16–41,6*)	50–130 % (18–46,8*)
Power supply 50 Hz	V/Ph	400/3	400/3	400/3
Nominal power consumption (cooling/heating)	kW	21,2/21,5	24,0/23,9	27,6/27,6
Efficiency EER/COP (100 %)	W/W	3,77/4,18	3,75/4,14	3,66/4,09
Operating current cooling/heating (max.)	A	35,4/35,9 (48,0)	40,3/40,6 (54,0)	46,1/46,1 (62,0)
Rec. fuse protection time-lag (starting current)	A	63 (90)	80 (95)	80 (95)
Outer dimensions (h × w × d)	mm	1.670 × 2.940 × 830	1.670 × 2.940 × 830	1.670 × 2.940 × 830
Net weight unit (refrigerant charge R410A)	kg	780 (27,0)	840 (28,5)	840 (28,5)
Sound pressure level outside ³ (cooling/heating)	dB(A)	62/64	62/64	64/66
Outdoor fan air flow rate (max.)	m ³ /h	31.500	31.500	34.920
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB		
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve		
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.		
Refrigerant piping length maximum	m	165 (indoor – outdoor), 1.000 (whole network), 90 ⁵ (after first branch)		
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)		
Pipe connections (FL/SL)	mm	19,1/31,8	19,1/31,8	19,1/38,1

Outdoor unit Set Free FSN2		RAS-42FSN2	RAS-48FSN2
Cooling capacity ¹ (control range)	kW	118,0 (2,2–121,5)	135,0 (2,2–139,1)
Heating capacity ² (control range)	kW	132,0 (2,5–132,0)	150,0 (2,5–150,0)
Number of indoor units min.–max.		5–42	5–46
Nominal power input min.–max. (hp)	%	50–130 % (21–54,6*)	50–130 % (24–62,4*)
Power supply 50 Hz	V/Ph	400/3	400/3
Nominal power consumption (cooling/heating)	kW	33,9/32,7	39,2/37,8
Efficiency EER/COP (100 %)	W/W	3,48/4,04	3,44/3,97
Operating current cooling/heating (max.)	A	56,9/54,9 (77,0)	65,6/63,2 (89,0)
Rec. fuse protection time-lag (starting current)	A	100 (103)	100 (110)
Outer dimensions (h × w × d)	mm	1.670 × 2.940 × 830	1.670 × 3.870 × 830
Net weight unit (refrigerant charge R410A)	kg	915 (30,0)	1.080 (35,0)
Sound pressure level outside ³ (cooling/heating)	dB(A)	64/66	64/66
Outdoor fan air flow rate (max.)	m ³ /h	34.920	39.600
Working range outdoor unit ⁴ (max.)	°C	Cooling: -5 °C ~ +43 °C DB; heating: -20 °C ~ +15 °C WB	
Refrigeration system		R410A, electr. exp. valve, liquid separator, accumulator, liquid sub-cooling via exp. valve	
Refrigeration system design		2-pipe system: simultaneous cooling and heating is not possible.	
Refrigerant piping length maximum	m	165 (indoor – outdoor), 1.000 (whole network), 90 ⁵ (after first branch)	
Height difference maximum	m	50 (outdoor unit higher), 40 (outdoor unit lower), 15 (between indoor units)	
Pipe connections (FL/SL)	mm	19,1/38,1	19,1/38,1

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ In principle, cooling performance from individual indoor units (plant rooms) is not advised in winter (WT too big => it can lead to control problems. At least 50 % of the nominal cooling capacity must be triggered.). For cooling performance in ambient air temperatures up to -15 °C the outdoor unit must be set up and configured with wind protection.

⁵ The biggest distance of 90 m relates to the installation of a pre-distributor with a branch division of a maximum 40 % to 60 %. The length reduces to 40 m for greater differences.

* hp = total power factors for indoor units.

Other measuring conditions: measuring on connection of indoor units at the same capacity as the outdoor unit (so at 100 %).

System Free Indoor Units

System Free indoor units

The System Free indoor units give you more freedom in the planning and installation of climate solutions. All indoor units can be connected to any Utopia or Set Free outdoor unit. Any combination of indoor and outdoor units is possible if the power

factors match one another. Control is effected centrally, generally via the internal communication H-Link II. Combine different types of indoor units for an optimum air conditioning concept - this is the freedom of System Free.



- Infrared receiver built in
- Common in/outputs



RPK-1.0FSN2M
RPK-1.5FSN2M



RPK-2.0FSN2M



RPK-2.5FSN2M
RPK-3.0FSN2M
RPK-4.0FSN2M

Wall-Mounted Units



Stylish design

To meet today's aesthetic demands, this line has been developed with an attractive front panel. The front side air intake that usually affects the visual appearance is now on the top of the unit and, thus, is no longer visible.

Compact and light-weight design

Designed with ease of installation in mind this new space saving model also uses a high proportion of light weight parts reducing the unit weight. The new 1.0hp and 1.5hp models have a reduced weight of just 10kg.

Wireless or wired control

The indoor unit is equipped with a wireless receiver kit inside as a standard accessory. The wired remote control switch, PC-ART is also applicable. Easy switching from wireless to wired remote controller is possible by using the dip switch built into the receiver part.

Indoor units: wall-mounted units

Wall Mounted units Set Free		RPK-1.0FSN2M	RPK-1.5FSN2M	RPK-2.0FSN2M
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	30	30	30
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	280 x 780 x 210	280 x 780 x 210	295 x 1.030 x 208
Net weight indoor unit	kg	10,0	10,0	12,0
Sound pressure level inside ³ (min.-max.)	dB(A)	34/36/38	36/38/40	37/39/41
Indoor fan air flow rate (min.-max.)	m ³ /h	420/480/600	540/600/660	600/720/840
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A or other		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)

Wall Mounted units Set Free		RPK-2.5FSN2M	RPK-3.0FSN2M	RPK-4.0FSN2M
Cooling capacity ¹ (Utopia outdoor units)	kW	6,3	7,1	10,0
Heating capacity ² (Utopia outdoor units)	kW	7,0	8,0	11,2
Cooling capacity ¹ (Set Free outdoor units)	kW	7,1	8,0	11,2
Heating capacity ² (Set Free outdoor units)	kW	8,5	9,0	12,5
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	40	40	60
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	333 x 1.150 x 245	333 x 1.150 x 245	333 x 1.150 x 245
Net weight indoor unit	kg	18,0	18,0	18,0
Sound pressure level inside ³ (min.-max.)	dB(A)	37/40/43	37/40/43	43/46/49
Indoor fan air flow rate (min.-max.)	m ³ /h	840/960/1.020	840/960/1.020	1.020/1.200/1.320
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A or other		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1 m beneath the unit and at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ When operating with remote control switch, the infrared receiver on the indoor unit must be deactivated => DIP switch on the infrared receiver. No modification is required when operating with wireless remote control switch PC-LH3A, as the receiver is already built in.

- Infrared receiver built-in
- Quiet operation
- Suitable for hotel use
- Common in/outputs



RPK-1.0FSNH2M
RPK-1.5FSNH2M



EV-1.5N (separates Exp.-Ventil)⁴

Wall-Mounted Units (external expansion valve)



Stylish design

This line has been developed with an aesthetically pleasing front panel. The front side air intake that usually affects the visual appearance is now on the top of the unit and, thus, is no longer visible. It is adapted to the design of the standard series.

Compact and light-weight design

This new model is space-saving and weighs a maximum 10kg - this makes installation particularly simple.

Quiet operation

Conical blade ventilators guarantee a high airflow due to their slow rotation. Trapezoid blades reduce air flow resistance - both ensure low noise levels.

External expansion valve for flexible installation

Thanks to the compact design of the Wall Mounted unit, this model also allows you to realise systems that require a minimal injection noise.

Wireless or wired control

The indoor unit is equipped with a wireless receiver kit inside as a standard accessory. The PC-ART remote control switch is also available. Exchange is easy thanks to the dip switch in the receiver part. Using the wireless remote control switch means that all error messages are shown on the LED display on the indoor unit.

Indoor units: wall-mounted units with external expansion valve

Wall Mounted units Set Free with ext. exp. valve		RPK-1.0FSNH2M + EV-1.5N ⁴	RPK-1.5FSNH2M + EV-1.5N ⁴
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6
Heating capacity ² (Utopia outdoor units)	kW	-	4,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8
Casing exp. valve		Galvanised steel plate	
Power supply 50 Hz	V/Ph	230/1, exp. valve is controlled via inner section	
Power input	W	30	30
Fuse protection indoor	A	10	10
Inner dimensions (h x w x d)	mm	280 x 780 x 210	280 x 780 x 210
Dimensions exp. valve (h x w x d)	mm	164 x 201 x 62	164 x 201 x 62
Sound pressure level inside ³ (min.-max.)	dB(A)	34/36/38	36/38/40
Indoor fan air flow rate (min.-max.)	m ³ /h	420/480/600	540/600/660
Remote control (optional) ⁵		Remote control switch PC-ART, wireless remote control switch PC-LH3A or other	
Refrigeration system		R410A Refrigerant, electronic exp. valve außerhalb der Inneneinheit	
Liquid line indoor => exp. valve	inches	3/8" (9,53 mm)	3/8" (9,53 mm)
Liquid line exp. valve => system	inches	1/4" (6,35 mm)	1/4" (6,35 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)
Connection cable (indoor => exp. valve)		Refrigerant piping length max. 3-5m, height difference max. 2m, cable length 5m	
Special features		The exp. valve should be installed in a noise-insensitive zone*	

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1 m beneath the unit and at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ Must be ordered separately at time of ordering.

⁵ When operating with remote control switch, the infrared receiver on the indoor unit must be deactivated => DIP switch on the infrared receiver. No modification is required when operating with wireless remote control switch PC-LH3A, as the receiver is already built in.

* The exp. valve should be installed in a noise-insensitive zone inside. The indoor unit must not be operated without exp. valve. The installation position of the exp. valve must not be altered. Wall or ceiling mounting is possible using the installation bracket. The gas line is not connected to the exp. valve. The top-up quantity for the injection pipe 3/8" (9.53 mm) is then 50 g/m.

- Euro-grid
- Condensation pump
- Common in/outputs



RCIM-1.0FSN2 (mit Blende P-N23WAM)
RCIM-1.5FSN2 (mit Blende P-N23WAM)
RCIM-2.0FSN2 (mit Blende P-N23WAM)

4-Way Euro-Grid Cassette



The RCIM Mini 4-way cassette indoor unit is quiet and has many advantageous features for installation: adjustable installation height, compact size, low net weight and standardised panel size. Standardised installation positions make piping connections simple.

Quiet to operate

The following table shows the noise level for RCIM.

Model	Air flow rate and noise level dB(A)		
	Low	Medium	High
RCIM-1.0FSN	32	34	36
RCIM-1.5FSN	33	35	38
RCIM-2.0FSN	37	39	42

DC Motor with reduced input and noise

The DC fan motor greatly improves efficiency and reduces electromagnetic noise compared to conventional products that use AC motors – the unit becomes quieter and more efficient. Controlling the rotation speed minimises air turbulence. A magnetic iron rotor and a central winding system reduce the motor's power consumption. These measures have also led to a weight saving of 50%.

Simple installation and maintenance

Thanks to a unit height of just 295 mm and net weight of just 20.5 kg mean the model can be installed in even the smallest space in a suspended ceiling. The panel was standardised to 700 mm squared to make installation easier in grid ceilings. The European standard

ceiling module is 600 mm. The spacing of the suspension pins is 530 mm. They are fixed at each corner of the body. This means the unit can be aligned easily without changing the position of the pins. This makes pipe connections easier. The switch box is located behind the air suction grid. Thus, you can access the individual electrical parts easily and without opening up the ceiling. There is a cover cap on each panel corner, which means you can adjust the height of the unit without removing the panel.

Integrated condensation pump

The delivery height of the condensation pump is 650 mm from the bottom of the device. It works continuously in cooling performance. An end switch automatically switches the indoor unit off if there are problems with the condensation discharge.

Adaptable for high ceiling installations

By incorporating the use of speed-up taps on the motor this model can be adapted for high ceiling (3.5 m high) installations. This feature provides comfortable air conditioning in suburban stores and showrooms.

Speed Setting	Room height	
	RCIM-1.5FSN	RCIM-2.0FSN
Standard	under 2.5 m	under 2.7 m
Speed-up (1)	2.5 - 2.9 m	2.7 - 3.1 m
Speed-up (2)	2.9 - 3.9 m	3.1 - 3.5 m

Indoor units: 4-way euro-grid cassette

4-way euro-grid cassette Set Free		RCIM-1.0FSN2	RCIM-1.5FSN2	RCIM-2.0FSN2
Panel		P-N23WAM	P-N23WAM	P-N23WAM
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	60	70	70
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	295 x 570 x 570	295 x 570 x 570	295 x 570 x 570
Dimensions panel (h x w x d)	mm	35 x 700 x 700	35 x 700 x 700	35 x 700 x 700
Net weight indoor unit	kg	20,5	20,5	20,5
Sound pressure level inside ³ (min.-max.)	dB(A)	32/34/36	33/35/38	37/39/42
Indoor fan air flow rate (min.-max.)	m ³ /h	660/720/780	720/810/900	720/840/960
Delivery height condensation pump	mm	650 mm from the bottom edge of the unit		
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)		
Refrigeration system				
		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1.5 m beneath the unit (measured in an anechoic chamber without reflections).

⁴ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHC must also be retrofitted.

- Larger than grid
- Condensation pump
- Optimised air discharge
- Common in/outputs



RCI-1.0-6.0FSN2E
(mit Blende P-N23WA)

4-Way Cassette



The RCI 4-way cassette is very quiet and compact. It is simple to install and connect thanks to its adjustable installation height, up to 50% lower net weight than before and standardised panel size.

Quiet operation

By using a HI-stream fan (three-dimensionally curved fan) blower efficiency is improved by 20% and the noise level is reduced to 28dB(A) (RCI 1.0 to 2.5).

DC motor reduces energy consumption and noise

The DC motor increases efficiency and reduces electromagnetic interference considerably compared to AC motors. A ferrite magnetic surface-mounted rotor and central winding system reduce the power consumption. Air turbulence is also minimised by controlling the rotation speed.

Simple installation and maintenance

The required ceiling opening has been reduced to 860-910mm. to a maximum height 29kg model can also be installed in the smallest space in a suspended ceiling. The panel was standardised to 950mm squared to make it simple to swap with other models. To this end, suspension pins are fixed at each corner of the unit, so that it can be aligned without changing the position of the pins. This makes pipe connections easier. Thanks to cover caps on each panel corner, the unit's height can be adjusted without removing the panel.

Integrated condensation pump

The delivery height of the condensation pump is 850mm from the bottom of the device. It works continuously in cooling performance. An end switch automatically switches the indoor unit off if there are problems with the condensation discharge.

Adjustability to high ceilings

The model can be adjusted to high ceilings (4.2 m) through an optional increase of the speed-up taps. This function guarantees comfortable air conditioning in public buildings and exhibition rooms.

Speed Setting	Room height					
	1.5 / 2.0 / 2.5 / 3.0 hp			4.0 / 5.0 / 6.0 hp		
	4-way	3-way	2-way	4-way	3-way	2-way
Standard	2.7m	3.0m	3.3m	3.2m	3.6m	4.0m
Speed-up (1)	3.0m	3.3m	-	3.6m	4.0m	4.2m
Speed-up (2)	-	3.6m	-	4.2m	4.3m	-

Indoor units: 4-way cassette

4-way cassette Set Free		RCI-1.0FSN3E	RCI-1.5FSN3E	RCI-2.0FSN3E	RCI-2.5FSN3E
Panel		P-N23NA	P-N23NA	P-N23NA	P-N23NA
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0	6,3
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6	7,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6	7,1
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3	8,5
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	40	50	50	60
Fuse protection indoor	A	10	10	10	10
Inner dimensions (h x w x d)	mm	248 x 840 x 840	248 x 840 x 840	248 x 840 x 840	248 x 840 x 840
Dimensions panel (h x w x d)	mm	37 x 950 x 950	37 x 950 x 950	37 x 950 x 950	37 x 950 x 950
Net weight indoor unit	kg	23,0	23,0	24,0	24,0
Sound pressure level inside ³ (min.-max.)	dB(A)	28/30/32	28/30/32	28/30/32	28/30/32
Indoor fan air flow rate (min.-max.)	m ³ /h	660/720/780	720/840/900	720/840/960	900/1.020/1.200
Delivery height condensation pump	mm	850 mm from the bottom edge of the unit			
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)			
Refrigeration system					
		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

4-way cassette Set Free		RCI-3.0FSN3E	RCI-4.0FSN3E	RCI-5.0FSN3E	RCI-6.0FSN3E
Panel		P-N23NA	P-N23NA	P-N23NA	P-N23NA
Cooling capacity ¹ (Utopia outdoor units)	kW	7,1	10,0	12,5	14,0
Heating capacity ² (Utopia outdoor units)	kW	8,0	11,2	14,0	16,0
Cooling capacity ¹ (Set Free outdoor units)	kW	8,0	11,2	14,0	16,0
Heating capacity ² (Set Free outdoor units)	kW	9,0	12,5	16,0	18,0
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	90	110	140	180
Fuse protection indoor	A	10	10	10	10
Inner dimensions (h x w x d)	mm	298 x 840 x 840	298 x 840 x 840	298 x 840 x 840	298 x 840 x 840
Dimensions panel (h x w x d)	mm	37 x 950 x 950	37 x 950 x 950	37 x 950 x 950	37 x 950 x 950
Net weight indoor unit	kg	26,0	29,0	29,0	29,0
Indoor fan air flow rate (min.-max.)	m ³ /h	1.200/1.380/1.560	1.440/1.680/1.920	1.500/1.740/2.040	1.620/1.920/2.220
Delivery height condensation pump	mm	850 mm from the bottom edge of the unit			
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)			
Refrigeration system					
		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1.5 m beneath the unit (measured in an anechoic chamber without reflections).

⁴ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHN must also be retrofitted.

Optional accessory: fresh air intake PD-75 (diameter 75 mm) max. 120 m³/h with an external pressure of 50 Pa (60 m³/h at 10 Pa).

- Larger than grid
- Condensation pump
- Common in/outputs



RCD-1.0-5.0FSN2 (mit Blende P-N23DWA)

2-Way Cassette



The RCD 2-way cassette produces very little noise, it has a new air panel resulting in a very low profile design.

Quiet operation

By employing a super-high-stream turbo fan (three-dimensional twisted wing with large bore and high efficiency), the wind flow efficiency has been improved by 20% resulting in a noise reduction down to an exceptionally low 30dB(A) (RCD 1.0 to 2.0). It is ideal wherever quiet operation is important.

Low profile design

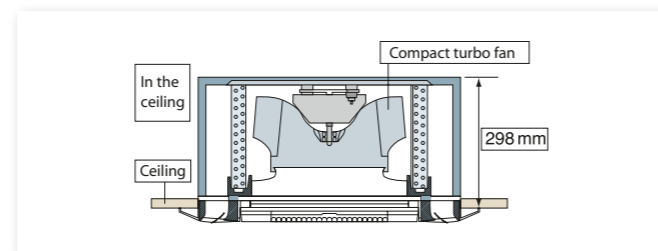
The compact turbo fan simplifies the structure and reduces the height of the unit to 298mm. The unit's low profile design allows easy installation in the most confined spaces inside a ceiling.

An Air panel perfect for any ceiling

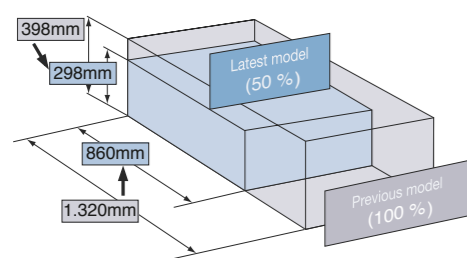
This unit virtually merges with the ceiling; it only protrudes 30mm and provides space for customised panelling allowing the unit to blend perfectly into any ceiling.

Adaptable for high ceiling installations

By incorporating the use of speed-up taps on the motor this model can be adapted for high ceiling installations. This feature provides comfortable air conditioning in suburban stores and showrooms.



Speed Setting	Room height		
	1.5~2.5 hp	3.0/4.0 hp	5 hp
Standard	2.4 m	2.7 m	2.9 m
Speed-up (1)	2.7 m	3.0 m	3.2 m
Speed-up (2)	2.9 m	3.2 m	3.4 m



Indoor units: 2-way cassette

2-way cassette Set Free		RCD-1.0FSN2	RCD-1.5FSN2	RCD-2.0FSN2	RCD-2.5FSN2
Panel		P-N23DNA	P-N23DNA	P-N23DNA	P-N23DNA
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0	6,3
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6	7,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6	7,1
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3	8,5
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	80	80	80	110
Inner dimensions (h x w x d)	mm	298 x 860 x 620	298 x 860 x 620	298 x 860 x 620	298 x 860 x 620
Dimensions panel (h x w x d)	mm	30 x 1.100 x 710	30 x 1.100 x 710	30 x 1.100 x 710	30 x 1.100 x 710
Net weight indoor unit	kg	27,0	27,0	27,0	30,0
Sound pressure level inside ³ (min.-max.)	dB(A)	30/32/34	30/32/35	30/32/35	31/34/38
Indoor fan air flow rate (min.-max.)	m ³ /h	360/420/480	540/660/780	660/780/900	840/960/1.140
Delivery height condensation pump	mm	600 mm from the bottom edge of the unit			
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)			
Refrigeration system		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

2-way cassette Set Free		RCD-3.0FSN2	RCD-4.0FSN2	RCD-5.0FSN2
Panel		P-N23DNA	P-N46DNA	P-N46DNA
Cooling capacity ¹ (Utopia outdoor units)	kW	7,1	10,0	12,5
Heating capacity ² (Utopia outdoor units)	kW	8,0	11,2	14,0
Cooling capacity ¹ (Set Free outdoor units)	kW	8,0	11,2	14,0
Heating capacity ² (Set Free outdoor units)	kW	9,0	12,5	16,0
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	130	140	200
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	298 x 860 x 620	298 x 1.420 x 620	298 x 1.420 x 620
Dimensions panel (h x w x d)	mm	30 x 1.100 x 710	30 x 1.660 x 710	30 x 1.660 x 710
Sound pressure level inside ³ (min.-max.)	dB(A)	31/34/38	33/36/40	36/40/43
Indoor fan air flow rate (min.-max.)	m ³ /h	840/960/1.140	1.260/1.440/1.680	1.500/1.740/2.040
Delivery height condensation pump	mm	600 mm from the bottom edge of the unit		
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1.5 m beneath the unit (measured in an anechoic chamber without reflections).

⁴ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHD must also be retrofitted.

- Specially developed for ceiling mounting
- Space saving design
- Common in/outputs



RPC-2.0-6.0FSN2E

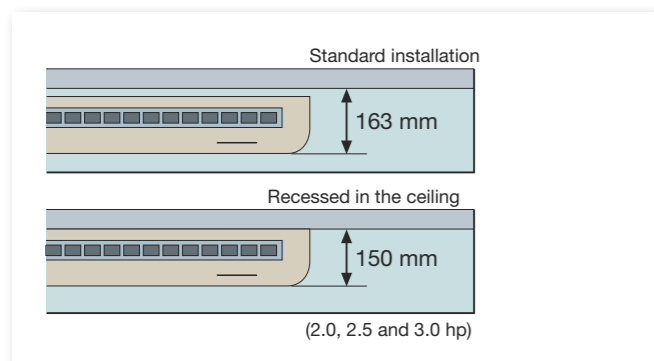
Ceiling-Suspended



The RPC ceiling-mounted unit is easy to install, has an elegant design, automatic louvers and is quiet.

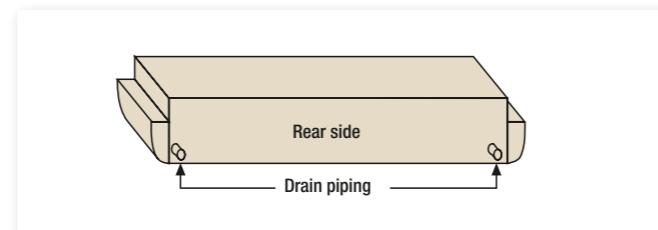
Space saving design – Hitachi's unique feature

An innovative fan and heat exchanger design led to the creation of today's ultra-slim ceiling unit. Fully adjustable mounting brackets facilitate installation of the unit flush with the ceiling, so that just 150 mm (RPC-2.0 to 3.0) protrudes.



Versatile mounting

To expand installation and positioning options, Hitachi has added a second drain pipe connector, one more than conventional units. Refrigeration pipes have also been improved and can now be connected at the left, right or rear of the unit.



Automatic swing fins

A powerful centrifugal fan produces, together with the automatic swing fins, a strong but gentle airflow, which distributes evenly throughout the room and creates comfort quietly.

Indoor units: ceiling-suspended

Ceiling suspended Set Free		RPC-2.0FSN2E	RPC-2.5FSN2E	RPC-3.0FSN2E
Cooling capacity ¹ (Utopia outdoor units)	kW	5,0	6,3	7,1
Heating capacity ² (Utopia outdoor units)	kW	5,6	7,0	8,0
Cooling capacity ¹ (Set Free outdoor units)	kW	5,6	7,1	8,0
Heating capacity ² (Set Free outdoor units)	kW	6,3	8,5	9,0
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	130	130	170
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	163 x 1.094 x 625	163 x 1.314 x 625	163 x 1.314 x 625
Net weight indoor unit	kg	28,0	31,0	31,0
Sound pressure level inside ³ (min.-max.)	dB(A)	38/42/44	41/43/46	42/45/48
Indoor fan air flow rate (min.-max.)	m ³ /h	600/780/900	720/960/1.080	900/1.020/1.260
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

Ceiling suspended Set Free		RPC-4.0FSN2E	RPC-5.0FSN2E	RPC-6.0FSN2E
Cooling capacity ¹ (Utopia outdoor units)	kW	10,0	12,5	14,0
Heating capacity ² (Utopia outdoor units)	kW	11,2	14,0	16,0
Cooling capacity ¹ (Set Free outdoor units)	kW	11,2	14,0	16,0
Heating capacity ² (Set Free outdoor units)	kW	12,5	16,0	18,0
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input fan	W	180	230	230
Fuse protection indoor	A	10	10	10
Inner dimensions (h x w x d)	mm	225 x 1.314 x 625	225 x 1.574 x 625	225 x 1.574 x 625
Net weight indoor unit	kg	35,0	41,0	41,0
Sound pressure level inside ³ (min.-max.)	dB(A)	39/45/49	41/46/49	44/48/50
Indoor fan air flow rate (min.-max.)	m ³ /h	1.140/1.440/1.800	1.260/1.680/2.100	1.620/1.920/2.220
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured 1 m beneath the unit and at a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHZ (for external wall mounting) must also be retrofitted.

- Drain pump
- Adjustable static
- Common in/outputs



RPI-0.8FSN2E
RPI-1.0FSN2E
RPI-1.5FSN2E



RPI-0.8-6.0FSN2E

In the Ceiling



Slim but sturdy design

The RPI has a reinforced structure to give the unit more rigidity when it is suspended. It also only requires a small amount of space due to the reduction in overall dimensions and has one of the lowest heights on the market, allowing it to be installed in practically any existing false ceiling or ducted space without substantial modification.

Adjustable static pressure

The unit has three static pressure settings and can be adapted to suit the installation requirements. The high static pressure setting can be used for longer duct installations and the low static pressure setting for those installations with short duct lengths.

Drain pump as standard (only for RPI-1.0-6.0 FSN2E)

The units are equipped with an automatic internal drain pump, which removes the accumulated condensation from the drain pan. It works continuously in cooling performance. An electronic sensor monitors the water level activating the pump only when necessary.

Intake filter as standard

To allow for situations where there is little or no intake ducting the RPI unit is equipped with an intake filter as standard. If the unit is connected to a longer duct it is possible to remove the filter or it can be left in place. The filter can be easily accessed and removed from the bottom for cleaning and maintenance without having to remove any ducting.

Air intake direction (0.8-6hp)

The direction of the air intake can be modified by interchanging the bottom panel with the fan cover allowing a horizontal or vertical air intake.

Mini - in the ceiling (RPIM 1.5 FSN2E) – The hotel version

The new RPIM units have been designed specifically for situations where a reduced installation space is available. Coupled with exceptionally low noise levels this makes the range and should be an ideal choice for hotel applications.

RPI-FSN2E for suspended ceilings

The RPI ceiling-mounted unit was specially developed for installation in suspended ceilings.

Indoor units: in the ceiling

In the ceiling Set Free		RPI-0.8FSN2E	RPI-1.0FSN2E	RPI-1.5FSN2E	RPI-2.0FSN3E
Cooling capacity ¹ (Utopia outdoor units)	kW	-	-	3,6	5,0
Heating capacity ² (Utopia outdoor units)	kW	-	-	4,0	5,6
Cooling capacity ¹ (Set Free outdoor units)	kW	2,2	2,8	4,0	5,6
Heating capacity ² (Set Free outdoor units)	kW	2,5	3,2	4,8	6,3
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	70	70	70	130
Fuse protection indoor	A	10	10	10	10
Inner dimensions (h x w x d)	mm	197 x 1.084 x 600	197 x 1.084 x 600	197 x 1.084 x 600	275 x 1.084 x 600
Net weight indoor unit	kg	29,5	29,5	29,5	35,0
Sound pressure level inside ³ (min.-max.)	dB(A)	30 - 33 - 33	30 - 33 - 33	31 - 34 - 34	29 - 31 - 33
Indoor fan air flow rate ³ (min.-max.)	m ³ /h	420-480	420-480	540-600	780-960
External pressure ⁴ (min.-max.)	Pa	25 - 25 - 45	25 - 25 - 45	25 - 25 - 45	25 - 50 - 80
Delivery height condensation pump	mm	850 mm from the bottom edge of the unit			
Remote control (optional) ⁵		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)			
Refrigeration system		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)

In the ceiling Set Free		RPI-2.5FSN3E	RPI-3.0FSN3E	RPI-4.0FSN3E	RPI-5.0FSN3E	RPI-6.0FSN3E
Cooling capacity ¹ (Utopia outdoor units)	kW	6,3	7,1	10,0	12,5	14,0
Heating capacity ² (Utopia outdoor units)	kW	7,0	8,0	11,2	14,0	16,0
Cooling capacity ¹ (Set Free outdoor units)	kW	7,1	8,0	11,2	14,0	16,0
Heating capacity ² (Set Free outdoor units)	kW	8,5	9,0	12,5	16,0	18,0
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1	230/1
Power input fan	W	140	200	280	300	330
Fuse protection indoor	A	10	10	10	10	10
Inner dimensions (h x w x d)	mm	275 x 1.084 x 600	275 x 1.084 x 600	275 x 1.474 x 600	275 x 1.474 x 600	275 x 1.474 x 600
Net weight indoor unit	kg	37,0	37,0	49,0	49,0	49,0
Sound pressure level inside ³ (min.-max.)	dB(A)	30 - 33 - 35	31 - 35 - 35	35 - 36 - 37	36 - 38 - 39	38 - 39 - 40
Indoor fan air flow rate ³ (min.-max.)	m ³ /h	900-1.140	1.020-1.320	1.500-1.800	1.680-2.100	1.740-2.160
External pressure ⁴ (min.-max.)	Pa	25 - 50 - 80	40 - 80 - 120	30 - 80 - 120	30 - 80 - 120	30 - 80 - 120
Delivery height condensation pump	mm	850 mm from the bottom edge of the unit				
Remote control (optional) ⁵		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)				
Refrigeration system		R410A Refrigerant, electronic exp. valve				
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

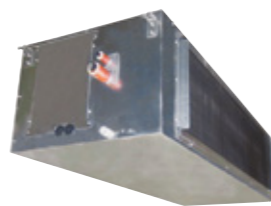
² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1.5 m beneath the unit for nominal pressure (with connected ductwork: 1 m intake side/2 m pressure side - standard pressure settings in anechoic chamber without reflections).

⁴ The external pressure can be adjusted using the wireless remote control switch, air flow and noise pressure level are also altered.

⁵ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHZ (for external wall mounting) must also be retrofitted.

- Without drain pump
- Adjustable static pressure
- Common in/outputs



RPI-8.0FSN2E
RPI-10.0FSN2E

Indoor units: in the ceiling

In the ceiling Set Free		RPI-8.0FSN3E	RPI-10.0FSN3E
Cooling capacity ¹ (Utopia outdoor units)	kW	20,0	25,0
Heating capacity ² (Utopia outdoor units)	kW	22,4	28,0
Cooling capacity ¹ (Set Free outdoor units)	kW	22,4	28,0
Heating capacity ² (Set Free outdoor units)	kW	25,0	31,0
Power supply 50 Hz	V/Ph	230/1	230/1
Power input	W	970	1.060
Fuse protection indoor	A	10	10
Inner dimensions (h × w × d)	mm	423 × 1.592 × 600	423 × 1.592 × 600
Net weight indoor unit	kg	85,0	87,0
Sound pressure level inside ³ (min.-max.)	dB(A)	51-54	52-55
Indoor fan air flow rate ³ (min.-max.)	m ³ /h	3.570-3.960	4.500-4.500
External pressure ⁴ (min.-max.)	Pa	30 - 180 - 220	30 - 180 - 220
Condensation		No condensation pump built in	
Remote control (optional) ⁵		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)	
Refrigeration system		R410A Refrigerant, electronic exp. valve	
Liquid line indoor (flare connection)	inches	3/8" (9,53 mm) solder	3/8" (9,53 mm) solder
Gas line indoor (flare connection)	inches	3/4" (19,05 mm) solder	7/8" (22,2 mm) solder

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

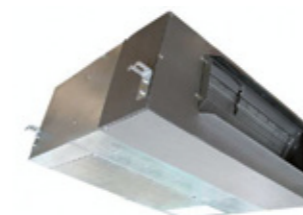
² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1.5 m beneath the unit for nominal pressure (with connected ductwork: 1 m intake side / 2 m pressure side - standard pressure settings in an anechoic chamber without reflections).

⁴ The external pressure can be adjusted using the wireless remote control switch, air flow and noise pressure level are also altered.

⁵ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHZ (for external wall mounting) must also be retrofitted.

- Without drain pump
- Adjustable static
- Hotel version (RPIM)
- Common in/outputs



RPIM-0.8FSN2E
RPIM-1.0FSN2E
RPIM-1.5FSN2E

Indoor units: in the ceiling (narrow hotel version)

In the ceiling Set Free		RPIM-0.8FSN2E	RPIM-1.0FSN2E	RPIM-1.5FSN2E
Cooling capacity ¹ (Utopia outdoor units)	kW	-	-	3,6
Heating capacity ² (Utopia outdoor units)	kW	-	-	4,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,2	2,8	4,0
Heating capacity ² (Set Free outdoor units)	kW	2,5	3,2	4,8
Power supply 50 Hz	V/Ph	230/1	230/1	230/1
Power input	W	70	70	90
Fuse protection indoor	A	10	10	10
Inner dimensions (h × w × d)	mm	275 × 702 × 600	275 × 702 × 600	275 × 702 × 600
Net weight indoor unit	kg	25,0	25,0	26,0
Sound pressure level inside ³ (min.-max.)	dB(A)	27-31	27-31	29-33
Indoor fan air flow rate ³ (min.-max.)	m ³ /h	420 - 480 - 480	420 - 480 - 480	510 - 600 - 600
External pressure ⁴ (min.-max.)	Pa	5 - 10 - 10 (30 - 45 - 45 bei erhöhter Pressung)		
Condensation		No condensation pump built in (available as an optional accessory) => Rotary pump DU-M1E pump. head 850 mm		
Remote control (optional) ⁵		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)		
Refrigeration system		R410A Refrigerant, electronic exp. valve		
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	1/2" (12,7 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a distance of 1.5 m beneath the unit for nominal pressure (with connected ductwork: 1 m intake side / 2 m pressure side - standard pressure settings in an anechoic chamber without reflections).

⁴ The external pressure can be adjusted using the wireless remote control switch, air flow and noise pressure level are also altered.

⁵ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHZ (for external wall mounting) must also be retrofitted.

- Floor type
- Common in/outputs



RPF-1.0~2.5FSN2E



RPF-1.0~2.5FSN2E

Floor-Mounted Units



Floor-mounted unit with casing

Space saving slim unit

This unit's slimline design with a depth of only 220mm allows the unit to be freely installed without spoiling the aesthetics of a room.

Effective use of space

With a height of only 630mm it is possible to install under or by a window while still leaving plenty of space.

Optional location for remote control switch

It is also possible to conceal the remote controller as there is space to install a PC-ART inside the casing.

Floor-mounted unit without casing

Compact design

Special emphasis has been placed on compatibility with interior design. The space saving design 620mm in height, 220mm in depth, fits perfectly into the space below bay windows.

Air discharge direction

The air discharge direction can be modified by repositioning the back cover allowing for more installation options.

Indoor units: floor-mounted units with casing

Floor Mounted units Set Free		RPF-1.0FSN2E	RPF-1.5FSN2E	RPF-2.0FSN2E	RPF-2.5FSN2E
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0	6,3
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6	7,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6	7,1
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3	8,5
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	40	50	90	90
Fuse protection indoor	A	10	10	10	10
Inner dimensions (h x w x d)	mm	630 x 1.045 x 220	630 x 1.170 x 220	630 x 1.420 x 220	630 x 1.420 x 220
Net weight indoor unit	kg	19,0	23,0	33,0	34,0
Sound pressure level inside ³ (min.-max.)	dB(A)	29/32/35	31/35/38	32/36/39	34/38/42
Indoor fan air flow rate (min.-max.)	m ³ /h	360/420/510	540/600/720	660/840/960	660/840/960
Remote control (optional) ⁴		Remote control switch PC-ART (can be integrated in the casing) or other (s. p. 67 RC and Accessories)			
Refrigeration system					
		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

Indoor units: floor-mounted units without casing

Floor Mounted units Set Free (without casing)		RPF-1.0FSN2E	RPF-1.5FSN2E	RPF-2.0FSN2E	RPF-2.5FSN2E
Cooling capacity ¹ (Utopia outdoor units)	kW	-	3,6	5,0	6,3
Heating capacity ² (Utopia outdoor units)	kW	-	4,0	5,6	7,0
Cooling capacity ¹ (Set Free outdoor units)	kW	2,8	4,0	5,6	7,1
Heating capacity ² (Set Free outdoor units)	kW	3,2	4,8	6,3	8,5
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1
Power input	W	40	50	90	90
Fuse protection indoor	A	10	10	10	10
Inner dimensions (h x w x d)	mm	620 x 848 x 220	620 x 973 x 220	620 x 1.223 x 220	620 x 1.223 x 220
Net weight indoor unit	kg	19,0	23,0	27,0	28,0
Sound pressure level inside ³ (min.-max.)	dB(A)	29/32/35	31/35/38	32/36/39	34/38/42
Indoor fan air flow rate (min.-max.)	m ³ /h	360/420/510	540/600/720	660/840/960	660/840/960
Remote control (optional) ⁴		Remote control switch PC-ART, wireless remote control switch PC-LH3A + receiver or other (s. p. 67 RC and Accessories)			
Refrigeration system					
		R410A Refrigerant, electronic exp. valve			
Liquid line indoor (flare connection)	inches	1/4" (6,35 mm)	1/4" (6,35 mm)	1/4" (6,35 mm)	3/8" (9,53 mm)
Gas line indoor (flare connection)	inches	1/2" (12,7 mm)	1/2" (12,7 mm)	5/8" (15,9 mm)	5/8" (15,9 mm)

¹ Cooling capacity at: room temp. 27 °C (19 °C WB) and ambient air temp. 35 °C; refrigerant piping length 7.5 m; height difference 0 m.

² Heating capacity at: room temp. 20 °C ambient air temp. 7 °C (6 °C WB); refrigerant piping length 7.5 m; height difference 0 m.

³ Sound pressure level measured at a height of 1 m and a distance of 1 m (measured in an anechoic chamber without reflections).

⁴ When operating with wireless remote control switch PC-LH3A, the receiver circuit board PC-ALHZ (for external wall mounting) must also be retrofitted.

- Heat recovery
- Regulation can be combined with standard inner parts



KPI-502E1E-KPI-3002H1E

KPI Heat Exchanger



Use of a KPI cross-flow heat exchanger not only enables recovery of the sensitive, but also the latent energy from the air discharge. This also reduces the power requirement of the air conditioning systems. There is no mixing of the two air flows. The KPI heat exchanger creates a comfortable environment using the control combined with the air conditioning system. It can be controlled via the remote control switch of the air conditioning systems, but also independently using remote control PC-ART.

Functions

- Simultaneous ON/OFF switch for the air conditioning system and the heat exchanger
- Individual operation of the heat exchanger
- Ventilation mode selection (high/medium/low)
- Selection of the ventilation mode (automatic/heat exchanger/bypass)¹
- Pre-cool/pre-heat control (delayed start in 30 or 60minutes)¹
- 7-day timer on PC-ART
- Increased air supply operation
- Specific alarm display

¹ The required option must be selected on the remote control.

Energy saving in automatic mode

There is automatic selection of the suitable ventilation mode to save energy independently of the indoor or ambient temperature.

Other features

- Quiet operation with a noise level of just 38dB(A) on high fan level with KPI 502E1E; this was realised by improving the air duct.
- Operation possible with all System Free indoor units.
- The connection to the H-Link is possible with the central remote control or with CS-Net in operation with the indoor unit.
- Flexible duct installation: the direction in which the ducts on the unit outer side are connected can be altered depending on the connection conditions (ambient air/air discharge).
- Lower weight thanks to simplified configuration: 53 kg (KPI 502E1E).

KPI heat exchanger

Model		KPI-502E1E	KPI-802E1E	KPI-1002E1E	KPI-1502E1E	KPI-2002E1E	KPI-3002H1E
Air flow (small / medium / large)	m ³ /h	450/480/500	680/740/800	900/960/1.000	1.320/1.440/1.500	1.780/1.920/2.000	2.750/2.870/3.000
Pressure (small / medium / large)	Pa	75/85/90	65/80/90	120/140/150	110/135/150	125/145/160	100/110/120
Increased pressure (max.)	Pa	160 (500m ³ /h)	155 (800m ³ /h)	200 (1.000m ³ /h)	175 (1.500m ³ /h)	-	-
Efficiency sensitive (fan stage: large)	%	75,0	75,0	78,0	78,0	78,0	54,0
Efficiency latent: cooling/heating (fan stage: large)	%	60,0/65,0	61,0/67,0	62,0/68,0	62,5/68,0	61,5/66,5	46,0/46,0
Casing		Galvanised, insulated casing					
Configuration		Cross flow heat exchanger celluloid, air filter, moisture exchange, free cooling ¹					Cross flow heat ex. Aluminium air filter
Power supply 50 Hz	V/Ph	230/1	230/1	230/1	230/1	230/1	230/1
Power input	W	220	370	580	790	890	1.450
Operating current	A	0,9	1,6	2,7	3,6	4,0	6,0
Fuse protection	A	10,0	10,0	10,0	10,0	10,0	16,0
Control ²		Via remote control switch of a air conditioning unit or via separate remote control switch (PC-ART or PC-P2HTE)					
Dimensions (h x w x d)	mm	330 x 1.130 x 925	385 x 1.210 x 1.015	385 x 1.650 x 1.295	525 x 1.800 x 1.130	525 x 1.800 x 1.430	650 x 1.245 x 2.124
Net weight	kg	53,0	62,0	99,0	113,0	135,0	209,0
Sound pressure level ³ (fan stage: large)	dB(A)	38	39	40	42	44	45
Working range outside temperature ⁴ (max.)	°C	-10 ~ +43 °C					

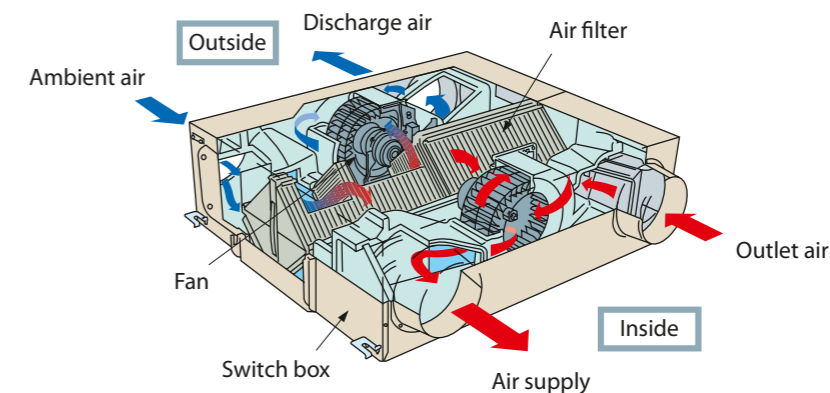
¹ The function of free cooling (there is a bypass flap in the KPI module) is set at the factory and can be deactivated as needed.

² The KPI heat exchanger can simply be controlled via the remote control switch of another unit. A connection to the H-Link is not necessary. However, if the heat exchanger is to be integrated into the H-Link (for central controls), separate remote control is recommended. In any event, a separate refrigerant cycle number must be set.

³ Sound pressure level measured at a distance of 1.5 m beneath the unit (with connected ductwork: 1 m intake side / 2 m pressure side - standard pressure settings in an anechoic chamber without reflections).

⁴ You must ensure that the mix of outside and outlet air does not intersect the saturation line in the hX diagram. The outside air must be pre-heated before the heat exchanger if the ambient temperature is very low.

How the KPI heat exchanger works (system illustration)



Remote Controls & Accessories

System Free remote controls and accessories

You can use our System Free with different remote controls to fulfil different requirements. So there is also a simplified hotel version and different timer modules as well as remote control and wireless remote control switches. You can connect all remote controls to the CS-Net Web with corresponding additional units and monitor and control centrally.

There are a range of refrigerant distributors to connect two or more indoor units to one outdoor unit – Utopia or Set Free – to make installation as simple as possible. Naturally, you also get the right accessories directly from Hitachi.

Remote controls

Utopia Series

ES Serie (Simultaneous Operation)

IVX Serie (Individual Operation)

RASC Serie (Simultaneous Operation)

Set Free Serie

FSVNE Mini VRF

FSNM VRF light

FSXN VRF Combi (2 & 3-pipe)

Compatible with the same indoor units

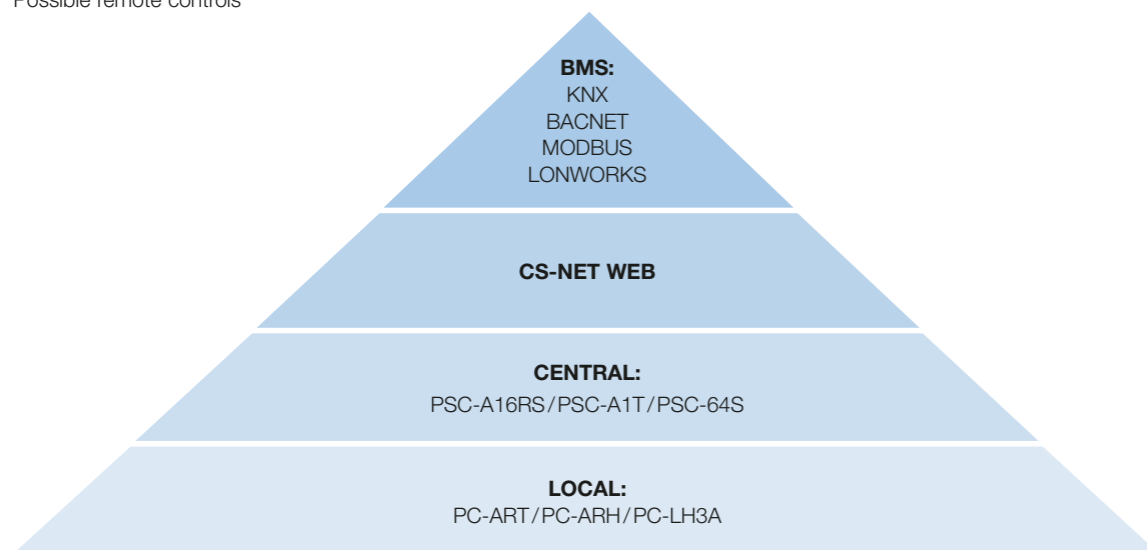
Compatible Remote Controls & Receivers

Comfort and diversity function

All Hitachi air conditioning units are equipped with local remote control, so that you can regulate the room temperature intelligently and conveniently. Regardless of whether remote control or wireless remote control switch: numerous programming and control functions allow individual settings for perfect comfort temperature.

Central control via CS-Net Web is possible for comprehensive air conditioning solutions, also conveniently via the Internet. Depending on the installation situation of your air conditioning solution, connection to modern building management systems is easy, though further local remote control may be required.

Possible remote controls



Functions may vary among the remote controls.
Additional local remote control must usually be set up for interfaces to building management systems (BMS).

In the ceiling, wall, floor and ceiling-mounted unit

Product		RPI-FSN	RPIM-FSN	RCI-FSN	RCD-FSN	RPK-FSN	RPC-FSN	RPF(I)-FSN	KPI
Remote control switch*	PC-P2HTE/PC-ART	■	■	■	■	■	■	■	■
Wireless remote control switch	PC-LH3A	■	■	■	■	■	■	■	■
Simplified remote control switch	PC-P5H1/PC-ARH	■	■	■	■	■	■	■	■
7-Day	PSC-5T/PC-A1T	■	■	■	■	■	■	■	■
Central remote control**	PSC-5S/PC-A64S	■	■	■	■	■	■	■	■
3P connector cable	PCC-1A	■	■	■	■	■	■	■	■
Remote sensor	THM-R2A	■	■	■	■	-	■	■	-
Network system	CS-NET	■	■	■	■	■	■	■	■

* As the models PC-P2HTE/PC-ART do not include remote control cable, have one ready at the place of installation or use PRC-10E1, 15E1, 20E1, 30E1 (optional).

** Power supply 230V.

Receiver modules for wireless remote control PC-LH3A

4-way cassette unit

Product	RCI-1.0-6.0	RCIM-1.0-2.0
Receiver for the wireless remote control switch	PC-RLH8/PC-ALH (is integrated in the panel)	PC-RLH 13/PC-ALHC (is integrated in the panel)

2-way cassette unit

Product	RCD-1.0-5.0
Receiver for the wireless remote control switch	PC-RLH9/PC-ALHD (is integrated in the panel)

Wall Mounted unit

Product	RPK-1.0-4.0
Receiver for the wireless remote control switch	Installed in the unit

In the ceiling, wall, floor and ceiling mounted unit

Product	RPI (0.8-10.0), RPIM (0.8-1.5), RPK (1.0-4.0), RPC (1.0-6.0), RPF (1.0-2.5), RPF I (1.0-2.5)
Receiver for the wireless remote control switch (incl. connection cable)	PC-RLH11/PC-ALHZ (for wall mounting)

Control and Monitoring

Computer-System Network for remote control and monitoring of the air conditioning system

CS-Net Web is an autonomous central control for simultaneous regulation of up to 160 indoor and 16 outdoor units, which are connected to the Hitachi H-Link II communication system. The CS-Net Web can be connected via LAN or Internet (use of a DSL router), which facilitates parameter setting via WEB or LAN network and remote monitoring. The CS-Net Web user software is accessible directly via Internet Explorer and uses a Java programme for remote control and monitoring.

The two access levels to CS-Net are a valuable feature, which you can adjust depending on user type.

- "User access": allows monitoring and adjustment of the unit (configurable)
- "Installations access": also allows timer adjustment and changes to the system configuration

Several CS-Net Web systems can be connected to a common operator interface.

H-Link II transmission system

The H-Link II transmits all necessary information between the indoor units and the outdoor units - independently of model type and number of units. Thus, it is very easy to network you different air conditioning systems. By connecting CS-Net Web with the H-Link II system in the building, you can manage all necessary information centrally and achieve optimum operation of your air conditioning systems. This makes the system very flexible, makes installation easier and reduces overall costs.



New functions

Building Layout Editor

This software enables users to create a virtual overview for the CS NetWeb. This means you can see straightaway how each unit is being controlled in each room. The current status of each unit is also displayed.

Virtual remote control

Instead of the PC-ART remote control on the wall, a virtual remote control can be set up for each user at each PC workstation. This means the room climate can be controlled conveniently from your desk. The system automatically sends information to the PC in the event of an error.

Unit adjustment

By using CS-Net Web, different unit settings can be adjusted via remote control.



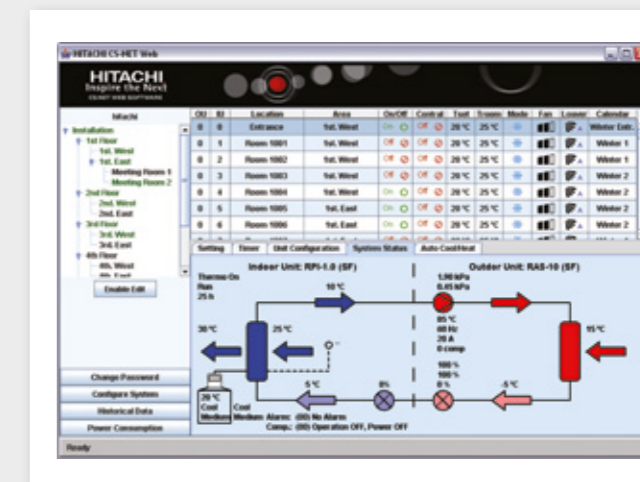
Timer clock

You can programme and store an automatic timer function for four years in CS-Net Web, which runs independently without PC or manual control



System status and measured data chronology

The values are stored internally over a few days to make maintenance easier. Additionally, you can also check individual consumption and review errors (error history).





Remote controls

Remote controls	PC-ART	PC-LH3A	PC-ARH
Type	Remote control switch	Wireless remote control switch	Simplified remote control switch
Timer functions	Week timer programme	On / Off timer up to 24 hrs	No timer
Special features	Diagnosis, lock and various special functions. Colour: grey-white, like RAL 9002	Simple, wireless operation Colour: grey-white, like RAL 9002	Very simple operation (e.g. in hotel) Colour: traffic white, like RAL 9016
Additional functions	Many additional functions adjustable	Not possible	Many additional functions adjustable

Receiver modules



Receiver modules	PC-ALHN	PC-ALHD	PC-ALHZ	PC-ALHC
For indoor units	4-way cassette unit RCI grid comprehensive, with panel P-N23WA	2-way cassette RCD with panel P-N23DWA	All indoor units Colour: grey-white, like RAL 9002	4-way cassette RCIM grid dimensions, with panel P-N23WAM
Installation location	Panel corner bracket	Installation in panel	Wall / surface mounting	Panel corner bracket

Central controls



Central controls	PSC-A16RS	PSC-A64S	PSC-A1T
Type	Central on/off	Central remote control	7-Day
Control of up to	16 indoor units and connection of up to 8 units in one H-link	64 indoor units (groups) and connection of up to 8 units in one H-link	Timer for central remote control PSC-A64S (one timer per central remote control)
Special features	Colour: grey-white, like RAL 9002	Colour: grey-white, like RAL 9002	Colour: grey-white, like RAL 9002

Other accessories



Condensation drain	DBS-26	DBS-12L	DBS-TP10A
Description	Condensation drain set, for installation in the outdoor unit		
Outdoor unit (required number)	RAS-4~6H(V)RNS2E (1)	RAS-8~10HRNSE (1)	RAS-8~12HRNM (2)
Outdoor unit (required number)	RAS-3~6H(V)RNM2E (1)	RAS-8~12FSNM (2)	RAS-3~5FSVNE (2)
Outdoor unit (required number)	RAS-8~12FSN2 (4)	RAS-14~24FSN2 (8)	RAS-28~42FSN2 (12)
Outdoor unit (required number)	RAS-48FSN2 (16)	RAS-5FSN (3)	-



Accessories	PCC-1A	THM-R2AE	PD-75	DU-M1E
Type	Connector for input/output signal	Remote sensor with casing (Cable 8 m) grey-white, like RAL 9002	Fresh air intake for RCI and RCIM	Condensation pump (only on RPIM)

Cross-flow heat exchanger KPI accessories

Cross-flow heat exchanger Celluloid	ER-500	ER-750	ER-1000	ER-1500	ER-2000
Replacement heat exchanger for unit	KPI-502E2E	KPI-802E2E	KPI-1002E2E	KPI-1502E2E	KPI-2002E2E
Structure of the cross-flow heat exchanger	Celluloid / with moisture exchange (this heat exchanger is already installed in the unit listed above)				

Cross-flow heat exchanger Aluminium	HR-500	HR-750	HR-1000	HR-1500	HR-2000	HR-2900
Optional heat exchanger for unit	KPI-502E2E	KPI-802E2E	KPI-1002E2E	KPI-1502E2E	KPI-2002E2E	KPI-3002H2E
Structure of the cross-flow heat exchanger	Aluminium / without moisture exchange (HR-2900 is already installed in KPI-3002H2E)					

Set Free refrigerant distributor for FSVNE, FSNM, FSN2 & FSXN 2-pipe system

Refrigerant distributor FS(X)N 2-pipe system	E-102SN2	E-162SN2	E-242SN2	E-302SN2	MH-84AN	MH-108AN
Number of connectable indoor units	1~2 or use as pre-distributor				3~4	5~8
Set comprises	Distributor, liquid and gas line (incl. insulating sleeves)					
Connectable capacity (indoor units)	PS*	1,6~11,9	12,0~17,9	18,0~25,9	26,0~54,0	~8
Configuration	CU pipe flow-enhancing refrigerant distributor; reductions can also be soldered in					

Set Free refrigerant distributor for FSXN 3-pipe system

Refrigerant distributor FSXN 3-pipe system	E-52XN2	E-102XN2	E-162XN2	E-202XN2	E-242XN2	E-322XN2
Number of connectable indoor units	1~2 or use as pre-distributor					
Set comprises	Distributor, liquid, discharge gas and gas line (incl. insulating sleeves)					
Connectable capacity (indoor units)	PS*	1,6~5,9	6,0~11,9	12,0~17,9	18,0~21,9	22,0~25,9
Configuration	CU pipe flow-enhancing refrigerant distributor; reductions can also be soldered in					

Utopia refrigerant distributor for Twin, Triple and Quad fitting

Refrigerant distributor Utopia IVX / ES Series	TE-03N	TE-04N	TE-56N	TE-08N	TE-10N	TRE-06N	TRE-810N	QE-810N
Utopia combination	Twin	Twin	Twin	Twin	Twin	Triple	Triple	Quad
Set comprises	Distributor, liquid and gas line							
Connectable capacity (indoor units)	PS*	3	4	5~6	8	10~12	6	8~12
Configuration	CU pipe flow-enhancing refrigerant distributor							

* hp = total of the power factors (indoor units), which are connected to both (or all) outlets of the distributor. If a distributor is still positioned behind a CH Box, the distributor MW-102 AN (FSN series) is used. All soldering work must only be performed using nitrogen. You must not use standard T-pieces. Please follow our technical manuals without exception when planning and installing the pipe network.

Outdoor units connection kit FSXN and switch boxes see p. 34.

LonWorks® Interface

Connection interface to the LonWorks® BMS systems

You can control up to six parameters with HARC-BX and up to nine feedback signals. Up to 16 remote control groups can be used by connecting the HARC-BX to H-Link and up to 64 indoor units can be controlled and monitored.



HARC-BX

Specifications HARC-BX

Typ	Standard		Option A		Option B	
	Control	Monitoring	Control	Monitoring	Control	Monitoring
Max. number of indoor units	64		64		32	
Start / stop & alarm*	■	■	■	■	■	■
Operating mode	■	■	■	-	■	■
Temperature setting	■	■	■	-	■	■
Fan speed	-	-	■	-	■	■
Position of the adjustment louvers	-	-	-	-	■	■
Remote control release / lock	-	-	■	-	■	-
Alarm code	-	-	-	-	-	■
Indoor unit suction air temperature	-	-	-	■	-	■
Indoor unit discharge air temperature	-	-	-	-	-	■
Outside air temperature	-	-	-	-	-	■
Thermo on / off	-	■	-	-	-	-
Comments	Use PC-P2HTE or PC-ART					
Maximum piping length	1,000 m (Bus length in total) **					

* Alarm only for monitoring
 ** over 1,000 m, an amplifier PSC-5HR is needed every 1,000 m.



Central controls for CS-Net Web

Central controls	CS-Net Web 3.0	TS-001
Type	Central control for PC	Touchscreen panel
Control of up to	160 indoor units and 64 outdoor units (H-Link II), display, operation, control, timer, single unit control, ...	User interface from CS-Net Web instead of a PC (CS-Net must also be installed)
Special features	Activity input (breakdown in %), network and Internet access, data and error notification, improved user interface.	15" touchscreen panel (h x w x d) 286 x 355 x 265 mm, table or wall-mounted



Interface modules for CS-Net Web

Interface modules	PC-AI / D	KNX001
Type	Module to integrate a fan unit	Module to integrate the KNX building control
Control	Controlling and monitoring a third-party product via CS-Net Web, integration in the H-Link	Additional control and monitoring of devices that are connected to CS-Net Web 2.0
Special features	(h x w x d) 76 x 143 x 302 mm, supply 230 V / 50 Hz, Control: 3 fan levels, 2 temperatures (PT-1000)	(h x w x d) 58 x 107 x 105 mm, suitable for mounting rail, Access: KNX-TP1 (EIB)



Interface modules for LonWorks

Interface modules	HC-A32MB	HC-A16KNX	PSC-5HR
Type	MODBUS interface	KNX interface	H-Link signal amplifier
Control of up to	32 indoor units per module max. 8 modules per H-Link	16 indoor units per module max. 8 modules per H-Link	Install signal amplifier every 1,000 m. Max. 4 modules per H-Link
Special features	(h x w x d) 76 x 143 x 302 mm, supply 230 V / 50 Hz	(h x w x d) 76 x 143 x 302 mm, supply 230 V / 50 Hz	(h x w x d) 70 x 230 x 270 mm, supply 230 V / 50 Hz



Interface modules for LonWorks

Interface modules	HC-A64BNP	HARC-BXE
Type	BAC Net interface	LON Works interface
Control of up to	H-Link integration with up to 64 indoor units	8 refrigeration cycles with up to 64 indoor units
Special features	(h x w x d) 75 x 240 x 204 mm, supply 230 V / 50 Hz	Connection of up to 8 units in one H-Link Each indoor unit requires a remote control switch

This brochure was prepared carefully to the best of our knowledge and was created exclusively on the basis of the information in our possession.

We take no responsibility and/or give no explicit or implicit guarantee for the completeness and accuracy of the details given herein or for the reliability and usability of the products or services presented in this brochure for a specific purpose or application. Changes to technical details and/or equipment may be made at any time without notification. We hereby expressly refute any liability for direct or indirect damages of any kind, which arise from use or interpretation of this brochure. Hitachi Europe GmbH or a company of the Hitachi Group, retains the copyright for all texts and pictures, unless stated otherwise in this brochure. This brochure does not represent a binding offer from Hitachi Europe

Hitachi Europe GmbH
Am Seestern 18
40547 Düsseldorf

www.hitachiircon.com

RACEN-01-2011

All rights reserved.

Your specialist partner:



HITACHI
Inspire the Next