

TECHNICAL CATALOGUE

MONO SPLIT

Cooling & Heating



MULTIZONE

OUTDOOR UNIT
RAM-S42U5HLAE

INDOOR
RAS-EH07QHLAE
RAS-EH(09-24)RHLAE
RAS-SH07QHLAE
RAS-SH(09-24)RHLAE
RAD-SH(07-24)QHLAE
RAI-SH(07-18)QHLAE
RAF-SH(07-18)QHLAE

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1 SPECIFICATIONS

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1.1. MULTIZONE INDOOR

1.1.1. WALL TYPE (RAS-EH07QHLAE / EH09RHLAE / EH12RHLAE)

INDOOR	Unit	RAS-EH07QHLAE	RAS-EH09RHLAE	RAS-EH12RHLAE
Nominal capacity adjustable		no	no	no
Nominal Cooling capacity (min - max)	BTU	7000(3050-9000)	9000(5450~10500)	12000(5500~13200)
Cooling sensible capacity	BTU	-	-	-
Nominal Heating capacity (min - max)	BTU	9000(3050-10900)	10500(4200~11500)	13000(4400~14500)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	29/36/40/42	29/36/40/42	29/36/40/44
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	29/36/40/42	29/36/40/42	29/36/40/44
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	56	56	58
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	170/218/250/290	170/218/250/290	170/218/250/320
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	170/218/250/290	170/218/250/290	170/218/250/320
Fan Motor	W	38	38	38
Dehumidification	l/h	1.0	1.4	1.6
Included drain pump *for RAI/RAD	yes/no	no	no	no
Max. height available for drain pump (RAD/RAI only)	in. (mm)	no	no	no
Drain pump pressure lift *for RAI/RAD	in. (mm)	no	no	no
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no	no
Dimensions (H x W x D)	in. (mm)	11.07x30.70x9.05 (280x780x230)	11.07x30.70x9.05 (280x780x230)	11.07x30.70x9.05 (280x780x230)
Weight *must match with Packing data information	lbs. (kg)	20.9 (9.5)	20.9 (9.5)	20.9 (9.5)
Panel weight *for RAI	lbs. (kg)	-	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-	-
Colour (Munsell Code)				
Condensate Drain	in. (mm)	-	-	-
Panel reference		-	-	-
Color of the panel (RAL)		-	-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"
Drain diameter (ext)	in. (mm)	0.63(16)	0.63(16)	0.63(16)
Remote control (standard/optional) *	Standard	RAR-MOB5	RAR-MOB5	RAR-MOB5
	Optional	SPX-RCDB1/SPX-WKT4	SPX-RCDB1/SPX-WKT4	SPX-RCDB1/SPX-WKT4
Filter				
ACL Filter Standard (Material & Accessory code)		Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	(48x243x5)	(48x243x5)	(48x243x5)
ACL Filter Optional (Material - Accessory code)		-	-	-
Pre-filter Standard Material		STAINLESS	STAINLESS	STAINLESS
Pre-filter Optional (Material & Accessory code)		-	-	-

NOTE:

- Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

- The Sound Pressure Level is based on the following conditions:

- 0.8 meter beneath indoor height center
- 1 meter from Discharge grille

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.2. WALL TYPE (RAS-EH18RHLAE / EH24RHLAE)

INDOOR	Unit	RAS-EH18RHLAE	RAS-EH24RHLAE
Nominal capacity adjustable		no	no
Nominal Cooling capacity (min - max)	BTU	17600(5700~18600)	24000(8200~25200)
Cooling sensible capacity	BTU	-	-
Nominal Heating capacity (min - max)	BTU	19000(6700~20500)	25000(8300~26500)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	35/38/42/48	35/40/45/51
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	35/38/42/48	35/40/45/51
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	62	65
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	200/240/280/400	280/350/430/620
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	200/240/280/400	280/350/430/620
Fan Motor	W	38	38
Dehumidification	l/h	2.9	3.4
Included drain pump *for RAI/RAD	yes/no	no	no
Max. height available for drain pump (RAD/RAI only)	in. (mm)	no	no
Drain pump pressure lift *for RAI/RAD	in. (mm)	no	no
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no
Dimensions (H x W x D)	in. (mm)	11.07x30.70x9.05 (280x780x230)	11.81x43.3x10.23 (300x1100x260)
Weight *must match with Packing data information	lbs. (kg)	20.9 (9.5)	37.5 (17)
Panel weight *for RAI	lbs. (kg)	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-
Colour (Munsell Code)			
Condensate Drain	in. (mm)	-	-
Panel reference		-	-
Color of the panel (RAL)		-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 1/2"	1/4" / 5/8"
Drain diameter (ext)	in. (mm)	0.63(16)	0.63(16)
Remote control (standard/optional) *	Standard	RAR-MOB05	RAR-MOB05
	Optional	SPX-RCDB1/SPX-WKT4	SPX-RCDB1/SPX-WKT4
Filter			
ACL Filter Standard (Material & Accessory code)		Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	(48x243x5)	(48x243x5)
ACL Filter Optional (Material - Accessory code)		-	-
Pre-filter Standard Material		STAINLESS	STAINLESS
Pre-filter Optional (Material & Accessory code)		-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

2. The Sound Pressure Level is based on the following conditions:

- 0.8 meter beneath indoor height center
- 1 meter from Discharge grille

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.3. WALL TYPE (RAS-SH07QHLAE / SH09RHLAE / SH12RHLAE)

INDOOR	Unit	RAS-SH07QHLAE	RAS-SH09RHLAE	RAS-SH12RHLAE
Nominal capacity adjustable		no	no	no
Nominal Cooling capacity (min - max)	BTU	7000(3050-9000)	9000(5100~10500)	12000(5150~14000)
Cooling sensible capacity	BTU	-	-	-
Nominal Heating capacity (min - max)	BTU	9000(3050-10900)	11000(5450~15000)	14000(5500~18000)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	27/35/40/43	27/35/40/43	27/35/40/46
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	27/35/40/43	27/35/40/43	27/35/40/46
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	57	57	60
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	150/200/280/320	150/200/280/320	150/200/280/400
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	180/230/310/330	180/230/310/330	180/230/310/400
Fan Motor	W	30	30	30
Dehumidification	l/h	1.0	1.0	1.5
Included drain pump *for RAI/RAD	yes/no	no	no	no
Max. height available for drain pump (RAD/RAI only)	in. (mm)	no	no	no
Drain pump pressure lift *for RAI/RAD	in. (mm)	no	no	no
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no	no
Dimensions (H x W x D)	in. (mm)	11.81x35.43x9.05 (300x900x230)	11.81x35.43x9.05 (300x900x230)	11.81x35.43x9.05 (300x900x230)
Weight *must match with Packing data information	lbs. (kg)	28.7 (13)	28.7 (13)	28.7 (13)
Panel weight *for RAI	lbs. (kg)	-	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-	-
Colour (Munsell Code)				
Condensate Drain	in. (mm)	-	-	-
Panel reference		-	-	-
Color of the panel (RAL)		-	-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"
Drain diameter (ext)	in. (mm)	0.63(16)	0.63(16)	0.63(16)
Remote control (standard/optional) *	Standard	RAR-MOB6	RAR-MOB6	RAR-MOB6
	Optional	SPX-WKT4	SPX-WKT4	SPX-WKT4
Filter				
ACL Filter Standard (Material & Accessory code)		Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	(48x243x5)	(48x243x5)	(48x243x5)
ACL Filter Optional (Material - Accessory code)		-	-	-
Pre-filter Standard Material		STAINLESS	STAINLESS	STAINLESS
Pre-filter Optional (Material & Accessory code)		-	-	-

NOTE:

- Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

- The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.4. WALL TYPE (RAS-SH18RHLAE / SH24RHLAE)

INDOOR	Unit	RAS-SH18RHLAE	RAS-SH24RHLAE
Nominal capacity adjustable		no	no
Nominal Cooling capacity (min - max)	BTU	18000(6600~20500)	22000(9700~25000)
Cooling sensible capacity	BTU	-	-
Nominal Heating capacity (min - max)	BTU	21500(7100~26000)	25000(8500~29500)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	35/42/45/49	35/40/45/51
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	35/42/45/49	35/40/45/51
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	63	65
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	260/320/410/540	299/405/500/650
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	270/330/420/570	310/435/500/650
Fan Motor	W	38	38
Dehumidification	l/h	1.8	2.5
Included drain pump *for RAI/RAD	yes/no	no	no
Max. height available for drain pump (RAD/RAI only)	in. (mm)	no	no
Drain pump pressure lift *for RAI/RAD	in. (mm)	no	no
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no
Dimensions (H x W x D)	in. (mm)	11.81x43.3x10.23 (300x1100x260)	11.81x43.3x10.23 (300x1100x260)
Weight *must match with Packing data information	lbs. (kg)	37.5 (17)	37.5 (17)
Panel weight *for RAI	lbs. (kg)	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-
Colour (Munsell Code)			
Condensate Drain	in. (mm)	-	-
Panel reference		-	-
Color of the panel (RAL)		-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 1/2"	1/4" / 5/8"
Drain diameter (ext)	in. (mm)	0.63(16)	0.63(16)
Remote control (standard/optional) *	Standard	RAR-MOB6	RAR-MOB6
	Optional	SPX-WKT4	SPX-WKT4
Filter			
ACL Filter Standard (Material & Accessory code)		Active Carbon / SPX-CFH22AC25	Active Carbon / SPX-CFH22AC25
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	(48x243x5)	(48x243x5)
ACL Filter Optional (Material - Accessory code)		-	-
Pre-filter Standard Material		STAINLESS	STAINLESS
Pre-filter Optional (Material & Accessory code)		-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

2. The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.5. FLOOR TYPE (RAF-SH07QHLAE / SH09QHLAE / SH12QHLAE / SH18QHLAE)

INDOOR	Unit	RAF-SH07QHLAE	RAF-SH09QHLAE	RAF-SH12QHLAE	RAF-SH18QHLAE
Nominal capacity adjustable		no	no	no	no
Nominal Cooling capacity (min - max)	BTU	7000(3050-9000)	9000(3050-10600)	12000(3050-13650)	18000(3050-17750)
Cooling sensible capacity	BTU	-	-	-	-
Nominal Heating capacity (min - max)	BTU	9000(3050-10900)	11600(3050-15000)	15350(3050-18000)	20500(3050-27600)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	20/26/31/38	20/26/31/38	20/26/31/39	22/29/36/43
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	20/26/31/38	20/26/31/38	20/26/31/39	22/29/36/44
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	52	52	53	57
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	159/230/300/371 (270/390/510/630)	159/230/300/371 (270/390/510/630)	159/230/300/371 (270/390/510/630)	177265/318/412 (300/450/540/700)
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	177/247/318/388 (300/420/540/660)	177/247/318/388 (300/420/540/660)	177/247/318/388 (300/420/540/660)	194/283/335/430 (330/480/570/730)
Fan Motor	W	38	38	38	38
Dehumidification	l/h	1.2	1.4	1.9	2
Included drain pump *for RAI/RAD	yes/no	no	no	no	no
Max. height available for drain pump (RAD/RAI only)	in. (mm)	no	no	no	no
Drain pump pressure lift *for RAI/RAD	in. (mm)	no	no	no	no
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no	no	no
Dimensions (H x W x D)	in. (mm)	23 x 30 x 8 (590 x 750 x 215)	23 x 30 x 8 (590 x 750 x 215)	23 x 30 x 8 (590 x 750 x 215)	23 x 30 x 8 (590 x 750 x 215)
Weight *must match with Packing data information	lbs. (kg)	33 (15)	33 (15)	33 (15)	33 (15)
Panel weight *for RAI	lbs. (kg)	-	-	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-	-	-
Colour (Munsell Code)		ShadowWhite (5PB8.7/0.5)	ShadowWhite (5PB8.7/0.5)	ShadowWhite (5PB8.7/0.5)	ShadowWhite (5PB8.7/0.5)
Condensate Drain	in. (mm)	0.63(16)	0.63(16)	0.63(16)	0.63(16)
Panel reference		-	-	-	-
Color of the panel (RAL)		-	-	-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"	1/4" / 1/2"
Drain diameter (ext)	in. (mm)	0.63(16)	0.63(16)	0.63(16)	0.63(16)
Remote control (standard/optional) *	Standard	RAR-MOB3	RAR-MOB3	RAR-MOB3	RAR-MOB3
	Optional	SPX-RCDB1/ SPX-WKT4	SPX-RCDB1/ SPX-WKT4	SPX-RCDB1/ SPX-WKT4	SPX-RCDB1/ SPX-WKT4
Filter					
ACL Filter Standard (Material & Accessory code)		activated carbon / SPX-CFH22AC25	activated carbon / SPX-CFH22AC25	activated carbon / SPX-CFH22AC25	activated carbon / SPX-CFH22AC25
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	48x243x5	48x243x5	48x243x5	48x243x5
ACL Filter Optional (Material - Accessory code)		-	-	-	-
Pre-filter Standard Material		STAINLESS	STAINLESS	STAINLESS	STAINLESS
Pre-filter Optional (Material & Accessory code)		-	-	-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

2. The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

1.1.6. CEILING CASSETTE (RAI-SH07QHLAE / SH09QHLAE)

INDOOR	Unit	RAI-SH07QHLAE	RAI-SH09QHLAE
Nominal capacity adjustable		no	no
Nominal Cooling capacity (min - max)	BTU	7000(3050-8500)	9000(3050-10200)
Cooling sensible capacity	BTU	-	-
Nominal Heating capacity (min - max)	BTU	9000(3050-10900)	12000(3050-18000)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	27/31/35/38	27/31/35/38
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	28/32/36/39	28/32/36/39
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	54	54
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	212/297/347/388 (360/505/590/660)	212/297/347/388 (360/505/590/660)
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	261/318/371/424 444/540/630/720	261/318/371/424 444/540/630/720
Fan Motor	W	57	57
Dehumidification	l/h	1.2	1.4
Included drain pump *for RAI/RAD	yes/no	Yes	Yes
Max. height available for drain pump (RAD/RAI only)	in. (mm)	33(850)	33(850)
Drain pump pressure lift *for RAI/RAD	in. (mm)	4.5(115)	4.5(115)
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no
Dimensions (H x W x D)	in. (mm)	11 x 22 x 22 (285 x 570 x 570)	11 x 22 x 22 (285 x 570 x 570)
Weight *must match with Packing data information	lbs. (kg)	37 (17)	37 (17)
Panel weight *for RAI	lbs. (kg)	6.17 (2.8)	6.17 (2.8)
Panel dimensions (H x W x D) *for RAI	in. (mm)	1.2 x 24.4 x 24.4 (30 x 620 x 620)	1.2 x 24.4 x 24.4 (30 x 620 x 620)
Colour (Munsell Code)		-	-
Condensate Drain	in. (mm)	1.26 (32)	1.26 (32)
Panel reference		-	-
Color of the panel (RAL)		-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/**if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 3/8"	1/4" / 3/8"
Drain diameter (ext)	in. (mm)	1.26 (32)	1.26 (32)
Remote control (standard/optional) *	Standard	RAR-MOB3	RAR-MOB3
	Optional	SPX-RCDB1/SPX-WKT4	SPX-RCDB1/SPX-WKT4
Filter			
ACL Filter Standard (Material & Accessory code)		-	-
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	-	-
ACL Filter Optional (Material - Accessory code)		-	-
Pre-filter Standard Material		NORMAL	NORMAL
Pre-filter Optional (Material & Accessory code)		-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

2. The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

1.1.7. CEILING CASSETTE (RAI-SH12QHLAE / SH18QHLAE)

INDOOR	Unit	RAI-SH12QHLAE	RAI-SH18QHLAE
Nominal capacity adjustable		no	no
Nominal Cooling capacity (min - max)	BTU	12000(3050-13650)	18000(4100-19800)
Cooling sensible capacity	BTU	-	-
Nominal Heating capacity (min - max)	BTU	16400(3050-22500)	20500(4100-23200)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	29/35/39/43	29/35/39/43
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	30/36/40/44	30/36/40/44
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	56	56
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	212/297/347/388 (360/505/590/660)	230/318/371/424 390/540/630/720
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	261/318/371/424 444/540/630/720	265/353/406/459 450/600/690/780
Fan Motor	W	57	57
Dehumidification	l/h	1.4	2.8
Included drain pump *for RAI/RAD	yes/no	Yes	Yes
Max. height available for drain pump (RAD/RAI only)	in. (mm)	33(850)	33(850)
Drain pump pressure lift *for RAI/RAD	in. (mm)	4.5(115)	4.5(115)
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	no	no
Dimensions (H x W x D)	in. (mm)	11 x 22 x 22 (285 x 570 x 570)	11 x 22 x 22 (285 x 570 x 570)
Weight *must match with Packing data information	lbs. (kg)	37 (17)	37 (17)
Panel weight *for RAI	lbs. (kg)	6.17 (2.8)	6.17 (2.8)
Panel dimensions (H x W x D) *for RAI	in. (mm)	1.2 x 24.4 x 24.4 (30 x 620 x 620)	1.2 x 24.4 x 24.4 (30 x 620 x 620)
Colour (Munsell Code)		-	-
Condensate Drain	in. (mm)	1.26 (32)	1.26 (32)
Panel reference		-	-
Color of the panel (RAL)		-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4" / 3/8"	1/4" / 1/2"
Drain diameter (ext)	in. (mm)	1.26 (32)	1.26 (32)
Remote control (standard/optional) *	Standard	RAR-MOB3	RAR-MOB3
	Optional	SPX-RCDB1/SPX-WKT4	SPX-RCDB1/SPX-WKT4
Filter			
ACL Filter Standard (Material & Accessory code)		-	-
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	-	-
ACL Filter Optional (Material - Accessory code)		-	-
Pre-filter Standard Material		NORMAL	NORMAL
Pre-filter Optional (Material & Accessory code)		-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

2. The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.8. DUCT TYPE (RAD-SH07QHLAE / SH09QHLAE / SH12QHLAE)

INDOOR	Unit	RAD-SH07QHLAE	RAD-SH09QHLAE	RAD-SH12QHLAE
Nominal capacity adjustable		no	no	no
Nominal Cooling capacity (min - max)	BTU	7000(3050-8500)	9000(3050-10200)	12000(3050-13650)
Cooling sensible capacity	BTU	-	-	-
Nominal Heating capacity (min - max)	BTU	9000(3050-10900)	12000(3050-18000)	16400(3050-22500)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	30/33/37/41	30/33/37/41	30/33/37/41
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	30/34/38/42	30/34/38/42	30/34/38/42
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	57	57	57
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	194/229/264/300 (330/390/450/510)	194/229/264/300 (330/390/450/510)	194/229/264/300 (330/390/450/510)
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	194/229/264/300 (330/390/450/510)	194/229/264/300 (330/390/450/510)	194/229/264/300 (330/390/450/510)
Fan Motor	W	20	20	20
Dehumidification	l/h	1.4	1.4	1.6
Included drain pump *for RAI/RAD	yes/no	yes	yes	yes
Max. height available for drain pump (RAD/RAI only)	in. (mm)	33(850)	33(850)	33(850)
Drain pump pressure lift *for RAI/RAD	in. (mm)	4.5(115)	4.5(115)	4.5(115)
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	70	70	70
Dimensions (H x W x D)	in. (mm)	9x29x15 (235x750x400)	9x29x15 (235x750x400)	9x29x15 (235x750x400)
Weight *must match with Packing data information	lbs. (kg)	35 (16)	35 (16)	35 (16)
Panel weight *for RAI	lbs. (kg)	-	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-	-
Colour (Munsell Code)		-	-	-
Condensate Drain	in. (mm)	0.63(16)	0.63(16)	0.63(16)
Panel reference		-	-	-
Color of the panel (RAL)		-	-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4", 3/8"	1/4", 3/8"	1/4", 3/8"
Drain diameter (ext)	in. (mm)	0.63 (16)	0.63 (16)	0.63 (16)
Remote control (standard/optional) *	Standard	RAR-MOB4	RAR-MOB4	RAR-MOB4
	Optional	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4
Filter				
ACL Filter Standard (Material & Accessory code)		-	-	-
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	-	-	-
ACL Filter Optional (Material - Accessory code)		-	-	-
Pre-filter Standard Material		NORMAL	NORMAL	NORMAL
Pre-filter Optional (Material & Accessory code)		-	-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F

Piping Length: 7.5 meters; Piping Lift: 0 meter
dB: Dry Bulb; WB: Wet Bulb

2. The Sound Pressure Level is based on the following conditions:

- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

1.1.9. DUCT TYPE (RAD-SH18QHLAE / SH24QHLAE)

INDOOR	Unit	RAD-SH18QHLAE	RAD-SH24QHLAE
Nominal capacity adjustable		no	no
Nominal Cooling capacity (min - max)	BTU	18000(4100-19800)	24000(4100-25600)
Cooling sensible capacity	BTU	-	-
Nominal Heating capacity (min - max)	BTU	20500(4100-23200)	27300(4100-30690)
Noise level cooling (sound pressure) (SL / L / M / H)	dB(A)	29/32/35/39	29/32/35/39
Noise level heating (sound pressure) (SL / L / M / H)	dB(A)	29/32/35/40	29/32/35/40
Noise level (sound power) *match with Fiche/ Eurovent/Product Info	dB(A)	53	53
Air flow cooling mode (SL / L / M / H)	cfm (m³/h)	206/317/470/671 (350/540/800/1140)	206/317/470/671 (350/540/800/1140)
Air flow heating mode (SL / L / M / H)	cfm (m³/h)	206/317/470/671 (350/540/800/1140)	206/317/470/671 (350/540/800/1140)
Fan Motor	W	180	180
Dehumidification	l/h	2.8	2.8
Included drain pump *for RAI/RAD	yes/no	yes	yes
Max. height available for drain pump (RAD/RAI only)	in. (mm)	33(850)	33(850)
Drain pump pressure lift *for RAI/RAD	in. (mm)	4.5(115)	4.5(115)
Static pressure switch at High(L / M / H) *for RAD	Pa (m3/h)	50/100150	50/100150
Dimensions (H x W x D)	in. (mm)	10x35x28 (270x900x700)	10x35x28 (270x900x700)
Weight *must match with Packing data information	lbs. (kg)	77 (35)	77 (35)
Panel weight *for RAI	lbs. (kg)	-	-
Panel dimensions (H x W x D) *for RAI	in. (mm)	-	-
Colour (Munsell Code)		-	-
Condensate Drain	in. (mm)	1.26 (32)	1.26 (32)
Panel reference		-	-
Color of the panel (RAL)		-	-
Running current (C/H) *for single split indoor&outdoor must be matched	A	-	-
Power supply	V	FROM OUTDOOR	FROM OUTDOOR
Cable section (interconnection/*if power supply is connected to indoor)	mm²	0.8x 3+EARTH/-	0.8x 3+EARTH/-
Piping diameter (Liq / Gas)	Inch	1/4", 1/2"	1/4", 1/2"
Drain diameter (ext)	in. (mm)	1.26 (32)	1.26 (32)
Remote control (standard/optional) *	Standard	RAR-MOB4	RAR-MOB4
	Optional	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4
Filter			
ACL Filter Standard (Material & Accessory code)		-	-
ACL Filter Standard Dimensions (H x W x D)	in. (mm)	-	-
ACL Filter Optional (Material - Accessory code)		-	-
Pre-filter Standard Material		NORMAL	NORMAL
Pre-filter Optional (Material & Accessory code)		-	-

NOTE:

1. Capacity and seasonal performance data (SEER /HSPF) are based on AHRI 210-240. The nominal heating and cooling capacity is the combined capacity of the HITACHI Split system (Indoor + Outdoor Unit).

2. The Sound Pressure Level is based on the following conditions:

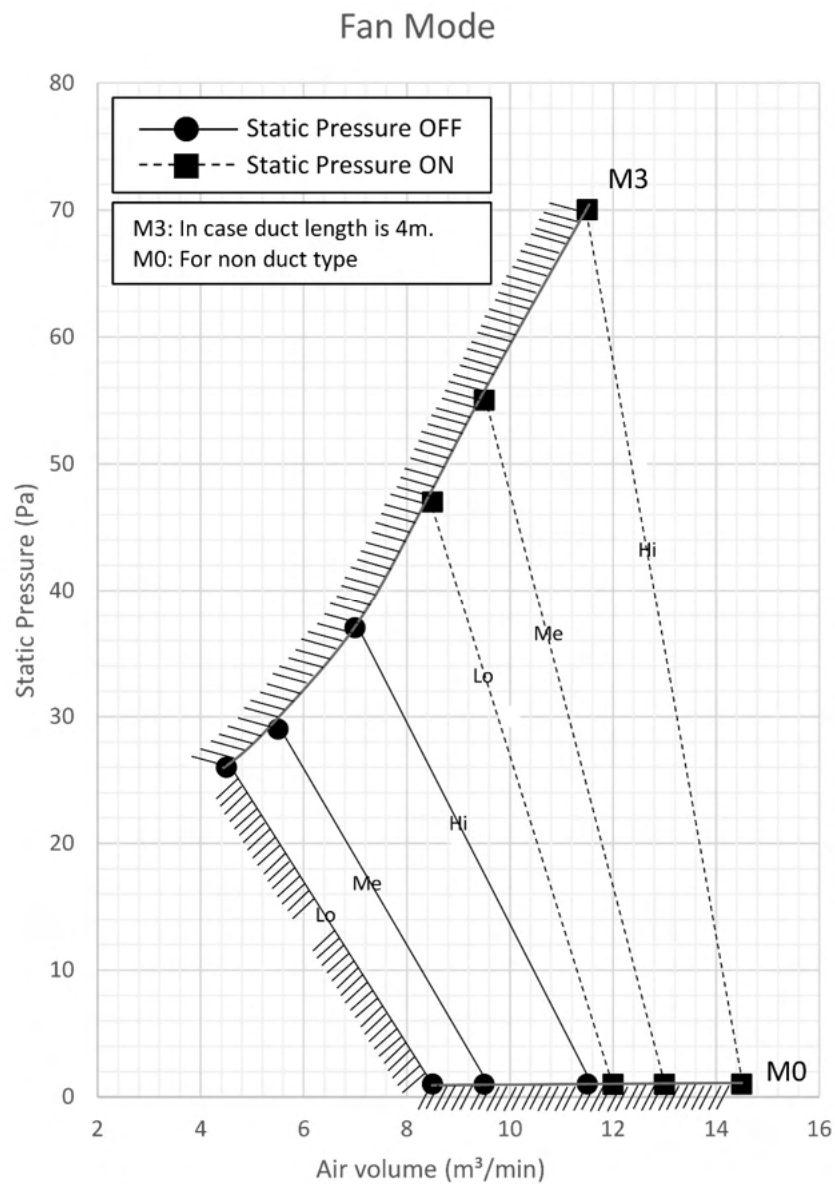
- 1.5 meter beneath the unit

The above data was measured in an anechoic chamber so that reflected sound should be taken into consideration when installing the unit.

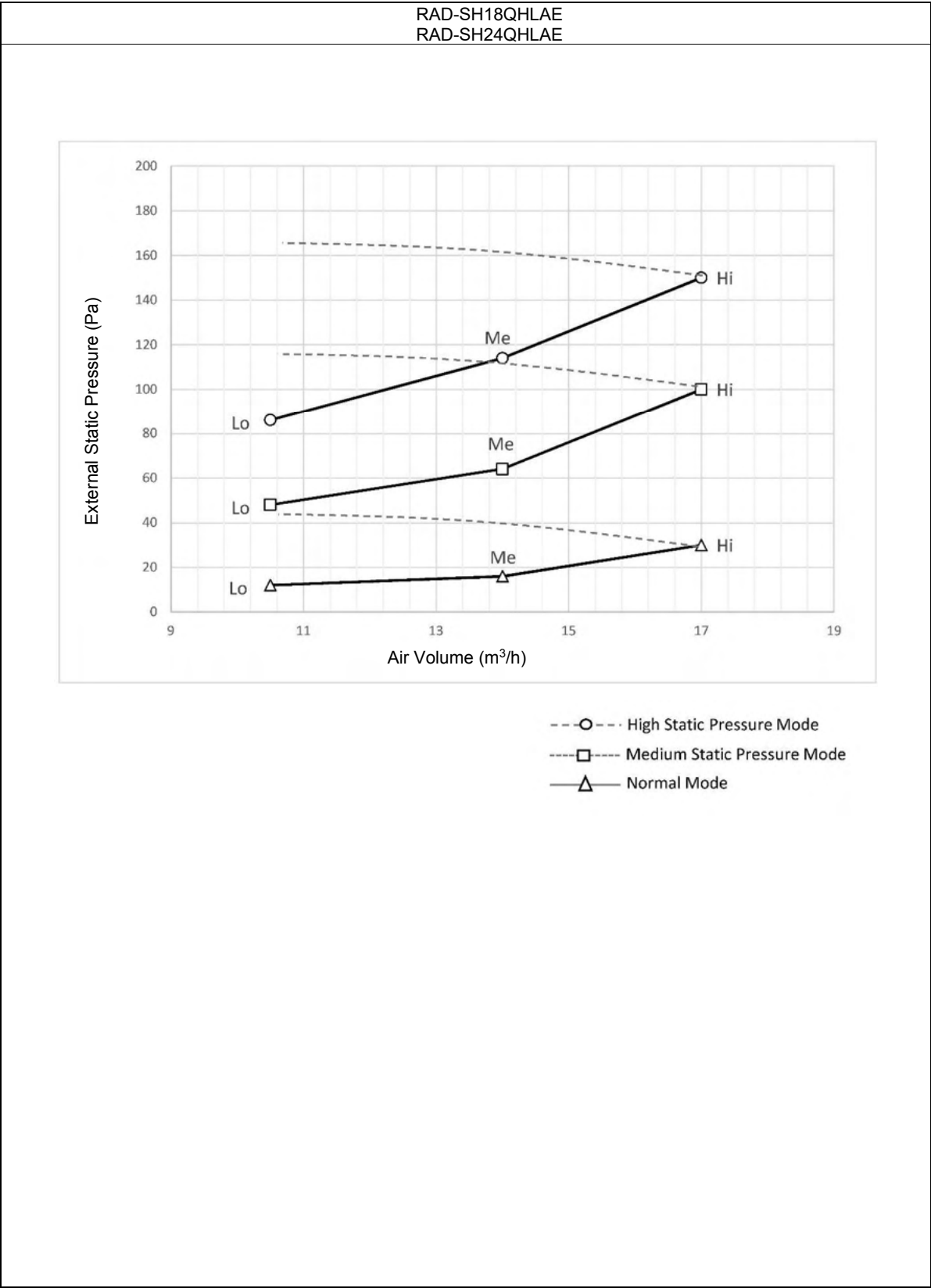
Operation Conditions		Cooling	Heating
Indoor Air Inlet Temperature	dB	80 °F	70 °F
	WB	67 °F	
Outdoor Air Inlet Temperature	dB	95 °F	47 °F
	WB		43 °F
Piping Length: 7.5 meters; Piping Lift: 0 meter dB: Dry Bulb; WB: Wet Bulb			

1.1.10. DUCT STATIC PRESSURE AND AIR FLOW (RAD-SH07/09/12QHLAE)

RAD-SH07QHLAE
RAD-SH09QHLAE
RAD-SH12QHLAE



1.1.11. DUCT STATIC PRESSURE AND AIR FLOW (RAD-SH18/24QHLAE)



1.2. RAM-S42U5HLAE

OUTDOOR	UNIT	RAM-S42U5HLAE
Minimum / Maximum indoor units connectable (for MULTI only)		2/5
Minimum / Maximum connected indoor capacity (for MULTI only)	kBTU	14/60
Nominal Cooling capacity (min - max) *for single split indoor&outdoor must be matched	BTU	42000(7000~46000)
Nominal Heating capacity (min - max) *for single split indoor&outdoor must be matched	BTU	48000(9000~51000)
Nominal cooling power input (min - max)	kW	3.36(0.46 - 5.3)
Nominal heating power input (min - max)	kW	4.25(0.46 - 5.4)
EER(T1condition)	Btu/W	12.5
COP (H1 condition)	Btu/W	11.3
SEER / SCOP *average climate		23.0/10.8
Noise level cooling (sound pressure)	dB(A)	56
Noise level heating (sound pressure)	dB(A)	58
Noise level - ODU (sound power)	dB(A)	70
Air flow (Cooling / Heating)	cfm (m³/h)	2471(4200)/2471(4200)
Dimensions (H x W x D)	in. (mm)	37x37x15(945x950x370)
Net weight	lbs. (kg)	209(95)
Colour (Munsell Code)		Beige (5Y7/2)
Power supply	V/Ph/Hz	208- 230V / 1Ph / 60Hz
Recommended fuse size	A	40
Starting current(rated current of COOL/HEAT whichever higher for inverter)	A	16.32 / 20.62
Running current (C/H) *for single split indoor&outdoor must be matched	A	14.76 / 18.65
Cable section (power)	mm²	4.00x 2+EARTH
Interconnection between indoor unit and outdoor unit	mm²	0.80x 3+EARTH
Piping diameter (Liq / Gas) *for single split indoor&outdoor must be matched	Inch	(1/4,3/8)X3+(1/4,1/2)X2
Minimum piping length	ft. (m)	16(5)
Maximum piping length / height difference	ft. (m)	246(75)/66(20)
Current quantity of refrigerant / Chargeless	lbs. (kg)	9.04(4.1)
Chargeless length / Additional refrigerant charge	m / g/m	35 / 18
Working range (cooling / heating)	°F(°C)	14 to 115 (-10 to +46)
	°F(°C)	-4 to 75 (-20 to +24)
Refrigerant		R410A
Condenser Fan		Propeller Fan
Compressor	Type	2 Cylinder Rotary
	Oil Type	a68HES-H or equivalent
	Oil Charge l	1650±20 ml
	Coil resistance	0.502Ω at 20°C
	Quantity	1

NOTE:

1. The Sound Pressure Level is based on the following conditions:

- Half height of the unit
- 1 meter from Discharge grille

The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific site

2 DIMENSIONAL DATA

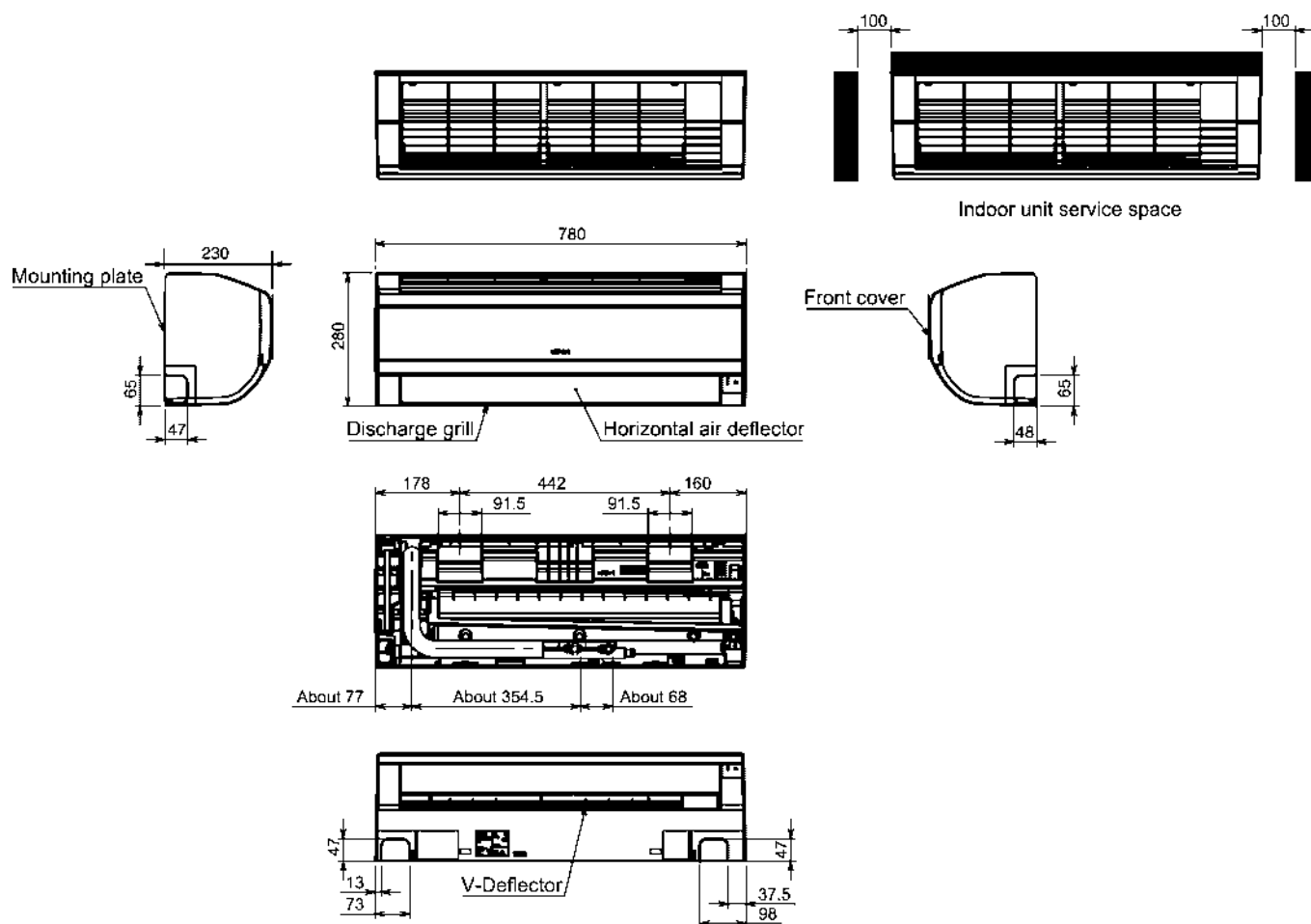
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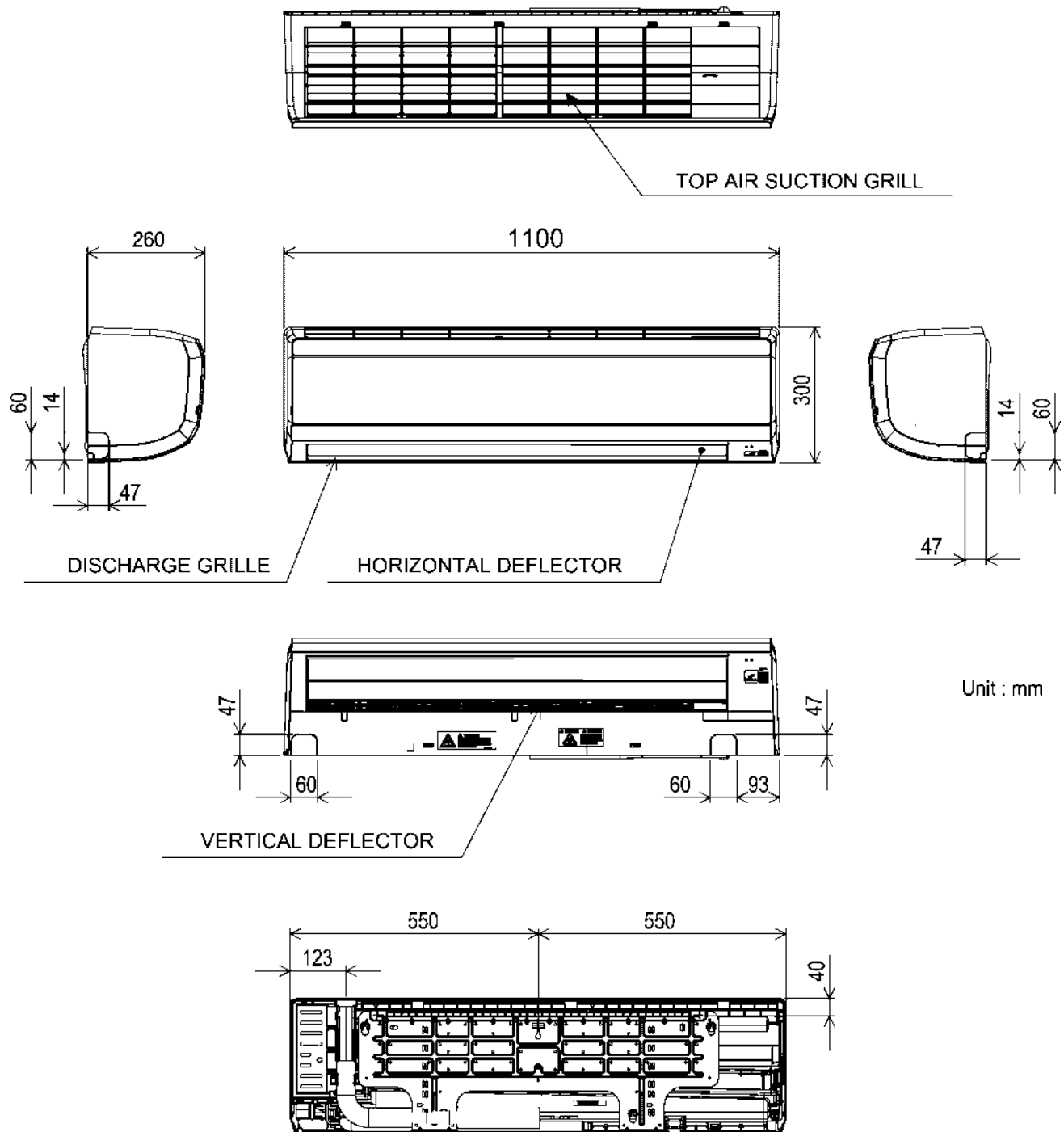
2.1. MULTIZONE INDOOR UNITS

2.1.1. WALL TYPE: RAS-EH07QHLAE / EH09RHLAE / EH12RHLAE / EH18RHLAE

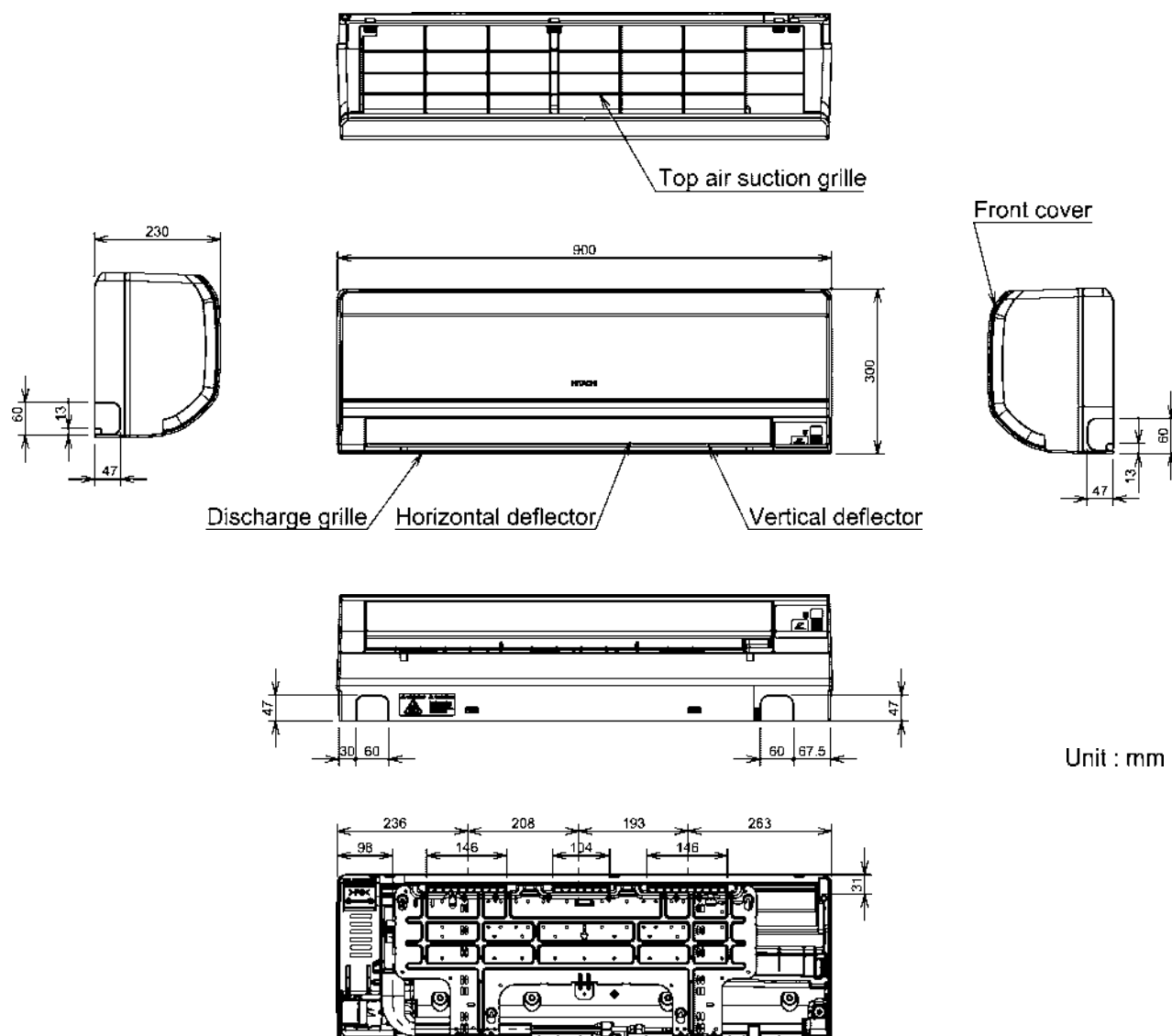
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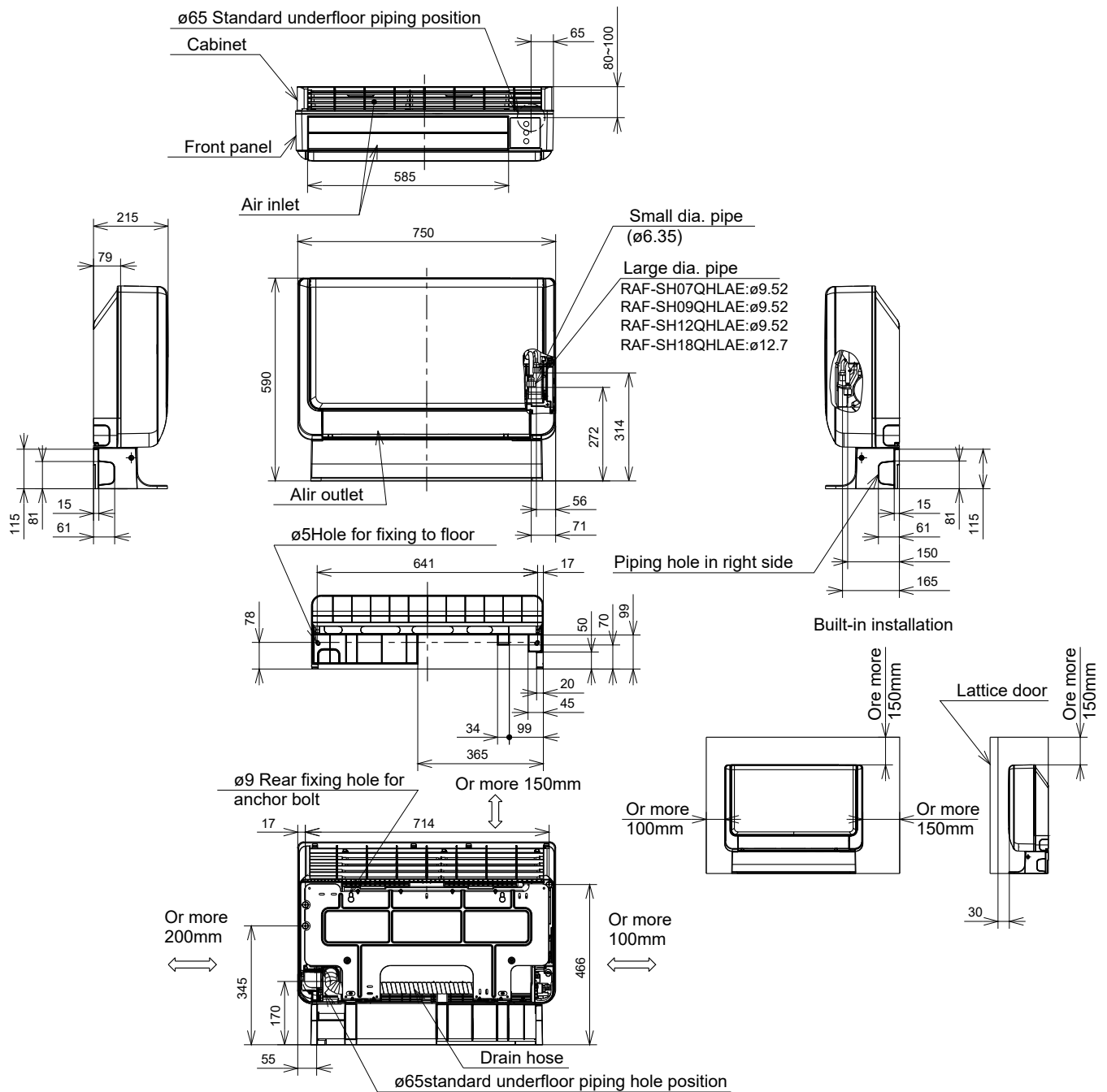
2.1.2. WALL TYPE: RAS-EH24RHLAE / RAS-SH18RHLAE / RAS-SH24RHLAE



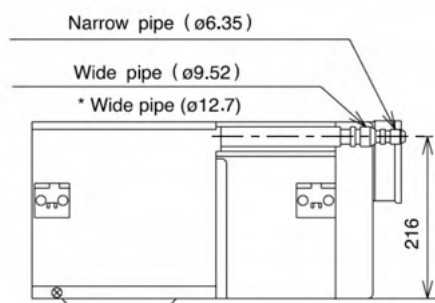
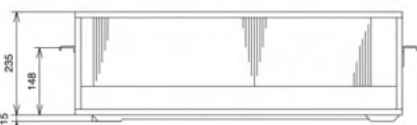
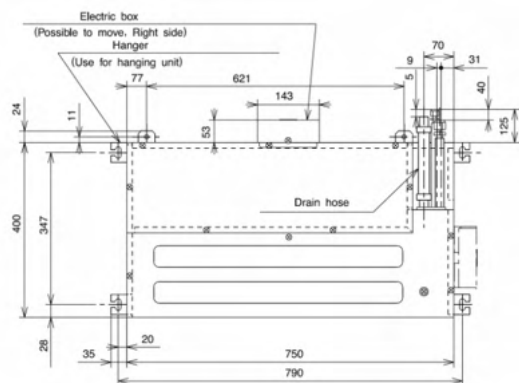
2.1.3. WALL TYPE: RAS-SH07QHLAE / SH09RHLAE / SH12RHLAE



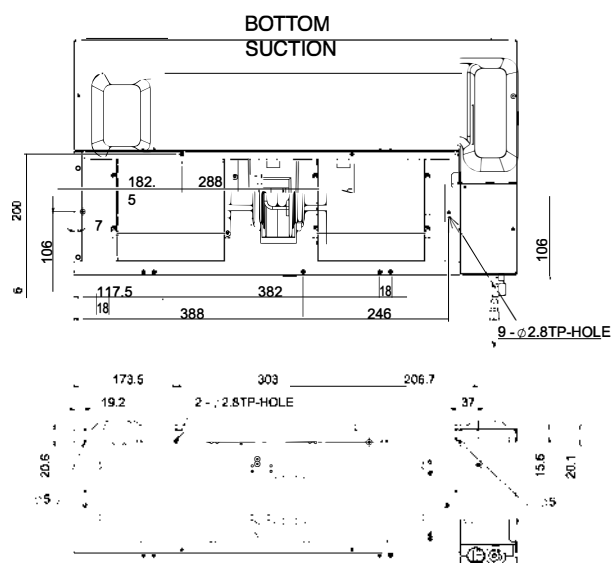
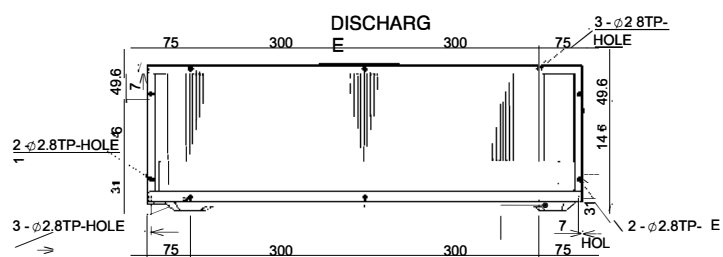
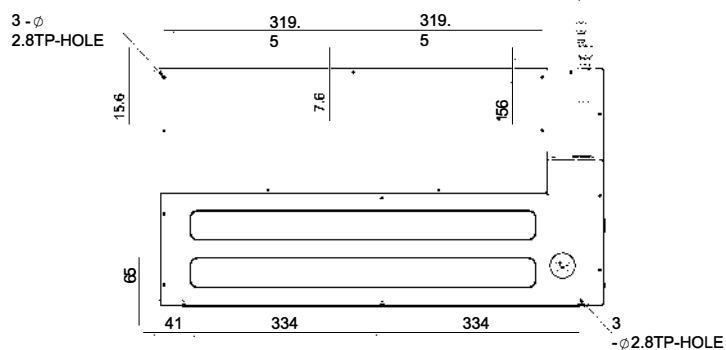
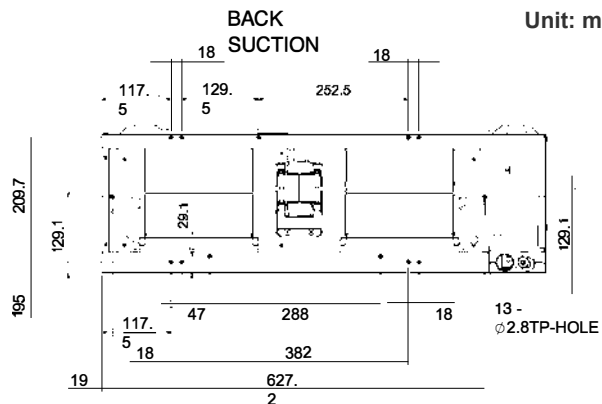
Unit : mm



2.1.6. DUCT TYPE: RAD-SH07QHLAE / SH09QHLAE / SH12QHLAE

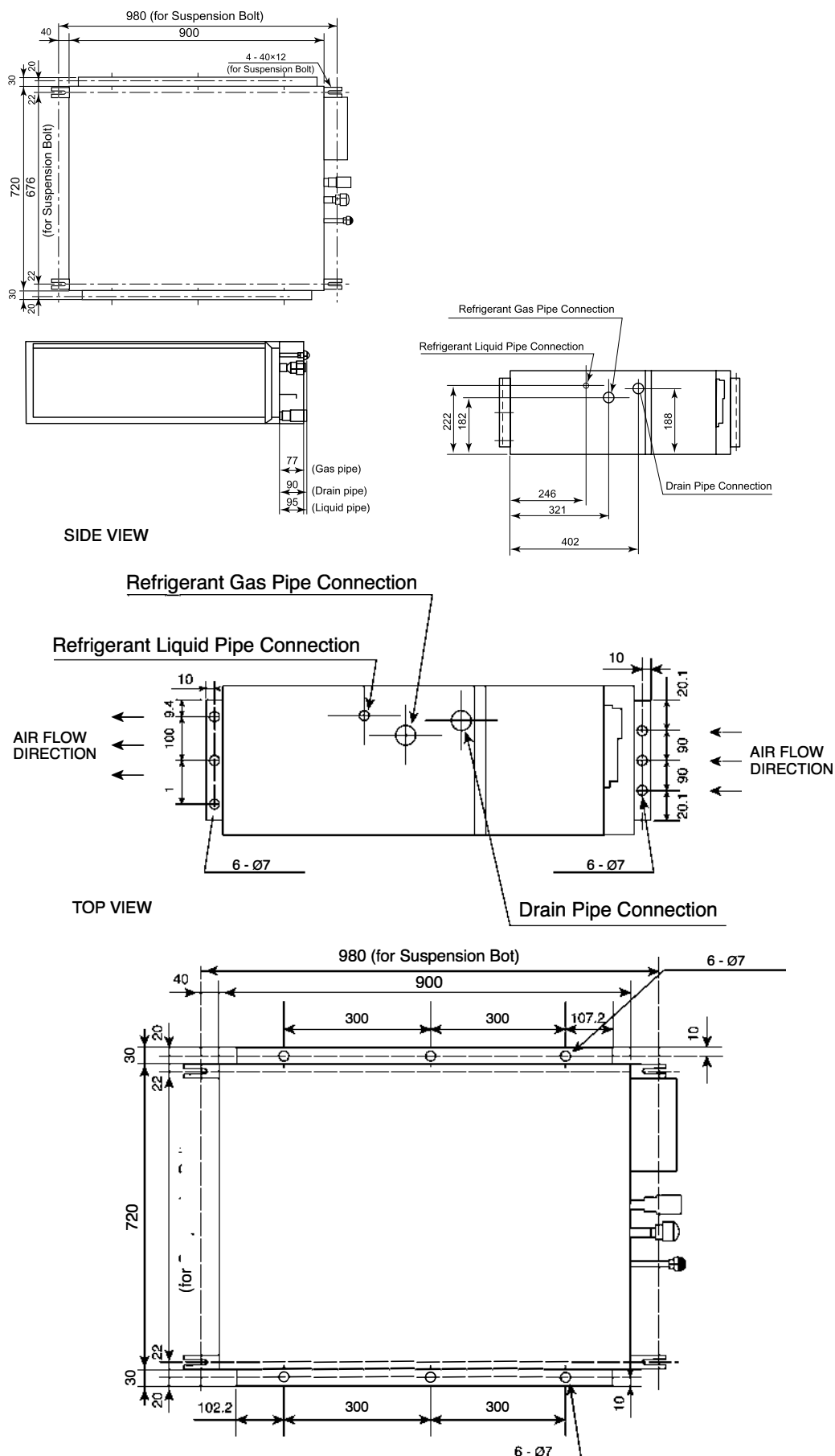


Unit: mm



2.1.7. DUCT TYPE: RAD-SH18QH LAE / SH24QH LAE

Unit: mm



3 CAPACITIES AND SELECTION DATA

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3.1. SYSTEM SELECTION PROCEDURE

The following system procedure is giving a sample regarding unit selection system, indicating how to use all parameters showed in this chapter.

3.1.1. SELECTION UNIT FEATURES

Considering the building distribution, the possible indoor unit position and the available air flow distribution, select the unit features that are giving the best efficiency and comfort to each room.

Decide the Outdoor Unit position getting easy service maintenance and easy refrigerant pipe installation.

Therefore, the maximum indoor unit capacity combined with outdoor unit should be carefully considered for correct indoor unit distribution at each building

3.1.2. SELECTION GUIDE

The following guide giving the method for indoor and outdoor unit selection.

* Step 1: Determine the system requirements

Calculate the cooling capacity and heating capacity of each indoor unit according to the following conditions:

Total Load for each room

		Room					
Item		1	2	3	4	5	1+2+3+4+5
Estimated Cooling Load	kW	2.46	2.50	2.51	2.53	2.59	12.59
Estimated Heating Load	kW	2.94	2.94	3.17	3.08	2.98	15.11

*Example

Temperature Condition

Cooling	Heating
Outdoor Air Inlet • Dry Bulb: 95°F	Outdoor Air Inlet • Dry Bulb: 47°F • Wet Bulb: 43°F
Indoor Air Inlet • Dry Bulb: 80°F • Wet Bulb: 67°F	Indoor Air Inlet • Dry Bulb: 70°F

*Example

* Step 2: Select Unit Capacity Performance

The unit kW is selected following the Cooling capacity and Heating capacity showed in the combination table.

* Step 3: Read Selected Capacity Performance

The unit performance should be calculated considering the following correction factors:

1. Cooling and Heating piping length
2. Outdoor unit performance capacity
3. Indoor unit performance capacity for each room cooling load

Kindly refer to the unit selection combination table for correct capacity performance.

3.2. CAPACITY CHARACTERISTIC CURVES FOR MULTIZONE

The following charts show the characteristics of outdoor unit capacity, which corresponds with the operating ambient temperature of outdoor unit.

Conditions:

① Pipe length / height difference : 7.5m / 0m

③ Capacity loss due to white frost and defrost operation is not included.

② Indoor fan speed at High mode

RAM-S42U5HLAE

COOLING [60Hz, 230V]

	INDOOR										OUTDOOR TEMPERATURE (°FDW)																			
	EWB		EDB		14			70			81			90			95			104			110							
	F	F	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI				
7K	54	64	5810	5324	268	6580	7098	318	6090	6552	375	5740	6211	414	5530	5938	432	5180	5597	464	4970	5324	482							
	57	68	5810	5324	268	7070	7098	318	6580	6620	379	6160	6211	419	5850	6006	437	5530	5597	468	5320	5392	491							
	61	72	5810	5665	272	7580	7098	322	7000	6620	384	6580	6211	423	6370	6006	446	5950	5597	477	5740	5392	495							
	64	77	6230	6074	276	8050	7712	326	7420	7166	388	7030	6757	428	6720	6494	446	6300	6074	482	6020	5801	500							
	66	81	6440	6279	280	8330	8122	331	7770	7508	392	7280	7098	432	7000	6825	450	6580	6416	482	6300	6143	500							
	72	86	7140	6211	280	9240	8054	331	8540	7439	392	8050	7030	437	7770	6757	455	7000	6552	500	6510	6416	527							
9K	75	90	7630	6211	285	9870	8054	335	9100	7439	397	8610	7030	437	8260	6757	459	7280	6689	513	6950	6620	545							
	54	64	7470	6845	387	8460	9126	459	7830	8424	541	7380	7985	598	7110	7634	624	6660	7196	670	6390	6845	696							
	57	68	7470	6845	387	9090	9126	459	8460	8512	548	7920	7985	605	7650	7722	631	7110	7196	676	6840	6932	709							
	61	72	7470	7283	393	9720	9126	465	9000	8512	554	8460	7985	611	8190	7722	644	7650	7196	689	7380	6932	715							
	64	77	8010	7810	399	10350	9916	472	9540	9214	561	9000	8687	618	8640	8336	644	8100	7810	696	7740	7459	722							
	66	81	8280	8073	405	10710	10442	478	9900	9553	567	9360	9126	624	9000	8775	650	8460	8249	696	8100	7898	722							
12K	72	86	9180	7985	405	11880	10355	478	10980	9565	567	10350	9038	631	9990	8687	657	9000	8424	722	8370	8249	761							
	75	90	9810	7985	411	12680	10355	484	11700	9565	573	11070	9038	631	10620	8687	663	9360	8800	741	8550	8512	787							
	54	64	9960	9126	613	11280	12168	728	10440	11232	858	9840	10647	948	9480	10179	999	8880	9594	1061	8520	9126	1102							
	57	68	9960	9126	613	12120	12168	728	11280	11349	868	10560	10647	958	10200	10296	999	9480	9594	1071	9120	9243	1123							
	61	72	9960	9711	623	12660	12168	738	12000	11349	878	11280	10647	968	10920	10296	1020	10200	9994	1092	9840	9243	1133							
	64	77	10680	10413	632	13800	13221	747	12720	12285	888	12000	11583	979	11520	11115	1020	10800	10413	1102	10320	9945	1143							
18K	66	81	11040	10764	642	14280	13923	757	13200	12870	898	12480	12168	989	12000	11700	1030	11280	10998	1102	10800	10530	1143							
	72	86	12240	10647	642	15840	13806	757	14640	12753	898	13800	12051	999	13320	11583	1040	12000	11232	1143	11160	10998	1205							
	75	90	13080	10647	651	16920	13806	766	15600	12753	908	14760	12051	999	14160	11583	1051	12480	11466	1174	11400	11349	1246							
	54	64	14940	13889	952	16920	18252	1131	15660	16848	1333	14760	15971	1472	14220	15269	1536	13320	14391	1648	12780	13889	1712							
	57	68	14940	13889	952	18180	18252	1131	16920	17024	1348	15840	15971	1488	15300	15444	1552	14220	14391	1664	13680	13865	1744							
	61	72	14940	14567	967	19440	18252	1146	18000	17024	1364	16920	15971	1504	16380	15444	1584	15300	14391	1696	14760	13865	1760							
24K	64	77	16020	15620	982	20700	19832	1161	19800	18428	1380	18000	17375	1520	17280	16673	1584	16200	15620	1712	15480	14918	1776							
	66	81	16560	16146	997	21420	20885	1176	19800	19305	1396	18720	18252	1536	18000	17550	1600	16920	16497	1712	16200	15795	1776							
	72	86	18360	15971	997	23760	20709	1176	21960	19130	1396	20700	18077	1552	19980	17375	1616	18000	16848	1776	16740	16497	1872							
	75	90	19620	15971	1012	25380	20709	1190	23400	19130	1411	22140	18077	1552	21240	17375	1632	18720	17199	1824	17100	17024	1936							
	54	64	19920	18252	1250	22560	24336	1484	20880	22464	1749	19680	21294	1932	18960	20358	2016	17760	19188	2163	17100	18252	2247							
	57	68	19920	18252	1250	24240	24336	1484	22560	22698	1770	21120	21294	1963	20400	20992	2037	19860	19188	2184	18240	18486	2289							
7K+7K	61	72	19920	19422	1269	25920	24336	1504	24000	22698	1790	22560	21294	1974	21840	20992	2079	20400	19188	2228	19680	18486	2310							
	64	77	21360	20826	1289	27600	26442	1523	25440	24570	1811	24000	23166	1995	23040	22230	2099	21600	20826	2247	20640	19890	2331							
	66	81	22080	21528	1309	28560	27846	1543	26400	25740	1832	24960	24336	2016	24000	23400	2109	22560	21996	2247	21600	21060	2331							
	72	86	24480	21294	1309	31680	27612	1543	29280	25506	1832	27600	24102	2037	26640	23166	2121	24000	22464	2331	22320	21996	2457							
	75	90	26160	21294	1328	33840	27612	1562	31200	25506	1852	29520	24102	2037	28320	23166	2142	24960	22932	2394	22800	22698	2541							
	54	64	11620	10647	744	13160	14196	884	12180	13104	1041	11480	12422	1150	11060	11876	1210	10360	11193	1288	9940	10647	1338							
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	61	72	11620	11330	756	15120	14196	895	14040	13241	1066	13160	12422	1175	12740	12012	1238	11900	11193	1325	11480	10784	1375							
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	54	64	15770	14450	952	17860	19266	1131	16530	17784	1333	15580	16858	1472	15010	16117														

		INDOOR		OUTDOOR TEMPERATURE ("FDB)																											
		EWB	EDB	14				70				81				90				95				104				110			
		"F	"F	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	
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	61	72	19920	19422	1161	25920	24336	1375	24000	22696	1637	22560	21294	1805	21840	20592	1901	20400	19188	2035	19680	18486	2112								
	64	77	21060	20826	1178	27600	26442	1393	25440	24570	1656	24000	23166	1824	23040	22230	1901	21600	20268	2054	20640	19890	2131								
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	54	64	24960	22815	1488	30300	30420	1767	26100	26800	2083	24600	26818	2300	23700	24448	2400	22200	23885	2575	21300	22815	2675								
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	61	72	24960	24278	1511	32400	30420	1790	30000	28373	2132	28200	26818	2350	27300	25740	2475	25500	23885	2650	24600	23108	2775								
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	72	86	30600	26618	1558	39600	34515	1837	36600	31883	2181	34500	30128	2425	33300	28958	2525	30000	28080	2775	27900	27495	2925								
	75	90	32700	26618	1581	42300	34515	1860	39000	31883	2205	36600	30128	2425	35400	28958	2550	31200	28665	2850	28500	27378	3025								
	54	64	29880	27378	1667	33840	36504	1919	31320	33696	2332	29920	31941	2576	28440	30537	2688	26640	28762	2884	25560	27378	2996								
	57	68	29880	27378	1667	36360	36504	1919	33840	34047	2360	31680	31941	2604	30600	30888	2716	28440	28762	2912	27360	27729	3052								
	61	72	29880	29133	1693	38880	36504	2005	36000	34047	2387	33840	31941	2632	32760	30888	2772	30600	28762	2960	29520	27729	3080								
	64	77	32040	31239	1719	41400	39663	2031	38160	36855	2415	36000	34749	2660	34660	33345	2772	32400	31239	2996	30960	29835	3108								
	66	81	33120	32292	1745	42840	41769	2057	39600	38610	2442	37440	36504	2688	36000	35100	2800	33840	32994	2996	32400	31590	3108								
	72	86	36720	31941	1745	47520	41418	2057	43920	38259	2442	41400	36153	2716	39960	34749	2828	36000	33696	3108	33480	32994	3276								
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	57	68	29880	27378	1667	36360	36504	1919	33840	34047	2360	31680	31941	2604	30600	30888	2716	28440	28762	2912	27360	27729	3052								
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	INDOOR										OUTDOOR TEMPERATURE (°F/DW)																												
	FVB		EDB		14					70					81					90					95					104					110				
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	57	68	29880	27378	1667	36360	36504	1979	33840	34047	2360	31680	31941	2604	30600	30888	2716	28440	28782	2912	27600	27729	3052																
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	72	86	36720	31941	1745	42840	41418	2057	43920	38259	2442	41400	36153	2716	39960	34749	2828	36000	33696	3108	33480	32994	3276																

[illegible]

	INDOOR		OUTDOOR TEMPERATURE ("FDB)																																	
	EWB	EDB	14				70				81				90				95				104				110									
	"F	"F	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	
7K+9K+9K+12K	54	64	30710	28139	1667	34780	37518	1979	32190	34632	2332	30340	32828	2576	29230	31385	2688	27380	29582	2884	26270	28139	2996													
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7K+9K+9K+18K	54	64	37380	36446	2062	48300	46274	2437	44520	42998	2898	42000	40541	3192	40320	38903	3326	37800	36446	3595	36120	34808	3730													
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7K+9K+12K+12K	57	68	34860	31941	2000	42420	42588	2375	39480	39722	2832	36960	37265	3125	35700	36036	3259	33180	33579	3494	31920	32351	3662													
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7K+9K+18K+24K	54	64	34860	31941	2000	39480	42588	2375	35540	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595													
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	INDOOR										OUTDOOR TEMPERATURE (*FDBW)												
	FVB		EDB		14		70		81		90		95		104		110						
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9K+12K+12K+12K	54	64	34860	31941	2000	39480	42588	2375	36540	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595
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9K+12K+12K+24K	54	64	34860	31941	2000	39480	42588	2375	36540	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595
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	INDOOR										OUTDOOR TEMPERATURE (°FDW)																									
	EWB		EDB		14		70		81		90		95		104		110																			
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7K+9K+9K+9K+9K	54	64	34860	31941	2000	39480	42588	2375	35450	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595													
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7K+9K+9K+9K+12K	54	64	34860	31941	2000	39480	42588	2375	35450	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595													
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7K+9K+9K+12K+18K	54	64	34860	31941	2000	39480	42588	2375	35450	39312	2799	34440	37265	3091	33180	35627	3																			

	INDOOR					OUTDOOR TEMPERATURE (°FDW)																				
	EWB		EDB			14			70			81			90			95			104			110		
	°F	°F	TC	SHC		PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI		
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	72	86	42840	37265	2094	55440	48321	2469	51240	44636	2931	48300	42179	3259	46620	40541	3394	42000	39312	3730	39060	38493	3931			
	75	90	45780	37265	2125	59220	48321	2500	54600	44636	2964	51660	42179	3259	49560	40541	3427	43680	40131	3830	39900	39722	4066			
	75	90	45780	37265	2125	59220	48321	2500	54600	44636	2964	51660	42179	3259	49560	40541	3427	43680	40131	3830	39900	39722	4066			
12K+12K+12K+12K+12K	54	64	34860	31941	2000	39480	42588	2375	36540	39312	2799	34440	37265	3091	33180	35627	3226	31080	33579	3461	29820	31941	3595			
	57	68	34860	31941	2000	42420	42588	2375	39480	39722	2832	36960	37265	3125	35700	36036	3259	33180	33579	3494	31920	32351	3662			
	61	72	34860	33989	2031	45360	42588	2406	42000	39722	2865	39480	37265	3158	38220	36036	3326	35700	33579	3562	34440	32351	3696			
	64	77	37380	36446	2062	48300	46274	2437	44520	42998	2898	42000	40541	3192	40320	38903	3326	37800	36446	3595	36120	34808	3730			
	66	81	38640	37674	2094	49980	48731	2469	46200	45045	2931	43680	42588	3226	42000	40950	3360	39480	38493	3595	37800	36855	3730			
	72	86	42840	37265	2094	55440	48321	2469	51240	44636	2931	48300	42179	3259	46620	40541	3394	42000	39312	3730	39060	38493	3931			
	75	90	45780	37265	2125	59220	48321	2500	54600	44636	2964	51660	42179	3259	49560	40541	3427	43680	40131	3830	39900	39722	4066			
	75	90	45780	37265	2125	59220	48321	2500	54600	44636	2964	51660	42179	3259	49560	40541	3427	43680	40131	3830	39900	39722	4066			

EWB : Evaporator Wet Bulb temperature (°F)

TC : Total Capacity (Btu)

EDB : Evaporator Dry Bulb temperature (°F)

SHC : Sensible Heating Capacity (Btu)

(°FDB) : Outdoor Unit Inlet Air Dry Temperature (°F)

PI : Power Input (W)

HEATING [60Hz, 230V]

		INDOOR		OUTDOOR TEMPERATURE (*FDW)																											
		EDB	5			14			17			23			32			47			50			59							
			TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI					
7K	61	6226			575	6407		597	6589		581	7037		570	8066		584	9322		525	9416		527	9807		524					
	64	6086			600	6267		622	6412		620	6834		619	7842		637	9161		623	9262		630	9548		640					
	68	5946			625	6127		646	6236		660	6631		668	7618		690	9008		720	9108		733	9289		755					
	72	5806			649	5987		671	6059		699	6428		717	7394		742	8839		817	8954		836	9030		870					
	75	5666			674	5847		696	5882		738	6225		766	7170		795	8678		915	8800		939	8771		985					
9K	61	7944			801	8177		830	8391		819	8952		812	10267		834	11922		785	12048		792	12491		797					
	64	7804			825	8037		855	8214		858	8749		861	10043		886	11761		883	11894		895	12232		912					
	68	7664			850	7897		880	8037		898	8546		909	9819		939	11600		980	11740		998	11973		1027					
	72	7524			875	7757		905	7860		937	8343		958	9595		992	11439		1077	11586		1101	11714		1143					
	75	7384			900	7617		930	7684		976	8140		1007	9371		1044	11278		1175	11432		1203	11456		1258					
12K	61	10422			948	10730		983	10989		975	11715		969	13441		996	15672		955	15843		965	16361		975					
	64	10282			973	10590		1008	10812		1014	11512		1018	13217		1049	15512		1053	15689		1068	16102		1090					
	68	10142			998	10450		1033	10635		1053	11309		1067	12993		1102	15350		1150	15535		1171	15843		1206					
	72	10002			1023	10310		1057	10459		1093	11106		1116	12769		1154	15189		1247	15381		1274	15584		1321					
	75	9862			1047	10170		1082	10282		1132	10903		1165	12545		1207	15028		1345	15227		1377	15325		1436					
18K	61	13825			1642	14236		1701	14557		1708	15509		1712	17800		1763	20822		1755	21055		1780	21677		1814					
	64	13685			1667	14096		1726	14380		1747	15306		1761	17576		1816	20661		1853	20901		1863	21418		1929					
	68	13545			1692	13956		1751	14204		1786	15103		1810	17352		1868	20390		1950	20747		1985	21159		2044					
	72	13405			1717	13816		1776	14027		1826	14900		1859	17128		1921	20309		2047	20593		2088	21090		2160					
	75	13265			1741	13676		1800	13850		1865	14697		1908	16904		1973	20178		2145	20439		2191	20641		2275					
24K	61	18317			2033	18866		2105	19268		2120	20519		2129	23555		2194	27622		2205	27937		2238	28696		2286					
	64	18177			2058	18726		2130	19092		2159	20316		2178	23331		2247	27461		2303	27783		2341	28437		2401					
	68	18037			2082	18586		2155	18915		2199	20113		2227	23107		2299	27300		2400	27629		2444	28178		2516					
	72	17897			2107	18446		2180	18738		2238	19910		2276	22883		2352	27139		2497	27475		2546	27919		2631					
	75	17757			2132	18306		2205	18561		2277	19707		2325	22659		2405	26978		2595	27321		2649	27660		2747					
7K+7K	61	12173			1252	12534		1297	12825		1296	13667		1294	15684		1332	18322		1305	18525		1322	19097		1342					
	64	12033			1277	12394		1322	12648		1335	13464		1343	15460		1384	18161		1403	18371		1424	18838		1457					
	68	11893			1301	12254		1347	12471		1374	13261		1392	15236		1437	18000		1500	18217		1527	18579		1573					
	72	11753			1326	12114		1372	12295		1413	13058		1441	15012		1490	17839		1597	18063		1630	18320		1688					
	75	11613			1351	11974		1396	12118		1453	12855		1490	14788		1542	17698		1695	17909		1733	18061		1803					
7K+9K	61	13891			1469	14305		1522	14626		1525	15583		1526	17884		1571	20922		1555	21156		1576	21780		1604					
	64	13751			1494	14165		1547	14450		1564	15380		1575	16760		1624	20761		1653	21002		1679	21521		1720					
	68	13611			1518	14025		1571	14273		1603	15177		1624	17436		1677	20600		1750	20848		1782	21262		1835					
	72	13471			1543	13885		1596	14096		1642	14974		1673	17212		1729	20439		1847	20694		1885	21003		1950					
	75	13331			1568	13745		1621	13919		1682	14771		1722	16988		1782	20278		1945	20540		1987	20744		2065					
7K+12K	61	16368			1642	16588		1701	17225		1708	18345		1712	21059		1763	24672		1755	24952		1780	25651		1814					
	64	16228			1667	16718		1726	17048		1747	18142		1761	20835		1816	24511		1853	24798		1883	25392		1929					
	68	16088			1692	16578		1751	16871		1786	17939		1810	20611		1868	24350		1950	24644		1985	25133		2044					
	72	15948			1717	16438		1826	17736		1865	20387		1859	20387		1921	24189		2047	24490		2088	24874		2160					
	75	15808			1741	16298		1800	16518		1865	17533		1908	20163		1973	24028		2145	24336		2191	24615		2275					
7K+18K	61	19771			2033	20364		2105	20793		2120	22140		2129	25418		2194	29822		2205	30164		2238	30966		2286					
	64	19631			2058	20224		2130	20616		2159	21937		2178	25194		2247	29661		2303	30010		2341	30707		2401					
	68	19491			2082	20084		2155	20439		2199	21734		2227	24970		2299	29500		2400	29856		2444	30448		2516					
	72	19351			2107	19944		2180	20263		2238	21531		2276	24746		2352	29359		2497	29702		2546	30189		2631					
	75	19211			2132	19804		2205	20086		2277	21328		2325	24522		2405	29178		2595	29548		2649	29930		2747					
7K+24K	61	24264			2380	24993		2465	25504		2486	27149		2501	31173		2577	36622		2605	37046		2645	37985		2705					
	64	24124			2405	24853		2489	25327		2526	26946		2550	30949		2630	36461		2703	36892		2748	37726		2820					
	68	23984			2429	24713		2514	25151		2565	26743		2599	30725		2682	36300		2800	36738		2851	37467		2936					
	72	23844			2454	24573		2539	24974		2604	26540		2647	30501		2735	36139		2897	36584		2954	37208		3051					
	75	23704			2479	24433		2564	24797		2644	26337		2696	30277		2788	35978		2995	36430		3057	36949		3166					
9K+9K	61	15609			1642	16075		1701	16428		1708	17498		1712	20085		1763	23522		1755	23788		1780	24464		1814					
	64	15469			1667	15935		1726	16251		1747	17295		1761	19861		1816	23361		1853	23634		1883	24205		1929					
	68	15329			1692	15795		1751	16074		1786	17092		1810	19637		1868	23200		1950	23480		1985	23946		2044					
	72	15189			1717	15655		1780	15898		1826	16889		1859	19413		1921	23039		2047	23326		2088	23687		2160					
	75	15049			1741	15515		1800	15721		1865	16686		1908	19189		1973	22878		2145	23172		2191	23428		2275					
9K+12K	61	18086			1859	18628		1926	19026		1937	20261		1944	23259		2002	27272		2005	27583		2034	28334		2076					
	64	17946			1884	18488		1951	18849		1976	20058		1993	23055		2055	27111		2103	27429		2137	28075		2191					
	68	17806			1909	18348		1975	18672		2015	19855		2042	22811		2108	26950		2200	27275		2240	27816		2307					
	72	17666			1934	18208		2000	18496		2055	19652		2091	22587		2160	26789		2297	27121		2343	27557		2422					
	75	17526			1958	18068		2025	18319		2094	19449		2140	22363		2213	26628		2395	26967		2446	27298		2537					
9K+18K	61	21489			2206	22134		2285	22594		2303	24055		2315	27618		2386														

	INDOOR		OUTDOOR TEMPERATURE (*FDW)																													
	EDB	5				14				17				23				32				47				50						
		TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	
24K+24K	61	31512	4097	35031	4331	37268	4422	38978	4422	38978	4422	38978	4422	4345	43099	4222	48552	4582	47448	4580	49583	3914	50639	4035	54518	4227	4212	54074	4425	4227	4227	
	64	31272	4139	34791	4374	36965	4490	38630	4429	42715	4312	48276	4080	50375	4212	54074	4425	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	
	68	31032	4182	34551	4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	
	72	30792	4224	34311	4459	36359	4624	37934	4597	41947	4492	47724	4414	49847	4564	53186	4820	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	
	75	30552	4267	34071	4501	36056	4692	37586	4680	41563	4582	47448	4580	49583	4740	52742	5017	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	4227	
7K+7K+7K	61	18119	1859	18662	1926	19061	1937	20298	1944	23302	2002	27322	2005	27633	2034	28386	2076	2002	27322	2005	27633	2034	28386	2076	2002	27322	2005	27633	2034	28386	2076	2002
	64	17979	1884	18522	1951	18884	1976	20095	1993	23078	2055	27161	2103	27479	2137	28127	2191	2055	27161	2103	27479	2137	28127	2191	2055	27161	2103	27479	2137	28127	2191	2055
	68	17839	1909	18382	1975	18707	2015	19892	2042	22854	2108	27000	2200	27325	2240	27868	2307	2108	27000	2200	27325	2240	27868	2307	2108	27000	2200	27325	2240	27868	2307	2108
	72	17699	1934	18242	2000	18530	2065	19689	2091	22630	2160	26839	2297	27171	2343	27609	2422	2160	26839	2297	27171	2343	27609	2422	2160	26839	2297	27171	2343	27609	2422	2160
	75	17559	1958	18102	2025	18354	2094	19486	2140	22406	2213	26678	2395	27017	2446	27350	2537	2213	26678	2395	27017	2446	27350	2537	2213	26678	2395	27017	2446	27350	2537	2213
7K+7K+9K	61	19837	2033	20432	2105	20862	2120	22213	2129	25502	2194	29922	2205	30265	2238	31069	2286	2194	29922	2205	30265	2238	31069	2286	2194	29922	2205	30265	2238	31069	2286	2194
	64	19697	2058	20292	2130	20685	2159	22010	2178	25278	2247	29761	2203	30111	2241	30810	2401	2247	29761	2203	30111	2241	30810	2401	2247	29761	2203	30111	2241	30810	2401	2247
	68	19557	2082	20152	2155	20509	2199	21807	2227	25054	2299	29600	2400	29957	2444	30551	2516	2299	29600	2400	29957	2444	30551	2516	2299	29600	2400	29957	2444	30551	2516	2299
	72	19417	2107	20012	2180	20332	2238	21604	2276	24830	2352	29439	2497	29803	2546	30292	2631	2352	29439	2497	29803	2546	30292	2631	2352	29439	2497	29803	2546	30292	2631	2352
	75	19277	2132	19872	2205	20155	2277	21401	2325	24606	2405	29278	2595	29649	2649	30033	2747	2405	29278	2595	29649	2649	30033	2747	2405	29278	2595	29649	2649	30033	2747	2405
7K+7K+12K	61	22315	2206	22985	2285	23460	2303	24976	2315	28676	2386	33672	2405	34060	2442	34940	2495	2386	33672	2405	34060	2442	34940	2495	2386	33672	2405	34060	2442	34940	2495	2386
	64	22175	2231	22845	2310	23284	2342	24773	2364	28452	2438	33511	2503	33906	2544	34681	2611	2438	33511	2503	33906	2544	34681	2611	2438	33511	2503	33906	2544	34681	2611	2438
	68	22035	2256	22705	2335	23107	2382	24570	2413	28228	2491	33350	2600	33752	2647	34422	2726	2491	33350	2600	33752	2647	34422	2726	2491	33350	2600	33752	2647	34422	2726	2491
	72	21895	2281	22565	2359	22930	2421	24367	2462	28004	2544	33189	2697	33598	2750	34163	2841	2544	33189	2697	33598	2750	34163	2841	2544	33189	2697	33598	2750	34163	2841	2544
	75	21755	2305	22425	2384	22753	2460	24164	2511	27780	2596	33028	2795	33444	2853	33904	2956	2596	33028	2795	33444	2853	33904	2956	2596	33028	2795	33444	2853	33904	2956	2596
7K+7K+18K	61	25717	2900	26491	3003	27028	3036	28770	3057	33035	3152	38822	3205	39272	3256	40256	3334	3057	33035	3152	38822	3205	39272	3256	40256	3334	3057	33035	3152	38822	3205	39272
	64	25577	2925	26351	3028	26852	3075	28567	3106	32811	3205	38661	3303	39118	3359	39997	3449	3205	38661	3303	39118	3359	39997	3449	3205	38661	3303	39118	3359	39997	3449	3205
	68	25437	2950	26211	3053	26675	3115	28364	3155	32587	3257	38500	3400	38964	3462	39738	3565	3257	38500	3400	38964	3462	39738	3565	3257	38500	3400	38964	3462	39738	3565	3257
	72	25297	2975	26071	3078	26498	3154	28161	3204	32363	3310	38339	3497	38810	3565	39479	3680	3310	38339	3497	38810	3565	39479	3680	3310	38339	3497	38810	3565	39479	3680	3310
	75	25157	3000	25931	3102	26321	3193	27958	3253	32139	3363	38178	3595	38656	3667	39220	3795	3253	32139	3363	38178	3595	38656	3667	39220	3795	3253	32139	3363	38178	3595	38656
7K+7K+24K	61	30210	3334	31120	3452	31740	3494	33780	3522	38791	3631	45622	3705	46154	3765	47274	3858	3522	38791	3631	45622	3705	46154	3765	47274	3858	3522	38791	3631	45622	3705	46154
	64	30070	3359	30980	3477	31563	3533	33577	3570	38567	3684	45461	3803	46000	3868	47015	3974	3684	45461	3803	46000	3868	47015	3974	3684	45461	3803	46000	3868	47015	3974	3684
	68	29930	3384	30840	3502	31386	3573	33374	3619	38343	3736	45300	3900	45846	3971	46756	4089	3736	45300	3900	45846	3971	46756	4089	3736	45300	3900	45846	3971	46756	4089	3736
	72	29790	3409	30700	3527	31210	3612	33171	3668	38119	3789	45139	3997	45692	4074	46497	4204	3789	45139	3997	45692	4074	46497	4204	3789	45139	3997	45692	4074	46497	4204	3789
	75	29650	3433	30560	3551	31033	3651	32968	3717	37895	3842	44978	4095	45538	4177	46238	4319	3842	44978	4095	45538	4177	46238	4319	3842	44978	4095	45538	4177	46238	4319	3842
7K+9K+9K	61	21555	2206	22202	2285	22663	2303	24129	2315	27703	2386	32522	2405	32896	2442	33753	2495	2386	32522	2405	32896	2442	33753	2495	2386	32522	2405	32896	2442	33753	2495	2386
	64	21415	2231	22062	2310	22487	2342	23926	2364	27479	2438	32361	2503	32742	2544	33494	2611	2438	32361	2503	32742	2544	33494	2611	2438	32361	2503	32742	2544	33494	2611	2438
	68	21275	2256	21922	2335	22310	2382	23723	2413	27255	2491	32200	2600	32588	2647	33235	2726	2491	32200	2600	32588	2647	33235	2726	2491	32200	2600	32588	2647	33235	2726	2491
	72	21135	2281	21782	2359	22133	2421	23520	2462	27031	2544	32039	2697	32434	2750	32976	2841	2544	32039	2697	32434	2750	32976	2841	2544	32039	2697	32434	2750	32976	2841	2544
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9K+12K+18K	61	31512			4097			4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227								
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12K+12K+18K	61	31512			4097			4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227								
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12K+18K+18K	61	31512			4097			4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227								
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	INDOOR				OUTDOOR TEMPERATURE (*FDW)																							
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9K+9K+9K+24K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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	64	31272			4139	34791		4374	36965		4490	38630		4429	42715		4312	48276		4080	50375		4212	54074		4425		
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9K+9K+18K+24K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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9K+12K+12K+12K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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9K+12K+12K+24K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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12K+12K+12K+12K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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12K+12K+12K+24K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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12K+12K+18K+18K	61	31512			4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227		
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	INDOOR				OUTDOOR TEMPERATURE ("FDW)																				
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	64	31272		4139	34791		4374	36965		4490	38630		4429	42715		4312	48276		4080	50375		4212	54074		4425
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7K+7K+7K+9K+12K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
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7K+7K+7K+9K+18K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
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7K+7K+9K+9K+18K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
	64	31272		4139	34791		4374	36965		4490	38630		4429	42715		4312	48276		4080	50375		4212	54074		4425
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7K+7K+9K+12K+12K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
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7K+7K+9K+12K+18K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
	64	31272		4139	34791		4374	36965		4490	38630		4429	42715		4312	48276		4080	50375		4212	54074		4425
	68	31032	4182	34551		4416	36662	4557	38282		4513	42331		4402	48000	4247	50111		4388	53630		4422	54074		4425
	72	30792		4224	34311		4459	36359		4624	37934		4597	41947		4492	47724		4414	49847		4564	53186		4820
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7K+9K+9K+9K+9K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
	64	31272		4139	34791		4374	36965		4490	38630		4429	42715		4312	48276		4080	50375		4212	54074		4425
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7K+9K+9K+9K+12K	61	31512		4097	35031		4331	37268		4422	38978		4345	43099		4222	48552		3914	50639		4035	54518		4227
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	INDOOR		OUTDOOR TEMPERATURE (°FDB)																														
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7K+9K+9K+9K+18K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
	72	30792			4224	34311	4459	36359	4624	37934	4597	41947	4492	47724			4414	49847	4564	53186	4820												
	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
7K+9K+9K+9K+24K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
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7K+9K+9K+12K+12K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
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7K+9K+12K+12K+12K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
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7K+9K+9K+9K+9K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
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	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
9K+9K+9K+9K+12K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
	72	30792			4224	34311	4459	36359	4624	37934	4597	41947	4492	47724			4414	49847	4564	53186	4820												
	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
9K+9K+9K+9K+18K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
	72	30792			4224	34311	4459	36359	4624	37934	4597	41947	4492	47724			4414	49847	4564	53186	4820												
	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
9K+9K+9K+9K+24K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
	72	30792			4224	34311	4459	36359	4624	37934	4597	41947	4492	47724			4414	49847	4564	53186	4820												
	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
9K+9K+12K+12K+12K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272			4139	34791	4374	36965	4490	38630	4429	42715	4312	48276			4080	50375	4212	54074	4425												
	68	31032	4182	34551			4416	36662	4557	38282	4513	42331	4402	48000	4247	50111	4388	53630	4622														
	72	30792			4224	34311	4459	36359	4624	37934	4597	41947	4492	47724			4414	49847	4564	53186	4820												
	75	30552			4267	34071	4501	36056	4692	37586	4680	41563	4582	47448			4580	49583	4740	52742	5017												
9K+9K+12K+12K+18K	61	31512			4097	35031	4331	37268	4422	38978	4345	43099	4222	48552			3914	50639	4035	54518	4227												
	64	31272		</																													

3.3. CORRECTION FACTORS ACCORDING TO PIPING LENGTH

Correction Factor for **Cooling Capacity** according to Piping Length

The cooling capacity should be corrected according to the following formula:

$$CCA = CC \times F$$

CCA: Actual Corrected Cooling Capacity (kcal/h)

CC: Cooling Capacity in the Performance Table (kcal/h)

F: Correction Factor Based on the Equivalent Piping Length

Correction Factor for **Heating Capacity** according to Piping Length

The heating capacity should be corrected according to the following formula:

$$HCA = HC \times F$$

HCA: Actual Corrected Heating Capacity (kcal/h)

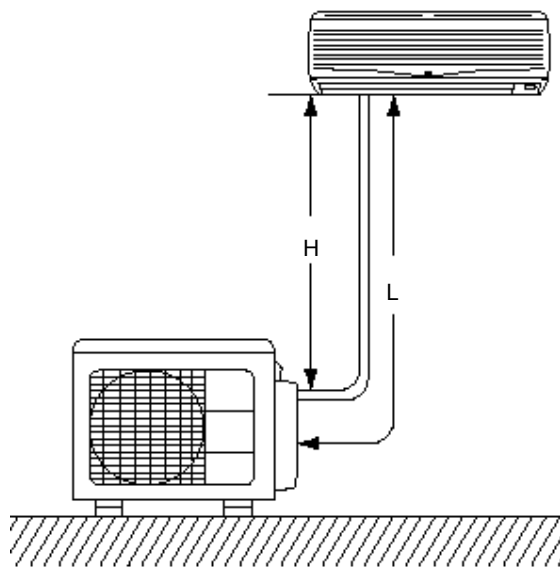
HC: Heating Capacity in the Performance Table (kcal/h)

F: Correction Factor Based on the Equivalent Piping Length

The correction factors are shown in the following figure.

Equivalent Piping Length for:

- One 90° Elbow is 0.5m.
- One 180° Curve is 1.5m.



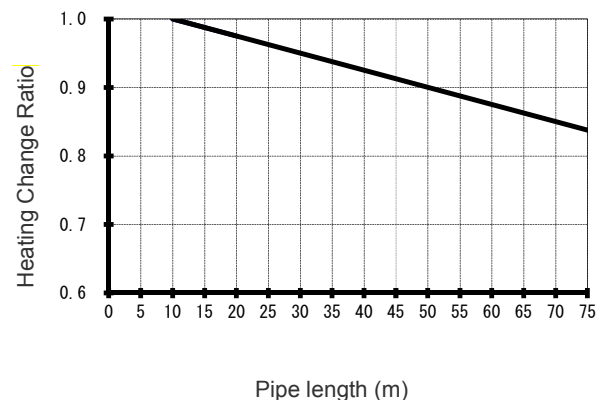
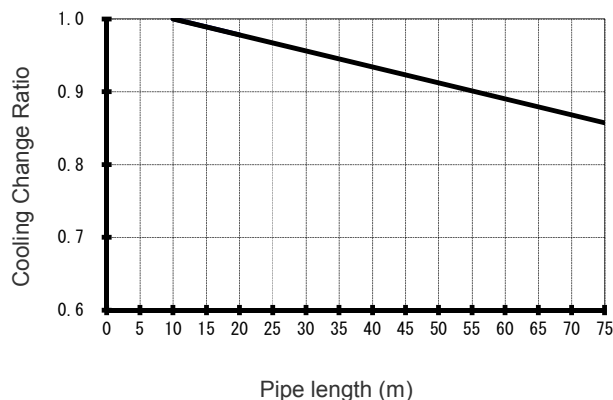
H: Vertical Distance Between Indoor Unit and Outdoor Units in Meters

L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit in Meters

EL: Equivalent Total Distance Between Indoor Unit and Outdoor Unit in Meters (Equivalent One-Way Piping Length)

Model Multi Outdoor 42000 BTU/h

RAM-S42U5HLAE



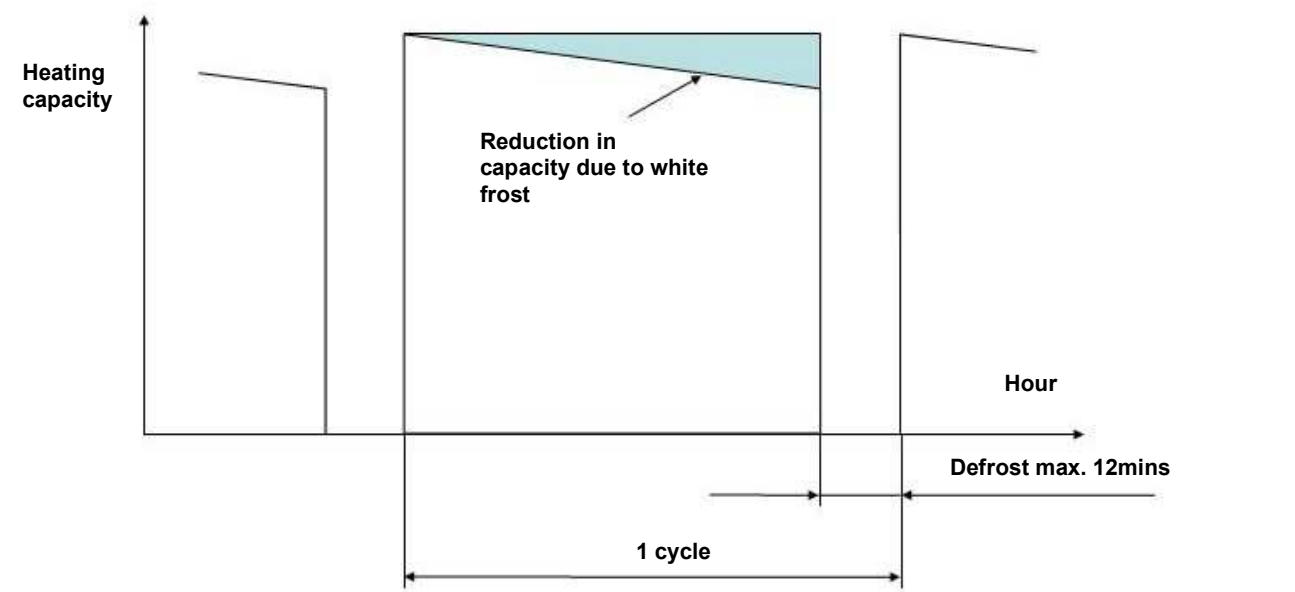
3.4. CORRECTION FACTORS ACCORDING TO DEFROSTING OPERATION

The heating capacity in the preceding paragraph, excludes the condition of the frost or the defrosting operation period. In consideration of the frost or the defrosting operation, the heating capacity is corrected by the equation below.

Corrected heating capacity = Defrost Correction factor x unit capacity

OUTDOOR TEMPERATURE (°CDB)	-15	-10	-7	-5	0	7	10	15
Correction factor (humidity rate85% RH)	0.95	0.95	0.89	0.85	0.81	1.0	1.0	1.0

Correction Factor



NOTE:
The correction factor is not valid for special conditions such as snowfall or operation in a transitional period.

3.5. COMBINATION TABLE FOR MULTIZONE OUTDOOR

Whichever indoor units are installed, cooling and heating capacity depends on how many and which indoor units are operating at that time.

5 ROOM MULTI-SPLIT INVERTER TYPE RAC : RAM-S42U5HLAE POSSIBLE COMBINATION TO OPERATE (SAME TIME OPERATION)

(Reference value)

POSSIBLE COMBINATIONS TO OPERATE			COOLING				HEATING				
			CAPACITY RATING(Btu) (RANGE)	OUTDOOR UNIT		EER	CAPACITY RATING(Btu) (RANGE)	OUTDOOR UNIT		EER	
				TOTAL	CONSUMPTION (W)			AMPERE(A)at 208 - 230	TOTAL		CONSUMPTION (W)
ONE UNIT	7K	7K	7000 (3050-8500)	7000	450 (280-500)	2.16 - 1.96	15.6	9000 (3050-10900)	720 (320-1130)	3.46 - 3.13	12.5
	9K	9K	9000 (3050-10200)	9000	650 (280-720)	3.13 - 2.83	13.8	11600 (3050-15000)	980 (320-1480)	4.71 - 4.26	11.8
	12K	12K	12000 (3050-13650)	12000	1030 (280-1130)	4.95 - 4.48	11.7	15350 (3050-18000)	1150 (320-1950)	5.53 - 5.00	13.3
	18K	18K	18000 (3050-17750)	18000	1600 (280-2200)	7.69 - 6.96	11.3	20500 (3050-23200)	1950 (460-2100)	9.38 - 8.48	10.5
	24K	24K	24000 (4100-25600)	24000	2100 (280-2500)	10.10 - 9.13	11.4	27300 (4100-30600)	2400 (460-2800)	11.54 - 10.43	11.4
TWO UNIT	14K	7K+7K	7000+7000 (7000-17000)	14000	1250 (460-1800)	6.01 - 5.43	11.2	9000+9000 (9000-21800)	1500 (390-1800)	7.21 - 6.52	12.0
	16K	7K+9K	7000+9000 (7000-18700)	16000	1450 (460-2000)	6.97 - 6.30	11.0	9000+11600 (9000-25900)	1750 (390-2000)	8.41 - 7.61	11.8
	19K	7K+12K	7000+12000 (7000-22150)	19000	1600 (460-2200)	7.69 - 6.96	11.9	9000+15350 (9000-28900)	1950 (460-2100)	9.38 - 8.48	12.5
	25K	7K+18K	7000+18000 (7000-26250)	25000	1920 (460-3050)	9.23 - 8.35	13.0	9000+20500 (9000-34100)	2400 (460-3200)	11.54 - 10.43	12.3
	31K	7K+24K	7000+24000 (7000-34100)	31000	2500 (460-3800)	10.02 - 10.87	12.4	9000+27300 (9000-41500)	2800 (460-3600)	13.46 - 12.17	13.0
	18K	9K+9K	9000+9000 (7000-20400)	18000	1600 (460-2200)	7.69 - 6.96	11.3	11600+11600 (9000-30000)	1950 (460-2100)	9.38 - 8.48	11.9
	21K	9K+12K	9000+12000 (7000-23850)	21000	1700 (460-2400)	8.17 - 7.39	12.4	11600+15350 (9000-33000)	2200 (460-3000)	10.58 - 9.57	12.3
	27K	9K+18K	9000+18000 (7000-27950)	27000	2400 (460-3600)	11.54 - 10.43	11.3	11600+20500 (9000-38200)	2600 (460-3400)	12.50 - 11.30	12.3
	33K	9K+24K	9000+24000 (7000-35800)	33000	2800 (460-4000)	12.50 - 11.30	12.7	11600+27300 (9000-45600)	3400 (460-4500)	16.35 - 14.78	11.4
	24K	12K+12K	12000+12000 (7000-27300)	24000	1920 (460-3050)	9.23 - 8.35	12.5	15350+15350 (9000-36000)	2400 (460-3200)	11.54 - 10.43	12.8
	30K	12K+18K	12000+18000 (7000-31400)	30000	2500 (460-3800)	12.02 - 10.87	12.0	15350+20500 (9000-41200)	2800 (460-3600)	13.46 - 12.17	12.8
	36K	12K+24K	12000+24000 (7000-39250)	36000	2800 (460-4200)	13.46 - 12.17	12.9	15350+27300 (9000-48600)	3600 (460-4700)	17.31 - 15.65	11.8
	36K	18K+18K	18000+18000 (7000-35500)	36000	2800 (460-4200)	13.46 - 12.17	12.9	20500+20500 (9000-46400)	3600 (460-4700)	17.31 - 15.65	11.4
	42K	18K+24K	18000+24000 (7000-43350)	42000	3360 (460-5410)	16.15 - 14.61	12.5	20500+27300 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	48K	24K+24K	21000+21000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.5	24000+24000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
THREE UNIT	21K	7K+7K+7K	7000+7000+7000 (7000-25500)	21000	1700 (460-2400)	8.17 - 7.39	12.4	9000+9000+9000 (9000-32700)	2200 (460-3000)	10.58 - 9.57	12.3
	23K	7K+7K+9K	7000+7000+9000 (7000-27200)	23000	1920 (460-3050)	9.23 - 8.35	12.0	9000+9000+11600 (9000-36800)	2400 (460-3200)	11.54 - 10.43	12.3
	26K	7K+7K+12K	7000+7000+12000 (7000-30650)	26000	2400 (460-3600)	11.54 - 10.53	10.8	9000+9000+15350 (9000-39800)	2600 (460-3400)	12.50 - 11.30	12.8
	32K	7K+7K+18K	7000+7000+18000 (7000-34750)	32000	2800 (460-4000)	12.50 - 11.30	12.3	9000+9000+20500 (9000-45000)	3400 (460-4500)	16.35 - 14.78	11.3
	38K	7K+7K+24K	7000+7000+24000 (7000-42600)	38000	2900 (460-4400)	13.94 - 12.61	13.1	9000+9000+27300 (9000-51000)	3900 (460-5000)	18.75 - 16.96	11.6
	25K	7K+9K+9K	7000+9000+9000 (7000-28900)	25000	1920 (460-3050)	9.23 - 8.35	13.0	9000+11600+11600 (9000-40900)	2600 (460-3400)	12.50 - 11.30	12.4
	28K	7K+9K+12K	7000+9000+12000 (7000-32350)	28000	2400 (460-3600)	11.54 - 10.43	11.7	9000+11600+15350 (9000-43900)	2800 (460-3600)	13.46 - 12.17	12.8
	34K	7K+9K+18K	7000+9000+18000 (7000-36450)	34000	2600 (460-4000)	12.50 - 11.30	13.1	9000+11600+20500 (9000-49100)	3600 (460-4700)	17.31 - 15.65	11.4
	40K	7K+9K+24K	7000+9000+24000 (7000-44300)	40000	2900 (460-4400)	13.94 - 12.61	13.8	9000+11600+27300 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	31K	7K+12K+12K	7000+12000+12000 (7000-35800)	31000	2500 (460-3800)	12.02 - 10.87	12.4	9000+15350+15350 (9000-46900)	3400 (460-4500)	16.35 - 14.78	11.7
	37K	7K+12K+18K	7000+12000+18000 (7000-39900)	37000	2800 (460-4200)	13.46 - 12.17	13.2	9000+15350+20500 (9000-51000)	3900 (460-5000)	18.75 - 16.96	11.5
	43K	7K+12K+24K	7000+11500+23500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.8	8500+14000+25500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	43K	7K+18K+18K	7000+17500+17500 (7000-44000)	42000	3360 (460-5410)	16.15 - 14.61	12.8	8500+19750+19750 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	49K	7K+18K+24K	7000+15000+20000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.6	8000+17000+23000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	55K	7K+24K+24K	7000+17500+17500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.4	7000+20500+20500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	27K	9K+9K+9K	9000+9000+9000 (7000-30600)	27000	2400 (460-3600)	11.54 - 10.43	11.3	11600+11600+11600 (9000-45000)	2800 (460-3600)	13.46 - 12.17	12.4
	30K	9K+9K+12K	9000+9000+12000 (7000-34050)	30000	2500 (460-3800)	12.02 - 10.87	12.0	11600+11600+15350 (9000-48000)	3400 (460-4500)	16.35 - 14.78	11.3
	36K	9K+9K+18K	9000+9000+18000 (7000-38150)	36000	2800 (460-4200)	13.46 - 12.17	12.9	11600+11600+20500 (9000-51000)	3900 (460-5000)	18.75 - 16.96	11.2
	42K	9K+9K+24K	9000+9000+24000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.5	11000+11000+26000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	33K	9K+12K+12K	9000+12000+12000 (7000-37500)	33000	2600 (460-4000)	12.50 - 11.30	12.7	11600+15350+15350 (9000-51000)	3600 (460-4700)	17.31 - 15.65	11.8
	39K	9K+12K+18K	9000+12000+18000 (7000-41600)	39000	2900 (460-4400)	13.94 - 12.61	13.4	11600+15350+20500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.2
	45K	9K+12K+24K	8500+11000+22500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.4	11000+13500+23500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	36K	12K+12K+12K	12000+12000+12000 (7000-40950)	36000	2800 (460-4200)	13.46 - 12.17	12.9	15350+15350+15350 (9000-51000)	3900 (460-5000)	18.75 - 16.96	11.8
	42K	12K+12K+18K	12000+12000+18000 (7000-45050)	42000	3360 (460-5410)	16.15 - 14.61	12.5	14500+14500+19000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	48K	12K+12K+24K	10500+10500+21000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.3	13000+13000+22000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	48K	12K+18K+18K	11000+15500+15500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.3	13000+17500+17500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	54K	12K+18K+24K	10000+14000+18000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	13000+15000+20000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	60K	12K+24K+24K	8000+17000+17000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	11000+18500+18500 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	54K	18K+18K+18K	14000+14000+14000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	16000+16000+16000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3
	60K	18K+18K+24K	13000+13000+16000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	15000+15000+18000 (9000-51000)	4247 (460-5480)	20.42 - 18.47	11.3

FOUR UNIT	28K	7K+7K+7K+7K	7000+7000+7000+7000 (7000-34000)	28000	2400 (460-3600)	11.54 - 10.43	11.7	9000+9000+9000+9000 (9000-43600)	36000	2800 (460-3600)	13.46 - 12.17	12.9
	30K	7K+7K+7K+9K	7000+7000+7000+9000 (7000-35700)	30000	2500 (460-3800)	12.02 - 10.87	12.0	9000+9000+9000+11600 (9000-47700)	38600	3400 (460-4500)	16.35 - 14.78	11.4
	33K	7K+7K+7K+12K	7000+7000+7000+12000 (7000-39150)	33000	2600 (460-4000)	12.50 - 11.30	12.7	9000+9000+9000+15350 (9000-50700)	42350	3600 (460-4700)	17.31 - 15.65	11.8
	39K	7K+7K+7K+18K	7000+7000+7000+18000 (7000-43250)	39000	2900 (460-4400)	13.94 - 12.61	13.4	9000+9000+9000+20500 (9000-51000)	47500	4247 (460-5480)	20.42 - 18.47	11.2
	45K	7K+7K+7K+24K	6500+6500+6500+22500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.4	8000+8000+8000+24000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	32K	7K+7K+9K+9K	7000+7000+9000+9000 (7000-37400)	32000	2600 (460-4000)	12.50 - 11.30	12.3	9000+9000+11600+11600 (9000-51000)	41200	3600 (460-4700)	17.31 - 15.65	11.4
	35K	7K+7K+9K+12K	7000+7000+9000+12000 (7000-40850)	35000	2800 (460-4200)	13.46 - 12.17	12.5	9000+9000+11600+15350 (9000-51000)	44950	3900 (460-5000)	18.75 - 16.96	11.5
	41K	7K+7K+9K+18K	7000+7000+9000+18000 (7000-44950)	41000	3360 (460-5410)	16.15 - 14.61	12.2	8750+8750+11000+19500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	47K	7K+7K+9K+24K	6500+6500+8000+21000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.0	8000+8000+10000+22000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	38K	7K+7K+12K+12K	7000+7000+12000+12000 (7000-44300)	38000	2900 (460-4400)	13.94 - 12.61	13.1	9000+9000+15000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	44K	7K+7K+12K+18K	7000+7000+11500+16500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.1	8000+8000+14000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	50K	7K+7K+12K+24K	6500+6500+10000+19000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.9	7000+7000+12000+22000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	50K	7K+7K+18K+18K	6500+6500+14500+14500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.9	7000+7000+17000+17000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	56K	7K+7K+18K+24K	6500+6500+13000+16000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.7	7000+7000+17000+17000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	34K	7K+9K+9K+9K	7000+9000+9000+9000 (7000-39100)	34000	2600 (460-4000)	12.50 - 11.30	13.1	9000+11600+11600+11600 (9000-51000)	43800	3900 (460-5000)	18.75 - 16.96	11.2
	37K	7K+9K+9K+12K	7000+9000+9000+12000 (7000-42550)	37000	2800 (460-4200)	13.46 - 12.17	13.2	9000+11600+11600+15350 (9000-51000)	47550	4247 (460-5480)	20.42 - 18.47	11.2
	43K	7K+9K+9K+18K	7000+8800+8800+17400 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.8	8500+11000+11000+17500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	49K	7K+9K+9K+24K	7000+8000+8000+19000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.6	7500+10000+10000+20500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	40K	7K+9K+12K+12K	7000+9000+12000+12000 (7000-46000)	40000	2900 (460-4400)	13.94 - 12.61	13.8	8500+10900+14300+14300 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	46K	7K+9K+12K+18K	7000+8500+11000+15500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.7	8000+10000+13000+17000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	52K	7K+9K+12K+24K	6500+7500+10000+18000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.5	7000+9000+12000+20000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	52K	7K+9K+18K+18K	6500+7500+14000+14000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.5	7000+9000+16000+16000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	58K	7K+9K+18K+24K	6500+7500+15000+19000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.3	7000+9000+14000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	43K	7K+12K+12K+12K	6900+11700+11700+11700 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.8	7800+13400+13400+13400 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	49K	7K+12K+12K+18K	6500+11000+11000+13500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.6	7000+12500+12500+16000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	55K	7K+12K+12K+24K	6500+9000+9000+17500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.4	6000+11500+11500+19000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	55K	7K+12K+18K+18K	6500+9500+13000+13000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.4	6000+12000+15000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	36K	9K+9K+9K+9K	9000+9000+9000+9000 (7000-40800)	36000	2800 (460-4200)	13.46 - 12.17	12.9	11600+11600+11600+11600 (9000-51000)	46400	3900 (460-5000)	18.75 - 16.96	11.9
	39K	9K+9K+9K+12K	9000+9000+9000+12000 (7000-44250)	39000	2900 (460-4400)	13.94 - 12.61	13.4	11400+11400+11400+13800 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	45K	9K+9K+9K+18K	8500+8500+8500+16500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.4	10500+10500+10500+16500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	51K	9K+9K+9K+24K	8000+8000+8000+18000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.2	9000+9000+9000+21000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	42K	9K+9K+12K+12K	9000+9000+12000+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.5	10500+10500+13500+13500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	48K	9K+9K+12K+18K	8000+8000+10500+15500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.3	10000+10000+12500+15500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	54K	9K+9K+12K+24K	7500+7500+9000+18000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	9000+9000+11000+19000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	54K	9K+9K+18K+18K	7500+7500+13500+13500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	9000+9000+15000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	9K+9K+18K+24K	7000+7000+12000+16000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	8000+8000+14000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	45K	9K+12K+12K+12K	8700+11100+11100+11100 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.4	9900+12700+12700+12700 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	51K	9K+12K+12K+18K	8000+10000+10000+14000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.2	9000+12000+12000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	57K	9K+12K+12K+24K	7000+9000+9000+17000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.0	8000+11000+11000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	57K	9K+12K+18K+18K	7000+9000+13000+13000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.0	8000+11000+14500+14500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	48K	12K+12K+12K+12K	10500+10500+10500+10500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.3	12000+12000+12000+12000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	54K	12K+12K+12K+18K	10000+10000+10000+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	11000+11000+11000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	12K+12K+12K+24K	9000+9000+9000+15000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	10000+10000+10000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	12K+12K+18K+18K	9000+9000+12000+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	10000+10000+14000+14000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
FIVE UNIT	35K	7K+7K+7K+7K+7K	7000+7000+7000+7000+7000 (7000-42500)	35000	2800 (460-4200)	13.46 - 12.17	12.5	9000+9000+9000+9000+9000 (9000-51000)	45000	3900 (460-5000)	18.75 - 16.96	11.5
	37K	7K+7K+7K+7K+9K	7000+7000+7000+7000+9000 (7000-44200)	37000	2800 (460-4200)	13.46 - 12.17	13.2	9000+9000+9000+9000+11600 (9000-51000)	47600	4247 (460-5480)	20.42 - 18.47	11.2
	40K	7K+7K+7K+7K+12K	7									

FIVE UNIT	56K	7K+7K+9K+9K+24K	5500+5500+7000+7000+17000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.7	6000+6000+8000+8000+20000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	47K	7K+7K+9K+12K+12K	6500+6500+8000+10500+10500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.0	7000+7000+9000+12500+12500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	53K	7K+7K+9K+12K+18K	6000+6000+7500+9500+13000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.8	6000+6000+8000+12000+16000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	59K	7K+7K+9K+12K+24K	5500+5500+6500+8000+16500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.6	5500+5500+7000+11000+19000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	59K	7K+7K+9K+18K+18K	5500+5500+7000+12000+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.6	5500+5500+7000+15000+15000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	50K	7K+7K+12K+12K+12K	6000+6000+10000+10000+10000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.9	7500+7500+11000+11000+11000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	56K	7K+7K+12K+12K+18K	5500+5500+9000+9000+13000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.7	6500+6500+10500+10500+13000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	43K	7K+9K+9K+9K+9K	6800+8800+8800+8800+8800 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	12.8	8000+10000+10000+10000+10000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	46K	7K+9K+9K+9K+12K	6600+8300+8300+8300+10500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.7	7500+9500+9500+9500+12000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	52K	7K+9K+9K+9K+18K	6000+7000+7000+7000+15000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.5	7000+9000+9000+9000+14000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	58K	7K+9K+9K+9K+24K	5000+6500+6500+6500+17500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.3	6000+8000+8000+8000+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	49K	7K+9K+9K+12K+12K	6600+8000+8000+9700+9700 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.6	7000+9000+9000+11500+11500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	55K	7K+9K+9K+12K+18K	6000+7000+7000+9000+13000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.4	6500+8500+8500+11000+13500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	52K	7K+9K+12K+12K+12K	6000+7500+9500+9500+9500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.5	6500+8500+11000+11000+11000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	58K	7K+9K+12K+12K+18K	6000+7000+8500+8500+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.3	6000+8000+10500+10500+13000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	55K	7K+12K+12K+12K+12K	6000+8000+8800+8800+8000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.4	7000+10250+10250+10250+10250 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	45K	9K+9K+9K+9K+9K	8400+8400+8400+8400+8400 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	13.4	9600+9600+9600+9600+9600 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	48K	9K+9K+9K+9K+12K	8000+8000+8000+8000+10000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	14.3	9000+9000+9000+9000+12000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	54K	9K+9K+9K+9K+18K	7000+7000+7000+7000+14000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	8500+8500+8500+8500+14000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	9K+9K+9K+9K+24K	6000+6000+6000+6000+18000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	7500+7500+7500+7500+18000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	51K	9K+9K+9K+12K+12K	7400+7400+7400+9900+9900 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	15.2	8500+8500+8500+11250+11250 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	57K	9K+9K+9K+12K+18K	7000+7000+7000+9000+14000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.0	8000+8000+8000+10500+13500 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	54K	9K+9K+12K+12K+12K	7500+7500+9000+9000+9000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	16.1	7500+7500+11000+11000+11000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	9K+9K+12K+12K+18K	6500+6500+8500+8500+12000 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.9	7000+7000+10000+10000+14000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	57K	9K+12K+12K+12K+12K	8000+8500+8500+8500+8500 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.0	8000+10000+10000+10000+10000 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3
	60K	12K+12K+12K+12K+12K	8400+8400+8400+8400+8400 (7000-46000)	42000	3360 (460-5410)	16.15 - 14.61	17.0	9600+9600+9600+9600+9600 (9000-51000)	48000	4247 (460-5480)	20.42 - 18.47	11.3

- * TWO INDOOR UNITS SHOULD BE CONNECTED AT LEAST.
- * TOTAL NOMINAL COOLING CAPACITY SHOULD NOT BE MORE THAN 60K Btu.
- * Three RAS-SH18RHLAE and five RAS-SH12RHLAE are not allowed to be connected.

<REMARKS>

- * ONE UNIT INDICATED ARE ONLY FOR ONE UNIT OPERATION WHEN TWO OR MORE INDOOR UNITS ARE CONNECTED.
- * TWO UNITS INDICATED ARE ONLY FOR TWO UNITS OPERATION WHEN TWO OR MORE INDOOR UNITS ARE CONNECTED.
- * THREE UNITS INDICATED ARE ONLY FOR THREE UNITS OPERATION WHEN THREE OR MORE INDOOR UNITS ARE CONNECTED.
- * FOUR UNITS INDICATED ARE ONLY FOR FOUR UNITS OPERATION WHEN FOUR OR FIVE INDOOR UNITS ARE CONNECTED.

RATING CONDITON (DRY BLUB / WET BULB)

	INDOOR °F (°C)	OUTDOOR °F (°C)
COOLING	80/67 (26.67/19.44)	95/75 (35/23.89)
HEATING	70/60 (21.11/15.56)	47/43 (8.33/6.11)

NOMINAL COOLING CAPACITY(Btu)	indoor unit model	CAPACITY(Btu) at one unit operation		SUITABLE ROOM SIZE(m ²) at one unit operation	
		cooling	heating	cooling	heating
7K Btu	RAF-SH07QHLAE	3050-9000	3050-10900	8-12	9-11
	RAI-SH07QHLAE	3050-8500	3050-10900	8-12	9-11
	RAS-EH07QHLAE	3050-8500	3050-10900	8-12	9-11
	RAS-SH07QHLAE	3050-8500	3050-10900	8-12	9-11
	RAD-SH07QHLAE	3050-8500	3050-10900	8-12	9-11
9K Btu	RAF-SH09QHLAE	3050-10600	3050-15000	11-17	14-18
	RAI-SH09QHLAE	3050-10200	3050-18000	11-17	14-18
	RAS-EH09RHLAE	3050-10200	3050-18000	11-17	14-18
	RAS-SH09RHLAE	3050-10200	3050-18000	11-17	14-18
	RAD-SH09QHLAE	3050-10200	3050-18000	11-17	14-18
12K Btu	RAF-SH12QHLAE	3050-13650	3050-18000	16-24	17-22
	RAI-SH12QHLAE	3050-13650	3050-22500	16-24	17-22
	RAS-EH12RHLAE	3050-13650	3050-22500	16-24	17-22
	RAS-SH12RHLAE	3050-13650	3050-22500	16-24	17-22
	RAD-SH12QHLAE	3050-13650	3050-22500	16-24	17-22
18K Btu	RAF-SH18QHLAE	3050-17750	3050-27600	23-24	23-29
	RAI-SH18QHLAE	4100-19800	4100-23200	23-24	23-29
	RAS-EH18RHLAE	4100-19800	4100-23200	23-24	23-29
	RAS-SH18RHLAE	4100-19800	4100-23200	23-24	23-29
	RAD-SH18QHLAE	4100-19800	4100-23200	23-24	23-29
24K Btu	RAS-EH24RHLAE	4100-25600	4100-30690	23-24	23-29
	RAS-SH24RHLAE	4100-25600	4100-30690	23-24	23-29
	RAD-SH24QHLAE	4100-25600	4100-30690	23-24	23-29

*Two, three, four or five indoor units can be installed with one outdoor unit.

*One-unit values are for one unit operation with two indoors connected.

*Total nominal cooling capacity should not be more than 60K Btu.

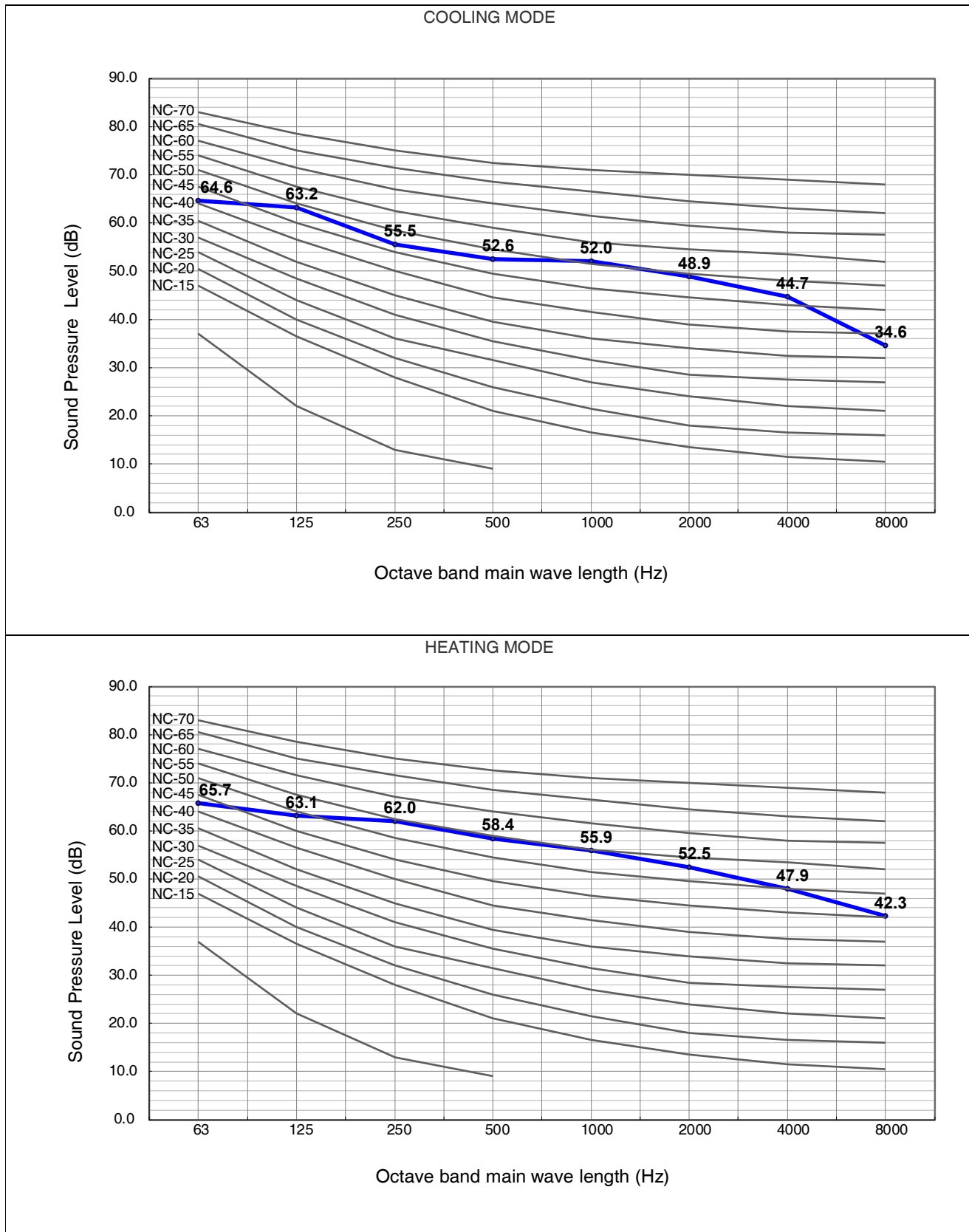
4

SOUND DATA

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4.1.1. RAM-S42U5HLAE



The Sound Pressure Level is based on the following conditions:

1 meter from the unit front surface and 1 meter from floor level

The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific site

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WORKING RANGE

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5.1. POWER SUPPLY

Working Voltage	198V ~ 264V
Voltage Imbalance	Within a 3% Deviation from Each Voltage at the Main Terminal of Outdoor Unit
Starting Voltage	Higher than 85% of the Rated Voltage

5.2. WORKING RANGE

5.2.1. MULTIZONE

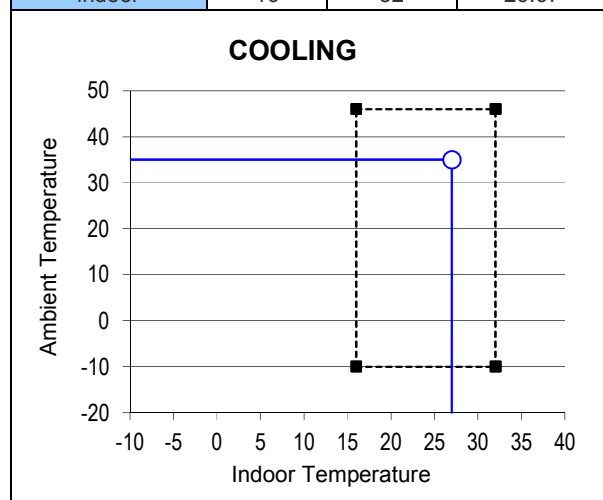
Applicable models:

MULTIZONE
RAM-S42U5HLAE

The temperature range is indicated in the following table.

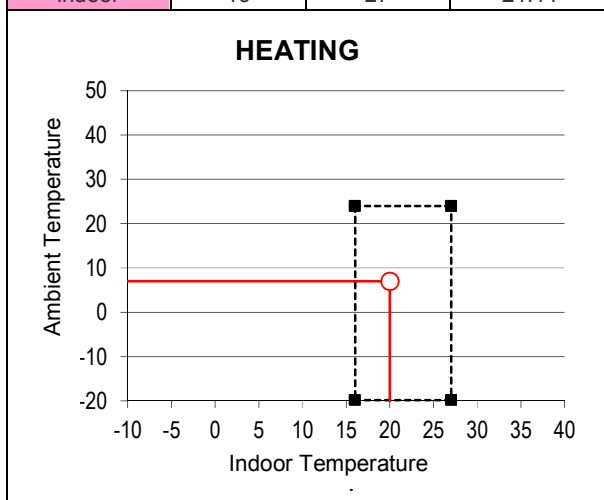
Cooling

working range	min (°C)	max (°C)	rated (°C)
outdoor	-10	46	35
indoor	16	32	26.67



Heating

working range	min (°C)	max (°C)	rated (°C)
outdoor	-20	24	8.33
indoor	16	27	21.11



6 ELECTRICAL DATA

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6.1. INDOOR UNIT

Model	Unit Main Power	Rated input current of power conversion equipment	Indoor Fan Motor	
	VOL, PH, Hz		RNC	IPT
RAS-EH07QHAE	208-230, 1, 60	0.45	0.67	38
RAS-EH09RHAE	208-230, 1, 60	0.45	0.67	38
RAS-EH12RHAE	208-230, 1, 60	0.45	0.67	38
RAS-EH18RHAE	208-230, 1, 60	0.45	0.67	38
RAS-EH24RHAE	208-230, 1, 60	0.56	0.16	45
RAS-SH07QHAE	208-230, 1, 60	0.62	0.67	30
RAS-SH09RHAE	208-230, 1, 60	0.62	0.67	30
RAS-SH12RHAE	208-230, 1, 60	0.62	0.67	30
RAS-SH18RHAE	208-230, 1, 60	0.64	0.16	45
RAS-SH24RHAE	208-230, 1, 60	0.64	0.16	45
RAF-SH07QHAE	208-230, 1, 60	0.25	0.75	38
RAF-SH09QHAE	208-230, 1, 60	0.25	0.75	38
RAF-SH12QHAE	208-230, 1, 60	0.25	0.75	38
RAF-SH18QHAE	208-230, 1, 60	0.25	0.75	38
RAI-SH07QHAE	208-230, 1, 60	0.80	0.25	57
RAI-SH09QHAE	208-230, 1, 60	0.80	0.25	57
RAI-SH12QHAE	208-230, 1, 60	0.80	0.25	57
RAI-SH18QHAE	208-230, 1, 60	0.80	0.25	57
RAD-SH07QHAE	208-230, 1, 60	0.45	0.11	20
RAD-SH09QHAE	208-230, 1, 60	0.45	0.11	20
RAD-SH12QHAE	208-230, 1, 60	0.45	0.11	20
RAD-SH18QHAE	208-230, 1, 60	1.2	0.75	180
RAD-SH24QHAE	208-230, 1, 60	1.2	0.75	180

VOL: Rated Unit Power Supply Voltage (V)
Hz: Frequency (Hz)

RNC: Running Current (A)
PH: Phase (φ)
IPT: Input (W)

6.2. OUTDOOR UNIT

Model	Unit Main Power		Electrical Data			
	VOL, PH, Hz	Rated input current of power conversion equipment (A)	Rated Cooling Current	Rated Heating Current	MCA	MOP
RAM-S42U5HLAE	208-230, 1, 60	22	14.76	18.65	29	50

VOL: Rated Unit Power Supply Voltage (V)

MCA: Minimum Circuit Ampacity (A)

HZ: Frequency (Hz)

MOP: Maximum Overcurrent Protection (A)

PH: Phase (ϕ)

- NOTE:** 1. The above compressor data is based on 100% capacity combination of indoor units at the rated operating frequency
2. This data is based on the same conditions as the nominal heating and cooling capacities.
3. The compressor started by an inverter, resulting in extremely low starting current.

7 WIRING DIAGRAM

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7.2	RAM-S42U5HLAE	7-10

7.1. MULTIZONE

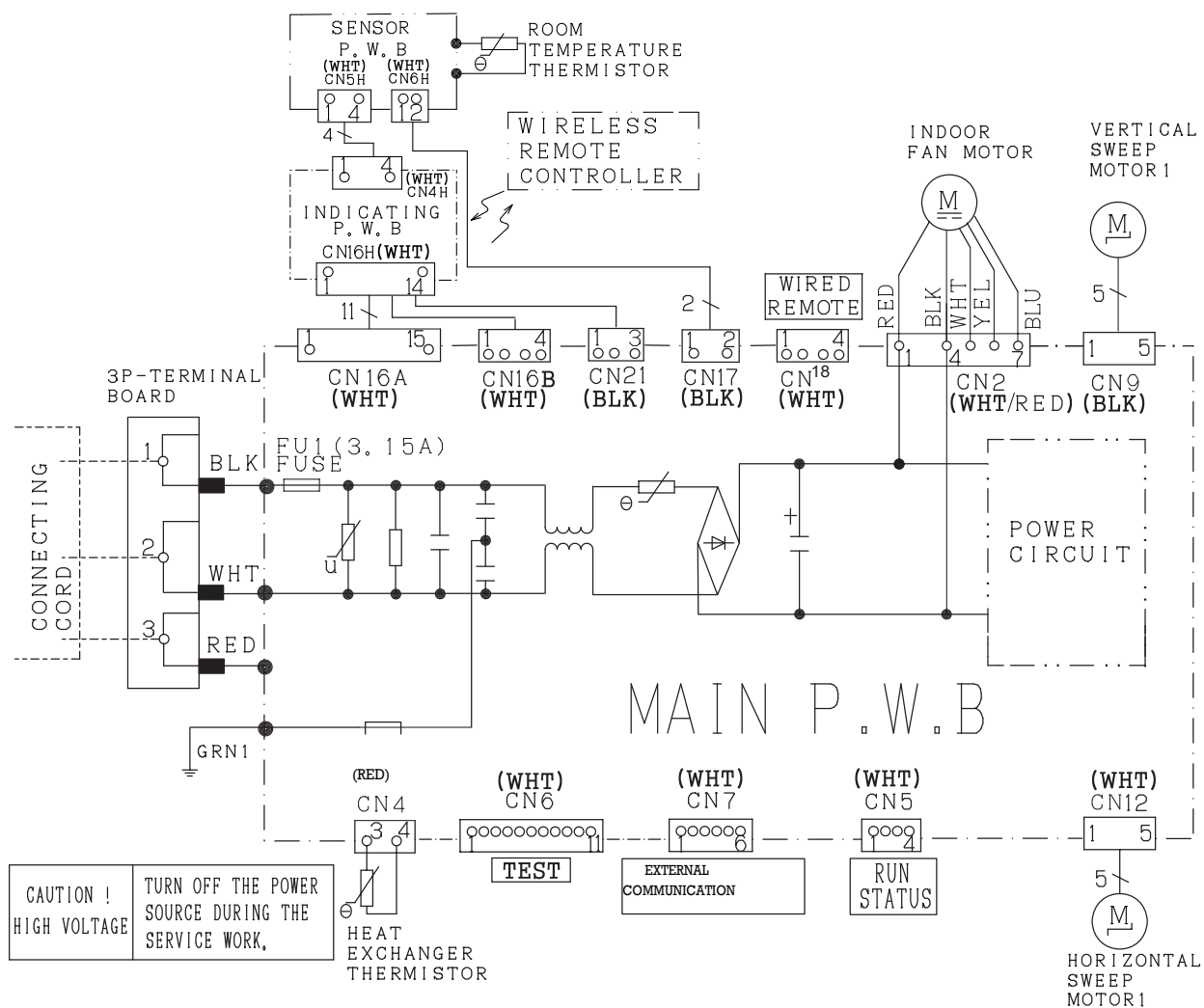
7.1.1. RAS-EH07QHAE, RAS-EH09/12/18RHAE

BLU : BLUE
 GRY : GRAY
 BLK : BLACK

YEL : YELLOW
 ORN : ORANGE
 PNK : PINK

BRN : BROWN
 GRN : GREEN
 VIO : VIOLET

WHT : WHITE
 RED : RED
 IVO : IVORY



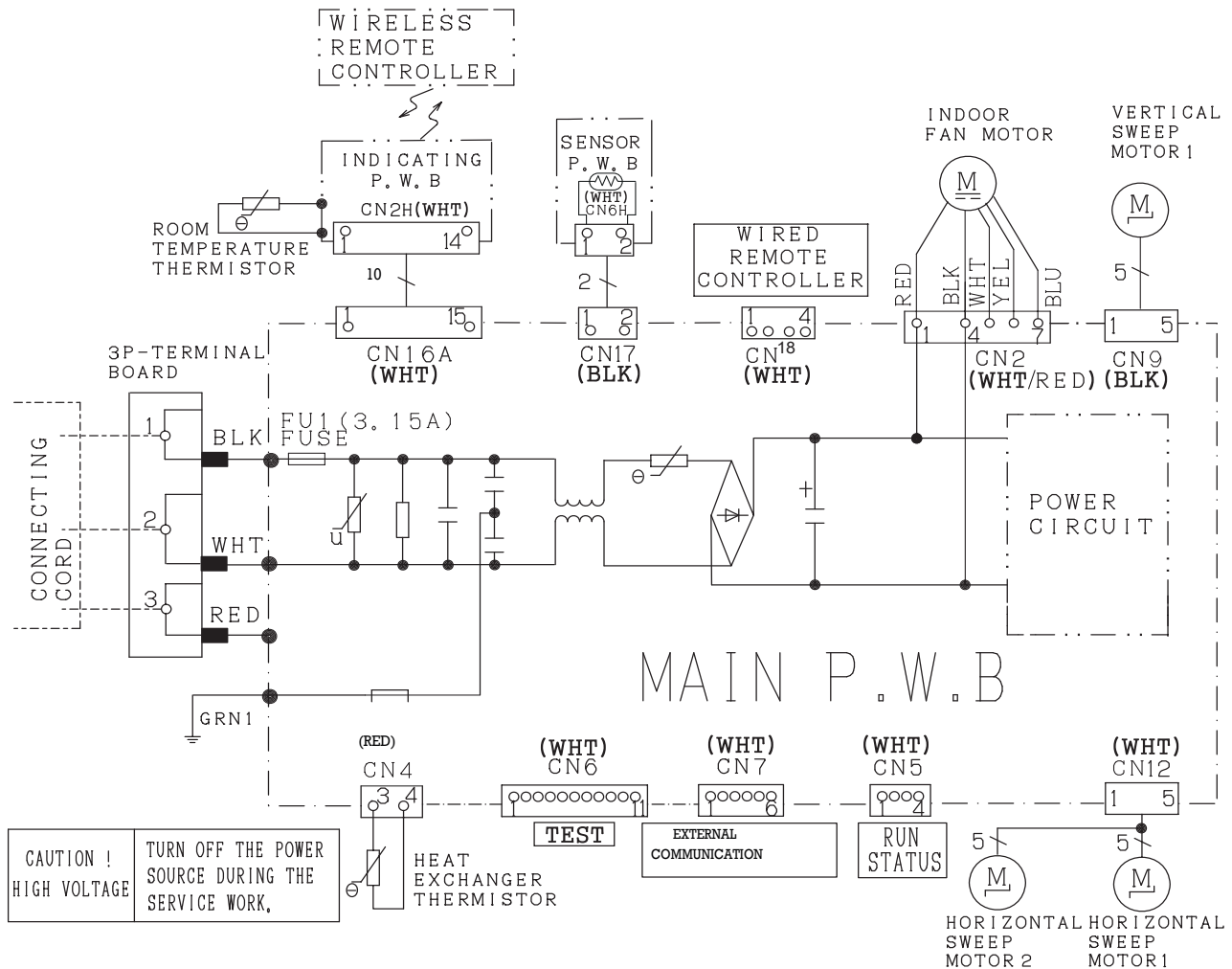
7.1.2. RAS-EH24RHLAE

BLU : BLUE
 GRY : GRAY
 BLK : BLACK

YEL : YELLOW
 ORN : ORANGE
 PNK : PINK

BRN : BROWN
 GRN : GREEN
 VIO : VIOLET

WHT : WHITE
 RED : RED
 IVO : IVORY



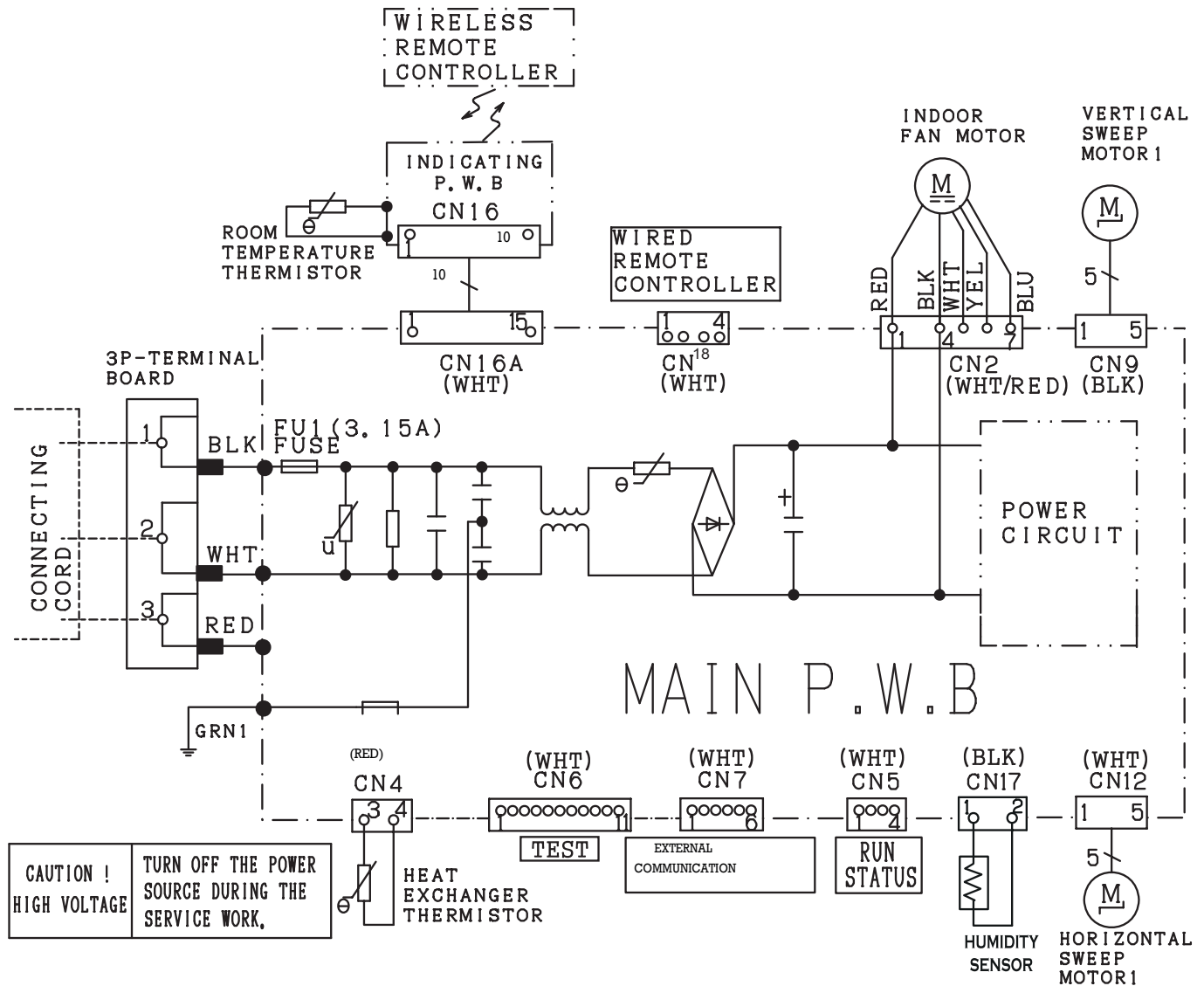
7.1.3. RAS-SH07QHLAE, RAS-SH09/12RHLAE

BLU : BLUE
 GRY : GRAY
 BLK : BLACK

YEL : YELLOW
 ORN : ORANGE
 PNK : PINK

BRN : BROWN
 GRN : GREEN
 VIO : VIOLET

WHT : WHITE
 RED : RED
 IVO : IVORY



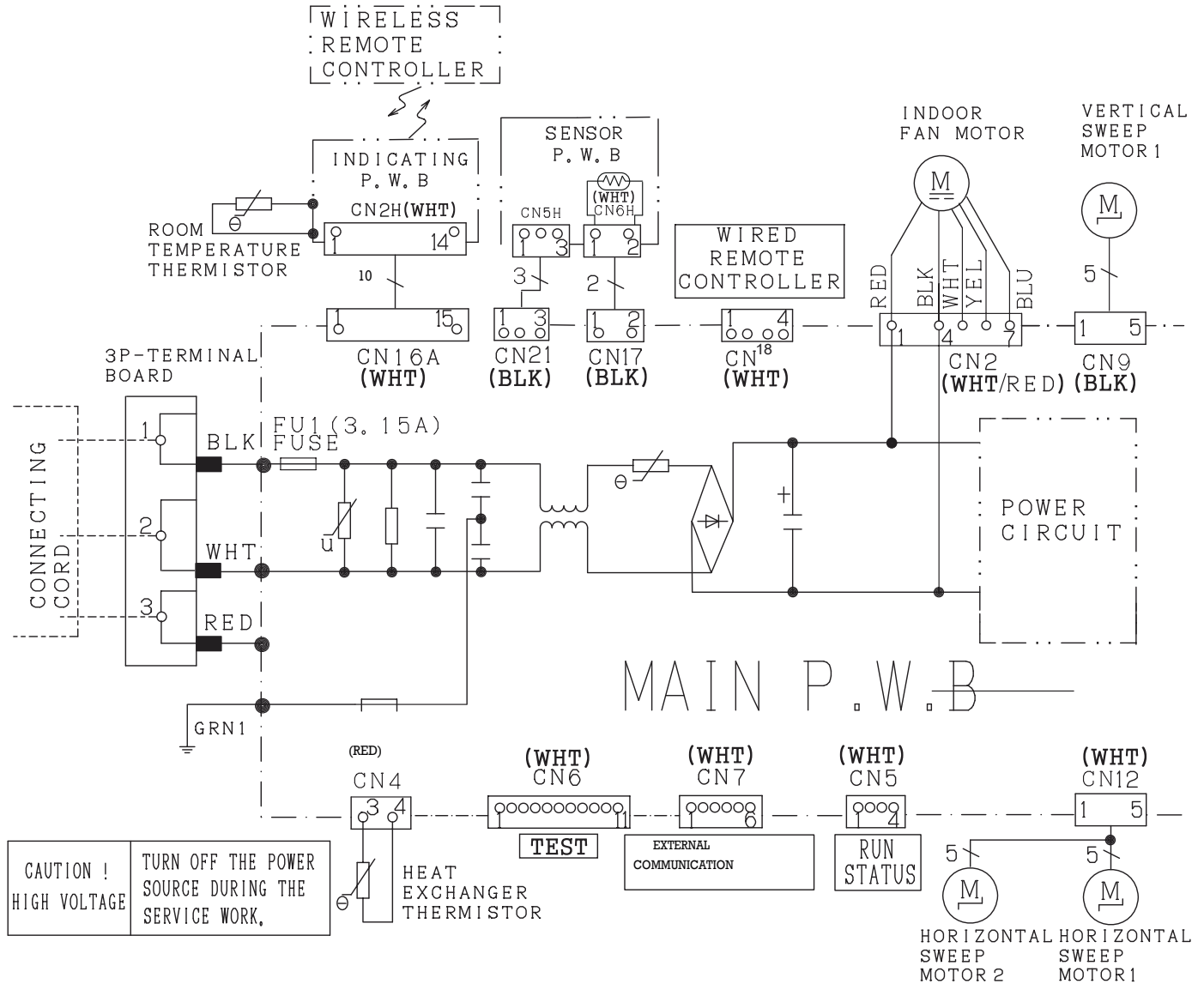
7.1.4. RAS-SH18/24RHLAE

BLU : BLUE
 GRY : GRAY
 BLK : BLACK

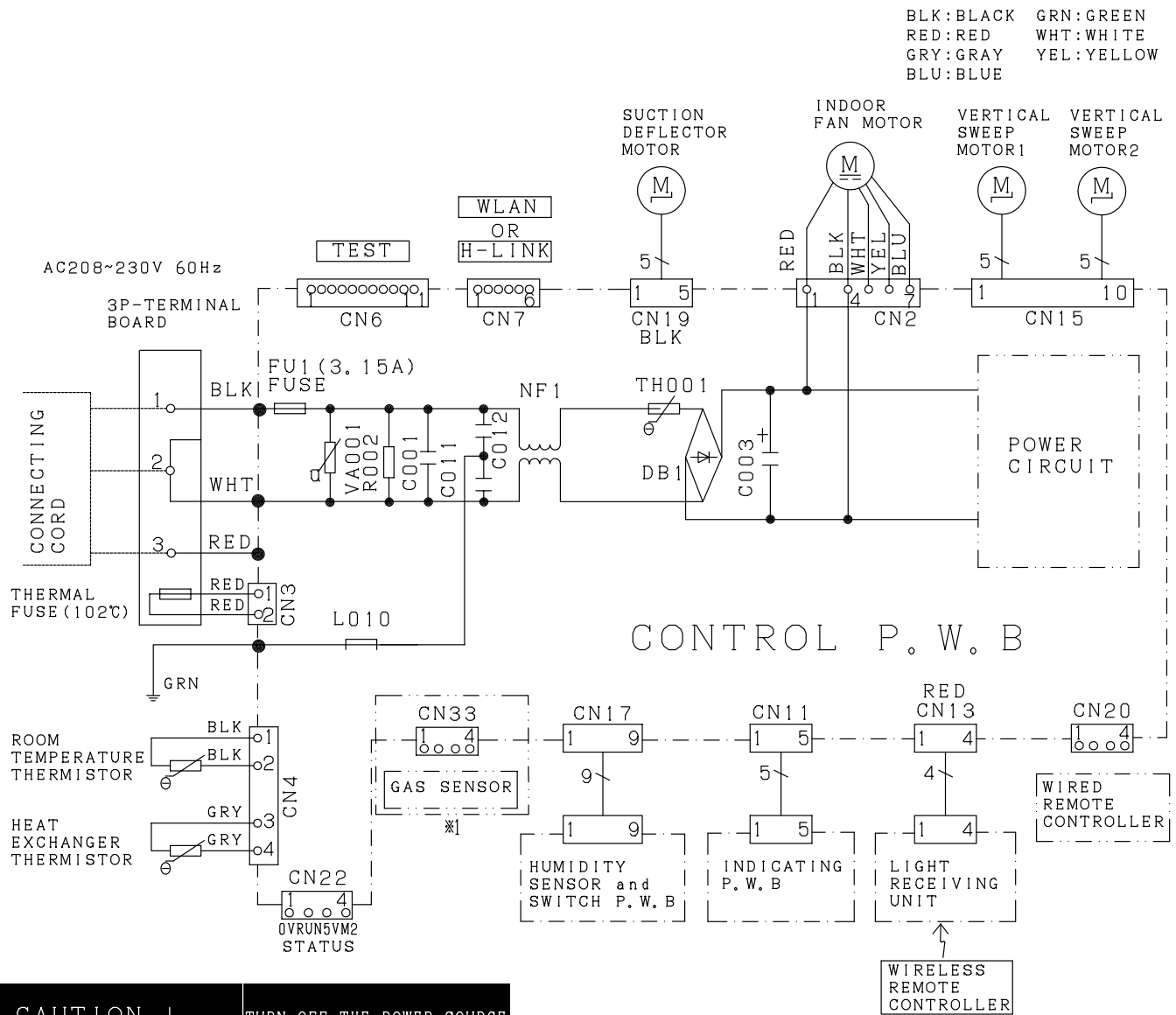
YEL : YELLOW
 ORN : ORANGE
 PNK : PINK

BRN : BROWN
 GRN : GREEN
 VIO : VIOLET

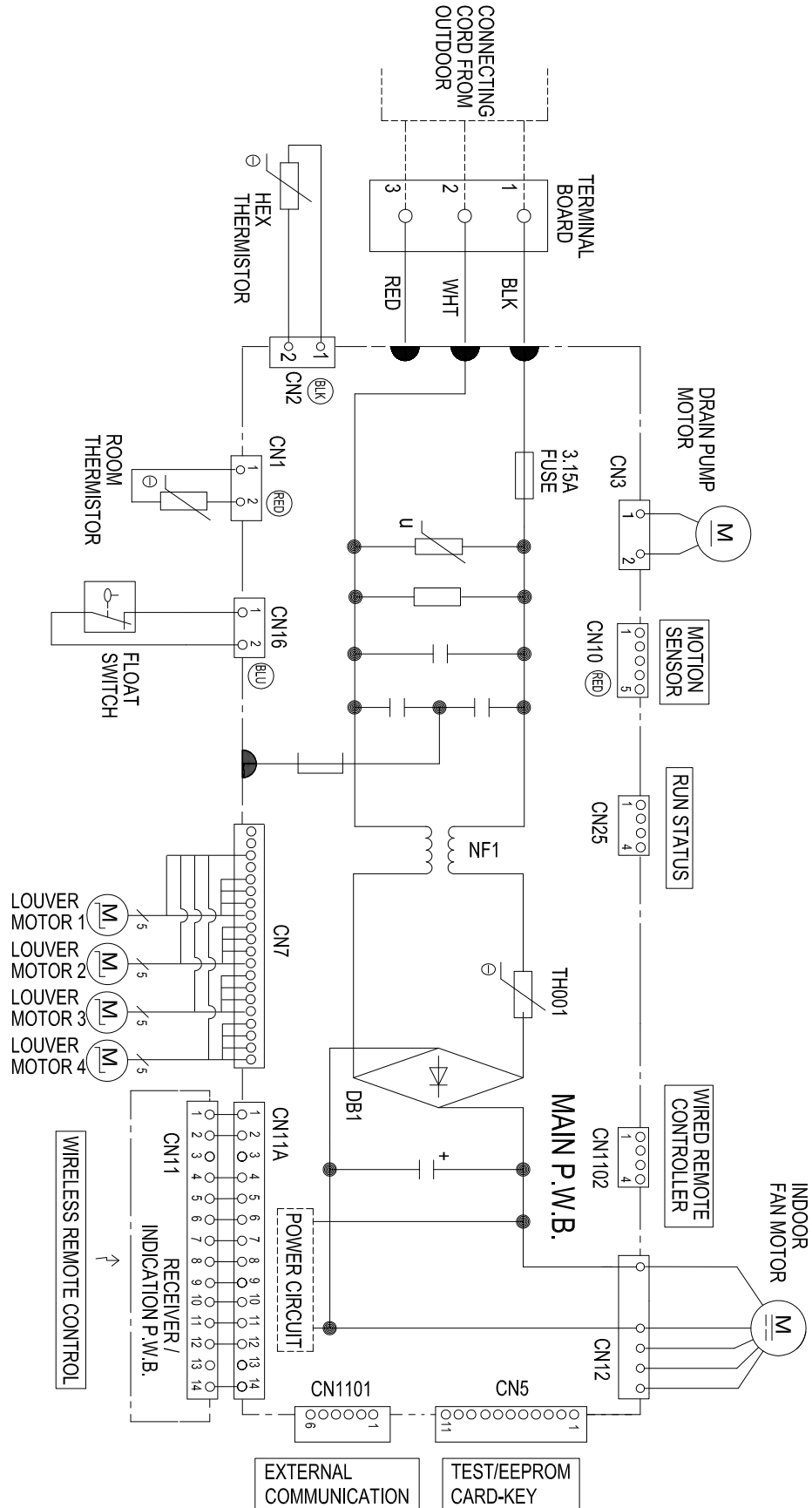
WHT : WHITE
 RED : RED
 IVO : IVORY



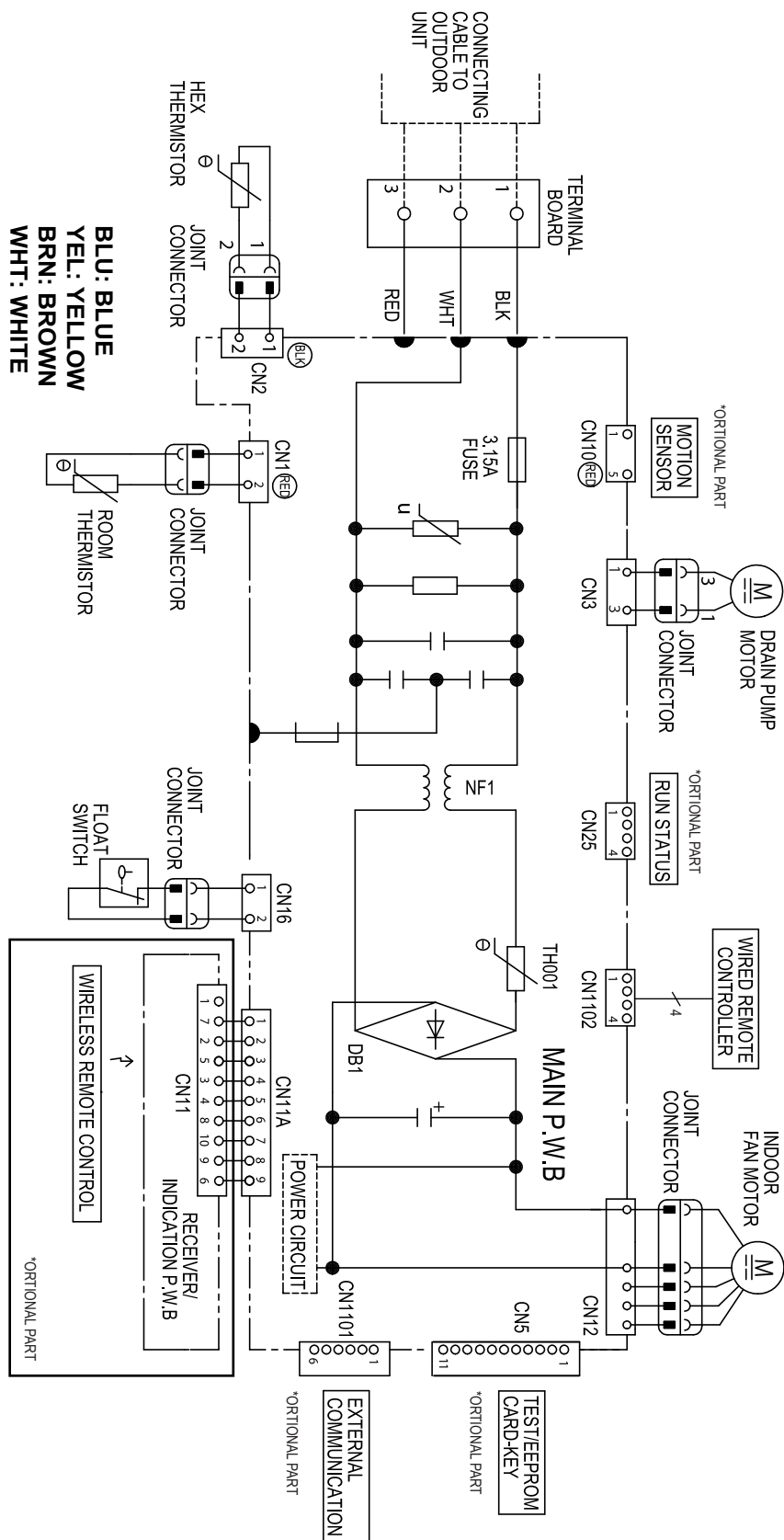
7.1.5. RAF-SH07QHLAE, RAF-SH09QHLAE, RAF-SH12QHLAE, RAF-SH18QHLAE



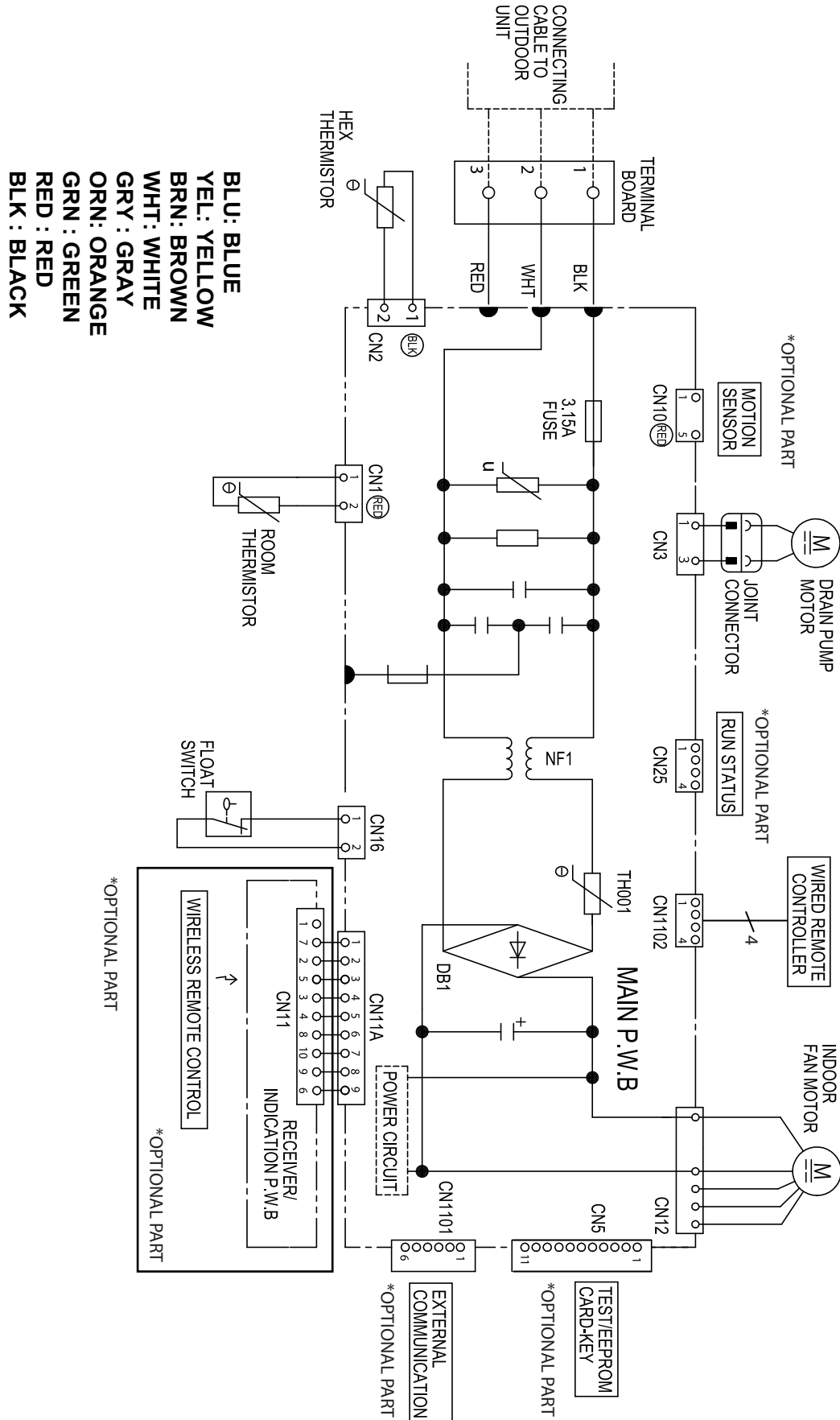
7.1.6. RAI-SH07QHLAE, RAI-SH09QHLAE, RAI-SH12QHLAE, RAI-SH18QHLAE



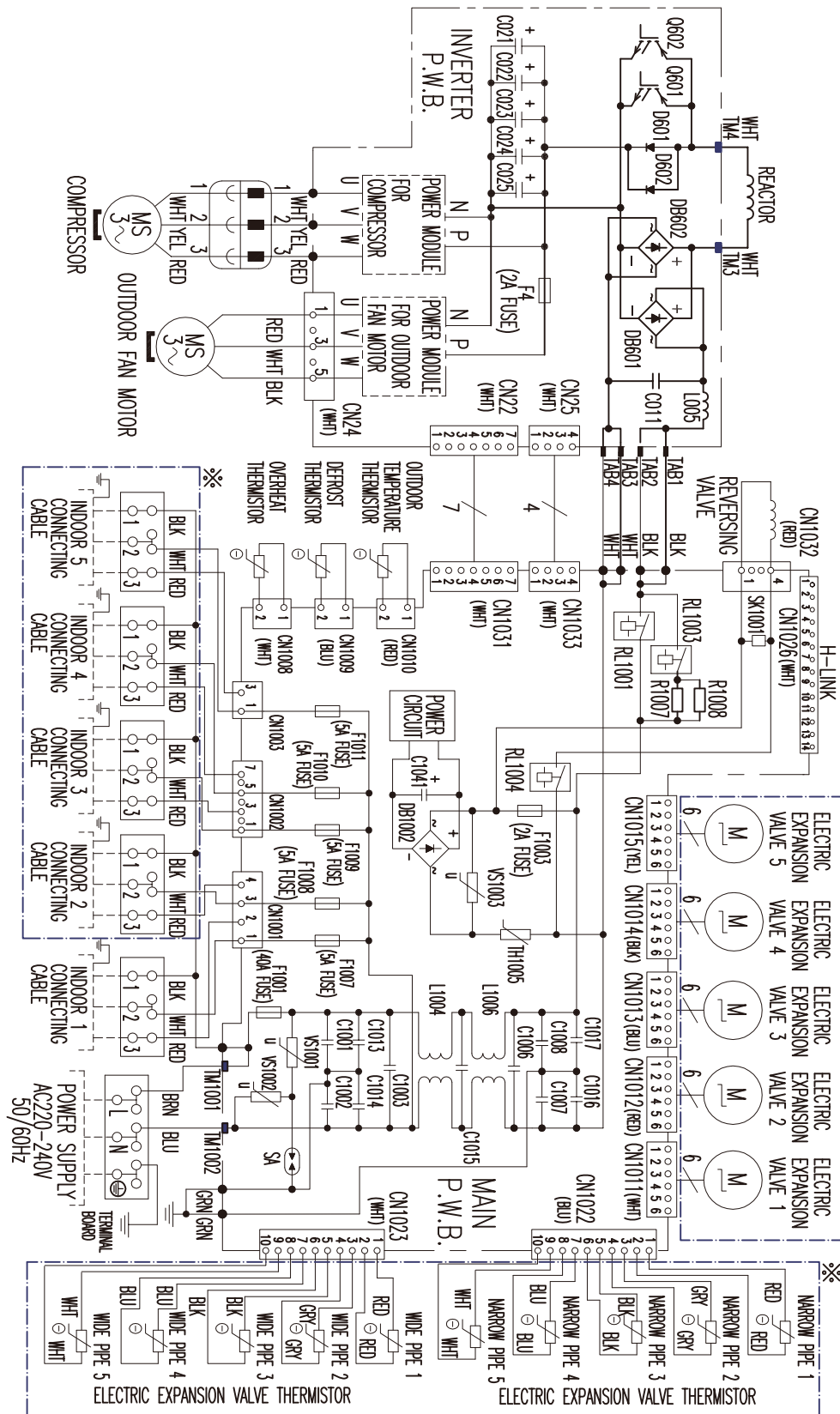
BLU: BLUE
YEL: YELLOW
BRN: BROWN
WHT: WHITE
GRY : GRAY
ORN: ORANGE
GRN : GREEN
RED : RED
BLK : BLACK



7.1.8. RAD-SH18QHLAE, RAD-SH24QHLAE



7.2 RAM-S42U5HLAE



8 REFRIGERANT CYCLE

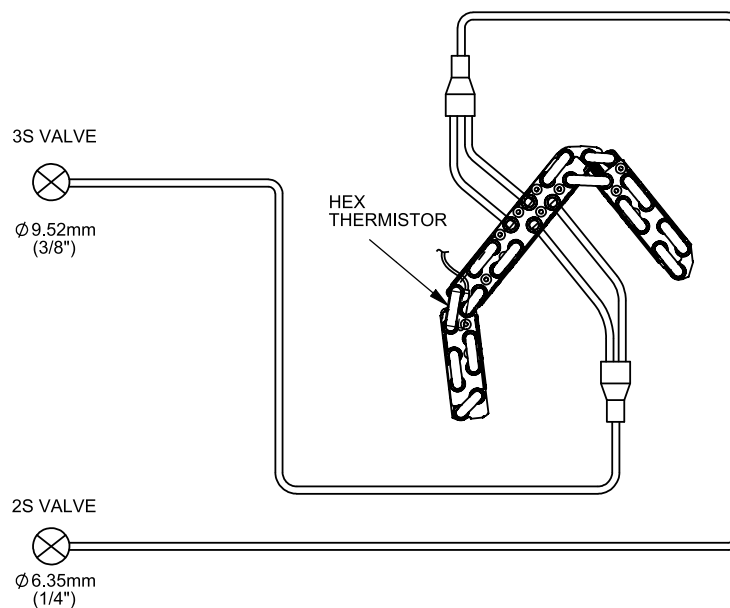
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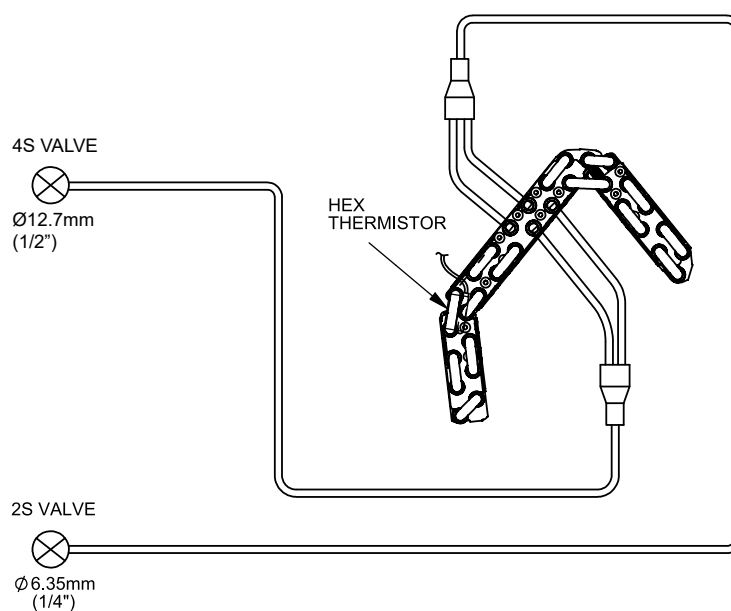
8.1. MULTIZONE INDOOR UNITS

8.1.1. WALL TYPE: RAS-EH07QHLAE, RAS-EH09/12/18RHLAE

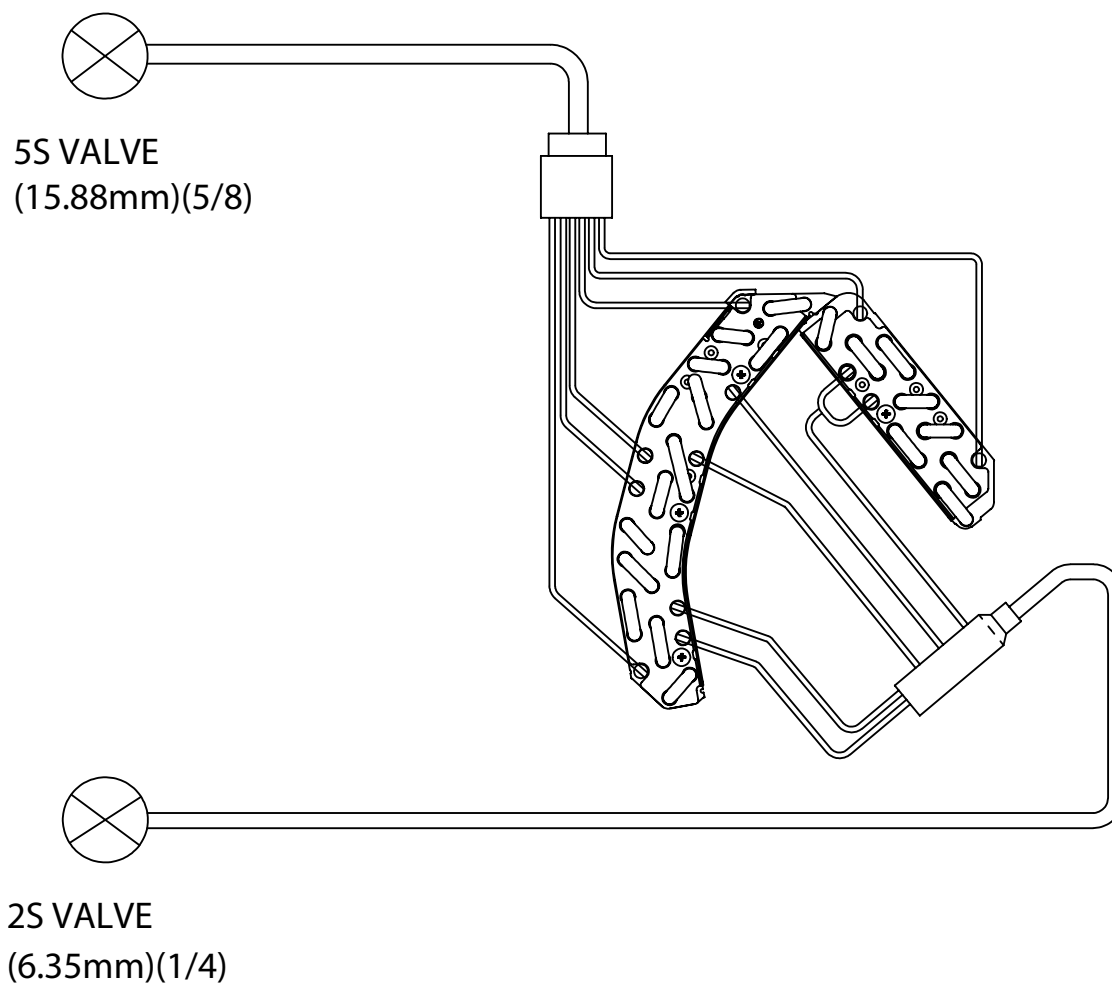
MODEL : RAS-EH07QHLAE
RAS-EH09RHLAE
RAS-EH12RHLAE



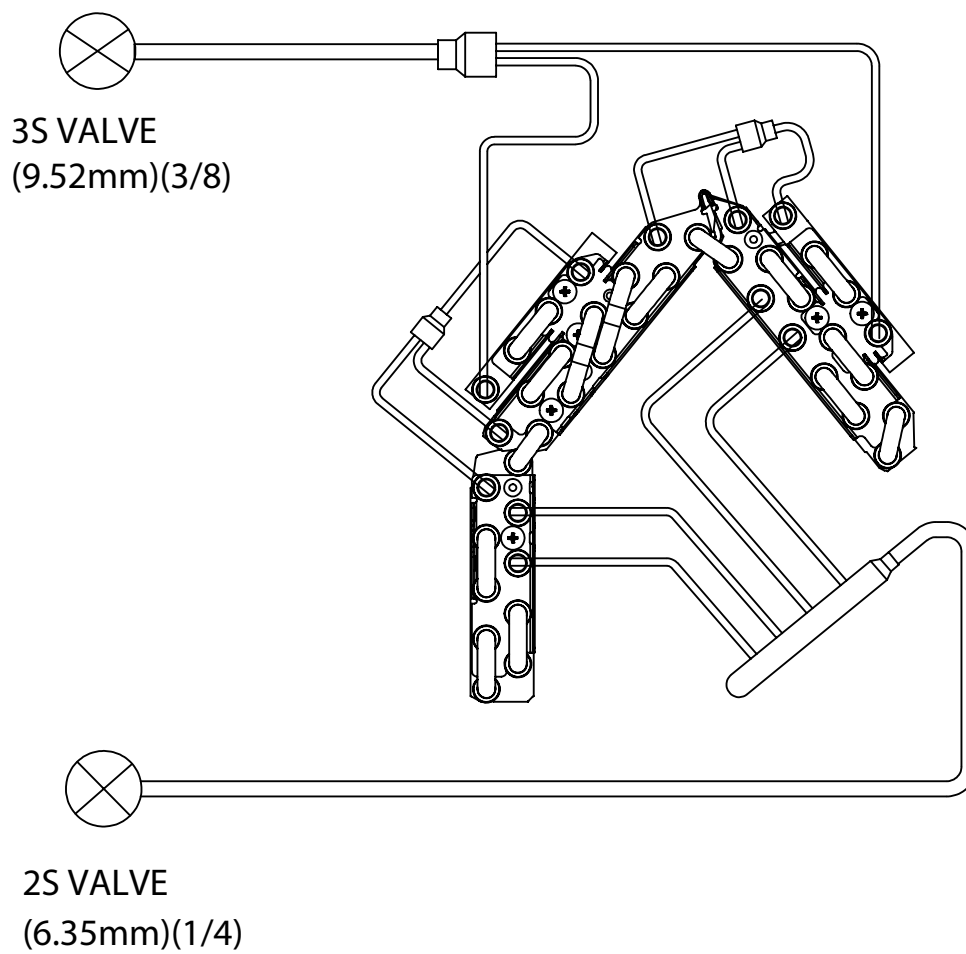
MODEL : RAS-EH18RHLAE



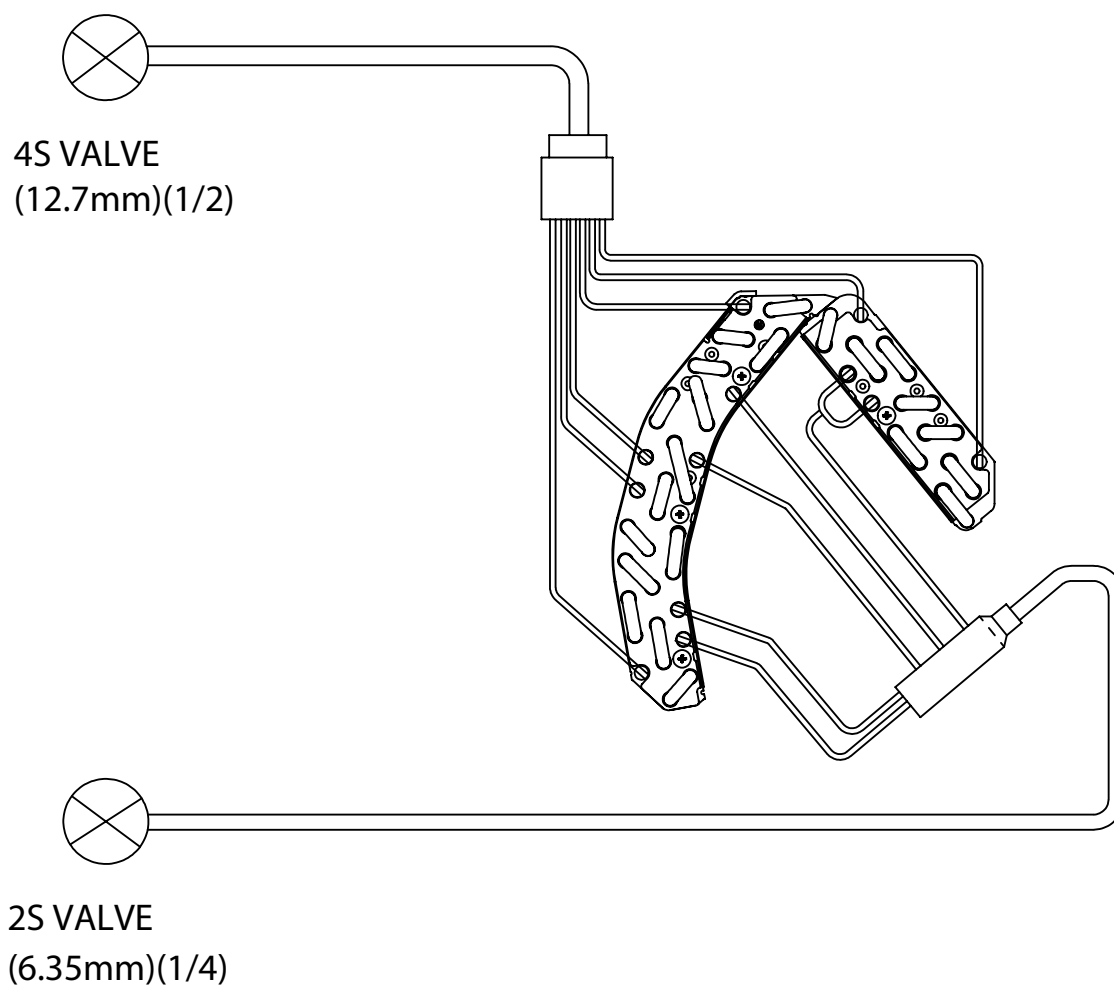
8.1.2. WALL TYPE: RAS-EH24RHLAE,RAS-SH24RHLAE



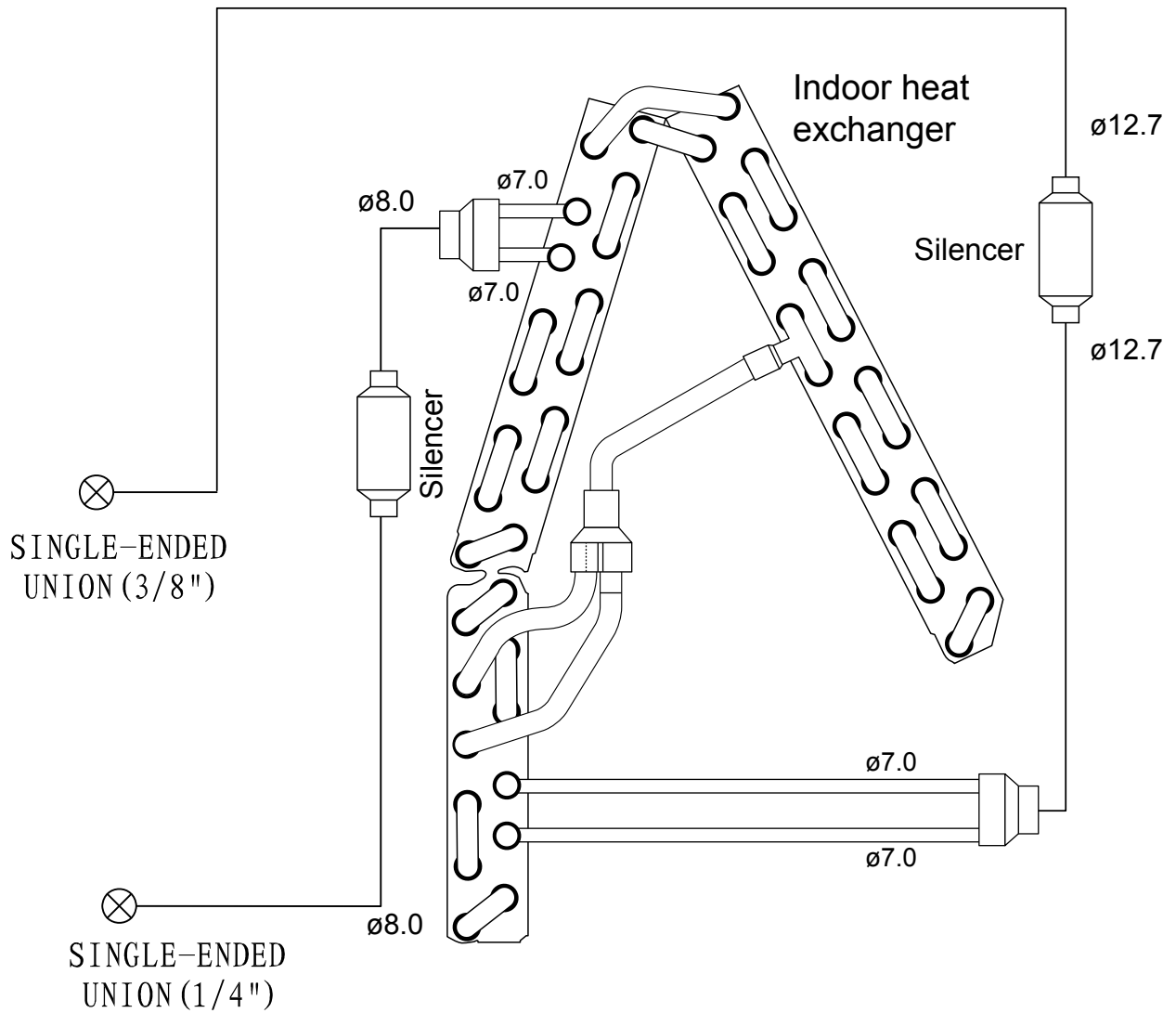
8.1.3. WALL TYPE: RAS-SH07QHLAE, RAS-SH09/12RHLAE



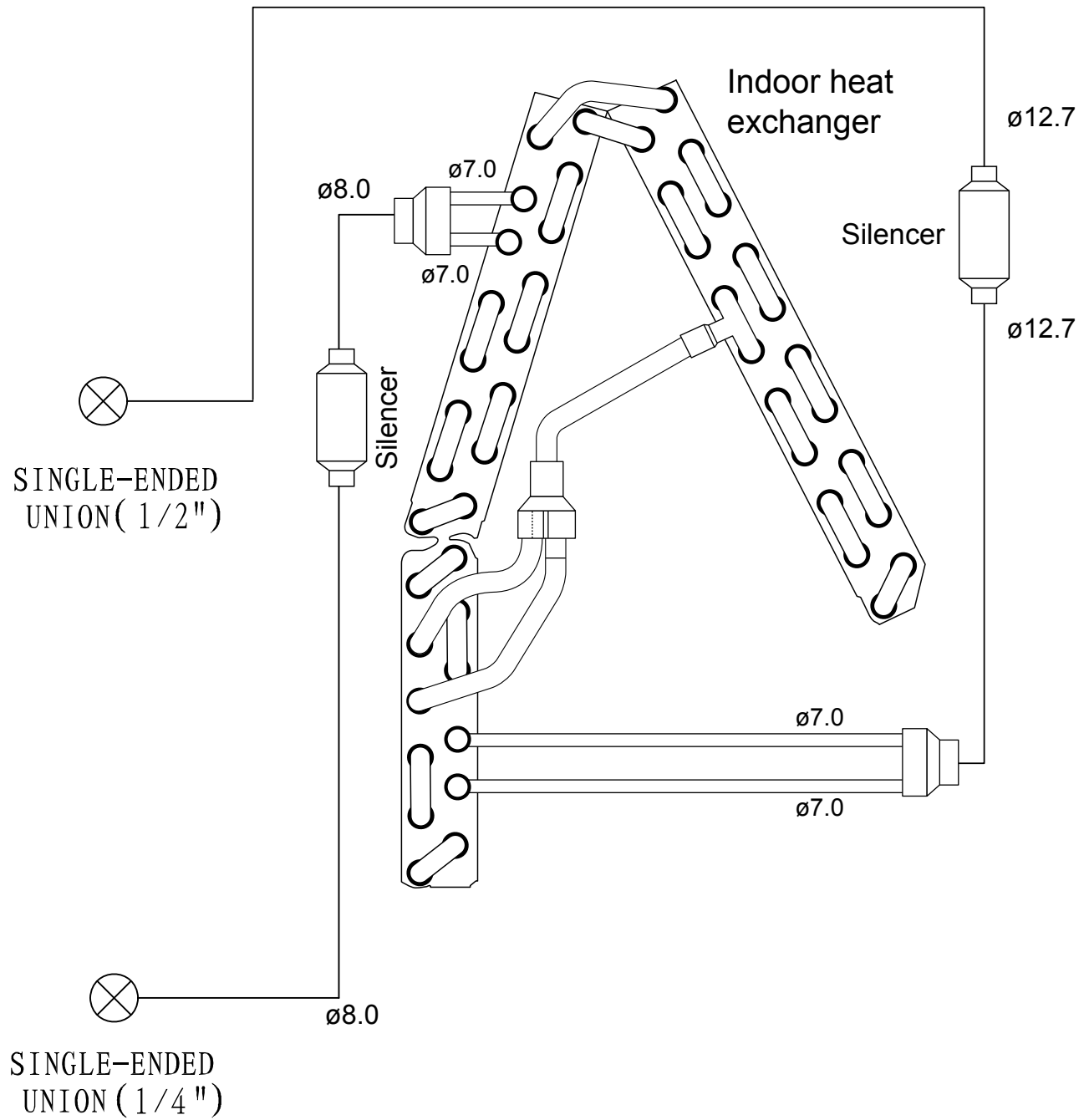
8.1.4. WALL TYPE: RAS-SH18RHLAE



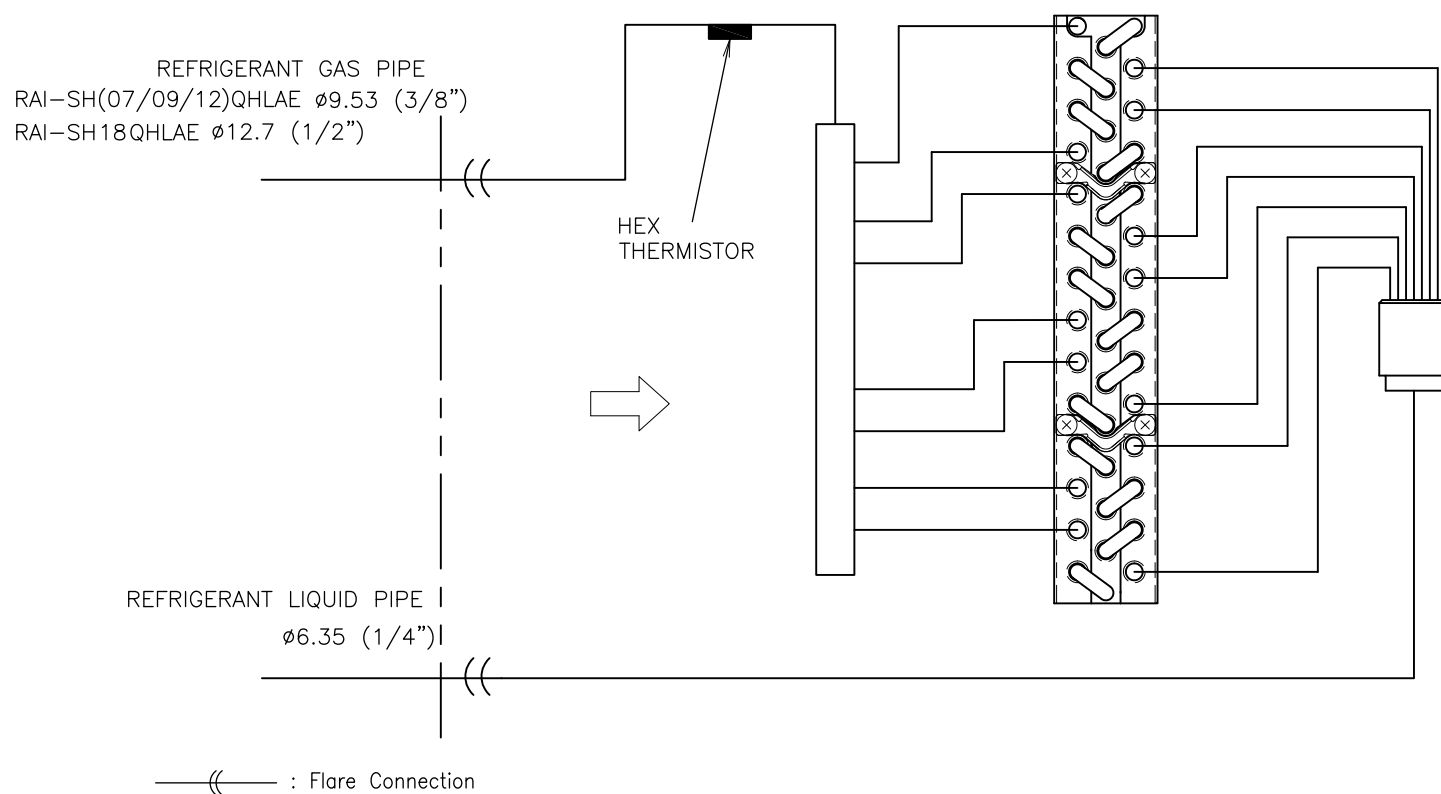
8.1.5. FLOOR TYPE: RAF-SH07QHLAE, RAF-SH09QHLAE, RAF-SH12QHLAE

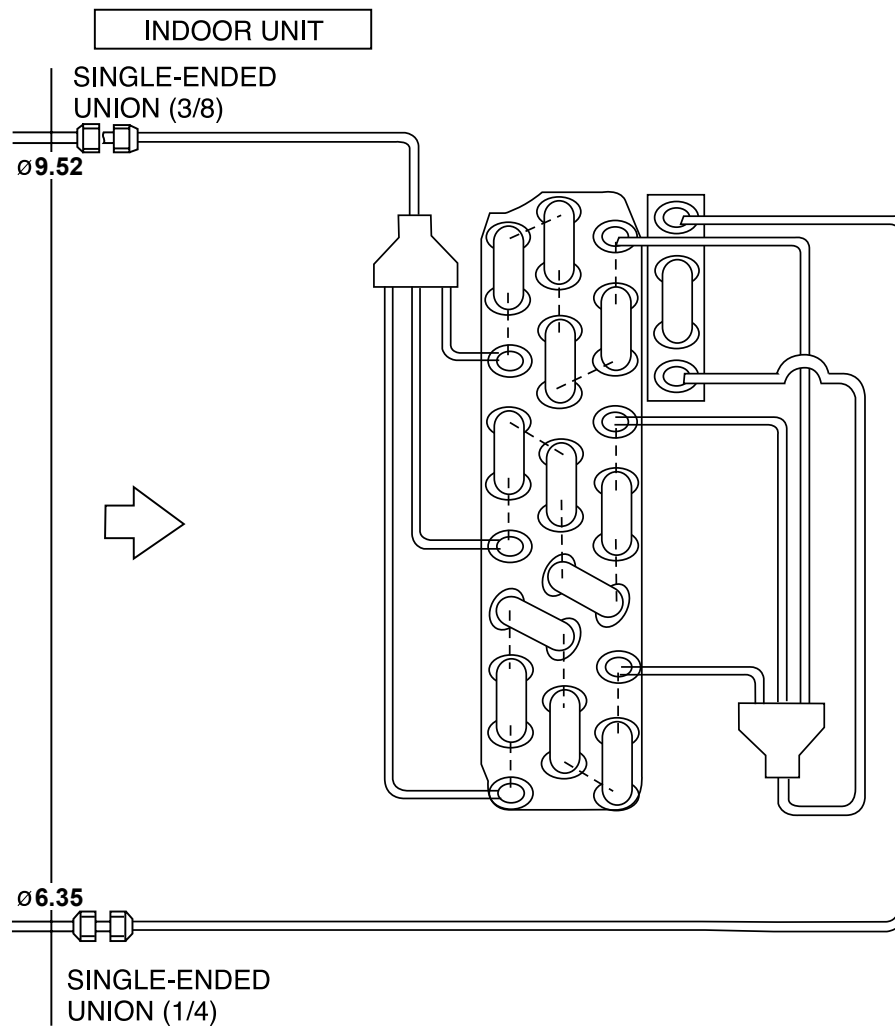


8.1.6. FLOOR TYPE: RAF-SH18QHLAE

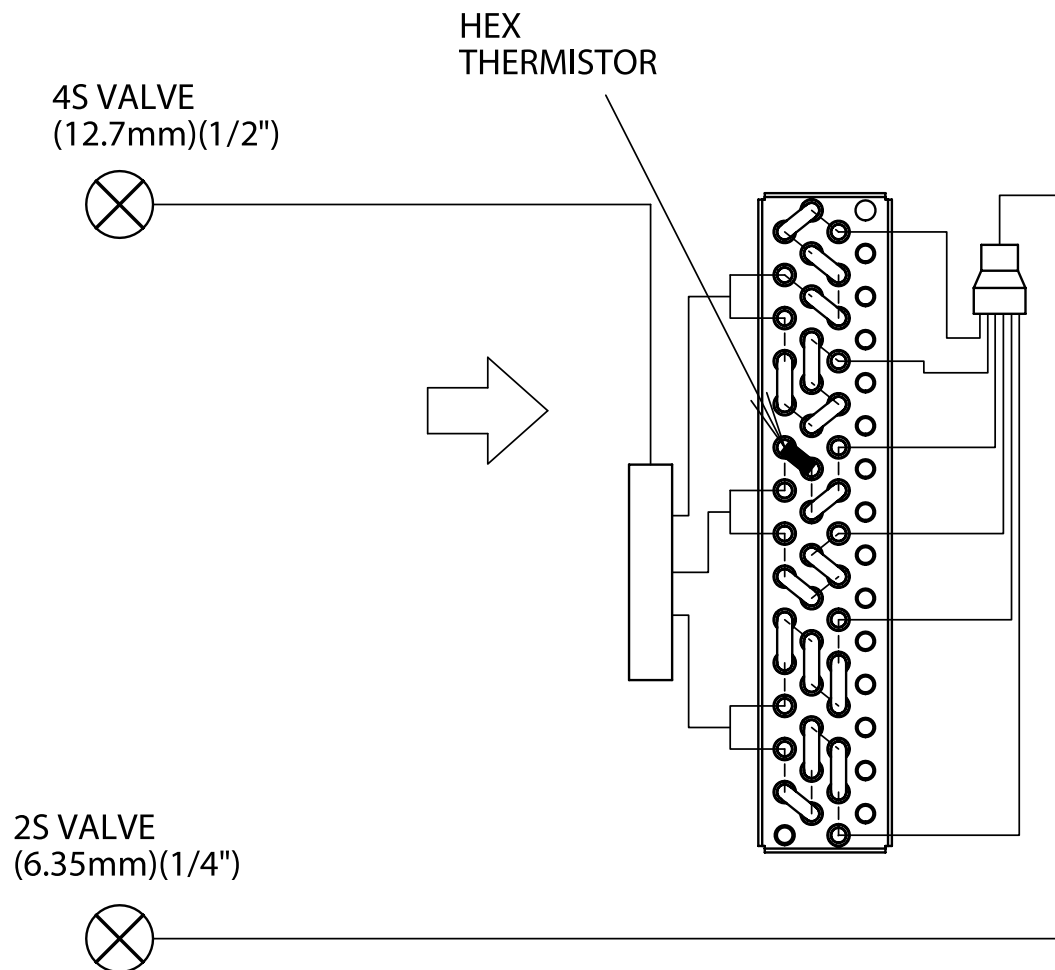


8.1.7. CEILING CASSETTE: RAI-SH07QHLAE, RAI-SH09QHLAE,RAI-SH12QHLAE, RAI-SH18QHLAE

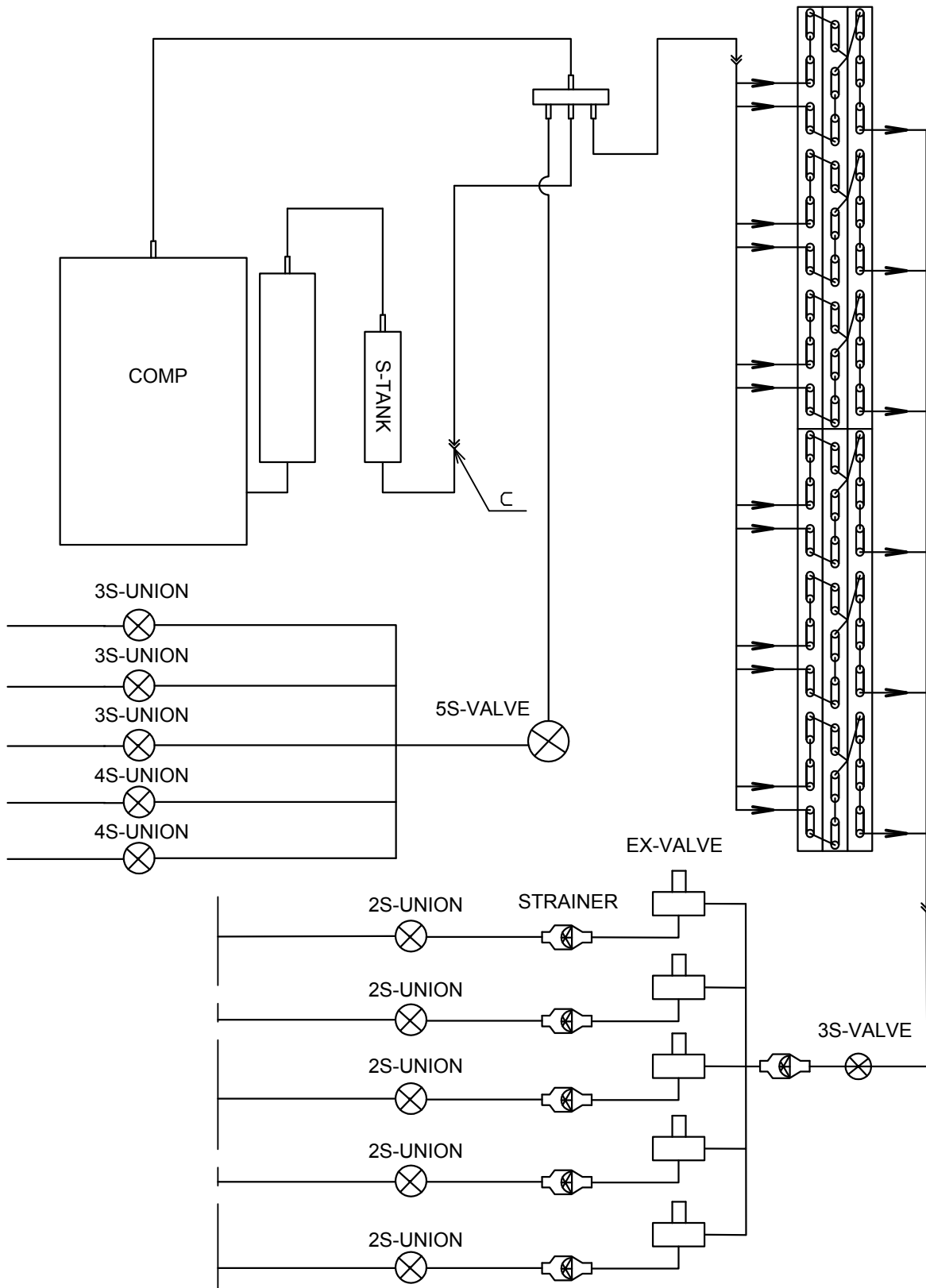


8.1.8. DUCT TYPE: RAD-SH07QHLAE, RAD-SH09QHLAE, RAD-SH12QHLAE

8.1.9. DUCT TYPE: RAD-SH18QHLAE, RAD-SH24QHLAE



8.2 5 ROOMS MULTIZONE: S42U5HLAE



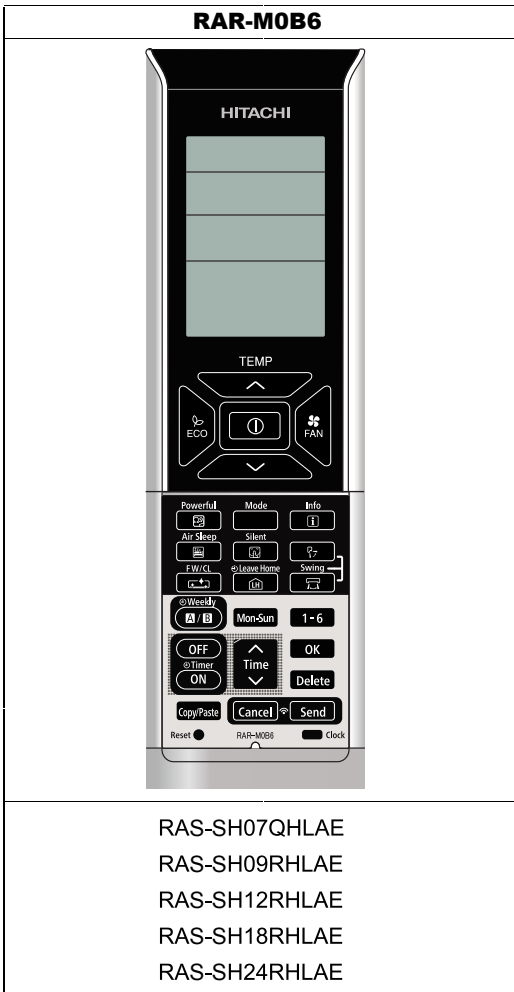
9 CONTROL AND FUNCTION

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9.1 WIRELESS REMOTE CONTROL FUNCTION

RAR-M0B6

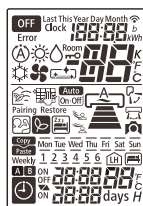


BUTTONS	FUNCTION
	MODE Selector Use this button to select the operating mode. Every time you press this button, the mode will change from (AUTO) → (HEAT) → (DEHUMIDIFY) → (COOL) and → (FAN) cyclically.
	FAN SPEED Selector Button This determines the fan speed. Every time you press this button, the airflow rate will change from (AUTO) → (HIGH) → (MED) → (LOW) → (SILENT) (This button allows selection of optimal or preferred fan speed for each operation mode).
	START/STOP button Press this button to start operation. Press it again to stop operation.
	ECO button Use this button to set the ECO mode.
	POWERFUL button Use this button to set the POWERFUL mode.
	SILENT button Use this button to set the SILENT mode.
	INFO button 1) Press this button to display temperature for 10 seconds. 2) Press this button to check monthly power consumption. 3) Press this button to receive the current calendar and clock.
	ECO SLEEP TIMER button Use this button to set the ECO sleep timer.
	AUTO SWING (Vertical) button Controls the angle of the horizontal air deflector.

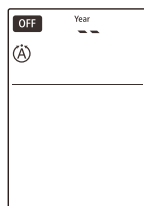
	AUTO SWING (Horizontal) button Controls the angle of the vertical air deflector.
	LEAVE HOME button Prevent the room temperature from falling too much by setting temperature 50°F~60°F when no one is at home.
	FROST WASH / CLEAN button The dust and dirt adhering to indoor heat exchanger which is the cause of the smell. They are washed away by freezing and thawing of the heat exchanger.
WEEKLY TIMER buttons	
	ON/OFF TIMER button The device will turn on (off) and off (on) at the designated time.
	TIME button Press the button to set starting time of the program
OK	OK button Press the button to save the program. The button shall be pressed everytime after finishing a program setting.
Delete	DELETE button 1) Press the button to delete the selected program. 2) Press the button for about 10 seconds by directing the remote controller towards the indoor unit while Mode A or B display blinks, programs for Mode A or B will be deleted both from the indoor unit and the remote controller after the beep sound from the indoor unit.
Mon-Sun	DAY button Select the desired day of the week.
1 - 6	PROGRAM NO. button Press this button to select a program number.
Cancel	CANCEL 1) Press the button to cancel the current setting process on the screen. 2) Press the button by directing the remote controller towards the indoor unit, hen weekly timer setting will be canceled from indoor unit after the beep sound from the indoor unit. The program setting remains in the remote controller.
Send	SEND button Press the button for about 3 seconds by directing the remote controller towards the indoor unit after finishing the program setting. Timer lamp on the indoor unit will blink rapidly and after the beep sound from indoor unit, TIMER lamp will light up.
 Clock	CLOCK button Press the button to set calendar and clock.
	WEEKLY TIMER MODE button 1) Select Mode A or Mode B. 2 modes can be set and stored as a weekly timer. 2) By pressing the button longer than 3 seconds, program setting screen will appear.

9.2 SHIFT VALUE

1. Press and hold  (START/STOP) button and  (ON) button.
2. Press  [RESET] button on the same time. Release  [RESET] button only, then release  (START/STOP) and  (ON) button once Screen 1 appears.

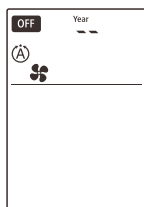


Screen 1



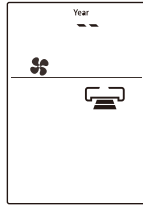
Screen 2

3. Press the  (MODE) button to display  fan mode (Screen 3).



Screen 3

4. Press  (START/STOP) and Screen 4 appear.

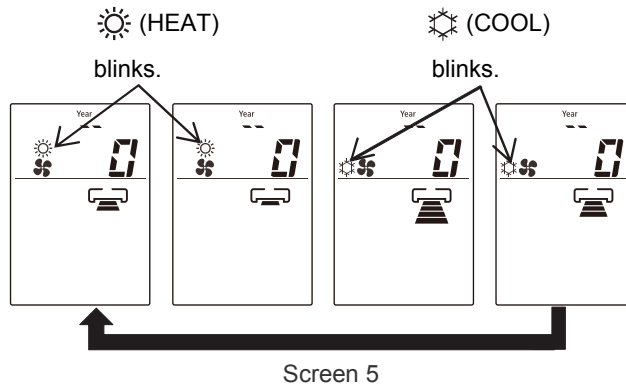


Screen 4

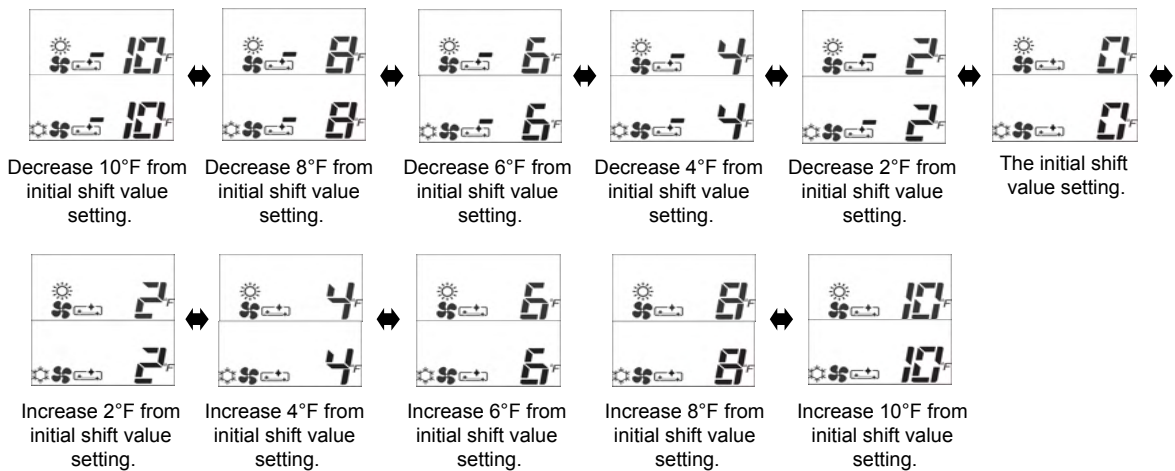
5. Select  (FAN SPEED) button to choose Heating Shift or Cooling Shift Mode (Screen 5).

By setting fan speed to HIGH  or MED  , it will go to Cooling Shift mode.

By setting fan speed to LOW  or SILENT  , it will go to Heating Shift mode.



6. Press the Temperature button ( or ) to adjust the shift value.



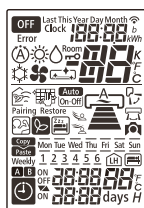
NOTE:

1. There are total of 11 shift values ranging from -10 to 10.
2. The displayed shift value,  (HEAT) and  (COOL) symbol on the remote controller display will disappear after 10 seconds
3. The changed shift value will remain unchanged after turned off the power.
4. If "0" is displayed on the remote controller display, it indicates the shift value is now at the initial setting.

9.3 OPERATION LOCK

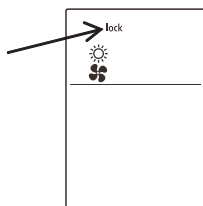
1. HEATING MODE

- a) Press and hold  (ECO) and  (POWERFUL) buttons, press  (RESET) button on the same time. Release  (RESET) button only when Screen 1 appear, then release  (ECO) button and  (POWERFUL) button.



Screen 1

- b) Wait until only Screen 2 appear.



Screen 2

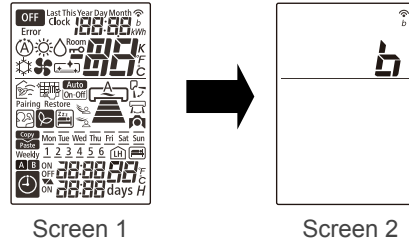
- c) The heating mode operation is locked.
 d) To unlock HEATING mode, repeat step (a). After all operations mode symbols displayed for 10 seconds, the operation mode symbol before cancellation will be display. The heating mode operation is unlocked.

2. COOLING AND DEHUMIDIFYING MODE

- a) Press and hold  (ECO) and  (SILENT) buttons for at least 5 seconds when the remote controller is OFF.
 b) Wait until only  and  displayed on the screen. The cooling and dehumidifying modes operation is locked.
 c) To unlock HEATING mode, repeat step (a). After all operations mode symbols displayed for 10 seconds, the operation mode symbol before cancellation will be display. The cooling and dehumidifying mode operation is unlocked.

9.4 SETTING THE PREVENTION OF MUTUAL INTERFERENCE

1. Please ensure the other indoor unit is OFF.
2. Press **1-6** (PROGRAM NO.) button, **ON** (ON TIMER) button and **Reset** (RESET) button simultaneously. The remote controller will display Screen 1 and followed by Screen 2. The indoor unit beeps to indicate that it has just received the signal from remote controller.



NOTE:

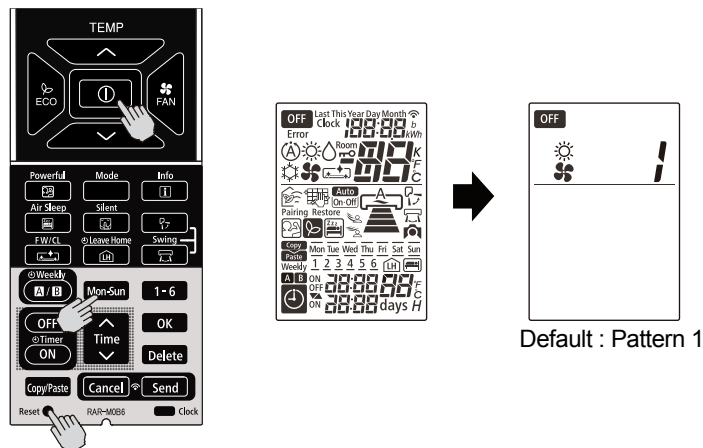
If indoor unit still not receive the correct signal from the correct remote controller, setting shall be made again. By setting again for the 2nd time, the signal address will change from B to A, then repeat again for the 3rd time.

9.5 INTERMITTENT FAN SPEED SETTING

The intermittent fan control during thermo off in Heating Mode can be changed by the remote controller. (This procedure should be done only by service personnel.) It is possible to select from 3 patterns.

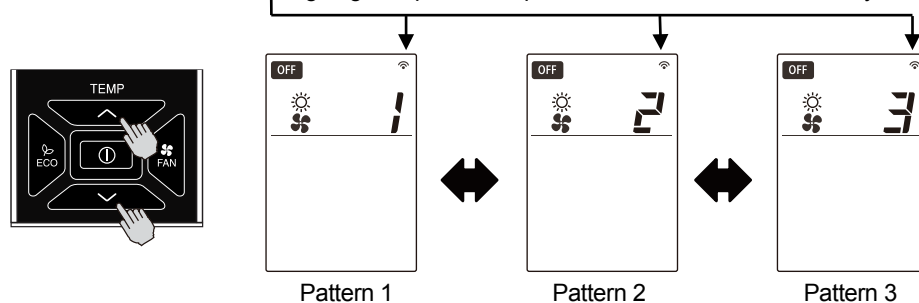
PROCEDURE

1. Press **1** (START/STOP) button, **Mon-Sun** (Mon-Sun) button and press **Reset** (RESET) button simultaneously. Release **Reset** (RESET) button only and make sure that all marks on the remote controller display are indicated, then release **1** (START/STOP) button and **Mon-Sun** (Mon-Sun) button. Remote controller now enters "Intermittent Fan Control Change Mode".



2. Press [ROOM TEMPERATURE setting] [^ (UP)]/[v (DOWN)] buttons. (The intermittent pattern changed with indoor unit beep sound.)

Transmission sign lights up with beep from indoor unit simultaneously.



	Pattern 1	Pattern 2	Pattern 3
Single Model	Continuous	30sec ON / 210sec OFF repeatedly	50sec ON / 190sec OFF repeatedly
Multi Model	30sec ON / 210sec OFF repeatedly	50sec ON / 190sec OFF repeatedly	Continuous

NOTE :

- (1) The indication of the selected intermittent pattern will disappear after 10 seconds.
- (2) The selected intermittent pattern will remain unchanged after the unit is turned off.

9.6 FAN SPEED SETTING IN THERMO OFF IN COOLING

The fan speed in Cooling Mode during thermo off can be changed by the remote controller.

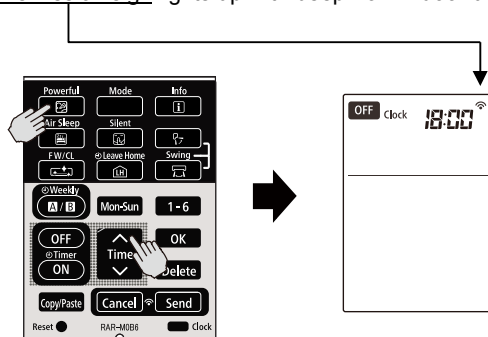
(This procedure shall be implemented strictly by service personnel only.)

It is possible to return it to the default setting.

PROCEDURE

Press  [POWERFUL] button and  [TIME ^ (UP)] button simultaneously for about 5 seconds when the remote controller is OFF.

Transmission sign lights up with beep from indoor unit simultaneously.



Beep sound pattern : 1) Default setting : Short beep
 2) Changed setting : Double beep

	Fan speed during thermo off
Default Setting	Ultra low
Changed Setting	Set fan speed (When auto fan speed is set, the fan speed is low)

NOTE :

- (1) The selected fan speed will remain unchanged after the unit is turned off.
- (2) If Timer reservation has been set, it will be canceled.
- (3) During time setting and timer setting, this operation cannot be set.

9.7 ERROR CODE INFORMATION

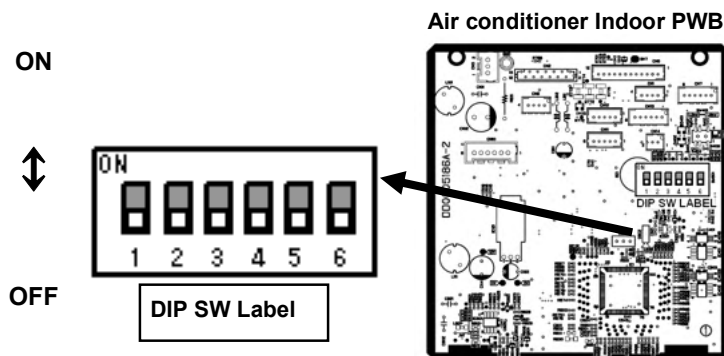
1. In case failure occurs to the air conditioner, by pressing  (INFO) button, an error code will be displayed.
2. Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press  (INFO) button.
3. Wait for 2 seconds for signal transmission and the error code will be displayed.

	TIMER LAMP BLINKING	LD1351 BLINKING	CODE	MEANING
INDOOR	-	-	000 00	Normal
	1 time		001 00	Refrigerant cycle fault
	2 times	-	-	Outdoor unit is under forced operation
	3 times	-	003 00	Communication error between indoor and outdoor units
	9 times	-	009 00	Indoor thermistor
	10 times	-	010 00	Abnormal rotating numbers
	12 times	-	012 00	Outdoor interface error
	13 times	-	013 00	IC401 data reading error
OUTDOOR	4 times	2 times	002 01	Peak current cut
	4 times	3 times	003 01	Compressor abnormal low speed rotation
	4 times	4 times	004 01	Compressor switching failure
	4 times	5 times	005 01	Overload lower limit cut
	4 times	6 times	006 01	OH thermistor temperature rise
	4 times	7 times	007 01	Abnormal outdoor thermistor
	4 times	8 times	008 01	Communication error between micon
	4 times	9 times	009 01	Indoor type mis-matched
	4 times	10 times	010 01	Abnormal power source
	4 times	11 times	011 01	Fan stop for strong wind
	4 times	12 times	012 01	Fan motor fault
	4 times	13 times	013 01	EEPROM reading error
	4 times	14 times	014 01	Active converter defective
	4 times	15 times	015 01	Abnormal PWB circuit

	TIMER LAMP BLINKING	LD1351 Lit LD1352 BLINKING	CODE	MEANING
OUTDOOR	4 times	1 times	071 01	Overheat thermostat
	4 times	2 times	072 01	Defrost thermostat
	4 times	3 times	073 01	Outdoor temperature thermostat
	4 times	4 times	074 01	Narrow pipe thermostat (indoor 1)
	4 times	5 times	075 01	Wide pipe thermostat (indoor 1)
	4 times	6 times	076 01	Narrow pipe thermostat (indoor 2)
	4 times	7 times	077 01	Wide pipe thermostat (indoor 2)
	4 times	8 times	078 01	Narrow pipe thermostat (indoor 3)
	4 times	9 times	079 01	Wide pipe thermostat (indoor 3)
	4 times	10 times	080 01	Narrow pipe thermostat (indoor 4)
	4 times	11 times	081 01	Wide pipe thermostat (indoor 4)
	4 times	12 times	082 01	Narrow pipe thermostat (indoor 5)
	4 times	13 times	083 01	Wide pipe thermostat (indoor 5)

9.8 ADDITIONAL FUNCTION VIA DIP-SWITCH SETTINGS

A new DIP Switch is available on the PWBs of the indoor unit that provide additional functions via the settings on the switches.



Pin No.	Function	Switch Position / Setting					
		OFF	Enable	ON	Disable		
1	AUTO RESTART function	OFF	Enable	ON	Disable		
2	DRY CONTACT function	OFF	Disable	ON	Enable		
3	DRY CONTACT Logic Select	OFF	HI Input Active	ON	LO Input Active		
4	HEATING / COOLING ONLY MODE SELECT	OFF	NORMAL (HEAT AND COOL)	OFF	HEATING ONLY	ON	COOLING ONLY
5		OFF		ON		OFF	
6	REMOCON ID SELECT ❖1	OFF	SELECT ID A	ON	SELECT ID B		

NOTE:

- ❖1 The setting of pin no. 6 is disabled for this model. Please refer to **9.4 SETTING THE PREVENTION OF MUTUAL INTERFERENCE**.

9.8.1 AUTO RESTART FUNCTION

The AUTO RESTART function can be enabled or disabled by setting Pin No. 1 on the DIP SWITCH above to the ON or OFF position accordingly.

9.8.2 HEATING/COOLING ONLY MODE SELECTION

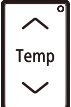
When this function is enabled, the operation mode could be locked to either Heating Only (Heating or Fan) or Cooling Only (Cooling, Fan or Dehumidifying) by setting the Pin No. 4 and 5 accordingly.

LOCKED MODE	REMARKS
HEATING ONLY	Unit will not enter into Cooling mode although cooling mode is selected using the remote controller.
COOLING ONLY	Unit will not enter into Heating mode although heating mode is selected using the remote controller.

9.9 WIRELESS REMOTE CONTROL FUNCTION

RAR-M0B3、RAR-M0B4、RAR-M0B5

RAR-M0B3	RAR-M0B4	RAR-M0B5
		
RAF-SH07QHLAE RAI-SH07QHLAE RAF-SH09QHLAE RAI-SH09QHLAE RAF-SH12QHLAE RAI-SH12QHLAE RAF-SH18QHLAE RAI-SH18QHLAE	RAD-SH07QHLAE RAD-SH09QHLAE RAD-SH12QHLAE RAD-SH18QHLAE RAD-SH24QHLAE	RAS-EH07QHLAE RAS-EH09RHLAE RAS-EH12RHLAE RAS-EH18RHLAE RAS-EH24RHLAE

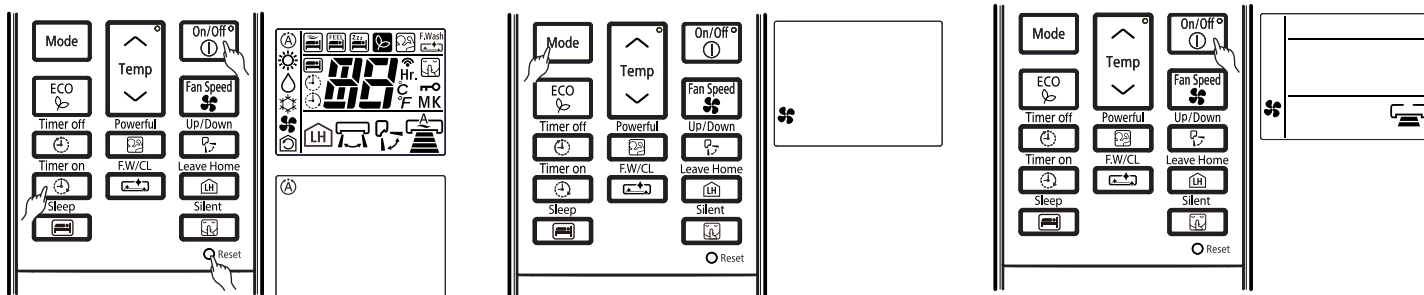
BUTTONS	FUNCTION
	MODE selector Button Use this button to select the operating mode. Every time you press this button, the mode will change from (A) (AUTO) → ☀ (HEAT) → 💧 (DEHUMIDIFY) → ❄ (COOL) and (FAN) → 🌀 cyclically.
	ECO Button Use this button to set the ECO mode.
	TEMPERATURE Button Room temperature setting. Value will change quicker when keep pressing.
	ON/OFF Button Press this button to start operation. Press it again to stop operation.
	FAN SPEED Button Select the fan speed for cooling and heating mode.
	TIMER OFF Button Select the turn OFF time.
	TIMER ON Button Select the turn ON time.
	POWERFUL Button Press this button to start powerful operation.

	FROST WASH/CLEAN Button The dust and dirt adhering to indoor heat exchanger which is the cause of the smell. They are washed away by freezing and thawing of the heat exchanger.
	ONE TOUCH CLEAN button Drying indoor heat exchanger after cooling operation to prevent mildew.
	UP/DOWN Button Control the angle of the horizontal air deflector.
	LEAVE HOME Button Prevent the room temperature from falling too much by setting temperature 10°C~16°C when no one is at home.
	SILENT button Use this button to set the SILENT mode.
	ECO SLEEP TIMER button Use this button to set the ECO sleep timer.

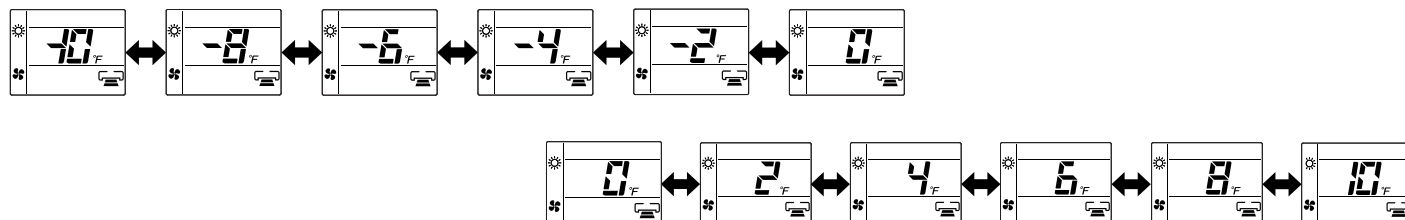
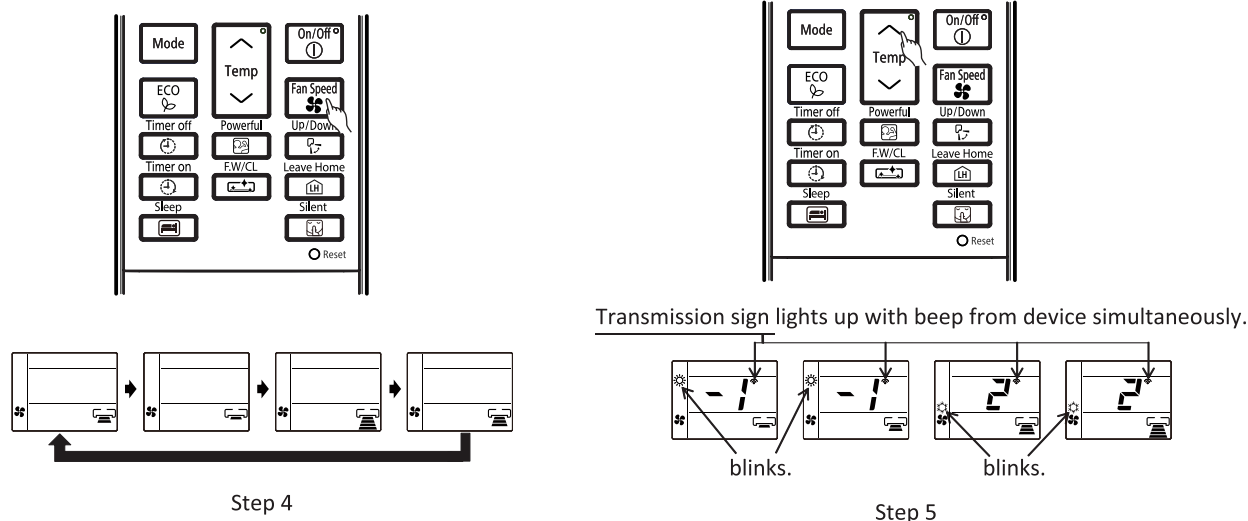
For more information, please refer to the operation manual.

9.10. SHIFT VALUE

1. While pressing and holding (ON/OFF) button and button, press [RESET] button on the same.
Release [RESET] button only and make sure that all marks on the remote controller display are indicated then release the (ON/OFF) button and button. Remote controller now enters "Shift Value Change Mode".
2. Press the (MODE) selector button so that the display indicates (FAN) mode.
3. Press the (ON/OFF) button and FAN operation will be started.



4. Set the FAN SPEED with the (FAN SPEED) button according to the following FAN speed setting in order to choose the desired operation mode that is required for shift value setting temperature modification.
 - To change the shift value for COOLING mode operation, select either (HIGH) or (MED) FAN SPEED.
 - To change the shift value for HEATING mode operation, select either (LOW) or (SILENT) FAN SPEED.
5. Press the (TEMP or) button to change the shift value. (The shift value changed with device producing beep sound.)



NOTE :

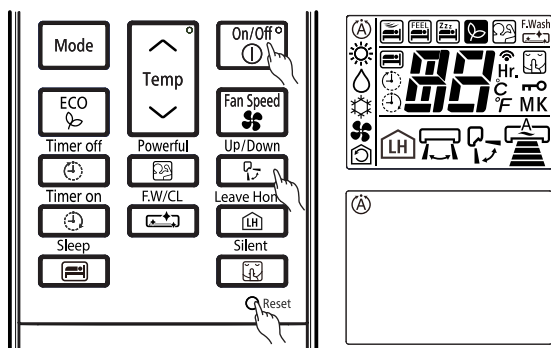
1. The displayed shift value, (HEAT) and (COOL) symbol on the remote controller display will disappear after 10 seconds.
2. The changed shift value will remain unchanged after turned off the power.
3. If "0" is displayed on the remote controller display, it indicates the shift value is now at the initial setting .

9.11. DISPLAY OPERATION MODE SETTING

For operating indoor unit independently (without outdoor unit connection), remote controller must be set according to below procedures before send the signal to the indoor unit. New communication format between indoor and outdoor is required to communicate with outdoor unit.

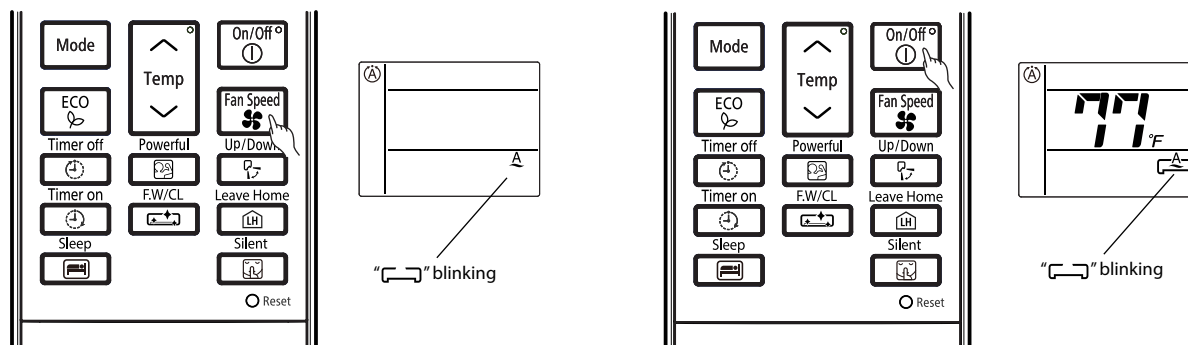
PROCEDURE

1. While pressing and holding  (ON/OFF) button and  (UP/DOWN) button, press  (RESET) button on the same time. Release  (RESET) button only and make sure that all marks on the LCD display are indicated, then release the  (ON/OFF) button and  (UP/DOWN) button. Remote controller now enters "DISPLAY OPERATION MODE" for the indoor unit to run independently. Please ensure that when pressing  (FAN SPEED) button, "  " will be blinking.



2. Press the  (MODE) selector button to choose the desired operation mode.
3. Press  (ON/OFF) button.

Then , the indoor unit will starts to operate independently according the selected operation mode.



NOTE :

- (1) During "DISPLAY OPERATION MODE", "  " blinks on LCD of remote controller.
- (2) When operation stops, "DISPLAY OPERATION MODE" is canceled.

9.12. HOW TO CHANGE THE INTERMITTENT FAN CONTROL SETTING

The intermittent fan control during thermo off in Heating mode can be changed by the remote controller.

(The procedure should be done only by service personnel.)

It is possible to select from 3 patterns.

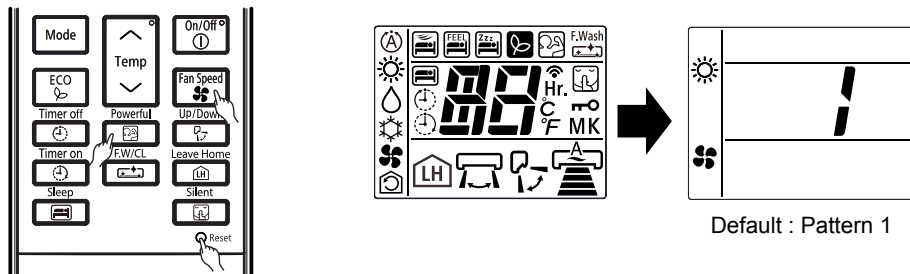
PROCEDURE

Press  (POWERFUL) button,  (FAN SPEED) button and press  [RESET] button simultaneously.

Release  [RESET] button only and make sure that all marks on the remote controller display are indicated, then release

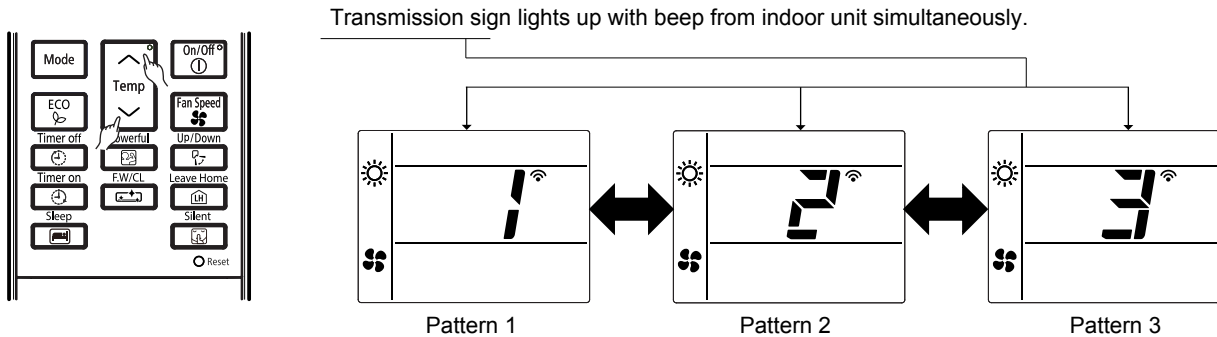
 (POWERFUL) button and  (FAN SPEED) button.

Remote controller now enters "Intermittent Fan Control Change Mode".



Press [ROOM TEMPERATURE setting] [ (UP) /  (DOWN)] button.

(The intermittent pattern changed with indoor unit beep sound)



	Pattern 1	Pattern 2	Pattern 3
Single model	Continuous	30sec ON / 210sec OFF repeatedly	50sec ON / 190sec OFF repeatedly
Multi	30sec ON / 210sec OFF repeatedly	50sec ON / 190sec OFF repeatedly	Continuous

NOTE :

- (1) The indication of the selected intermittent pattern will disappear after 10 seconds.
- (2) The selected intermittent pattern will remain unchanged after the unit is turned off.

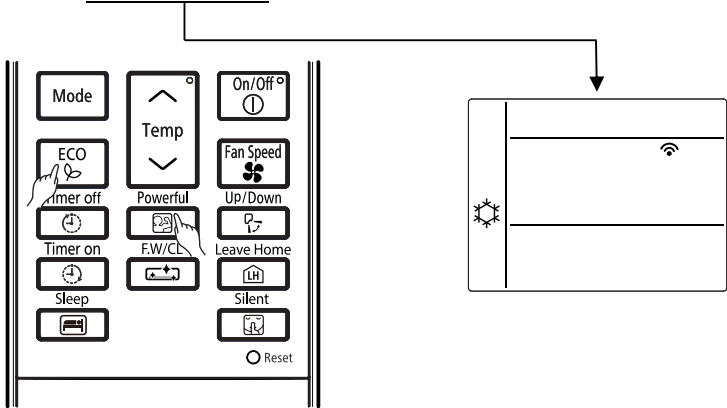
9.13. HOW TO CHANGE THE FAN SPEED IN COOLING MODE DURING THERMO OFF

The fan speed in Cooling Mode during thermo off can be changed by the remote controller.
(This procedure shall be implemented strictly by service personnel only.)
It is possible to return it to the default setting.

PROCEDURE

Press  [POWERFUL] button and  [ECO] button simultaneously for about 5 seconds when the remote controller is OFF.

Transmission sign lights up with beep from indoor unit simultaneously.



- Beep sound pattern :
- 1) Default setting : Short beep
 - 2) Changed setting : Double beep

	Fan speed during thermo off
Default Setting	Ultra low
Changed Setting	Set fan speed (When auto fan speed is set, the fan speed is low)

- NOTE :
- (1) The selected fan speed will remain unchanged after the unit is turned off.
 - (2) If Timer reservation has been set, it will be canceled.
 - (3) During time setting and timer setting, this operation cannot be set.

9.14. SETTING THE PREVENTION OF MUTUAL INTERFERENCE

a.) Other indoor circuit breakers should be disconnected.



b.) Remove the back cover of the remote control.

c.) Cut the jumper as shown below.

d.) Press "Reset" button after installing the battery.

e.) Corresponding to the room electrical box dial code 6 to dial on.



Cut (Attention: Remove the battery before cutting. Do not cut with electricity).



f.) Please use the remote control to check the available models of corresponding indoor machines.

10 OPTION LIST

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10.1 WIRED REMOTE CONTROL SPX-RCDA1 AND SPX-RCDB1

This controls the operation function and timer setting of the room air conditioner.

SPX-RCDA1	SPX-RCDB1
	
RAD-SH07QHLAE RAD-SH09QHLAE RAD-SH12QHLAE RAD-SH18QHLAE RAD-SH24QHLAE	RAS-EH07QHLAE RAF-SH07QHLAE RAS-EH09RHLAE RAF-SH09QHLAE RAS-EH12RHLAE RAF-SH12QHLAE RAS-EH18RHLAE RAF-SH18QHLAE RAS-EH24RHLAE RAS-SH07QHLAE RAI-SH07QHLAE RAS-SH09RHLAE RAI-SH09QHLAE RAS-SH12RHLAE RAI-SH12QHLAE RAS-SH18RHLAE RAI-SH18QHLAE RAS-SH24RHLAE

BUTTONS	FUNCTION
	MODE Selector Use this button to select the operation mode. Every time you press this button, the mode will change from (AUTO) → (HEAT) → (DEHUMIDIFY) → (COOL) cyclically.
	FAN SPEED Selector Button This determines the fan speed. Every time you press this button, the airflow rate will change from (AUTO) → (HIGH) → (MED) → (LOW) → (SILENT) (This button allows selection of optimal or preferred fan speed for each operation mode).
	ON/OFF button Press this button to start operation. Press it again to stop operation.
	SLEEP button Use this button to set the SLEEP timer.
	SET button Timer setting reservation.
	OFF button Select the turn OFF timer.
	ON button Select the turn ON timer.
	CANCEL button Cancel timer reservation.
	AUTO SWING (Vertical) button Controls the angle of the horizontal air deflector.
	ROOM TEMPERATURE setting button

10.1.1 SHIFT VALUE

1. Press and hold ① (ON/OFF) button and  (ON TIMER) button at the same time while giving a single press on the RESET button until remote controller now enter 'Shift value change mode'.
2. Press ① (ON/OFF) button so that the display indicates  (FAN) speed.
3. Select  (FAN SPEED) button to choose Heating Shift or Cooling Shift Mode.

By setting fan speed to HIGH  or MED  , it will go to Cooling Shift mode.

By setting fan speed to LOW  or SILENT  , it will go to Heating Shift mode.

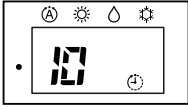
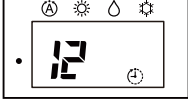
4. Press  (ROOM TEMPERATURE) button to change the shift value (-5°C ~ 0 ~ 5°C).
5. Press ① (ON/OFF) button to end 'Shift value setting mode'.

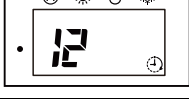
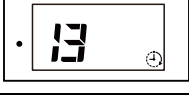
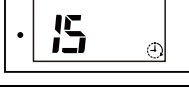
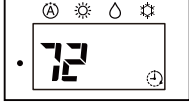
NOTE:

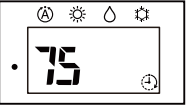
1. There are total of 11 shift values ranging from -5 to 5.
2. The changed shift value will remain unchanged after turned off the power.

10.1.2 ERROR CODE INFORMATION

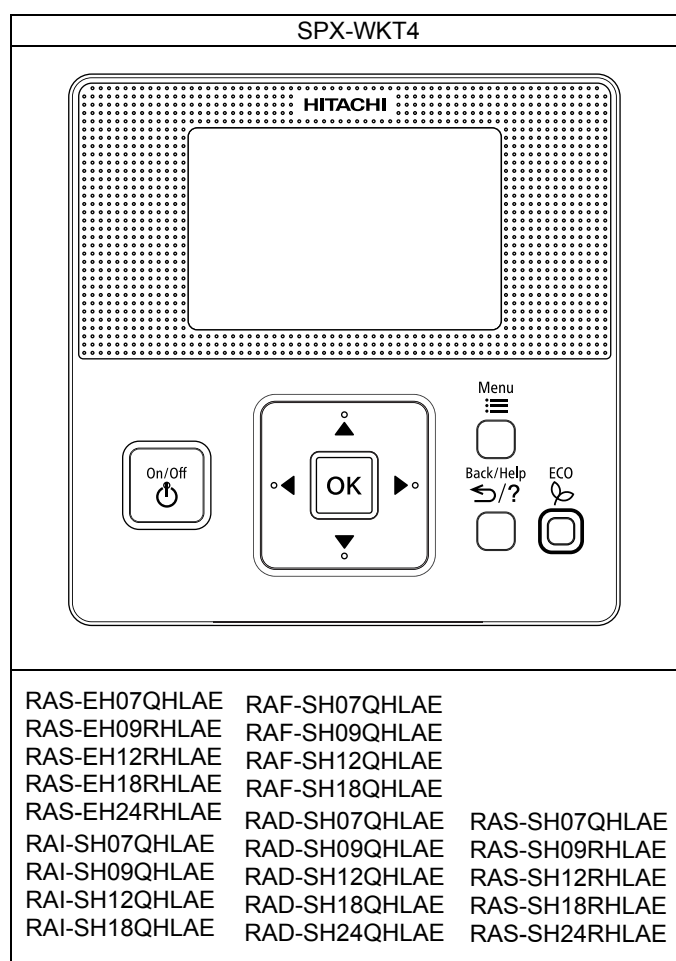
1. In case failure occurs to the air conditioner, the error code will constantly appear on the wired remote controller display.

	TIMER LAMP BLINKING	LD1351 BLINKING	CODE	MEANING
INDOOR	-	-	-	Normal
	1 time	-		Refrigerant cycle fault
	2 times	-	-	Outdoor unit is under forced operation
	3 times	-		Communication error between indoor and outdoor units
	9 times	-		Indoor thermistor
	10 times	-		Abnormal rotating numbers
	12 times	-		Outdoor interface error
	13 times	-		IC401 data reading error
OUTDOOR	4 times	2 times		Peak current cut
	4 times	3 times		Compressor abnormal low speed rotation
	4 times	4 times		Compressor switching failure
	4 times	5 times		Overload lower limit cut

	TIMER LAMP BLINKING	LD1351 BLINKING	CODE	MEANING
OUTDOOR	4 times	6 times		OH thermistor temperature rise
	4 times	7 times		Abnormal outdoor thermistor
	4 times	8 times		Communication error between micon
	4 times	9 times		Indoor type mis-matched
	4 times	10 times		Abnormal power source
	4 times	11 times		Fan stop for strong wind
	4 times	12 times		Fan motor fault
	4 times	13 times		EEPROM reading error
	4 times	14 times		Active converter defective
	4 times	15 times		Abnormal PWB circuit
		LD1351 Lit LD1352 BLINKING		
	4 times	1 times		Overheat thermostat
	4 times	2 times		Defrost thermostat

	TIMER LAMP BLINKING	LD1351 Lit LD1352 BLINKING	CODE	MEANING
OUTDOOR	4 times	3 times		Outdoor temperature thermostat
	4 times	4 times		Narrow pipe thermostat (indoor 1)
	4 times	5 times		Wide pipe thermostat (indoor 1)
	4 times	6 times		Narrow pipe thermostat (indoor 2)
	4 times	7 times		Wide pipe thermostat (indoor 2)
	4 times	8 times		Narrow pipe thermostat (indoor 3)
	4 times	9 times		Wide pipe thermostat (indoor 3)
	4 times	10 times		Narrow pipe thermostat (indoor 4)
	4 times	11 times		Wide pipe thermostat (indoor 4)
	4 times	12 times		Narrow pipe thermostat (indoor 5)
	4 times	13 times		Wide pipe thermostat (indoor 5)

10.2 WIRED REMOTE CONTROL SPX-WKT4



10.2.1 SERVICE MENU OPERATION

10.2.1.1 SERVICE MENU

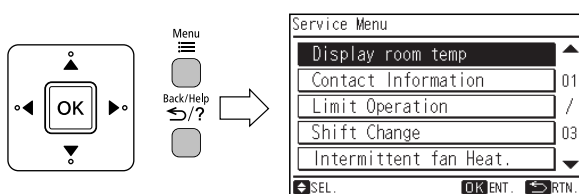
Various setting functions are displayed in the service menu. This procedure shall be implemented strictly by service personnel only. After implementing this procedure, test run must be performed to ensure that the procedure has been done as intended, without any issues. Refer to the following sections for each function.

NOTE:

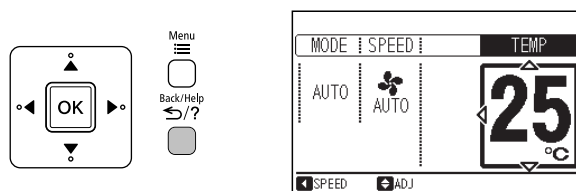
☒ : Unable to set

- If the function with "☒" is selected from the menu, "Setting Disabled" will be displayed on the lower screen.
- The image in case of Celsius setting of setting temperature is shown in this manual as the example.

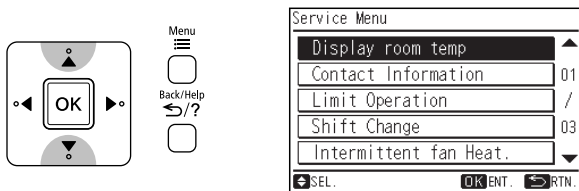
- 1 Press and hold  and  simultaneously for at least 3 seconds during the normal mode. The service menu will be displayed.



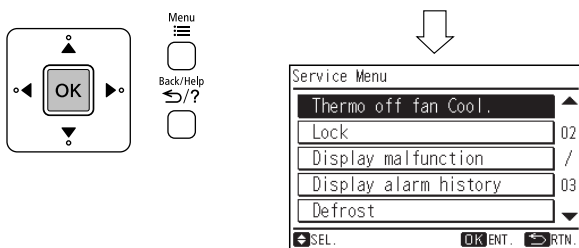
- 3 Press "/?" (return/help) to return to the normal mode.



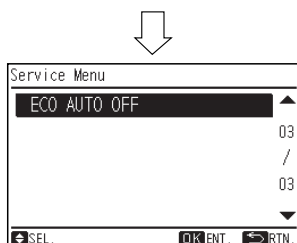
- 2 Select the "Service Menu" function by pressing "△" or "▽" and press "OK". ("☒" will be displayed if the function is not available.)



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NOTE:

- If the menu screen remains unchanged for approximately 2 hours, the screen will automatically return to the normal mode.

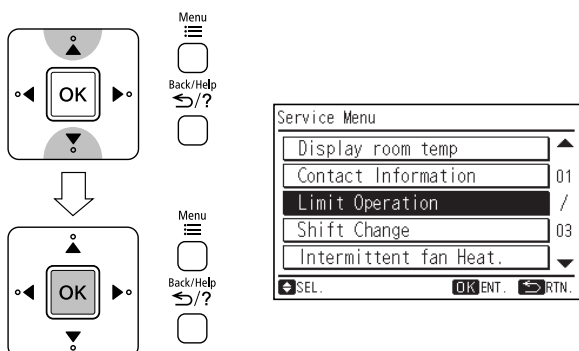
NOTE:

- The "Service Menu" functions vary depending on which is displayed in the stop and in operation, or model-wise.

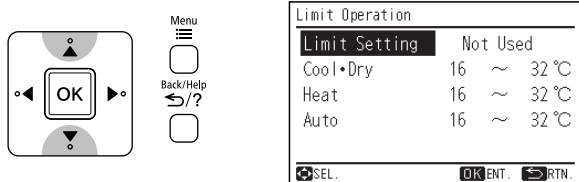
10.2.1.4 LIMIT OPERATION

Setting temperature range can be changed.

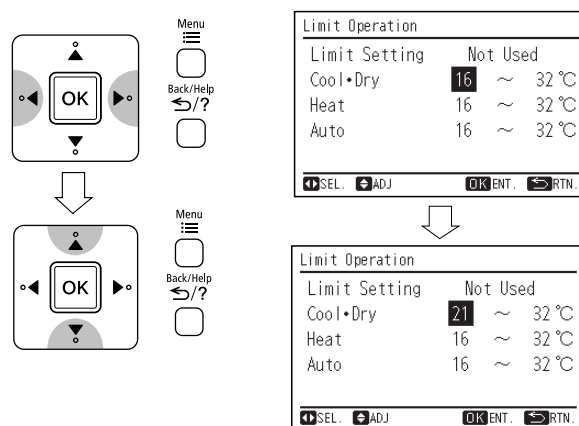
- 1 Select "Limit Operation" from the service menu and press "OK".
The limit operation setting will be displayed.



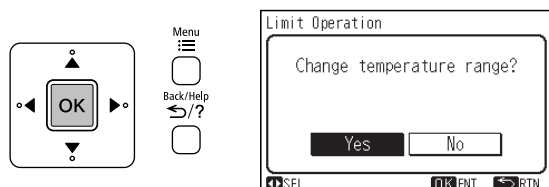
- 2 Press " Δ " or " ∇ " to select the setting items. The setting items are displayed "Limit Setting", "Cool-Dry", "Heat" and "Auto".



- 3 Press " $\triangleleft$ " or " $\triangleright$ " to set each setting content for the selected item. When "Limit Setting" is selected, the setting contents are switched in order of "Not Used" $\leftrightarrow$ "Used" by pressing " Δ " or " ∇ ". When "Cool-Dry" or "Heat" or "Auto" is selected, the setting temperature (lower limit or upper limit) can be set every 1°C (1°F) by pressing " Δ " or " ∇ ".

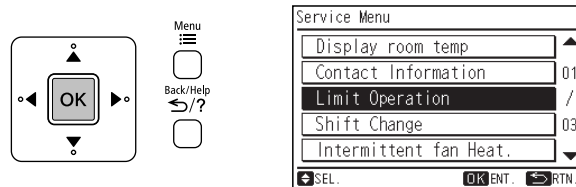


- 4 Press "OK" to finish the limit operation setting. The confirmation screen will be displayed.

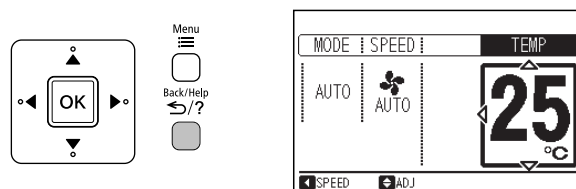


- 5 Select "Yes" by pressing " $\triangleleft$ " or " $\triangleright$ " and press "OK".

The setting will be confirmed and the screen will return to the service menu.



- 6 Press " $\Leftarrow$ /?" (return/help) to return to the normal mode.



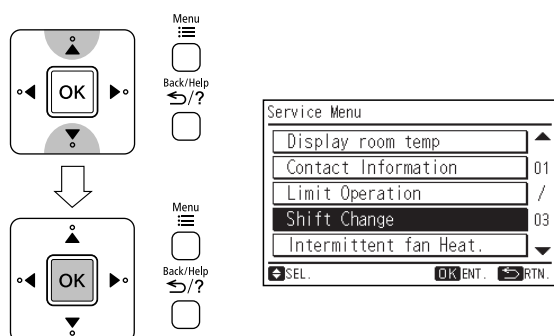
NOTE:

- The limit operation setting will remain unchanged after the unit is turned off.

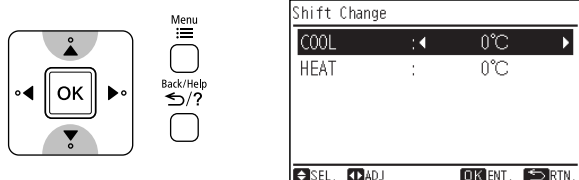
10.2.1.5 SHIFT CHANGE

The shift value setting temperature for cooling and heating mode operation can be changed.

- 1 Select "Shift Change" from the service menu and press "OK". The shift change setting will be displayed.

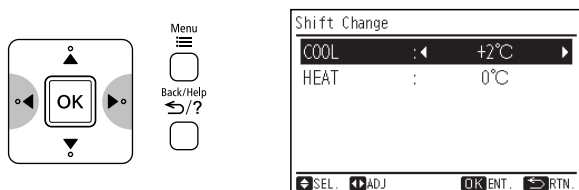


- 2 Press "△" or "▽" to select the operation mode. ("COOL" or "HEAT")

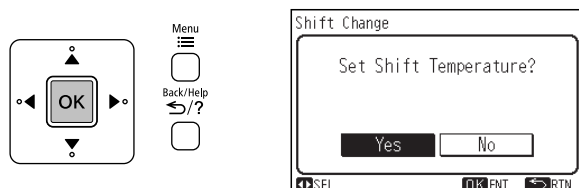


- 3 By pressing "◀" or "▶", the shift value will be changed as below.

"...+5°C ↔ -5°C ↔ -4°C ↔ -3°C ↔ -2°C
 ↔ -1°C ↔ 0°C ↔ +1°C ↔ +2°C ↔
 +3°C ↔ +4°C ↔ +5°C ↔ -5°C (+10°F
 ↔ -10°F ↔ -8°F ↔ -6°F ↔ -4°F ↔
 -2°F ↔ 0°F ↔ +2°F ↔ +4°F ↔ +6°F
 ↔ +8°F ↔ +10°F ↔ -10°F...)"

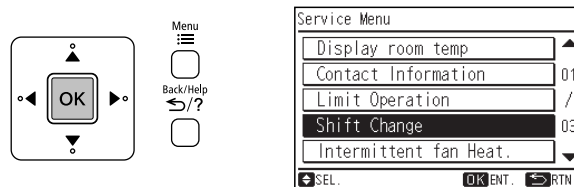


- 4 Press "OK" to finish the shift value setting. The confirmation screen will be displayed.

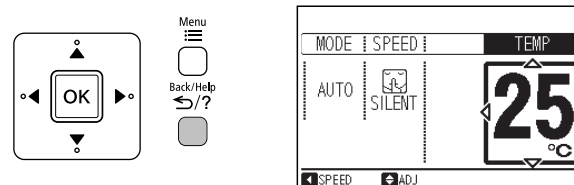


- 5 Select "Yes" by pressing "◀" or "▶" and press "OK".

The setting will be confirmed and the screen will return to the service menu.



- 6 Press "Back/Help" (return/help) to return to the normal mode.



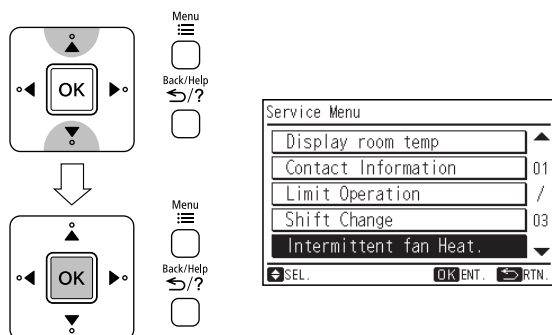
NOTE:

- When the setting is done, fan speed basically will be changed to "Silent"
- This setting cannot use during operation.
- The shift change setting will remain unchanged after the unit is turned off.
- Some indoor units are available from -3°C (-6°F) to +3°C (+6°F) only of shift change. In case of that, shift change setting of -5°C (-10°F), -4°C (-8°F), +4°C (+8°F) or +5°C (+10°F) will not be reflected to indoor unit.

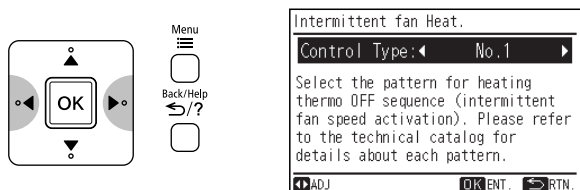
10.2.1.6 INTERMITTENT FAN CONTROL

The intermittent fan control during thermo off in Heating mode mode can be changed.

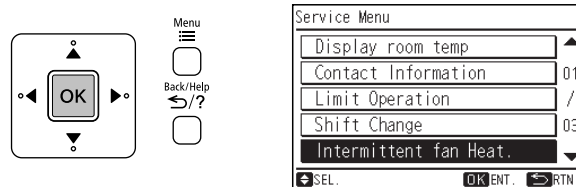
- 1 Select "Intermittent fan Heat." from the service menu and press "OK".
The intermittent fan control setting will be displayed.



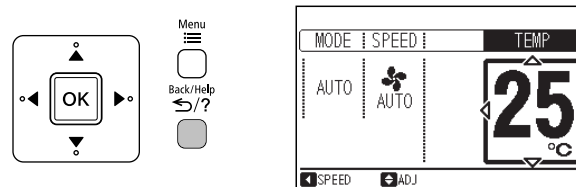
- 2 By pressing "<" or ">", the "Control Type" will be changed as below.
".... No.1 ↔ No.2 ↔ No.3 ↔ No.1 ..."



- 4 Select "Yes" by pressing "<" or ">" and press "OK".
The setting will be confirmed and the screen will return to the service menu.



- 5 Press "Back/Help" (return/help) to return to the normal mode.

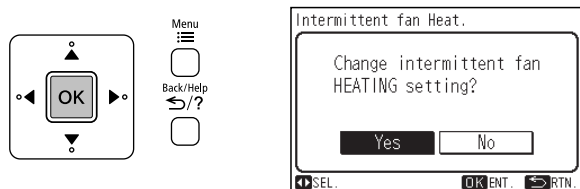


NOTE:

- This setting cannot use during operation.
- The intermittent fan control setting will remain unchanged after the unit is turned off.

	Single model	Multi model
No. 1	Continuous	30 sec ON/210 sec OFF repeatedly
No. 2	30 sec ON/210 sec OFF repeatedly	50 sec ON/190 sec OFF repeatedly
No. 3	50 sec ON/190 sec OFF repeatedly	Continuous

- 3 Press "OK" to finish the intermittent fan control setting. The confirmation screen will be displayed.

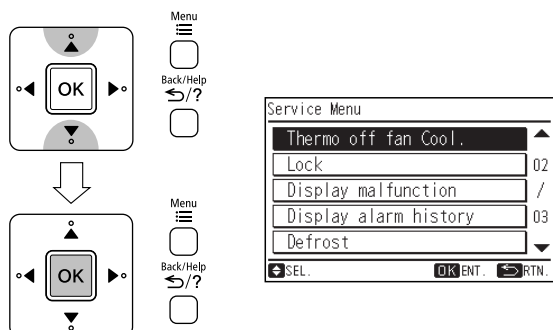


10.2.1.7 FAN SPEED DURING THERMO OFF

The fan speed during thermo off in Cooling mode can be changed.

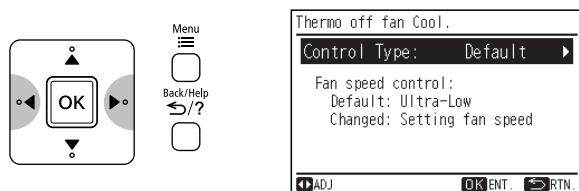
- 1 Select "Thermo off fan Cool." from the service menu and press "OK".

The fan speed during thermo off setting will be displayed.



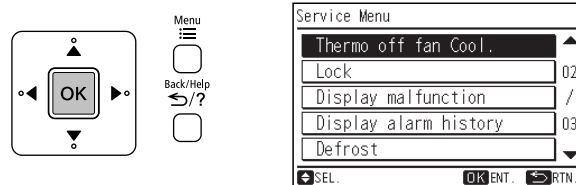
- 2 By pressing "<" or ">", the "Control Type" will be changed as below.

"Default" ↔ "Changed"

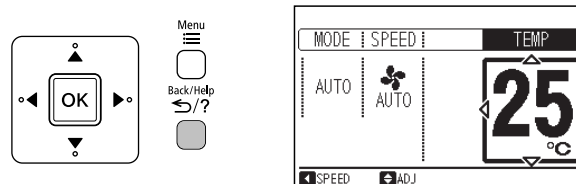


- 4 Select "Yes" by pressing "<" or ">" and press "OK".

The setting will be confirmed and the screen will return to the service menu.



- 5 Press "Back/Help" (return/help) to return to the normal mode.

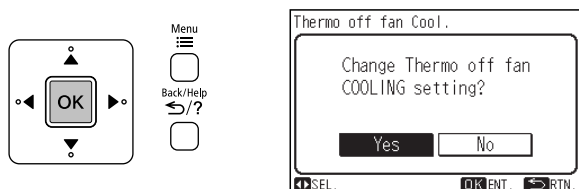


NOTE:

- This setting cannot use during operation.
- The fan speed during thermo off setting will remain unchanged after the unit is turned off.

	Fan speed during thermo off
Default	Ultra low
Changed	Set fan speed (When auto fan is set, the fan speed is low.)

- 3 Press "OK" to finish the thermo off fan control setting. The confirmation screen will be displayed.

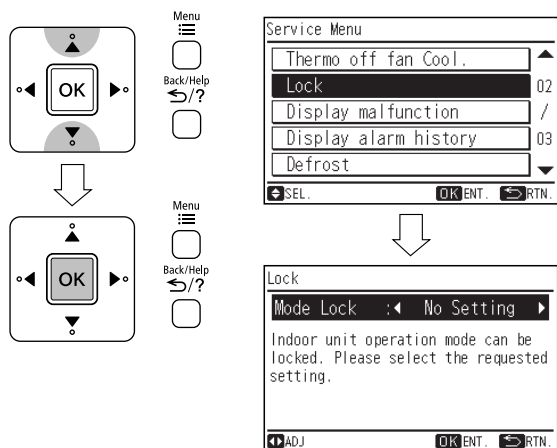


10.2.1.8 OPERATION LOCK

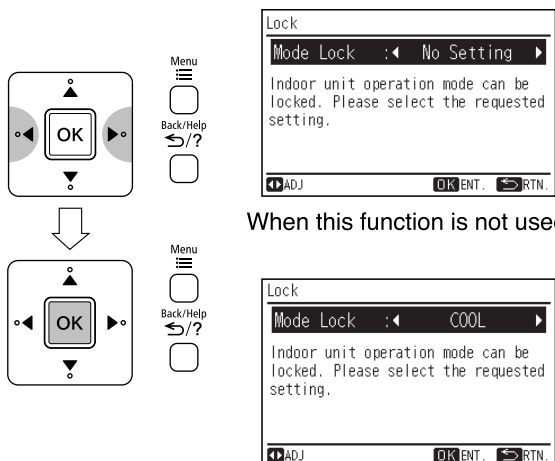
This function is used to lock the operation mode from the remote controller.

The remote controller can be set to fix the "Heating" mode (including "Fan"), "Cooling" mode and "Dehumidifying" mode (including "Fan") operations.

- When unit is OFF, select "Lock" from the service menu and press "OK".
The screen of "Mode Lock" selection will be displayed.

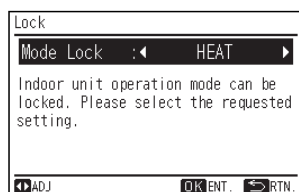


- By repeatedly pressing "<" or ">", the indication is changed in order of "No Setting" ↔ "COOL" ↔ "HEAT".
Select the function target and press "OK".
The confirmation screen will be displayed.



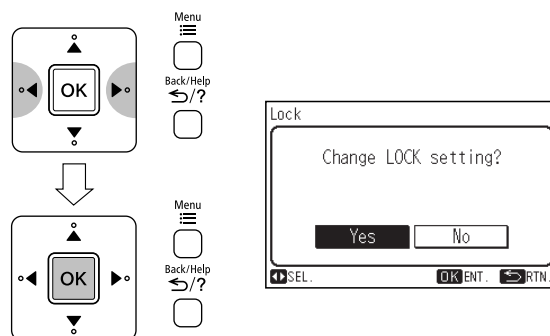
When this function is not used

When "Cooling" mode lock is selected

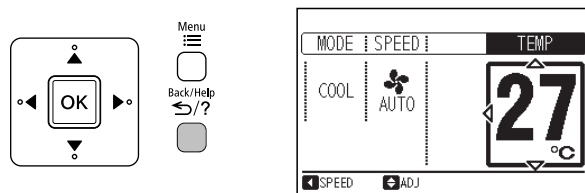


When "Heating" mode lock is selected

- Select "Yes" by pressing "<" or ">" and press "OK".
The setting will be confirmed and the screen will return to the service menu.



- Press "Back/Help" (return/help) to return to the normal mode.



ex. Select "Cooling" mode lock

NOTE:

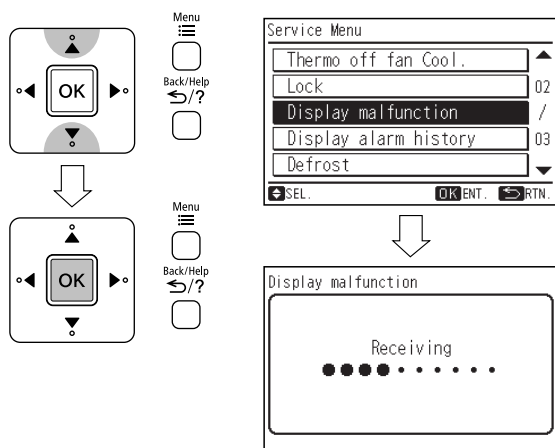
- The operation lock setting will remain unchanged after the unit is turned off.

10.2.1.9 DISPLAY MALFUNCTION

Failure modes are stored in the nonvolatile memory of indoor unit and shall be redisplayed by this remote controller. This function is useful in checking the failure modes either during switching OFF the power or restarting the device without checking the error code on display or number of indication lamp blinking. The remote controller can redisplay up to last 5 failure modes from the memory. Thus, for some failure modes which are unable to retrieve because of remote controller limit to redisplay only 5 failure modes, it can be found by cleaning up the memory first then recheck the memory content again during the visit at the customer place.

a) How to redisplay failure diagnosis

- 1 Turn the circuit breaker OFF.
- 2 Then turn the circuit breaker ON.
- 3 To enter the service menu.
- 4 Select "Display malfunction" from the service menu and press "OK".



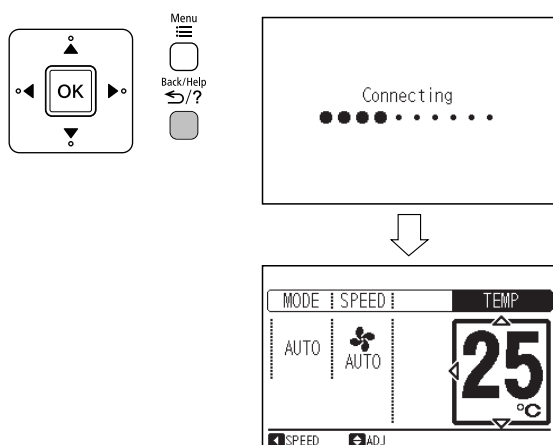
- 5 The last 5 failure modes from the memory will be displayed.

Display malfunction	
Unit	Code
Last IN	010
IN	010
IN	010
IN	009
IN	009

NOTE:

- During display, the timer lamp of indoor unit will blink at the last failure mode.

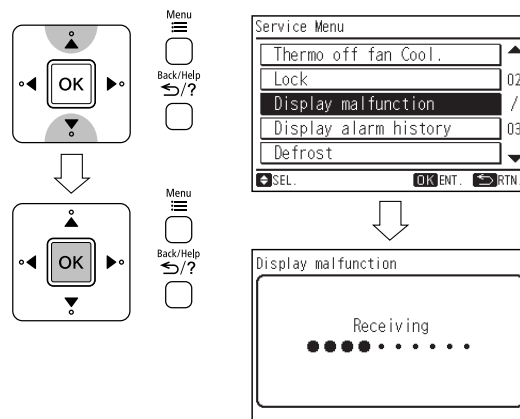
- 6 Press "Back/Help" (return/help) to return to the normal mode.



b) How to clear the failure diagnosis data

- 1 Redisplay the failure diagnosis data.
- 2 To enter the service menu.

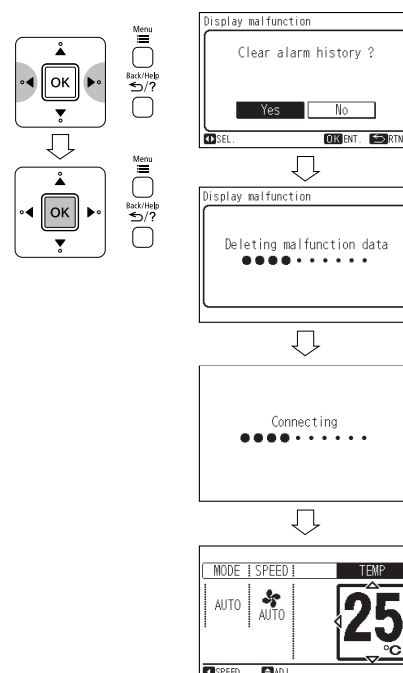
- 3 Select "Display malfunction" from the service menu and press "OK".



- 4 The last 5 failure modes from the memory will be displayed. "OK DeIAII" is displayed in this time.

Display malfunction	
Unit	Code
Last IN	010
IN	010
IN	010
IN	009
IN	009

- 5 Press "OK". The confirmation screen is displayed. Select "Yes" by pressing "<" or ">" and press "OK".
When the failure diagnosis data is cleared, the screen will automatically return to the normal mode.



NOTE:

- The clear mode is valid only once after section "1.9.1".

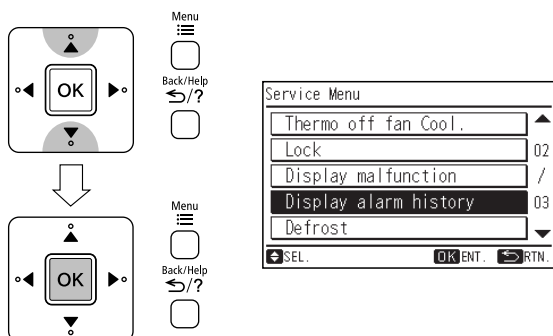
10.2.1.10 DISPLAY ALARM HISTORY

The history of failure modes are also stored in the nonvolatile memory of this remote controller. This function is useful for when a failure to check whether or not occurred. (Time and date is also indicated.)

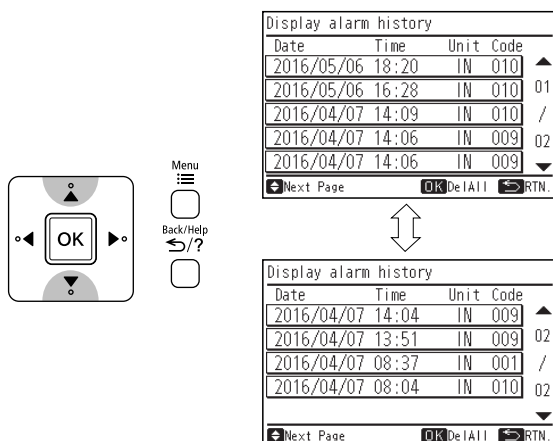
The remote controller can memorize to last 10 failure modes in the memory.

a) How to display alarm history

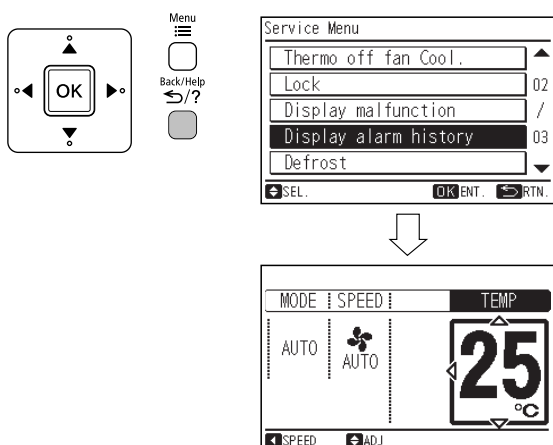
- 1 To enter the service menu.
- 2 Select "Display alarm history" from the service menu and press "OK".



- 3 The last 10 failure modes (up to 5 failure modes per one screen) in the memory will be displayed. By pressing "△" or "▽", scroll page.

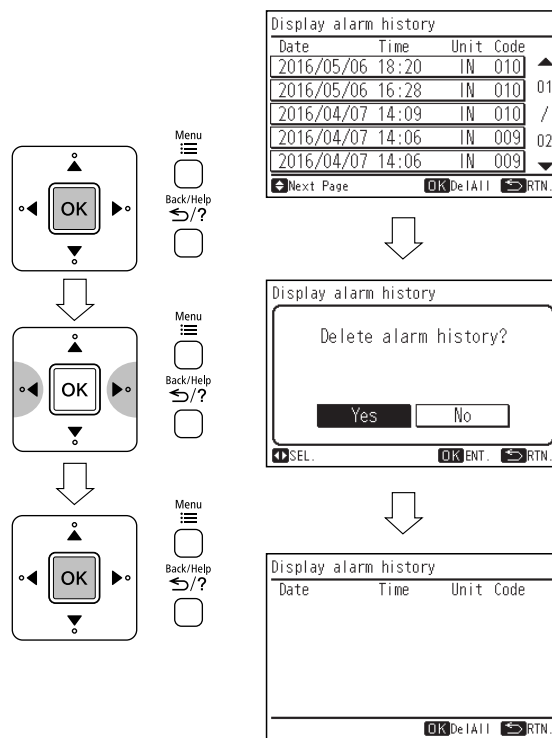


- 4 Press "Back/Help" (return/help) twice to return to the normal mode.

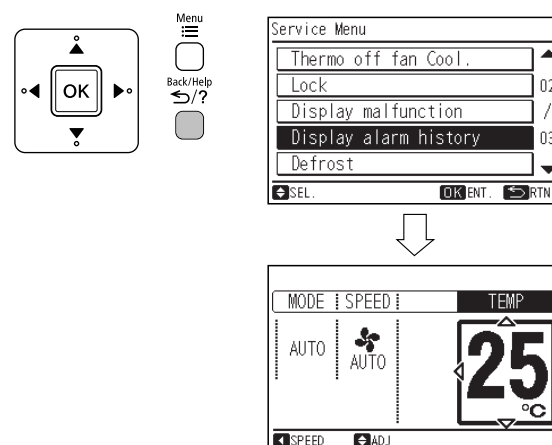


b) How to clear the alarm history

- 1 Redisplay the alarm history. (Refer to section "1.10.1")
- 2 Press "OK". The confirmation screen is displayed. Select "Yes" by pressing "◀" or "▶" and press "OK".



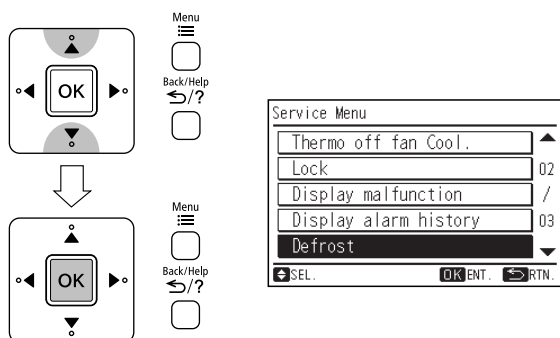
- 3 Press "Back/Help" (return/help) twice to return to the normal



10.2.1.11 DEFROSTING INHIBIT PERIOD SELECTION

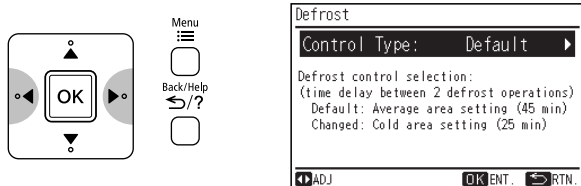
The defrosting inhibit period selection can be changed.
This selection is valid with the single model only.

- 1 Turn the circuit breaker OFF.
- 2 Then turn the circuit breaker ON.
- 3 To enter the service menu.
- 4 Select "Defrost" from the service menu and press "OK".



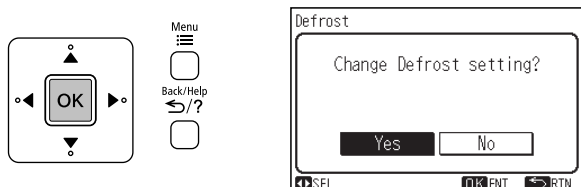
- 5 By pressing "<" or ">", the "Control Type" will be changed as below.

"Default" ↔ "Changed"



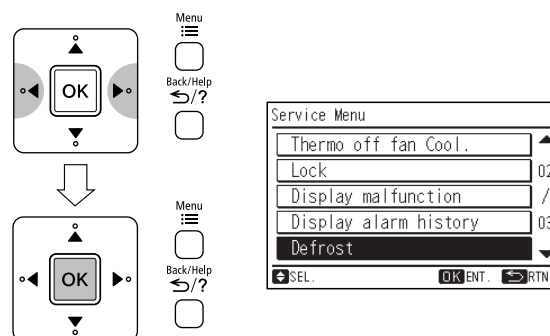
	Defrosting inhibit period
Default	Average area setting (Around 45 min)
Changed	Cold area setting (Around 25 min)

- 6 Press "OK" to finish the defrosting inhibit period selection setting. The confirmation screen will be displayed.

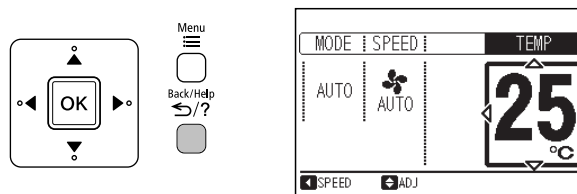


- 7 Select "Yes" by pressing "<" or ">" and press "OK".

The setting will be confirmed and the screen will return to the service menu.



- 8 Press "Back/Help" (return/help) to return to the normal mode.



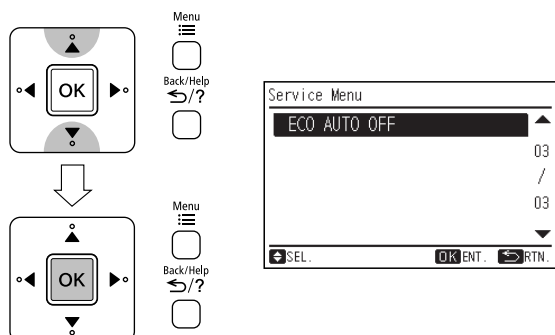
NOTE:

- The defrosting inhibit period selection setting will remain unchanged after the unit is turned off.

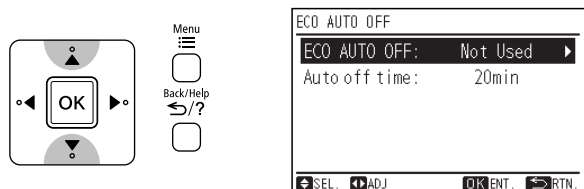
10.2.1.12 ECO AUTO OFF

This function is only available in the model with human detected sensor. When this function is set, the unit will be stopped automatically after set "Auto off time" when nobody is in the room at the eco mode setting.

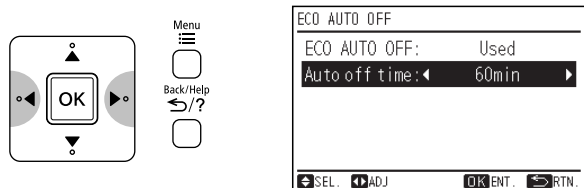
- 1 Select "ECO AUTO OFF" from the service menu and press "OK".
The ECO AUTO OFF setting will be displayed.



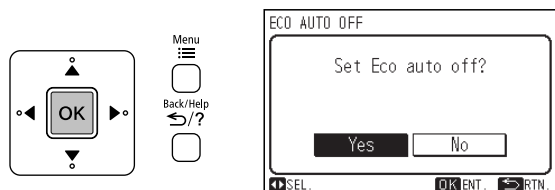
- 2 Press "△" or "▽" to select the setting items. The setting items are displayed "ECO AUTO OFF" and "Auto off time".



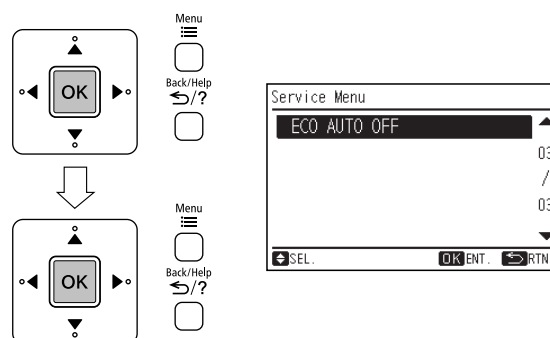
- 3 Press "◀" or "▶" to set each setting content for the selected item. When "ECO AUTO OFF" is selected, the setting contents are switched in order of "Not Used" ↔ "Used" by pressing "◀" or "▶".
When "Auto off time" is selected, the setting time can be set between "20 min" and "120 min" by pressing "◀" or "▶" cyclically. (The set unit is 10 min.)



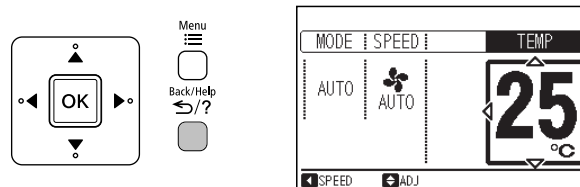
- 4 Press "OK" to finish the ECO AUTO OFF setting. The confirmation screen will be displayed.



- 5 Select "Yes" by pressing "◀" or "▶" and press "OK". The screen will return to the service menu.



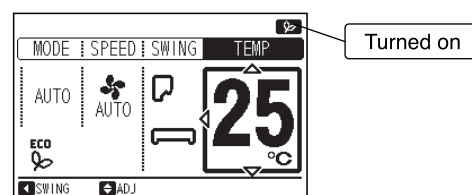
- 6 Press "Back/Help" (return/help) to return to the normal mode.



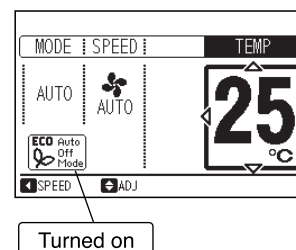
NOTE:

- The ECO AUTO OFF setting will remain unchanged after the unit is turned off.
- 7 When the ECO AUTO OFF setting is used, the screen indication will be below.

- (1) If "Eco Auto Off" setting is used, when "Eco" operation is started, "ECO" and "ECO" will be indicated on the screen of normal mode.



- (2) "ECO Auto Off Mode" will be indicated on the screen of normal mode when the operation is stopped by "ECO AUTO OFF" function.



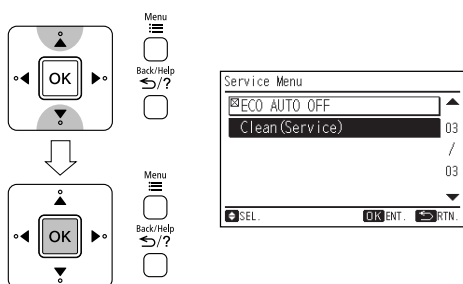
NOTE:

If the operation is stopped by "ECO AUTO OFF" function by wireless remote controller, "ECO Auto Off Mode" won't be indicated on the screen of normal mode.

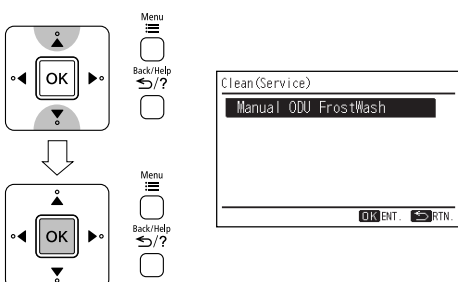
10.2.1.13 CLEAN (SERVICE)

Clean(service) can be started. (i.e. FrostWash for outdoor unit)

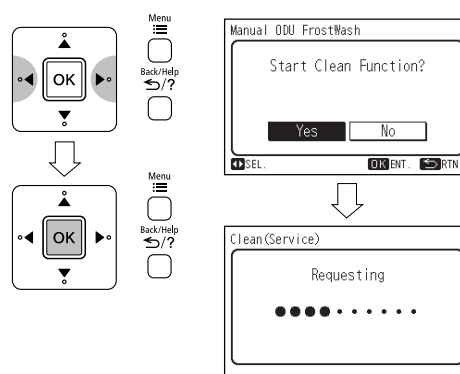
- 1 Select "Clean(Service)" from the service menu and press "OK".
Setting item will be displayed.



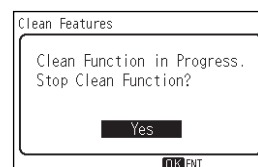
- 2 Press "△" or "▽" to select the setting items. And press "OK".
The confirmation screen will be displayed.



- 3 Select "Yes" by pressing "◀" or "▶" and press "OK".
The setting will be confirmed and Requesting display will be setting item will be displayed. appeared.



- 4 After a few seconds, Clean(service) will be started.
The running display will appear.



The clean operation will be stopped and the screen will be displayed the normal mode.

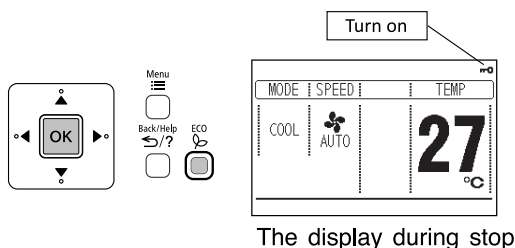
NOTE

- Based on the temperature condition and etc., Clean(service) might not start. In case of that, the running display will not appear. The display will return to normal mode.
- When clean operation finish, unit will stop automatically.
- If Weekly Timer or Simple Timer is set, Clean (Service) might stop at the middle point because of the timer setting.

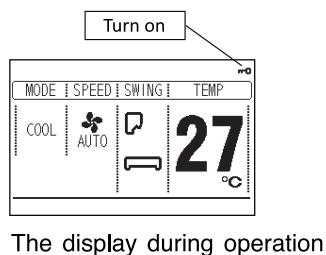
10.2.1.14 KEY LOCK

This function is used to lock all buttons from the remote controller. When this function is set, the all buttons of remote controller will be locked.

- 1 Setting of the key lock, press "OK" and "ECO" (ECO) simultaneously for 3 seconds.
"🔒" will be indicated on the screen of normal mode, and the key lock will be set.

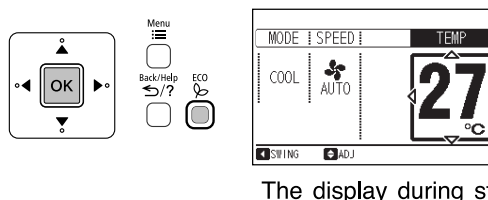


The display during stop

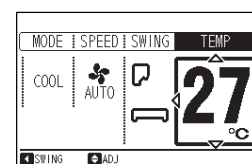


The display during operation

- 2 Cancellation of the key lock, press "OK" and "ECO" (ECO) simultaneously for 3 seconds.
"🔒" will be turned off, and the key lock will be canceled.



The display during stop



The display during operation

NOTE

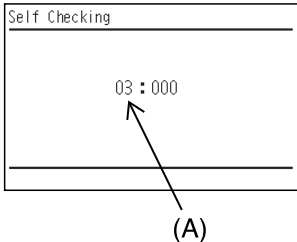
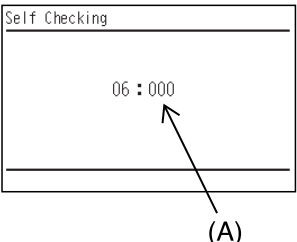
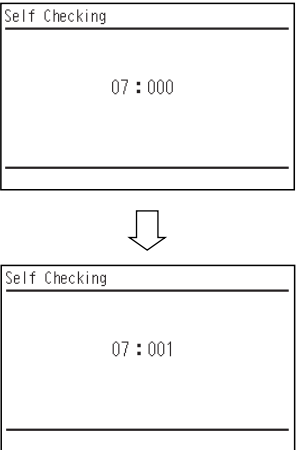
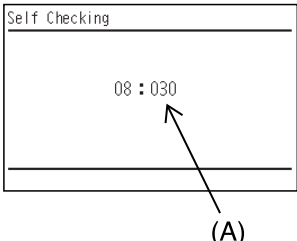
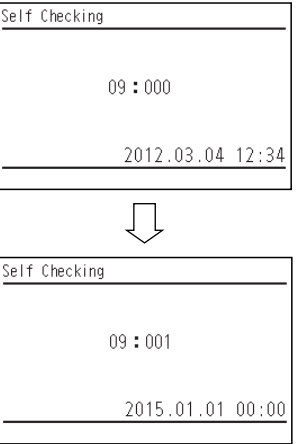
- Every time pressing "OK" and "ECO" (ECO) simultaneously for 3 seconds, the key lock state will be switched alternately to locked/unlocked.

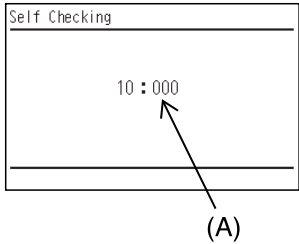
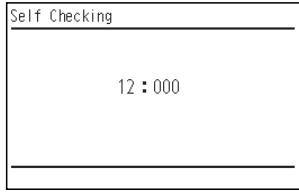
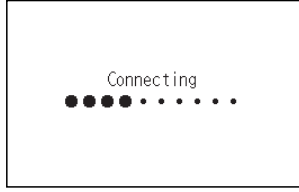
10.2.2 CHECK MENU OPERATION

10.2.2.1 SELF CHECKING

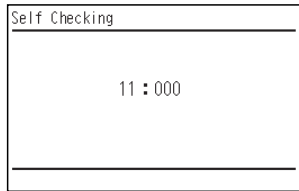
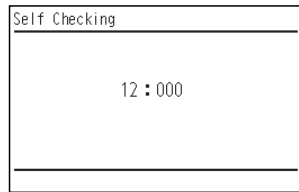
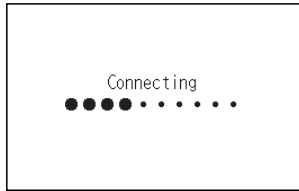
Self checking of PCB using this remote controller. The self checking performs to check the remote controller button and to clear EEPROM.

(1) Press and hold  and  simultaneously for at least 3 seconds during the normal mode. The check menu will be displayed. Select "Self Checking" from the check menu and press "OK". OK Menu Back/Help ECO Menu Back/Help ECO

(4) Back light test LCD brightness is changed gradually by pressing "OK"	(A) : 03 : Back light test 04 : Contrast test 05 : Operation indicator test 
(5) Contrast test Contrast of the LCD gradually changes by pressing "OK"	
(6) Operation indicator test Press "OK" and the operation indicator will flash in red and green twice for each.	
(7) Switch input test Press the 9 switched one by one. The number indicated with "(A)" will count up as switch being pressed. * The order of pressing switch is at random. Do not press more than 1(one) button for it will not be counted.	
(8) Transmission circuit test The remote controller automatically starts to check the transmission circuit. * To proceed next step, press "  ".	
(9) Remote controller thermistor test The detected temperature by remote controller thermistor is displayed at "(A)" in the right picture.	
(10) Date/Time test The date and time is switched from "2012.03.04 12:34" to "2015.01.01 00:00".	

(11) EEPROM test <EEPROM Clearing Cancel> Press " ^{ECO} ". <EEPROM Clear> Press " OK" or wait 15 seconds. EEPROM data will be cleared. During the process , the numbers will be indicated on where is located with "(A)". If "(A)" has value of "999", EEPROM is in faulty condition. * In case "(A)" has "999", the process does not proceed to next step.	 The image shows a rectangular screen with a title bar at the top that says "Self Checking". Below the title bar, the text "10 : 000" is displayed. A label "(A)" is positioned below the screen, with an arrow pointing to the colon between "10" and "000".
(12) Watchdog Timer test The remote controller will automatically start to check the watchdog timer. After 10 seconds are passed, the self checking is completed and the remote controller is automatically restarted. If does not restart, this check is in faulty condition.	 The image shows a rectangular screen with a title bar at the top that says "Self Checking". Below the title bar, the text "12 : 000" is displayed.
(13) When the self checking is completed, the remote controller is automatically restarted. In this case, "Connecting" is indicated and operation indicator will flash in red. So please turn the circuit breaker OFF and ON.	 The image shows a rectangular screen with the word "Connecting" at the top. Below the word, there is a horizontal row of ten dots, with the first four dots being solid black and the remaining six dots being hollow circles.

EEPROM process

(14) Clear EEPROM The remote controller will automatically restart EEPROM clearing process.	 The image shows a rectangular screen with a title bar at the top that says "Self Checking". Below the title bar, the text "11 : 000" is displayed.
(15) Watchdog Timer test The remote controller will automatically start to check the watchdog timer. After 10 seconds are passed, the self checking is completed and the remote controller is automatically restarted. If does not restart, this check is in faulty condition.	 The image shows a rectangular screen with a title bar at the top that says "Self Checking". Below the title bar, the text "12 : 000" is displayed.
(16) When the process is completed, the remote controller is automatically restarted. In this case, "Connecting" is indicated and operation indicator will flash in red. So please turn the circuit breaker OFF and ON.	 The image shows a rectangular screen with the word "Connecting" at the top. Below the word, there is a horizontal row of ten dots, with the first four dots being solid black and the remaining six dots being hollow circles.

10.3 H-LINK ADAPTOR – PSC 6RAD

10.3.1 SAFETY SUMMARY

DANGER:

- DO NOT pour water into the remote control switch (hereafter called “controller”). This product is equipped with electrical parts. This will cause serious electrical shock.

WARNING:

- DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask then for installation work and electrical wiring by service person. The specified cable should be used to connect (i) room air conditioner and adaptor, and (ii) controller and adaptor.

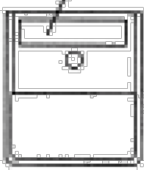
CAUTION:

- DO NOT install the indoor unit, outdoor unit, controller and cable as such places as:
 - where there is oil vapor and dispersion of oil
 - where there is sulfuric environment (near the hot springs)
 - where there is a flammable gas
 - where there is salty environment (near the sea)
- DO NOT install the indoor unit, outdoor unit, controller and cable within approximately 3 meters from strong electromagnetic wave radiators, such as medical equipment. In case that the controller is installed in a place where there is electromagnetic wave direct-radiation, shield the controller and cables by covering with the steel box and running the cable through the metal conduit tube.
- In case that there is electric noise at the power source for the indoor unit, provide a noise filter.

10.3.2 INSTALLATION WORK

■ Before installation

Check the contents and the number of the accessories in the packing.

Adaptor	 With two 1.8m cables
1 piece of cover for hiding the covering	 Attached 2 sided tapes
Two-sided tape for attaching to Adaptor	 110x40x3mm

2 connectors for H-Link connection		
2 tapping screws for attaching to wall		φ3.0 x 10mm
2 screws for attaching to wooden wall		φ3.1 x 16mm

- 1) RAC adaptor can be installed to the wall as well as on the air conditioner itself
- 2) Install RAC adaptor in the vertical surface as shown below.

Upper side

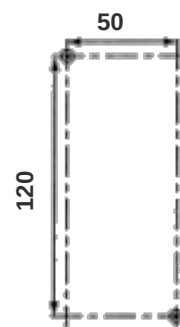
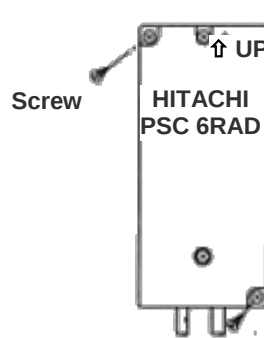


Mark “↑ UP”

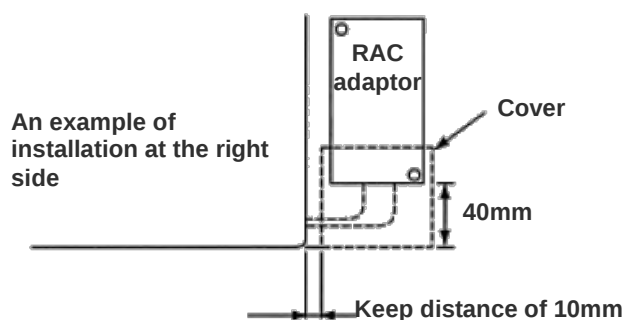
Wiring outlet

Bottom side

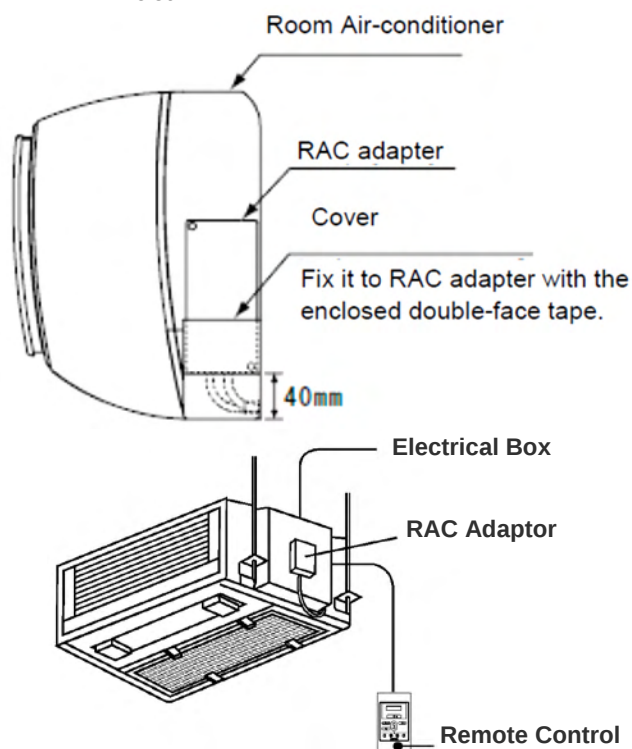
- 3) Installation procedure
 - a) When installing to the wall.
 - i) Fix the adaptor with 2 screws. Tapping screw is for metal surface, and other screw is for wooden surface.



- ii) When using the cover
It can be installed at the right and left side of room air conditioner. Fix the cover and RAC adaptor with the two-sided tape (accessory).



- b) When installing on the room air-conditioner
In case that it cannot be installed to the wall due to the space or material problem, install the RAC adaptor with the two-sided tape (accessory) on the room air-conditioner.
- Confirm if the piping cover of the unit can be removed when performing the service maintenance, and then fix the RAC adaptor in the side of room air-conditioner with two-sided tape. (Available at the right as well as left side)
 - Clean the surface to be installed with a dry cloth.

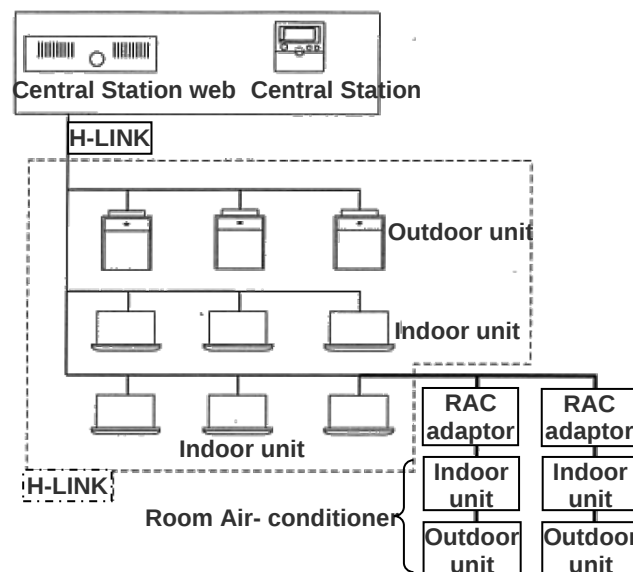


NOTE:

- Consider the following points since the adhesiveness changes according to the environmental conditions (temperature, humidity etc)
- The adhesiveness is decreased when there is humidity or oil.
- Warm the adhesive part and installation place of the two-sided tape to avoid the decrease of the adhesiveness in case the ambient temperature is low.
- DO NOT touch the adhesive part by fingers nor re-attach it many times. The adhesiveness has decreased and the RAC adaptor may fall off.
- DO NOT apply any force within 24 hours after installation.

10.3.3 ELECTRICAL WIRING

■ System configuration



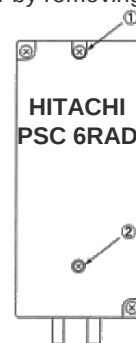
CAUTION:

- Turn OFF the power supply of the room air-conditioner of the central control device when performing the wiring work
- DO NOT run all the H-LINK cable or power supply cable along the other signal cable, or malfunction may occur due to the noise, etc. If it is required to run along the other transmission cable, separate the cable more than 30cm, or run the cable through the metal tube and earth the tube.
- Follow local codes and regulations when performing electrical wiring and earth wiring.
- Transmissions cable used in H-LINK shall be 2 cores cable (0.7mm² to 1.25mm² for model: VCTF, VCT, CVV, MVVX, CVVX, VVR, VVF) or 2 cores twisted pair cable (model: KPEV, KPEV-Spec). Total length of cable shall be below 1000mm.
- DO NOT use wire with more than 3 cores.

■ Internal components and Wiring connections

Check the contents and the number of the accessories in the packing.

- Access
Open the cover by removing the ① and ② screws.



- Wiring Connection
Connection with Room Air-Conditioner
 - Remove the front cover of the room air-conditioner and the cover of electrical box.
 - The cable attached with the connector of the RAC adaptor shall be connected with the connector of indoor PCB

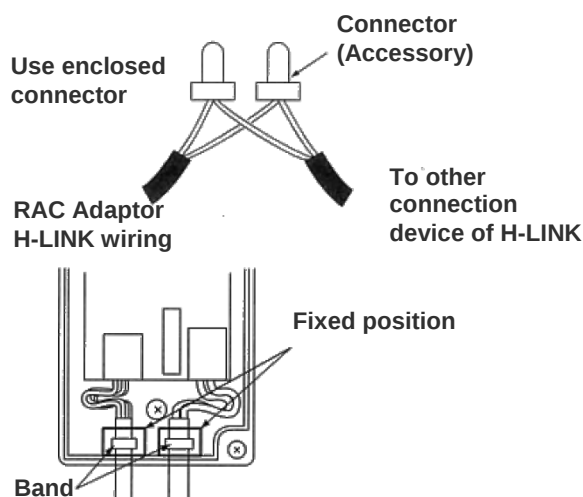
- iii) Install the electrical box cover paying attention not to clamp the cable. Read the installation manual of each room air-conditioner for confirming how to connect and how to assemble the cable of the RAC adaptor.

CAUTION:

- Disconnect the power plug before performing this work
- Turn OFF the break power source in case the power is supplied from the outdoor unit.

- Connection of Transmission Cable

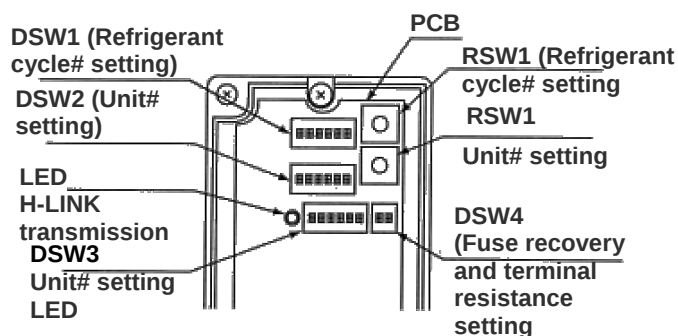
H-LINK transmission cable connecting to RAC adaptor shall be connected to H-LINK.

**CAUTION:**

- DO NOT connect incorrect wiring. It may cause the failure of the RAC Adaptor. Especially pay attention not to apply high voltage e.g. AC400/230V.
- DO NOT perform the wiring work while power to the central station or the RAC Adaptor is still being supplied. It may cause malfunction. Turn OFF devices when performing the wiring work.
- The RAC Adaptor side cable should not overload to the connector.
- DO NOT clamp the cable when attaching the RAC adaptor cover.
- Band should not be loose and in fixed position.

10.3.4 DIP SWITCH SETTING

- 1) Switch OFF the power of room air conditioner before setting the DIP switch. If the power is ON, the settings are INVALID.
- 2) The position of the DIP switch is shown below.

**CAUTION:**

- DO NOT turn ON various pins of DSW1 and DSW2

3) Set the refrigerant cycle# by RSW1 and DSW1

DSW1 (Ten digit)	RSW1 (Last digit)
DSW1 and RSW1 are set "0" before shipment. Up to 15 cycles can be set. E.g. Setting in Ref No. 5	
No. 1 pin is OFF	The position is Set 5

4) Set the unit No. by RSW2 and DSW2

DSW2 (Ten digit)	RSW2 (Last digit)
DSW2 and RSW3 are set "0" before shipment. Up to 15 cycles can be set. E.g. Setting in Unit No. 15	
No. 1 pin is OFF	The position is Set 5

5) Slave unit.

In case of setting various RAC adaptors in the same refrigerant cycle, set the RAC adaptor with smallest Unit# as a master unit. In case of setting only one RAC adaptor in a refrigerant system, this adaptor should be a master unit. Set this procedure by DSW3.

Master Unit setting	Setting before shipping (slave unit setting)

●: Master Unit setting

○: Setting before Shipping (Slave Unit setting)

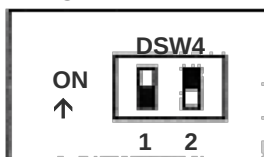
		Indoor Unit#									
Refrigerant Unit#	0	1	2	3	4	5	6	7			
	0	●	○	○	○						
	1			●	○						
	2				●	○	○	○			
	3		●								
	4										

CAUTION:

- DO NOT set various main adaptors in the same refrigerant cycle.

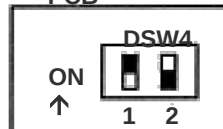
- 6) Procedure when applying 200V voltage to H-LINK wiring incorrectly.

In case of applying 200V voltage to H-LINK wiring incorrectly, the fuse installed in a transmission circuit on PCB will blow out. In this case, reconnect the wiring correctly and turn ON No. 2 pin of DSW4 on PCB. The transmission circuit can be recovered. (If applying this error again, the transmission circuit can not be recovered)

PCB

Turn ON No.2 pin of DSW4

- 7) Terminating resistance is set in whole H-LINK system.
- If H-LINK connecting devices like package air-conditioner are connected besides the RAC Adaptor, set the terminating resistance by those connecting devices. The terminating resistance should be set ON in only one position in whole H-LINK system.
 - In case that H-LINK is connected only by the RAC adaptor, set the terminating resistance by the RAC adaptor. The terminating resistance should be set ON in only one position in whole H-LINK system.

PCB

Turn ON No.1 pin of DSW4

10.3.5 TEST RUN

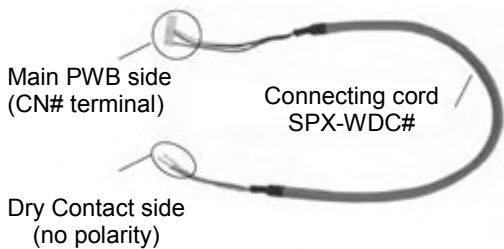
Test run should be performed in the following after finishing the installation, wiring and setting. Refer to the installation manuals enclosed with the control system equipment.

- Confirmation of RAC Adaptor Connection**
Confirm if the RAC adaptor connection is recognized in the control system equipments. In case that it is not confirmed, check the transmission cable, refrigerant cycle #, indoor unit #, terminal resistance setting etc.
- Registration**
Confirm if the RAC adaptor connection is recognized.
- Confirmation of RUN/STOP Operation.**
Confirm if the room air-conditioner operate correctly by RUN/STOP from the central control system equipments. Check also if the room air-conditioner operation changes correctly by each setting.

10.4 DRY CONTACT (SPX-WDC2 AND SPX-WDC3) APPLICATION (USING DIP SWITCH)

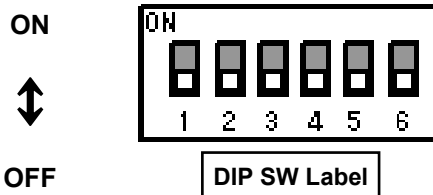
The dry contact system enables the operation of the air conditioner indoor unit to be controlled by using external dry contacts (with non voltage) such as card-key controller or window for facilities such as hotels.

Table 1 (Applicable models and related information)

Optional Connecting cord Accessory SPX-WDC#		Model	DIP SW Label	CN#
 Main PWB side (CN# terminal) Connecting cord SPX-WDC# Dry Contact side (no polarity)	SPX-WDC2	RAI-SH07/09/12/18QHLAE	SW501	CN5
		RAD-SH07/09/12/18/24QHLAE	SW501	CN5
	SPX-WDC3	RAS-EH07QHLAE RAS-EH09/12/18/24RHLAE RAS-SH07QHLAE RAS-SH09/12/18/24RHLAE	DSW1	CN6
		RAF-SH07/09/12/18QHLAE	DSW1	CN6

Note:

- 1) DRY CONTACT function is "Enable" by set pin No. 2 of the DIP SWITCH (refer to table 1 for the label) to ON position.
- 2) Select the proper setting for DRY CONTACT LOGIC INPUT pin No. 3 on DIP SWITCH (refer to Table 1 for the label)
 - i) Set to OFF position (Hi Input) if the type of Dry Contact switch to be used (for the CARD KEY UNIT or Window) is of contact type a (Normally Open Type) as shown in below diagram.
 - ii) Set to ON position (Lo Input) if the type of Dry contact switch to be used (for the CARD KEY UNIT or Window) is of contact type b (Normally Close Type) as shown in below diagram.



Pin No.	Function	Switch Position / Setting			
		OFF	Disable	ON	Enable
2	DRY CONTACT function				
3	DRY CONTACT Input Logic		HI Input Active		LO Input Active

- Please decide the type of dry contact you will be using and set the position of the DIP Switch No. 2 and 3 accordingly

[1] CHECK DRY CONTACT OF CARD KEY UNIT

	AIR CONDITIONER Standby	AIR CONDITIONER Operating
	REMOVE	INSERT
CARD KEY (Door Switch)		
Contact type a	OPEN 	CLOSE
Contact type b	CLOSE 	OPEN

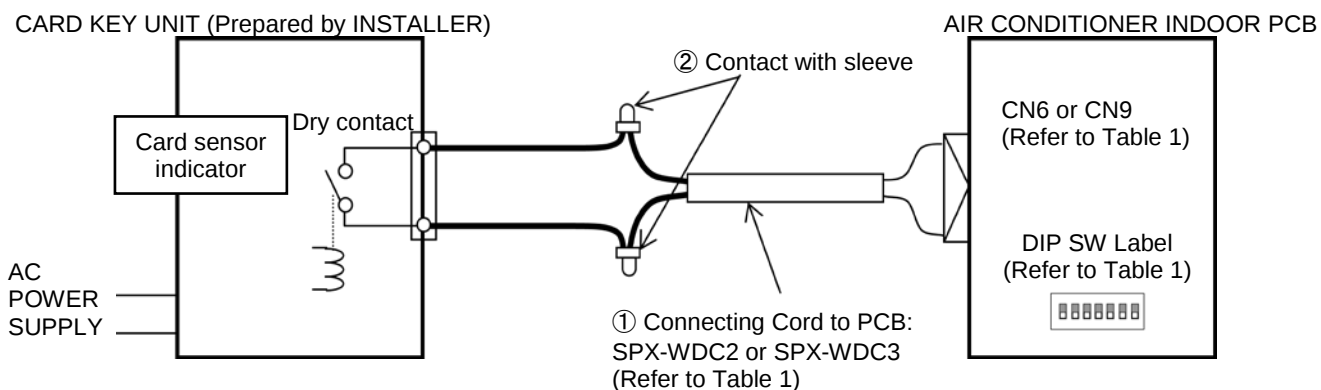
[2] SET THE POSITION OF DIP SWITCH

POSITION CONDITION OF DIP SWITCH	
INITIAL CONDITION (CARD KEY NO USE)	
	No.2 : OFF No.3 : OFF
	HI Input Active No.2 : ON No.3 : OFF
	LO Input Active No.2 : ON No.3 : ON

After all connection has been done as below diagram, ON the breaker and push ON button of wireless remote controller or wired remote controller to operate the air conditioner unit.

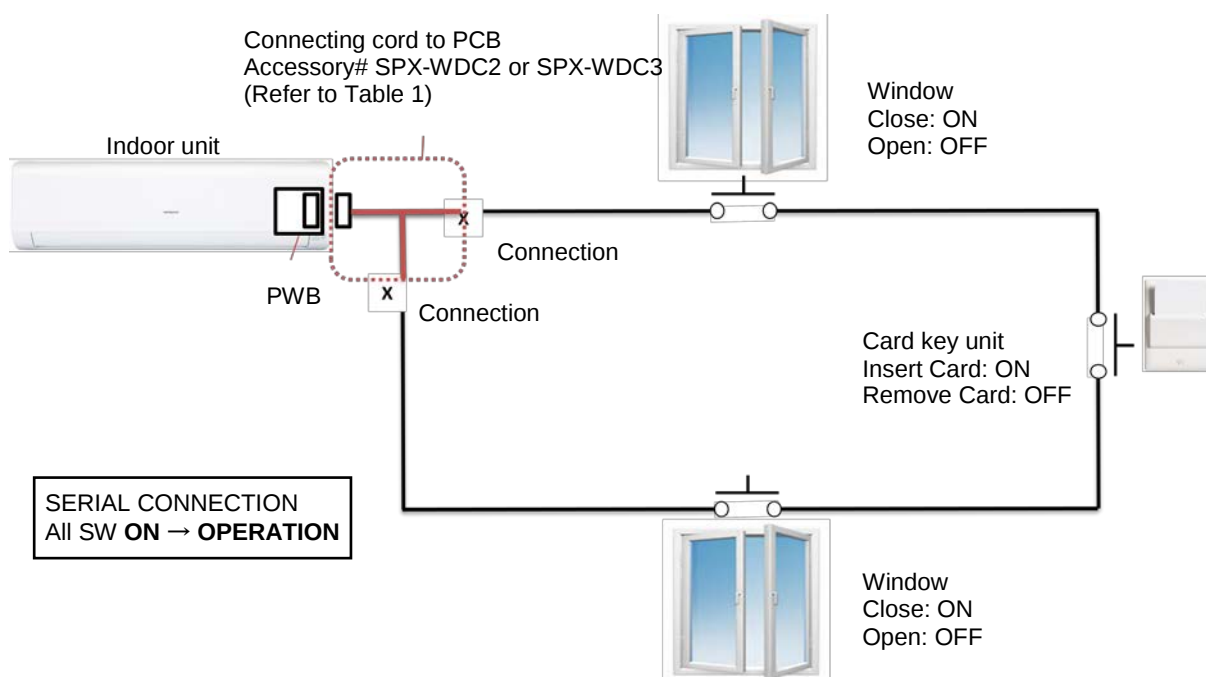
- When the CARD KEY is in insert condition, the air conditioner operation is allowable by remote controller.
- When the dry contact switch on the Card Key Unit is open (refer to diagram below for contact type a), the unit stops to operate (it takes 10 seconds to stop the unit operation after the dry contact switch on the card key turns off) and vice versa.
- When the card key is removed from the Card Key Unit, the wireless remote controller cannot be used.
- When the card key is removed from the Card Key Unit, the wired remote controller LCD display is activated; however it has no control over the unit.
- The suitable accessory Connecting Cord (accessory code#: SPX-WDC2 or SPX-WDC3) need to be used to connect the Card Key Unit's dry contact switch to the connector on the control board of the indoor unit. Please refer to Table 1 to select suitable accessory code# for the concerning indoor model.

Example of wiring connection to Card Key Unit will be as below (reference only)

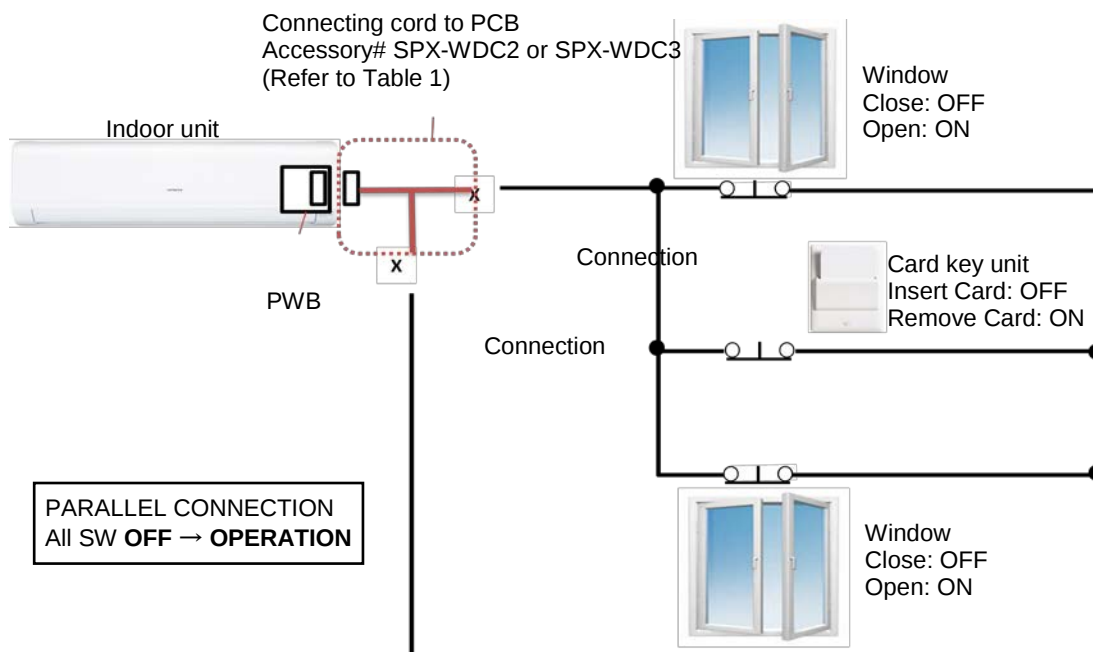


• CONNECTION EXAMPLE

i. Pin No. 3 of DIP SWITCH is set to OFF position (HI Input Active) for Dry Contact Type a



ii. Pin No. 3 of DIP SWITCH is set to ON position (LO Input Active) for Dry Contact Type b

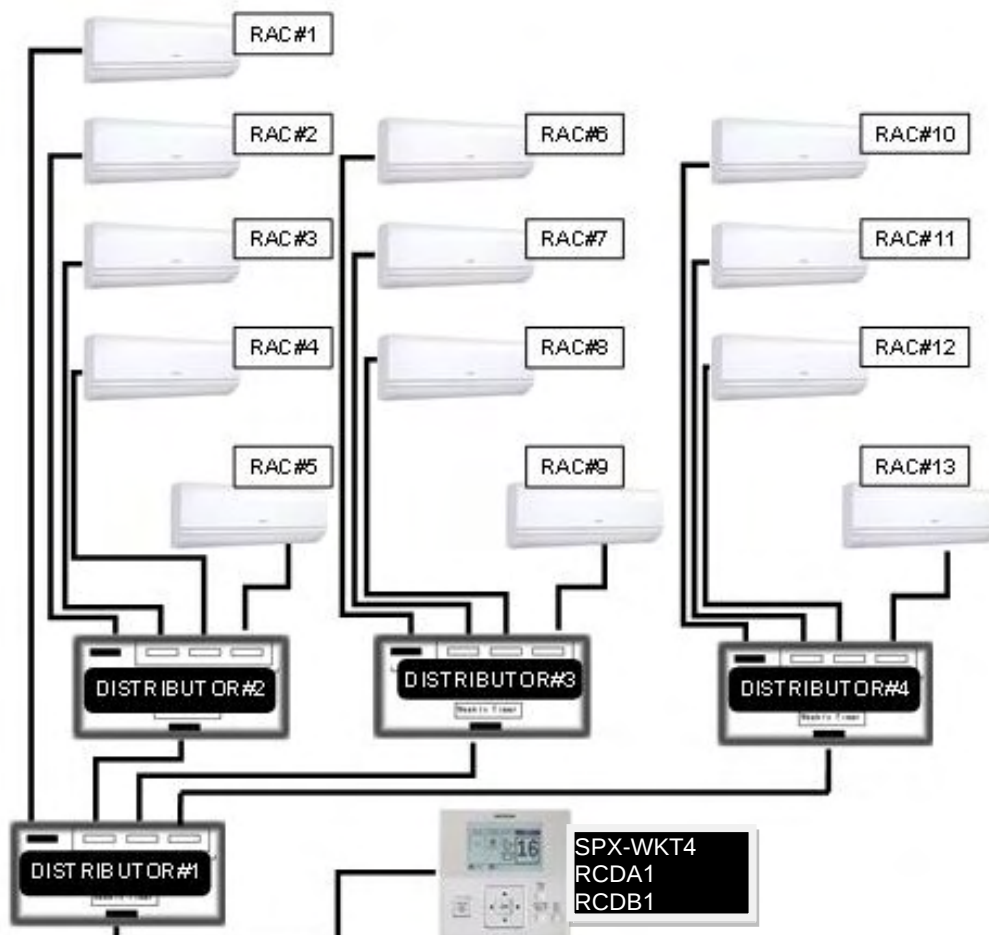
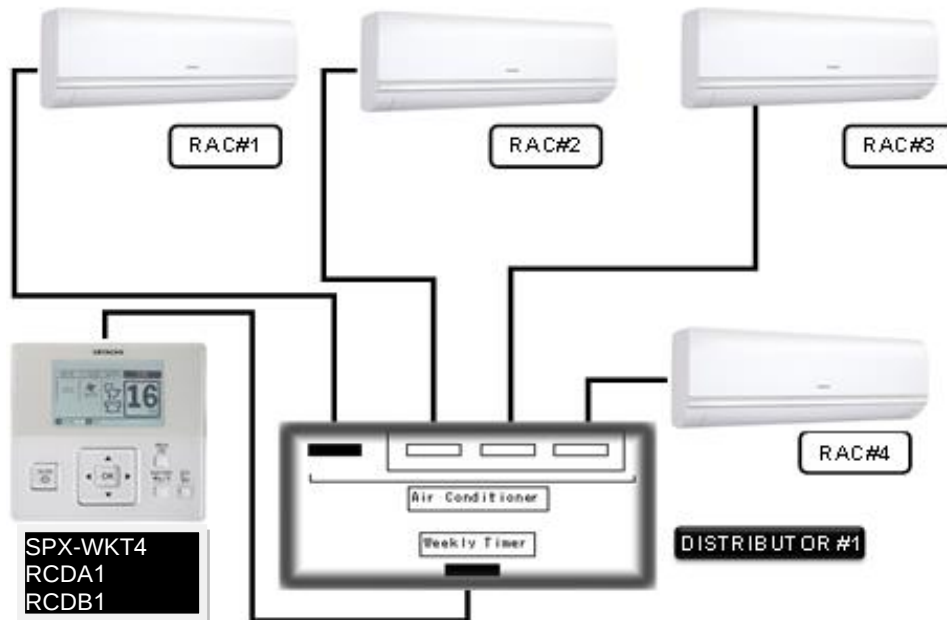


Please refer to the actual manual supplied with the optional connecting cords SPX-WDC2/WDC3 for more details.

10.5 DISTRIBUTOR – SPX-DST1

The optional distributor is to be used together with the wired remote controller when there is a need to centralize the control of multiple indoor units using only a single wired remote controller.

A single distributor could be connected further to 3 separate distributors so that up to 13 units of indoor could be controlled by a single wired remote controller.



10.6 REMOTE SENSOR - SPX-RTH1

This remote sensor is applicable to Duct type indoor unit for Hitachi split system air conditioner.

10.6.1 SELECTION OF INSTALLATION POSITION

The thermistor for detecting room temperature is installed inside the remote sensor

The installation position of the remote sensor should be determined in consideration with the following conditions.

- Where the average room temperature can be detected.
- Where is not exposed to the sun
- Where the heat source is not located near the remote sensor.
- Where the discharge air from the air conditioner does not blow directly.
- Where is not affected by the outdoor air when opening / closing the door, etc

10.6.2 INSTALLATION PROCEDURE

▪ In case of mounting onto the wall (Fig.1)

- Make the wiring on the sensor box, and let the wires for sensor through the box slot.
- Fix the sensor box onto the wall with 2 screws (B)
- In case that the sensor box can not be fixed onto the wall with screws, fix it onto the wall by using the double sided adhesive tapes, etc.

▪ In case of mounting onto Electrical Switch box (Fig. 2 and 3)

- Make the holes for fixing sensor box on the Switch Box Cover (A) (field-supplied) as shown on the Fig. 3 and fix the sensor box to the plate with screws (B)
- Pay attention that the hole for air intake on the sensor box (C) may not be shut.

Fig. 1

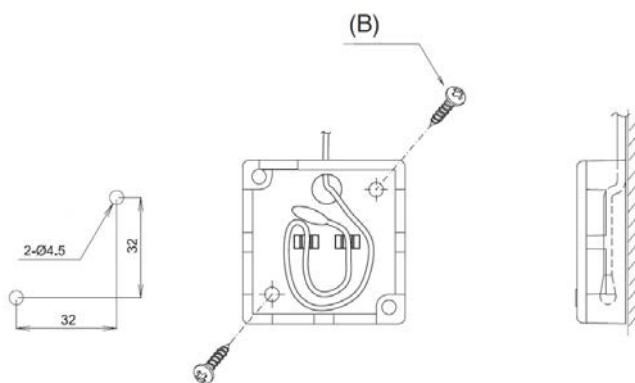


Fig. 2

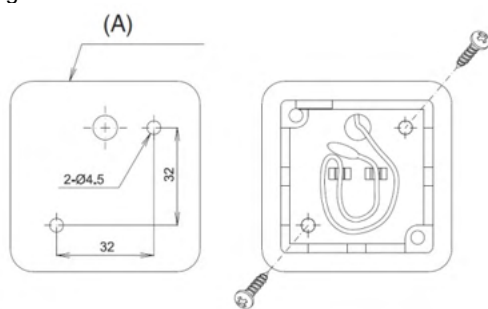
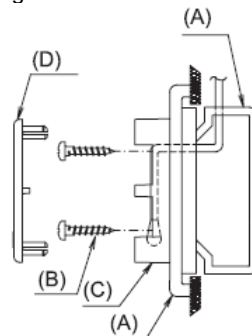


Fig. 3



10.6.3 WIRING PROCEDURES

- Remove the original room thermistor from CN1 at the indoor printed circuit board.
- Connect the cord (15m) of the remote sensor to CN1 (Black) of the indoor printed circuit board.

Please refer to the actual manual supplied with the SPX- RTH1 for more details.

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