New 4 Series Heat Pumps

C   US

FEATURES

High technology features

LOW AMBIENT — Low ambient operation

Cooling can be performed throughout the year for computer rooms, banquet halls, etc. Wider operation range covers outdoor temperatures of as low as 0˚F for cooling, 15˚F for heating.

Cooling

Outdoor air intake temp. ˚F (DB)
120
115
110
100
90
80
70
60 — Operating range
50
40
30
20
10

Indoor air intake temp. ˚F (WB)
50   57 60   71 70   80

Heating

Outdoor air intake temp. ˚F (WB)
70
65
60
50
40 — Operating range
30
20
15
10
0

Indoor air intake temp. ˚F (DB)
50   59 60   70   80   90

*Air discharge chamber is required.
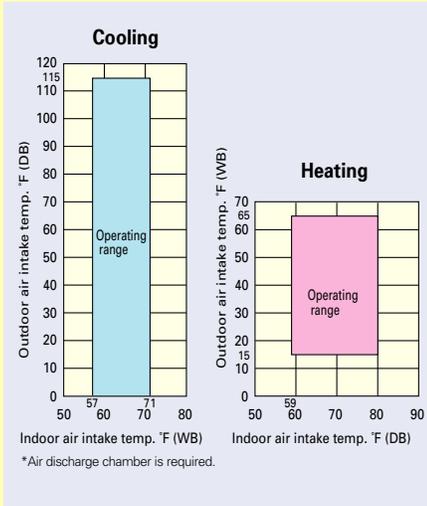
Microprocessor-controlled Operation

Microprocessor control ensures that the temperature and humidity levels in the room are always comfortable.

Common-use indoor units with "ECO MULTI" system

Even more, these indoor units can be connected with outdoor unit for ECO MULTI in case of design changes for air conditioning, allowing more flexible designs than before.

Automatic restart function for power failure

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

Self-diagnosing function

Details of previous warnings are stored and can be verified on the liquid crystal display. This makes it easier to diagnose malfunctions, greatly reducing service labor. (Wired remote controller)
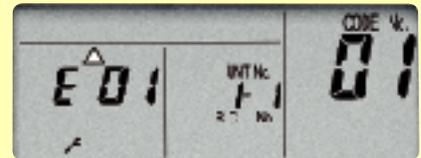
(RCS-SH80UG)

Simple, convenient features (Indoor Units)

3 Fan speeds and 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.

Air Sweep Control

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.

72 ON/OFF — ON/OFF Timer
Remote controller (RCS-SH80UG)

ON/OFF timer can be set to 0.5 hour gradations (max. 72 hours).

Hot Start Heating System

Right from the start, air is warm and comfortable. The Hot Start Heating System prevents any cold blasts at the beginning while the heat pump is warming up, or even defrosting. (Heat pump only)

DRY — Dry mode

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

Filter sign

Filter sign informs you when maintenance is necessary.
2,500 hrs: X, T-types
150 hrs: K type

(RCS-SH80UG)

D.P. — Built-in drain pump

Max. head 30 inches from the bottom of the unit. (condensate pump is only for allowing drain line to meet minimum gravity flow requirements.)

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.

Auto flap section
20°
40°
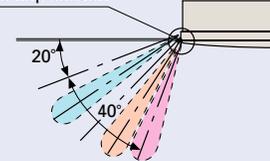
are friendly to both people and the environment.

CONVENIENT SYSTEM CONTROLS Optional Parts

Wired remote controllers (Optional)

Remote controller (RCS-SH80UG) [72 ON/OFF] [Filter sign]

- Group (collective) control of up to 8 indoor units (maximum) with a remote controller is possible.
- Control with multiple remote controls (main/sub) is possible (max. 2).
- Operating status appears on a large crystal display, and service check function is also provided.
- Comes with 72-hour ON/OFF timer.
- Size (inch): 4-23/32(H)×4-23/32(W)×5/8(D)

System controller (SHA-KC64UG) [Filter sign]

- Used in combination with remote controllers, the system controller can control up to 64 groups of indoor units (max. 64 indoor units).
- Separating the 64 indoor units into 4 zones, each zone can be controlled individually.
- Up to 16 groups (indoor units) can be registered to each zone.
- Collective control and individual group (unit) control can also be performed.
- System without remote controller is also available.
- Up to 2 system controllers (1 main, 1 sub) can be installed in a system.
- Alarm and operation outputs for an external collected signal are available (potential free contact).

Weekly timer (TM-SH80UG)

- Program covering a week, in which the operation can be stopped 3 times per day, can be set.
  * In case of power failure, the timer stores recorded programs for up to 100 hours.
- Temporary cancellation with cancel button is also possible.
- Can be used concurrently with remote controller and system controller.
- Size (inch): 4-23/32(H)×4-23/32(W)×5/8(D)

Wireless remote controllers (Optional)

Wireless Remote Controller / Applicable Unit	**X series** (Ceiling Recessed Type) / **T series** (Ceiling Suspended Type)	**For all indoor units** U series K series X series T series
[72 ON/OFF] [Filter sign]	**< Built-in Type >** - Signal receiving unit can be installed in the outer panel of indoor unit. - Control panel can be installed in the inside indoor unit. 	**< External Type >** - Separate type signal receiving unit.
RCS-SH1UA	**RCS-SH80UA.WL**	**RCS-BH80UA.WL**

PRODUCT LINE-UP

U series

K series

Capacity BTU/h	24,000	36,000	42,000
MODEL (System)	**24UH42** (U series) **24KH42** (K series) **24XH42** (X series) **24TH42** (T series)	**36UH42** (U series) **36KH42** (K series) **36XH42** (X series) **36TH42** (T series)	**42XH42** (X series) **42TH42** (T series)
U series Concealed-Duct Type	UH2442	UH3642	
K series Wall-Mounted Type	KH2442	KH3642	
X series Ceiling-Recessed Type	XH2442 (Unit No. XH2442 / Air Grille No. PNR-XH2442)	XH3642 (Unit No. XH3642 / Air Grille No. PNR-XH3642)	XH4242 (Unit No. XH4242 / Air Grille No. PNR-XH3642)
T series Ceiling-Suspended Type	TH2442	TH3642	TH4242
Outdoor Units	CH2442	CH3642	CH4242
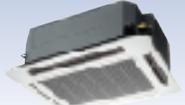
NOTE: Model numbers of the X series model shown above refer to the main units and intake panels when combined.
However, main units and intake panels also have their own individual model numbers.
The remote control is sold separately. (Refer to page 2.)
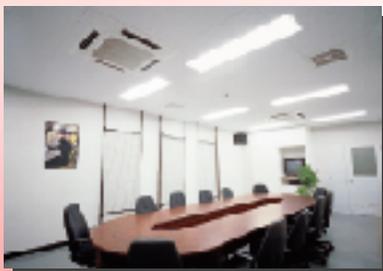
X series

T series

Concealed-Duct Type (U-series)

UH2442

UH3642

● **Built-in drain pump**
  Max. head 30 inches from the bottom of the unit. (condensate pump is only for allowing drain line to meet minimum gravity flow requirements.)

● **Installation Example**
  The basic systems in the concealed-duct type air conditioner.

● **Outline diagram with medium- or high-performance filter installed.**

Electrical box

Medium/ high-performance filter chamber (field supply)

Inspection port
(marked type: 23-5/8 X 23-5/8)

Canvas duct
(Field supply)

Intake grill
(Field supply)
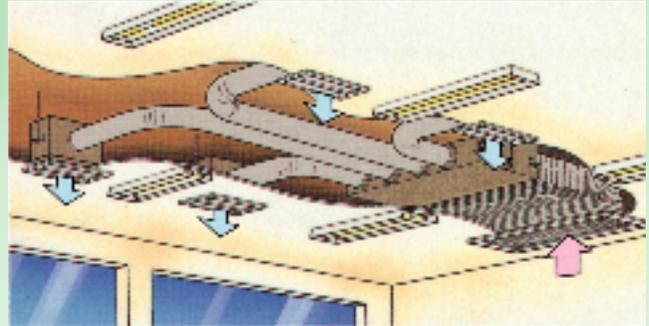
Above picture shows the standard ducting system, where air is taken in from the back of the unit. This system is useful for places which need extensive air conditioning, including conference halls, showrooms, and restaurants.

Wall-Mounted Type (K-series)

KH2442

KH3642

● **Easy-to-clean Air Filter**

● **Easy installation**

● **Air sweep function**
  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.

Flap

90°
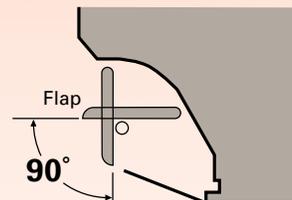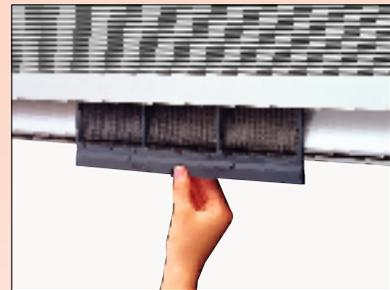
Air Sweep Control

3 Fan speeds and Automatic fan operation

Automatic restart function for power failure

Self-diagnosing function

DRY Dry mode

Built-in drain pump

Hot Start Heating System

Ceiling-Recessed Type (X-series)

XH2442

XH3642
XH4242

The 4-way air flow makes it comfortable right to every corner. Excelling in quietness and needing no special installation space, it suits all the requirements of offices, stores, etc.

- **Built-in drain pump**
  Max. head 30 inches from the bottom of the unit. (condensate pump is only for allowing drain line to meet minimum gravity flow requirements.)

- **Optimum air flow for heating and cooling**

- **Long-life filter**
  Long-life, maintenance-free filter good for approximately 2,500 hours is standard equipment. Filter sign on remote controller indicates if maintenance is needed.
  Anti-mold treatment for long-life filter, flap and drain-pan.

- **Air-intake plenum (Option)**
  Fresh air can be obtained by using the fresh air intake of the unit. However, air-intake plenum (option) should be used to allow more fresh air for the room.
  CMB-GSJ80U   for XH24 type
  CMB-GSJ140U   for XH36, 42 type
  *Air-intake box is supplied with air-intake plenum.
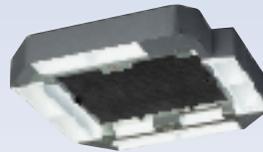
Air-intake box*

Air-intake plenum

Air-intake plenum

Ceiling-Suspended Type (T-series)

TH2442

TH3642
TH4242

- All models newly designed.
- Reduced operation sound level.
- Improved serviceability/Easy installation.
- Stain and fade resistant surfaces.
- Long-life filter
- Quiet operation
  The ceiling-mounted unit is equipped with a highly efficient, multi-blade centrifugal fan that generates a powerful yet gentle airflow throughout the room. A redesigned aerodynamically tested louver structure minimizes operational sound even at high fan speed.

Installation

- External suspension method is employed for easy installation.
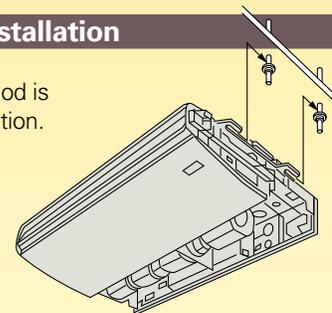
- Drain hose can be let out from either end (right/left) of the unit.
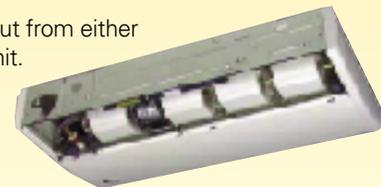
- Improved accessibility to electronic components (control box) for servicing.

Air Sweep Control	Comfortable auto-flap control	3 Fan speeds and Automatic fan operation	Automatic restart function for power failure	Self-diagnosing function	Dry mode	Built-in drain pump	Hot Start Heating System

Specifications

Concealed-Duct Heat Pump Type

Model No.			24UH42		36UH42	
Unit Model No.	Indoor/Outdoor Unit		UH2442/CH2442		UH3642/CH3642	
			Cooling	Heating	Cooling	Heating
Performance	Capacity	BTU/h	24,000/23,400	27,000/26,500	34,500/33,000	37,500/36,500
	Air circulation (H/M/L)	cut.ft./min.	670/530/460		1,060/920/750	
	External Static Pressure	in. Aq (Pa)	0.2 (49): at shipment 0.4 (100): using jumper cable		0.24 (59): at shipment 0.38 (94): using jumper cable	
	SEER (HSPF)		10.0/10.0	(7.0/7.0)	10.3/10.5	(7.0/7.0)
Electrical Ratings	Voltage rating	VAC	230/208		230/208	
	Running amperes	A	11.5/12.1	12.0/12.5	15.1/15.7	18.2/19.6
	Power input	W	2,550/2,480	2,650/2,550	3,350/3,170	3,780/3,760
	Maximum overcurrent protection	A	25		40	
Features	Optional Wired Remote Controller		RCS-SH80UG (72-hour ON/OFF Timer)			
	Optional Wireless Remote Controller		RCS-BH80UA.WL (72-hour ON/OFF Timer)			
	Operation sound Indoor-H/M/L	dB-A	34/30/27		38/33/31	
	Operation sound Outdoor-H	dB-A	53		56	
	Ref. dia. Na./Wi. pipe	inch	1/4 / 3/4		3/8 / 3/4	
Dimensions & Weight	Indoor Unit H×W×D	inch	12-7/32 x 39-3/8 x 24-13/16		12-7/32 x 58-9/32 x 24-13/16	
	Outdoor Unit H×W×D	inch	28-15/16 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8	
	Net weight In/Out	lbs.	71/157		104/203	

Wall-Mounted Heat Pump Type

Model No.			24KH42		36KH42	
Unit Model No.	Indoor/Outdoor Unit		KH2442/CH2442		KH3642/CH3642	
			Cooling	Heating	Cooling	Heating
Performance	Capacity	BTU/h	22,000/21,000	25,000/24,300	33,000/32,000	40,000/39,000
	Air circulation (H/M/L)	cut.ft./min.	540/460/380		830/710/590	
	SEER (HSPF)		10.0/10.0	(7.0/7.0)	10.3/10.5	(7.6/7.6)
Electrical Ratings	Voltage rating	VAC	230/208		230/208	
	Running amperes	A	10.3/10.9	11.3/12.2	14.9/15.5	17.8/19.1
	Power input	W	2,300/2,220	2,500/2,430	3,290/3,120	3,860/3,810
	Maximum overcurrent protection	A	25		40	
Features	Optional Wired Remote Controller		RCS-SH80UG (72-hour ON/OFF Timer)			
	Optional Wireless Remote Controller		RCS-BH80UA.WL (72-hour ON/OFF Timer)			
	Operation sound Indoor-H/M/L	dB-A	45/42/40		48/44/40	
	Operation sound Outdoor-H	dB-A	53		56	
	Ref. dia. Na./Wi. pipe	inch	1/4 / 3/4		3/8 / 3/4	
Dimensions & Weight	Indoor Unit H×W×D	inch	14-9/16 x 49-7/32 x 8-9/32		14-9/16 x 59-1/16 x 9-7/16	
	Outdoor Unit H×W×D	inch	28-15/16 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8	
	Net weight In/Out	lbs.	40/157		73/203	

Ceiling-Recessed Heat Pump Type

Model No.			24XH42		36XH42		42XH42	
Unit Model No.	Indoor/Outdoor Unit		XH2442/CH2442		XH3642/CH3642		XH4242/CH4242	
			Cooling	Heating	Cooling	Heating	Cooling	Heating
Performance	Capacity	BTU/h	24,000/23,400	25,000/24,300	34,500/33,500	37,500/36,500	42,000/40,000	44,000/42,000
	Air circulation (H/M/L)	cut.ft./min.	710/530/450		1,050/840/720		1,050/840/720	
	SEER (HSPF)		10.0/10.2	(7.0/7.0)	10.7/11.0	(7.0/7.0)	10.4/10.4	(7.0/7.0)
Electrical Ratings	Voltage rating	VAC	230/208		230/208		230/208	
	Running amperes	A	11.2/11.6	11.7/12.3	15.4/15.8	18.2/19.3	20.6/21.0	21.7/22.2
	Power input	W	2,450/2,350	2,500/2,450	3,350/3,200	3,850/3,750	4,200/4,100	4,450/4,350
	Maximum overcurrent protection	A	25		40		45	
Features	Optional Wired Remote Controller		RCS-SH80UG (72-hour ON/OFF Timer)					
	Optional Wireless Remote Controller		RCS-SH80UA.WL/RCS-BH80UA.WL (72-hour ON/OFF Timer)					
	Operation sound Indoor-H/M/L	dB-A	38/35/31		44/37/33		45/38/34	
	Operation sound Outdoor-H	dB-A	53		56		56	
	Ref. dia. Na./Wi. pipe	inch	1/4 / 3/4		3/8 / 3/4		3/8 / 3/4	
Dimensions & Weight	Indoor Unit H×W×D	inch	13-5/16 x 33-27/32 x 33-27/32		14-1/2 x 45-9/32 x 33-27/32		14-1/2 x 45-9/32 x 33-27/32	
	Outdoor Unit H×W×D	inch	28-15/16 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8	
	Net weight In/Out	lbs.	49/157		60/203		60/203	

Ceiling-Suspended Heat Pump Type

Model No.			24TH42		36TH42		42TH42	
Unit Model No.	Indoor/Outdoor Unit		TH2442/CH2442		TH3642/CH3642		TH4242/CH4242	
			Cooling	Heating	Cooling	Heating	Cooling	Heating
Performance	Capacity	BTU/h	22,400/21,600	25,000/25,000	34,000/33,000	40,000/39,000	42,000/40,000	44,000/42,000
	Air circulation (H/M/L)	cut.ft./min.	550/490/460		1,100/930/750		1,100/930/750	
	SEER (HSPF)		10.0/10.0	(7.0/7.0)	10.4/10.7	(7.3/7.3)	10.0/10.4	(7.0/7.0)
Electrical Ratings	Voltage rating	VAC	230/208		230/208		230/208	
	Running amperes	A	10.7/11.3	11.7/12.9	15.1/15.7	18.2/19.6	20.6/21.3	21.7/22.5
	Power input	W	2,350/2,280	2,550/2,500	3,350/3,170	3,950/3,890	4,300/4,200	4,450/4,350
	Maximum overcurrent protection	A	25		40		45	
Features	Optional Wired Remote Controller		RCS-SH80UG (72-hour ON/OFF Timer)					
	Optional Wireless Remote Controller		RCS-SH80UA.WL/RCS-BH80UA.WL (72-hour ON/OFF Timer)					
	Operation sound Indoor-H/M/L	dB-A	40/38/36		46/42/37		47/43/38	
	Operation sound Outdoor-H	dB-A	53		56		56	
	Ref. dia. Na./Wi. pipe	inch	1/4 / 3/4		3/8 / 3/4		3/8 / 3/4	
Dimensions & Weight	Indoor Unit H×W×D	inch	7-15/32 x 51-3/16 x 26-3/8		9-7/16 x 62-1/32 x 26-3/8		9-7/16 x 62-1/32 x 26-3/8	
	Outdoor Unit H×W×D	inch	28-15/16 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8		48-5/8 x 37 x 13-3/8	
	Net weight In/Out	lbs.	60/157		90/203		90/203	

Rated conditions
Cooling : Indoor air temperature 80°F DB/67°F WB Outdoor air temperature 95°F DB
Heating : Indoor air temperature 70°F DB/60°F WB Outdoor air temperature 47°F DB/43°F WB

Data subject to change without notice.

Tubing, Sizes, Length & Elevation Difference, Refrigerant Charge Adjustment Chart

SYSTEM MODEL#	OD TUBE SIZE (Inches)		MAXIMUM LENGTH (Ft) OF TUBING BETWEEN IN/OUTDOOR	MAXIMUM ELEVATION DIFFERENCE (Ft) BETWEEN IN/OUTDOOR		MAXIMUM LENGTH (Ft) OF TUBING AT SHIPMENT	REQUIRED ADDITIONAL REFRIGERANT OZ/FT
	NARROW	WIDE		OUTDOOR ABOVE	OUTDOOR BELOW		
24UH42/24KH42 24XH42/24TH42	1/4	3/4	165	165	100	100	0.48 *1
36UH42/36KH42 36XH42/36TH42	3/8	3/4	165	165	100	100	0.53 *2
42XH42/42TH42	3/8	3/4	165	165	100	100	0.53 *2

No additional charge of compressor oil is necessary.
*1 If total tubing length becomes 100 to 165 ft, charge additional refrigerant (R22) by 0.48 oz./ft.
*2 If total tubing length becomes 100 to 165 ft, charge additional refrigerant (R22) by 0.53 oz./ft.

Operation Range

	Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Cooling	Maximum	95˚F DB/71˚F WB	115˚F DB
	Minimum	67˚F DB/57˚F WB	0˚F DB
Heating	Maximum	80˚F DB/67˚F WB	75˚F DB/65˚F WB
	Minimum	−˚F DB/ −˚F WB	15˚F WB

*For details, see page 1.

Remote controller functions

○ : Controllable   ✕ : Uncontrollable

Function			Remote Controller (RCS-SH80UG)	System Controller (SHA-KC64UG)
Function	ON/OFF		○	○ (Collective/Individual)
	Operation mode switch	Heating	○	○ (Individual)
		Dry	○	○ (Individual)
		Cooling	○	○ (Individual)
		Fan	○	○ (Individual)
	Temp setting		○	○ (Individual)
	Fan speed setting (Hi/Med./Lo/AUTO)		○	○ (Individual)
	Auto flap	Auto airflow direction setting	○	○
		Arbitrary airflow direction setting	○	○*
	Sweep (Flap swing)		○	○*
	72 hr. ON/OFF timer		○	✕
	Sensor temp. display		○	✕
	Self-diagnostic function		○	○
System	Central control (at hand inhibited)		✕	○
	Group control		○ (Up to 8 units)	○ (Up to 16 groups)
	Concurrent use with weekly timer		○	○
Setting range	Cooling, dry (˚F)		65~86	
	Heating (˚F)		61~79	

In multi system, the following optional remote controllers can be selected, but there are some functions which cannot be controlled. So, confirm the usable functions from the following table at when selecting.

NOTE: * This function is not usable for indoor unit which is connected to a remote controller.
NOTE: If you use both remote controller and system controller concurrently, both controllers can be used on a last-signal priority basis.

ISO Certification

SANYO Electric Air Conditioning Co., Ltd.
(Tochigi Japan)

ISO 9001: 2001
Certificate Number: JQ116B

ISO 14001: 2001
Certificate Number: ECOOJ0303-33

SANYO Air Conditioners Manufacturing Singapore Pte., Ltd.
(Singapore)

ISO 9001: 1999
Certificate Number: Q3135

ISO 14001: 1996
Certificate Number: E11583

"Pioneering the U.S. Mini-Split Market since 1983."

SANYO

①