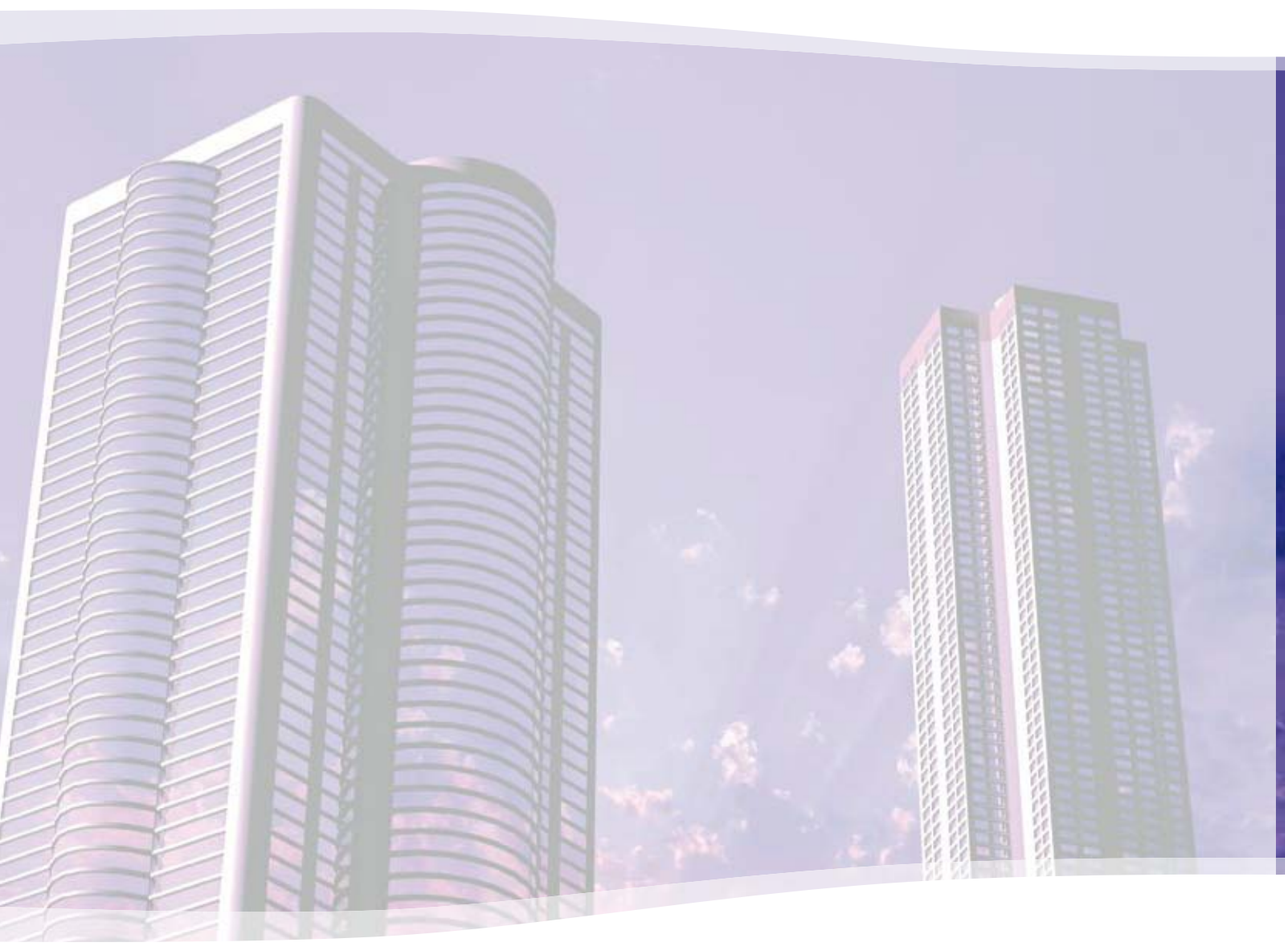


Indicates conformation with EC Directives

ISO 9001: 2001
Certificate Number: JQ116B

ISO 14001: 2001
Certificate Number: ECOOJ0303-33

SANYO reserves the right to make any variation in specification to the equipment described or to withdraw or replace products without prior notification or public announcement. All descriptions, illustrations, drawings and specifications in this publication are given in good faith, but are intended to present only general particulars and shall not form any part of the contract. For full installation details, please contact your SANYO distributor.

Rating Conditions
The cooling and heating capacities are based on the following conditions:
Cooling: Indoor temperature 27˚C DB / 19˚C WB, Outdoor temperature 35˚C DB / 24˚ C WB.
Heating: Indoor temperature 20˚C DB, Outdoor Temperature 7˚C DB.

http://eu.sanyo.com/aircon

SANYO

Gas Heat Pump Air Conditioners

SANYO Air Conditioners. The natural choice.

Gas driven VRF
Room Air Conditioners
Commercial Split Systems
Electric VRF
CO_2 ECO Heating System
Hydronic Products
Virus Washer

Gas Driven VRF

SANYO is committed to developing environmentally sustainable technologies

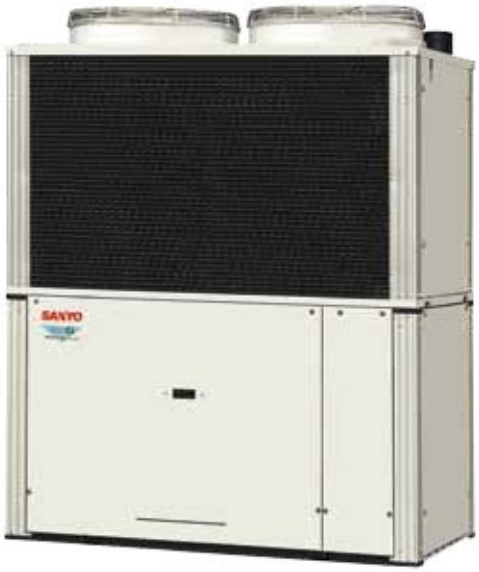
With increasing concern about the link between carbon emissions and rising global temperatures, the need to use energy more efficiently is becoming ever more pressing.

SANYO has continually stepped up to this challenge.
Its reputation as innovator has been earned over years of continuous research and development resulting in industry leading products that have blazed a trail in terms of efficiency and environmental sustainability. SANYO's sustainable energy solutions include Eneloop rechargeable batteries, hybrid car batteries and solar power cells. In fact SANYO is a world leader in the development of photovoltaic solar cells.

SANYO Airconditioners – The natural choice.

SANYO introduced heat pump air conditioners in 1960 and has continued to pioneer the industry ever since with environmental technology innovations such as the ECOi Electric VRF system, which dramatically improved energy efficiency; the Gas-driven VRF system with latest models that also generate hot water and electricity; highly efficient water and floor heating with the C02 ECO heat pumps and introducing this year the PACi Hydronic Split System.

About this Guide – Index



This specification guide highlights all aspects of SANYO's highly innovative Gas Driven VRF systems.

In recent years expectations about air conditioning systems have significantly risen and changed from all perspectives, be it from the end user, consultant, specifier or installer. High expectations need to be met in providing optimised comfort climate control that is energy efficient, reduces running costs and gives maximum operating flexibility. SANYO prides itself as a leading innovator and continuously strives to deliver excellence to our customers and partners by developing market leading products and giving best support in installation & maintenance as well as services information.

The guide has been designed as a practical working tool for consultants, specifiers and installers encompassing all necessary technical information for straightforward system designing along with several examples of applications and installations carried out throughout Europe.

Our objective is for you to find everything from features and benefits, indoor/outdoor unit specifications and our complete range of control systems; in addition we have also provided detailed line drawings for each model to complete any specification.

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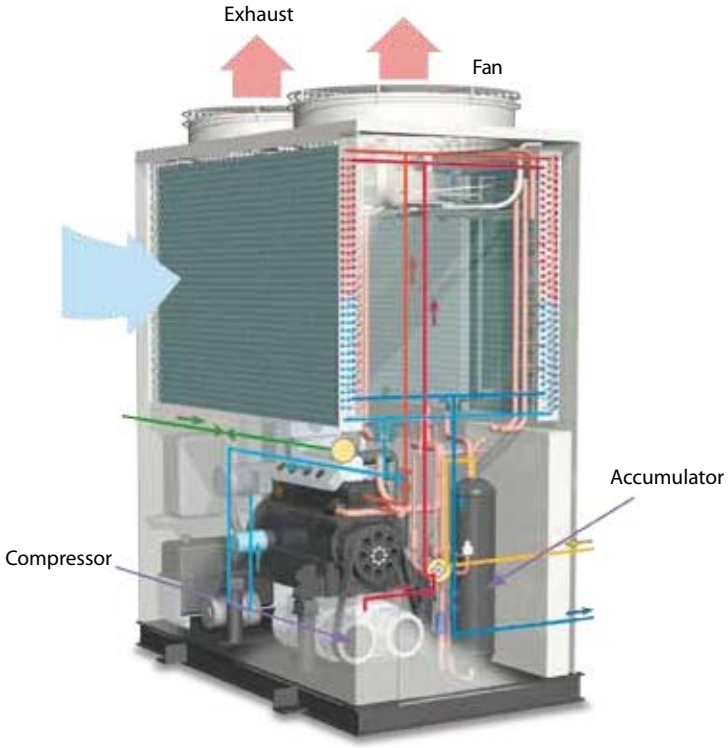
The Gas Heat Pump M Series

SANYO has been developing GHP VRF systems since 1980, during which time we have been committed to delivering ground-breaking technology. As a result, the commercial range of GHP VRF systems is leading the industry in the development of efficient and flexible systems, making them the natural choice for commercial projects, especially for those projects where power restrictions apply. As you would expect, all of our Gas Driven VRF systems are designed to give the highest reliability rates.

The GHP engine or (internal combustion engine) varies the engine speed to match the building load functions that are comparable with an inverter type electric air conditioner.



The advanced M Series of Gas Driven VRF systems offers increased efficiency and performance across the range. Now more powerful than ever before, it can connect up to 48 indoor units.

Improvements include increased part load performance, reduced gas consumption with a Miller-cycle engine and reduced electrical consumption by using DC fan motors.

- Up to 71kW of cooling from a current consumption of 11,0 AMPs
- Single phase power supply across the range
- The option of natural gas or LPG as its main power source
- A water heat exchanger to connect to domestic hot water systems 13–25 HP (2-pipe units only)
- Option of DX or chilled water for indoor heat exchange
- Reduced CO_2 emissions

Power supply problems?

If you are short of electrical power, gas heat pump could be the perfect solution:

- Runs on natural gas or LPG and just needs single phase supply
- Enables the building's electrical power supply to be used for other critical electrical demands
- Reduces capital cost to upgrade power substations to run heating and cooling systems
- Reduces power loadings within a building especially during peak periods
- Electricity supply freed up for other uses such as IT servers, commercial refrigeration, manufacturing, lighting etc.

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Benefits

High-efficiency operation

All models are equipped with a high-performance air exchanger and a newly developed refrigerant heat exchanger for high-efficiency operation, making them one of the most energy-efficient solutions on the market.

Lowest nitrogen oxide emissions

The GHP VRF systems have the lowest nitrogen oxide emissions, 66% below the standard. In a pioneering development, the SANYO GHP features a brand new lean-burn combustion system that utilises air fuel ratio feedback control to reduce NOx emissions to an all time low.

Excellent economy

The SANYO GHP provides quick and powerful cooling/heating and increases delivery of heat into the space by the efficient recovery of heat from the engine cooling water, which is injected into the refrigerant circuit by an highly efficient plate-heat-exchanger.

In addition, the use of engine waste heat ensures that our gas heat pump air conditioner requires no defrost cycle, therefore providing continuous 100% heating performance in severe weather conditions with an outside air temperature as low as -20 °C. During cooling mode the rejected heat from the engine is available for use with in a DHW system and can supply up to 25 kW of hot water at 75 °C. The DHW is also available in heating when the out side air temp is above 7 °C.

High performance

With its advanced heat exchanger design, this new GHP system offers improved efficiency and reduced running costs, which, coupled with improved engine management systems, have greatly improved the system COP rating.

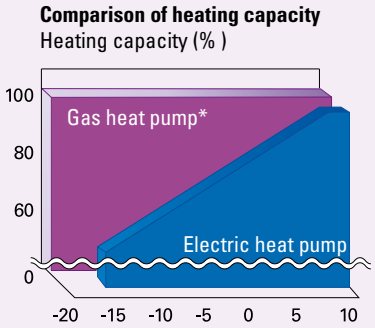
Water chiller option

Our GHP system is also available with a water chiller option, which can be combined with individual outdoor units or as part of a DX chilled water mix of indoor units. The system can be operated via a BMS system or a SANYO supplied control panel, with chilled water set points from -15°C - 15°C and heating set points 25°C - 55°C.

New electrical power generator model

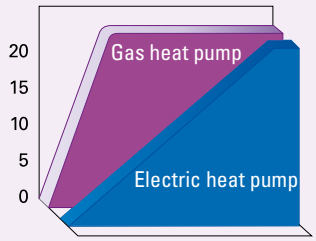
The biggest breakthrough in recent GHP technology is the launch of the ECO G Power, which provides 4.0kW of power. That's enough electricity to power 8 PCs or 40 indoor units.

Comparison of heating capacity

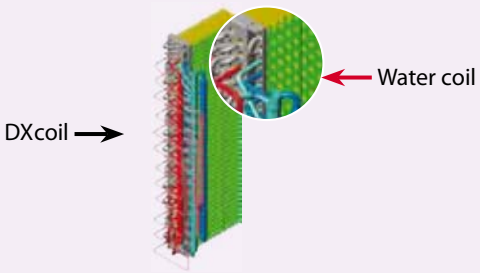


* regarding models 120, 150, 190

Comparison of the start times for heating operation



GHP Outdoor Heat Exchanger



- Integrated DX and hot water coil
- No defrost required
- Faster reaction to demand for heating

No defrost requirements

Below 7°C ambient in heating mode, the outdoor fans switch off, saving further running costs and CO2 emissions.

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

ECO G Power
2 Pipe Heat Pump System with Electrical Power Generator

The 2 way Gas Driven VRF with an electrical power generator

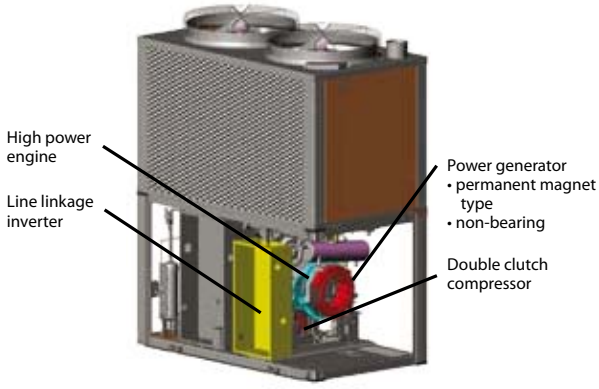
SANYO's ECO G Power is a revolution in air conditioning design. Fitted with a permanent magnet, non-bearing type generator, it is the first VRF system that can supply heating, cooling, hot water and now also a supply of electrical power. Each ECO G Power unit has a 4.0kW generator, which provides enough power for 40 indoor units or the equivalent of 8 PCs.

- Innovative technology that reduces CO_2 emissions by up to 30%
- 2 way air conditioning system providing cooling or heating
- Can provide both electricity and hot water in heating and cooling mode
- Up to 4kW electricity generated
- Very efficient generator
- Electricity is output to line linkage converter
- Hot water provided when in cooling through out temperature range and in heating when the ambient is above 7 °C*
- 22kW hot water generation capacity
- 20HP model provides 56kW cooling or 63kW heating
- Can connect to up to 32 indoor units
- 200m maximum allowable piping length (L1)
- IU/OU capacity ratio 50–130%

* referring to outside temperature

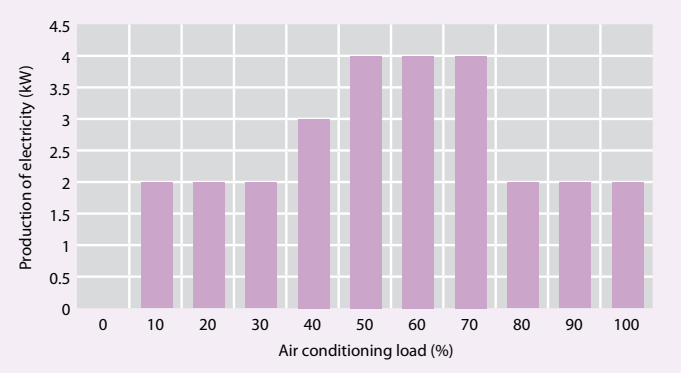
Generates electricity during heating or cooling operation

Generates electricity and air conditioning (heating or cooling) at the same time by using remaining engine power. ECO G Power can generate from 2.3 to 3.95kW electricity at a generation efficiency of more than 40%.

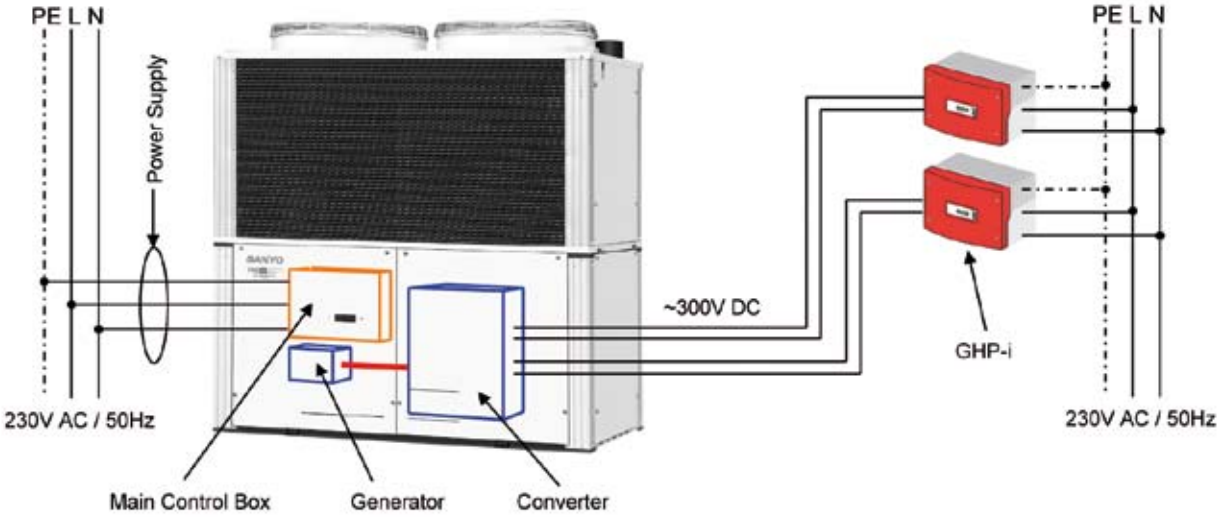


Production of electricity

Generates from 2kW to 4kW depending on air conditioning load



Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB



HP				20	33	36	40	45
Model name				SGP-EGW190M2G2W	SGP-EW120M2G2W	SGP-EW150M2G2W	SGP-EGW190M2G2W	SGP-EGW190M2G2W
					SGP-EGW190M2G2W	SGP-EGW190M2G2W	SGP-EGW190M2G2W	SGP-EW240M2G2W
Capacity	Cooling		kW	56,0	91,5	101,0	112,0	127,0
	Heating	STD	kW	63,0	103,0	113,0	126,0	143,0
		Low temp*1	kW	67,0	109,5	120,0	134,0	142,0
	Hotwater(coolingmode)		kW	22,0	34,0	37,5	44,0	52,0
Power generater capacity at rating			kW	DC 2,5 (Max 4,3)			DC 5,0 (Max 8,6)	DC 2,5 (Max 4,3)
Electricity	Cooling		kW	1,35	2,20	2,70	2,70	2,70
	Heating		kW	1,01	2,02	2,02	2,02	2,55
Gas consumption		Cooling	kW	44,0 (38,3)*	68,5	75,6	88,0	104,9
		Heating STD	kW	48,7 (43,0)*	76,8	84,8	97,4	101,0
		HeatingLOW	kW	62,1 (56,4)*	98,9	109,4	124,2	121,3
C O P		Cooling		1,33 (1,41)*	1,29	1,29	1,23	1,18
	Airconditioningonly	Heating		1,34 (1,43)*	1,31	1,30	1,27	1,38
		Average		1,34 (1,42)*	1,30	1,30	1,25	1,28
Max COP (Inc generater, hot water)		Cooling		1,78	1,81	1,80	1,78	1,69
Size	Height		mm	2248				
	Width		mm	1800	1800 + 100 (Min distance) + 1800			
	Depth		mm	1000 (+60)				
Weight			kg	875	1660	1685	1740	1720
Starter amperes			A	30	30	30	30	30
Pipe	Gas		Inches mm	1 1/8 (ø28.58)	1 1/4 (ø31.75)	1 1/4 (ø31.75)	1 1/2 (ø38.10)	1 1/2 (ø38.10)
	Liquid		Inches mm	5/8 (ø15.88)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)
	Balance		Inches mm	3/8 (ø9.52)	3/8 (ø9.52)	3/8 (ø9.52)	3/8 (ø9.52)	3/8 (ø9.52)
	Fuel gas			R3/4 (bolt, thread)				
	Exhaust drain port		mm	ø25 rubber hose				
Operation sound			dB(A)	58	61	61	61	63
Indoor/outdoor capacity ratio				50-130%				
Number of connections indoor*				32	48			

* In case of not generater working. * 1 Low temp condition: outdoor temperture 2˚C

Specifications subject to change without notice.

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

ECO G W-Multi
2 Pipe Heat Pump System

ECO G W-Multi 2 Way for Heat Pump Applications

The M Series 2 Way not only offers improved performance but also increased flexibility. Now available as multi-systems, many combinationsare possible, from 13HP to 50HP, allowing for more power and enabling accurate matching of a system building load. Additional new features include part load engine management and compressor run hour equalisation.

- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC motors
- New lightweight design by use of aluminium engine block reduces weight by 110kg
- Part load efficiencies increased
- Connectability increased - now up to 48 indoor units
- Multi-systems with combinations from 13HP up to 50HP
- 200m maximum allowable piping length (L1)
- Diversity ratio 50-200% (single models only; excluding ECO G Power)
- Extended pipe runs (total 780m)
- Quiet mode offers a further 2dB(A) reduction
- Chiller option
  - 9HP (25kW cooling - 30kW heating)
  - 18HP (50kW cooling - 60kW heating)
- 10,000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)
- Full heating capacity down to -20°C
- No defrost cycle

* Assuming 3120 running hrs per year - 12 hrs x 5 days x 52 weeks

HP				13	16
Model name				SGP-EW120M2G2W	SGP-EW150M2G2W
Capacity	Cooling		kW	35,5	45,0
	Heating	STD	kW	40,0	50,0
		Low temp*1	kW	42,5	53,0
	Hot water (cooling mode)		kW	12,0	16,0
Electricity	Cooling		kW	0,85	1,35
	Heating		kW	1,01	1,01
Gas consumption		Cooling	kW	24,5	31,6
		Heating STD	kW	28,1	36,1
		Heating LOW	kW	36,8	47,3
C O P		Cooling		1,40	1,37
		Heating		1,37	1,35
		Average		1,39	1,36
Max COP (inc hot water)		Cooling		1,87	1,85
Size	Height		mm	1800	
	Width		mm		
	Depth		mm		
Weight			kg	790	
Starter amperes			A		
Pipe Connections	Gas		inches mm	1" (ø25.40)	1 1/8 (ø28.58)
	Liquid		inches mm	1/2 (ø12.7)	1/2 (ø12.7)
	Balance		inches mm	3/8 (ø9.52)	
	Fuel gas			R3/4 (bolt thread)	
	Exhaust drain			ø25 rubber hose	
Operation sound			dB(A)	57	
Indoor/outdoor capacity ratio				50-200 %	
Number of indoor connections				32	36

*In these combinations, EGW190M2G2W is able to connect to a W-multi system instead of a EW190M2G2W.
*1 Low temp condition: outdoor temperture 2˚C.

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Sample installation

	20	25	26	29	32	33*	36*	40*	45*	50
	SGP-EW190M2G2W	SGP-EW240M2G2W	SGP-EW120M2G2W	SGP-EW120M2G2W	SGP-EW150M2G2W	SGP-EW120M2G2W	SGP-EW150M2G2W	SGP-EW190M2G2W	SGP-EW190M2G2W	SGP-EW240M2G2W
			SGP-EW120M2G2W	SGP-EW150M2G2W	SGP-EW150M2G2W	SGP-EW190M2G2W	SGP-EW190M2G2W	SGP-EW 190M2G2W	SGP-EW240M2G2W	SGP-EW240M2G2W
	56,0	71,0	71,0	80,5	90,0	91,5	101,0	112,0	127,0	142,0
	63,0	80,0	80,0	90,0	100,0	103,0	113,0	126,0	143,0	160,0
	67,0	75,0	85,0	95,5	106,0	109,5	120,0	134,0	142,0	150,0
	20,0	25,0	24,0	28,0	32,0	32,0	36,0	40,0	45,0	50,0
	1,35	1,35	1,70	2,20	2,70	2,20	2,70	2,70	2,70	2,70
	1,01	1,54	2,02	2,02	2,02	2,02	2,02	2,02	2,55	3,08
	38,3	60,9	49,0	56,1	63,2	62,8	69,9	76,6	99,2	121,8
	43,0	58,0	56,2	64,2	72,2	71,1	79,1	86,0	101,0	116,0
	56,4	64,9	73,6	84,1	94,6	93,2	103,7	112,8	121,3	129,8
	1,41	1,14	1,40	1.38	1,37	1,41	1,39	1,41	1,25	1,14
	1,43	1,34	1,37	1,36	1,35	1,41	1,39	1,43	1,38	1,34
	1,42	1,24	1,39	1,37	1,36	1,41	1,39	1,42	1,31	1,24
	1,92	1,54	1,87	1,86	1,85	1,90	1,89	1,92	1,69	1,54
				2248						
	1800		1800 + 100 (min distance) + 1800 (in a straight installation)							
				1000 (+60)						
	820	850	1580	1580	1580	1610	1610	1640	1670	1700
				30						
	1 1/8 (ø28.58)		1 1/4 (ø31.75)	1 1/4 (ø31.75)	1 1/4 (ø31.75)	1 1/4 (ø31.75)	1 1/4 (ø31.75)	1 1/2 (ø38.10)	1 1/2 (ø38.10)	1 1/2 (ø38.10)
	5/8 (ø15.88)	5/8 (ø15.88)		3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)	3/4 (ø19.05)
	3/8 (ø9.52)									
	R3/4 (bolt thread)									
	ø25 rubber hose									
	58	62	60	60	60	61	61	61	63	65
	50-200 %		50-130 %							
	36	36	48							

Specifications subject to change without notice.

R410A

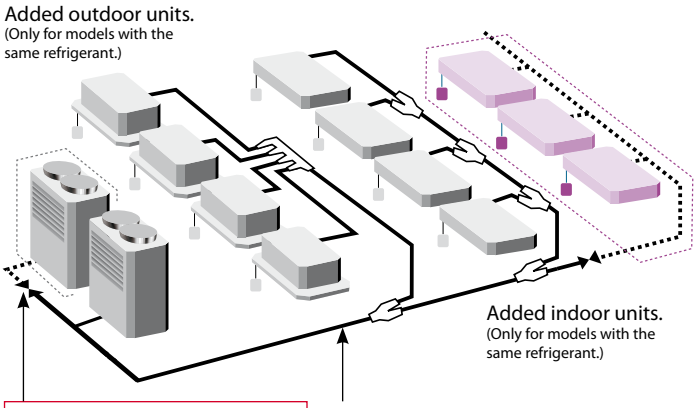
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

ECO G W-Multi
2 Pipe Heat Pump System

Easy to add additional units in the future

Load can easily be increased in the future by the addition of indoor and outdoor units without having to plumb pipe shafts.

*When specifying refrigerant pipe work, please choose the size according to the horsepower after the increase of units.



If there is a possibility for addition after setting up, please plan it so that the placement of a ball valve (sold separately) on a branch pipe on indoor/outdoor units is possible.

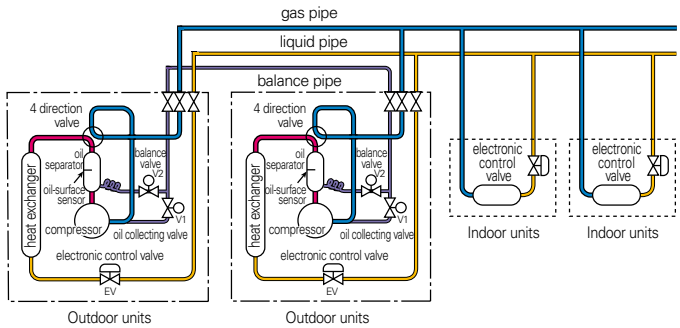
Main pipe: Maximum gas pipe diameter 38.1 (1 1/2)
Maximum fluid pipe diameter 22.22 (7/8)

Example of a system

Maximum possible number of outdoor units to be combined: 2 units
Maximum horsepower of combined outdoor units: 50hp
Maximum possible number of indoor units to be connected: 48 units *1
Indoor/outdoor units capacity ratio: 50%~130% *2

*1 When 2 outdoor units are connected
*2 Capacity of indoor units connection is
Minimum) 50% of the capacity of the smallest outdoor unit within the system.
Maximum) 130%: total capacity of the system outdoor units.

Indoor units are same as multi series for buildings.



System diagram

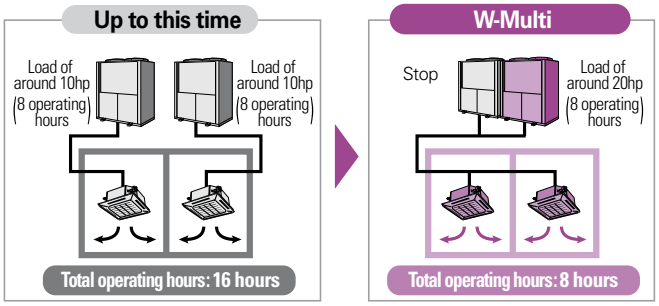
Introducing the oil/refrigerant balance control system

The amounts of oil between compressors are kept in balance by a signal from an oil temperature sensor, allowing the exchange of oil and refrigerant through a balance pipe.

Saving Energy

- Energy savings achieved by the Appropriate Capacity Equational Program Function

Energy savings are achieved by the Appropriate Load Divider Function, which enables efficient operation by concentrating the cooling/heating capacity to one outdoor unit and stopping the other. Compared to conventional machines with a similar COP, this function allows an achievement of energy savings and thus reduces the running costs, especially in part-load-seasons like spring and autumn.



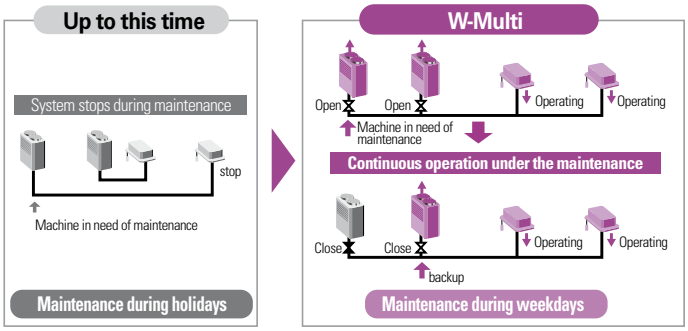
Non-stop operation, even during maintainance

- System will not stop even during maintenance, due to Manual Backup Operating Function

Maintenance is possible during weekdays because it can continue operating during maintenance.

- Automatic Backup Operating Function enables continuous operation.

If one outdoor unit stops the backup function will automatically start on the remaining unit and continue operating. During service intervals, the system being serviced can be isolated by a closing valve in the outdoor unit, enabling continuous operation with the still operative outdoor unit.

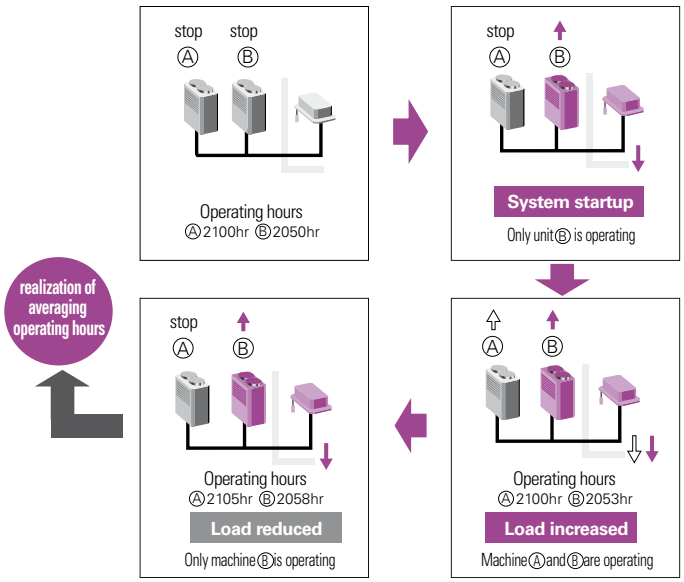


Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Long lifetime

- Renewal period prolonged due to rotation function

Rotation function, which is run from outdoor units with low operating time, will average the operating hours of each outdoor unit. This will result in prolongation of maintanance or replacement period.



Example of the rotation function

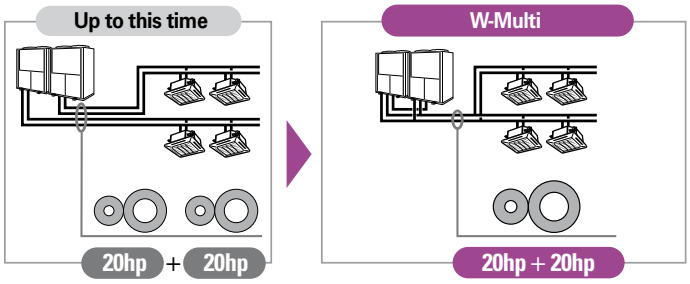
Ease of construction

- By using common header pipe work the installation cost and time is significantly reduced

By combining all pipes, which were needed for each indoor unit, into a common pipe in each system, the number of pipes are reduced by half* which leads to ease of construction. Furthermore, space of pipes within pipe shafts can be reduced by 2/3.*

*System with approximately 40hp (20hp x 2 units)

Combining all pipes, which were needed for each outdoor unit, into a pipe in each system. (Number of pipes is reduced by half)



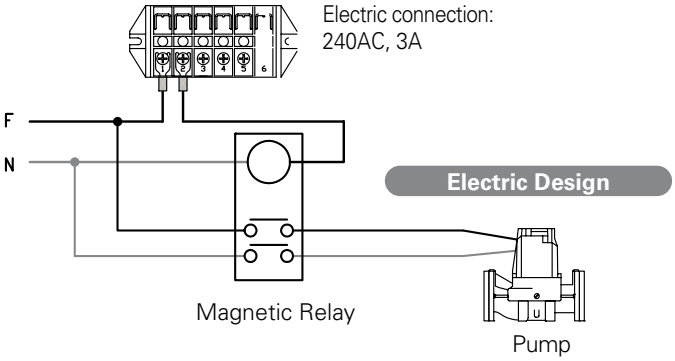
Example of a system with approximately 40hp

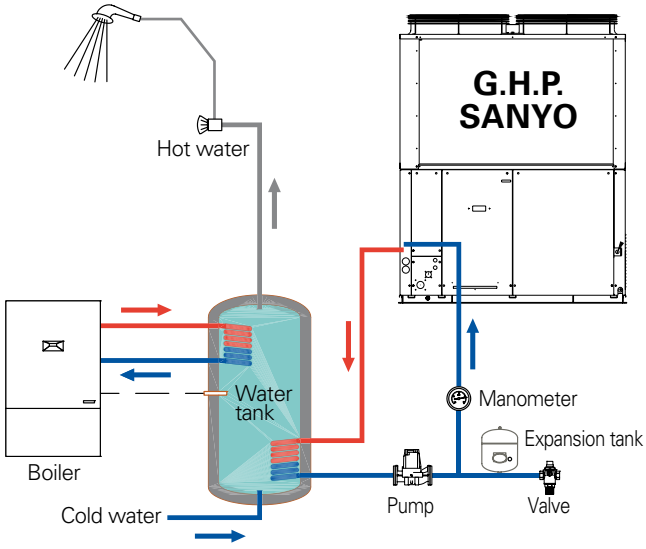
Hot Water Supply Function

- System Advantage

The engine waste heat, which is normally exhausted into the atmosphere, is recovered via the heat exchanger and effectively used as hot water, so the GHP Chiller acts as a sub system that alleviates the load on the client's main hot water system, and therefore offers 'free' hot water.

Capacity at cooling standard point			Outlet temp 75˚C
Outdoor unit	SGP-EW120M2G2W	kW	12.0
	SGP-EW150M2G2W		16.0
	SGP-EW190M2G2W		20.0
	SGP-EGW190M2G2W		22.0
	SGP-EW240M2G2W		25.0
Hot water piping allowable pressure		MPa	0.7
Hot water circulation rate		m³/h	3.9
Hot water tube size			Rp 3/4





- All the items illustrated in this draw (exception outdoor unit) are not Sanyo's supply.
- During start up, set temperature value of the water in the outdoor unit's parameter.

R410A

ECO G 3 Way Multi
3 Pipe Heat Recovery System with Simultaneous Heating & Cooling

The only 3 way GHP system in Europe, the M Series ECO G 3 Way offers even more performance and outstanding features when you need simultaneous heating and cooling. Now with capacities available from 16HP to 25HP, SANYO offers the greatest choice and flexibility to solve any power problem or site requirement.

- Simultaneous heating and cooling for total control
- Reduced gas consumption by Miller-cycle engine
- Reduced electrical power consumption by using DC motors
- New use of aluminium engine block reduces weight by 110kg
- Part load efficiencies increased
- Connectability increased to up to 36 indoor units
- Now available in 16, 20 and 25HP
- 200m maximum allowable piping length, L1
- Diversity ratio 50–200%
- Extended pipe runs (total 780m)
- Quiet mode offers a further 2dB(A) reduction
- 10 000 run hours between engine service intervals (equivalent to one maintenance every 3.2 years*)
- Full heating capacity down to -21 °C
- No defrost cycle
- Ideal for all bulding types
- Option of using LPG as a power supply (increases flexibility and avoids problems of potential site restrictions in the future. The purer fuel is also excellent for further reductions in CO_2 emissions)

HP				16	20	25
Model name				SGP-EZ150M2G2	SGP-EZ190M2G2	SGP-EZ240M2G2
Capacity	Cooling		kW	45,0	56,0	71,0
	Heating	STD	kW	50,0	63,0	80,0
		Low temp*	kW	53,0	67,0	75,0
Electricity	Cooling		kW	1,35	1,35	1,35
	Heating		kW	1,01	1,01	1,54
Gas consumption	Cooling		kW	31,6	38,3	60,9
	Heating STD		kW	36,1	43,0	58,0
	Heating LOW		kW	47,3	56,4	64,9
C O P	Cooling			1,37	1,41	1,14
	Heating			1,35	1,43	1,34
	Average			1,36	1,42	1,24
Size	Height		mm	2248		
	Width		mm	1800		
	Depth		mm	1000 (+60)		
Weight			kg	845	845	875
Starter amperes			A	30		
Pipe Connections	Gas		inches mm	1 1/8 (ø28.58)		
	Discharge		inches mm	7/8 (ø22.22)	1" (ø25.40)	
	Liquid		inches mm	3/4 (ø19.05)		
	Fuel gas			R3/4 (bolt thread)		
	Exhaust drain		mm	ø 25 rubber hose		
Operation sound			dB(A)	57	58	62
Indoor/outdoor capacity ratio				50-200% *1		
Number of indoor connections				36	36	36

*Low temp condition: outdoor temperture 2˚C *1 Indoor unit can be connected to up to 16kW model (model size 60) Specifications subject to change without notice.

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Additional parts

Solenoid valve controller

ACC-3WAY-AGB

Solenoid valve kit

ATK-RZP56BGWB (For 74 to 254 indoor unit)
ATK-RZP160BGWB (For 364 to 604 indoor unit)

* For conference rooms and other locations where low noise is required, pay attention to the installation location and install in a corridor etc.

Max. 36 indoor units

3 WAY GHP MULTI enables simultaneous heating and cooling operation through each solenoid valve kit.

Liquid pipe
medium-temperature,
medium-pressure liquid pipe

Suction pipe
low-temperature,
low-pressure gas pipe

Discharge pipe
high-temperature,
high-pressure gas pipe

Excellent performance

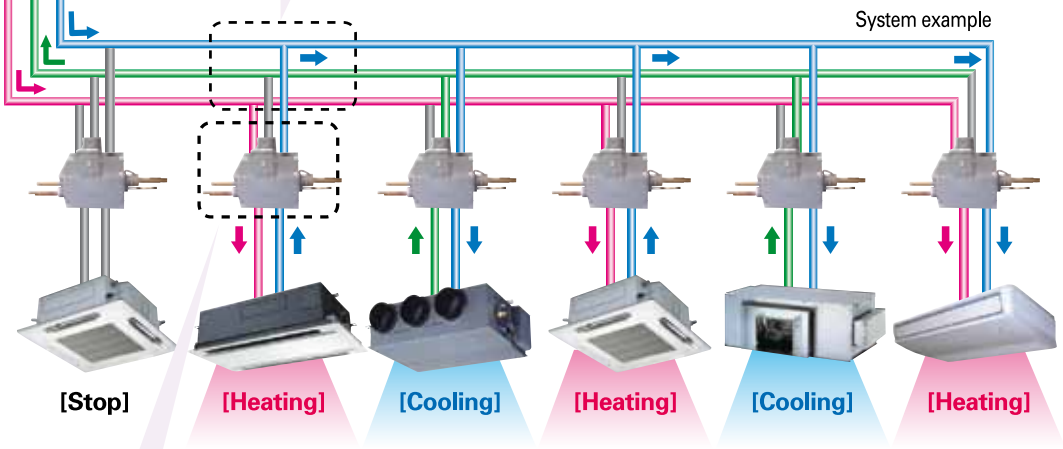
SANYO 3 WAY multi system is capable of simultaneous heating/cooling and individual operation of each indoor unit by only one outdoor unit. As a result, efficient individual air conditioning is possible in buildings having diverse room temperatures.

Improved maintenance intervals
The unit only needs to be serviced every 10,000 hours. This is the best in the industry.

Up to 35% energy saving (SANYO estimate)

Effective heat recovery system enables up to 35% energy saving
The waste heat removed from the cooled room is effectively used as a heat source for the room to be heated. As a result, the load on the compressor and heat exchanger on the outdoor unit can be reduced, enabling excellent heat recovery.

System example



Solenoid Valve Kit ATK-RZP56BGWB, ATK-RZP160BGWB

To be fitted on all 'zones' to allow simultaneous heating and cooling
Up to 36 indoor units are capable of simultaneous heating/cooling operation.

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

ECO G Water Heat Exchanger
For hydronic Applications

The SANYO ECO G Water Heat Exchanger can provide water at a wide range of temperatures suitable for a wide variety of commercial applications ranging from comfort air conditioning to food processing or the replacement of boilers and other systems.

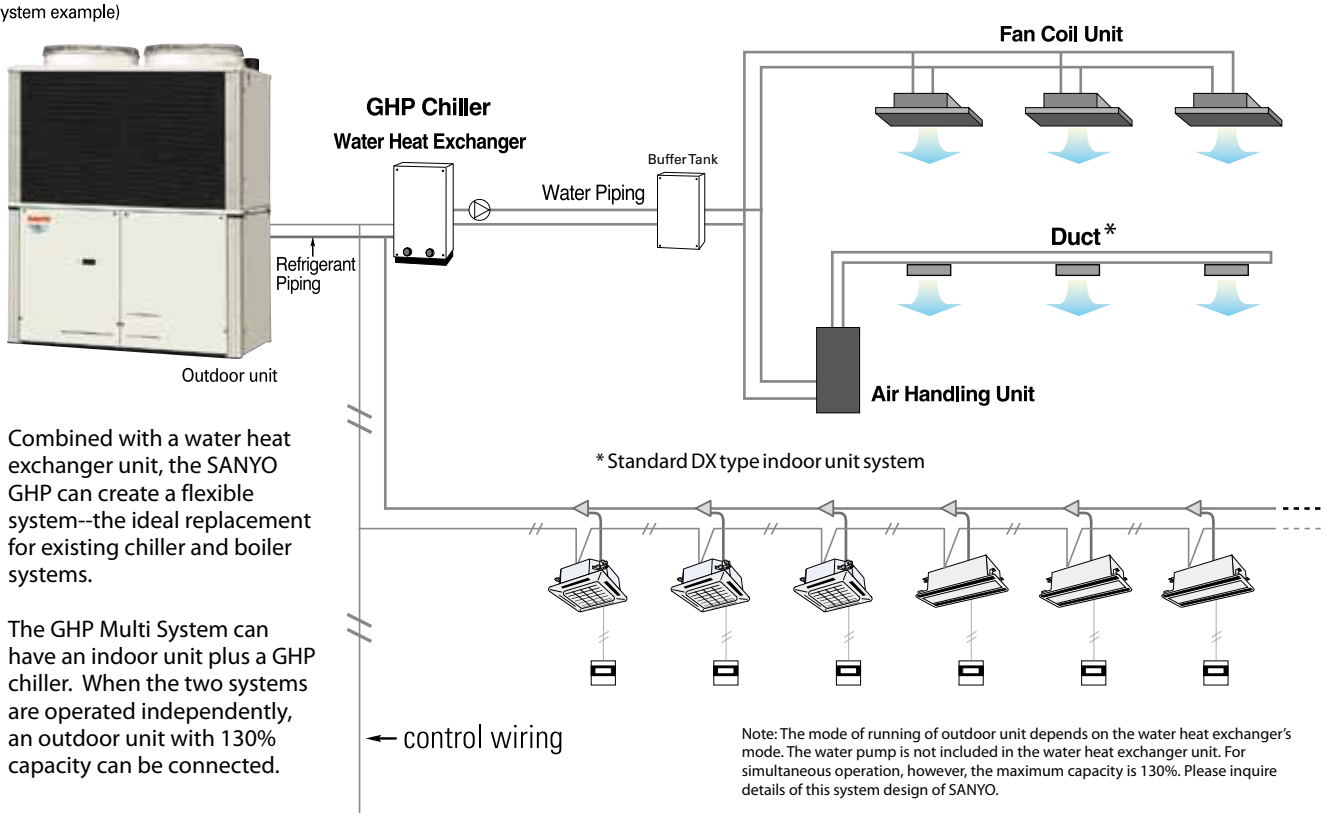
- Range expanded for 2010
- New line up of 25 kW, 50 kW and 70 kW capacity models
- In cooling (chiller) mode provides water from - 5°C to 15°C
- In heating mode can provide hot water up to 55°C, for example for under floor heating applications
- Includes water flow protection to prevent freezing
- S-Link communication
- All controllers and optional PCBs can be used for control
- High flexibility
- Lighter and smaller
- Range of new water terminal/fan coil units
- Split system means reduced installation cost and the use of a less powerful circulation pump
- One touch changeover between cooling and heating operation
- The system can accommodate up to 120m (actual length) of piping between the outdoor unit and the water heat exchanger, allowing flexibility of installation location
- The system can use antifreeze coolant, so it can produce cold water even at - 5°C, thereby complying with "brine specifications"

Operating condition	Cooling	Heating
Water temperature of water heat exchanger unit	Outlet 7°C	Outlet 45°C
Outdoor side intake air temperature	35°C DB	7°C DB, 6°C WB

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Mixed System Application

(System example)



- Combined with a water heat exchanger unit, the SANYO GHP can create a flexible system--the ideal replacement for existing chiller and boiler systems.
- The GHP Multi System can have an indoor unit plus a GHP chiller. When the two systems are operated independently, an outdoor unit with 130% capacity can be connected.

Note: The mode of running of outdoor unit depends on the water heat exchanger's mode. The water pump is not included in the water heat exchanger unit. For simultaneous operation, however, the maximum capacity is 130%. Please inquire details of this system design of SANYO.

EGO G Water Heat Exchanger					
Model No.				SGP-WE80M1	SGP-WE170M1
SGP-EW120M2G2W	Cooling capacity		kW	25	30
	Heating capacity		kW	30	35,5
SGP-EW150M2G2W	Cooling capacity		kW	25	37,5
	Heating capacity		kW	30	45
SGP-EW190M2G2W and SGP-EGW190M2G2W	Cooling capacity		kW	25	50
	Heating capacity		kW	30	60
SGP-EW240M2G2W	Cooling capacity		kW	25	56
	Heating capacity		kW	30	67
Electrical rating	Cooling power input		kW	0,01	0,01
	Heating power input		kW	0,01	0,01
Power supply				220/230/240V Single Phase 50Hz	
Size	Height		mm	1000	
	Width		mm	550	
	Depth		mm	965	
Weight			kg	125	160
Standard cold/hot water flow rate			m3/h	4,3	8,6
Hydrostatic loss			kPa	8,5	11,3
Holding water quantity inside the unit			m3	0,01	0,02
Minimum holding water quantity outside the unit			m3	0,28	0,50
Pipe connections	Gas pipe		inches mm	7/8 (ø22.22)	1 1/8 (ø28.58)
	Liquid pipe		inches mm	3/8 (ø9.52)	5/8 (ø15.88)
Water circuit limit pressure			MPa	0,686	
Anti-freezing protection system				Protective thermostat	

Specifications subject to change without notice.

higher capacity models data to follow: please refer to our website: http://eu.sanyo.com/aircon/

R410A

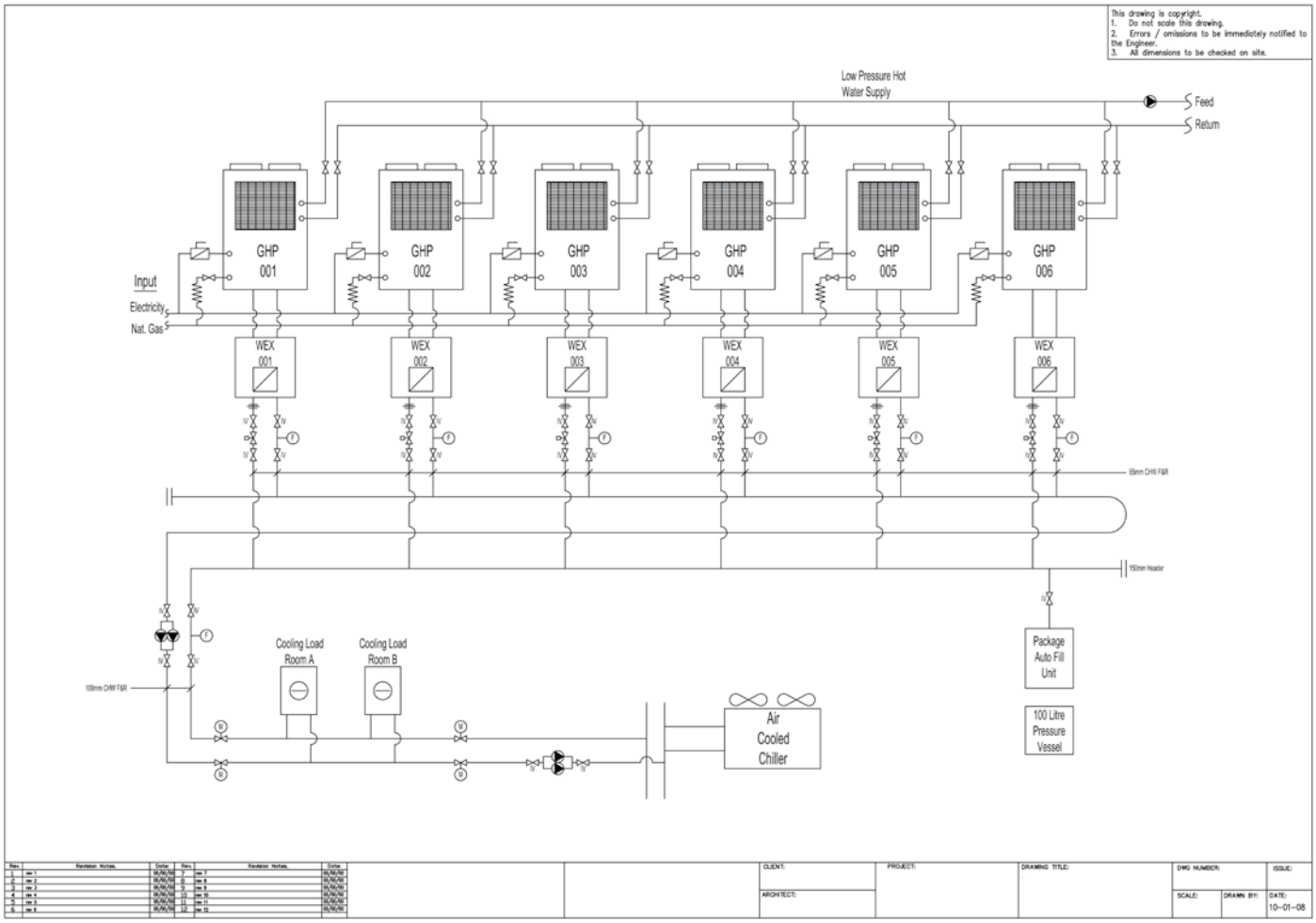
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Application Examples

Connection to 'close control' computer equipment.

COMPUTER ROOM APPLICATIONS

When all available electrical power needed to be utilised for the IT equipment for a leading international bank, the cooling load of over 450kW needed to be powered by gas. The outdoor units were connected via Water heat exchangers to cooling coils inside the 'close control' units thereby maintaining a conditioned environment for temperature and humidity. By utilising the hot water function over 100kW of hot water are supplied to the building and therefore the additional benefit of considerable CO2 savings is ensured.



This Part L design has reduced C02 Emissions by 26% or 166 tonnes per annum compared to electric chillers

Specifications subject to change without notice.

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Connection to chilled water coils in air handling equipment.

AIR HANDLING APPLICATION

When a top London restaurant opened it needed large volumes of fresh air to ensure the optimum dining environment. GHP units connected to the cooling coils within the air handling equipment ensured the air was introduced in the right condition in both summer and winter.

Chiller replacement. Chilled water supply to fan coils.

CHILLER REPLACMENT

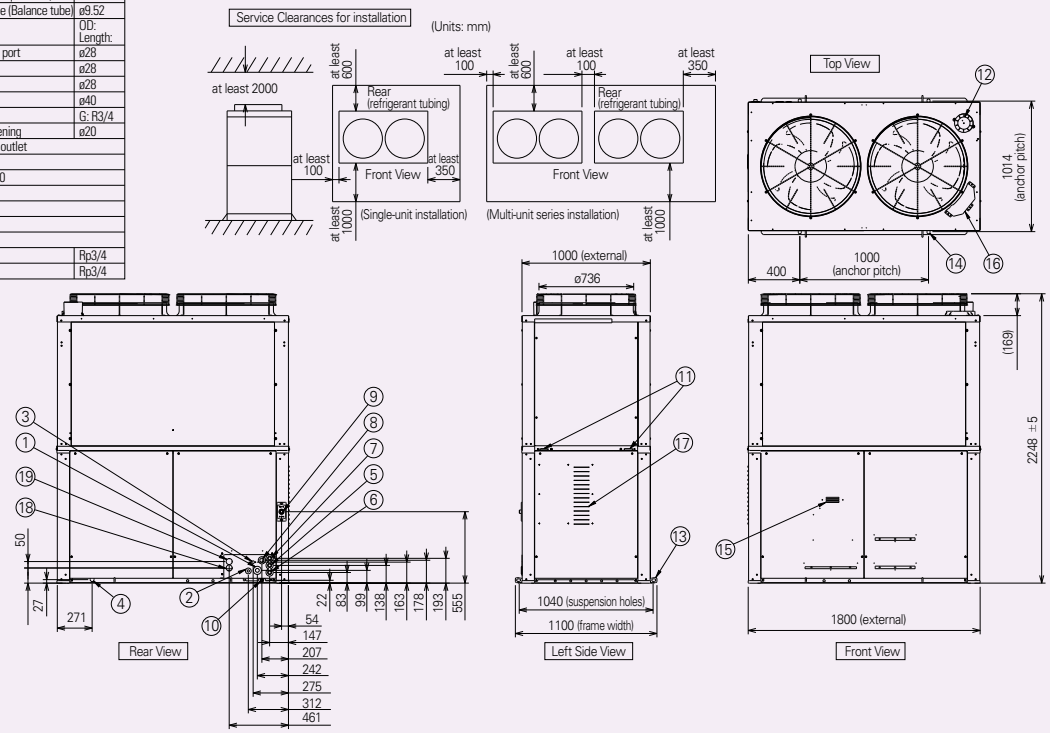
When it came for some old chillers to be replaced at the end of their operation life, GHPs with Water heat exchangers enabled the project to be carried out in stages whilst still utilising the existing water pipe work and fan coils. This enabled the project to be delivered on time, to a restricted budget and avoided all issues regarding refrigerant in confined spaces.

R410A

ECO G
Outdoor units external dimensions

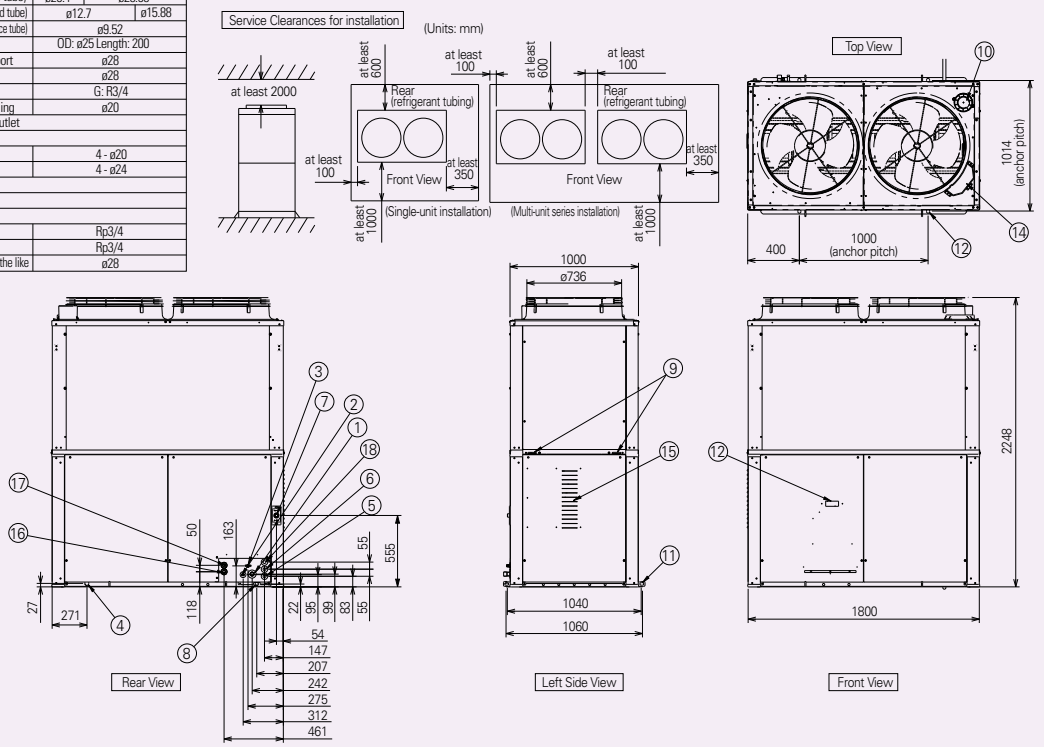
G POWER

	Size (mm)
① Gas refrigerant pipe (Gas tube)	ø28.58
② Liquid refrigerant pipe (Liquid tube)	ø15.88
③ Refrigerant balance pipe (Balance tube)	ø9.52
④ Exhaust gas drain hose	OD: Length:
⑤ Electrical power supply port	ø28
⑥ Inter-unit cable port	ø28
⑦ Inverter cable port	ø28
⑧ Inverter cable port	ø40
⑨ Fuel gas port	G: R3/4
⑩ Condensation drain opening	ø20
⑪ Rain and condensation outlet	
⑫ Engine exhaust outlet	
⑬ Suspension holes 4 - ø20	
⑭ Anchor holes 4 - ø24	
⑮ Segmented display	
⑯ Coolant intake (top)	
⑰ Vent	
⑱ Hot water intake	Rp3/4
⑲ Hot water outlet	Rp3/4



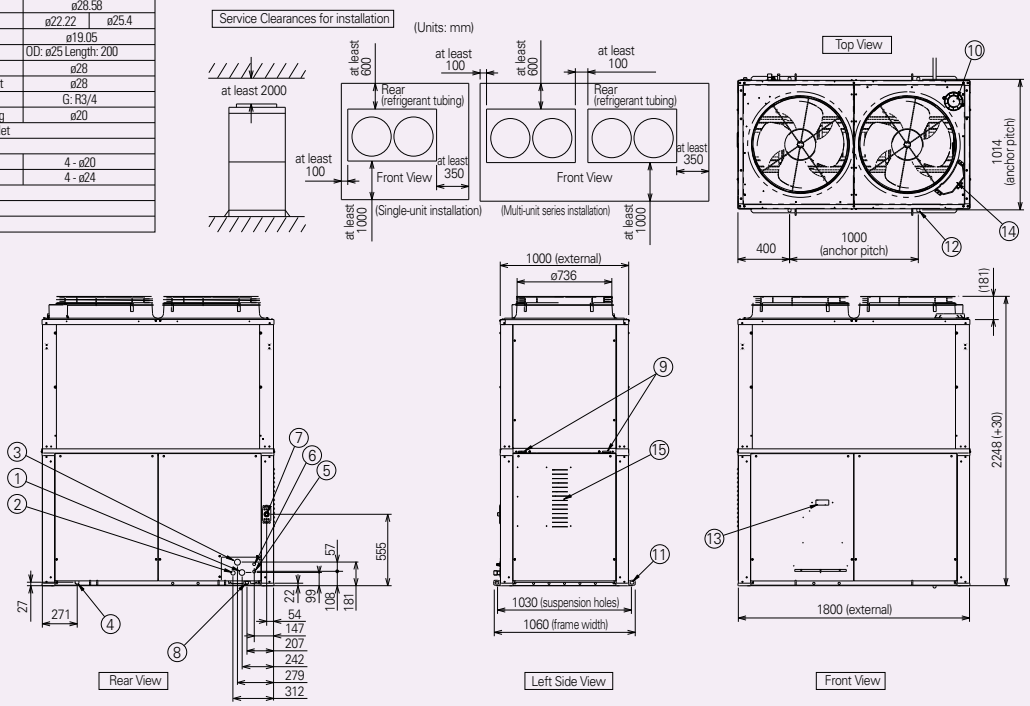
W-MULTI

	Size (mm)		
Model Type	120	150	190 and 240
① Gas refrigerant pipe (Gas tube)	ø25.4	ø28.58	
② Liquid refrigerant pipe (Liquid tube)	ø12.7		ø15.88
③ Refrigerant balance pipe (Balance tube)	ø9.52		
④ Exhaust gas drain hose	OD: ø25 Length: 200		
⑤ Electrical power supply port	ø28		
⑥ Inter-unit cable port	ø28		
⑦ Fuel gas port	G: R3/4		
⑧ Condensation drain opening	ø20		
⑨ Rain and condensation outlet			
⑩ Engine exhaust outlet			
⑪ Suspension holes	4 - ø20		
⑫ Anchor holes	4 - ø24		
⑬ Segmented display			
⑭ Coolant intake (top)			
⑮ Vent			
⑯ Hot water intake	Rp3/4		
⑰ Hot water outlet	Rp3/4		
⑱ Cable inlet for interlock and the like	ø28		

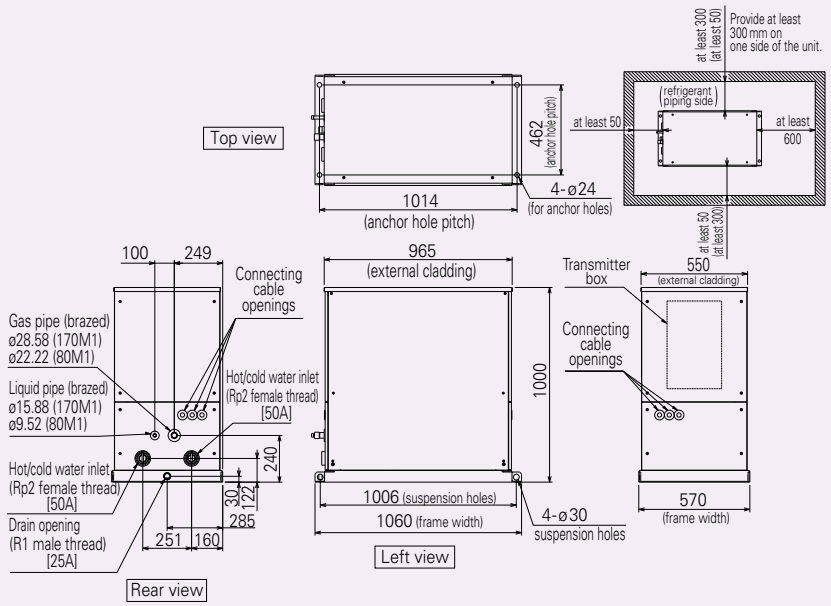


3WAY MULTI

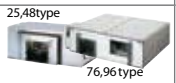
Model Type	Size (mm) 150	190 240
① Suction refrigerant pipe	ø28.58	
② Discharge refrigerant pipe	ø22.22	ø25.4
③ Liquid refrigerant pipe	ø19.05	
④ Exhaust gas drain hose	OD: ø25 Length: 200	
⑤ Inter-unit cable port	ø28	
⑥ Electrical power supply port	ø28	
⑦ Fuel gas port	G: R3/4	
⑧ Condensation drain opening	ø20	
⑨ Rain and condensation outlet		
⑩ Engine exhaust outlet		
⑪ Suspension holes	4 - ø20	
⑫ Anchor holes	4 - ø24	
⑬ Segmented display		
⑭ Coolant intake (top)		
⑮ Vent		



Water heat exchanger unit



GHP Indoor Unit Range
Wide choice of models depending on the indoor requirements

Model size		7	9	12	16	18	22	25
Capacity kW	Cooling	2,2	2,8	3,6	4,5	5,6	6,4	7,3
	Heating	2,5	3,2	4,2	5,0	6,3	7,0	8,0
Capacity BTU/h	Cooling	7500	9600	12000	15000	19000	22000	25000
	Heating	8500	11000	14000	17000	21000	24000	27000
X type Semi-Concealed Cassette 		SPW-X075XH Panel PNR-XD484GHAB	SPW-X095XH Panel PNR-XD484GHAB	SPW-X125XH Panel PNR-XD484GHAB	SPW-X165XH Panel PNR-XD484GHAB	SPW-X185XH Panel PNR-XD484GHAB		SPW-X255XH Panel PNR-XD484GHAB
XM type Semi-Concealed 		SPW-XM075XH Panel PNR-XM185	SPW-XM095XH Panel PNR-XM185	SPW-XM125XH Panel PNR-XM185	SPW-XM165XH Panel PNR-XM185	SPW-XM185XH Panel PNR-XM185		
LDR type Semi-Concealed Slim Cassette 			SPW-LDR94GXH56B Panel PNR-LD254GHAB	SPW-LDR124GXH56B Panel PNR-LD254GHAB	SPW-LDR164GXH56B Panel PNR-LD254GHAB	SPW-LDR184GXH56B Panel PNR-LD254GHAB		SPW-LDR254GXH56B Panel PNR-LD254GHAB
DR type Concealed Duct 								SPW-DR254GXH56B
US type Concealed Duct 		SPW-US075XH	SPW-US095XH	SPW-US125XH	SPW-US165XH	SPW-US185XH		
U type Concealed Duct 		SPW-U075XH	SPW-U095XH	SPW-U125XH	SPW-U165XH	SPW-U185XH		SPW-U255XH
FTR type Floor/Ceiling Mounted Units 		SPW-FTR74EXH56B	SPW-FTR94EXH56B	SPW-FTR124EXH56B	SPW-FTR164EXH56B	SPW-FTR184EXH56B	SPW-FTR224EXH56B	
T type Ceiling-Mounted Unit 				SPW-T125XH	SPW-T165XH	SPW-T185XH		SPW-T255XH
K type Wall Mounted Unit 		SPW-K075XH	SPW-K095XH	SPW-K125XH				
KR type Wall Mounted Unit 		SPW-KR74GXH56B	SPW-KR94GXH56B	SPW-KR124GXH56B	SPW-KR164GXH56B	SPW-KR184GXH56B		SPW-KR254GXH56B
FR type Floor Standing Unit 		SPW-FR74GXH56B	SPW-FR94GXH56B	SPW-FR124GXH56B	SPW-FR164GXH56B	SPW-FR184GXH56B		SPW-FR254GXH56B
FMR type Concealed Floor Standing Unit 		SPW-FMR74GXH56B	SPW-FMR94GXH56B	SPW-FMR124GXH56B	SPW-FMR164GXH56B	SPW-FMR184GXH56B		SPW-FMR254GXH56B
GU type Total Heat Exchanger 			SPW-GU055XH		SPW-GU075XH	SPW-GU105XH		

CFR type
Heat Recovery Units (page A29-A30)

Hydronic applications
Water Terminals (page A39-A41), Fan Coil Units (page A42), Ducted Units (page A43-A44)

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

	36	48	60	76	96	Wireless remote control		
	10,6	14,0	16,0	22,4	28,0	Type with built-in sensor part	Type with separately installed sensor part	Functions
	11,4	16,0	18,0	25,0	31,5			
	36000	47800	54600	76400	95500			
	39000	54600	61500	85300	107500			
	SPW-X365XH Panel PNR-XD484GHAB	SPW-X485XH Panel PNR-XD484GHAB	SPW-X605XH Panel PNR-XD484GHAB					WIDE OPERATION, AUTO, DRY, DP
								WIDE OPERATION, AUTO, DRY, DP
								WIDE OPERATION, AUTO, DRY, DP
	SPW-DR364GXH56B	SPW-DR484GXH56B		SPW-DR764GXH56B	SPW-DR964GXH56B			WIDE OPERATION, DRY
								WIDE OPERATION, DRY, DP
	SPW-U365XH	SPW-U485XH	SPW-U605XH					WIDE OPERATION, DRY, DP
								WIDE OPERATION, AUTO, DRY
	SPW-T365XH	SPW-T485XH						WIDE OPERATION, AUTO, DRY
								WIDE OPERATION, AUTO, DRY
								WIDE OPERATION, AUTO, DRY
								WIDE OPERATION, DRY
								WIDE OPERATION, DRY
								WIDE OPERATION, DRY

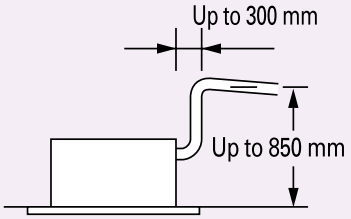
WIDE OPERATION Wider operation
AUTO Comfortable auto-flapcontrol
Self-diagnosing function
Automaticrestartfunctionfor power failure
Automatic fan operation
Air Sweep
DRY Milddry
DP Built-in drainpump

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

X type
semi-concealed cassette

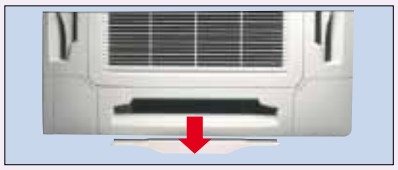
The award winning range of X type cassettes are smaller, shallower and lighter than previous models and feature a 950 x 950mm panel throughout. The DC fan motor and air discharge louvre ensure quiet, optimum air distribution.

- Compact design
- Reduced sound levels (from previous models)
- DC fan motor for increased efficiency
- Powerful drain pump gives 850mm lift
- Lightweight design
- Fresh air knockout
- Branch duct connection

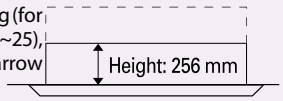


Drain Pump of about 850 mm from the ceiling surface

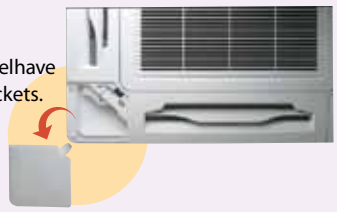
The flap can be removed easily for washing with water.

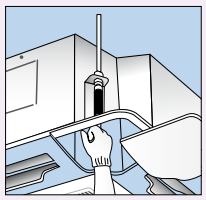


Lighter and thinner, easier installation!
The top class lightest weight with 26 kg (for type36~60), body height only 256mm (7~25), so that installation is possible even in narrow ceilings.



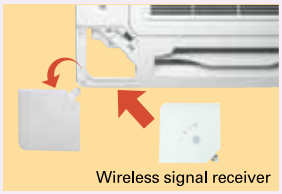
Easy fine adjustment of the body suspension height!
The four corners of the ceiling panel have adopted removable corner pockets.





Even after installation, fine adjustment of the suspension height is possible easily by removing the corner pockets.

Light, thin, and attractive design with easy installation
The direction of the air intake grille can be changed. A wireless remote control light receiver can be installed by changing the corner cover. The installation can be done in a short time.



Easy servicing of the drain pan
A large-diameter (45mm) drain pan inspection port has been provided, and drain pan and drain pump can be cleaned easily.

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Air intake chamber

CMB-FS140AGB
Air intake plenum

CMB-GS140AG
Air intake box

Both Air intake plenum and
Air intake box are necessary

Panel

PNR-XD484GHAB

Timerremotecontroller

RCS-TM80BG

Wirelessremotecontroller

RCS-SH80BG.WL

RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-X075XH	SPW-X095XH	SPW-X125XH	SPW-X165XH	SPW-X185XH	SPW-X255XH	SPW-X365XH	SPW-X485XH	SPW-X605XH
Power source			220/230/240V, 1 phase - 50, 60 Hz								
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,3	10,6	14	16
		BTU/h	7500	9600	12000	15000	19000	25000	36000	47800	54600
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0	11,4	16,0	18,0
		BTU/h	8500	11000	14000	17000	21000	27000	39000	54600	61400
Power input	Cooling	kW	0,033/0,032/0,032			0,033/0,032/0,032	0,035/0,034/0,034	0,042/0,041/0,041	0,070/0,069/0,069	0,099/0,097/0,097	0,107/0,105/0,105
	Heating	kW	0,023/0,022/0,022			0,023/0,022/0,022	0,023/0,023/0,023	0,031/0,031/0,031	0,062/0,060/0,060	0,095/0,093/0,093	0,100/0,098/0,098
Running amperes	Cooling	A	0,22/0,21/0,20			0,22/0,21/0,20	0,23/0,22/0,21	0,29/0,27/0,26	0,49/0,46/0,44	0,67/0,63/0,60	0,72/0,68/0,65
	Heating	A	0,19/0,18/0,17			0,19/0,18/0,17	0,20/0,19/0,18	0,26/0,25/0,24	0,48/0,45/0,43	0,67/0,63/0,60	0,76/0,71/0,68
Fan motor	Type		Turbo fan								
	Airflow rate (H/M/L)	m^3/m	15,5/14/13				16/14/13	20/16/14	28/23/21	33/25/22	34/27/23
	Output kW		0,05						0,09		
Power sound level (H/M/L)		dB(A)	42/40/38					45/42/39	50/47/44	53/49/45	55/51/47
Sound pressure sound (H/M/L)		dB(A)	31/29/27					34/31/28	39/36/33	42/38/34	44/40/36
Dimensions	Height	mm	256 + <35>						319 + <35>		
	Width	mm	840 <950>								
	Depth	mm	840 <950>								
Pipe connections	Liquid	inches mm	1/4 (ø6.35)					3/8 (ø9.52)			
	Gas	inches mm	1/2 (ø12.7)					5/8 (ø15.88)			
	Drain piping		VP-25								
Net weight		kg	21+ <4,5>						26 + <4,5>		

The values in < > for external dimensions and Net weight are the values for the optional ceiling panel.

Specifications subject to change without notice.

WIDE OPERATION · DRY · AUTO · DP

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

XM type
mini semi-concealed cassette

Designed to fit exactly into a 600x600mm ceiling grid without the need to alter the bar configuration, the XM is ideal for small commercial and retro fit applications. In addition, the improvements to efficiency make this one of the most advanced units in the industry.

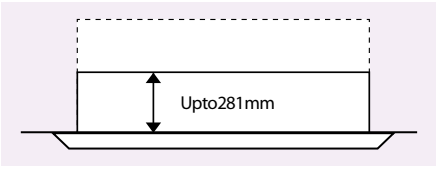
- Mini cassette fits into a 600x600mm ceiling grid
- Fresh air knock out
- Multidirectional air flow
- Anti-mould and anti-bacteria washable filters
- Powerful drain pump gives 850mm lift
- Turbo fans and heat exchanger fins with improved design
- DC fan motors with variable speed, new heat exchangers, etc. ensure an efficient power consumption

Special designed flap

The flap can be removed easily for washing.

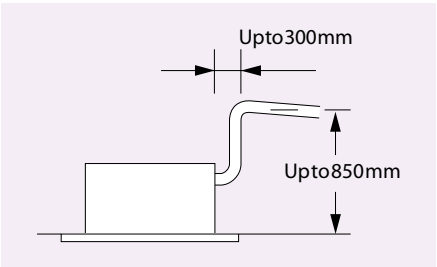
Lighter and slimmer, easier installation

A lightweight unit at 26 kg (for type 36-60), the unit is also very slim with a height of only 281 mm, making installation possible even in narrow ceilings.



A drain height of approx. 850 mm from the ceiling surface

The drain height can be increased by approximately 350 mm over the conventional value by using a high-lift drain pump, and long horizontal piping is possible.



Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Panel

PNR-XM185

Timerremotecontroller

RCS-TM80BG

Wirelessremotecontroller

RCS-XM18BG.WL

RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-XM075XH	SPW-XM095XH	SPW-XM125XH	SPW-XM165XH	SPW-XM185XH
Power source			220/230/240V, 1 phase - 50, 60Hz				
Cooling capacity		kW	2,2	2,8	3,6	4,7	5,6
		BTU/h	7500	9600	12000	15000	19000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3
		BTU/h	8500	11000	14000	17000	21000
Power input	Cooling	kW	0,034/0,031/0,030		0,037/0,034/0,031	0,044/0,040/0,037	0,055/0,049/0,040
	Heating	kW	0,024/0,021/0,020		0,027/0,024/0,021	0,034/0,030/0,027	0,045/0,039/0,030
Running amperes	Cooling	A	0,26/0,23/0,21		0,29/0,26/0,23	0,37/0,33/0,29	0,47/0,42/0,33
	Heating	A	0,24/0,21/0,19		0,27/0,24/0,21	0,35/0,31/0,27	0,45/0,40/0,31
Fan motor	Type		Centrifugal fan				
	Airflow rate (H/M/L)	m^3/min	9/8/7		10/9/8	12/11/10	14/13/11
	Output	kW	0.030				
Power sound level (H/M/L)		dB(A)	41/38/36		43/40/37	47/43/39	52/48/44
Pressure sound level (H/M/L)		dB(A)	30/27/25		32/29/26	36/32/28	41/37/33
Dimensions	Height	mm	283				
	Width	mm	575 <625>				
	Depth	mm	575 <625>				
Pipe connections	Liquid	inches mm	1/4 (ø6.35)				
	Gas	inches mm	1/2 (ø12.7)				
	Drain piping		VP-20				
Net weight		kg	19 + <2,7>				

Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB.

Specifications subject to change without notice.

WIDE OPERATION · AUTO · DRY · AUTO · DP

R410A

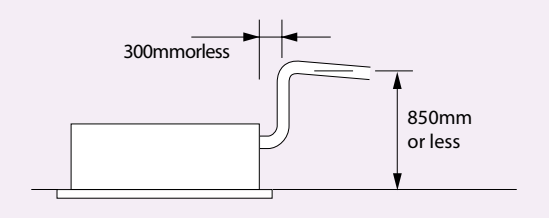
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

LDR type
semi-concealed slim cassette

Designed for installation within the ceiling void, the LDR range of slimline 1 way blow cassettes feature powerful yet quiet fans for up to 4.2 metres.

- Ultra-Slim
- Suitable for standard and high ceilings
- Built-in drain pump provides 747mm lift
- Easy to install and maintain
- Hanging height can be easily adjusted
- Uses a DC fan motor to improve energy-efficiency

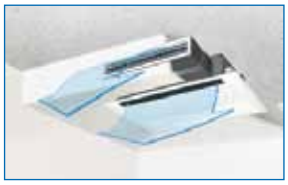
Drain height



With 3 types of air-blow systems, the units can be used in various ways.

(1) One-direction down-blow system

Powerful one-direction "down-blow" system reaches the floor even from high ceilings (up to 4.2m).



(2) Two-direction ceiling-mounted system

"Down-blow" and "front-blow" systems are combined in a ceiling-mounted unit to blow air over a wide area.

(3) One-direction ceiling-mounted system

This powerful ceiling-mounted "front-blow" system efficiently air-conditions the space in front of the unit.

(Additional accessories required)

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Panel

PNR-LD254GHAB

Timerremotecontroller

RCS-TM80BG

Wireless remote controller
(Transmitter, common part)

RCS-TRP80BG.WL

RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-LDR94GXH56B	SPW-LDR124GXH56B	SPW-LDR164GXH56B	SPW-LDR184GXH56B	SPW-LDR254GXH56B
Power source			220/230/240V, 1 phase - 50, 60 Hz				
Cooling capacity		kW	2,8	3,6	4,5	5,6	7,3
		BTU/h	9600	12000	15000	19000	25000
Heating capacity		kW	3,2	4,2	5,0	6,3	8,0
		BTU/h	11000	14000	17000	21000	27000
Power input	Cooling	kW	0,105/0,110/0,115	0,105/0,110/0,115	0,105/0,110/0,115	0,110/0,115/0,120	0,115/0,120/0,125
	Heating	kW	0,075/0,080/0,085	0,075/0,080/0,085	0,075/0,080/0,085	0,080/0,085/0,090	0,085/0,090/0,095
Running amperes	Cooling	A	0,50/0,50/0,51	0,50/0,50/0,51	0,50/0,50/0,51	0,53/0,53/0,54	0,55/0,55/0,56
	Heating	A	0,36/0,37/0,38	0,36/0,37/0,38	0,36/0,37/0,38	0,38/0,39/0,40	0,40/0,41/0,42
Fan motor	Type		Sirocco fan				
	Airflow rate (H/M/L)	m^3/min	12/10/9		12/11/10	13/11,5/10	18/15/13
	Output	kW	0,05				
Power sound level (H/M/L)		dB(A)	47/45/44		47/46/45	49/47/45	56/51/47
Pressure sound level (H/M/L)		dB(A)	36/34/33		36/35/34	38/36/34	45/40/36
Dimensions	Height	mm	200 + <20>				
	Width	mm	1000 <1230>				
	Depth	mm	710 <800>				
Pipe connections	Liquid	inches mm	1/4 (ø6.35)				3/8 (ø9.52)
	Gas	inches mm	1/2 (ø12.7)				5/8 (ø15.88)
	Drain piping		VP-25				
Net weight		kg	21 + <5,5>				22 + <5,5>

The values in < > for external dimensions and Net weight are the values for the optional ceiling panel.

Specifications subject to change without notice.

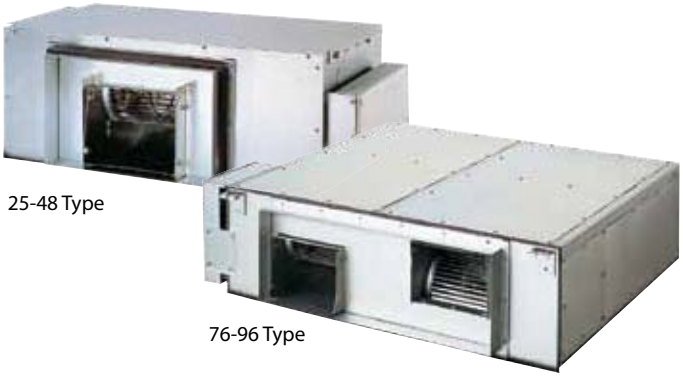
WIDE OPERATION · AUTO · DRY · AUTO · DP

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

DR type
concealed duct high-static pressure

The DR range of ducted units offers improved design flexibility for extended duct layouts as a result of their increased external static pressures.



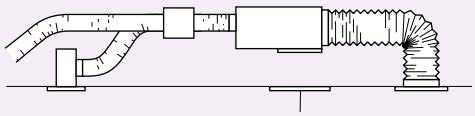
25-48 Type

76-96 Type

- Complete flexibility for ductwork design
- Can be located into a weatherproof housing for external siting
- Air off sensor avoids cold air dumping
- Configurable air temperature control

System example

An inspection port (450 x 450mm or more) is required at the lower side of the indoor unit body. Distributor (field supply).



Rap valve kit

The types 76 and 96 require two rap valve kits for each unit. (not required on a 1:1 installation)

ATK-RX160AGB

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Controller Options

Timerremotecontroller

RCS-TM80BG

Wirelessremotecontroller

RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-DR254GXH56B	SPW-DR364GXH56B	SPW-DR484GXH56B	SPW-DR764GXH56B	SPW-DR964GXH56B
Power source			220/230/240V, 1 phase - 50, 60 Hz				220/230/240,1ph-50Hz
Cooling capacity		kW	7,3	10,6	14,0	22,4	28,0
		BTU/h	25000	36000	47800	76400	95500
Heating capacity		kW	8,0	11,4	16,0	25,0	31,5
		BTU/h	27000	39000	54600	85300	107500
Power input	Cooling	kW	0,480/0,505/0,530	0,520/0,545/0,570	0,600/0,660/0,710	0,870/0,900/0,930	1,270/1,330/1,390
	Heating	kW	0,480/0,505/0,530	0,520/0,545/0,570	0,600/0,660/0,710	0,870/0,900/0,930	1,270/1,330/1,390
Running amperes	Cooling	A	2,29/2,30/2,31	2,46/2,46/2,47	2,80/2,90/3,00	4,05/4,06/4,07	6,04/6,06/6,07
	Heating	A	2,29/2,30/2,31	2,46/2,46/2,47	2,80/2,90/3,00	4,05/4,06/4,07	6,04/6,06/6,07
Fan motor	Type		Sirocco fan				
	Airflow rate (H/M/L)	m^3/m	23/22/21	30/28/25	36/35/33	56/53,1/49,6	72/70/66
	Output	kW	0,2		0,35	0,2*2	0,4*2
	External static pressure	Pa	186	176	167	176	216
Power sound level (H/M/L)		dB(A)	55/54/53	56/55/53	58/57/55	59/58/57	62/61/60
Pressure sound level (H/M/L)		dB(A)	44/43/42	45/44/42	47/46/44	48/47/46	51/50/49
Dimensions	Height	mm	420		450	467	
	Width	mm	1065			1428	
	Depth	mm	620			1230	
Pipe connections	Liquid inches	mm	3/8 (ø9.52)				
	Gas inches	mm	5/8 (ø15.88)			3/4 (ø19.05)	7/8 (ø22.22)
	Drain piping		VP-25				
Net weight		kg	47	50	54	110	120

Specifications subject to change without notice.

WIDE OPERATION · A.U.P.O · DRY · R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

US type
concealed duct

The ultra slim US type is one of the leading products of its type in the industry. With a depth of only 200mm it provides greater flexibility and can be used in far more applications.

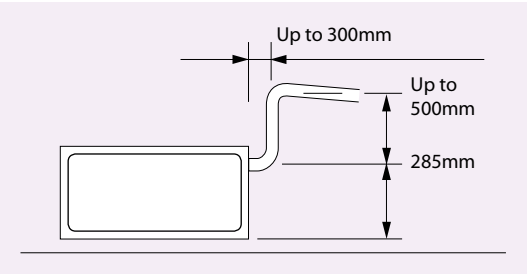
In addition, its high-efficiency and extremely quiet sound levels make it very popular with many users, including hotels and small offices.

- Ultra-slim profile: 200 mm for all models
- DC fan motor greatly reduces power consumption
- Ideal for hotel application with very narrow false ceilings
- Anti-mould washable filters included
- Easy maintenance and service by external electrical box
- 40 pa static pressure enables ductwork to be fitted.
- Includes drain pump

Ultra-slim profile for all models

Drain pump with increased power!

By adoption of a high-lift drain pump, the drain piping rise height can be increased to 785mm from the lower surface of the body.



Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Timerremotecontroller

RCS-TM80BG

Wirelessremotecontroller

RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-US075XH	SPW-US095XH	SPW-US125XH	SPW-US165XH	SPW-US185XH
Power source			220/230/240V, 1 phase - 50, 60Hz				
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6
		BTU/h	7500	9600	12000	15000	19000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3
		BTU/h	8500	11000	14000	17000	21000
Power input	Cooling	kW	0,036/0,036/0,036	0,040/0,040/0,040	0,042/0,042/0,042	0,049/0,049/0,049	0,064/0,064/0,064
	Heating	kW	0,026/0,026/0,026	0,030/0,030/0,030	0,032/0,032/0,032	0,039/0,039/0,039	0,054/0,054/0,054
Running amperes	Cooling	A	0,26/0,26/0,26	0,30/0,30/0,30	0,31/0,31/0,31	0,37/0,37/0,37	0,48/0,48/0,48
	Heating	A	0,23/0,23/0,23	0,27/0,27/0,27	0,28/0,28/0,28	0,34/0,34/0,34	0,45/0,45/0,45
Fan motor	Type		Sirocco fan				
	Airflow rate (H/M/L)	m^3/min	8/7/6	8,5/7,5/6,5	9/8/7	10,5/9,5/8	12,5/11,5/10
	Output	kW	0.05				
	External static pressure	Pa	10-30	15-30		15-40	
Power sound level (H/M/L)		dB(A)	43/42/40	45/44/42	47/45/43	49/47/45	52/50/48
Pressure sound level (H/M/L)		dB(A)	28/27/25	30/29/27	32/30/28	34/32/30	35/33/31
Dimensions	Height	mm	200				
	Width	mm	750				
	Depth	mm	640				
Pipe connections	Liquid	inches mm	1/4 (ø6.35)				
	Gas	inches mm	1/2 (ø12.7)				
	Drain piping		VP-20				
Net weight		kg	19				

Specifications subject to change without notice.

WIDE OPERATION · DRY · DP · R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

U type
concealed duct

The U type ducted systems are the ideal solution for flexible, concealed air conditioning and the standard 200mm spigots ensure simple, hassle-free connection to spiral ductwork. The external static pressure can be increased via an optional booster cable to provide increased design flexibility.

- Industry-leading low sound levels from 22 dB(A)
- Built-in drain pump provides 785mm lift
- Easy to install and maintain
- Air off sensor avoids cold air dumping
- Configurable air temperature control

Unified body height of approximately 310 mm for all models

Even models with different capacities can be installed smoothly in the ceiling.

External electrical equipment box makes maintenance easy

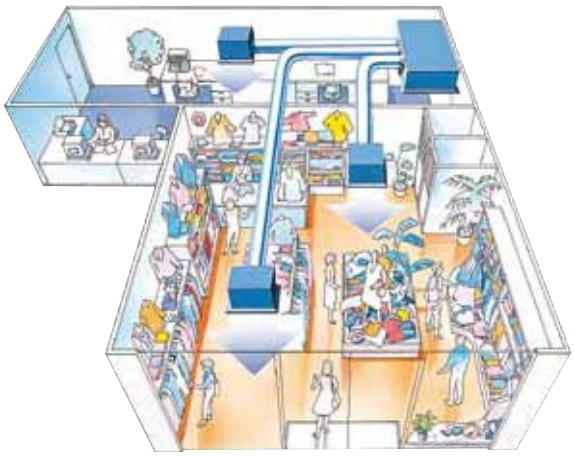
Lowest noise levels in the industry
The static pressure outside the unit can be increased

By using the booster cable, the static pressure outside the unit can be increased.

type	7-9-12	16-18	25	36	48-60
standard	49	40	50	79	78
withboostercableuse	69	62	92	122	113

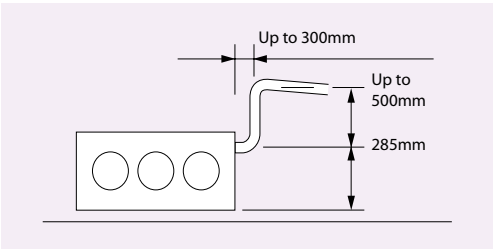
(Pa)

Flexible air distribution is achieved by discharge grilles



More powerful drain pump

By adoption of a high-lift drain pump, the drain piping rise height can be increased to 785mm from the lower surface of the body.



Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Timerremotecontroller

RCS-TM80BG

Wirelessremotecontroller

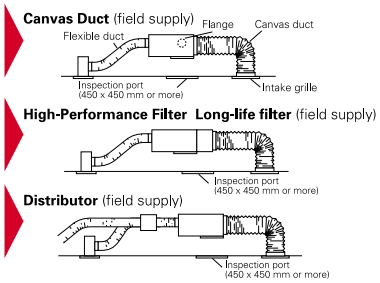
RCS-BH80BG.WL

Simplifiedremotecontroller

RCS-KR1EG

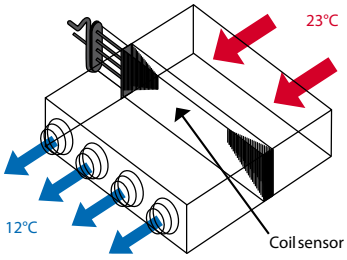
System examples

An inspection port (450 x 450mm or more) is required at the lower side of the indoor unit body.



7-22°C Air off temperature control as standard

- Able to control air off temperature
- Reduces cold drafts
- Accurate room temperature controls



Indoor unit specifications

Model Name			SPW-U075XH	SPW-U 095XH	SPW-U125XH	SPW-U165XH	SPW-U185XH	SPW-U255XH	SPW-U365XH	SPW-U485XH	SPW-U605XH
Power source			220/230/240V, 1 phase - 50, 60 Hz								
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,3	10,6	14,0	16,0
		BTU/h	7500	9600	12000	15000	19000	25000	36000	47800	54600
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0	11,4	16,0	18,0
		BTU/h	8500	11000	14000	17000	21000	27000	39000	54600	61500
Power input	Cooling	kW	0,094/0,100/0,106			0,096/0,102/0,109		0,180/0,195/0,210	0,312/0,327/0,342	0,308/0,325/0,341	
	Heating	kW	0,082/0,088/0,094			0,084/0,090/0,097		0,168/0,183/0,198	0,300/0,315/0,330	0,296/0,313/0,329	
Running amperes	Cooling	A	0,45/0,46/0,47			0,44/0,45/0,46		0,83/0,86/0,89	1,44/1,45/1,46	1,42/1,43/1,44	
	Heating	A	0,40/0,41/0,42			0,39/0,40/0,41		0,78/0,81/0,84	1,39/1,40/1,41	1,36/1,37/1,38	
Fan motor	Type		Sirocco fan								
	Airflow rate (H/M/L)	m^3/min	10/8,5/7			12/10,5/9		18/15/13	30/26/21	33/30/25	
	Output	kW	0,05					0,07	0,14		
	External static pressure	Pa	49(69)			40(62)		50(92)	79(122)	78(113)	
Power sound level (H/M/L)		dB(A)	40/37/33			41/39/36		45/41/38	49/44/42	51/48/44	
Pressure sound level (H/M/L)		dB(A)	(32)/29/26/22			(33)/30/28/25		(38)/34/30/27	(42)/38/33/31	(44)/40/37/33	
Dimensions	Height	mm	310								
	Width	mm	700					1000	1480		
	Depth	mm	630								
Pipe connections	Liquid	inches mm	1/4 (ø6.35)					3/8 (ø9.52)			
	Gas	inches mm	1/2 (ø12.7)					5/8 (ø15.88)			
	Drain piping		VP-25								
Net weight		kg	24			25		32	47		

The values in ( ) for the external static pressure and operating sound are for use of booster cable.

Specifications subject to change without notice.

WIDE OPERATION · A.U.P.O · DRY · D.P. · R410A

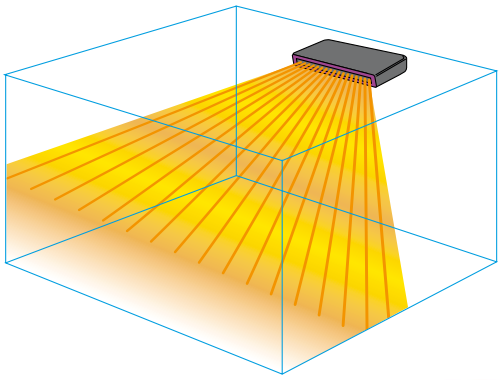
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

FTR type
floor/ceiling mounted

The FTR type units offer the flexibility of floor or ceiling application without the need for further modification at installation stage.

- 3 speed centrifugal fan
- Anti-mould and anti-bacterial washable filters
- Horizontal flap swinging or set on a fixed position
- Shallow design
- Easy to install

Further comfort improvement with airflow distribution.



floor or ceiling application

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-TH80AG.WLB

RCS-BH80AG.WLB

Simplified remote controller

RCS-KR1EG

Indoor unit specifications									
Model Name			SPW-FTR74EXH56B	SPW-FTR94EXH56B	SPW-FTR124EXH56B	SPW-FTR164EXH56B	SPW-FTR184EXH56B	SPW-FTR224EXH56B
Power source			220/230/240V, 1 phase-50 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	6,4
		BTU/h	7500	9600	12000	15000	19000	22000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	7,0
		BTU/h	8500	11000	14000	17000	21000	24000
Power input	Cooling	kW	0,65/0,65/0,65			0,88/0,88/0,88		
	Heating	kW	0,65/0,65/0,65			0,88/0,88/0,88		
Running amperes	Cooling	A	0,29/0,29/0,29			0,41/0,41/0,41		
	Heating	A	0,29/0,29/0,29			0,41/0,41/0,41		
Fan motor	Type		Sirocco fan					
	Airflow rate (H/M/L)	m^3/min	10,5/9/7,5			12/10,8/9,7		15/13,5/12
	Output	kW	0,07			0,09		
Power sound level (H/M/L)		dB(A)	60/54/49			62/58/54		63/60/57
Pressure sound level (H/M/L)		dB(A)	49/43/38			51/47/43		52/49/46
Dimensions	Height	mm	680					
	Width	mm	900					
	Depth	mm	190					
Pipe connections	Liquid	inches mm	1/4 (ø6.35)					
	Gas	inches mm	1/2 (ø12.7)					
	Drain piping		VP-26					
Net weight		kg	23,5					

Specifications subject to change without notice.

WIDE OPERATION · DRY · AUTO · R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

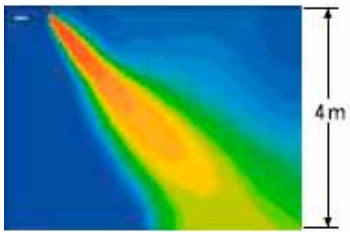
T type
ceiling mounted

The T type ceiling mounted unit feature a DC fan motor for increased efficiency and reduced operating sound levels. All the units are the same height and depth for a uniform appearance in mixed installations and feature a fresh air knockout for improved air quality.

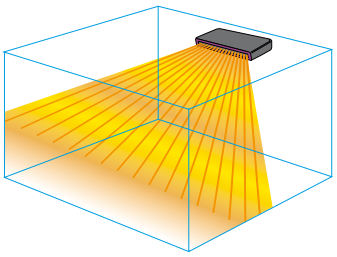
- Low sound levels
- New design all units just 210mm high
- Large and wide air distribution
- Easy to install and maintain
- Fresh air knockout

Further comfort improvement

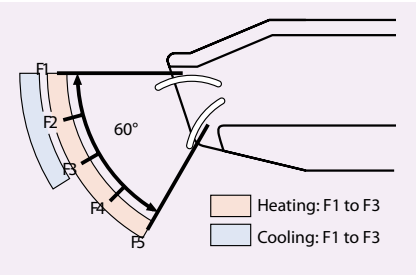
The wide air discharge opening widens the air flow to the left and the right, so that a comfortable temperature is obtained in the entire room. The unpleasant feeling caused when the air flow directly hits the human body is prevented by the "Draft prevention position", which changes the swing width, so that the degree of comfort is increased.



Correspondence to ceiling heights up to 4 m



Air distribution is automatically altered depending on the operational mode of the unit.



Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-TRP80BG.WL

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-T125XH	SPW-T165XH	SPW-T185XH	SPW-T255XH	SPW-T365XH	SPW-T485XH
Power source			220/230/240V, 1 phase - 50, 60 Hz					
Cooling capacity		kW	3,6	4,5	5,6	7,3	10,6	14,0
		BTU/h	12000	15000	19000	25000	36000	47800
Heating capacity		kW	4,2	5,0	6,3	8,0	11,4	16,0
		BTU/h	14000	17000	21000	27000	39000	54600
Power input	Cooling	kW	0,028/0,029/0,029	0,039/0,029/0,028	0,031/0,032/0,032	0,043/0,043/0,044	0,073/0,074/0,075	0,085/0,086/0,088
	Heating	kW	0,028/0,029/0,029	0,029/0,029/0,028	0,031/0,032/0,032	0,042/0,042/0,043	0,072/0,073/0,074	0,084/0,085/0,086
Running amperes	Cooling	A	0,26/0,24/0,23	0,26/0,24/0,23	0,28/0,26/0,24	0,38/0,35/0,33	0,62/0,57/0,53	0,69/0,63/0,60
	Heating	A	0,26/0,24/0,23	0,26/0,24/0,23	0,28/0,26/0,25	0,38/0,35/0,34	0,62/0,57/0,55	0,69/0,63/0,62
Fan motor	Type		Sirocco fan					
	Airflow rate (H/M/L)	m^3/min	12/10/9,0	13/11/9,0		18,5/15/14	27,5/23/20	30/26/22
	Output	kW	0,03			0,04	0,08	
Power sound level (H/M/L)		dB(A)	46/43/41	47/44/41		49/47/44	52/49/46	54/51/48
Pressure sound level (H/M/L)		dB(A)	35/32/30	36/33/30		38/36/33	41/38/35	43/40/37
Dimensions	Height	mm	210					
	Width	mm	910			1180	1595	
	Depth	mm	680					
Pipe connections	Liquid	inches mm	1/4 (ø6.35)			3/8 (ø9.52)		
	Gas	inches mm	1/2 (ø12.7)			5/8 (ø15.88)		
	Drain piping		VP-20					
Net weight		kg	21			25	33	

Specifications subject to change without notice.

WIDE OPERATION · DRY · AUTO

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

K type
wall mounted

The K Type wall mounted unit has a stylish smooth panel which not only looks good but is also easy to clean.

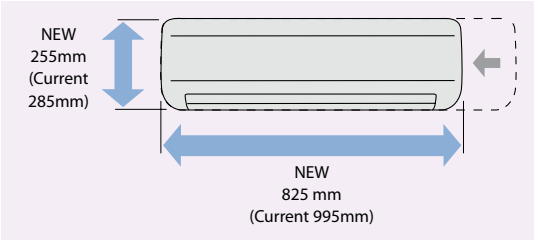
The unit is also smaller, lighter and substantially quieter than previous models making it ideal for small offices and other commercial applications.

Closed discharge port

When the unit is turned off, the flap closes completely to prevent entry of dust into the unit and to keep the equipment clean.

Lighter and smaller units make the installation easy

The width has been decreased by 17% and the units are lighter.



Quiet operation

These units are among the quietest in the industry, making them ideal for hotels and hospitals.

Smooth and durable design

The smooth cover means these units match most modern interiors. Their compact size enables them to blend in, even in small spaces.

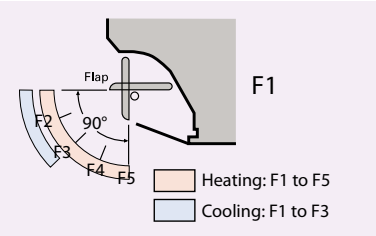
Piping outlet in three directions

Piping outlet is possible in the three directions of rear, right, and left, making the installation work easier.

Washable front panel

The indoor unit's front panel can be easily removed and washed for trouble-free cleaning.

Air distribution is automatically altered depending on the operational mode of the unit



Anti-mould filters are standard

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-SH1BG

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications						
Indoor Unit				SPW-K075XH	SPW-K095XH	SPW-K125XH
Power Source				220/230/240V, 1 phase - 50, 60Hz		
Cooling capacity			kW	2,20	2,80	3,60
			BTU/h	7500	9600	12000
Heating capacity			kW	2,50	3,20	4,20
			BTU/h	8500	11000	14000
Power input	Cooling		kW	0,018/0,019/0,019		0,020/0,021/0,022
	Heating		kW	0,019/0,019/0,020		0,021/0,022/0,022
Running amperes	Cooling		A	0,16/0,16/0,16		0,19/0,19/0,20
	Heating		A	0,17/0,17/0,18		0,20/0,20/0,20
Power sound level (H/M/L)			dB(A)	46/43/39		48/44/40
Sound pressure level (H/M/L)			dB(A)	35/32/28		37/33/29
Fan motor	Type			Sirocco fan		
	Airflow rate (H/M/L)		m^3/min	9/7,5/6		10/8,5/6,5
	Output		kW	0,047		
Air circulation (H/M/L)			m^3/hr	540/450/360	540/450/360	600/510/390
Dimensions (HxWxD)			mm	285x825x217	285x825x217	285x825x217
Pipe connections	Liquid		inches mm	1/4 (ø6.35)		
	Gas		inches mm	1/2 (ø12.7)		
	Drain piping			VP-13		
Net weight			kg	10		

Specifications subject to change without notice.

WIDE OPERATION · AUTO · DRY · AUTO

R410A

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

KR type
wall mounted

The slim line designed KR type Wall Mounted is small and light, making it ideal for commercial applications. It is also available in a wide variety of capacities.

- Smart colour and round-shape design with horizontal stripes
- Piping outlet in 3 directions
- Anti-mould filters are standard equipment
- Optional external electronic expansion valve kit ATK-SURK160AGB prevent noise in quiet rooms and bed rooms

Closed discharge port

When the unit is turned off, the flap closes completely to prevent entry of dust into the unit and to keep the equipment clean.

Quiet operation

These units are among the quietest in the industry, making them ideal for hotels and hospitals.

Washable front panel

The indoor unit's front panel can be easily removed and washed for trouble-free cleaning.

Piping outlet in three directions

Piping outlet is possible in the three directions of rear, right, and left, making the installation work easier.

Anti-mould filters are standard

Rating Conditions: Cooling Indoor 27°C DB 19°C WB Outdoor 35°C DB 24°C WB Heating Indoor 20°C DB Outdoor 7°C DB 6°C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-SH1BG

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications								
Model Name			SPW-KR74GXH56B	SPW-KR94GXH56B	SPW-KR124GXH56B	SPW-KR164GXH56B	SPW-KR184GXH56B	SPW-KR254GXH56B
Power source			220/230/240V, 1 phase - 50, 60 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,3
		BTU/h	7500	9600	12000	15000	19000	25000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0
		BTU/h	8500	11000	14000	17000	21000	27000
Powerinput	Cooling	kW	0,031/0,033/0,035					0,049/0,052/0,055
	Heating	kW	0,031/0,033/0,035					0,049/0,052/0,055
Running amperes	Cooling	A	0,15/0,15/0,15					0,23/0,23/0,24
	Heating	A	0,15/0,15/0,15					0,23/0,23/0,24
Fan motor	Type		Cross flow fan					
	Airflow rate (H/M/L)	m^3/min	10/8/6,0			12/10/8,0		16/14/10
	Output	kW	0,011			0,015		0,023
Power sound level (H/M/L)		dB(A)	47/43/39					53/49/46
Pressure sound level (H/M/L)		dB(A)	36/32/28					42/35/38
Dimensions	Height	mm	285					330
	Width	mm	995					1140
	Depth	mm	203					228
Pipe connetions	Liquid	inches mm	1/4 (ø6.35)					3/8 (ø9.52)
	Gas	inches mm	1/2 (ø12.7)					5/8 (ø15.88)
	Drain piping		VP-13					
Net weight		kg	14					21

Specifications subject to change without notice.

WIDE OPERATION · AUTO · DRY · AUTO

R410A

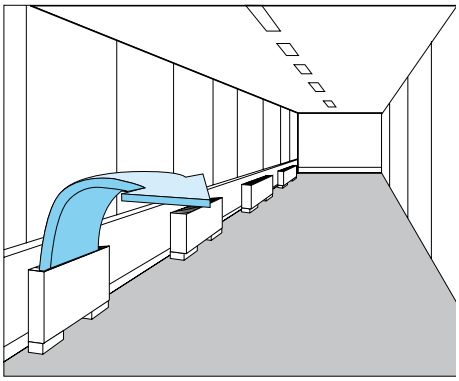
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

FR type
floor standing

The compact floor standing FR units are the ideal solution for providing perimeter air conditioning. The standard wired controller can be incorporated into the body of the unit.

- Pipes can be connected to either side of the unit from the bottom or rear
- Easy to install
- Front panel opens fully for easy maintenance
- Removable air discharge grille gives flexible air flow
- Room for condensate pump

Effective perimeter handling



A standard wired remote control can be installed in the body.

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-FR74GXH56B	SPW-FR94GXH56B	SPW-FR124GXH56B	SPW-FR164GXH56B	SPW-FR184GXH56B	SPW-FR254GXH56B
Power source			220/230/240 1 phase - 50, 60 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,1
		BTU/h	7500	9800	12000	15000	19000	24000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0
		BTU/h	8500	11000	14000	17000	21000	27000
Power input	Cooling	kW	0,051/0,056/0,061		0,079/0,085/0,091	0,116/0,126/0,136	0,116/0,126/0,136	0,150/0,160/0,170
	Heating	kW	0,036/0,040/0,045		0,064/0,070/0,076	0,079/0,091/0,101	0,079/0,091/0,101	0,110/0,120/0,130
Running amperes	Cooling	A	0,24/0,25/0,26		0,37/0,38/0,39	0,54/0,56/0,58	0,54/0,56/0,58	0,70/0,72/0,73
	Heating	A	0,17/0,18/0,19		0,30/0,31/0,32	0,37/0,41/0,43	0,37/0,41/0,43	0,52/0,54/0,56
Fan motor	Type		Sirocco fan					
	Airflow rate (H/M/L)	m^3/m	7/6/5		9/7/6	12/9/8	15/13/11	17/14/12
	Output	kW	0,01		0,02	0,02	0,03	0,06
Power sound level (H/M/L)		dB(A)	44/41/39		50/46/40	49/46/42	50/47/42	52/49/46
Pressure sound level (H/M/L)		dB(A)	33/30/28		39/35/29	38/35/31	39/36/31	41/38/35
Dimensions	(HxWxD)	mm	615x1065x230			615x1380x230		
Pipe connections	Liquid	inches mm	1/4 (ø6.35)					3/8 (ø9.52)
	Gas	inches mm	1/2 (ø12.7)					5/8 (ø15.88)
	Drain piping		VP-20					
Net weight		kg	29			39		

Specifications subject to change without notice.

WIDE OPERATION · A.U.P.O · DRY · R410A

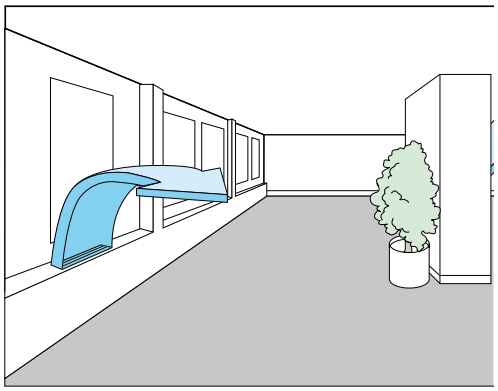
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

FMR type
concealed floor standing

At just 229mm deep, the FMR unit can be easily concealed in perimeter areas to provide powerful and effective air conditioning.

- Chassis unit for discrete installation
- Complete with removable filters
- Pipes can be connected to either side of the unit from the bottom or rear
- Easy to install

Perimeter air conditioning with high interior quality



Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications

Model Name			SPW-FMR74GXH56B	SPW-FMR94GXH56B	SPW-FMR124GXH56B	SPW-FMR164GXH56B	SPW-FMR184GXH56B	SPW-FMR254GXH56B
Power source			220/230/240 1 phase - 50, 60 Hz					
Cooling capacity		kW	2,2	2,8	3,6	4,5	5,6	7,1
		BTU/h	7500	9800	12000	15000	19000	24000
Heating capacity		kW	2,5	3,2	4,2	5,0	6,3	8,0
		BTU/h	8500	11000	14000	17000	21000	27000
Power input	Cooling	kW	0,051/0,056/0,061		0,079/0,085/0,091	0,116/0,126/0,136	0,116/0,126/0,136	0,150/0,160/0,170
	Heating	kW	0,036/0,040/0,045		0,064/0,070/0,076	0,079/0,091/0,101	0,079/0,091/0,101	0,110/0,120/0,130
Running amperes	Cooling	A	0,24/0,25/0,26		0,37/0,38/0,39	0,54/0,56/0,58	0,54/0,56/0,58	0,70/0,72/0,73
	Heating	A	0,17/0,18/0,19		0,30/031/0,32	0,37/0,41/0,43	0,37/0,41/0,43	0,52/0,54/0,56
Fan motor	Type		Sirocco fan					
	Airflow rate (H/M/L)	m^3/min	7/6/5		9/7/6	12/9/8	15/13/11	17/14/12
	Output	kW	0,01		0,02	0,02	0,03	0,06
Power sound level (H/M/L)		dB(A)	44/41/39		50/46/40	49/46/42	49/46/42	52/49/46
Pressure sound level (H/M/L)		dB(A)	33/30/28		39/35/29	38/35/31	39/36/31	41/38/35
Dimensions	(HxWxD)	mm	616x904x229			616x1219x229		
Pipe connections	Liquid	inches mm	1/4 (ø6.35)					3/8 (ø9.52)
	Gas	inches mm	1/2 (ø12.7)					5/8 (ø15.88)
	Drain piping		VP-20					
Net weight		kg	21			28		

Specifications subject to change without notice.

WIDE OPERATION · A.U.P.G · DRY · R410A

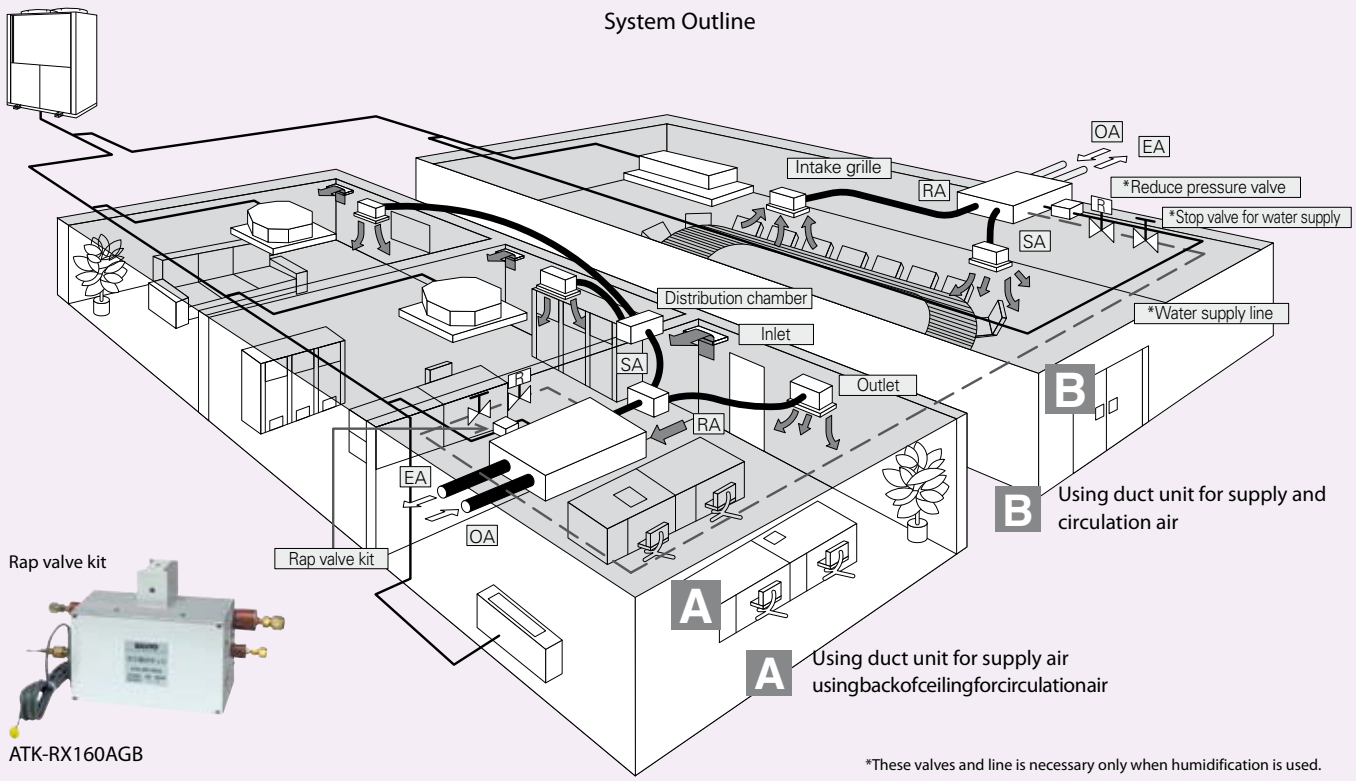
Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

GU type
Total Heat Exchanger

SANYO's heat recovery ventilation system allows total control via a system network whilst modulating the temperature and humidity of incoming air supply.

- Integration of heat recovery ventilation and DX coil technology for optimum air temperature control
- The DX coil can be connected to all GHP outdoor units
- Humidifying function available as an option
- Easy to clean filter
- Compact design
- Humidifier & filter option
- Heat recovery: Solenoid valve kit is required for each unit
- Heat pump: RAP kit is required for each unit

System Outline



Rap valve kit

ATK-RX160AGB

*These valves and line is necessary only when humidification is used.

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

Controller Options

Timer remote controller

RCS-TM80BG

Wireless remote controller

RCS-BH80BG.WL

Simplified remote controller

RCS-KR1EG

Indoor unit specifications						
Model Name				SPW-GU055XH	SPW-GU075XH	SPW-GU105XH
Air circulation (H) m^3/h				500	750	1000
Power source				220/230/240V, 1 phase - 50 Hz		
Fresh air load treatment capacity	Cooling		kW	5,3 (1,7)*1	8,2 (2,6)*1	10,7 (3,4)*1
	Heating		kW	6,5 (2,3)*1	9,8 (3,5)*1	12,6 (4,6)*1
Enthalpy Exchange Efficiency	Cooling		%	59		
	Heating		%	67		
Temp exchange efficiency				75		
Equivalent cooling capacity			kW	3,6	5,6	7,3
			BTU/h	12000	19000	25000
Power input	Cooling		kW	0,532/0,532/0,532	0,737/0,737/0,737	0,798/0,798/0,798
	Heating		kW	0,532/0,532/0,532	0,737/0,737/0,737	0,798/0,798/0,798
Running amperes	Cooling		A	2,5/2,4/2,3	3,4/3,2/3,1	3,7/3,5/3,4
	Heating		A	2,5/2,4/2,3	3,4/3,2/3,1	3,7/3,5/3,4
Fan motor	Type			Sirocco fan		
	External static pressure-return air		Pa	183 (170)	221 (188)	135 (88)
	External static pressure-supply air		Pa	205 (182)	264 (218)	176 (137)
	Output		kW	0,28 (4P)x2	0,35 (4P)x2	
Power sound level (C/H)			dB(A)	57 (Cooling), 58 (Heating)	58 (Cooling), 59 (Heating)	59 (Cooling), 60 (Heating)
Pressure sound level (C/H)			dB(A)	46 (Cooling), 47 (Heating)	47 (Cooling), 48 (Heating)	48 (Cooling), 49 (Heating)
Dimensions	Height mm			425	450	
	Width mm			1785	1903	
	Depth mm			1000	1120	1220
Pipe connections	Liquid	inches	mm	1/4 (ø6.35)		
	Gas	inches	mm	1/2 (ø12.7)		
	Drain piping			VP-25		
Connection duct diameter			mm	250		300
Net weight			kg	134	153	168

The values in ( ) for the external static pressure and operating sound are for use of booster cable.
*1: Heat recovery capacity by heat exchanger.

Specifications subject to change without notice.

WIDE OPERATION DRY

Rating Conditions: Cooling Indoor 27˚C DB 19˚C WB Outdoor 35˚C DB 24˚C WB Heating Indoor 20˚C DB Outdoor 7˚C DB 6˚C WB

CFR type
Air Handling Unit

The CFR-PHE uses a unique purifying Bioxigen system to produce negative ions this can reduce pollutants by up to 85% whilst improving, significantly air quality within most environments.

High efficiency heat exchanger & Easy to clean filters

The CFR-PHE unit structure is constructed from Aluzink frame work and galvanised steel with 20 mm thick fire resistant acoustic insulation, reducing both weight and sound levels to a minimum. The system is supplied with ducted spigots which can be positioned either at the front or side of the unit to ease installation.

The high efficiency low pressure loss total heat exchanger is made of specially treated paper to enable the unit to be as efficient as 76% during normal operation. This allows system to recover both latent and sensible heat.

CFR/ CFR-PHE

Indoor unit specifications									
Model CFR/ CFR-PHE		33	55	110	175	220	255	320	410
Nominal air flow *	m^3/hr	300	620	920	1580	1850	2250	2950	3920
External static pressure	pa	45	55	65	70	77	80	100	100
Sound pressure **	dB(A)	43	51	50	53	52	51	54	56
Fans									
Power input	W	184	180	294	700	700	700	1100	1500
Absorbed power	A	0,75	1,8	2,2	4,4	4,8	5,2	8,3	5
Fan speeds	no	1		3					2
Insulation class		F							
Electrical supply	V/ph/Hz	230/1/50							400/3/50
Bioxigen Elements (PHE only)									
Number of elements		1 x C		2 x C			2 x F		
Electrical supply	V/ph/Hz	230/1/50							
Power in	W	4,5		9			12		
Filter		3EU							
Paper Heat Exchanger	CFR-PHE								
Temperature Efficiency heating ***	Temp.	76%	74%	72%	68%	73%	75%	70%	66%
Enthalpy Efficiency heating ***	Entha.	62%	60%	56%	55%	65%	67%	62%	56%
Temperature Efficiency cooling ****	Temp.	62%	60%	58%	54%	59%	62%	56%	52%
Enthalpy Efficiency cooling ****	Entha.	60%	58%	55%	53%	59%	62%	55%	51%

* Nominal air flow
** Sound pressure 1,5m from the unit in free field
*** Data referred to Outdoor Temp. -5°C - 80% RH room condition 20°C - 50% RH
**** Data referred to Outdoor Temp. 32°C - 50% RH room condition 26°C - 50% RH
Specifications subject to change without notice.

Air Handling Units with Heat Recovery

CFRS-AHU
CFRR-AHU

SANYO's high quality engineering and components have allowed the development of highly energy efficient air handling systems.

The CFRS-AHU series feature a cross-flow aluminium plate exchanger (medium efficiency of 55%). The CFRR-AHU series is equipped with absorption or rotary exchanger which allows the recovery of both sensible and latent heat, providing maximum efficiencies of 70%.

The cooling or heating is managed by a direct expansion coil using R410A refrigerant which enables higher efficiencies to be reached.

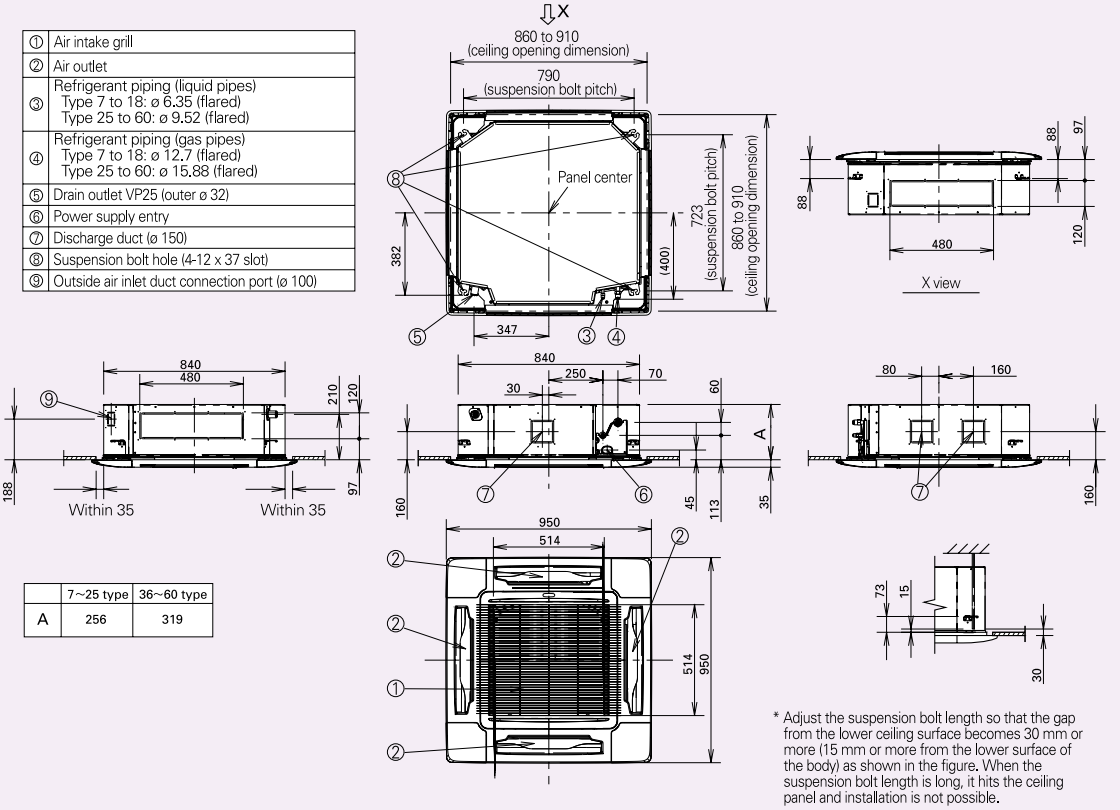
Model		500	1000	1500	2000
Nominal air flow	m^3/h	5000	10000	15000	20000
Air flow range	m^3/h	3500 + 5000	7000 + 10000	11000 + 15000	16000 + 20000
External static pressure	Pa	250	250	250	250
Electrical supply	V, ph, Hz	400, 3, 50			
Total max absorbed current	A	11	18,5	25,7	39
Filters					
Pleated filters efficiency (supply air and exhaust air)		G4	G4	G4	G4
Bag filters efficiency (supply air)		F7	F7	F7	F7

Specifications subject to change without notice.

X Type

Dimensions: mm

①	Air intake grill
②	Air outlet
③	Refrigerant piping (liquid pipes) Type 7 to 18: ø 6.35 (flared) Type 25 to 60: ø 9.52 (flared)
④	Refrigerant piping (gas pipes) Type 7 to 18: ø 12.7 (flared) Type 25 to 60: ø 15.88 (flared)
⑤	Drain outlet VP25 (outer ø 32)
⑥	Power supply entry
⑦	Discharge duct (ø 150)
⑧	Suspension bolt hole (4-12 x 37 slot)
⑨	Outside air inlet duct connection port (ø 100)



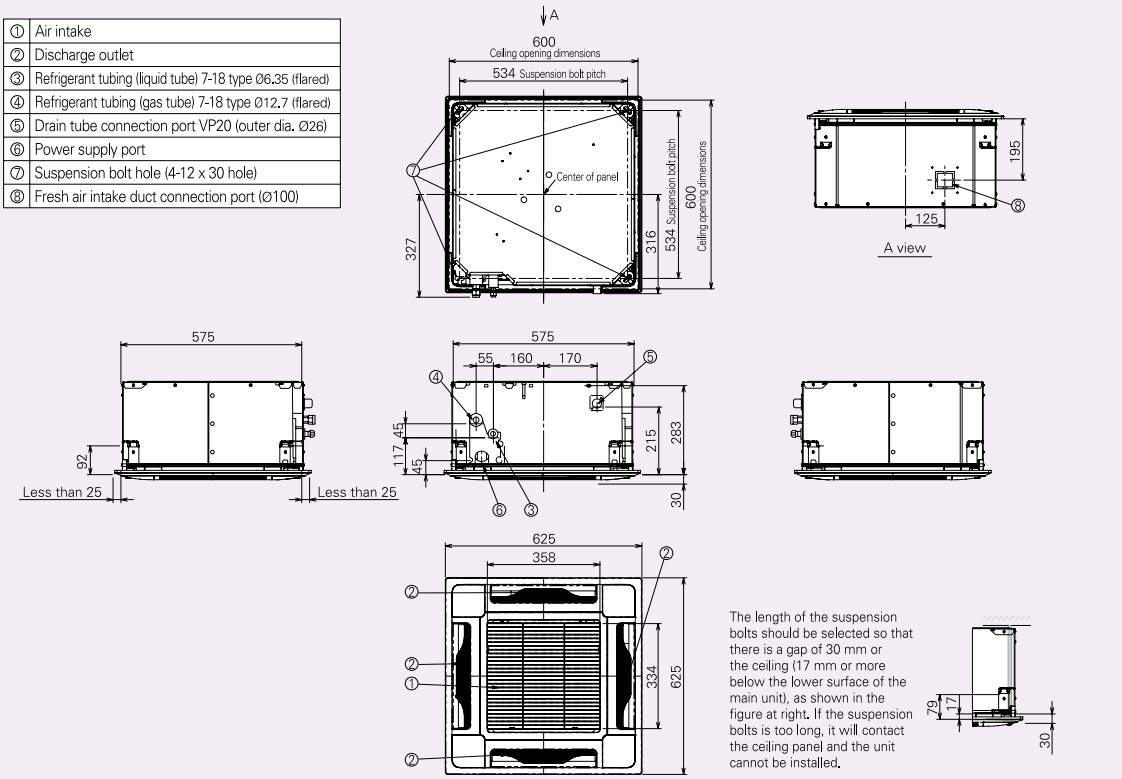
	7~25 type	36~60 type
A	256	319

* Adjust the suspension bolt length so that the gap from the lower ceiling surface becomes 30 mm or more (15 mm or more from the lower surface of the body) as shown in the figure. When the suspension bolt length is long, it hits the ceiling panel and installation is not possible.

XM Type

Dimensions: mm

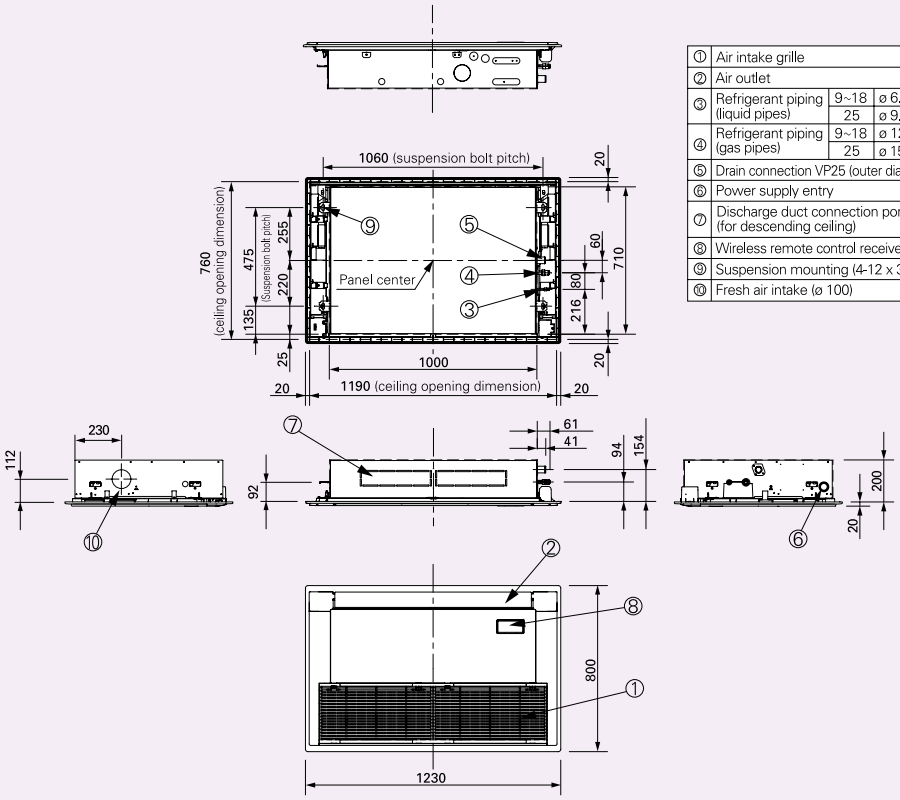
①	Air intake
②	Discharge outlet
③	Refrigerant tubing (liquid tube) 7-18 type Ø6.35 (flared)
④	Refrigerant tubing (gas tube) 7-18 type Ø12.7 (flared)
⑤	Drain tube connection port VP20 (outer dia. Ø26)
⑥	Power supply port
⑦	Suspension bolt hole (4-12 x 30 hole)
⑧	Fresh air intake duct connection port (Ø100)



The length of the suspension bolts should be selected so that there is a gap of 30 mm or the ceiling (17 mm or more below the lower surface of the main unit), as shown in the figure at right. If the suspension bolts is too long, it will contact the ceiling panel and the unit cannot be installed.

LDR Type

Dimensions: mm

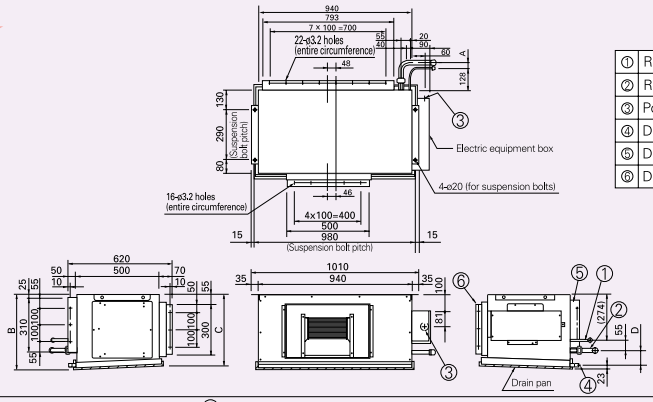


①	Air intake grille		
②	Air outlet		
③	Refrigerant piping (liquid pipes)	9~18	ø 6.35 (flared)
		25	ø 9.52 (flared)
④	Refrigerant piping (gas pipes)	9~18	ø 12.7 (flared)
		25	ø 15.88 (flared)
⑤	Drain connection VP25 (outer diameter ø 32)		
⑥	Power supply entry		
⑦	Discharge duct connection port (for descending ceiling)		
⑧	Wireless remote control receiver (option)		
⑨	Suspension mounting (4-12 x 30 slot)		
⑩	Fresh air intake (ø 100)		

DR Type

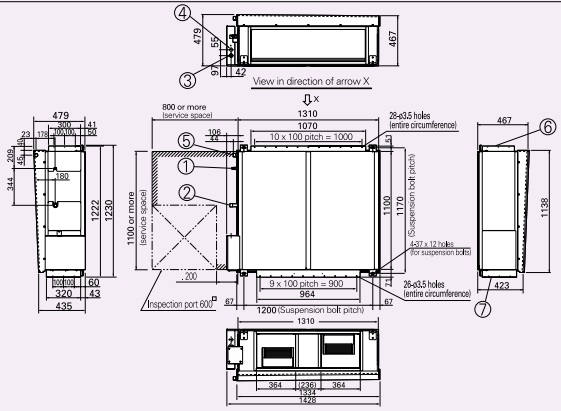
Dimensions: mm

25~48 type



①	Refrigerant piping (liquid pipes)
②	Refrigerant piping (gas pipes)
③	Power supply inlet
④	Drain 25A or VP25
⑤	Duct connection for suction
⑥	Duct connection for discharge

76, 96 type



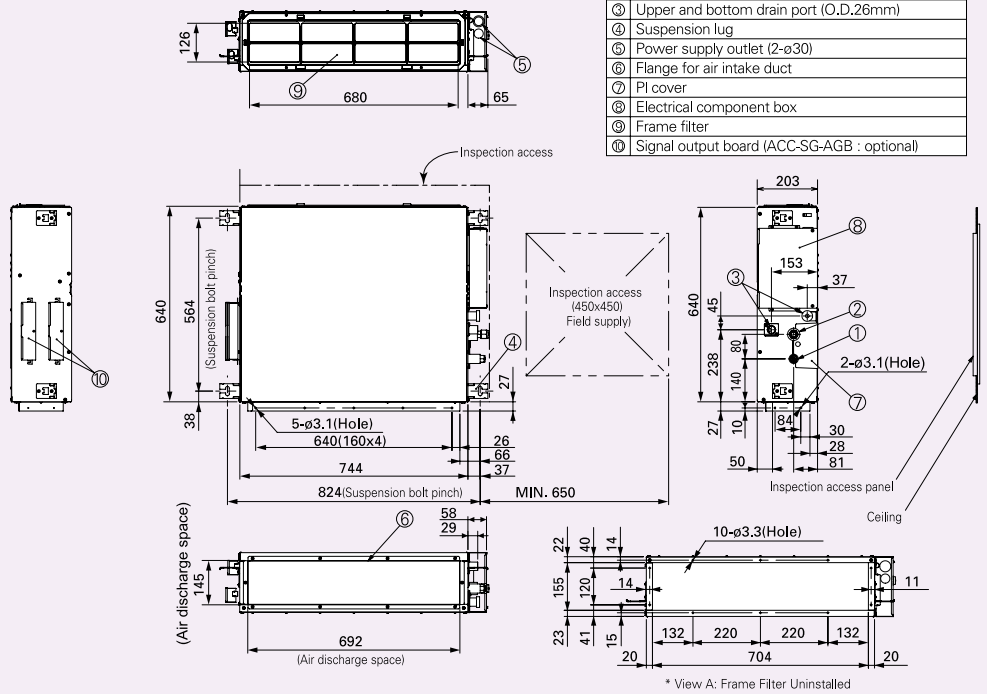
①	Refrigerant piping (liquid pipes), ø9.52
②	Refrigerant piping (gas pipes) 76 type: ø19.05, 96 type: ø22.22
③	Power supply outlet (ø25 grommet, rubber)
④	Power supply outlet (spare) (ø30 knock-out)
⑤	Drain port 25A, male thread
⑥	Duct connection for suction
⑦	Duct connection for discharge

ECO G
Indoor Units Dimensions

US Type

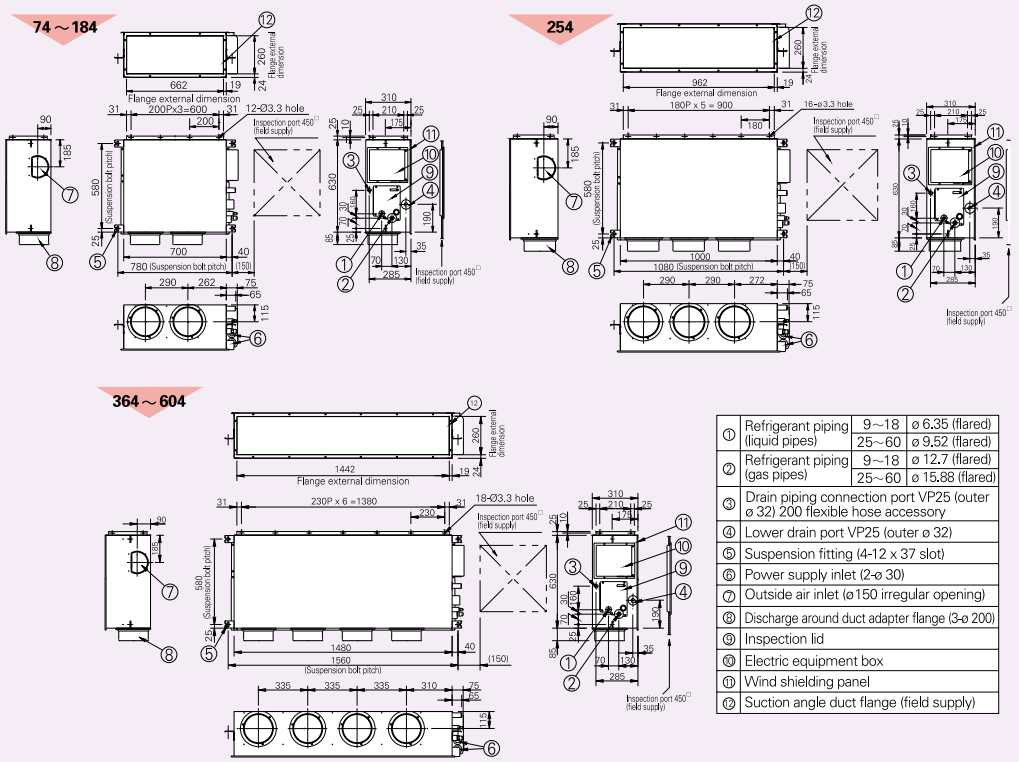
Dimensions: mm

①	Refrigerant tubing joint (narrow tube)
②	Refrigerant tubing joint (wide tube)
③	Upper and bottom drain port (O.D.26mm)
④	Suspension lug
⑤	Power supply outlet (2-ø30)
⑥	Flange for air intake duct
⑦	PI cover
⑧	Electrical component box
⑨	Frame filter
⑩	Signal output board (ACC-SG-AGB : optional)



U Type

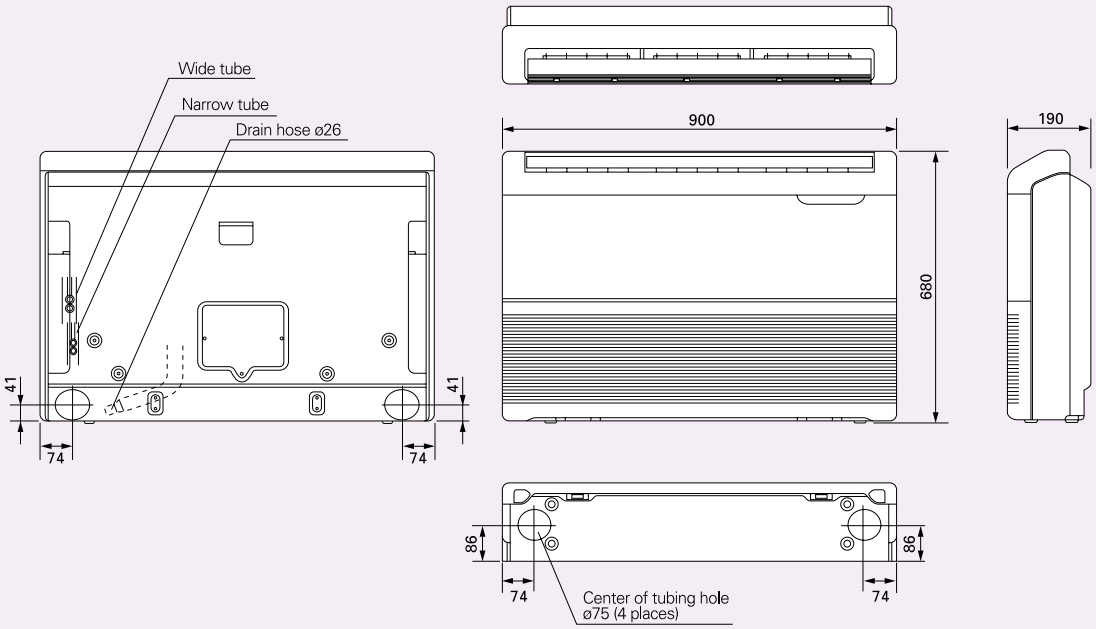
Dimensions: mm



①	Refrigerant piping (liquid pipes)	9～18	ø 6.35 (flared)
		25～60	ø 9.52 (flared)
②	Refrigerant piping (gas pipes)	9～18	ø 12.7 (flared)
		25～60	ø 15.88 (flared)
③	Drain piping connection port VP25 (outer ø 32) 200 flexible hose accessory		
④	Lower drain port VP25 (outer ø 32)		
⑤	Suspension fitting (4-12 x 37 slot)		
⑥	Power supply inlet (2-ø 30)		
⑦	Outside air inlet (ø150 irregular opening)		
⑧	Discharge around duct adapter flange (3-ø 200)		
⑨	Inspection lid		
⑩	Electric equipment box		
⑪	Wind shielding panel		
⑫	Suction angle duct flange (field supply)		

FTR Type

Dimensions: mm

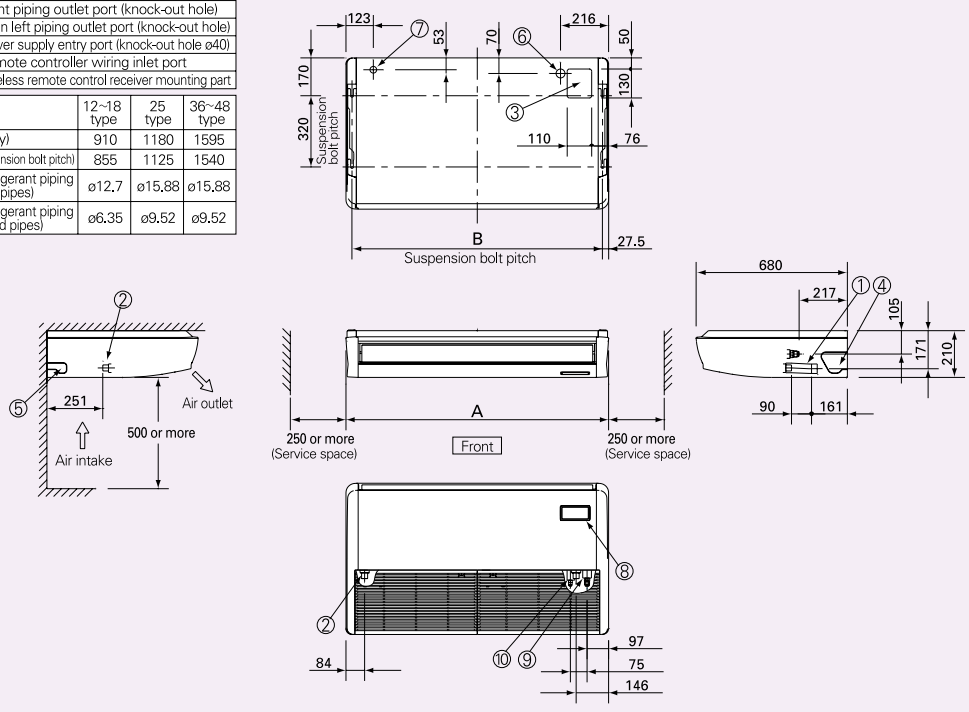


T Type

Dimensions: mm

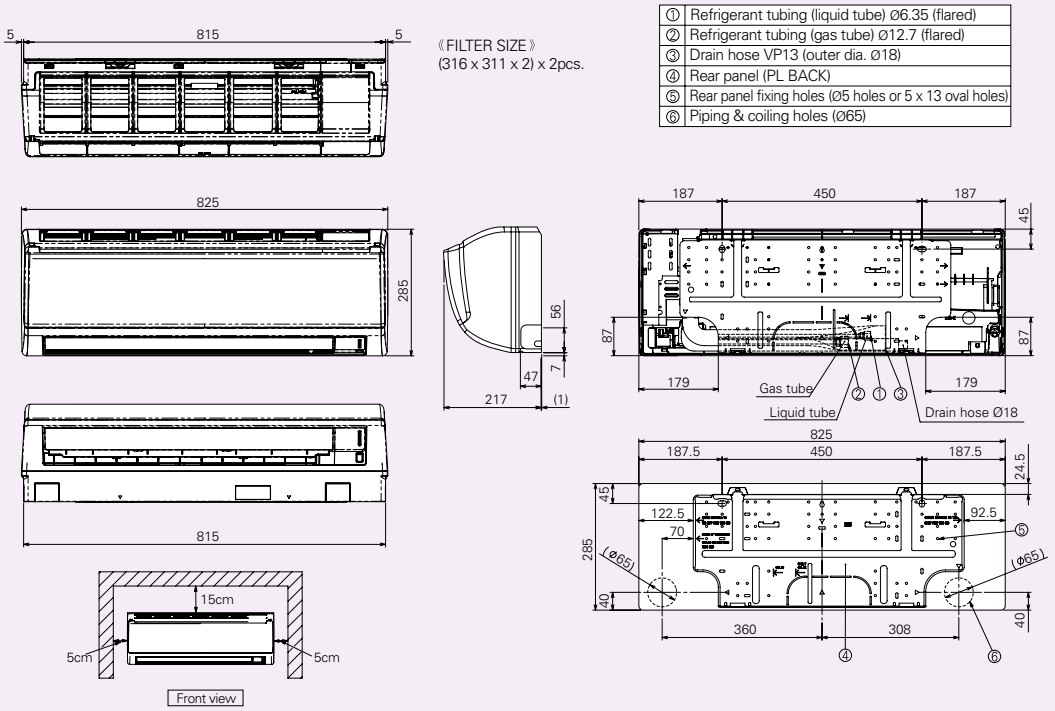
①	Drain port VP20 (inner ø26, hose accessory
②	Drain for left piping
③	Upper piping outlet port (knock-out hole)
④	Right piping outlet port (knock-out hole)
⑤	Drain left piping outlet port (knock-out hole)
⑥	Power supply entry port (knock-out hole ø40)
⑦	Remote controller wiring inlet port
⑧	Wireless remote control receiver mounting part

	12~18 type	25 type	36~48 type
A (body)	910	1180	1595
B (suspension bolt pitch)	855	1125	1540
⑨ Refrigerant piping (gas pipes)	ø12.7	ø15.88	ø15.88
⑩ Refrigerant piping (liquid pipes)	ø6.35	ø9.52	ø9.52



K Type

Dimensions: mm



《FILTER SIZE》
(316 x 311 x 2) x 2pcs.

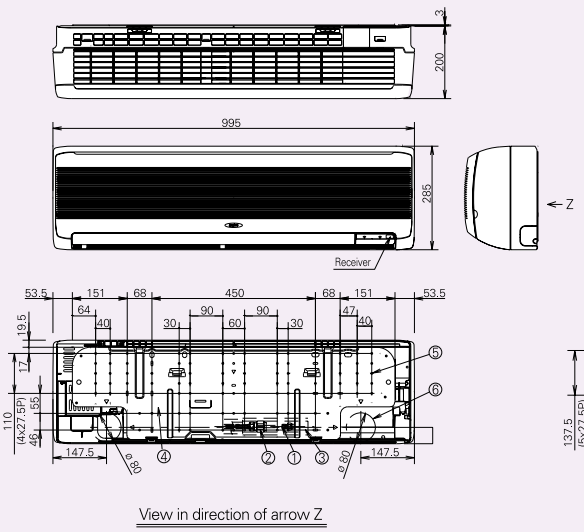
①	Refrigerant tubing (liquid tube) Ø6.35 (flared)
②	Refrigerant tubing (gas tube) Ø12.7 (flared)
③	Drain hose VP13 (outer dia. Ø18)
④	Rear panel (PL BACK)
⑤	Rear panel fixing holes (Ø5 holes or 5 x 13 oval holes)
⑥	Piping & coiling holes (Ø65)

KR Type

Dimensions: mm

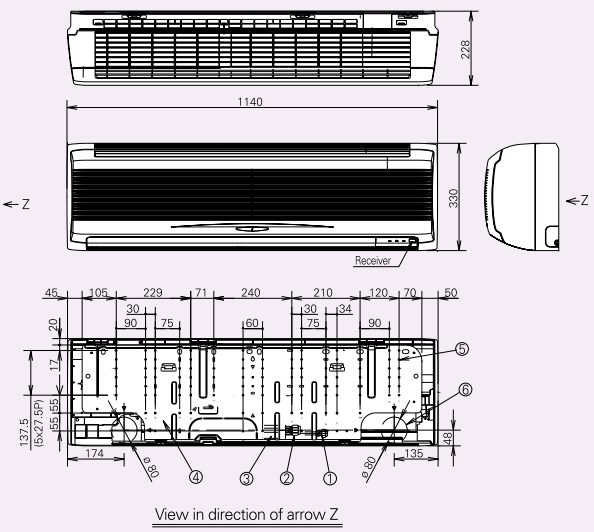
7~18 type

①	Liquid pipe ø6.35 (Length: Approx. 470 mm)
②	Gas pipe ø12.7 (Length: Approx. 400 mm)
③	Drain hose VP13 (Length: Approx. 450 mm)
④	Installation fitting
⑤	Fitting fixing hole (ø5 hole or 5 x 13 slot)
⑥	Installation fitting piping, wiring inlet (ø80)



25 type

①	Liquid pipe ø9.52 (Length: Approx. 570 mm)
②	Gas pipe ø15.88 (Length: Approx. 500 mm)
③	Drain hose VP13 (Length: Approx. 450 mm)
④	Installation fitting
⑤	Fitting fixing hole (ø5 hole or 5 x 13 slot)
⑥	Installation fitting piping, wiring inlet (ø80)

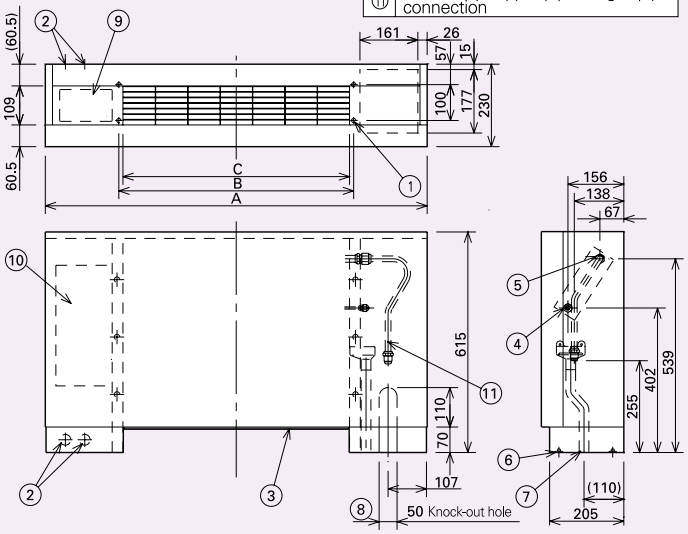


FR Type

Floor Standing type

Indoor unit	A	B	C	Liquid pipes	Gas pipes
7~12 type	1,065	665	632	ø6.35	ø12.7
16 type	1380	980	947		
18 type					
25 type				ø9.52	ø15.88

①	4 x ø12 holes (for floor fixing)
②	Power supply outlet
③	Air filter
④	Refrigerant piping (liquid pipes)
⑤	Refrigerant piping (gas pipes)
⑥	Level adjustment bolt
⑦	Drain outlet VP20 (with vinyl hose)
⑧	Refrigerant piping connection port (bottom or rear)
⑨	Operation switch (remote controller RCS-SH80AG) mounting part
⑩	Electric equipment box
⑪	Accessory copper pipe for gas pipe connection

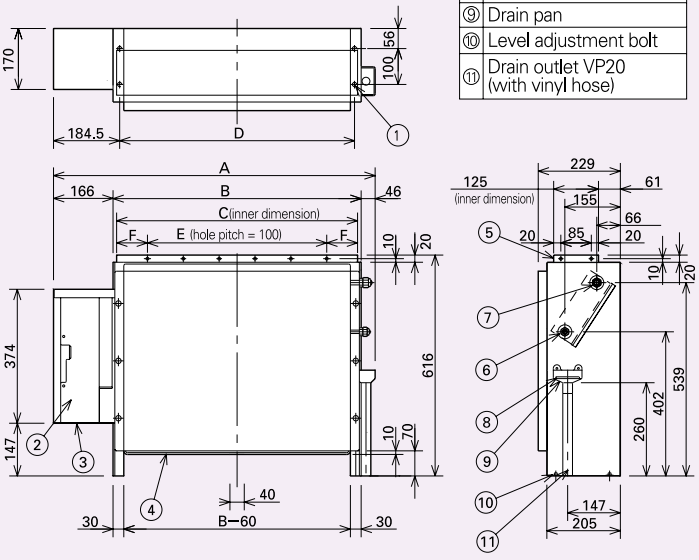


FMR Type

Concealed Floor Standing type

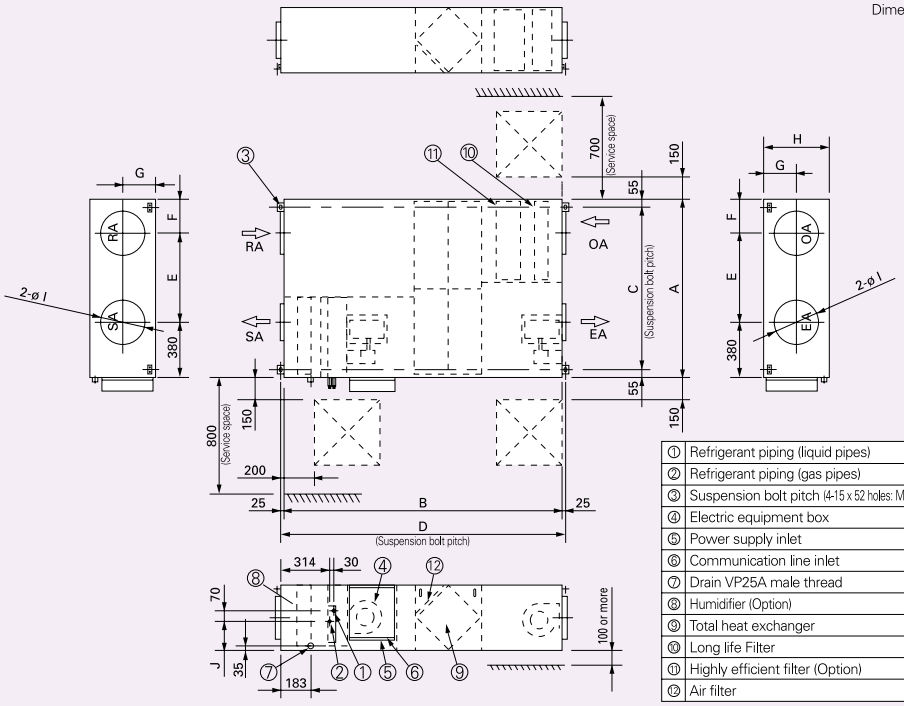
Indoor unit	A	B	C	D	E	F	Liquid pipes	Gas pipes
7~12 type	904	692	672	665	500	86	ø6.35	ø12.7
16 type	1219	1007	1002	980	900	51		
18 type								
25 type							ø9.52	ø15.88

①	4 x ø12 holes (for floor fixing)
②	Electric equipment box
③	Power supply outlet
④	Air filter
⑤	Discharge duct connection flange
⑥	Refrigerant connection outlet (liquid pipes)
⑦	Refrigerant connection outlet (gas pipes)
⑧	Drain filter
⑨	Drain pan
⑩	Level adjustment bolt
⑪	Drain outlet VP20 (with vinyl hose)



GU Type

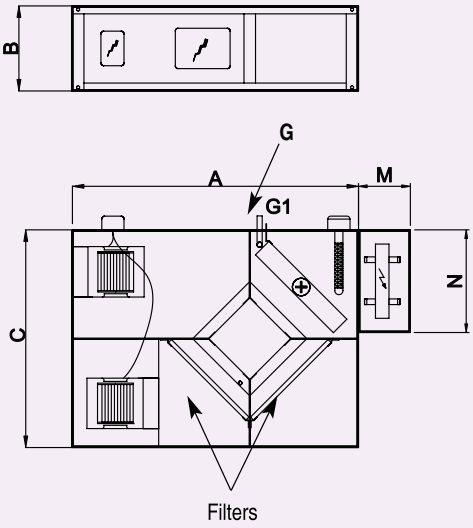
Dimensions: mm

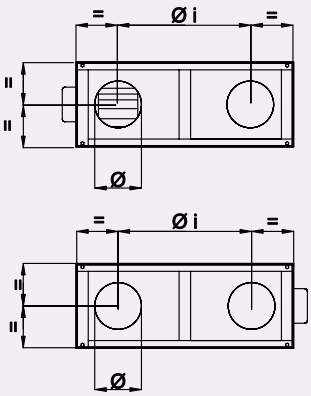


①	Refrigerant piping (liquid pipes)
②	Refrigerant piping (gas pipes)
③	Suspension bolt pitch (4-15 x 52 holes: M12 bolts)
④	Electric equipment box
⑤	Power supply inlet
⑥	Communication line inlet
⑦	Drain VP25A male thread
⑧	Humidifier (Option)
⑨	Total heat exchanger
⑩	Long life Filter
⑪	Highly efficient filter (Option)
⑫	Air filter

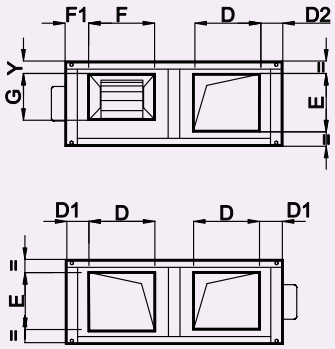
Model	A	B	C	D	E	F	G	H	I	J
GU055	1,000	1,785	890	1,835	426	194	205	425	250	175
GU075	1,120	1,903	1,010	1,953	526	214	225	450	250	200
GU105	1,220	1,903	1,110	1,953	611	229	225	450	300	200

CFR Type





CFR 33 - 55
CFR-PHE 33 - 55



CFR 110 ÷ 410
CFR-PHE 110 ÷ 410

Notes:

- *The purifyng system BIOXIGEN® is only available for CFR-PHE models.*
- *The electric heater is only available for "E" version: for CFR-E models the electric heater is internal, for CFR-PHE models an external section is provided.*
- *The post-heating internal water coil is only available for "W" version (not available for sizes 33-55).*

	Dimension [mm]																Weight [kg]		
Model	A	B	C	D	D1	D2	E	F	F1	G	G1(1)	M(2)	N(2)	Y	Ø	Øi	Version		
																	Base	"E"	"W"
CFR 33	990	290	750	/	/	/	/	/	/	/	/	/	/	/	160	460	41	42,5	/
CFR-PHE 33												250	380					46	
CFR 55	990	290	750	/	/	/	/	/	/	/	/	/	/	/	200	355	45	46,5	/
CFR-PHE 55												250	380					50	
CFR 110	1140	410	860	260	95	115	210	220	115	200	3/4	/	/	50	/	/	80	82,5	82,5
CFR-PHE 110												250	450					88	
CFR 175	1300	500	860	290	77	77	310	225	109	255	3/4	/	/	75	/	/	125	127,5	127,5
CFR-PHE 175												250	430					133	
CFR 220	1380	500	960	310	87	87	330	225	129	255	3/4	/	/	75	/	/	138	140,5	140,5
CFR-PHE 220												250	480					146	
CFR 255	1650	600	1230	410	91	91	410	288	152	255	3/4	/	/	162	/	/	160	165	165
CFR-PHE 255												250	570					173	
CFR 320	1650	600	1230	410	91	91	410	321	135	280	3/4	/	/	125	/	/	174	179	179
CFR-PHE 320												250	570					187	
CFR 410	1750	600	1330	410	116	116	410	321	160	280	3/4	/	/	125	/	/	190	195	196,5
CFR-PHE 410												250	570					203	

(1) Only for "W" version
(2) Only for "CFR-PHE-E" models (with electric heater in external section)

FW-K

- Wide model range for 2-pipe systems (X type size 031 and 051)
- Suitable for any commercial buildings, hotels and residential applications
- X, K and FT also available with infrared remote controller
- Quiet operation ensures maximum comfort
- 3-way valve kit features precise temperature control in the room
- Cleanable air filter included as standard

FW-K
Wall Mounted Unit

FW-K Wall Mounted 2-pipe						
Model: (wired remote controller excluded)			FW-K011EH5FP	FW-K021EH5FP	FW-K031EH5FP	FW-K041EH5FP
Model: (with infrared remote controller)			FW-K012EH5FP	FW-K022EH5FP	FW-K032EH5FP	FW-K042EH5FP
Fan speed			230V-1 -50Hz			
Total cooling capacity	kW	max	1,24	1,67	3,17	3,67
		med	-	-	2,53	3,14
		min	0,80	0,96	1,91	2,62
Sensible cooling capacity	kW	max	0,94	1,30	2,56	3,01
		med	-	-	1,89	2,50
		min	0,58	0,74	1,53	2,12
Heating capacity	kW	max	1,72	2,38	4,50	5,50
		med	-	-	3,50	4,50
		min	1,11	1,49	2,70	3,70
Air flow	m^3/h	max	220	270	510	710
		med	-	-	400	580
		min	150	180	320	470
Absorbed power	W	max	24	24	73	80
		med	-	-	66	68
		min	19	19	58	61
Water flow	l/h	max	215	290	545	630
		med	-	-	435	540
		min	135	165	330	450
Water pressure drop at cooling mode	kPa	max	16,1	27,2	29,4	35,1
		med	-	-	19,1	26,0
		min	5,8	9,7	10,3	18,2
Water pressure drop at heating mode	kPa	max	15,3	26,2	27,5	31,8
		med	-	-	17,4	23,2
		min	6,1	9,5	10,1	15,9
Sound power level (Lw)	dBA	max	44	45	58	62
		med	-	-	52	56
		min	37	35	46	50
Sound pressure level (Lp)	dBA	max	35	36	49	53
		med	-	-	43	47
		min	28	26	37	41
Water connections	inch		1/2" female			
Coil water content	Lt		0,3	0,39	0,8	0,8
Weight	kg		8,0	8,0	12	12
Dimensions	mm	width	805	805	995	995
		height	270	270	285	285
		depth	177	177	206	206

FW-X

FW-X
Ceiling Cassette 60x60

FW-X
Ceiling Cassette

PNR-X031EHA for models X031, X051
PNR-X051EHA for model X061
PNR-X101EHA for models X081, X101
PNR-X032EHA for models X032, X052
PNR-X062EHA for model X062
PNR-X102EHA for models X082, X102

FW-X Type Ceiling Cassette - 2 pipe								
Model: (wired remote controller excluded)			FW-X031EH5	FW-X041EH5	FW-X051EH5	FWX061EH5	FW-X081EH5	FW-X0101EH5
Model: (with infrared remote controller)			FW-X032EH5	FW-X042EH5	FW-X052EH5	FWX062EH5	FW-X082EH5	FW-X0102EH5
Main power supply		V/Ph/Hz	230/1+N/50					
Total cooling capacity	Max/med/min*	kW	2,60/2,35/2,15	4,1/3,6/1,7	4,70/4,10/3,60	6,00/5,00/4,20	7,60/6,00/5,00	9,92/8,09/6,23
Sensible cooling capacity	Max/med/min*	kW	2,31/2,09/1,91	3,21/2,81/1,33	3,72/3,21/2,80	4,70/3,80/3,20	6,00/4,70/3,80	7,60/6,22/4,62
Heating capacity	Max/med/min*	kW	3,49/3,11/2,83	4,85/4,35/2,1	5,70/4,85/4,35	7,70/6,40/5,40	9,00/7,70/6,40	13,00/10,60/8,16
Air flow	Max/med/min*	m^3/h	520/400/600	630/530/250	750/630/530	1300/1060/850	1470/1300/1060	2300/1700/1200
Absorbed power	Max/med/min*	W	60/50/40	na	90/70/50	120/90/80	150/120/90	180/130/110
Water flow	Max/med/min*	l/h	430/395/360	na	790/690/600	1030/860/720	1300/1030/860	1700/1400/1070
Sound power level (Lw)	Max/med/min*	dB(A)	46/44/41	51/48/39	56/51/48	51/44/40	55/51/44	57/49/43
Sound pressure level (Lp)	Max/med/min*	dB(A)	37/35/32	42/39/30	47/42/39	42/35/31	46/42/35	48/40/34
Water connections		inch	1/2"female			3/4" female		
Dimensions & Weights								
Dimensions (H/W/D)	body	mm	296x575x575	296x575x575	296x575x575	310x760x760	340x760x1050	340x760x1050
	grille panel	mm	41x730x730	41x730x730	41x730x730	30x860x860	30x860x1150	30x860x1150
Weight (with grille panel)		kg	21	23	23	28	32	36

(*) Fan speed

FW-X Type Ceiling Cassette - 4 pipe					
Model: (wired remote controller excluded)				FW-X031EH5-4	FW-X051EH5-4
Total cooling capacity	Max/med/min*	kW		2,08/1,88/1,72	3,76/3,28/2,88
Sensible cooling capacity	Max/med/min*	kW		1,85/1,67/1,53	2,98/2,56/2,24
Heating capacity	Max/med/min*	kW		1,51/1,34/1,22	2,33/1,98/1,78
Air flow	Max/med/min*	m^3/h		520/400/600	750/630/530
Sound power level (Lw)	Max/med/min*	dB(A)		46/44/42	56/51/48
Sound pressure level (Lp)	Max/med/min*	dB(A)		37/36/33	47/42/39
Water connections		inch		1/2"female	
Dimensions & Weights					
Dimensions (H/W/D)	body	mm		296x575x575	296x575x575
	grille panel	mm		41x730x730	41x730x730
Weight (with grille panel)		kg		21	23

(*) Fan speed

All specifications subject to change without notice.

Nominal conditions			
	Cooling	Heating	Sound pressure level
Entering air temperature	27°C (db) 19°C (wb)	20°C	At 2m distance in closed environment
Entering water temperature	7°C	50°C (at same water flow as for cooling)	100m^3 volume with 0.5 sec reverberation time
Leaving water temperature	12°C	60°C (maximum water entering temperature)	

All specifications subject to change without notice.

FW-F

FW-FT
Floor/Ceiling Unit

FW-FT Type Floor/Ceiling Units - 2 pipe					
Model: (wired remote controller excluded)			FW-FT021EH5	FW-FT031EH5	FW-FT041EH5
Model: (with infrared remote controller)			FW-FT022EH5	FW-FT032EH5	FW-FT042EH5
Main power supply		V/Ph/Hz	230/1+N/50		
Total cooling capacity	Max/med/min*	kW	2,10/1,20/0,90	3,19/2,10/0,90	3,90/3,10/1,65
Sensible cooling capacity	Max/med/min*	kW	1,50/1,00/0,70	2,47/1,50/0,70	3,00/2,50/1,25
Heating capacity	Max/med/min*	kW	3,10/2,00/1,60	4,07/3,00/1,60	5,00/4,40/2,10
Air flow	Max/med/min*	m^3/h	430/300/210	520/430/210	675/570/327
Absorbed power	Max/med/min*	W	40/30/26	46/37/26	70/53/35
Water flow	Max/med/min*	l/h	360/206/160	550/360/160	670/530/285
Sound power level (Lw)	Max/med/min*	dB(A)	48/43/35	50/45/35	54/51/40
Sound pressure level (Lp)	Max/med/min*	dB(A)	40/35/27	42/37/27	46/43/32
Water connections		(inches)	1/2" female		
Dimensions & Weights					
Dimensions (H/W/D)		mm	680x900x190		
Weight		kg	23,5		

(*) Fan speed

Nominal conditions			
	Cooling	Heating	Sound pressure level
Entering air temperature	27°C (db) 19°C (wb)	20°C	At 2m distance in closed environment
Entering water temperature	7°C	50°C (at same water flow as for cooling)	$100m^3$ volume with 0,5 sec reverberation time
Leaving water temperature	12°C	70°C (maximum water entering temperature)	

All specifications subject to change without notice.

Control accessories			
Model	ASB	ASE	SEL-O
Code N°	70250053	70250054	9060137
Description	Air temperature sensor (bare)/ water sensor for automatic changeover	Air temperature sensor (with box)	Speed selector receiver
Use with	RCC 10 & RCC 20	RCC 10 & RCC 20	RAB 30, RCC 10 & RCC 20

Accessories			
Model	KVX1	KVX2	KVX3
Code N°	70600088	70600089	70600071
Description	Kit 3-way valve 1/2" male - Kvs 1,6	Kit 3-way valve 3/4" male - Kvs 2.5	Kit 3-way valve 1/2" male - Kvs 1,6
Use with	FW-X: models 03 & 05 2 & 4 pipe	FW-X: models 06, 08, 10	FW-FT

All specifications subject to change without notice.

Fan Coil Units

S-VM
Floor Standing Unit

- Very wide and complete range: centrifugal or Cross Flow Fan, 2-pipe or 4-pipe design
- Stylish units can match any kind of interior decor

S-HM
Ceiling Unit

- Cleanable air filter included
- Easy to install and very simple to maintain

S-VH
Concealed Unit

- Electronic controllers available for unit mounting and remote installation ensure precise control of the room temperature
- Large choice of accessories, either separately supplied or factory mounted

Cross Flow fan S-VMT/HMT/VHT 151-251-351					
Performance			151	251	351
Main power supply		V/Ph/Hz	230/1+N/50		
Total cooling capacity	Max/med/min*	kW	1,40/1,20/1,04	2,40/2,08/1,70	3,40/2,80/2,30
Sensible cooling capacity	Max/med/min*	kW	1,17/0,92/0,78	2,02/1,62/1,31	2,87/2,30/1,89
Heating capacity (standard coil)	Max/med/min*	kW	2,08/1,66/1,46	3,10/2,70/2,30	4,30/3,60/2,90
Heating capacity (add. 1 row coil)	Max/med/min*	kW	1,65/1,35/1,20	2,60/2,25/1,95	3,50/3,00/2,45
Air flow	Max/med/min*	m^3/h	300/240/190	450/360/290	600/480/380
Absorbed power	Max/med/min*	W	40/30/27	50/45/37	65/50/42
Water flow cooling	Max/med/min*	l/h	240/210/180	240/210/180	585/485/400
Water pressure drop heating	Max/med/min*	kPa	4,0/3,2/2,4	14,7/11,8/8,5	13,2/10,0/7,0
Water flow heating	Max/med/min*	l/h	145/120/105	225/195/170	300/260/210
Water pressure drop heating	Max/med/min*	kPa	2,5/1,9/1,5	8,9/6,9/5,4	2,9/2,3/1,7
Sound power level (Lw)	Max/med/min*	dB(A)	48/40/34	47/42/36	48/43/39
Sound pressure level (Lp)	Max/med/min*	dB(A)	39/31/25	38/33/27	39/34/30
Dimensions & Weights					
Dimensions (H/W/D)	S-VMT	mm	530x775x225	530x990x225	530x1205x225
Dimensions (H/W/D)	S-HMT	mm	225x775x530	225x990x530	225x1205x530
Dimensions (H/W/D)	S-VHT	mm	530x567x218	530x782x218	530x1007x218
Weight	S-VMT	kg	18	26	29
Weight	S-HMT	kg	18	26	29
Weight	S-VHT	kg	17	25	28

Centrifugal fan S-VMC/HMC/VHC 151-251-351-401-501-601-701									
Performance			151	251	351	401	501	601	701
Main power supply		V/Ph/Hz	230/1+N/50						
Total cooling capacity	Max/med/min*	kW	1,50/1,30/1,10	2,50/2,15/1,80	3,50/2,90/2,47	4,00/3,44/2,90	4,80/4,15/3,60	5,95/5,08/4,30	6,60/5,50/4,60
Sensible cooling capacity	Max/med/min*	kW	1,25/1,00/0,83	2,10/1,68/1,39	2,95/2,35/1,95	3,35/2,68/2,21	4,05/3,24/2,67	5,00/4,00/3,30	5,50/4,40/3,64
Heating capacity (standard coil)	Max/med/min*	kW	2,06/1,70/1,40	3,30/2,70/2,30	4,45/3,70/3,00	5,20/4,35/3,65	6,60/5,50/4,70	8,00/6,70/5,50	8,80/7,30/6,00
Heating capacity (add.1 row coil)	Max/med/min*	kW	1,75/1,35/1,25	2,70/2,35/2,05	3,60/3,10/2,65	3,69/3,31/2,65	5,30/4,50/3,90	5,50/5,00/4,20	5,50/5,00/4,20
Air flow	Max/med/min*	m^3/h	300/240/190	450/360/290	600/480/380	750/600/480	1000/800/650	1200/950/750	1200/950/750
Absorbed power	Max/med/min*	W	50/37/25	60/50/45	87/80/60	95/80/65	130/85/65	180/145/120	180/145/120
Water flow cooling	Max/med/min*	l/h	260/225/190	430/370/310	600/500/425	690/590/500	825/715/620	1020/875/740	1135/950/795
Water pressure drop heating	Max/med/min*	kPa	5,7/4,3/3,2	14,1/10,6/7,9	12,3/9,2/7,0	17,9/13,5/10,0	27,8/20,5/16,8	21,1/16,0/12,0	4,5/3,3/2,4
Water flow heating	Max/med/min*	l/h	150/120/110	235/205/180	310/270/230	315/285/250	460/390/340	475/435/365	475/435/365
Water pressure drop heating	Max/med/min*	kPa	3,7/2,8/2,2	8,6/6,7/5,3	2,8/2,3/1,7	3,7/2,9/2,3	7,3/5,7/4,3	6,9/5,8/4,3	6,9/5,8/4,3
Sound power level (Lw)	Max/med/min*	dB(A)	51/45/40	54/50/42	51/42/37	54/48/45	59/54/48	60/55/48	60/55/48
Sound pressure level (Lp)	Max/med/min*	dB(A)	42/36/31	45/41/33	42/33/28	45/39/36	50/45/39	51/46/39	51/46/39
Dimensions & Weights									
Dimensions (H/W/D)	S-VMC	mm	530x775x225	530x990x225	530x1205x225	530x1205x225	530x1420x225	530x1420x255	530x1420x255
Dimensions (H/W/D)	S-HMC	mm	225x775x530	225x990x530	225x1205x530	225x1205x530	225x1420x530	255x1420x530	255x1420x530
Dimensions (H/W/D)	S-VHC	mm	530x510x218	530x725x218	530x940x218	530x940x218	530x1155x218	530x1155x248	530x1155x248
Weight	S-VMC	kg	17	24	27	28	33	43	48
Weight	S-HMC	kg	17	24	27	28	33	43	48
Weight	S-VHC	kg	16	23	26	27	31	40	45

(*) Fan speed

S-HDC

- Wide model range for 2-pipe and 4-pipe systems
- Available static pressure up to 160 Pa
- For horizontal installation only
- Cleanable air filter included as standard

Ducted units							
Model Number (2 pipe)			S-HDC 601-2	S-HDC 801-2	S-HDC 1001-2	S-HDC 1301-2	S-HDC 1601-2
Performances							
Main power supply		V/F/Hz	230/1+N/50				
Total cooling capacity		Max/med/min kW	5,59/5,06/4,54	7,65/7,26/6,79	10,50/9,53/8,81	12,89/11,67/10,08	16,53/15,39/13,49
Sensible cooling capacity		Max/med/minn kW	4,58/4,07/3,59	6,07/5,71/5,28	8,36/7,46/6,82	10,13/9,03/7,65	13,21/12,15/10,45
Heating capacity		Max/med/min kW	8,13/7,25/6,41	10,7/10,11/9,34	14,8/13,2/12,0	17,91/15,9/13,4	23,4/21,54/18,5
Air flow		Max/med/min m³/h	1180/1005/850	1515/1390/1255	2130/1825/1615	2500/2140/1720	3365/3000/2450
External static pressure		Max/med/min Pa	60/50/35	60/50/35	60/50/35	60/50/35	60/50/35
Absorbed power		Max/med/minn W	205/160/125	290/260/240	460/390/340	580/500/440	960/820/680
Water pressure drop	Cooling	Max/med/min kPa	6,2/5,2/4,3	12,2/11,2/9,9	18,3/15,4/13,3	15,3/12,7/9,8	13,8/12,0/9,5
Water pressure drop	Heating	Max/med/min kPa	5,3/4,4/3,6	10,3/9,4/8,3	15,5/13,0/11,3	12,9/10,7/8,3	11,7/10,2/8,0
Sound power level - outlet (Lw)		Max/med/min dB(A)	62/57/53	66/63/61	65/63/59	67/64/60	72/69/63
Sound power level - inlet+radiated (Lw)		Max/med/minn dB(A)	63/59/55	69/66/63	68/65/62	69/67/64	75/72/67
Sound pressure level - outlet (Lp)		Max/med/min dB(A)	53/48/44	57/54/52	56/54/50	58/55/51	63/60/54
Sound pressure level - inlet+radiated (Lp)		Max/med/min dB(A)	54/50/46	60/57/54	59/56/53	60/58/55	66/63/58
Rows		No	4	4	4	4	4
Coil water content		Lt	2,6	3,7	4,6	6,0	7,1
Water connections		inch	3/4" male	1" male	1" male	1 1/4" male	1 1/4" male
Dimensions (HxLxD)		mm	310x1133x748	310x1133x748	360x1133x748	360x1445x903	435x1445x903
Net weight		kg	47	48	56	78	88
Model Number (4 pipe)			S-HDC 601-4	S-HDC 801-4	S-HDC 1001-4	S-HDC 1301-4	S-HDC 1601-4
Performances							
Main power supply		V/F/Hz	230/1+N/50				
Total cooling capacity		Max/med/min kW	5,42/4,89/4,39	7,41/7,02/6,56	10,18/9,22/8,52	12,48/11,28/9,72	16,01/14,89/13,04
Sensible cooling capacity		Max/med/min kW	4,41/3,91/3,45	5,84/5,49/5,08	8,05/7,19/6,56	9,75/8,69/7,36	12,72/11,70/10,05
Heating capacity		Max/med/min kW	4,75/4,40/3,97	6,21/5,92/5,57	8,10/7,54/7,02	10,36/9,46/8,25	13,36/12,72/11,25
Air flow		Max/med/minn m³/h	1120/955/810	1435/1325/1190	2023/1735/1535	2375/2035/1635	3200/2850/2330
External static pressure		Max/med/min Pa	60/50/35	60/50/35	60/50/35	60/50/35	60/50/35
Absorbed power		Max/med/min W	205/160/125	290/260/240	460/390/340	580/500/440	960/820/680
Water pressure drop	Cooling	Max/med/min kPa	5,8/4,8/4,0	11,6/10,5/9,3	17,4/14,6/12,6	14,5/12,1/9,2	13,0/11,4/9,0
Water pressure drop	Heating	Max/med/min kPa	11,9/10,3/8,6	21,0/19,3/17,3	14,9/13,1/11,6	25,9/22,1/17,2	24,4/22,4/17,9
Sound power level - outlet (Lw)		Max/med/min dB(A)	62/57/53	66/63/61	65/63/59	67/64/60	72/69/63
Sound power level - inlet+radiated (Lw)		Max/med/min dB(A)	63/59/55	69/66/63	68/65/62	69/67/64	75/72/67
Sound pressure level - outlet (Lp)		Max/med/min dB(A)	53/48/44	57/54/52	56/54/50	58/55/51	63/60/54
Sound pressure level-inlet+radiated (Lp)		Max/med/min dB(A)	54/50/46	60/57/54	59/56/53	60/58/55	66/63/58
Rows - cooling+heating coils		No	4+1	4+1	4+1	4+1	4+1
Coil water content - cooling coil		Lt	2,6	3,7	4,6	6,0	7,1
Coil water content - heating coil		Lt	0,9	1,1	1,4	2,0	2,7
Water connection - cooling coil		inch	3/4" male	1" male	1" male	1 1/4" male	1 1/4" male
Water connection - heating coil		inch	3/4" male	3/4" male	3/4" male	1" male	1" male
Dimensions (HxLxD)		mm	310x1133x748	310x1133x748	360x1133x748	360x1445x903	435x1445x903
Net weight		kg	50	51	60	83	94

Nominal conditions				
	Cooling	Heating additional 1-row coil	Heating standard coil	Sound pressure level
Entering air temperature	27°C(db) 19°C (wb)	20°C	20°C	At 2m distance in closed environment
Entering water temperature	7°C	70°C	50°C (at same water flow as for cooling)	100m³ volume with 0,5 sec reverberation time
Leaving water temperature	12°C	60°C		

All specifications subject to change without notice.

S-HSC

- Wide model range for 2-pipe and 4-pipe systems
- Available static pressure up to 80 Pa
- For horizontal and vertical installation
- Cleanable air filter included as standard

Ducted units										
Model Number (2 pipe)			S-HSC 151-2	S-HSC 201-2	S-HSC 301-2	S-HSC 351-2	S-HSC 501-2	S-HSC 601-2	S-HSC 701-2	S-HSC 801-2
Performances										
Main power supply		V/F/Hz	230/1+N/50							
Total cooling capacity		Max/med/min kW	1,71/1,59/1,46	1,98/1,83/1,67	3,14/2,87/2,68	3,48/3,16/2,95	5,10/4,65/4,27	5,84/5,28/4,81	6,95/6,51/5,81	7,81/7,28/6,45
Sensible cooling capacity		Max/med/min kW	1,32/1,22/1,11	1,47/1,35/1,23	2,36/2,15/2,00	2,57/2,32/2,15	3,94/3,56/3,24	4,38/3,93/3,55	5,26/4,90/4,34	5,78/5,36/4,72
Heating capacity		Max/med/min kW	2,21/2,05/1,87	2,46/2,25/2,04	3,84/3,49/3,24	4,25/3,84/3,55	6,39/5,78/5,30	7,17/6,43/5,84	8,52/8,00/7,07	9,43/8,79/7,72
Air flow		Max/med/min m^3/h	315/290/260	315/290/260	540/480/440	540/480/440	930/820/730	930/820/730	1200/1100/950	1200/1100/950
External static pressure		Max/med/min Pa	65/50/40	65/50/40	65/50/40	65/50/40	65/50/40	65/50/40	65/50/40	65/50/40
Absorbed power		Max/med/min W	63/55/50	63/55/50	110/99/92	110/99/92	190/160/140	190/160/140	210/195/175	210/195/175
Water pressure drop	Cooling	Max/med/min kPa	10,0/8,8/7,4	16,0/13,8/11,6	16,2/13,8/12,0	12,0/10,2/9,0	19,8/16,8/14,4	12,0/10,2/8,4	16,8/14,4/12,0	12,0/10,8/8,4
Water pressure drop	Heating	Max/med/min kPa	8,6/7,4/6,2	13,7/11,7/9,8	13,7/11,4/10,0	104/9,1/7,8	17,6/15,0/13,0	10,4/9,1/7,2	15,0/13,0/10,4	11,1/9,8/7,8
Sound power level - outlet (Lw)		Max/med/min dB(A)	51/49/46	51/49/46	51/49/47	51/49/47	57/55/51	57/55/51	58/56/52	58/56/52
Soundpowerlevel-inlet+radiated(Lw)		Max/med/min dB(A)	59/56/52	59/56/52	58/55/53	58/55/53	63/60/57	63/60/57	64/61/58	64/61/58
Sound pressure level - outlet (Lp)		Max/med/min dB(A)	42/40/37	42/40/37	42/40/38	42/40/38	48/46/42	48/46/42	49/47/43	49/47/43
Soundpressurelevel-inlet+radiated(Lp)		Max/med/min dB(A)	50/47/43	50/47/43	49/46/44	49/46/44	54/51/48	54/51/48	55/52/49	55/52/49
Rows		No	3	4	3	4	3	4	3	4
Coil water content		Lt	1,0	1,3	1,7	2,3	2,0	2,9	3,2	4,2
Water connections		inch	1/2" female							
Dimensions (HxLxD)		mm	218x669x530	218x669x530	248x884x530	248x884x530	248x1099x530	248x1099x530	248x1550x530	248x1550x530
Net weight		kg	16	17	24	26	29	32	45	48
Model Number (4 pipe)			S-HSC 151-4		S-HSC 301-4		S-HSC 501-4		S-HSC 701-4	
Performances										
Main power supply		V/F/Hz	230/1+N/50							
Total cooling capacity		Max/med/min kW	1,71/1,59/1,46		3,14/2,87/2,68		5,10/4,65/4,27		6,95/6,51/5,81	
Sensible cooling capacity		Max/med/min kW	1,32/1,22/1,11		2,36/2,15/2,00		3,94/3,56/3,24		5,26/4,90/4,34	
Heating capacity		Max/med/min kW	2,00/1,87/1,73		3,24/2,98/2,81		5,16/4,75/4,38		7,09/6,68/6,02	
Air flow		Max/med/min m^3/h	315/290/260		540/480/440		930/820/730		1200/1100/950	
External static pressure		Max/med/min Pa	65/50/40		65/50/40		65/50/40		65/50/40	
Absorbed power		Max/med/minn W	63/55/50		110/99/92		190/160/140		210/195/175	
Water pressure drop	Cooling	Max/med/min kPa	10,0/8,8/7,4		16,2/13,8/12,0		19,8/16,8/14,4		16,8/14,4/12,0	
Water pressure drop	Heating	Max/med/min kPa	8,0/7,0/6,0		3,9/3,3/2,8		9,0/8,0/7,0		20,0/18,0/15,0	
Sound power level - outlet (Lw)		Max/med/min dB(A)	51/49/46		51/49/47		57/55/51		58/56/52	
Soundpowerlevel-inlet+radiated(Lw)		Max/med/min dB(A)	59/56/52		58/55/53		63/60/57		64/61/58	
Sound pressure level - outlet (Lp)		Max/med/min dB(A)	42/40/37		42/40/38		48/46/42		49/47/43	
Soundpressurelevel-inlet+radiated(Lp)		Max/med/min dB(A)	50/47/43		49/46/44		54/51/48		55/52/49	
Rows - cooling+heating coils		No	3+1		3+1		3+1		3+1	
Coil water content - cooling coil		Lt	1,0		1,7		2,0		3,2	
Coil water content - heating coil		Lt	0,4		0,5		0,6		0,9	
Water connection - cooling coil		inch	1/2" female		1/2" female		1/2" female		1/2" female	
Water connection - heating coil		inch	1/2" female		1/2" female		1/2" female		1/2" female	
Dimensions (HxLxD)		mm	218x669x530		248x884x530		248x1099x530		248x1550x530	
Net weight		kg	17,4		25,7		31,0		47,7	

Nominal conditions				
	Cooling	Heating additional 1-row coil	Heating standard coil	Sound pressure level
Entering air temperature	27°C(db) 19°C (wb)	20°C	20°C	At 2m distance in closed environment
Entering water temperature	7°C	70°C	50°C (at same water flow as for cooling)	100m^3volumewith0,5secreverberationtime
Leaving water temperature	12°C	60°C		

All specifications subject to change without notice.

A wide variety of control options to meet the requirements of different applications.

Operation system	Individual control systems			Timer operation
Requirements	Normal operation	Operation from each seat	Simple operation	Daily and weekly program
External appearance				
Type, model name	Timer wired remote controller RCS-TM80BG	Wireless remote controller RCS-SH80BG.WL RCS-SS80BG.WL RCS-BH80BG.WL RCS-TRP80BG.WL RCS-SH1BG RCS-XM18BG.WL	Simplified remote controller RCS-KR1EG	Schedule timer SHA-TM64AGB
Numberofindoorunitswhichcanbe controlled	1 group, 8 units	1 group, 8 units	1 group, 8 units	64 groups, max. 64 units
Use limitations	Up to 2 units can be connected per group.	Up to 2 units can be connected per group.	Up to 2 units can be connected per group.	Power supply from the system controller. When there is no system controller, connection is possible to the T10 terminal of an indoor unit.
Connectable indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit
Function				
ON/OFF				—
Mode setting				—
Fan speed setting				—
Temperature setting				—
Air flow direction	*1	*1	*1	—
Permit/Prohibit switching	—	—	—	—
Weekly program		—	—	

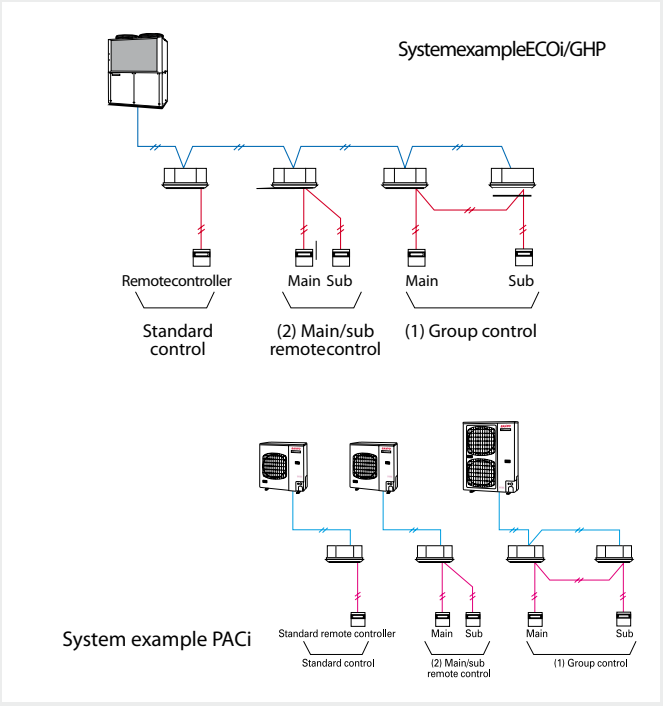
*1 Setting is not possible when a remote control unit is present. (Use the remote control for setting.)

Operation system	Centralised control systems			
Requirements	Operation with various function from central station	Only ON/OFF operation from central station	Simplified charge ratio for each tenant	
			Touch screen panel	Personal computer (field supply)
External appearance			 Web application	
Type, model name	System controller SHA-KC64AGB	ON/OFF controller SHA-KC16KAGB	Intelligent controller SHA-KT256EG	Communication adaptor SHA-KA128AGB
Number of indoor units which can be controlled	64 groups, max. 64 units	16 groups, max. 64 units	64 units x 4 networks, max. 256 units	2 systems, max. 128 units
Use limitations	Up to 10 units can be connected to one system. Main unit/sub unit (1 main unit + 1 sub unit) connection is possible. Use without remote controller is possible.	Upto8units(4mainunits+4subunits) can be connected to one system. Use without remote controller is impossible.	A communication adaptor (SHA-KA128AGB)mustbeinstalledfor three or more networks.	
Connectable indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit	4/5 series indoor unit
Function				
ON/OFF				
Mode setting		—		
Fan speed setting		—		
Temperature setting		—		
Air flow direction		—		
Permit/Prohibitswitching	*1		*1	*1
Weekly program	—	—		

All specifications subject to change without notice.

Individual Control Systems

Control contents	Part name, model No.	Quantity
Standard Control • Controloftheoperationsoftheindoor unitbywiredorwirelessremotecontroller. • Coolingorheatingmodeoftheoutdoorunit isdecidedbythefirstpriorityoftheremote controller. • Switchingbetweenremotecontrollersensor and body sensor is possible.	Timer remote controller RCS-TM80BG Wirelessremotecontroller RCS-XM18BG.WL RCS-SH80BG.WL RCS-SS80BG.WL RCS-BH80BG.WL RCS-TRP80BG.WL RCS-SH1BG RCS-KR1EG	1 unit each
(1) Group control • Batch remote control on all indoor units. •Operationofallindoorcellsinthesamemode. • Up to 8 units can be connected. • Thesensoristhebodysensor,andthermostat ON/OFFsettinginregardtothetemperature setbytheremotecontrolleris possiblefor each indoor unit.	Timer remote controller RCS-TM80BG RCS-KR1EG	1 unit
(2) Main/sub remote control • Max 2 remote controllers per indoor unit. (Mainremotecontrollercanbeconnected) • The button pressed last has priority. • Timer setting is possible even with the sub remote controller.	Main or sub Timer remote controller RCS-TM80BG Wirelessremotecontroller RCS-XM18BG.WL RCS-SH80BG.WL RCS-SS80BG.WL RCS-BH80BG.WL RCS-TRP80BG.WL RCS-SH1BG RCS-KR1EG	As required



Timer remote controller (RCS-TM80BG)

Dimensions
H120xW120xD16mm

Basic remote controller ON/OFF

- Operation mode changeover (Cooling, Heating, Dry, Auto, Fan)
- Temperature setting (Cooling/Dry: 18-30 deg Heating: 16-30 deg)
- Fan speed setting H/ M/ L and Auto.
- Air flow direction adjustment

Time Function 24 hours real time clock

- Day of the week indicator

Weekly Programme Function

- A maximum of 6 actions can be programmed for each day

Outing Function

- This function can prevent the room temperature from dropping or rising when the occupants are out for a long time

Sleeping Function

- This function controls the room temperature for comfortable sleeping.

Max. 8 indoor units can be controlled from one remote controller.

Remote control by main remote controller and sub controller is possible

Max. 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit

Wireless remote controller

XM type
RCS-XM18BG.WL

X type
RCS-SH80BG.WL

XMR, SR, FTR types
RCS-SS80BG.WL

ADR, T, LDR types
RCS-TRP90BG.WL

K type
RCS-SH1BG

For all indoor units
RCS-BH80BG.WL

Ventilation independent operation is possible

When commercial ventilation fans or heat-exchange ventilation fans have been installed, they can be operated with this remote control (interlocked operation with the indoor unit or independent ventilation ON/OFF)

Easy installation for the 4-way cassette type simply by replacing the corner part

24 hour timer function

Remote control by main remote controller and sub controller is possible

- Max. 2 remote controllers (main remote controller and sub controller) can be installed for one indoor unit

When RCS-BH80BG.WL is used, wireless control becomes possible for all indoor units

- When a separate receiver is set up in a different room, control from that room also becomes possible
- Automatic operation by means of the emergency operation button is possible even when the remote controller has been lost or the batteries have been exhausted

In addition, there are other functions such as temperature setting, operation switching, wind direction/fan speed setting, etc.

Simplified remote controller (RCS-KR1EG)

Dimensions H 120 x W 70 x D 16 mm

A remote controller with simple functions and basic operation.

- Suitable for open rooms or hotels where detailed functions are not required.
- ON/OFF, operation mode switching, temperature setting, wind velocity switching, wind direction setting, alarm display, and remote controller self-diagnosis can be performed.
- Batch group control for up to 8 indoor units.
- Remote control by main remote controller and sub controller is possible with a simplified remote controller or a wired remote controller (up to two units).

Remote sensor (ART-K45AGB)

- This is a remote sensor which can be used with 4 series indoor units. Please use it to detect the room temperature when no remote controller sensor or body sensor is used. (Connection to a system without a remote controller is possible.)
- For joint use with a remote control switch, use the remote control switch as main remote controller

Schedule timer (RCS-TM64AGB)

Dimensions
H120xW120xD16mm

The power supply for the schedule timer is taken from one of the following

1 Control circuit board (T10) of a nearby indoor unit (power supply wiring length: within 200 m from the indoor unit)
2 System controller (power supply wiring length: within 100 m from the indoor unit)

When the power supply for the schedule timer is taken from the control circuit board of the indoor unit, that indoor unit cannot be used with other control devices using the T10 terminal.

As operation mode and temperature settings are not possible with the schedule timer, it must be used together with a remote controller, a system controller, an intelligent controller, etc. Also, as it does not have an address setting function, the control function of a system controller etc. must be used for address setting

Up to 64 groups (max. 64 indoor units) can be controlled divided into 8 timer groups

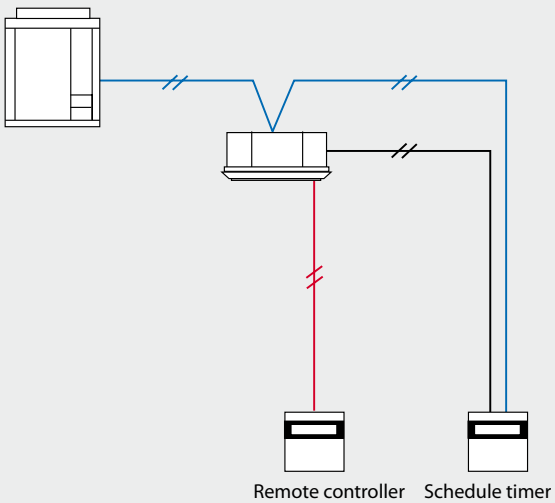
Six program operations (Operation/Stop/Local permission/ Local prohibition) per day can be set in a program for one week

- Only operation or stop, remote controller local permission or remote controller local prohibition, and their respective combinations are possible. (Operation + local permission, stop + local prohibition, only local permission, etc.)
- Local prohibition and the combination of the three items of temperature setting, mode change, and operation/stop can be set at the time of installation

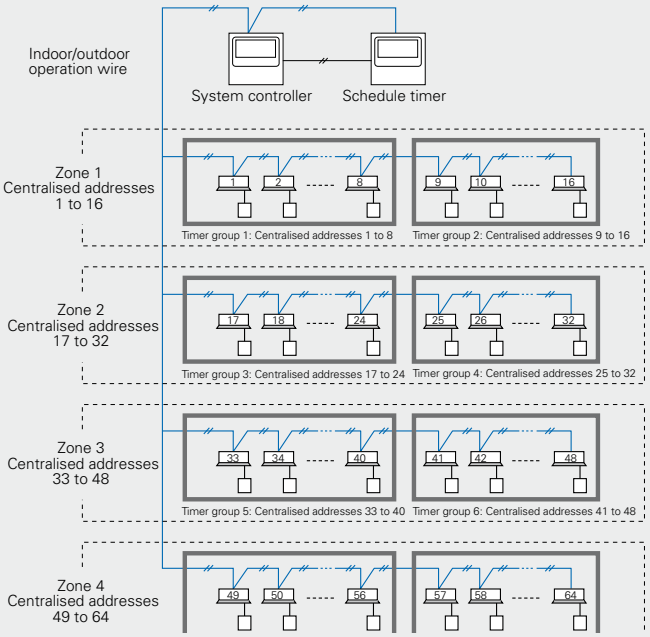
A function for pausing the timer in case of national holidays has been added, and timer operation also can be stopped for a long time

- By setting holidays or operation stop within one week, the timer can be paused just for that week.
- All timer settings can be stopped with the timer "ON/OFF effective" button. (Return to timer operation is made by pressing the button again.)

Connection example 1
(power supply from the indoor unit)



Connection example 2
(power supply from the central controller)



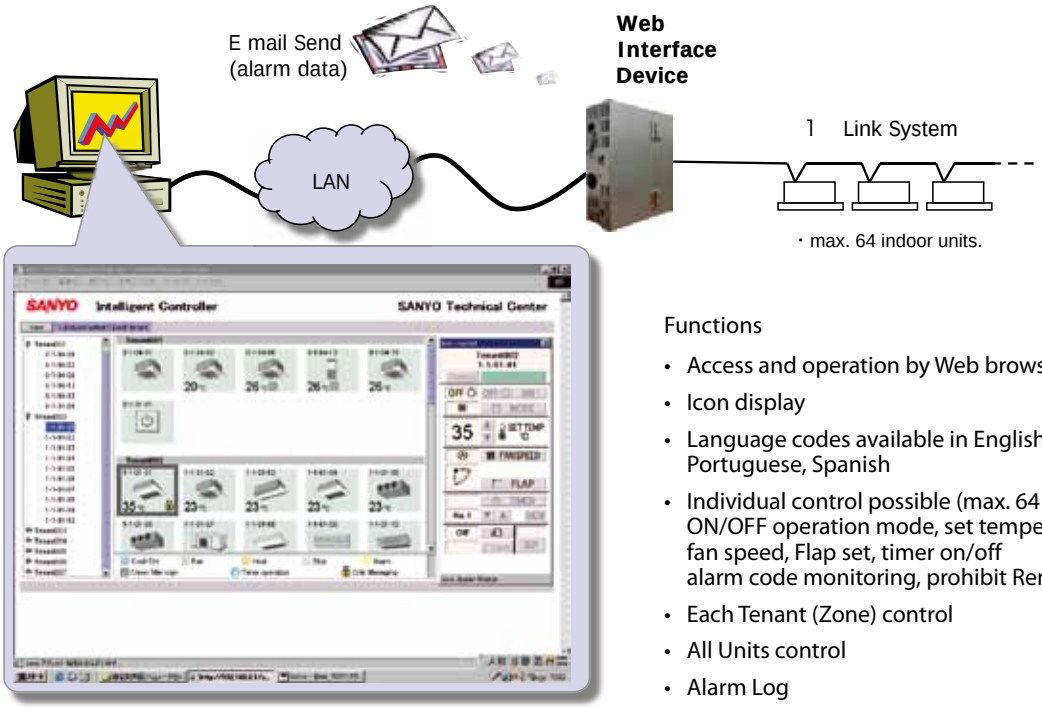
ON/OFF controller (SHA-KC16KAGB)

Dimensions	H 121 x W 122 x D 14 + 52 (embedding dimension mm)
Power supply	AC 220 to 240 V
I/O part	Remoteinput(effectivevoltage: within DC 240V): All ON/OFF Remoteoutput(allowablevoltage: withinDC30V):AllON,Allalarm

- 16 groups of indoor units can be controlled
- Collective control and individual group (unit) control can also be performed
- Up to 8 ON/OFF controller (4 main, 4 sub) can be installed in one link system
- The operation status can be determined immediately

Note: As operation mode and temperature settings are not possible with the ON/OFF controller, it must be used together with a remote controller a system controller etc

Web Interface Device (SHA-KW64EG)



Functions

- Access and operation by Web browser
- Icon display
- Language codes available in English, French, German, Italian, Portuguese, Spanish
- Individual control possible (max. 64 indoor units)
  ON/OFF operation mode, set temperature,
  fan speed, Flap set, timer on/off
  alarm code monitoring, prohibit Remote Control
- Each Tenant (Zone) control
- All Units control
- Alarm Log
- Mail Sent Log
- Program Timer set
  50 daily timers with 50 actions each day, 50 weekly timers 50 weekly timers, 1 holiday timer, 5 special day timers, for each tenant
- Prohibit Remote Control set
- IP ADDRESS could be changed via Internet

Note: it is recommended to install a remote controller or a system controller on site to enable local control if IT network experiance a problem.

System controller (SHA-KC64AGB)

Dimensions	160 x W 160 x D 21 + 69 (embedding dimension) mm
Power supply	AC 220 to 240 V
I/O part	Remote input (effective voltage: DC 24 V): All ON/All OFF Remote output (voltage-free contact): All ON/All OFF (external Power supply within DC 30 V, max 1A)
Total wiring length	1km

Individual control is possible for max. 64 groups, 64 indoor units.

Control of 64 indoor units divided into 4 zones. (One zone can have up to 16 groups, and one group can have up to 8 units.)

Control is possible for ON/OFF, operation mode, fan speed, air flow direction (only when used without a remote controller), operation monitoring, alarm monitoring, ventilation, remote controller local operation prohibition, etc

Individual	All operations are possible also from the remote controller. However, the contents will be changed to the contents of the controller operated last
Central 1	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
Central 3	The remote controller cannot be used for mode change or temperature setting change. (All other operations are possible from the remote controller.)
Central 4	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Joint use with a remote controller, an intelligent controller, a schedule timer, etc. is possible

(The maximum number of connectable system controllers is 10, including other central controllers on the same circuit.)

(In case of joint use with a wireless remote controller, there are limitations for the control mode. Please use only with "Individual" and "Central 1".)

Control of systems without a remote controller and of main/sub systems (a total of up to 2 units) is possible

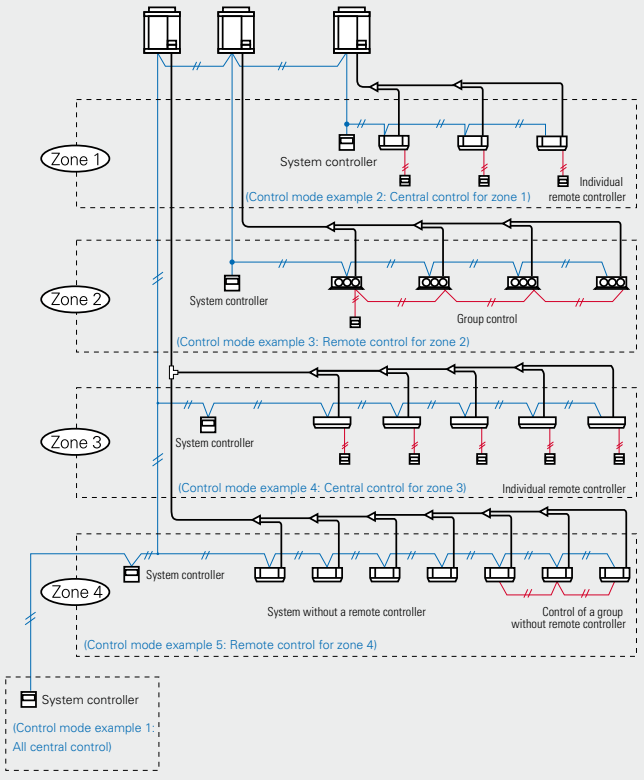
A control mode corresponding to the use condition can be selected from 10 patterns

A Operation mode: Central control mode or remote control mode can be selected
Central control mode: The system controller is used as centralised control device. (Setting from a remote controller can be prohibited by prohibiting local operation from the system controller.)
Remote control mode: The system controller is used as a remote controller. (Setting from the system controller can be prohibited by prohibiting local operation from another central control unit.)

B Controlled unit number mode: All mode or zone 1, 2, 3, 4 mode can be selected
All mode: All, zone, or group unit can be selected.
Zone 1, 2, 3, 4 mode: Setting is possible only for the indoor units of zone 1, 2, 3, or 4.

Connection example

		A Operation mode	
		Central control mode	Remote control mode
B Controlled unit number mode	All mode	All central control Example 1	All remote control
	Zone 1 mode	Zone 1 central control Example 2	Zone 1 remote control
	Zone 2 mode	Zone 2 central control	Zone 2 remote control Example 3
	Zone 3 mode	Zone 3 central control Example 4	Zone 3 remote control
	Zone 4 mode	Zone 4 central control	Zone 4 remote control Example 5



Intelligent controller (SHA-KT256EG)

Dimensions	H 240 x W 280 x D 138 mm
Power supply	AC 100 to 240 V (50 Hz), 20 W (separate power supply)
I/O part	Remote in put (voltage-free contact): All ON/OFF Remote output (voltage-free contact): All ON, All alarm (external power supply within DC 30V, 0.5A)
Total wiring length	1 km for each system
Only for embedding in the panel	

Limitation contents for prohibited operation

Prohibition means limitation of the operation contents from the remote controller. It is also possible to change the prohibition items.

Limitation contents (Limitations can be user defined)

Individual	There is no limitation for the operation of the remote controller. However, the contents will be changed to the contents of the controller operated last. (Last-pressed priority.)
Prohibition 1	The remote controller cannot be used for ON/OFF. (All other operations are possible from the remote controller.)
Prohibition 2	The remote controller cannot be used for ON/OFF, operation mode change and temperature setting. (All other operations are possible from the remote controller.)
Prohibition 3	The remote controller cannot be used for operation mode change and temperature setting. (All other operations are possible from the remote controller.)
Prohibition 4	The remote controller cannot be used for operation mode change. (All other operations are possible from the remote controller.)

Note: Avoid joint use of the AMY system and the intelligent controller on the same indoor/outdoor operation line

Max. 256 indoor units (4 systems x 64 units) can be controlled. In case of three or more systems, a communication adapter SHA-KA128AG must be installed on the outside

Operation is possible as batch, in zone units, in tenant units and in group units

ON/OFF, operation mode setting, temperature setting, for fan speed setting, air flow direction setting (when used without a remote controller), and remote controller local operation prohibition (prohibition 1, 2, 3, 4) can be done

A system without a remote controller is possible. Joint use with a remote controller or a system controller is also possible

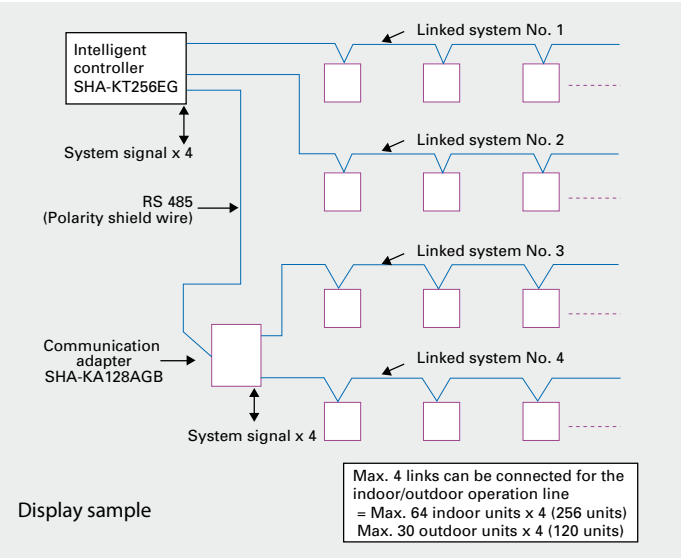
Use of a schedule timer and holiday setting also can be done

Proportional distribution of the air-conditioning energy is possible. Including csv-file export via CF-card (supplementary accessory).

NEW function: Pulse signal input from electric/gas consumption meter

In case of joint use with a wireless remote control system, there are limitations for the control mode. Please use only with "Permission" and "Prohibition 1"

Web application



Display sample

Communication adaptor (SHA-KA128AGB)

For more information on how to connect please see installation manual.

Dimensions	H 260 x W 200 x D 68 mm
Power supply	AC 100 to 240 V (50 Hz), 3 W (separate power supply)

Required to connect three or more linked wiring systems (indoor/outdoor operation lines) to the intelligent controller

Also required for connection of the AMY software and STAIMS

Two linked wiring systems can be connected to one SHA-KA128AG, but max. 4 systems can be connected for the entire intelligent controllers

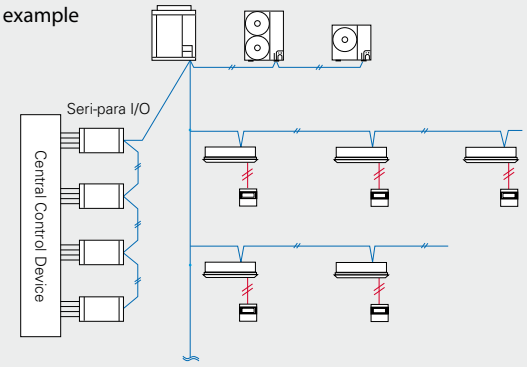
*As this is not a splash-proof design, it must be installed indoors or in the control panel etc

Seri-Para I/O unit (ACC-SP16TAGB)

- This is the interface for connecting signals from the central control device with the SANYO air conditioner unit control network
- This unit can control and monitor the status up to 16 groups of indoor units (max 64 indoor units)
- Up to 4 seri-para units can be connected in one system
- From the central control device, it is possible to set the temperature and to monitor the room temperature or intake air temperature

Input	ON/OFF (Pulse DC24V)
	Local prohibit (Continuous DC24V)
	Temp setting (Analog DC1~5V)
	All ON/OFF (Pulse DC24V)
	All local prohibit & emergency stop (Continuous DC24V)
Output	On/Alarm/Answer back/Filter sign
	Room temp (Analog DC4-20mA)
	All ON/OFF

System example

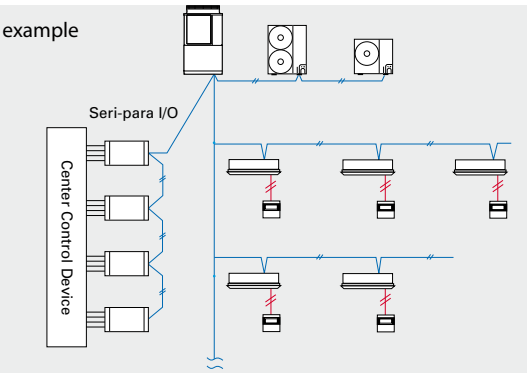


Seri-Para I /O unit for outdoor unit (ACC-XSP4U1GB)

Dimensions	H 80 x W 290 x D 260 mm
Power supply	Single phase 100/200V (50/60 Hz), 18W
Input	Batch operation/Batch stop (non-voltage contact/DC 24V, pulse signal)
	Cooling/Heating (non-voltage contact/static signal)
	Demand 1/2 (non-voltage contact/ static signal)(Local stop by switching)
Output	Operation output (non-voltage contact)
	Alarm output (non-voltage contact)
Wiring length	Indoor/Outdoor operation lines: Total length 1km
	Digital signal: 100m or shorter

- This unit can control up to 4 outdoor units.
- From the centre control device, mode changing and batch operation/batch stop are possible
- Required for demand control.

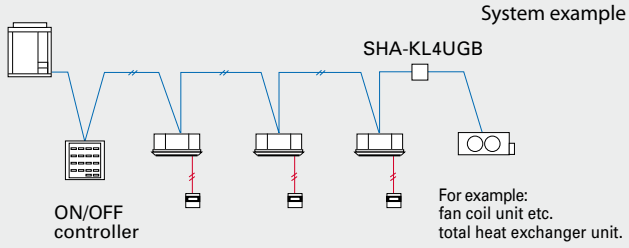
System example



Local adaptor for ON/OFF control (SHA-KL4UGB)

- Control and status monitoring is possible for individual indoor unit (or any external electrical device up to 250V AC, 10A) by contact signal.

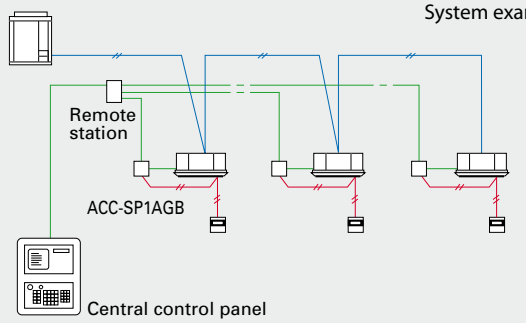
System example



MINI Seri-Para I/O Unit (ACC-SP1AGB)

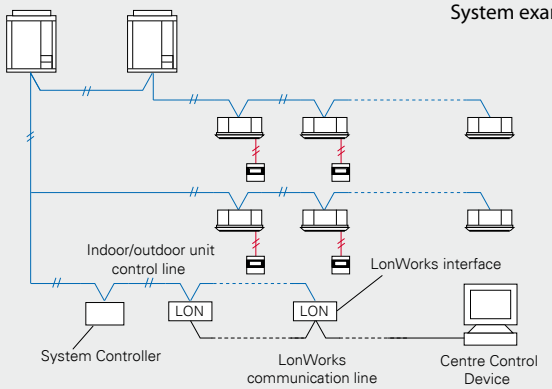
- Control and status monitoring is possible for individual indoor unit (1 group)
- In addition to operation and stop, there is a digital input function for air speed and operation mode
- Temperature setting and measuring of the indoor suction temperature can be performed from central monitoring
- The analog input for temperature setting is 0 to 10 V, or 0 to 140 Ohm
- Power is supplied from the T10 terminal of the indoor units
- Separate power supply also is possible (in case of suction temperature measuring)

System example



LonWorks interface (SHA-LN16UGB)

System example



- This interface is a communications converter for connecting LonWorks to the SANYO air conditioner unit (PAC, ECOi, GHP) control network
- From the host connected to LonWorks, basic settings and status monitoring is possible for up to 16 groups of A/C units

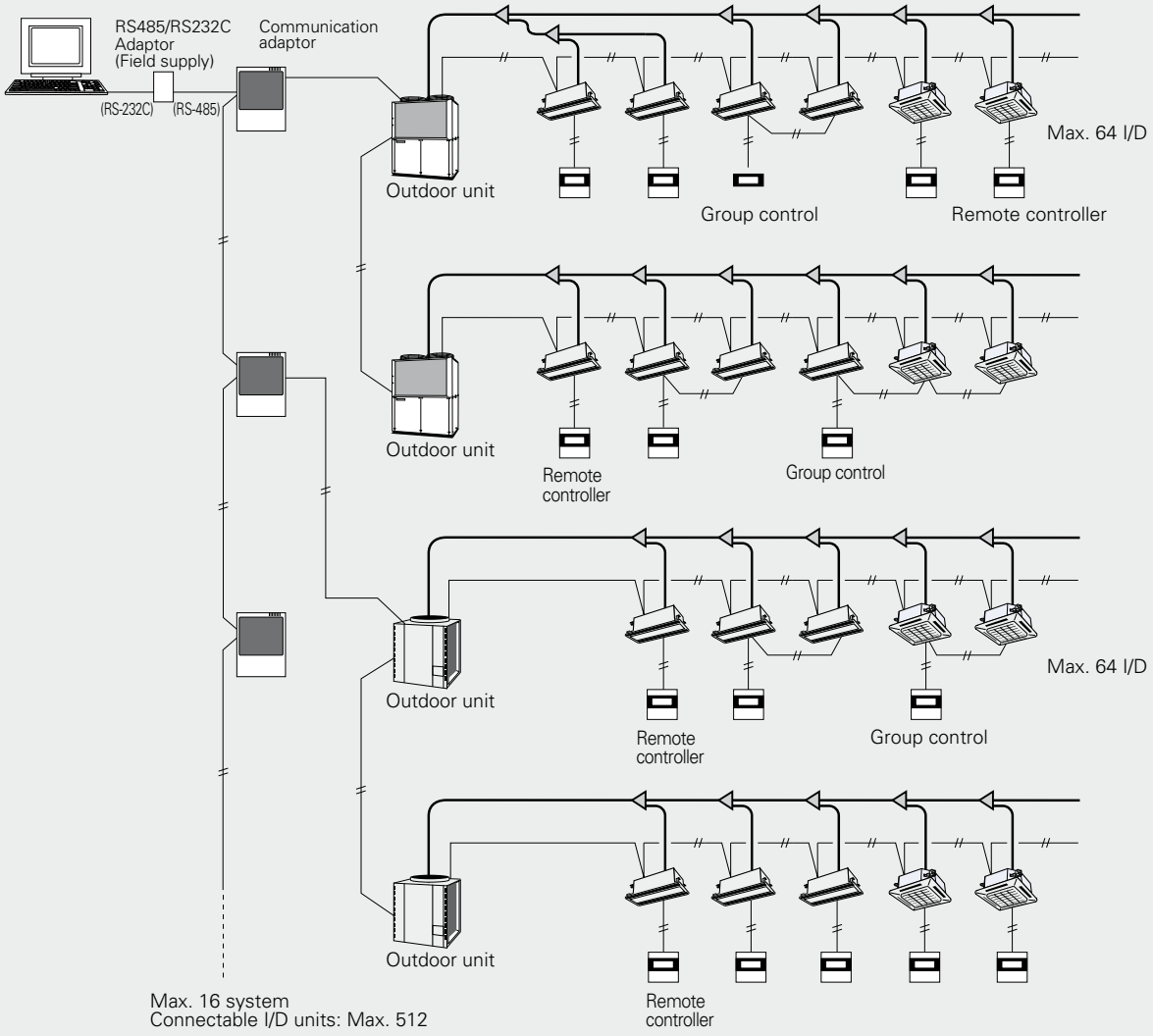
Functions		System example
A/C unit settings from the LonWorks communicator	Settings for each group of indoor units	Start/stop
		Temp. setting
		Operation mode
		Option 1 settings*
		Option 2 settings*
	Settings for all units	Emergency stop
A/C unit status notifications made to the LonWorks communicator		Start/stop
		Temp setting
		Operation mode
		Option 1 settings*
		Option 2 settings*
		Alarm status
		Indoor units with active alarms
		Room temperature
		A/C unit status
Configuration properties		Transmission intervals settings
		Minimum time secured for transmission

* Select two of the following: remote controller prohibit, fan speed setting, air direction setting, filter sign reset.

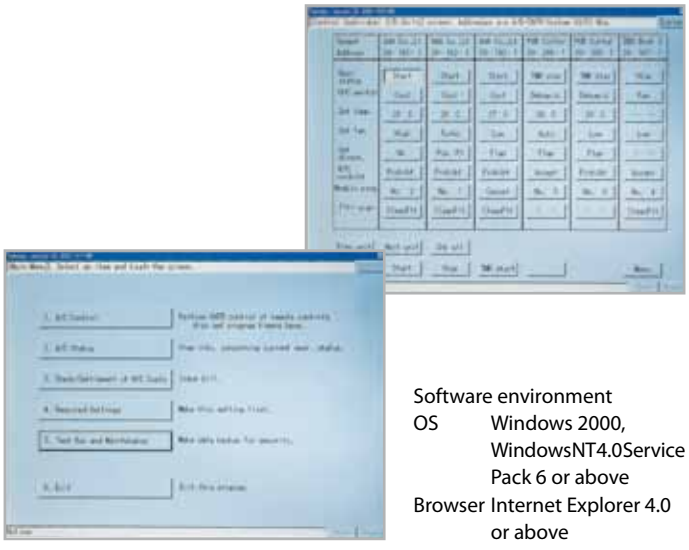
Signal output board (ACC-SG-AGB)

- Defrost, heating, cooling and thermostat ON signal can be put out to the outside.
- Signal type (2 types): Voltage specification (max. 240V AC, 5A or 30V DC, 5A), non-voltage specification

AMY Software
An air conditioner central control system for buildings



Functions	
A/C unit settings	Unit ON/OFF
	Mode-change
	Room temperature setting
	Fan speed setting
	Flap setting
	Central control setting
	Filter-sign clear
	Alarm reset
A/C unit status	Unit ON/OFF status
	Operation mode
	Setting temperature
	Fan speed status
	Flap status
	Central control setting
	Filter-sign situation
	Correct/incorrect status
	Alarm code
	Charge calculation rate



Software environment
OS Windows 2000, WindowsNT4.0Service Pack 6 or above
Browser Internet Explorer 4.0 or above

STAIMS Basic software TECS-5000KG

Sanyo Total Air conditioning Intelligent Management System

Up to 1024 indoor units can be controlled by 1 PC

Functions for basic software

- Standard remote control for all indoor units.
- Many timer schedule programs can be set on the calendar.
- Detail information display for alarm happening.
- CSV file output with alarm history, operating status.
- Automatic data backup to HDD.

communication adapter
SHA-KA128AG

By using up to 4 optional software modules a more comfortable control is possible.

TECS-5000AG for Load distribution

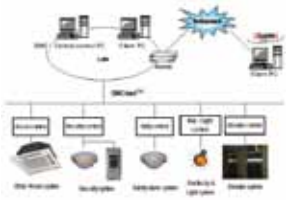
Load distribution calculation for each tenant

- Air-con load distribution ratio is calculated for each unit (tenant) with used energy consumption data (m3, kWh).
- Calculated data is stored with CSV type file.
- Data of last 365 days will be stored.

TECS-5000BG for BACnet interface

Connectable to BMS system

- Communicate with other equipments by BACnet protocol.
- SANYO airconditioners system can be controled by both BMS and STAIMS.
- Up to 256 indoor units can be connected to 1 PC (that has STAIMS basic & BACnet software).



TECS-5000GG for Object layout display

Whole system can be controlled visually

- Operating status monitor is available on the layout display.
- Object's layout and indoor unit's location can be checked at once.
- Each unit can be controled by virtual remote-controller on the display.
- Up to 4 layout screens are shown at once.

TECS-5000WG for Web application

Web access & control from remote station

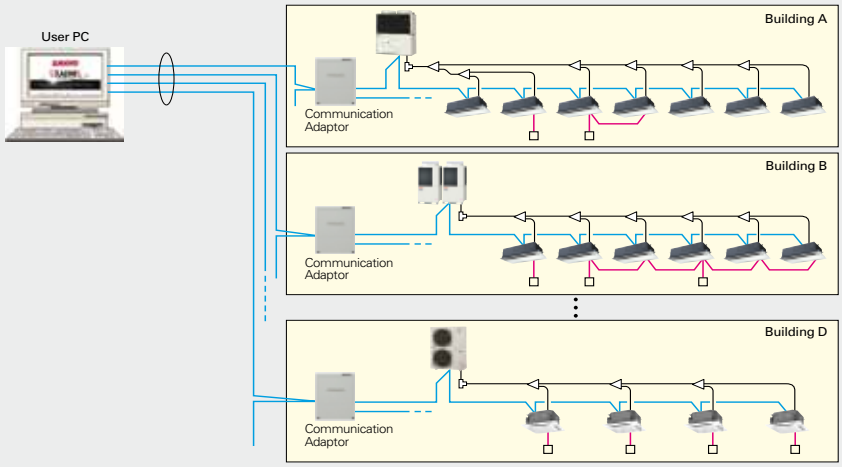
- Accessing STAIMS software from remote PC.
- You can monitor/operate SANYO system by using Web browser (Internet Explorer).

STAIMS is suitable for large shopping centers or Universities that have large areas/many buildings.

1 STAIMS PC can have 4 independent systems at once. Each system can have up to 8 C/A units, and control up to 512 units.

In total, 1024 indoor units can be controlled by 1 STAIMS PC.

- Wiring length (PC~C/A) up to 1 km
- Up to 8 C/A for 1 system
- Wiring length for each link from C/A up to 1 km



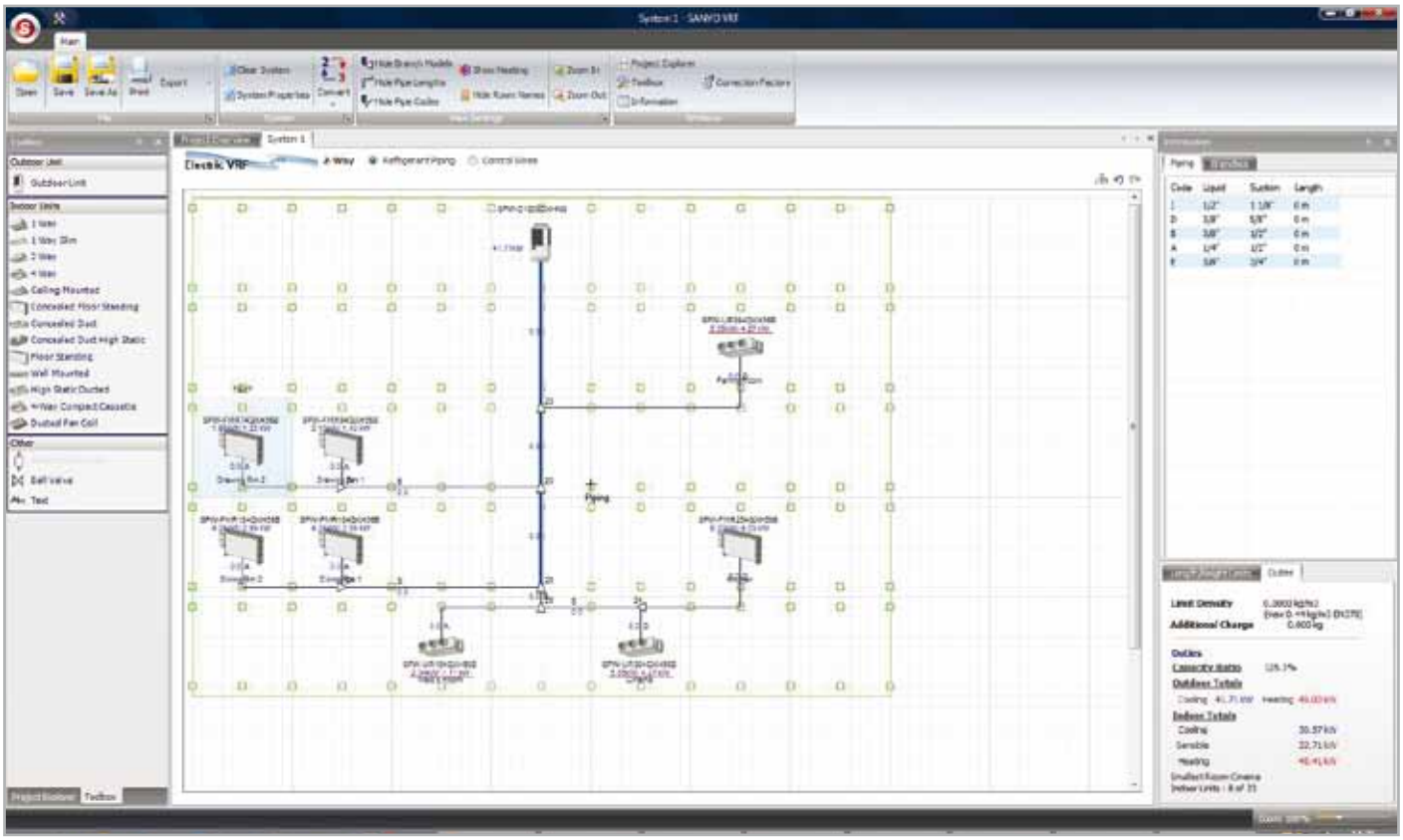
PAC2 System Design Software

System designing for VRF (ECOi and GHP) and PACi Commercial Split Systems has never been easier

SANYO has identified the importance of ever-increasing demands for fast and accurate responses to customer requests in our industry. More and more emphasis is being placed upon energy-efficiency in our marketplace. The ability to calculate cooling/heating loads and produce information of actual design conditions is a major advantage to any architect, consultant, contractor or end user.

SANYO understands the ever-changing and demanding industry we are in and we are pleased to announce the launch of the next generation of our system design software program. The advanced PAC2 system design software has been customised to make any selection and design process as quick and easy as possible. The software features a version of AC Calc Lite (produced by Click Software). This allows small building loadings to be accurately calculated and directly imported into the PAC2 software.

The design package utilises system wizards and import tools to enable both simple and complex systems to be created. In addition, the system will allow outdoor and indoor units to be dragged and dropped on an interactive desktop. This allows users to create everything from realistic floor plans with detailed piping and wiring schematics to send out with quotations, through to installation guidance drawings.

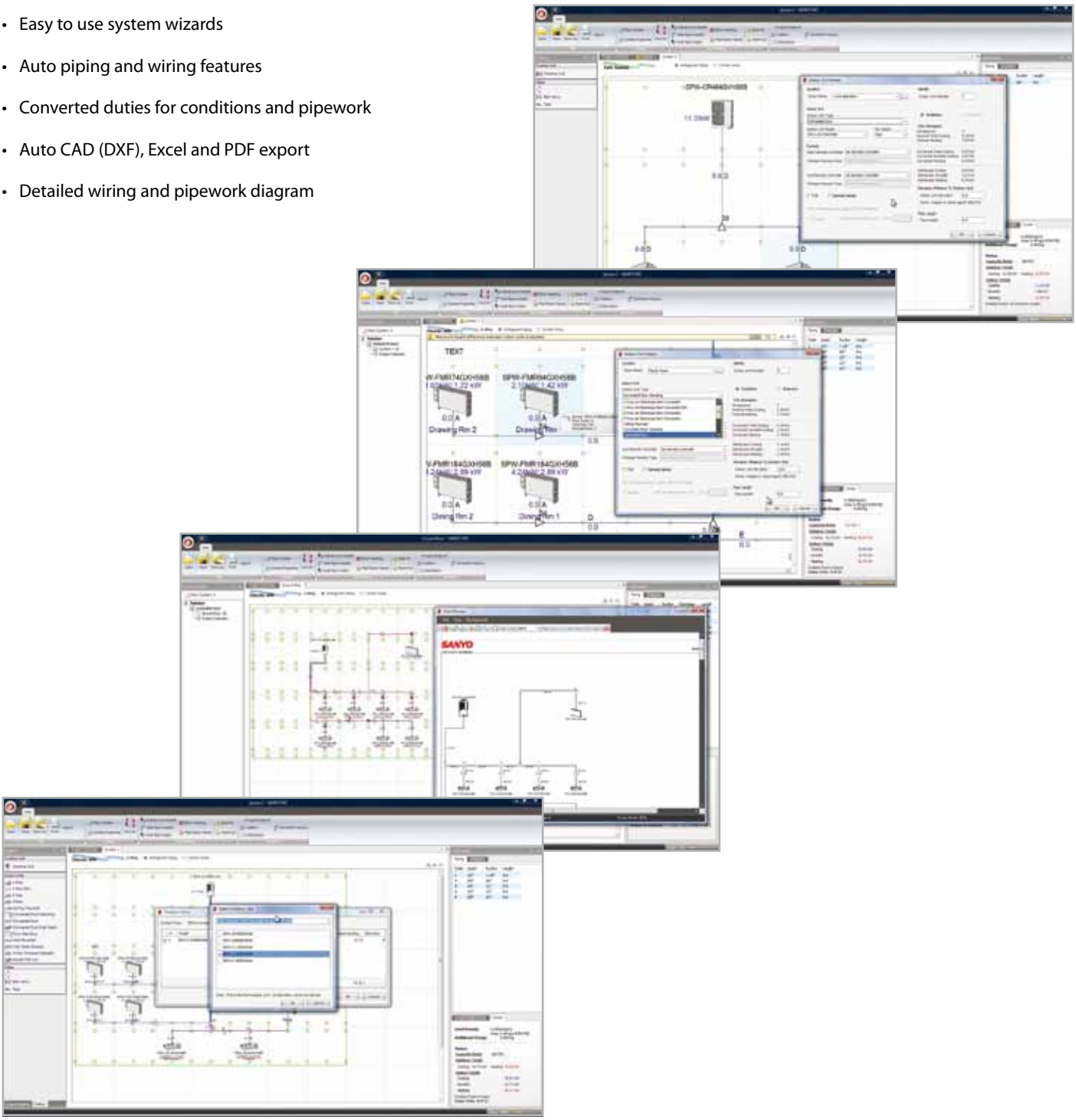


The PAC2 system software can be used for all SANYO ECOi, GHP and PACi systems.

The PAC2 system software can be used for all SANYO ECOi, GHP and PACi systems.

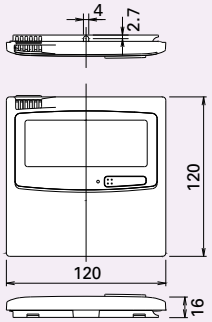
Features include

- AC Calc Lite (included in the package)
- Easy to use system wizards
- Auto piping and wiring features
- Converted duties for conditions and pipework
- Auto CAD (DXF), Excel and PDF export
- Detailed wiring and pipework diagram

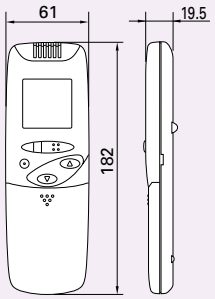


Control Equipment External Dimensions

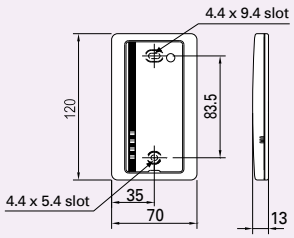
●Timer remote controller
(RCS-TM80BG)



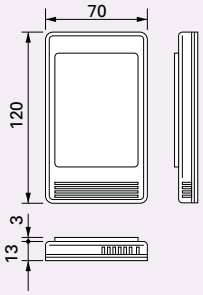
●Wireless remote controller



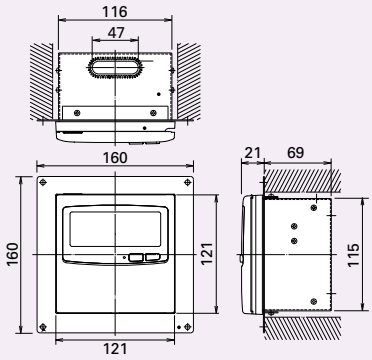
●Separate receiver for wireless remote controller



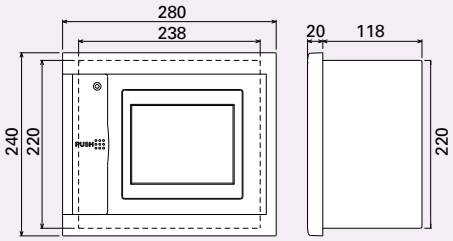
●Simplified remote controller
(RCS-KR1AGB)
●Remote sensor
(ART-K45AGB)



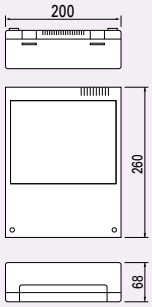
●System controller
(SHA-KC64AGB)



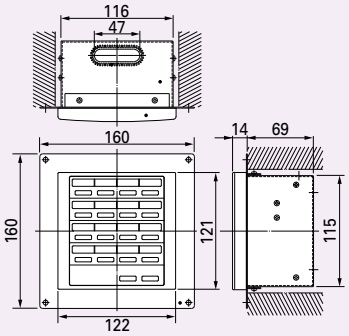
●Intelligent controller
(SHA-KT256EG)



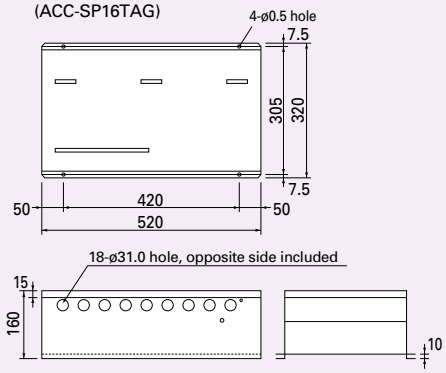
●Communication adapter
(SHA-KA128AG(B))



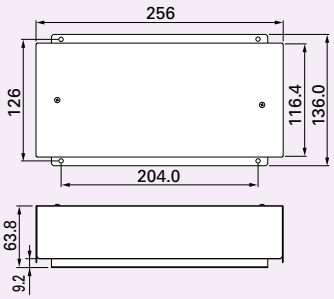
● ON / OFF controller
(SHA-KC16KAGB)



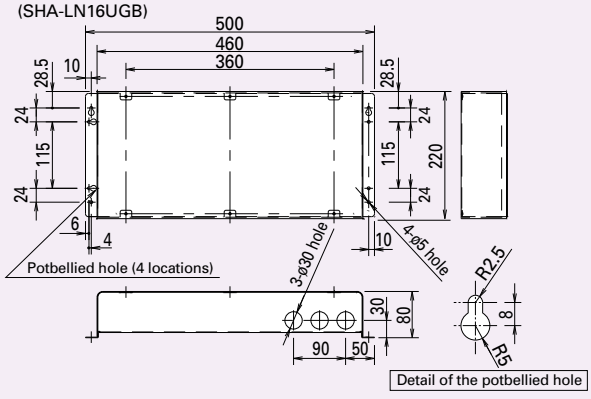
●Seri-Para I/O unit for 16 groups indoor unit
(ACC-SP16TAG)



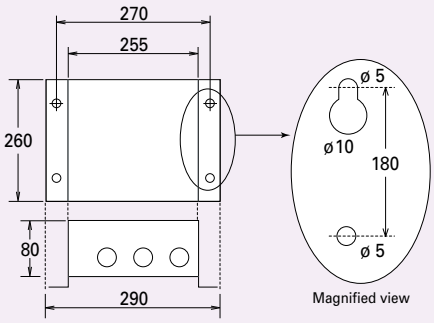
●Seri-Para I/O unit for each indoor unit
(ACC-SP1AGB)



●LonWorks interface
(SHA-LN16UGB)

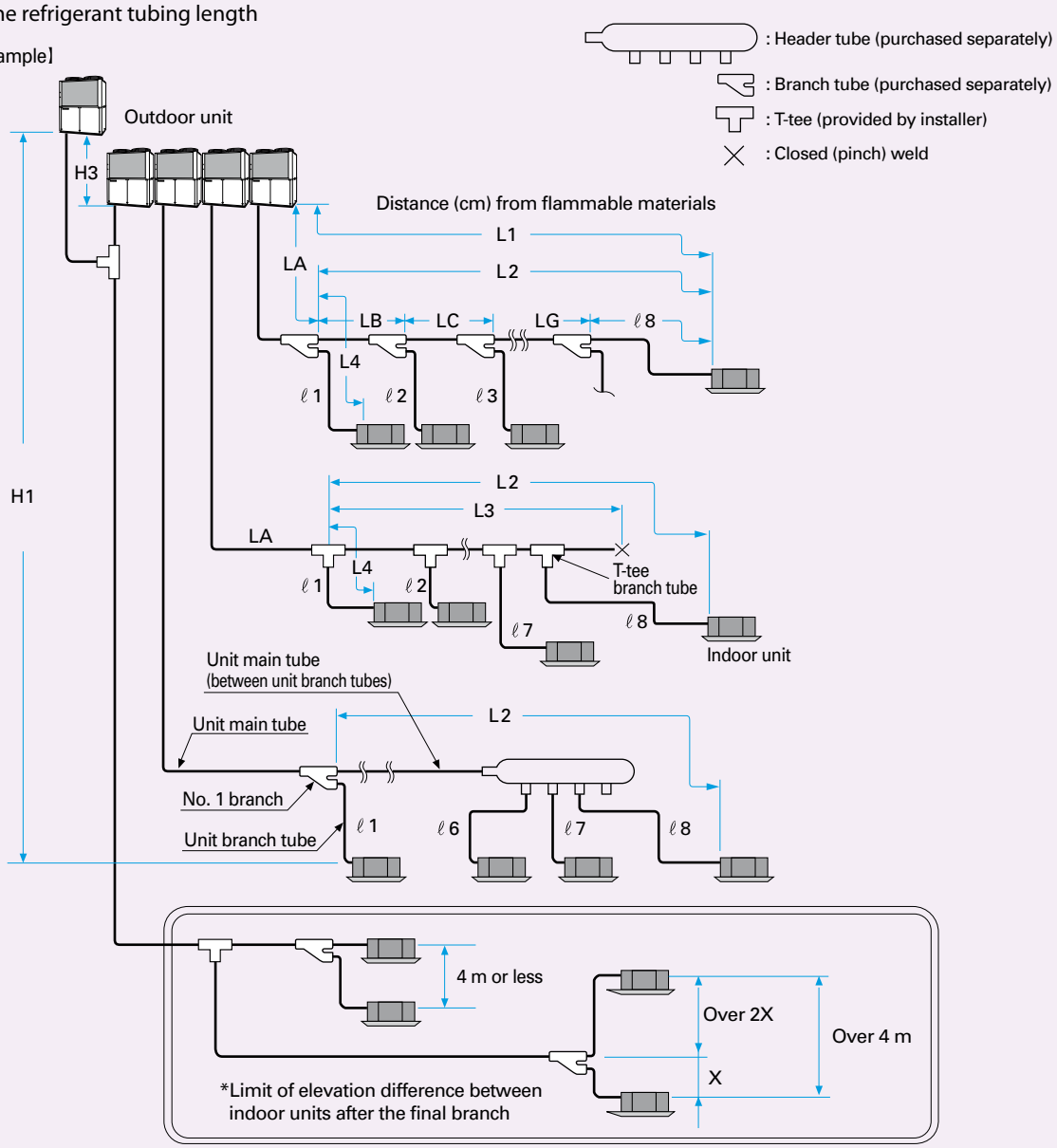


●Seri-Para I/O unit for outdoor unit
(ACC-XSP4U1GB)



With regards to the refrigerant tubing length

【System Example】



Item	Symbol	Details	Actual length (m)	
			2 way	3 way
Allowable tubing length	L1	Maximum allowable tubing length	≦170 (200)*1	≦120 (145)*1
	LA	Maximum main tubing length	≦120	—
	△L(L2-L4)	Difference between longest and shortest tubing lengths after the No. 1 branch (first branching point)	≦40	≦30
	ℓ1, ℓ2, -ℓ8	Maximum length of each branch tube	≦30	
	L5	Maximum length between outdoor units	≦10	
Allowable elevation difference	H1	If outdoor unit is above	≦50	
		If outdoor unit is below	≦35*2	
	H2	Maximum difference between indoor units	≦15*3	
	H3	Maximum differential between outdoor units	≦4	
Allowable header tubing length	L3	Maximum length from the first tees to the front seal	≦2	

(*1) Equivalent length

(*2) If cooling mode is expected to be used when the external temperature is 10˚C or below, install so the maximum length is 30 m.

(*3) Install so that the height difference between indoor units after the final branch is within the limits shown in the figure.

Refrigerant tubing size

1: In case of standard installation
2: L1 longer than 90m (Equivalent length) or more than 130% connection ratio

Main tubing size [LA] and balance tubing size

Outdoor Unit	Capacity		1		2	
	HP	kW	Gas	Liquid	Gas	Liquid
120	13	35,5	1" (ø25.40)	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
150	16	45,0	1 1/8 (ø28.58)	1/2 (ø12.7)	1 1/4 (ø31.75)	5/8 (ø15.88)
190	20	56,0	1 1/8 (ø28.58)	5/8 (ø15.88)	1 1/4 (ø31.75)	3/4 (ø19.05)
240	25	71,0	1 1/8 (ø28.58)	5/8 (ø15.88)	1 1/4 (ø31.75)	3/4 (ø19.05)

Indoor unit connection size [In]

Indoor unit	Capacity	Gas	Liquid
7 – 18	2,2 – 5,6	1/2 (ø12.7)	3/8 (ø9.52)
22 – 60	6,4 – 16,0	5/8 (ø15.88)	3/8 (ø9.52)
76	22,4	3/4 (ø19.05)	3/8 (ø9.52)
96	28	7/8 (ø22.22)	3/8 (ø9.52)

Main tubing size after branch [LB, LC, – , – , –]

Outdoor Unit	Indoor unit total capacity after branch	1		2	
		Gas	Liquid	Gas	Liquid
120	Under 16,0kW	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 22,4	3/4 (ø19.05)	3/8 (ø9.52)	7/8 (ø22.22)	1/2 (ø12.7)
	22,5 – 28,0	7/8 (ø22.22)	3/8 (ø9.52)	ø 25.4	1/2 (ø12.7)
	28,1 – (71,0)	ø 25,4	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
150	Under 16,0kW	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 22,4	3/4 (ø19.05)	3/8 (ø9.52)	7/8 (ø22.22)	1/2 (ø12.7)
	22,5 – 28,0	7/8 (ø22.22)	3/8 (ø9.52)	ø 25,4	1/2 (ø12.7)
	28,1 – 35,5	ø 25,4	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
	35,6 – (90,0)	1 1/8 (ø28.58)	1/2 (ø12.7)	1 1/4 (ø31.75)	5/8 (ø15.88)
190	Under 16,0kW	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 22,4	3/4 (ø19.05)	3/8 (ø9.52)	ø 22.22	1/2 (ø12.7)
	22,5 – 28,0	7/8 (ø22.22)	3/8 (ø9.52)	ø 25,4	1/2 (ø12.7)
	28,1 – 35,5	ø 25,4	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
	35,6 – 45,0	1 1/8 (ø28.58)	1/2 (ø12.7)	1 1/4 (ø31.75)	5/8 (ø15.88)
	45,1 – (112,0)	1 1/8 (ø28.58)	ø 15.88	1 1/4 (ø31.75)	3/4 (ø19.05)
240	Under 16,0kW	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 22,4	3/4 (ø19.05)	3/8 (ø9.52)	7/8 (ø22.22)	1/2 (ø12.7)
	22,5 – 28,0	7/8 (ø22.22)	3/8 (ø9.52)	ø 25,4	1/2 (ø12.7)
	28,1 – 35,5	ø 25,4	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
	35,6 – 45,0	1 1/8 (ø28.58)	1/2 (ø12.7)	1 1/4 (ø31.75)	5/8 (ø15.88)
	45,1 – (142,0)	1 1/8 (ø28.58)	5/8 (ø15.88)	1 1/4 (ø31.75)	3/4 (ø19.05)

Branch Kit

Capacity after branch	Branch joint kit		
	APR-P160BG	APR-P680BG	APR-P1350BG
Under 16,0kW	•	–	–
16,1 – 35,5	–	•	–
Over 35,6	–	•	–

Header Kit

Capacity after branch	Header joint kit		
	SGP-HCH280M	SGP-HCH280K	SGP-HCH560K
Under 16,0kW	•	–	–
16,1 – 28,0	•	•	–
28,1 – 45,0	–	•	–
Over 45,1	–	–	•

For further technical details please refer to the Installation manuals or Technical data
Specification subject to change without notice

Refrigerant tubing size

1: In case of standard installation
2: L1 longer than 90m (Equivalent length) or more than 130% connection ratio

Main tubing size [LA] and balance tubing size

Outdoor Unit	Capacity		1		2		Balance
	HP	kW	Gas	Liquid	Gas	Liquid	
120+120	26	71,0	1 1/8 (ø28.58)	5/8 (ø15.88)	1 1/4 (ø31.75)	3/4 (ø19.05)	3/8 (ø9.52)
120+150	29	80,5	1 1/4 (ø31.75)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	
150+150	32	90,0	1 1/4 (ø31.75)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	
150+190	36	101,0	1 1/4 (ø31.75)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	
190+190	40	112,0	1 1/2 (ø38.10)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	
190+240	45	127,0	1 1/2 (ø38.10)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	
240+240	50	142,0	1 1/2 (ø38.10)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)	

Main tubing size after branch [LB, LC, – , – , –]

Indoor unit total capacity after branch	1		2	
	Gas	Liquid	Gas	Liquid
Under 16,0kW	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)
16,1 – 22,4	3/4 (ø19.05)	3/8 (ø9.52)	7/8 (ø22.22)	1/2 (ø12.7)
22,5 – 28,0	7/8 (ø22.22)	3/8 (ø9.52)	1" (ø25.40)	1/2 (ø12.7)
28,1 – 35,5	1" (ø25.40)	1/2 (ø12.7)	1 1/8 (ø28.58)	5/8 (ø15.88)
35,6 – 45,0	1 1/8 (ø28.58)	1/2 (ø12.7)	1 1/4 (ø31.75)	5/8 (ø15.88)
45,1 – 71,0	1 1/8 (ø28.58)	5/8 (ø15.88)	1 1/4 (ø31.75)	3/4 (ø19.05)
71,1 – 101,0	1 1/4 (ø31.75)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)
Over 101,1	1 1/2 (ø38.10)	3/4 (ø19.05)	1 1/2 (ø38.10)	7/8 (ø22.22)

Indoor unit connection size [In]

Indoor unit	Capacity	Gas	Liquid
7 – 18	2,2 – 5,6	1/2 (ø12.7)	3/8 (ø9.52)
22 – 60	6,4 – 16,0	5/8 (ø15.88)	3/8 (ø9.52)
76	22,4	3/4 (ø19.05)	3/8 (ø9.52)
96	28	7/8 (ø22.22)	3/8 (ø9.52)

Branch and Header Kit

Capacity after branch	Branch joint kit			Header joint kit		
	APR-P160BG	APR-P680BG	APR-P1350BG	SGP-HCH280M	SGP-HCH280K	SGP-HCH560K
Under 5,6kW	•	•	•	•	•	•
5,6 – 16,0	•	•	•	•	•	•
16,1 – 22,4	•	•	•	•	•	•
22,5 – 28,0	–	•	•	•	•	•
28,1 – 35,5	–	•	•	•	•	•
35,6 – 45,0	–	•	•	–	•	•
45,1 – 71,0	–	•	•	–	–	•
Over 71,1	–	–	•	–	–	•

For further technical details please refer to the Installation manuals or Technical data
Specification subject to change without notice

Refrigerant tubing size

1: In case of standard installation
2: L1 longer than 90m (Equivalent length) or more than 130% connection ratio

Main tubing size [LA] and balance tubing size							
Outdoor Unit	Capacity		1		2		Liquid
	HP	kW	Suction	Discharge	Suction	Discharge	
150	16	45,0	1 1/8 (ø28.58)	7/8 (ø22.22)	1 1/4 (ø31.75)	7/8 (ø22.22)	3/4 (ø19.05)
190	20	56,0	1 1/8 (ø28.58)	ø 25,4	1 1/4 (ø31.75)	ø 25,4	
240	25	71,0	1 1/8 (ø28.58)	ø 25,4	1 1/4 (ø31.75)	ø 25,4	

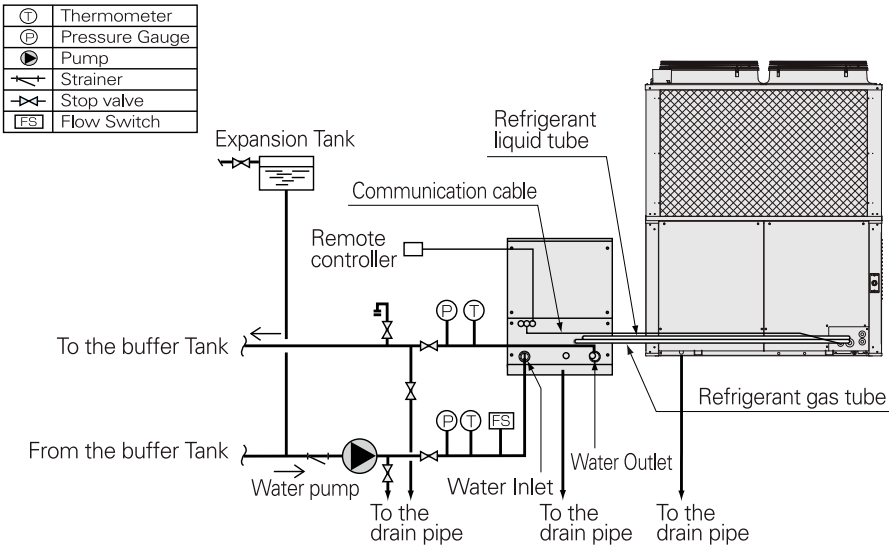
Main tubing size after branch [LB, LC, – , – , –]						
Outdoor Unit	Indoor unit total capacity after branch	1		2		Liquid
		Suction	Discharge	Suction	Discharge	
150	Under 8,9kW	5/8 (ø15.88)	1/2 (ø12.7)	5/8 (ø15.88)	1/2 (ø12.7)	3/8 (ø9.52)
	9,0 – 16,0	3/4 (ø19.05)	5/8 (ø15.88)	3/4 (ø19.05)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 28,0	1" (ø25.40)	3/4 (ø19.05)	1" (ø25.40)	3/4 (ø19.05)	1/2 (ø12.7)
	28,1 – 35,5	1 1/8 (ø28.58)	7/8 (ø22.22)	1 1/8 (ø28.58)	7/8 (ø22.22)	5/8 (ø15.88)
	Over 36,5	1 1/8 (ø28.58)	7/8 (ø22.22)	1 1/4 (ø31.75)	7/8 (ø22.22)	3/4 (ø19.05)
190	Under 8,9kW	5/8 (ø15.88)	1/2 (ø12.7)	5/8 (ø15.88)	1/2 (ø12.7)	3/8 (ø9.52)
	9,0 – 16,0	3/4 (ø19.05)	5/8 (ø15.88)	3/4 (ø19.05)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 28,0	1" (ø25.40)	3/4 (ø19.05)	1" (ø25.40)	3/4 (ø19.05)	1/2 (ø12.7)
	28,1 – 35,5	1 1/8 (ø28.58)	7/8 (ø22.22)	1 1/8 (ø28.58)	7/8 (ø22.22)	5/8 (ø15.88)
	Over 36,5	1 1/8 (ø28.58)	1" (ø25.40)	1 1/4 (ø31.75)	1" (ø25.40)	3/4 (ø19.05)
240	Under 8,9kW	5/8 (ø15.88)	1/2 (ø12.7)	5/8 (ø15.88)	1/2 (ø12.7)	3/8 (ø9.52)
	9,0 – 16,0	3/4 (ø19.05)	5/8 (ø15.88)	3/4 (ø19.05)	5/8 (ø15.88)	3/8 (ø9.52)
	16,1 – 28,0	1" (ø25.40)	3/4 (ø19.05)	1" (ø25.40)	3/4 (ø19.05)	1/2 (ø12.7)
	28,1 – 35,5	1 1/8 (ø28.58)	7/8 (ø22.22)	1 1/8 (ø28.58)	7/8 (ø22.22)	5/8 (ø15.88)
	Over 36,5	1 1/8 (ø28.58)	1" (ø25.40)	1" (ø25.40)	1" (ø25.40)	3/4 (ø19.05)

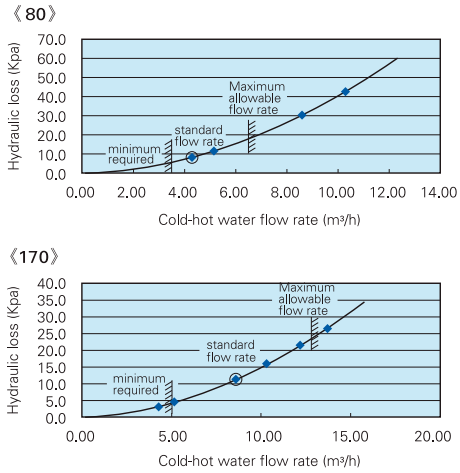
Tubing size after branch [In]					
Indoor unit total capacity after branch	Indoor unit – SVK		Branch – SVK		
	Gas	Liquid	Suction	Discharge	Liquid
2,2 - 5,6kW	1/2 (ø12.7)	3/8 (ø9.52)	5/8 (ø15.88)	3/8 (ø9.52)	3/8 (ø9.52)
7,1 - 16,0	5/8 (ø15.88)	3/8 (ø9.52)	5/8 (ø15.88)	1/2 (ø12.7)	1/2 (ø12.7)

Branch Kit						
Capacity after branch	1			2		
	APR-RZP224BGB	APR-RZP680BGB	APR-RZP1350BGB	APR-RZP224BGB	APR-RZP680BGB	APR-RZP1350BGB
Under 8,9kW	•	•	•	•	•	•
9,0 – 16,0	•	•	•	•	•	•
16,1 – 28,0	–	•	•	–	•	•
28,1 – 35,5	–	•	•	–	•	•
35,6 – 45,0	–	•	•	–	–	•
Over 45,0	–	•	•	–	–	•

For further technical details please refer to the Installation manuals or Technical data
Specification subject to change without notice

Installation instruction of GHP Water Heat Exchanger





Water piping construction

Warning

- Only use water as the heat medium for the hot and cold water and the chilled water. Otherwise, this could result in fires or explosions.

Caution

- Use water that complies with water standards for hot and cold water and for cooling water. Poor quality water can cause breakdown or water leaks.
- Dispose of brine and cleaning fluid in accordance with the applicable regulations. If these items are illegally disposed, not only will this result in legal matters, but it will also have bad effect on the environment and health.

(1) Water pipes can be connected to either the front or the rear of the water heat exchanger unit. When shipped from the factory, rubber stoppers are fitted to the openings. Openings that are not being used should be closed with the rubber stopper.

(2) Connect the hot and cold water circulation pump to the inlet pipe side of the water heat exchanger.

(3) Make the opening of the water pipe larger than the opening of the connector (50A), and use as few bends as possible, in order to reduce the pipe resistance as much as possible. Also, use unions or flanges near the unit, so that the unit can be easily removed.

(4) Install a suitable water removal valve and air removal valve in the water pipes. If air becomes mixed with the liquid in the pipes, this can cause noise, corrosion, and reduced performance.

(5) Make sure that there is always at least the minimum quantity of water (0.3m³) in the system. (if the water quantity is small, provide a storage tank or similar). If there is insufficient water in the unit this will cause the system to stop frequently or to breakdown.

(6) Provide a water thermometer and flow rate adjustment valve, so that during test running it is possible to adjust the cold (hot) water flow rate while watching the water temperature. Also, after adjusting, do not touch the adjustment valve.

(7) Adjust the water pressure so that the pressure in the water heat exchanger is less than, 0.69N/mm².

(8) Install an expansion tank within the water pipe system.

(9) The hot and cold water flow rate should be within the range shown in Figure 3. If used outside this range then it could cause breakdown due to corrosion or freezing of the water heat exchanger unit.

(10) Provide sufficient insulation to the water pipes. If insufficient insulation is provided then this will result in loss of heat. Also, in a severe cold period damage due to freezing of the pipes can occur.

(11) Within the water heat exchanger unit there is a circuit such that, if the external air temperature and the temperature of the water within the unit fall, the hot and cold water circulation pump automatically starts, to prevent freezing within the water heat exchanger unit. However, if the unit location or if the insulation to the water pipes is insufficient, the temperature of the water in the pump and hot and cold water pipes might fall and freeze before the temperature of the water in the unit falls. In this situation provide a circuit which detects the outdoor air temperature at the position of the whole water circulation system where the water temperature falls fastest, so that the hot and cold water circulation pump can automatically start. Attach suitable suspension fittings to the pipes, so that no unreasonable load is applied to the water heat exchanger unit.

Securing adequate space for servicing

Several units can be installed in series

Install the outdoor unit in a well-ventilated location that will help the heat exchanger work at its optimum level. Be sure to secure enough space for maintenance work, referring to the diagram below for minimum clearances. When installing up to three units in series provide a passageway between units for servicing.

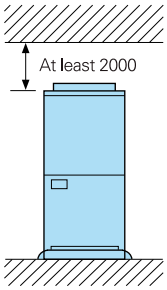
Installing 8 or more outdoor units in series

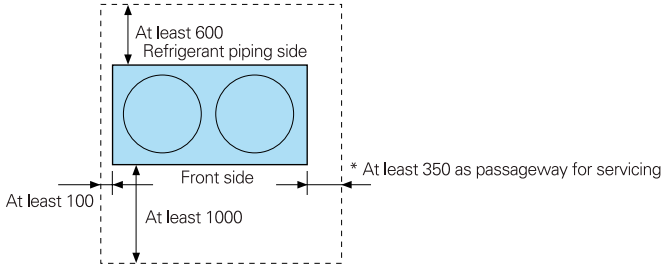
When installing eight or more outdoor units in series, or when installing units near a wall or other locations where air circulation may be inadequate, give sufficient consideration to the possibility of the units shorting out.

When installing one unit

- A passageway for servicing can be provided on either the left or right side of the unit.
- Be sure to secure an installation space with the following clearances.

Unit: mm





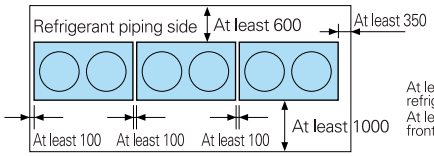
When installing more than one unit in series

- A passageway for servicing can be provided on either the left or right side of the unit.
- Be sure to secure an installation space with the following clearances.

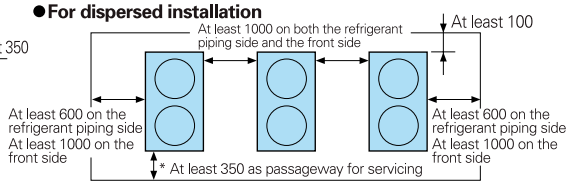
Unit: mm

Installation space needed for servicing

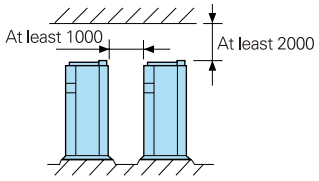
●For series installation



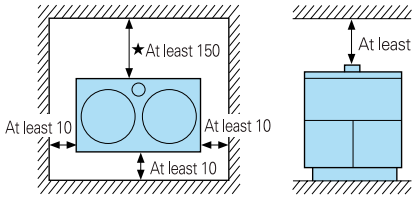
●For dispersed installation



Overhead clearance



Distance from flammable material ★Distance from the exhaust tube



TYPE 120, 150, 190 and 240

Avoid the following installation locations

Install the unit safely and securely in a place where it will be adequately protected and be able to perform at its designed specifications.

- A place that has no space for servicing
  Maintenance work can require a large number of instruments and tools. Lack of sufficient space for servicing may prevent the unit from being properly maintained and cared for.
- A place that is unsafe for maintenance work
  If the unit is installed on the roof of a building (even if the spot is level) and it is not prevented from falling with a guardrail or similar means, not only will maintenance work become impossible but the unit may fall or other accidents may occur.
- A place where a ladder must be used to access the unit
  An installation that requires maintenance workers to go up and down a ladder or stairs makes safe and reliable maintenance work not only difficult but dangerous as well.
- A poorly ventilated location
  If the top, side or front of the unit is close to a wall or other obstruction, poor ventilation and lack of sufficient air circulation may not only cause trouble but also prevent the unit from operating normally.
- Near a street lamp or tree
  Insects attracted by street lamps in large numbers and leaves from trees can get sucked into the unit and cause it to malfunction.

Other locations to avoid: • Places where chemicals are used • Places where the unit will disturb others • Near a chimney or exhaust outlet • Places exposed to strong winds • An installation that has no vibration proof pad • Near a wall other than a soundproof wall • Places where salt damage may occur and no preventive measures are taken • Places with no protection from snow.

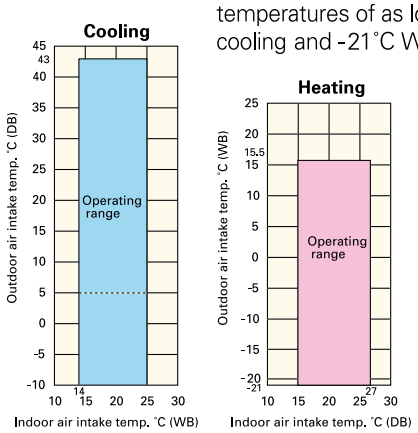
In addition, if the area below the outdoor unit is to be used, make sure the installation pad is constructed so that water drops and oily or greasy dirt will drip down into the area below. Do not use a pad fabricated by metal punching or a similar process.

High technology features

Wider operation

Cooling can be performed throughout the year for computer rooms, banquet halls, etc. Wider operation range covers outdoor temperatures of as low as -10˚C DB for cooling and -21˚C WB for heating.

Rated Condition



Automatic restart function for power failure

Even when power failure occurs, preset programmed operation can be reactivated once power is resumed.

Self-diagnosing function

By using electronic control valves for Details of past record of warnings are stored and can be verified on the liquid crystal display. This makes it easier to diagnose malfunctions, greatly reducing service labor.

Simple, convenient features (Indoor Units)

Automatic fan operation

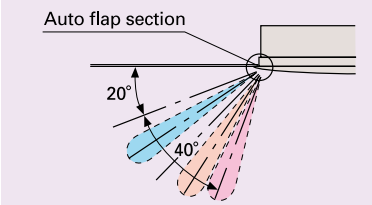
Convenient microprocessor control automatically adjusts fan speed to High, Medium or Low, corresponding to room sensor and maintains comfortable airflow throughout the room.

Mild Dry

By intermittent control of compressor and indoor unit's fan, "New Mild Dry" gives you comfort. It realizes efficient dehumidification according to room temperature.

Comfortable auto-flap control

When the unit is first turned on, flap position is automatically adjusted in accordance with the cooling or heating operation. This initial flap position can be preset within a certain range, for both cooling and heating. Auto button is included for continuous movement of flap to vary airflow direction.



Air Sweep

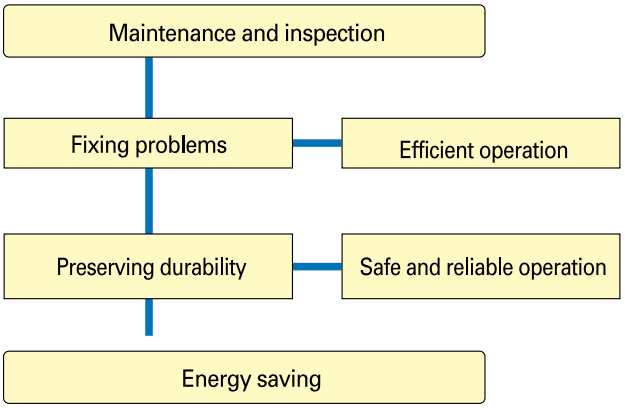
The air sweep function moves the flap up and down in the air outlet, directing air in a "sweeping" motion around the room and providing comfort in every corner.

Built-in drain pump

Max. head 50cm (or 75cm: U type) from the bottom of the unit.

Maintenance and inspection is a must for gas heat pump air-conditioning systems.

Just like an automobile, a heat pump air-conditioning system requires periodic servicing so that it can perform efficiently.



Main maintenance and inspection items

1. Changing the engine oil
2. Checking the coolant level
3. Inspecting the engine system
4. Checking the safety protection system
5. Checking and adjusting the running conditions, collecting operating data, etc.

Since a heat pump air-conditioning system uses a gas engine as its power source, it should be periodically inspected to avoid trouble and keep it running efficiently. We recommend a maintenance contract for your Sanyo Gas Heat Pump, a great value because it not only ensures that problems will be fixed, but it helps reduce running costs and improve comfort and economical efficiency as well.

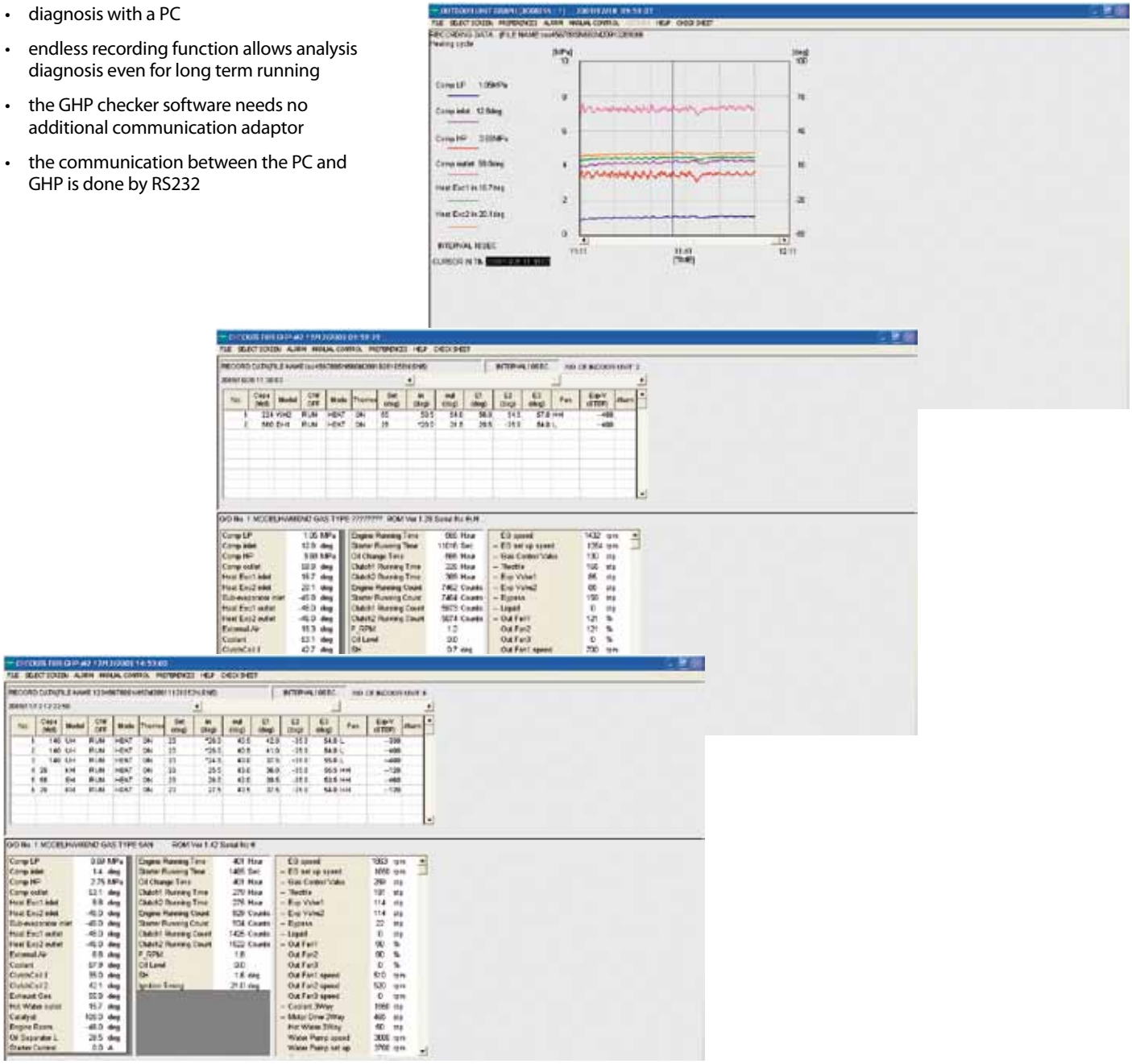
SANYO's diagnosis software

The handy tool for optimising the running of your system:

diagnosis for start ups, maintenance and system supervising

Features:

- diagnosis with a PC
- endless recording function allows analysis diagnosis even for long term running
- the GHP checker software needs no additional communication adaptor
- the communication between the PC and GHP is done by RS232



Notes