

TECHNICAL CATALOGUE

HITACHI

Cooling & Heating



MULTIZONE

OUTDOOR UNIT
RAM-S36U4HLAE

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			
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:

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:

- 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.

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			

1.1.2. 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		
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:

- 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.

1.1.3. 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			
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:

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.

1.1.4. 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		
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:

- 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.

1.1.5. FLOOR TYPE (RAF-SH07QLAE / SH09QLAE / SH12QLAE / SH18QLAE)

INDOOR	Unit	RAF-SH07QLAE	RAF-SH09QLAE	RAF-SH12QLAE	RAF-SH18QLAE
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:

- 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. Please take into consideration reflected sound of your specific site

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)		-	-

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

- 1.5 meter beneath the unit

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).

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)		-	-

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

- 1.5 meter beneath the unit

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).

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			

1.1.8. 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	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4
	Optional	RAR-MOB4	RAR-MOB4	RAR-MOB4
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. Please take into consideration reflected sound of your specific site

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	SPX-RCDA1/SPX-WKT4	SPX-RCDA1/SPX-WKT4
	Optional	RAR-MOB4	RAR-MOB4
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)		-	-

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

- 1.5 meter beneath the unit

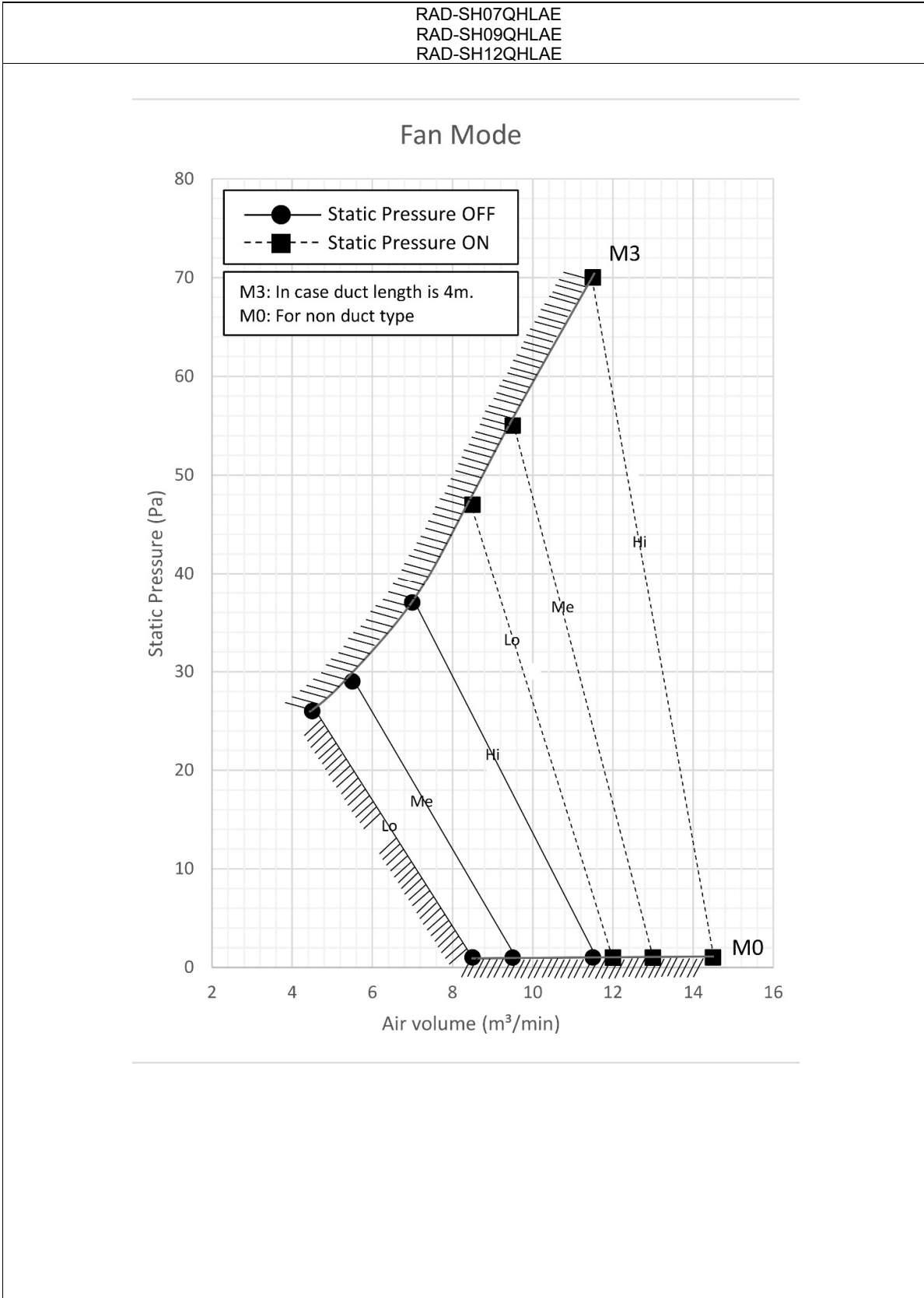
NOTE:

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).

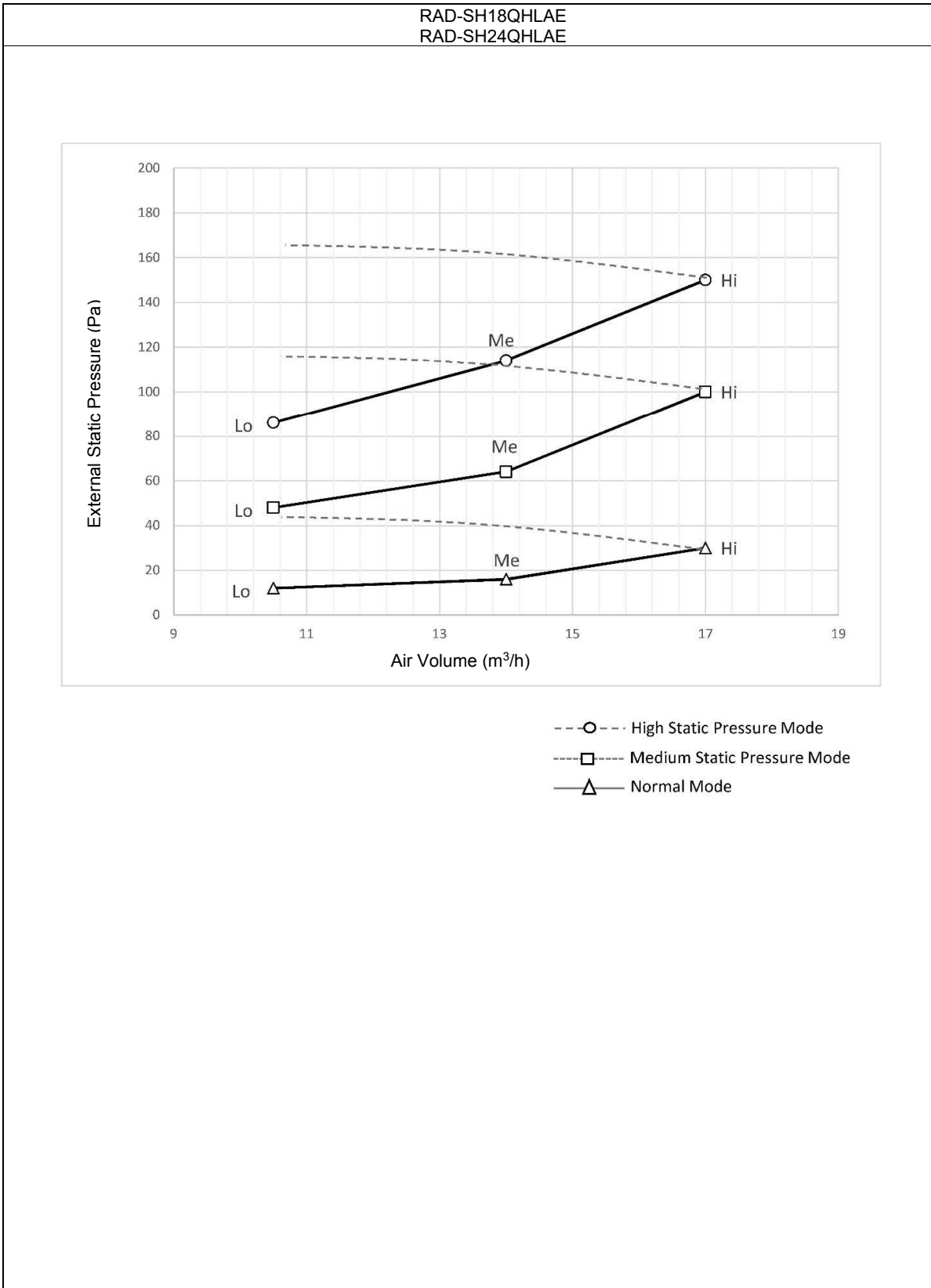
The above data was measured in an anechoic chamber. Please take into consideration reflected sound of your specific site

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)



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



1.2. RAM-S36U4HLAE

OUTDOOR	UNIT	RAM-S36U4HLAE
Minimum / Maximum indoor units connectable (for MULTI only)		2/4
Minimum / Maximum connected indoor capacity (for MULTI only)	kBTU	14/48
Nominal Cooling capacity (min - max) *for single split indoor&outdoor must be matched	BTU	36000(7000~40000)
Nominal Heating capacity (min - max) *for single split indoor&outdoor must be matched	BTU	40000(9000~42000)
Nominal cooling power input (min - max)	kW	2.88 (0.46 - 4.4)
Nominal heating power input (min - max)	kW	3.54 (0.46 - 4.2)
EER(T1condition)	Btu/W	12.5
COP (H1 condition)	Btu/W	11.3
SEER / SCOP *average climate		20.0/10.5
Noise level cooling (sound pressure)	dB(A)	54
Noise level heating (sound pressure)	dB(A)	56
Noise level - ODU (sound power)	dB(A)	68
Air flow (Cooling / Heating)	cfm (m³/h)	2295(3900)/2295(3900)
Dimensions (H x W x D)	in. (mm)	31x37x15(800x950x370)
Net weight	lbs. (kg)	156(71)
Colour (Munsell Code)		Beige (5Y7/2)
Power supply	V/Ph/Hz	208- 230V / 1Ph / 60Hz
Recommended fuse size	A	25
Starting current(rated current of COOL/HEAT whichever higher for inverter)	A	13.92/17.10
Running current (C/H) *for single split indoor&outdoor must be matched	A	12.58/15.47
Cable section (power)	mm²	2.50x 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)X1
Minimum piping length	ft. (m)	16(5)
Maximum piping length / height difference	ft. (m)	197(60)/66(20)
Current quantity of refrigerant / Chargeless	lbs. (kg)	6.5lbs(2.95kg)
Chargeless length / Additional refrigerant charge	m / g/m	30 / 12
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	HAF68DIC or equivalent
	Oil Charge l	830±20 ml
	Coil resistance	0.932Ω 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

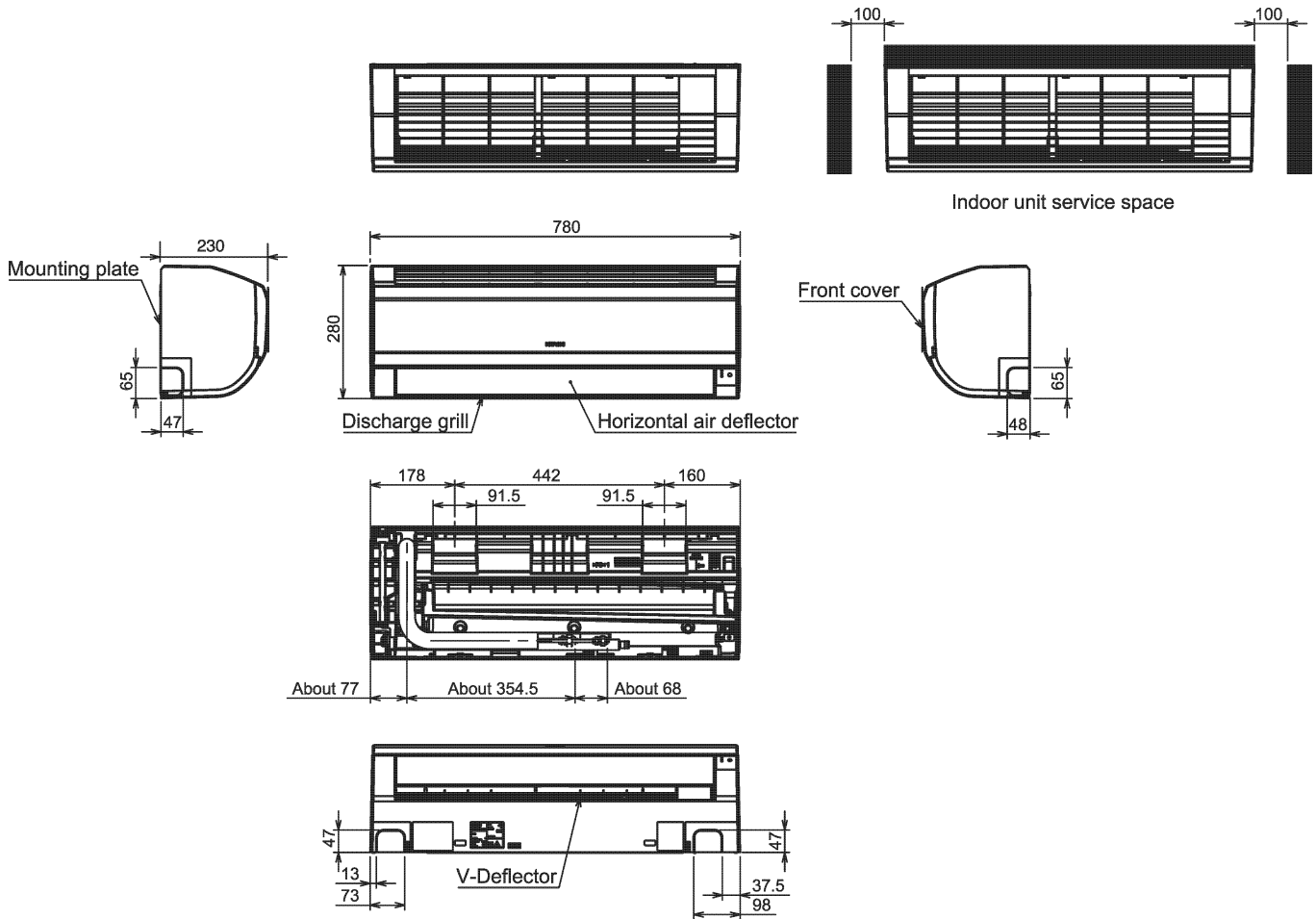
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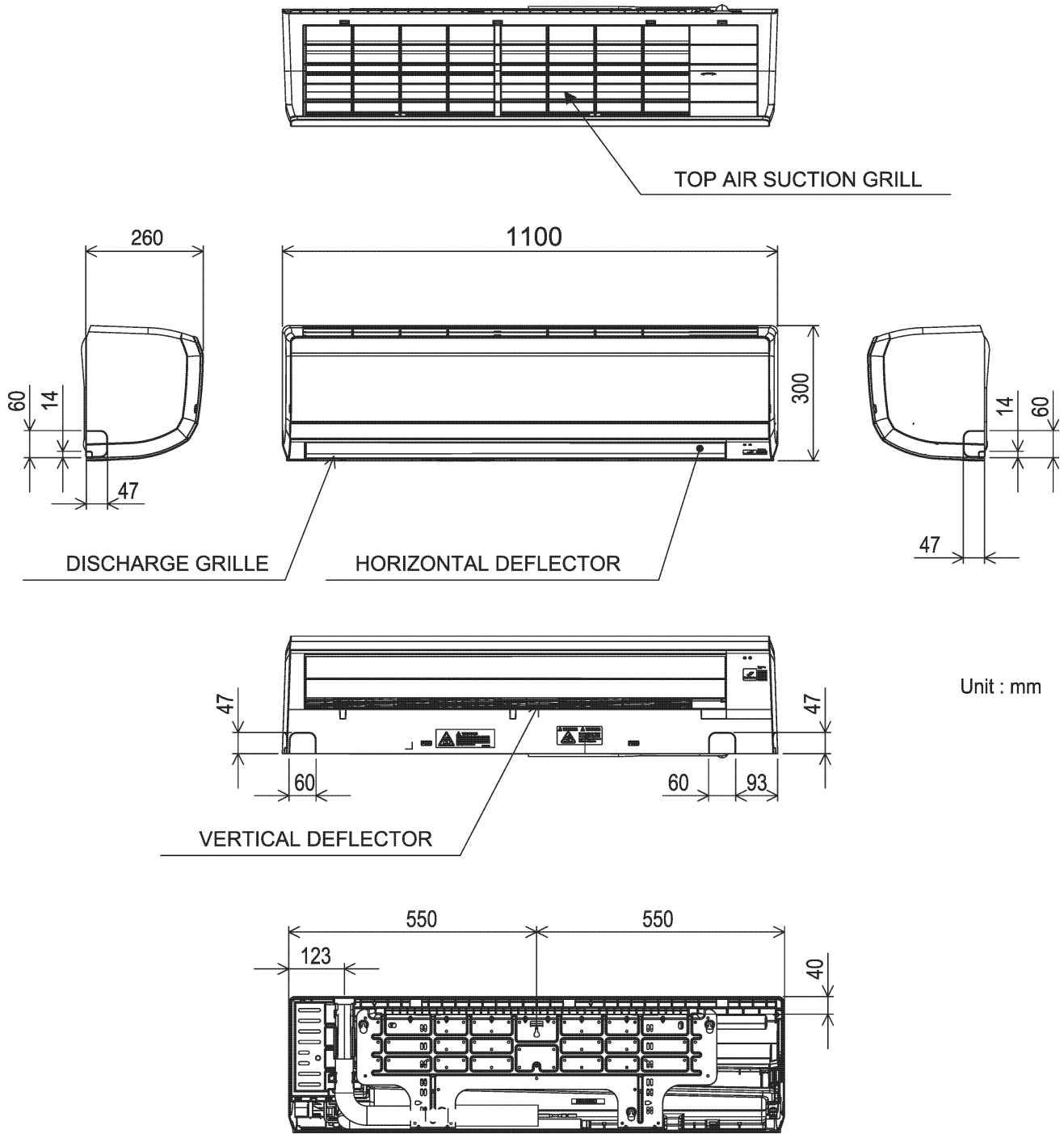
2.1. MULTIZONE INDOOR UNITS

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

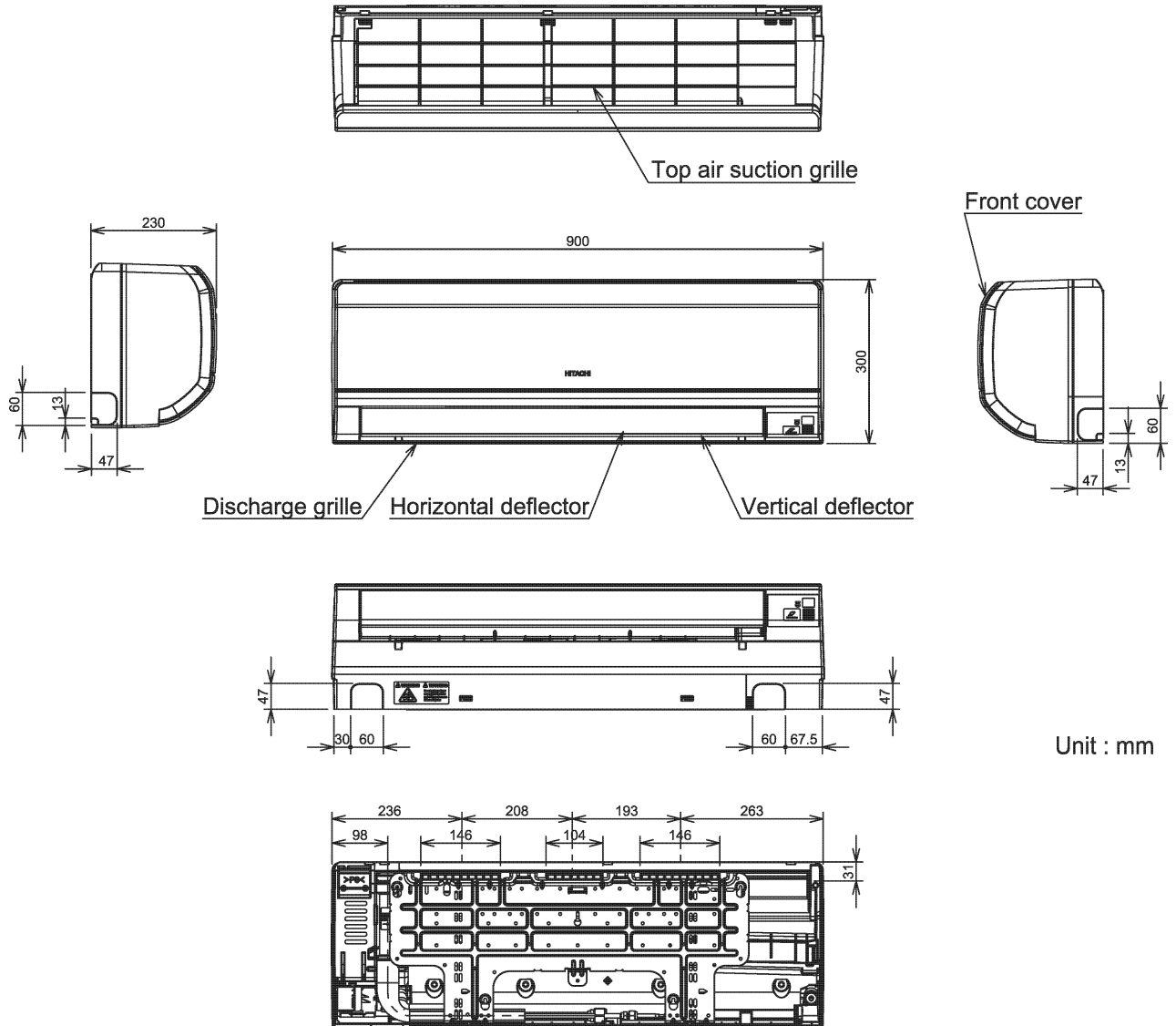
Unit: mm



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



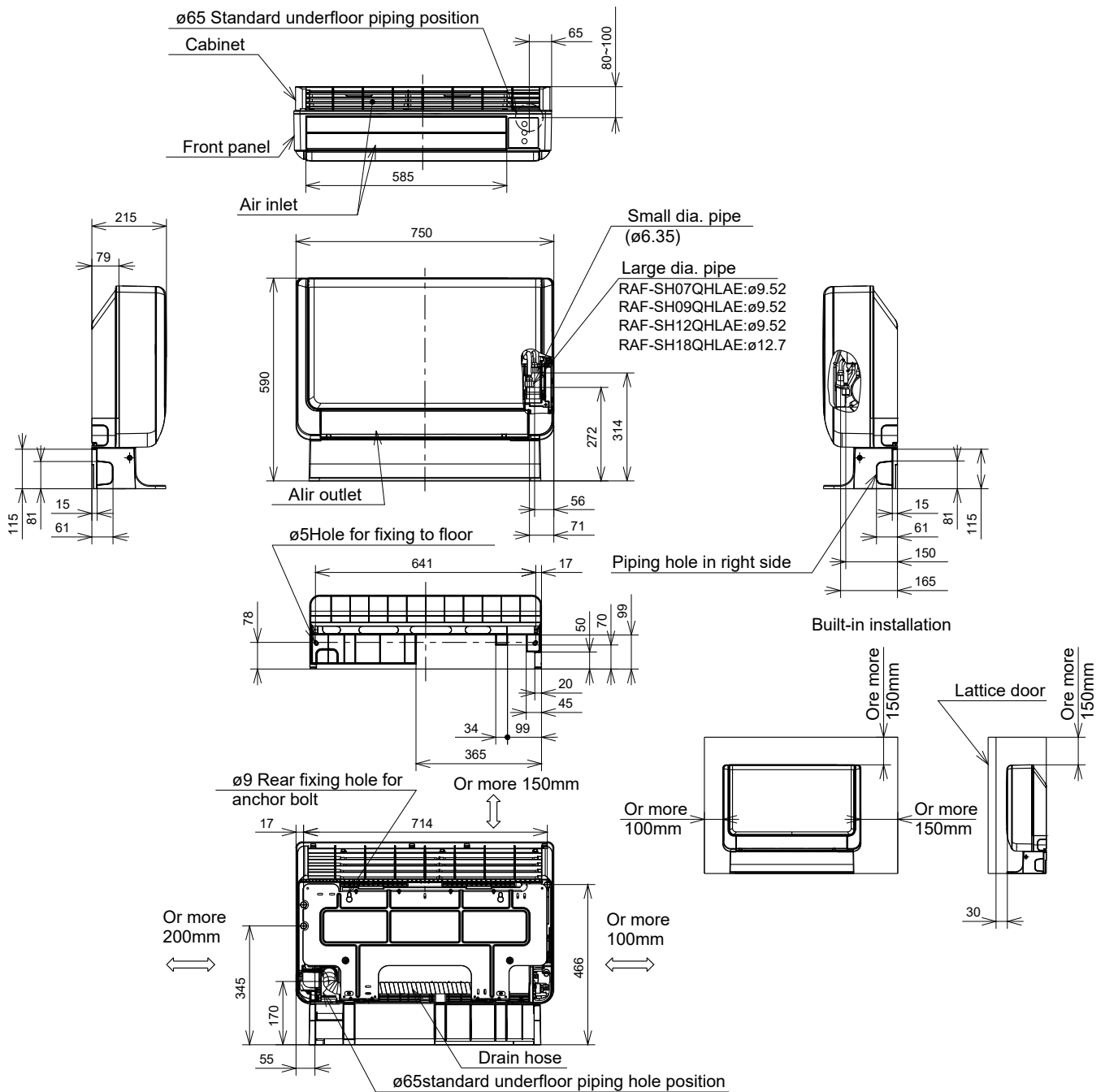
2.1.3. WALL TYPE: RAS-SH07QHLAE / SH09RHLAE / SH12RHLAE



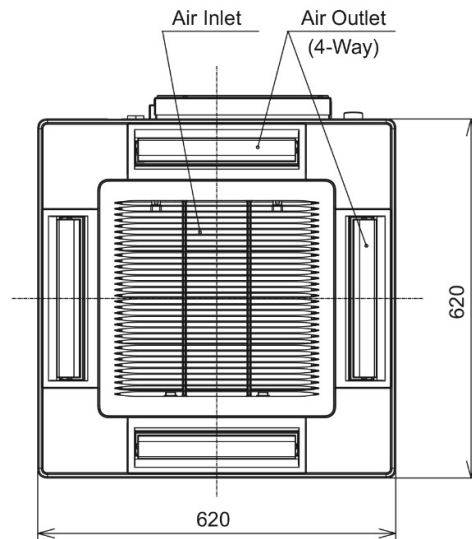
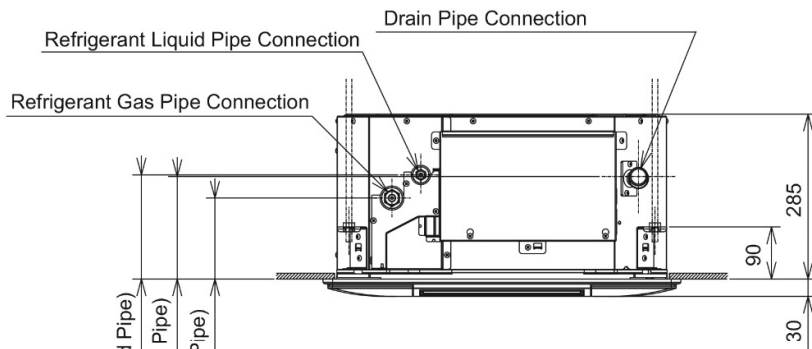
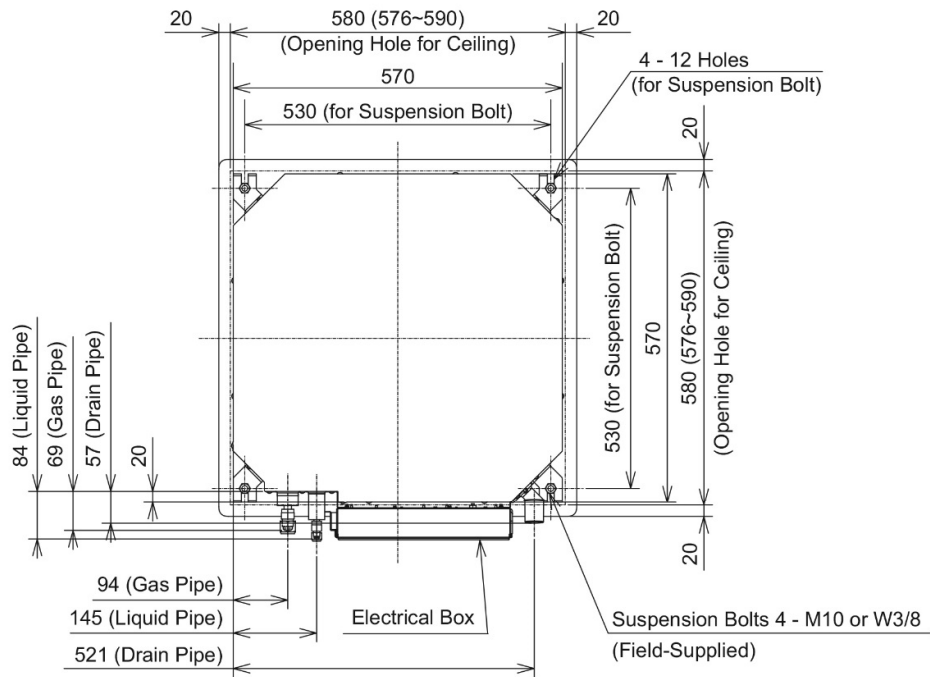
Unit : mm

2.1.4. FLOOR TYPE: RAF-SH07QHLAE / SH09QHLAE / SH12QHLAE / SH18QHLAE

Unit : mm

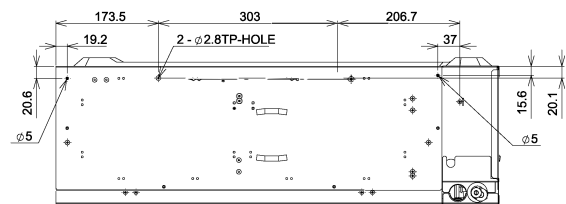
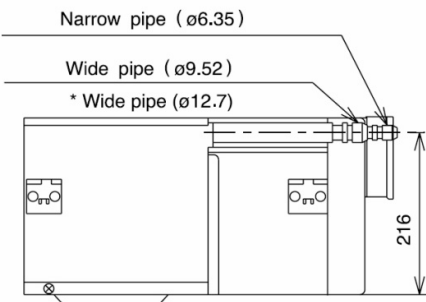
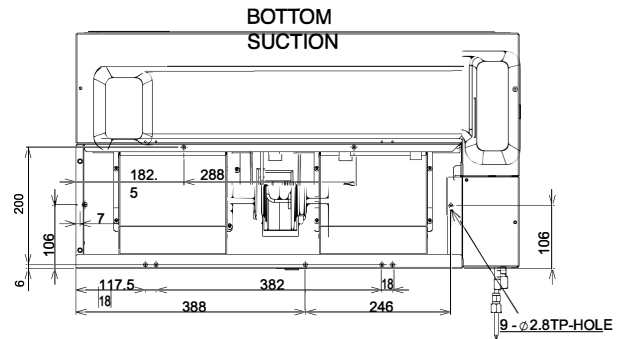
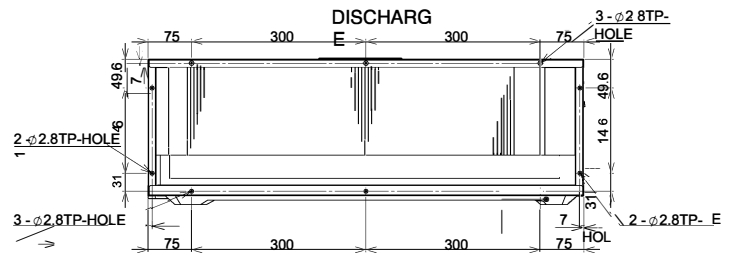
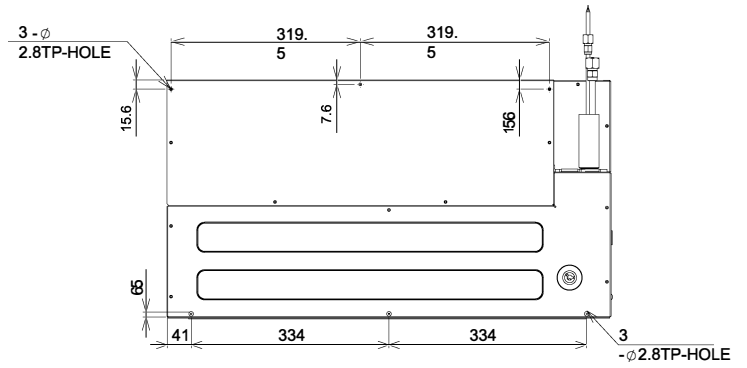
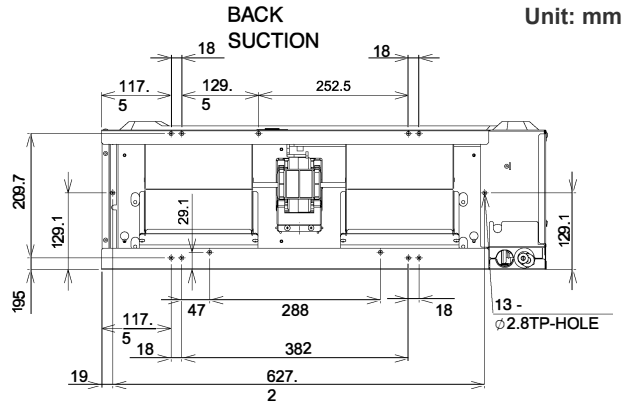
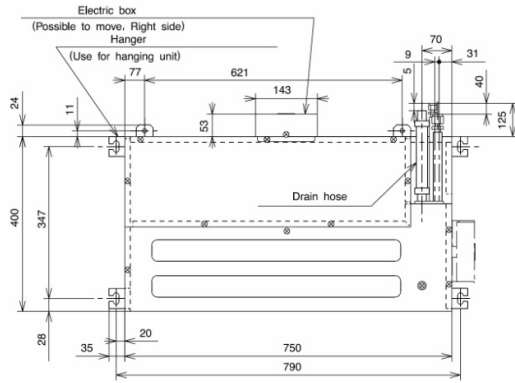


2.1.5. CEILING CASSETTE TYPE: RAI-SH07QHLAE / SH09QHLAE / SH12QHLAE / SH18QHLAE



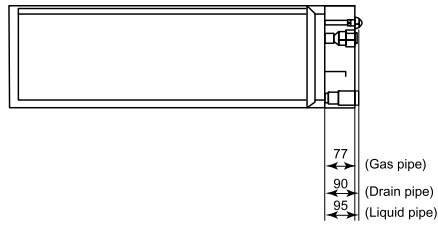
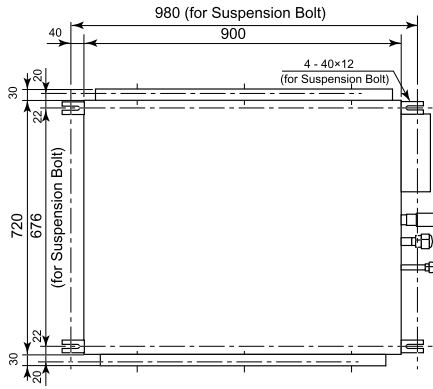
Unit: mm

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

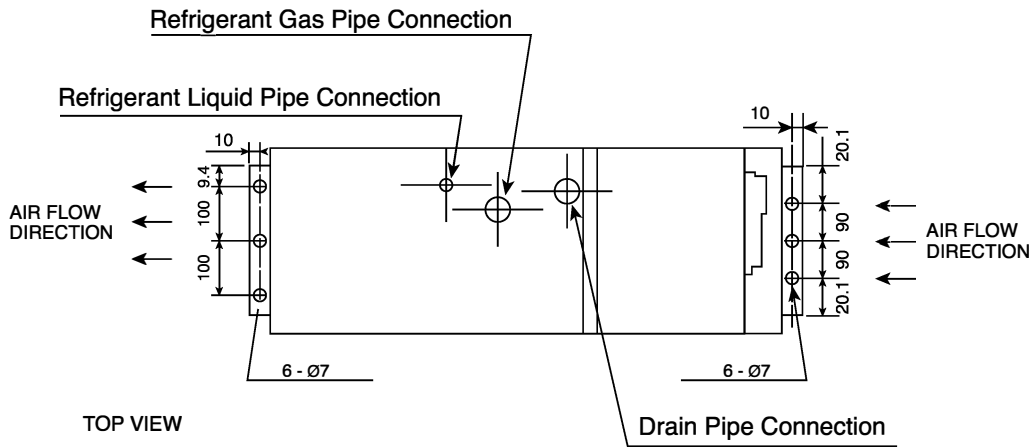
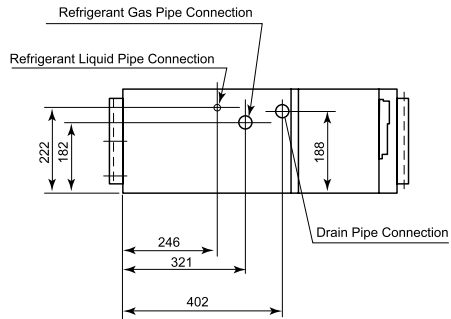


2.1.7. DUCT TYPE: RAD-SH18QHLAE / SH24QHLAE

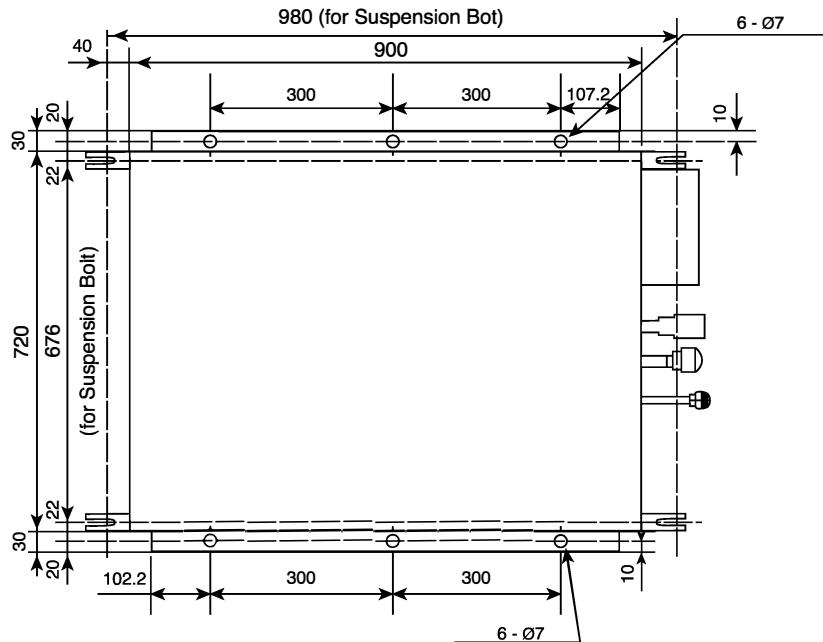
Unit: mm



SIDE VIEW

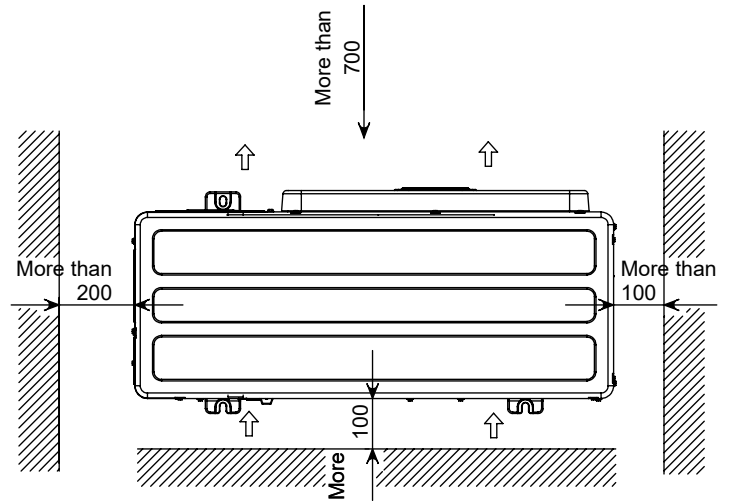
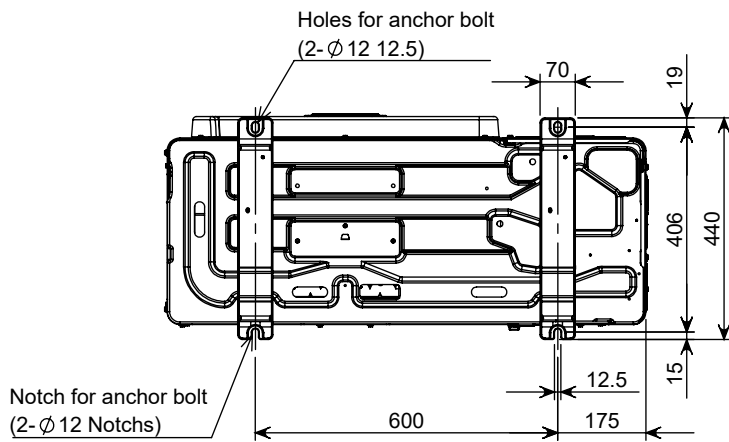
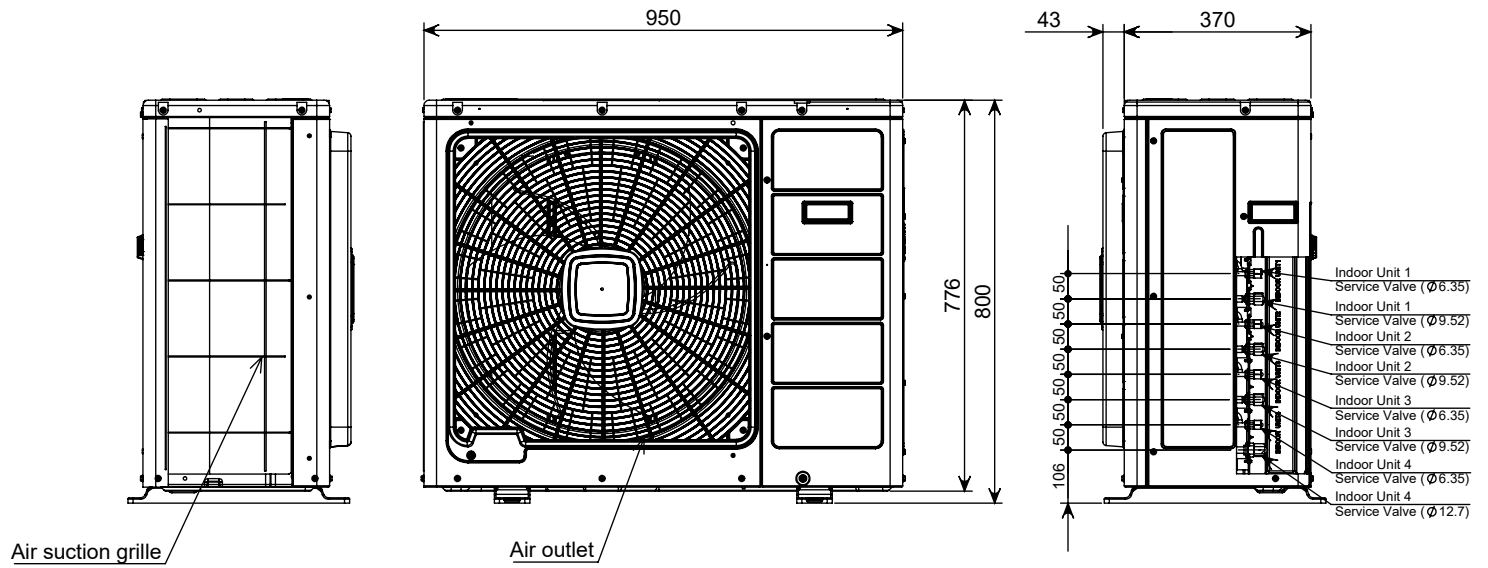


TOP VIEW



2.2 4 ROOMS MULTIZONE: RAM-S36U4HLAE

Unit: mm



Service space

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

Item		Room				
		1	2	3	4	1+2+3+4
Estimated Cooling Load	kW	2.50	2.53	2.57	2.59	10.19
Estimated Heating Load	kW	2.95	2.98	3.05	3.10	12.08

*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
- ② Indoor fan speed at High mode
- ③ Capacity loss due to white frost and defrost operation is not included.

RAM-S36U4HLAE

COOLING [60Hz, 230V]

COOLING	INDOOR		OUTDOOR TEMPERATURE (°FDW)																								
	EWB	EDB	14				17				20				23				26				29				
	°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	5242	268	6580	6989	318	6990	8451	375	5740	6115	414	5530	5846	432	5180	5510.4	464	4970	5241.6	482				
	57	68	5810	5242	268	7070	6989	318	6580	6518	379	6160	6115	419	5950	5914	446	5530	5510.4	468	5320	5309	491				
	61	72	5810	5578	272	7560	6989	322	7000	6518	384	6580	6115	423	6370	5914	446	5950	5510.4	477	5740	5309	495				
	64	77	6230	5981	276	8050	7594	326	7420	7056	388	7000	6653	428	6720	6384	446	6300	5981	482	6020	5712	500				
	66	81	6440	6182	280	8330	7997	331	7700	7392	392	7280	6989	432	7000	6720	450	6580	6316.8	482	6300	6048	500				
	72	86	7140	6115	280	9240	7930	331	8540	7325	392	8050	6922	437	7770	6653	455	7000	6451.2	500	6510	6316.8	527				
	75	90	7630	6115	285	9870	7930	335	9100	7325	397	8610	6922	437	8260	6653	459	7280	6585.6	513	6650	6518	545				
9K	54	64	7470	6739	387	8460	8986	459	7830	8294	541	7380	7862	598	7110	7517	624	6660	7085	670	6390	6739	696				
	57	68	7470	6739	387	9090	8986	459	8460	8381	548	7920	7862	605	7850	7603	631	7110	7085	676	6840	6826	709				
	61	72	7470	7171	393	9720	8986	465	9000	8381	554	8460	7862	611	8190	7603	644	7650	7085	689	7380	6826	715				
	64	77	8010	7690	399	10350	9763	472	9540	9072	561	9000	8554	618	8640	8208	644	8100	7690	696	7740	7344	722				
	66	81	8280	7949	405	10710	10282	478	9900	9504	567	9360	8986	624	9000	8640	650	8460	8122	696	8100	7776	722				
	72	86	9180	7862	405	11880	10195	478	10980	9418	567	10350	8899	631	9990	8554	657	9000	8294	722	8370	8122	761				
	75	90	9810	7862	411	12690	10195	484	11700	9418	573	11070	8899	631	10620	8554	663	9360	8467	741	8550	8381	787				
12K	54	64	9960	8986	613	11280	11981	728	10440	11059	858	9840	10483	948	9480	10022	989	8880	9446	1061	8520	8986	1102				
	57	68	9960	8986	613	12120	11981	728	11280	11174	868	10560	10483	958	10200	10138	999	9480	9446	1071	9120	9101	1123				
	61	72	9960	9562	623	12960	11981	738	12000	11174	878	11280	10483	968	10920	10138	1020	10200	9446	1092	9840	9101	1133				
	64	77	10680	10253	632	13800	13018	747	12720	12096	888	12000	11405	979	11520	10944	1020	10800	10253	1102	10320	9792	1143				
	66	81	11040	10598	642	14280	13709	757	13200	12672	898	12480	11981	989	12000	11520	1030	11280	10829	1102	10800	10368	1143				
	72	86	12240	10483	642	15840	13594	757	14640	12557	898	13800	11866	999	13320	11405	1040	12000	11059	1143	11160	10829	1205				
	75	90	13080	10483	651	16920	13594	766	15600	12557	908	14760	11866	999	14160	11405	1051	12480	11290	1174	11400	11174	1246				
18K	54	64	14940	13478	952	16920	17971	1131	15660	16589	1333	14760	15725	1472	14220	15034	1536	13320	14170	1648	12780	13478	1712				
	57	68	14940	13478	952	18180	17971	1131	16920	16762	1348	15840	15725	1488	15300	15206	1552	14220	14170	1664	13680	13651	1744				
	61	72	14940	14342	967	19440	17971	1146	18000	16762	1364	16920	15725	1504	16380	15206	1584	15300	14170	1696	14760	13651	1760				
	64	77	16020	15379	982	20700	19526	1161	19080	18144	1380	18000	17107	1520	17280	16416	1584	16200	15379	1712	15480	14888	1776				
	66	81	16560	15898	997	21420	20563	1176	19800	19008	1396	18720	17971	1536	18000	17280	1600	16200	16243	1712	16200	15522	1776				
	72	86	18360	15725	997	23760	20390	1176	21960	18835	1396	20700	17798	1552	19980	17107	1616	18000	16589	1776	16740	16243	1872				
	75	90	19620	15725	1012	25380	20390	1190	23400	18835	1411	22140	17798	1552	21240	17107	1632	18720	16934	1824	17100	16762	1936				
24K	54	64	319	4595	3736	340	5758	4169	315	5315	4913	307	5223	5626	18960	20045	2016	277	4707	6299	266	4477	6543				
	57	68	319	4595	3736	365	5758	4169	340	5370	4971	330	5223	5687	20400	20275	2037	296	4707	6360	285	4535	6666				
	61	72	319	4890	3794	390	5758	4224	362	5370	5029	352	5223	5748	21840	20275	2079	319	4707	6482	307	4535	6727				
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	72	86	392	5361	3911	477	6533	4333	441	6035	5142	431	5912	5932	26840	22810	2121	375	5510	6788	349	5396	7155				
	75	90	419	5361	3969	510	6533	4388	470	6035	5204	461	5912	5932	28320	22810	2142	390	5625	6971	356	5568	7399				
7K+7K	54	64	11620	10647	744	13160	14196	884	12180	13104	1041	11480	12422	1150	11060	11876	1200	10360	11193	1288	9940	10647	1338				
	57	68	11620	10647	744	14140	14196	884	13160	13241	1041	12320	12422	1163	11900	12012	1213	11060	11193	1300	10640	10784	1363				
	61	72	11620	11330	756	15120	14196	895	14000	13241	1066	13160	12422	1175	12740	12012	1238	11900	11193	1325	11480	10784	1375				
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COOLING	INDOOR		OUTDOOR TEMPERATURE (°F/DW)																										
	EWB	EDB	14			70			81			90			95			104			109								
			TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI						
	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F						
9K+12K	54	64	17430	15725	1012	19740	20966	1202	18270	19354	1416	17220	18346	1564	16590	17539	1632	15540	16531	1751	14910	15725	1819						
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9K+24K	54	64	27390	24710	1559	31020	32947	1852	28710	30413	2182	27060	28829	2410	26070	27562	2515	24420	25978	2699	23430	24710	2803						
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	66	81	30360	29146	1633	39270	37699	1925	36300	34848	2285	34320	32947	2515	33000	31680	2620	31020	29779	2803	29700	28512	2908						
12K+12K	54	64	19920	17971	1131	22560	23962	1343	20880	22118	1583	19680	20966	1748	18960	20045	1824	17760	18893	1957	17040	17971	2033						
	57	68	19920	17971	1131	24240	23962	1343	22560	22349	1601	21120	20966	1767	20400	20275	1843	18960	18893	1976	18240	18202	2071						
	61	72	19920	19123	1149	25920	23962	1361	24000	22349	1620	22560	20966	1786	21840	20275	1881	20400	18893	2014	19680	18202	2090						
	64	77	21960	20568	1166	27600	26035	1378	25440	24192	1639	24000	22810	1805	23040	21888	1881	21600	20966	2033	20640	19584	2109						
	66	81	22980	21197	1184	28560	27418	1396	26400	25344	1657	24960	23962	1824	24000	23040	1900	22560	21658	2033	21600	20736	2109						
12K+18K	54	64	24900	22464	1488	28200	29952	1767	26100	27848	2083	24600	26208	2300	23700	25056	2400	22200	23616	2575	21300	22464	2675						
	57	68	24900	22464	1488	30300	29952	1767	28200	27936	2107	26400	26208	2325	25500	25344	2425	23200	23616	2600	22800	22752	2725						
	61	72	24900	23904	1511	32400	29952	1790	30000	27936	2132	28200	26208	2350	27300	25344	2475	25500	23616	2650	24600	22752	2750						
	64	77	26700	25832	1535	34500	32544	1814	31800	30240	2156	30000	28512	2375	28800	27360	2475	27000	25832	2675	25800	24480	2775						
	66	81	27600	26496	1558	35700	34272	1837	33000	31680	2181	31200	29952	2400	30000	28800	2500	28200	27072	2675	27000	25920	2775						
12K+24K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082						
	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27600	27302	3139						
	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168						
	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197						
	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197						
18K+18K	54	64	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3177	3197	33480	32486	3370					
	57	68	36720	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485						
	61	72	36720	31450	1821	53000	35942	2036	43920	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485						
	64	77	39240	32904	1851	55440	35942	2036	46800	38016	2570	46800	35942	2794	44280	34214	2938	40080	33869	3283	36000	34214	3485						
	66	81	40320	33948	1881	57880	35942	2036	49200	38016	2600	49200	35942	2824	46800	34214	2938	42480	33869	3283	38400	34214	3485						
18K+24K	54	64	39240	32904	1851	50760	35942	2036	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3177	3197	33480	32486	3370					
	57	68	39240	32904	1821	53000	35942	2036	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485						
	61	72	39240	32904	1821	55440	35942	2036	49200	37670	2570	46800	35597	2794	44280	34214	2938	40080	33869	3283	36000	34214	3485						
	64	77	41760	34358	1881	57880	35942	2036	52200	38016	2600	52200	35942	2824	49200	34214	2938	44880	33869	3283	40800	34214	3485						
	66	81	42840	35392	1911	60320	35942	2036	54600	38016	2630	54600	35942	2854	51600	34214	2938	47280	33869	3283	43200	34214	3485						
24K+24K	54	64	43680	37392	1951	60320	35942	2036	57000	38016	2660	57000	35942	2884	54600	34214	2938	50160	33869	3283	45600	34214	3485						
	57	68	43680	37392	1951	62460	35942	2036	60000	38016	2690	60000	35942	2914	57000	34214	2938	52560	33869	3283	48000	34214	3485						
	61	72	43680	37392	1951	64600	35942	2036	62460	38016	2720	62460	35942	2944	60000	34214	2938	54960	33869	3283	50400	34214	3485						
	64	77	46200	38846	1981	66840	35942	2036	64800	38016	2750	64800	35942	2974	62460	34214	2938	57360	33869	3283	52800	34214	3485						
	66	81	47280	39890	2011	69280	35942	2036	67200	38016	2780	67200	35942	3004	64800	34214	2938	59760	33869	3283	55200	34214	3485						
7K+7K+7K	54	64	17430	15725	1012	19740	20966	1202	18270	19354	1416	17220	18346	1564	16590	17539	1632	15540	16531	1751	14910	15725	1819						
	57	68	17430	15725	1012	21210	20966	1202	19740	19555	1433	18480	18346	1581	17850	17741	1649	16590	16531	1768	15960	15926	1853</						

3-5 CAPACITIES AND SELECTION DATA

COOLING	INDOOR			OUTDOOR TEMPERATURE (°FDW)																				
	EWB	EDB	TC	14			70			81			90			95			104			109		
				SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	
7K+7K+24K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	
	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	
	61	72	29880	26865	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	
	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	
	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	
	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	
	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485	
	54	64	20750	18720	1143	23500	24960	1357	21750	23040	1599	20500	21840	1766	19750	20880	1843	18500	19680	1978	17750	18720	2054	
	57	68	20750	18720	1143	25250	24960	1357	23500	23280	1618	22000	21840	1786	21250	21120	1862	19750	19680	1997	19000	18960	2093	
61	72	20750	19920	1161	27000	24960	1375	25000	23280	1637	23500	21840	1805	22750	21120	1901	21250	19680	2035	20500	18960	2112		
64	77	22250	21360	1178	28750	27120	1393	28500	25200	1656	25000	23760	1824	24000	22800	1901	22500	21680	2054	21500	20400	2131		
66	81	23000	22080	1196	29750	28560	1411	27500	26400	1675	26000	24960	1843	25000	24000	1920	23500	22560	2054	22500	21600	2131		
72	86	25500	21840	1196	33000	28320	1411	30500	28160	1675	28750	24720	1862	27750	23760	1939	25000	23040	2131	23250	22560	2246		
75	90	27250	21840	1214	35250	28320	1428	32500	28160	1693	30750	24720	1862	29500	23760	1958	26000	23520	2189	23750	23280	2323		
54	64	23240	20966	1428	26320	27956	1696	24360	25805	1999	22960	24461	2208	22120	23386	2304	20720	22042	2472	19880	20966	2568		
57	68	23240	20966	1428	28280	27956	1696	26320	26074	2023	24640	24461	2232	23800	23654	2328	22120	22042	2496	21280	21235	2616		
61	72	23240	22310	1451	30240	27956	1719	28000	26074	2046	26320	24461	2256	25480	23654	2376	23800	22042	2544	22960	21235	2640		
64	77	24920	23923	1473	32200	30374	1741	29800	28224	2070	28000	26611	2280	26880	25536	2376	25000	23923	2568	24080	22488	2664		
66	81	25760	24730	1495	33320	31987	1763	30800	29568	2093	29120	27956	2304	28000	26880	2400	26320	25267	2568	25200	24192	2664		
72	86	28560	24461	1495	36960	31718	1763	34160	29299	2093	32200	27686	2328	31080	26611	2424	28000	25805	2664	26040	25267	2808		
75	90	30520	24461	1518	39480	31718	1786	36400	29299	2117	34440	27686	2328	33040	26611	2448	29120	26342	2736	26600	26074	2804		
54	64	28220	25459	1548	31960	33946	1838	29580	31334	2166	27880	29702	2392	26860	28397	2496	25160	26765	2678	24140	25459	2782		
57	68	28220	25459	1548	34340	33946	1838	31960	31661	2191	29920	29702	2418	28900	28723	2522	26860	26765	2704	25840	25786	2834		
61	72	28220	27091	1572	36720	33946	1862	34000	31661	2217	31960	29702	2444	30940	28723	2574	28900	26765	2756	27880	25786	2860		
64	77	30260	29050	1596	39100	36883	1886	36040	34472	2242	34000	32314	2470	32640	31008	2574	30600	29050	2782	29240	27744	2886		
66	81	31280	30029	1620	40460	38842	1910	37400	35904	2268	35360	33946	2496	34000	32640	2600	31960	30682	2782	30600	29376	2886		
72	86	34680	29702	1620	44880	38515	1910	41480	35578	2268	39100	33619	2522	37740	32314	2626	34000	31334	2896	31620	30682	3042		
75	90	37060	29702	1644	47940	38515	1934	44200	35578	2293	41820	33619	2522	40120	32314	2652	35360	31987	2964	32300	31661	3146		
54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082		
57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139		
61	72	29880	26865	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168		
64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197		
66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197		
72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370		
75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485		
54	64	25730	23213	1488	29140	30950	1767	26970	28570	2083	25420	27082	2300	24490	25891	2400	22940	24403	2575	22010	23213	2675		
57	68	25730	23213	1488	31310	30950	1767	29140	28867	2107	27820	27082	2325	26350	26189	2425	24490	24403	2600	23560	23510	2725		
61	72	25730	24701	1511	33480	30950	1790	31000	28867	2132	29140	27082	2350	28210	26189	2475	26350	24403	2650	25420	23510	2750		
64	77	27590	26486	1535	35650	33629	1814	32860	31248	2156	31000	29462	2375	29760	26272	2475	27900	26486	2675	26420	25296	2775		
66	81	28520	27379	1558	36890	35414	1837	34100	32796	2181	32240	30950	2400	31000	29760	2500	29140	27974	2675	27900	26784	2775		
72	86	31620	27082	1558	40920	35117	1837	37820	32438	2181	36560	30653	2425	34410	29462	2525	31000	28574	2775	28830	27974	2925		
75	90	33790	27082	1581	43710	35117	1860	40300	32438	2205	38130	30653	2425	36580	29462	2550	32240	29165	2850	29540	28867	3025		
54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082		
57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139		
61	72	29880	26865	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168		
64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197		
66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197		
72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370		
75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485		
54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082		
57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139		
61	72	29880	26865	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168		
64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197		
66	81	33120																						

COOLING	INDOOR		OUTDOOR TEMPERATURE (°F/DW)																																																																																																																																																																			
	EWB	EDB	14			70			81			90			95			104			109																																																																																																																																																	
			TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI																																																																																																																																															
9K+12K+12K	54	64	27390	24710	1548	31020	32947	1838	28710	30413	2166	27060	28829	2392	26070	27562	2496	24420	25978	2678	23430	24710	2782	57	68	27390	24710	1548	33330	32947	1838	31020	30730	2191	29040	28829	2418	28050	27878	2522	26070	25978	2704	25080	25027	2834	61	72	27390	26294	1572	35640	32947	1862	33000	30730	2217	31020	28829	2444	30030	27878	2574	28050	25978	2756	27060	25027	2860	64	77	29370	28195	1596	37950	35798	1886	34980	33264	2242	33000	31363	2470	31680	30096	2574	29700	28195	2782	28380	26928	2886	66	81	30360	29146	1620	39270	37699	1910	36300	34848	2268	34320	32947	2496	33000	31680	2600	31020	29779	2782	29700	28512	2886	72	86	33660	28829	1620	43560	37382	1910	40260	34531	2268	37950	32630	2522	36630	31363	2626	33000	30413	2886	30690	29779	3042	75	90	35970	28829	1644	46530	37382	1934	42900	34531	2293	40590	32630	2522	38940	31363	2652	34320	31046	2964	31350	30730	3146					
	9K+12K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485				
		9K+12K+24K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485			
			9K+18K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485		
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					12K+12K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485
						12K+12K+24K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523
12K+18K+18K							54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104																																														

CAPACITIES AND SELECTION DATA

COOLING	INDOOR			OUTDOOR TEMPERATURE (°FDW)																			
	EWB	EDB	14	70			81			90			95			104			109				
				TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI		
	°F	°F	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
7K+7K+9K+9K	54	64	26560	23962	1548	30080	31949	1838	27840	29491	2166	26240	27955	2392	25280	26726	2496	23680	25190	2678	22720	23962	2782
	57	68	26560	23962	1548	32320	31949	1838	30080	29798	2191	28120	27955	2418	27200	27034	2522	25280	25190	2704	24320	24269	2834
	61	72	26560	25498	1572	34560	31949	1862	32000	29798	2217	30080	27955	2444	29120	27034	2574	27200	25190	2756	26240	24269	2860
	64	77	28480	27341	1596	36800	34714	1886	33920	32256	2242	32000	30413	2470	30720	29184	2574	28800	27341	2782	27520	26112	2886
	66	81	29440	28282	1620	38080	36557	1910	35200	33792	2268	33280	31949	2496	32000	30720	2600	30080	28877	2782	28800	27648	2886
	72	86	32640	27955	1620	42240	36250	1910	39040	33485	2268	36800	31642	2522	35520	30413	2626	32000	30491	2886	29760	28877	3042
	75	90	34880	27955	1644	45120	36250	1934	41600	33485	2293	39360	31642	2522	37760	30413	2652	33280	30106	2984	30400	29798	3146
7K+7K+9K+12K	54	64	29050	26208	1667	32900	34944	1979	30450	32256	2332	28700	30576	2576	27650	29232	2688	25900	27552	2884	24850	26208	2996
	57	68	29050	26208	1667	35350	34944	1979	32900	32592	2360	30800	30576	2604	29750	29568	2716	27650	27552	2912	26600	26544	3052
	61	72	29050	27888	1693	37800	34944	2005	35000	32592	2387	32900	30576	2632	31850	29568	2772	29750	27552	2968	28700	26544	3080
	64	77	31150	29904	1719	40250	37968	2031	37100	35280	2415	35000	33264	2660	33600	31920	2772	31500	29904	2996	30100	28560	3108
	66	81	32200	30912	1745	41650	39984	2057	38500	36960	2442	36400	34944	2688	35000	33600	2800	32900	31584	2996	31500	30240	3108
	72	86	35700	30576	1745	46200	39648	2057	42700	36624	2442	40250	34608	2716	38850	33264	2828	35000	32256	3108	32550	31584	3276
	75	90	38150	30576	1771	49350	39648	2083	45500	36624	2470	43050	34608	2716	41300	33264	2856	36400	32256	3192	33250	32592	3388
7K+7K+9K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082
	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139
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	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197
	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197
	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370
	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485
7K+7K+12K+12K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082
	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139
	61	72	29880	28685	1741	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168
	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197
	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197
	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370
	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485
7K+9K+9K+9K	54	64	28220	25459	1548	31960	33946	1838	29580	31334	2166	27880	29702	2392	26860	28397	2496	25160	26865	2678	24140	25459	2782
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	72	86	34680	29702	1620	44880	38515	1910	41480	35578	2268	39100	33619	2522	37740	32314	2626	34000	31334	2886	31620	30682	3042
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	72	86																					

COOLING	INDOOR		OUTDOOR TEMPERATURE (°FDB)																																																																																																																																																																			
	°F	°F	14				70				81				90				95				104				109																																																																																																																																											
			TC	SHC	PI		TC	SHC	PI		TC	SHC	PI		TC	SHC	PI		TC	SHC	PI		TC	SHC	PI		TC	SHC	PI																																																																																																																																									
9K+9K+9K+12K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485					
	9K+9K+9K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485				
		9K+9K+12K+12K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485			
			9K+9K+12K+18K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485		
				9K+12K+12K+12K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485	
					12K+12K+12K+12K	54	64	29880	26957	1714	33840	35942	2036	31320	33178	2399	29520	31450	2650	28440	30067	2765	26640	28339	2966	25560	26957	3082	57	68	29880	26957	1714	36360	35942	2036	33840	33523	2427	31680	31450	2678	30600	30413	2794	28440	28339	2995	27360	27302	3139	61	72	29880	26957	1714	38880	35942	2062	36000	33523	2455	33840	31450	2707	32760	30413	2851	30600	28339	3053	29520	27302	3168	64	77	32040	30758	1768	41400	39053	2089	38160	36288	2484	36000	34214	2736	34560	32832	2851	32400	30758	3082	30960	29376	3197	66	81	33120	31795	1795	42840	41126	2116	39600	38016	2512	37440	35942	2765	36000	34560	2880	33840	32486	3082	32400	31104	3197	72	86	36720	31450	1795	47520	40781	2116	43920	37670	2512	41400	35597	2794	39960	34214	2909	36000	33178	3197	33480	32486	3370	75	90	39240	31450	1821	50760	40781	2143	46800	37670	2540	44280	35597	2794	42480	34214	2938	37440	33869	3283	34200	33523	3485

EWB : Evaporator Wet Bulb temperature (°F)
 EDB : Evaporator Dry Bulb temperature (°F)
 (°FDB) : Outdoor Unit Inlet Air Dry Temperature (°F)

TC : Total Capacity (Btu)
 SHC : Sensible Heating Capacity (Btu)
 PI : Power Input (W)

Heating	EER	OUTDOOR TEMPERATURE (°FDB)																								
		5			14			17			23			32			47			59			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+7K+7K	61	16480		1204	19011	1356	20604	1417	21620	1499	24073	1743	27322	2005	28827	2085	31568	2188	31309	2212						
	64	16340		1229	18871	1380	20427	1457	21417	1548	23849	1795	27161	2103	28673	2188	31309	2212								
	68	16200		1254	18731	1405	20250	1496	21214	1597	23625	1848	27000	2200	28519	2291	31050	2442								
	72	16060		1279	18591	1430	20073	1535	21011	1646	23401	1901	26839	2297	28365	2394	30791	2557								
	75	15920		1304	18451	1455	19897	1575	20808	1694	23177	1953	26678	2395	28211	2496	30532	2672								
7K+7K+9K	61	18040		1318	20815	1483	22554	1553	23663	1644	26348	1911	29922	2205	31573	2293	34558	2434								
	64	17900		1343	20675	1508	22377	1593	23460	1693	26124	1963	29761	2303	31419	2396	34299	2549								
	68	17760		1368	20535	1533	22200	1632	23257	1742	25900	2016	29600	2400	31265	2499	34040	2664								
	72	17620		1393	20395	1558	22023	1671	23054	1791	25676	2069	29439	2497	31111	2602	33781	2779								
	75	17480		1418	20255	1583	21847	1711	22851	1840	25452	2121	29278	2595	30957	2705	33522	2894								
7K+7K+12K	61	20290		1800	23417	2050	25367	2171	26610	2202	29630	2320	33672	2405	35534	2544	38871	2770								
	64	20150		1825	23277	2075	25190	2211	26407	2251	29406	2372	33511	2503	35380	2647	38612	2885								
	68	20010		1850	23137	2100	25013	2250	26204	2300	29182	2425	33350	2600	35226	2750	38353	3000								
	72	19870		1875	22997	2125	24836	2289	26001	2349	28958	2478	33189	2697	35072	2853	38094	3115								
	75	19730		1900	22857	2150	24660	2329	25798	2398	28734	2530	33028	2795	34918	2956	37835	3230								
7K+7K+18K	61	23380		2450	29989	2638	29229	2721	30656	2788	34136	2995	38822	3205	40974	3307	44793	3470								
	64	23240		2475	29849	2663	29052	2761	30453	2837	33912	3047	38661	3303	40820	3410	44534	3585								
	68	23100		2500	29709	2688	28875	2800	30250	2886	33688	3100	38500	3400	40666	3513	44275	3700								
	72	22960		2525	29569	2712	28698	2829	30047	2955	33464	3153	38339	3497	40512	3615	44016	3815								
	75	22820		2550	29429	2737	28522	2879	29844	2984	33240	3205	38178	3595	40358	3718	43757	3930								
7K+7K+24K	61	24280		3364	28780	3644	31554	3782	32863	3712	36048	3575	40322	3305	43008	3462	47718	3717								
	64	24140		3389	28640	3669	31377	3822	32660	3760	35824	3628	40161	3403	42854	3565	47459	3832								
	68	24000		3414	28500	3693	31200	3861	32457	3809	35600	3681	40000	3500	42700	3668	47200	3947								
	72	23860		3439	28360	3718	31023	3900	32254	3858	35376	3733	39839	3597	42546	3770	46941	4062								
	75	23720		3464	28220	3743	30847	3940	32051	3907	35152	3786	39678	3695	42392	3873	46682	4177								
7K+9K+9K	61	19600		1432	22619	1611	24504	1689	25706	1789	28623	2079	32522	2405	34319	2502	37548	2656								
	64	19460		1457	22479	1636	24327	1729	25503	1838	28399	2131	32361	2503	34165	2604	37289	2771								
	68	19320		1482	22339	1661	24150	1768	25300	1887	28175	2184	32200	2600	34011	2707	37030	2886								
	72	19180		1507	22199	1686	23973	1807	25097	1936	27951	2237	32039	2697	33857	2810	36771	3001								
	75	19040		1532	22059	1710	23797	1847	24894	1985	27727	2289	31878	2795	33703	2913	36512	3116								
7K+9K+12K	61	21850		1870	26416	2120	29229	2241	30292	2291	32861	2455	36272	2605	38997	2744	43773	2970								
	64	21710		1895	26276	2145	29052	2281	30089	2340	32637	2507	36111	2703	38843	2847	43514	3085								
	68	21570		1920	26136	2170	28875	2320	29886	2389	32413	2560	35950	2800	38689	2950	43255	3200								
	72	21430		1945	25996	2195	28698	2359	29683	2438	32189	2613	35789	2897	38535	3053	42996	3315								
	75	21290		1970	25856	2220	28522	2399	29480	2486	31965	2665	35628	2995	38381	3156	42737	3430								
7K+9K+18K	61	24280		3364	28780	3644	31554	3782	32863	3712	36048	3575	40322	3305	43008	3462	47718	3717								
	64	24140		3389	28640	3669	31377	3822	32660	3760	35824	3628	40161	3403	42854	3565	47459	3832								
	68	24000		3414	28500	3693	31200	3861	32457	3809	35600	3681	40000	3500	42700	3668	47200	3947								
	72	23860		3439	28360	3718	31023	3900	32254	3858	35376	3733	39839	3597	42546	3770	46941	4062								
	75	23720		3464	28220	3743	30847	3940	32051	3907	35152	3786	39678	3695	42392	3873	46682	4177								
7K+9K+24K	61	24280		3364	28780	3644	31554	3782	32863	3712	36048	3575	40322	3305	43008	3462	47718	3717								
	64	24140		3389	28640	3669	31377	3822	32660	3760	35824	3628	40161	3403	42854	3565	47459	3832								
	68	24000		3414	28500	3693	31200	3861	32457	3809	35600	3681	40000	3500	42700	3668	47200	3947								
	72	23860		3439	28360	3718	31023	3900	32254	3858	35376	3733	39839	3597	42546	3770	46941	4062								
	75	23720		3464	28220	3743	30847	3940	32051	3907	35152	3786	39678	3695	42392	3873	46682	4177								
7K+12K+12K	61	24100		1934	27822	2173	30129	2288	31599	2428	35186	2818	40022	3285	42241	3418	46173	3632								
	64	23960		1959	27682	2198	29952	2327	31396	2477	34962	2871	39861	3383	42087	3521	45914	3748								
	68	23820		1984	27542	2223	29775	2366	31193	2525	34738	2923	39700	3480	41933	3624	45655	3863								
	72	23680		2008	27402	2248	29598	2406	30990	2574	34514	2976	39539	3577	41779	3726	45396	3978								
	75	23540		2033	27262	2272	29422	2445	30787	2623	34290	3029	39378	3675	41625	3829	45137	4093								
7K+12K+18K	61	24280		3364	28780	3644	31554	3782	32863	3712	36048	3575	40322	3305	43008	3462	47718	3717								
	64	24140		3389	28640	3669	31377	3822	32660	3760	35824	3628	40161	3403	42854	3565	47459	3832								
	68	24000		3414	28500	3693	31200	3861	32457	3809	35600	3681	40000	3500	42700											

Heating	INDOOR		OUTDOOR TEMPERATURE (°FDB)																							
	EDB	°F	5			14			17			23			32			47			59			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+9K+12K+18K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
7K+12K+12K+12K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
9K+9K+9K+9K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
9K+9K+9K+12K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
9K+9K+9K+18K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
9K+9K+12K+12K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
9K+12K+12K+12K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	
12K+12K+12K+12K	61	24280		3364	28780		3644	31554		3782	32863		3712	36048		3575	40322		3305	43008		3462	47718		3717	
	64	24140		3389	28640		3669	31377		3822	32660		3760	35824		3628	40161		3403	42854		3565	47459		3832	
	68	24000		3414	28500		3693	31200		3861	32457		3809	35600		3681	40000		3500	42700		3668	47200		3947	
	72	23860		3439	28360		3718	31023		3900	32254		3858	35376		3733	39839		3597	42546		3770	46941		4062	
	75	23720		3464	28220		3743	30847		3940	32051		3907	35152		3786	39678		3695	42392		3873	46682		4177	

EWB : Evaporator Wet Bulb temperature (°F)
 EDB : Evaporator Dry Bulb temperature (°F)
 (°FDB) : Outdoor Unit Inlet Air Dry Temperature (°F)

TC : Total Capacity (Btu)
 SHC : Sensible Heating Capacity (Btu)
 PI : Power Input (W)

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)

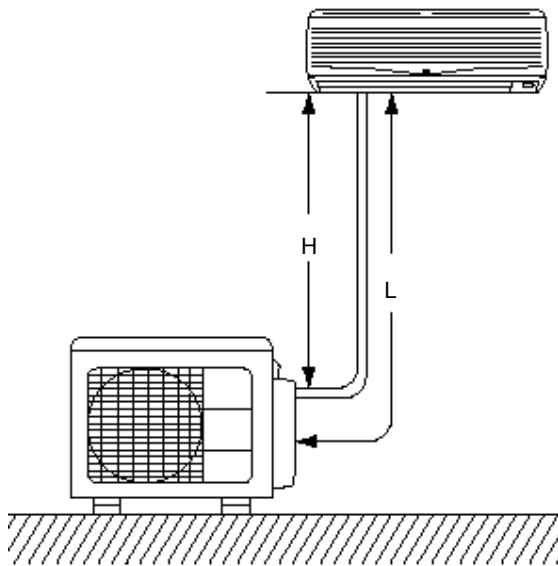
HC: Heating Capacity in the Performance Table (kcal/h)

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.



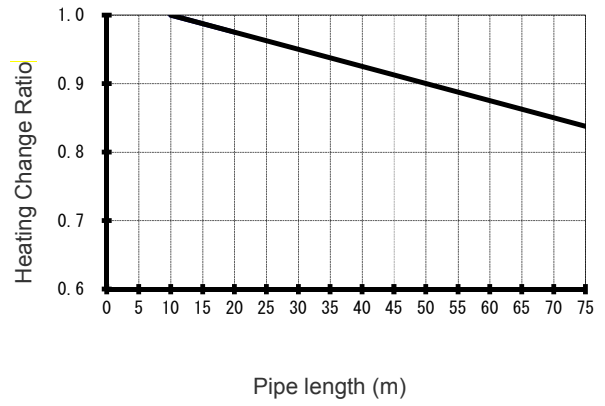
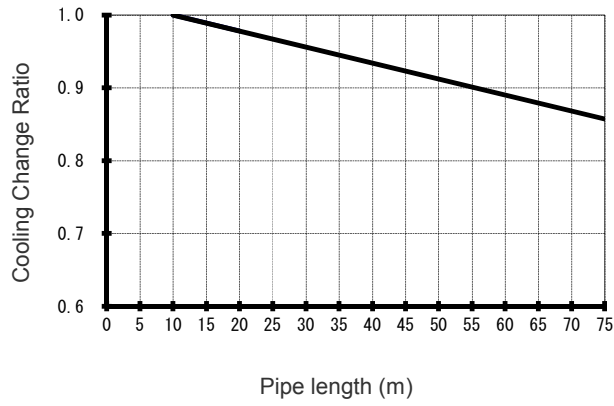
H: Vertical Distance Between Indoor Unit and Outdoor Units in Meters

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 36000 BTU/h

RAM-S36U4HLAE



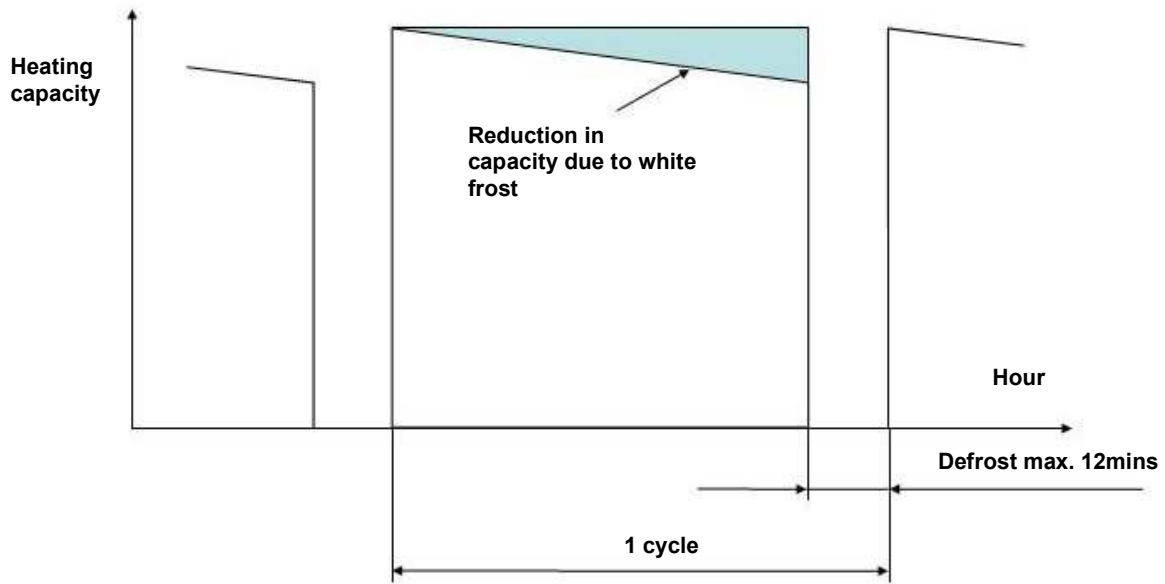
3.4. CORRECTION FACTORS ACCORDING TO DEFROSTING OPERATION

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.

**4 ROOM MULTI-SPLIT INVERTER TYPE RAC : RAM-S36U4HLAE
POSSIBLE COMBINATION TO OPERATE (SAME TIME OPERATION)**

(Reference value)

POSSIBLE COMBINATIONS TO OPERATE			COOLING				HEATING					
			CAPACITY RATING (RTU) (RANGE)	TOTAL	OUTDOOR UNIT		EER	CAPACITY RATING (RTU) (RANGE)	TOTAL	OUTDOOR UNIT		COP
					CONSUMPTION (W)	AMPERE (A) at 208 - 2 0				CONSUMPTION (W)	AMPERE (A) at 208 - 230	
ONE UNIT	7K	7K	7000 (3050-8500)	7000	450 (280-500)	2.16 - 1.6	15.6	9000 (3050-10900)	9000	720 (320-1130)	3.46 - .13	12.5
	9K	9K	9000 (3050-10200)	9000	650 (280-720)	3.13 - 2.3	13.8	11600 (3050-15000)	11600	980 (320-1480)	4.71 - 4.6	11.8
	12K	12K	12000 (3050-13650)	12000	1030 (280-1130)	4.95 - 4.8	11.7	15350 (3050-18000)	15350	1160 (320-1950)	5.53 - 5.0	13.3
	18K	18K	18000 (3050-17750)	18000	1600 (280-2400)	7.69 - 6.6	11.3	20500 (3050-23200)	20500	1950 (460-2100)	9.38 - 8.8	10.5
	24K	24K	24000 (4100-25600)	24000	2100 (280-2700)	10.10 - 3	11.4	27300 (3050-30690)	27300	2400 (460-2800)	11.54 - 0.43	11.4
TWO UNIT	14K	7K+7K	7000+7000 (7000-17000)	14000	1250 (460-2000)	6.01 - 5.3	11.2	9000+9000 (9000-21800)	18000	1500 (390-1800)	7.21 - .52	12.0
	16K	7K+9K	7000+9000 (7000-19000)	16000	1450 (460-2200)	6.97 - 6.0	11.0	9000+11600 (9000-25900)	20600	1750 (390-2000)	8.41 - .61	11.8
	19K	7K+12K	7000+12000 (7000-21500)	19000	1600 (460-2400)	7.69 - 6.6	11.9	9000+15350 (9000-28900)	24350	1950 (460-2100)	9.38 - 8.8	12.5
	25K	7K+18K	7000+18000 (7000-28250)	25000	1920 (460-3250)	9.23 - 8.5	13.0	9000+20500 (9000-34100)	29500	2400 (460-3200)	11.54 - 0.43	12.3
	31K	7K+24K	7000+24000 (7000-34000)	31000	2520 (460-4000)	10.02 - 1 7	12.3	9000+27300 (9000-41600)	36300	2800 (460-3600)	13.46 - 2.17	13.0
	18K	9K+9K	9000+9000 (7000-20400)	18000	1550 (460-2400)	7.69 - 6.6	11.6	11600+11600 (9000-30000)	23200	1950 (460-2100)	9.38 - 8.8	11.9
	21K	9K+12K	9000+12000 (7000-24000)	21000	1700 (460-2600)	8.17 - 7.9	12.4	11600+15350 (9000-33000)	26950	2200 (460-3000)	10.58 - 9.57	12.3
	27K	9K+18K	9000+18000 (7000-27950)	27000	2420 (460-3800)	11.54 - 1 3	11.3	11600+20500 (9000-38200)	32100	2600 (460-3400)	12.50 - 1.30	12.3
	33K	9K+24K	9000+24000 (7000-36000)	33000	2620 (460-4200)	12.50 - 1 0	12.6	11600+27300 (9000-42000)	38900	3400 (460-4100)	16.35 - 4.78	11.4
	24K	12K+12K	12000+12000 (7000-27300)	24000	1900 (460-3250)	9.23 - 8.5	12.6	15350+15350 (9000-36000)	30700	2400 (460-3200)	11.54 - 0.43	12.8
	30K	12K+18K	12000+18000 (7000-32650)	30000	2500 (460-4000)	12.02 - 1 7	12.0	15350+20500 (9000-41200)	35850	2800 (460-3600)	13.46 - 2.17	12.8
	36K	12K+24K	12000+24000 (7000-39250)	36000	2880 (460-4400)	13.46 - 12 17	12.5	14000+26000 (9000-42000)	40000	3500 (460-4200)	17.31 - 1 5	11.4
	36K	18K+18K	18000+18000 (7000-38000)	36000	2880 (460-4400)	13.46 - 1 7	12.5	20000+20000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
	42K	18K+24K	16000+20000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14 30	12.5	16000+24000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
	48K	24K+24K	18000+18000 (7000-40000)	36000	2880 (460-4400)	15.85 - 1 0	12.5	20000+20000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
	THREE UNIT	21K	7K+7K+7K	7000+7000+7000 (7000-25500)	21000	1700 (460-2600)	8.17 - 7.9	12.4	9000+9000+9000 (9000-32700)	27000	2200 (460-3000)	10.58 - 9.57
23K		7K+7K+9K	7000+7000+9000 (7000-27200)	23000	1880 (460-3250)	9.23 - 8.5	12.2	9000+9000+11600 (9000-36800)	29600	2400 (460-3200)	11.54 - 0.43	12.3
26K		7K+7K+12K	7000+7000+12000 (7000-30650)	26000	2400 (460-3800)	11.54 - 1 3	10.8	9000+9000+15350 (9000-39800)	33350	2600 (460-3400)	12.50 - 1.30	12.8
32K		7K+7K+18K	7000+7000+18000 (7000-36000)	32000	2600 (460-4250)	12.50 - 1 0	12.3	9000+9000+20500 (9000-42000)	38500	3400 (460-4100)	16.35 - 4.78	11.3
38K		7K+7K+24K	7000+7000+24000 (7000-40000)	36000	2880 (460-4400)	13.94 - 1 1	12.5	8000+8000+24000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
25K		7K+9K+9K	7000+9000+9000 (7000-28900)	25000	1920 (460-3250)	9.23 - 8.5	13.0	9000+11600+11600 (9000-40900)	32200	2600 (460-3400)	12.50 - 1.30	12.4
28K		7K+9K+12K	7000+9000+12000 (7000-32350)	28000	2400 (460-3800)	11.54 - 1 3	11.7	9000+11600+15350 (9000-42000)	35950	2800 (460-3600)	13.46 - 2.17	12.8
34K		7K+9K+18K	7000+9000+18000 (7000-37700)	34000	2600 (460-4250)	12.50 - 1 0	13.1	8700+11300+20000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
40K		7K+9K+24K	6000+8000+22000 (7000-40000)	36000	2880 (460-4400)	13.94 - 1 1	12.5	7000+9600+23400 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
31K		7K+12K+12K	7000+12000+12000 (7000-35800)	31000	2500 (460-4000)	12.02 - 10 87	12.4	9000+15350+15350 (9000-42000)	39700	3480 (460-4200)	16.35 - 1 8	11.4
37K		7K+12K+18K	6750+11750+17500 (7000-40000)	36000	2880 (460-4400)	13.46 - 1 7	12.5	8000+14350+17650 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
43K		7K+18K+18K	5000+15500+15500 (7000-40000)	36000	2880 (460-4400)	15.85 - 14 30	12.5	8000+14350+17650 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
43K		7K+12K+24K	5500+9500+21000 (7000-40000)	36000	2880 (460-4400)	15.85 - 1 0	12.5	6000+12350+21650 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
27K		9K+9K+9K	9000+9000+9000 (7000-30600)	27000	2400 (460-3800)	11.54 - 1 3	11.3	11600+11600+11600 (9000-42000)	34800	2800 (460-3600)	13.46 - 2.17	12.4
30K		9K+9K+12K	9000+9000+12000 (7000-34050)	30000	2500 (460-4000)	12.02 - 1 7	12.0	11600+11600+15350 (9000-42000)	38550	3400 (460-4100)	16.35 - 4.78	11.3
36K		9K+9K+18K	9000+9000+18000 (7000-39400)	36000	2880 (460-4400)	13.46 - 1 7	12.5	10600+10600+18800 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
42K		9K+9K+24K	8000+8000+20000 (7000-39400)	36000	2880 (460-4400)	15.85 - 1 0	12.5	9600+9600+22800 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
33K		9K+12K+12K	9000+12000+12000 (7000-37500)	33000	2600 (460-4200)	9.23 - 8.5	12.7	11000+14500+14500 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.3
39K		9K+12K+18K	8000+11000+17000 (7000-40000)	36000	2880 (460-4400)	12.50 - 11 30	12.5	9600+13300+17100 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
45K		9K+12K+24K	7000+9000+20000 (7000-40000)	36000	2880 (460-4400)	13.94 - 12 61	12.5	7600+11300+21100 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
45K		9K+18K+18K	7000+14500+14500 (7000-40000)	36000	2880 (460-4400)	13.94 - 1 1	12.5	8000+16000+16000 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
36K		12K+12K+12K	12000+12000+12000 (7000-40000)	36000	2880 (460-4400)	13.46 - 1 7	12.5	13350+13350+13300 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
42K		12K+12K+18K	10000+10000+16000 (7000-40000)	36000	2880 (460-4400)	15.85 - 1 0	12.5	13350+13350+15300 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
48K		12K+12K+24K	8000+8000+18000 (7000-40000)	36000	2880 (460-4400)	15.85 - 1 0	12.5	12350+12350+13300 (9000-42000)	40000	3500 (460-4200)	17.31 - 5.65	11.4
48K	12K+18K+18K	7000+13000+16000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14 30	12.5	11000+14500+14500 (9000-42000)	40000	3500 (460-4200)	17.31 - 1 5	11.4	

FOUR UNIT	28K	7K+7K+7K+7K	7000+7000+7000+7000 (7000-34000)	28000	2400 (460-3800)	11.54 - 10.43	11.7	9000+9000+9000+9000 (9000-42000)	36000	2800 (460-3600)	13.46 - 12.17	12.9
	30K	7K+7K+7K+9K	7000+7000+7000+9000 (7000-35700)	30000	2500 (460-4000)	12.02 - 10.87	12.0	9000+9000+9000+11600 (9000-42000)	38600	3400 (460-4100)	16.35 - 14.78	11.4
	33K	7K+7K+7K+12K	7000+7000+7000+12000 (7000-39150)	33000	2600 (460-4200)	12.50 - 11.30	12.7	8500+8500+8500+14500 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	39K	7K+7K+7K+18K	6250+6250+6250+17250 (7000-40000)	36000	2880 (460-4400)	13.94 - 12.61	12.5	8000+8000+8000+16000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	45K	7K+7K+7K+24K	5000+5000+5000+21000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	6000+6000+6000+22000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	32K	7K+7K+9K+9K	7000+7000+9000+9000 (7000-37400)	32000	2880 (460-4400)	12.50 - 11.30	12.3	8700+8700+11300+11300 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	35K	7K+7K+9K+12K	7000+7000+9000+12000 (7000-40000)	35000	2880 (460-4400)	13.46 - 12.17	12.5	8250+8250+10100+13400 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	41K	7K+7K+9K+18K	6000+6000+8000+16000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7000+7000+9000+17000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	47K	7K+7K+9K+24K	5000+5000+7000+19000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7000+7000+9000+17000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	38K	7K+7K+12K+12K	6750+6750+11250+11250 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7000+7000+13000+13000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	44K	7K+7K+12K+18K	5500+5500+10000+15000 (7000-46000)	36000	2880 (460-4400)	15.85 - 14.30	12.0	7000+7000+9000+17000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	34K	7K+9K+9K+9K	7000+9000+9000+9000 (7000-35700)	34000	2880 (460-4400)	15.85 - 14.30	13.1	8200+10600+10600+10600 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	37K	7K+9K+9K+12K	6800+8800+8800+11600 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	8000+10400+10400+11200 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	43K	7K+9K+9K+18K	5500+7500+7500+15500 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7500+8500+8500+15500 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	40K	7K+9K+12K+12K	6000+8000+11000+11000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.0	7500+10100+11200+11200 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	46K	7K+9K+12K+18K	6000+8000+11000+15000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.0	6500+7600+10850+15050 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	43K	7K+12K+12K+12K	6000+10000+10000+10000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	5950+11350+11350+11350 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	36K	9K+9K+9K+9K	9000+9000+9000+9000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	10000+10000+10000+10000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	39K	9K+9K+9K+12K	8500+8500+8500+10500 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	9200+9200+9200+12400 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
	45K	9K+9K+9K+18K	7000+7000+7000+15000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	8100+8100+8100+10500 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4
42K	9K+9K+12K+12K	8000+8000+10000+10000 (7000-46000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	8600+8600+11400+11400 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4	
48K	9K+9K+12K+18K	6500+6500+9000+14000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7600+7600+10350+14450 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4	
45K	9K+12K+12K+12K	6000+10000+10000+10000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	7600+10800+10800+10800 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4	
48K	12K+12K+12K+12K	9000+9000+9000+9000 (7000-40000)	36000	2880 (460-4400)	15.85 - 14.30	12.5	10000+10000+10000+10000 (9000-42000)	40000	3500 (460-4200)	17.31 - 15.65	11.4	

* TWO INDOOR UNITS SHOULD BE CONNECTED AT LEAST.
 * TOTAL NOMINAL COOLING CAPACITY SHOULD NOT BE MORE THAN 48K Btu.

<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 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.

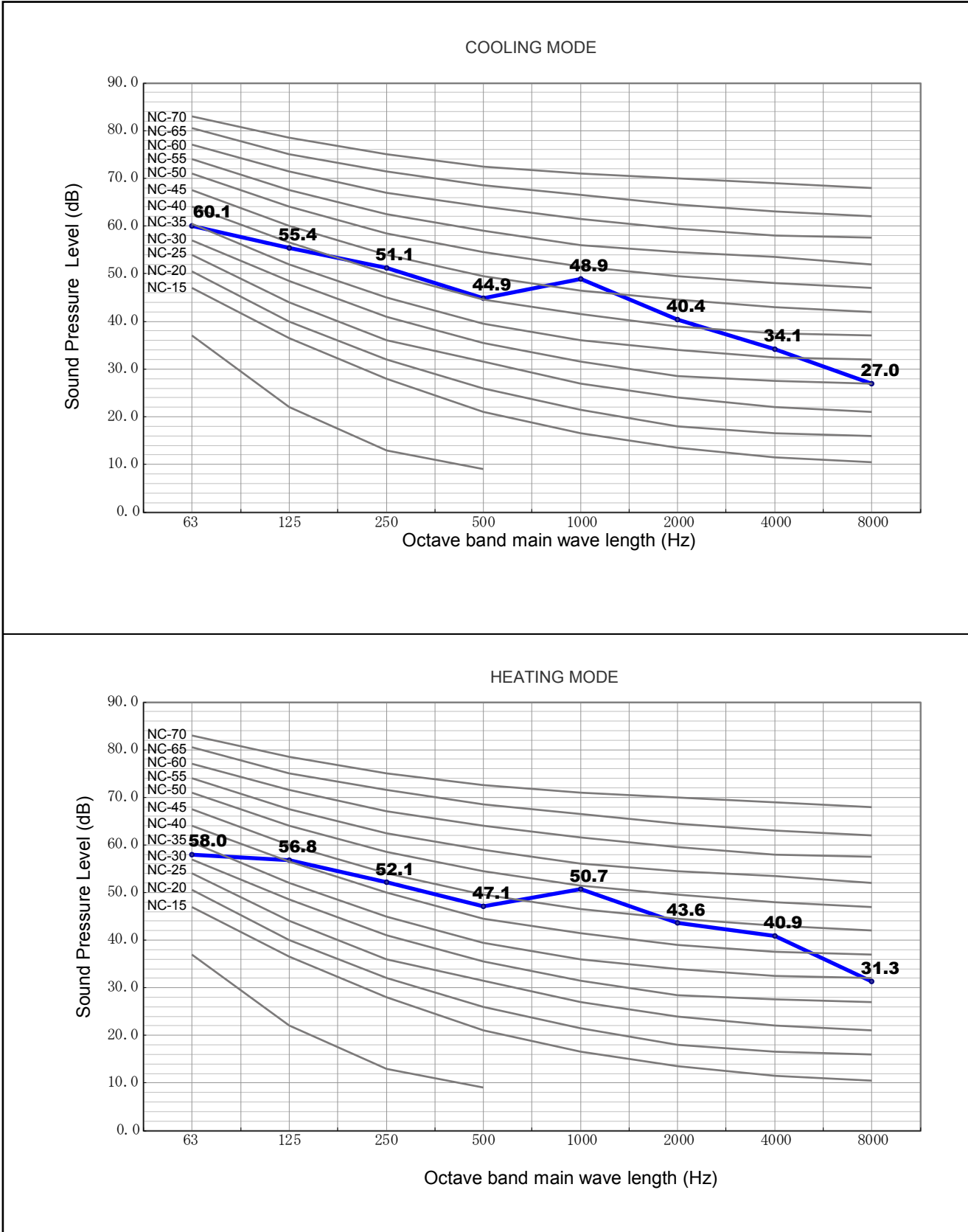
*Total nominal cooling capacity should not be more than 48K Btu.

4 SOUND DATA

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4.1 RAM-S36U4HLAE



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

5 WORKING RANGE

CONTENTS

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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

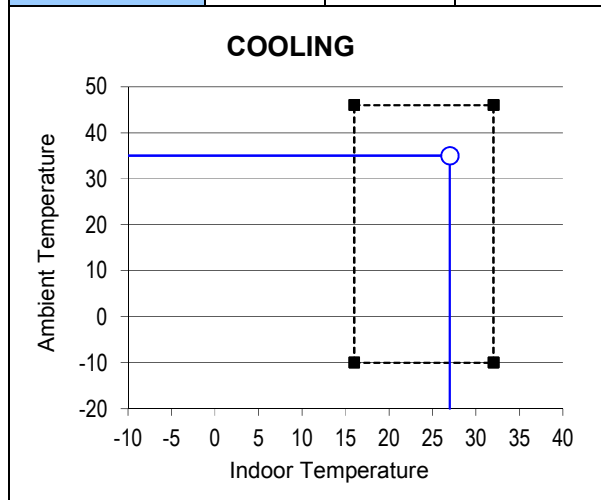
Applicable models:

MULTIZONE
RAM-S36U4HLAE

The temperature range is indicated in the following table.

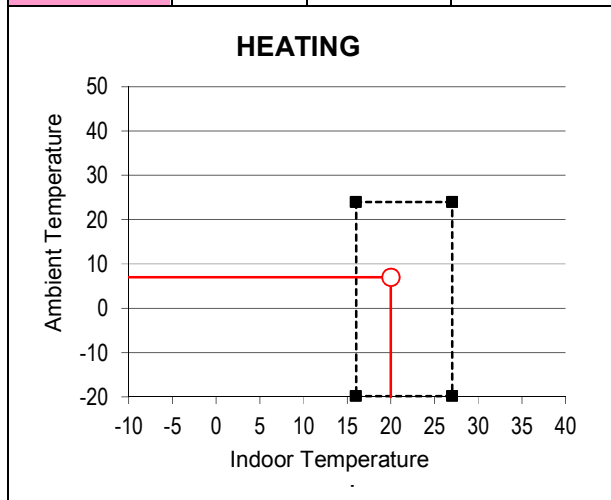
Cooling

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**CONTENTS**

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6.2.	OUTDOOR UNIT _____	6-3

6.1. INDOOR UNIT

Model	Unit Main Power	Rated input current of power conversion equipment	Indoor Fan Motor	
	VOL, PH, Hz		RNC	IPT
RAS-EH07QHLAE	208-230, 1, 60	0.45	0.67	38
RAS-EH09RHLAE	208-230, 1, 60	0.45	0.67	38
RAS-EH12RHLAE	208-230, 1, 60	0.45	0.67	38
RAS-EH18RHLAE	208-230, 1, 60	0.45	0.67	38
RAS-EH24RHLAE	208-230, 1, 60	0.56	0.16	45
RAS-SH07QHLAE	208-230, 1, 60	0.62	0.67	30
RAS-SH09RHLAE	208-230, 1, 60	0.62	0.67	30
RAS-SH12RHLAE	208-230, 1, 60	0.62	0.67	30
RAS-SH18RHLAE	208-230, 1, 60	0.64	0.16	45
RAS-SH24RHLAE	208-230, 1, 60	0.64	0.16	45
RAF-SH07QHLAE	208-230, 1, 60	-	0.75	38
RAF-SH09QHLAE	208-230, 1, 60	-	0.75	38
RAF-SH12QHLAE	208-230, 1, 60	-	0.75	38
RAF-SH18QHLAE	208-230, 1, 60	-	0.75	38
RAI-SH07QHLAE	208-230, 1, 60	-	0.25	57
RAI-SH09QHLAE	208-230, 1, 60	-	0.25	57
RAI-SH12QHLAE	208-230, 1, 60	-	0.25	57
RAI-SH18QHLAE	208-230, 1, 60	-	0.25	57
RAD-SH07QHLAE	208-230, 1, 60	0.45	0.11	20
RAD-SH09QHLAE	208-230, 1, 60	0.45	0.11	20
RAD-SH12QHLAE	208-230, 1, 60	0.45	0.11	20
RAD-SH18QHLAE	208-230, 1, 60	1.2	0.75	180
RAD-SH24QHLAE	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-S36U4HLAE	208-230, 1, 60	18	12.58	15.47	24	40

VOL: Rated Unit Power Supply Voltage (V)

HZ: Frequency (Hz)

PH: Phase (ϕ)

MCA: Minimum Circuit Ampacity (A)

MOP: Maximum Overcurrent Protection (A)

- 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

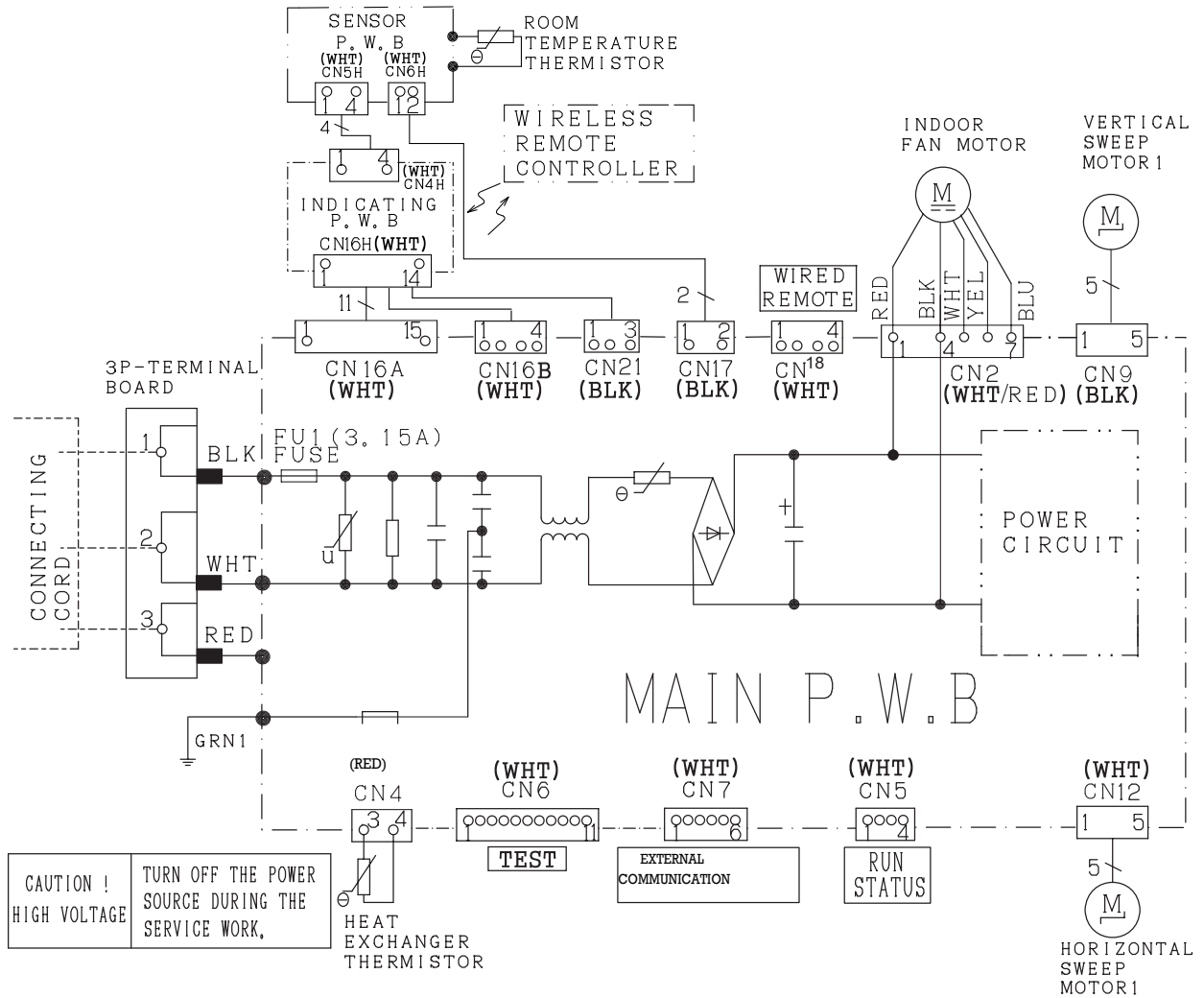
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7.1. MULTIZONE

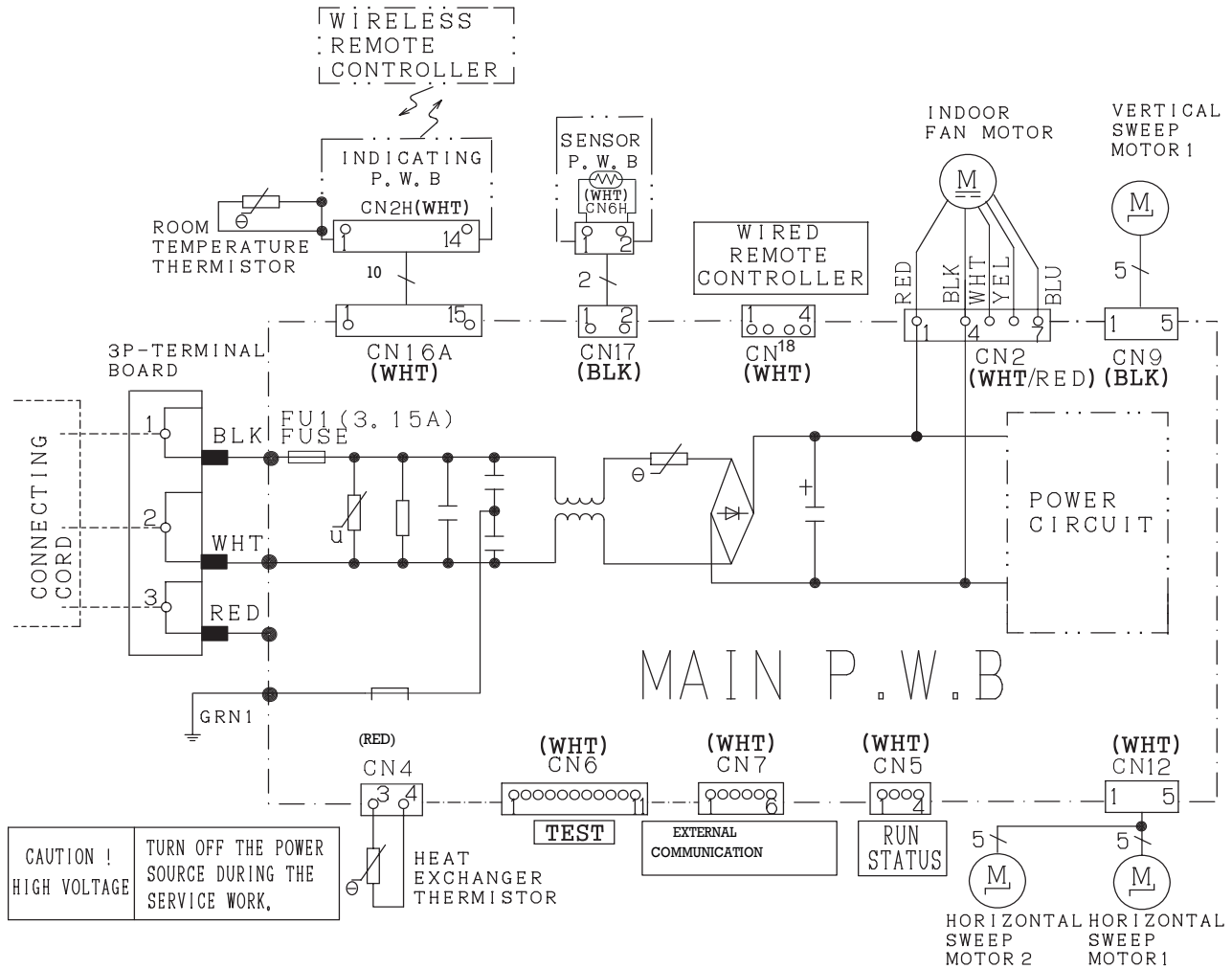
7.1.1. RAS-EH07QHLAE, RAS-EH09/12/18RHLAE

BLU : BLUE	YEL : YELLOW	BRN : BROWN	WHT : WHITE
GRY : GRAY	ORN : ORANGE	GRN : GREEN	RED : RED
BLK : BLACK	PNK : PINK	VIO : VIOLET	IVO : IVORY



7.1.2. RAS-EH24RHLAE

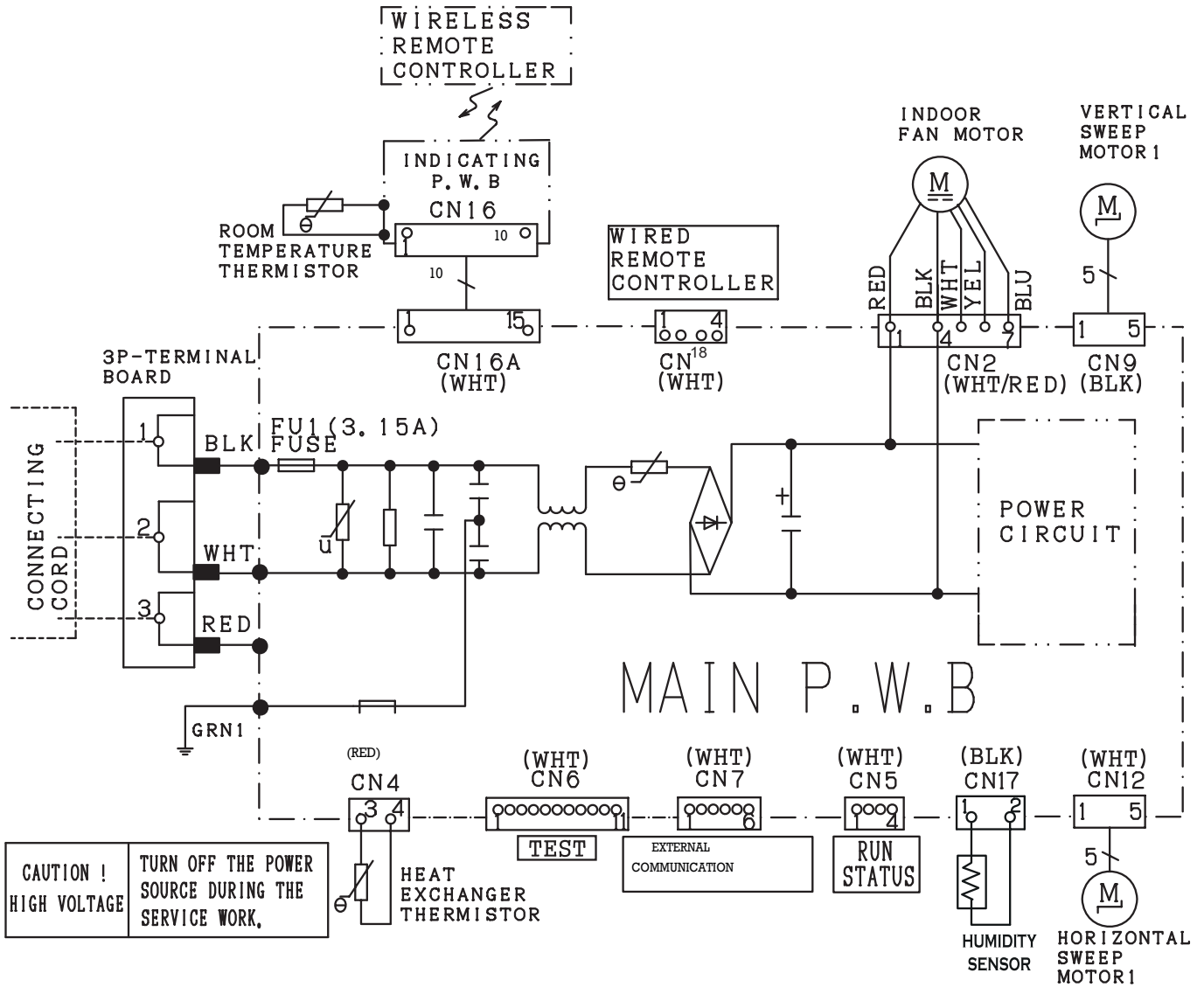
- | | | | |
|-------------|--------------|--------------|-------------|
| BLU : BLUE | YEL : YELLOW | BRN : BROWN | WHT : WHITE |
| GRY : GRAY | ORN : ORANGE | GRN : GREEN | RED : RED |
| BLK : BLACK | PNK : PINK | VIO : VIOLET | IVO : IVORY |



CAUTION ! HIGH VOLTAGE
TURN OFF THE POWER SOURCE DURING THE SERVICE WORK,

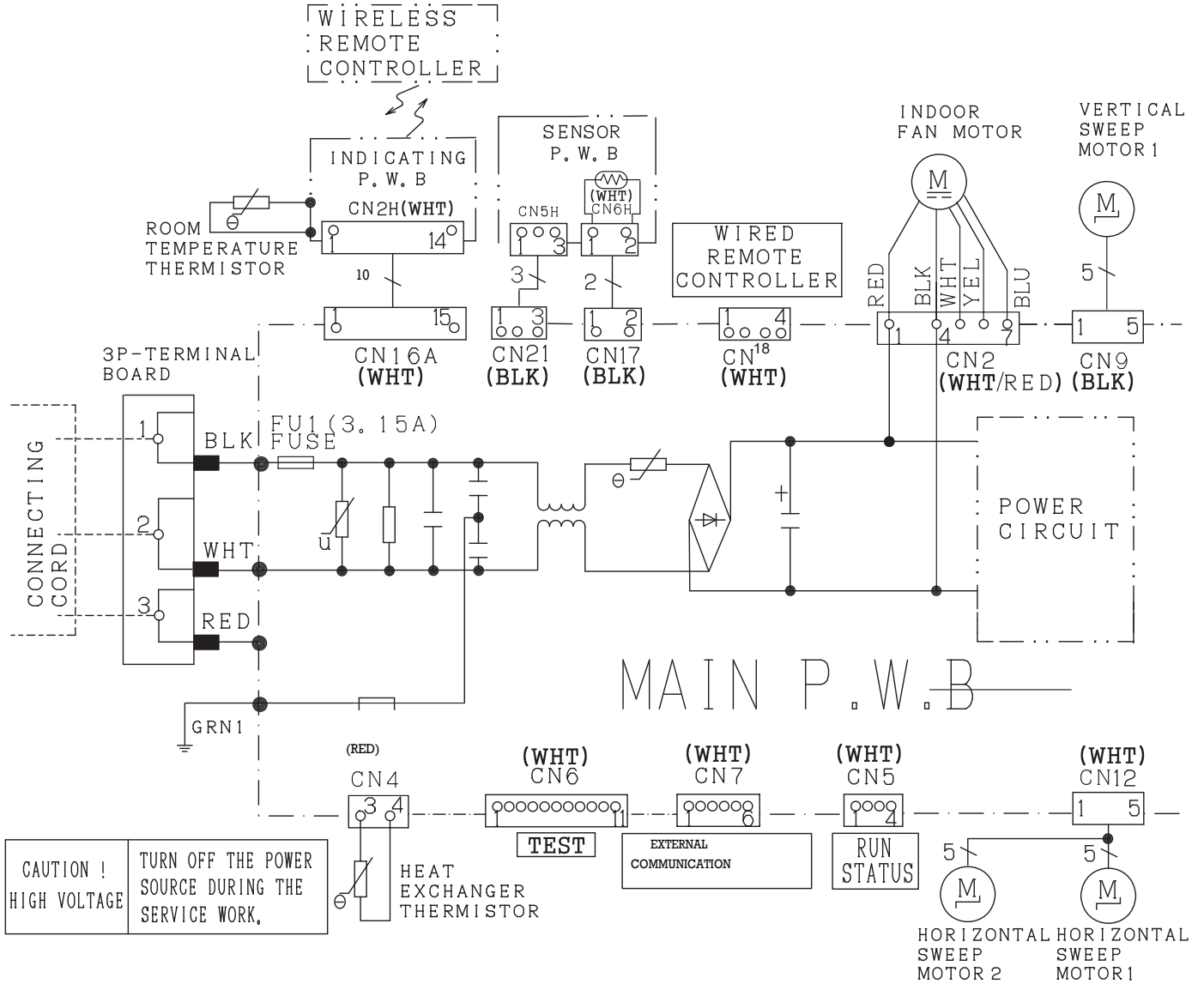
7.1.3. RAS-SH07QHLAE, RAS-SH09/12RHLAE

BLU : BLUE	YEL : YELLOW	BRN : BROWN	WHT : WHITE
GRY : GRAY	ORN : ORANGE	GRN : GREEN	RED : RED
BLK : BLACK	PNK : PINK	VIO : VIOLET	IVO : IVORY



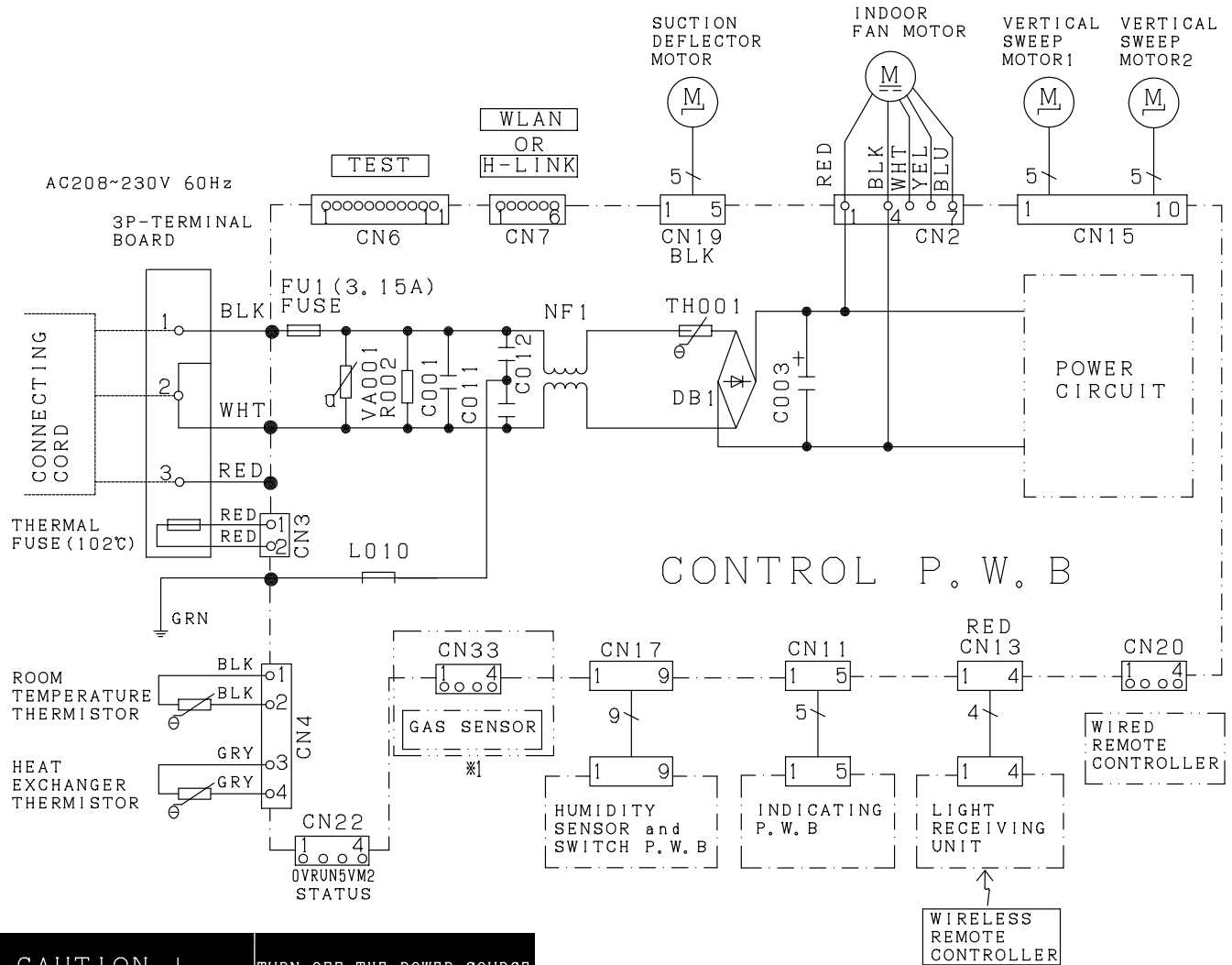
7.1.4. RAS-SH18/24RHLAE

BLU : BLUE	YEL : YELLOW	BRN : BROWN	WHT : WHITE
GRY : GRAY	ORN : ORANGE	GRN : GREEN	RED : RED
BLK : BLACK	PNK : PINK	VIO : VIOLET	IVO : IVORY



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

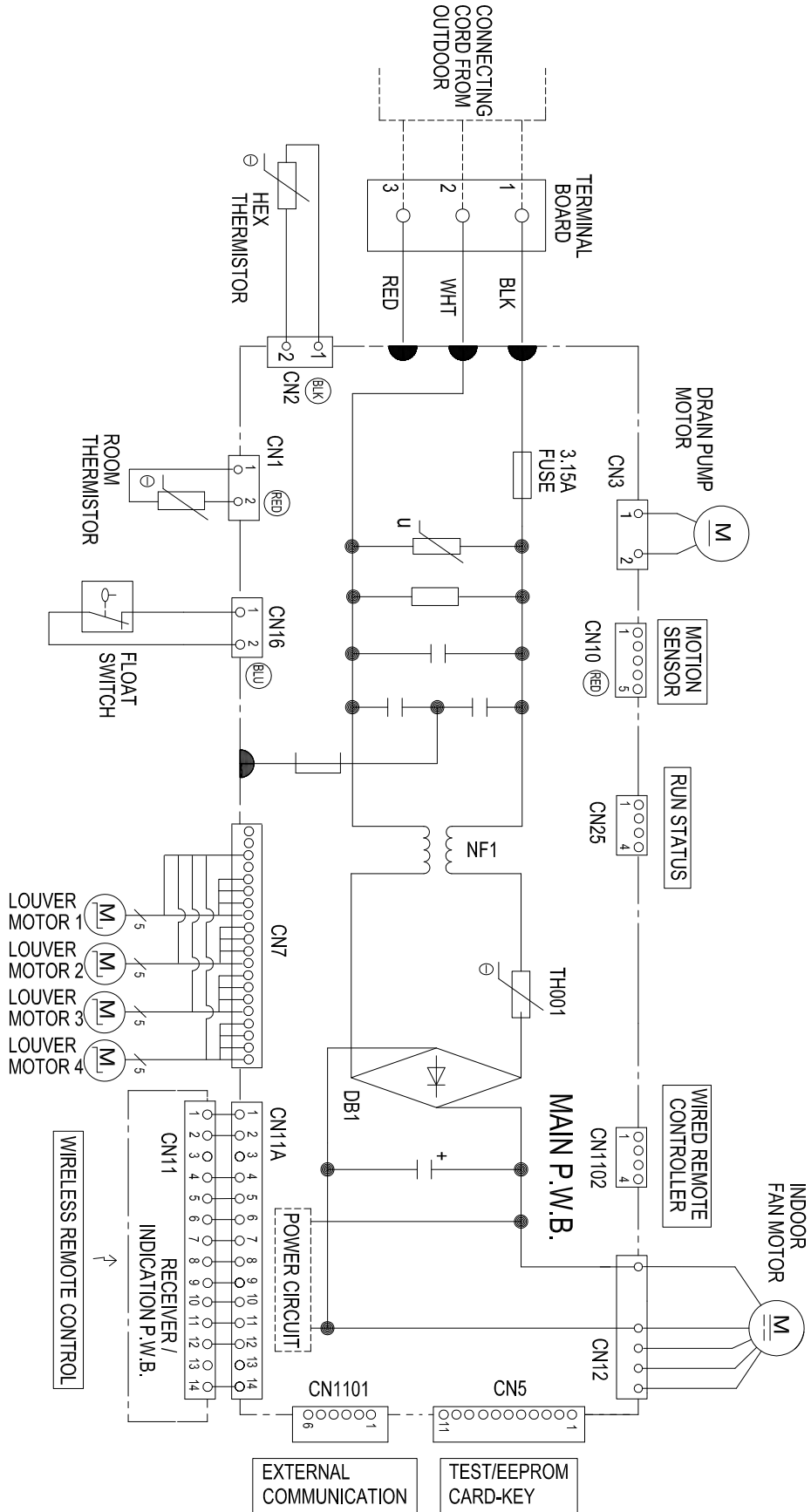
BLK:BLACK GRN:GREEN
 RED:RED WHT:WHITE
 GRY:GRAY YEL:YELLOW
 BLU:BLUE



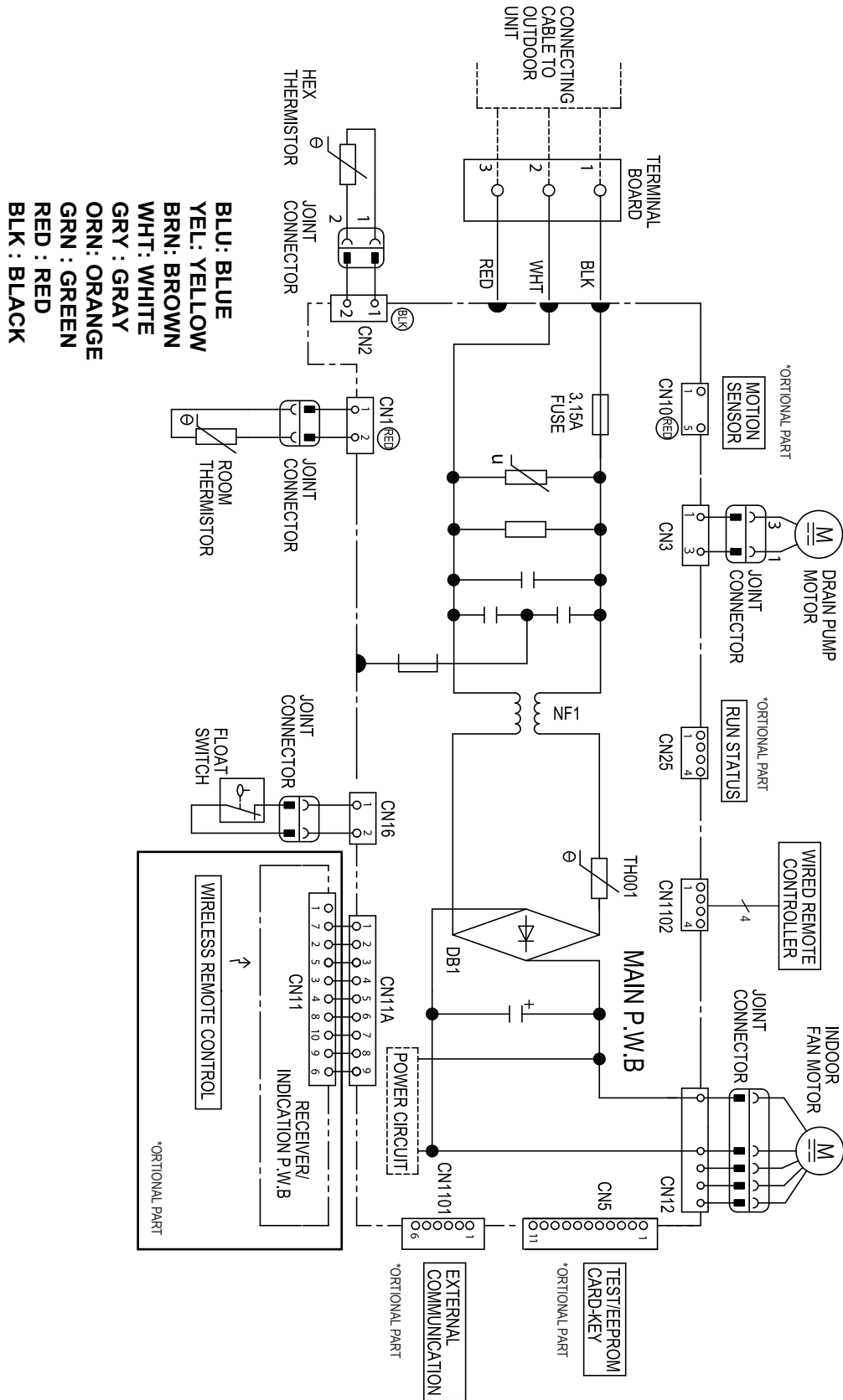
CAUTION ! TURN OFF THE POWER SOURCE
 HIGH VOLTAGE DURING THE SERVICE WORK.

※1 SOME MODELS NOT NEED TO INSTALL THE CIRCUITS IN DASH DOT,

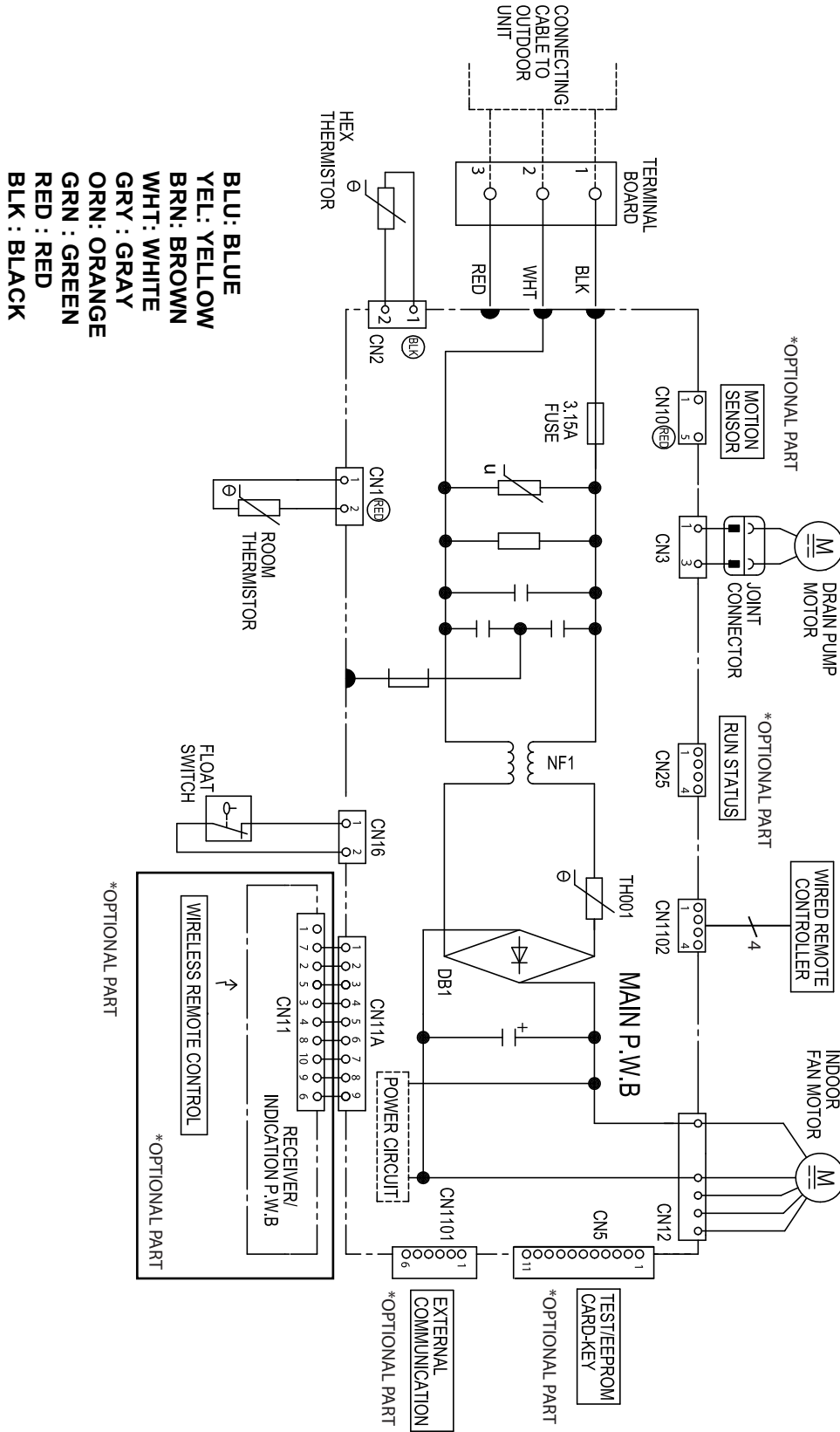
7.1.6. RAI-SH07QHLAE, RAI-SH09QHLAE, RAI-SH12QHLAE, RAI-SH18QHLAE



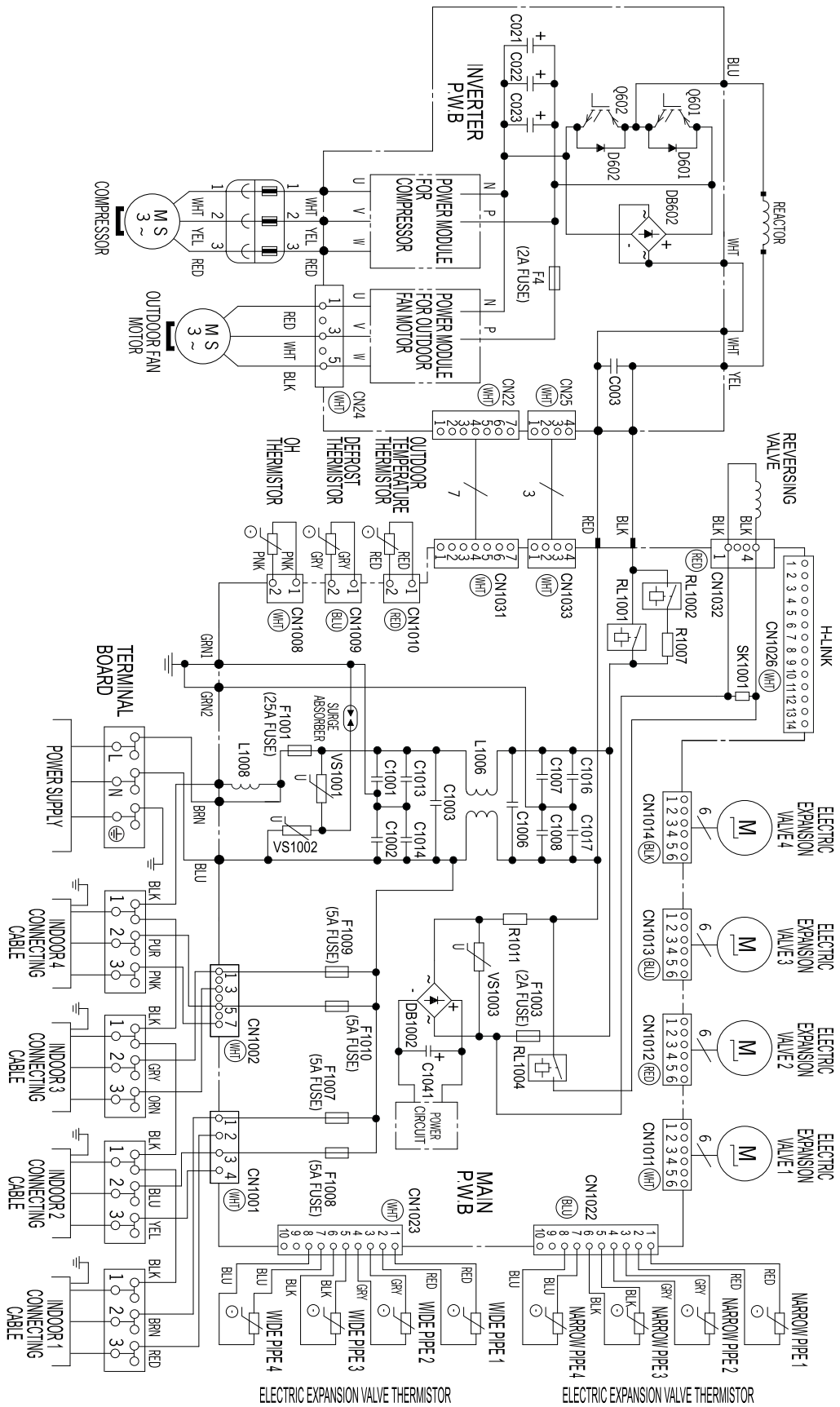
7.1.7. RAD-SH07QHLAE, RAD-SH09QHLAE, RAD-SH12QHLAE



7.1.8. RAD-SH18QHLAE, RAD-SH24QHLAE



7.2 RAM-S36U4HLAE



8 REFRIGERANT CYCLE

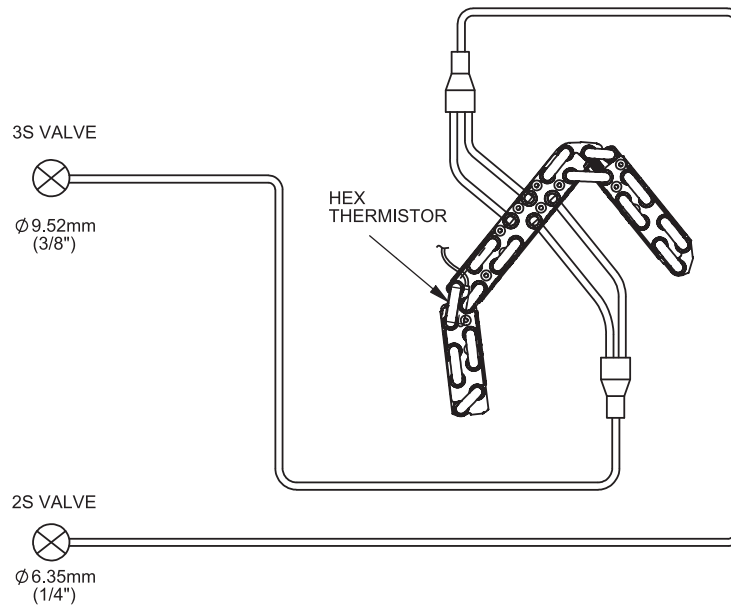
CONTENT

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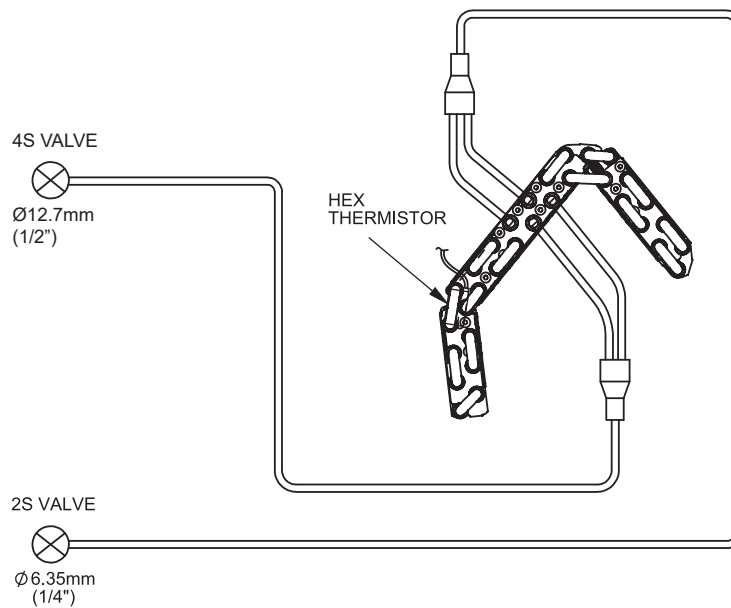
8.1. MULTIZONE INDOOR UNITS

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

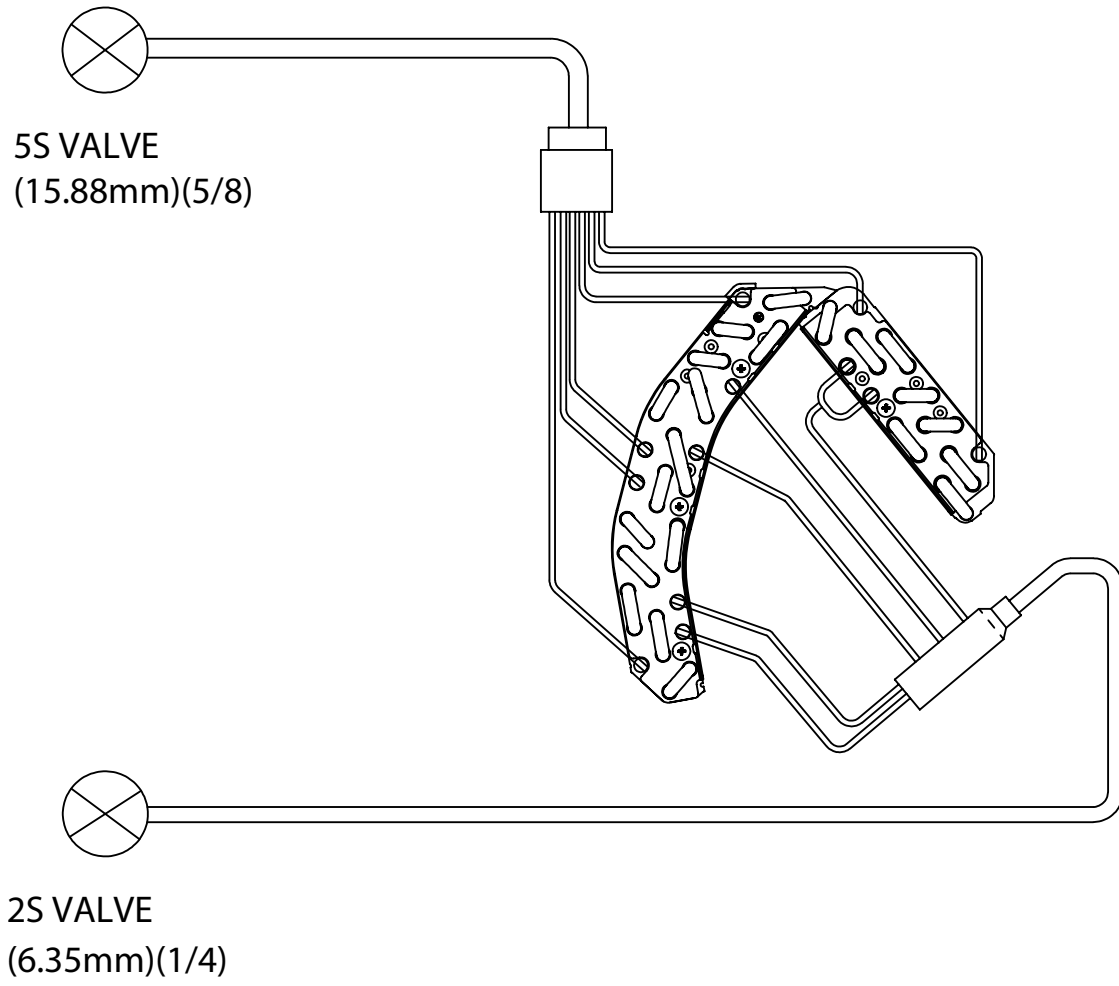
MODEL : RAS-EH07QHLAE
RAS-EH09RHLAE
RAS-EH12RHLAE



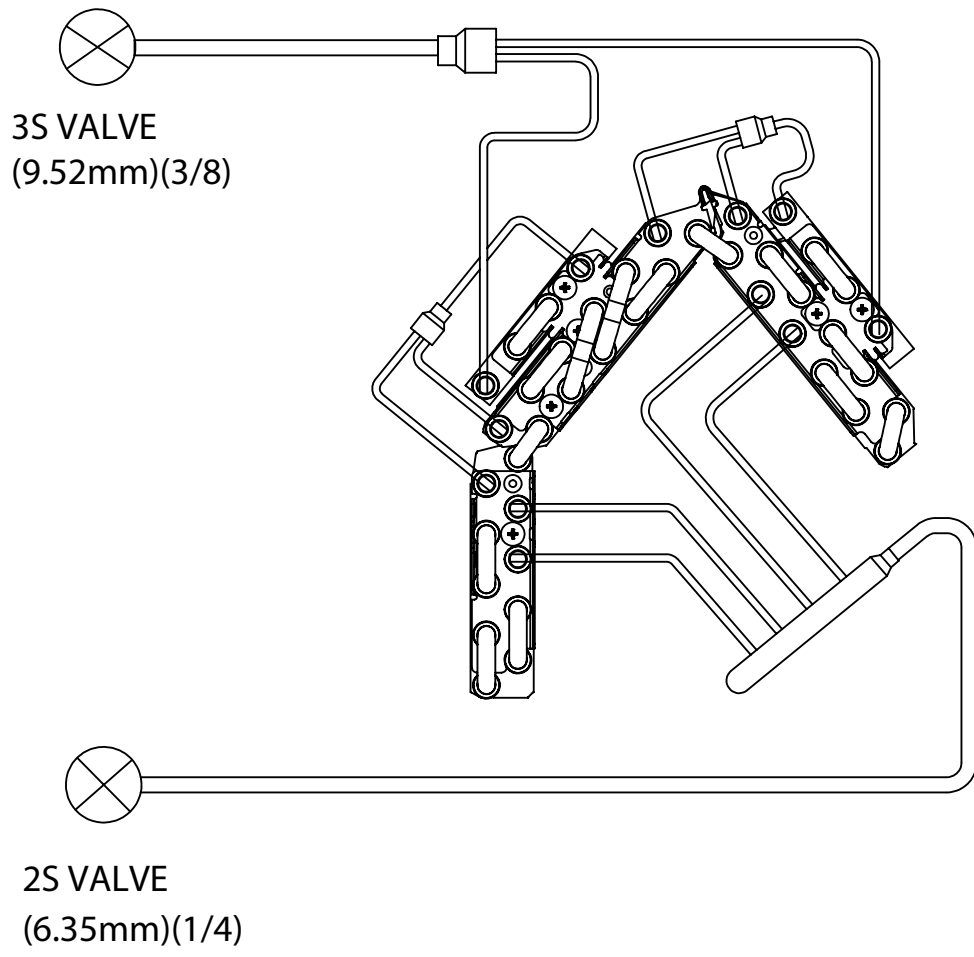
MODEL : RAS-EH18RHLAE



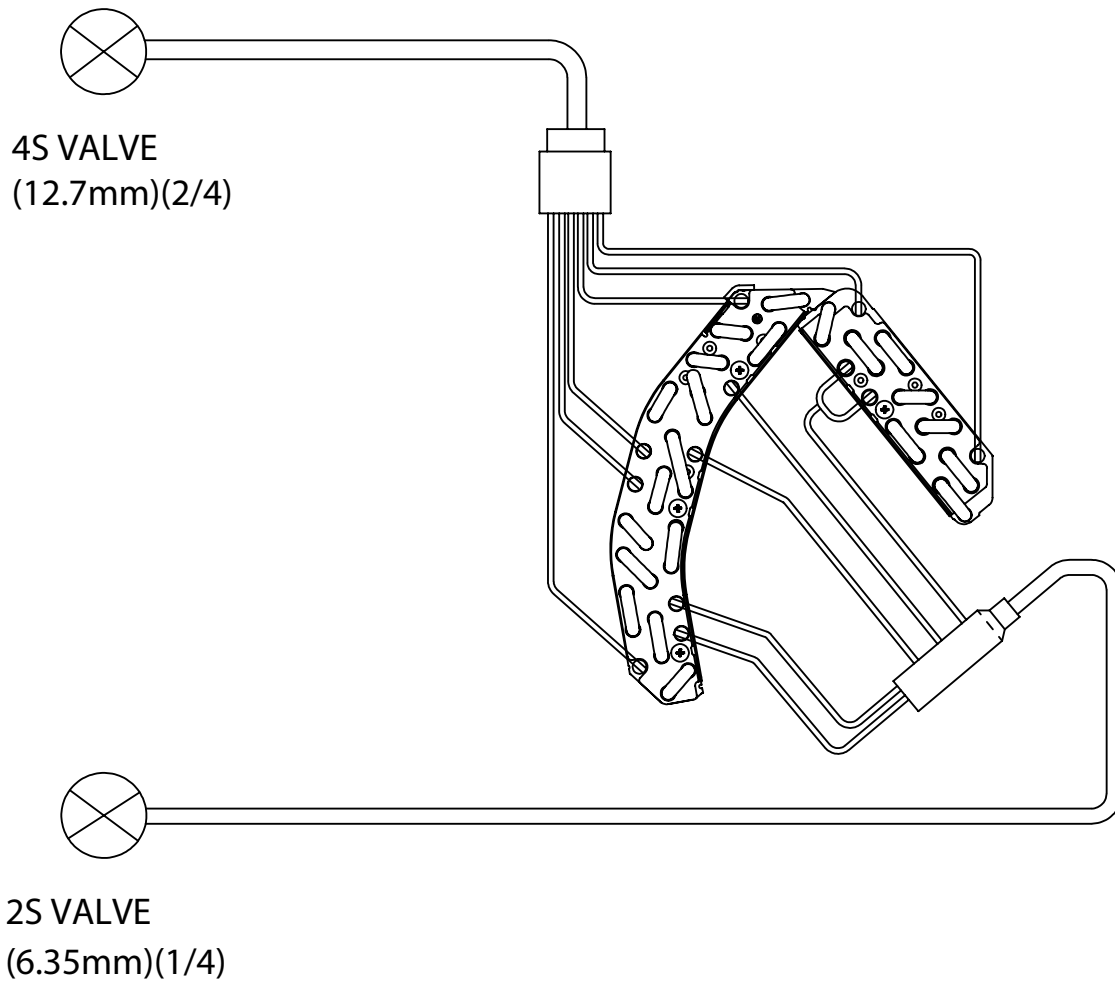
8.1.2. WALL TYPE: RAS-EH24RHLAE,RAS-SH24RHLAE



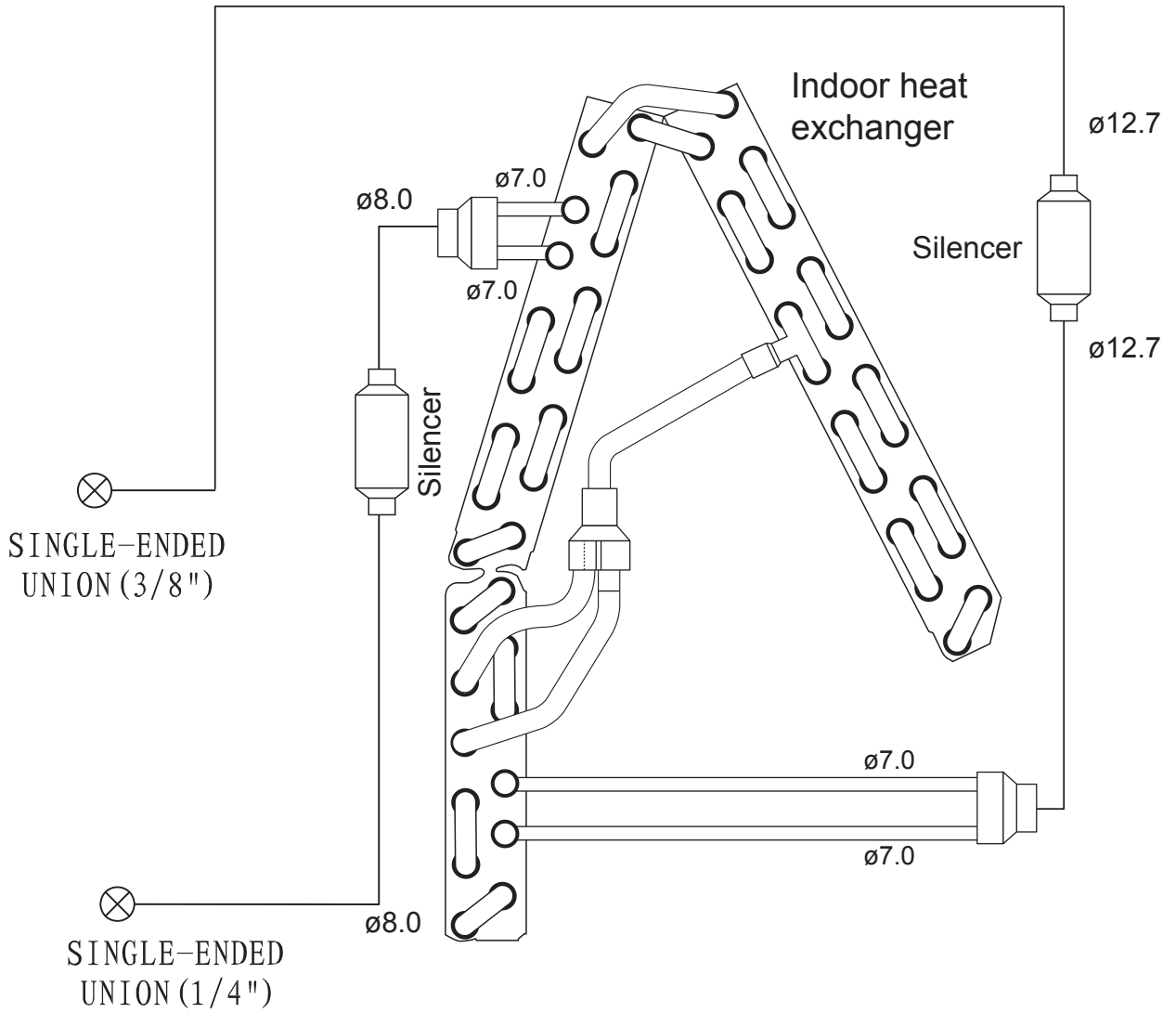
8.1.3. WALL TYPE: RAS-SH07QHLAE, RAS-SH09/12RHLAE



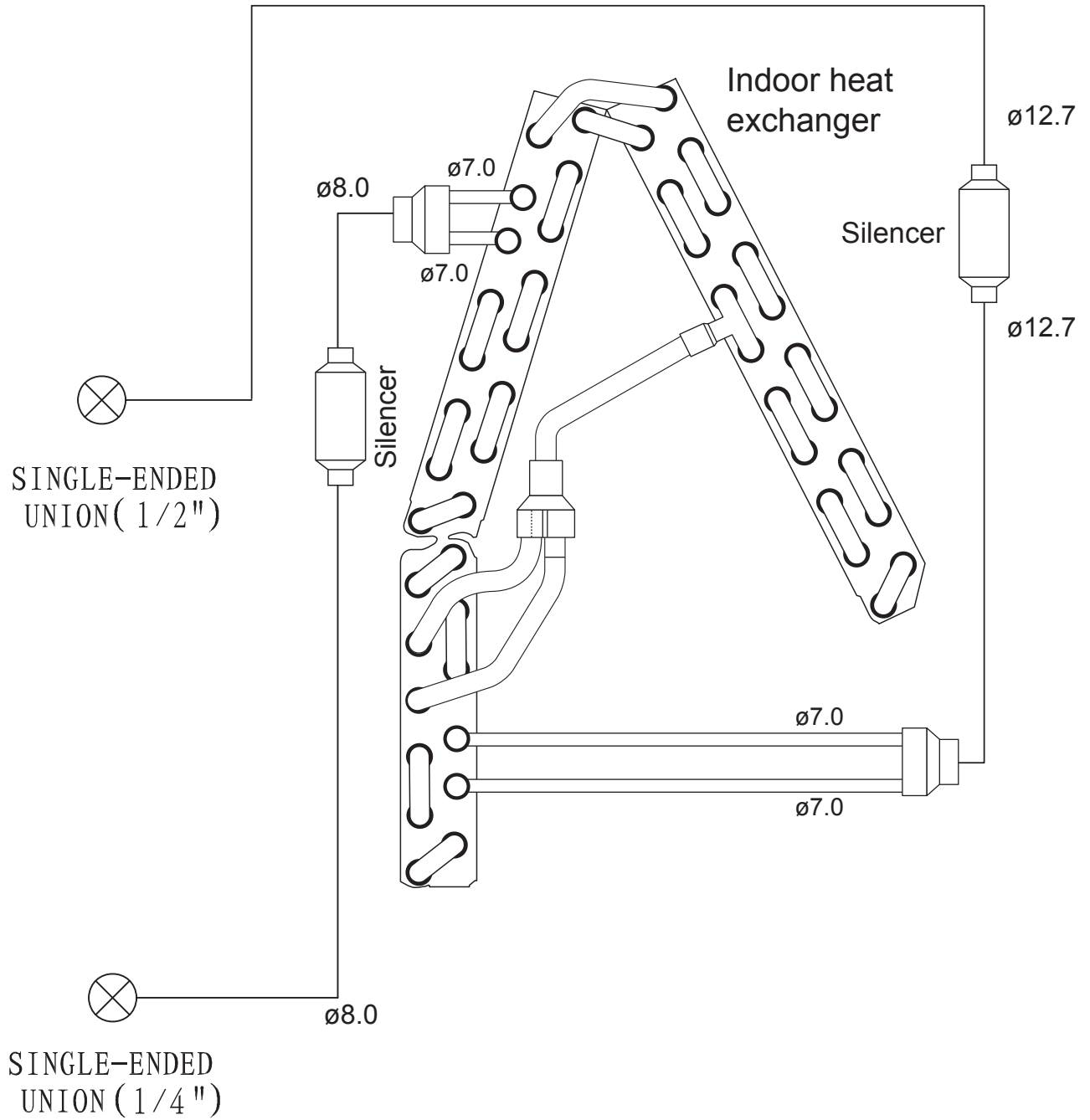
8.1.4. WALL TYPE: RAS-SH18RHLAE



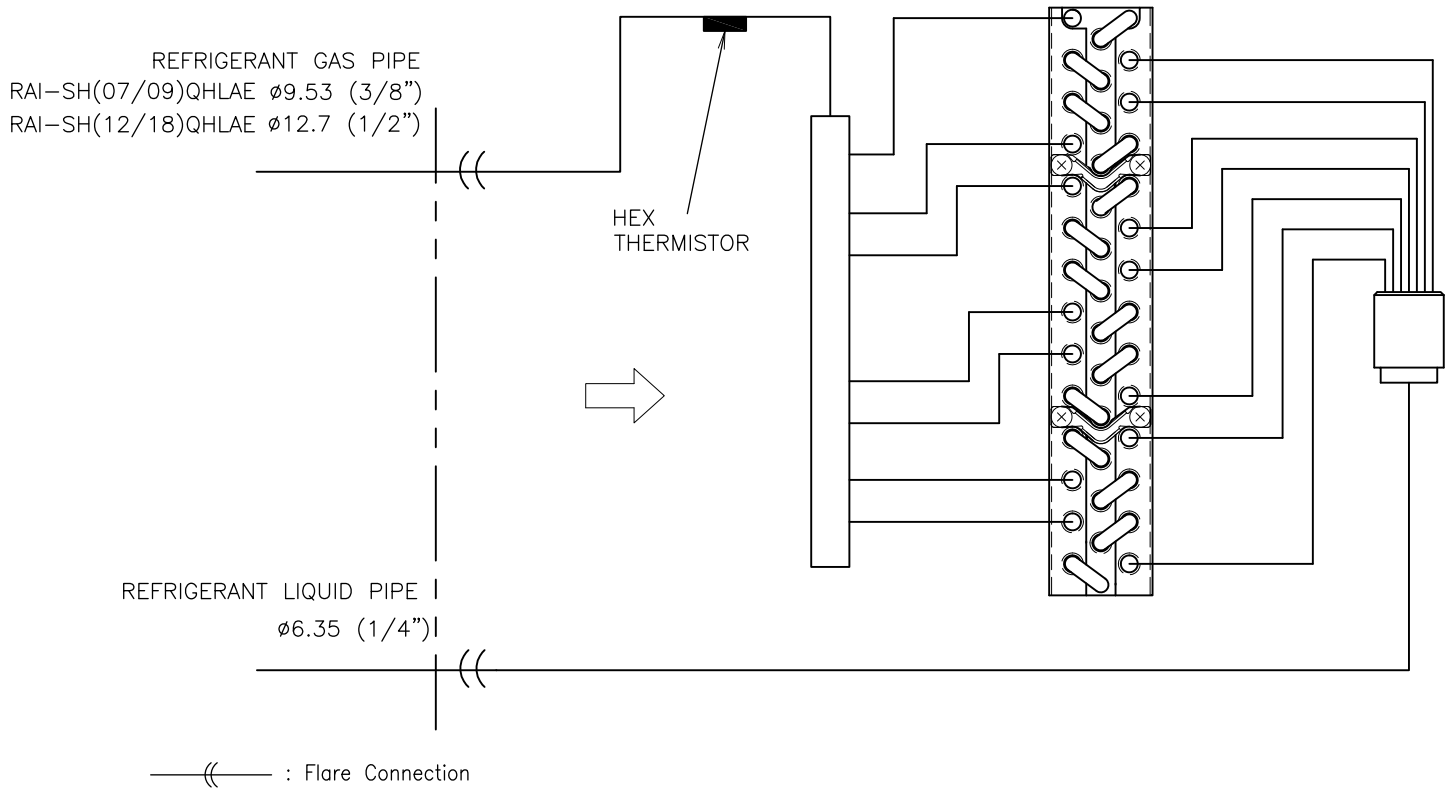
8.1.5. FLOOR TYPE: RAF-SH07QHLAE, RAF-SH09QHLAE, RAF-SH12QHLAE



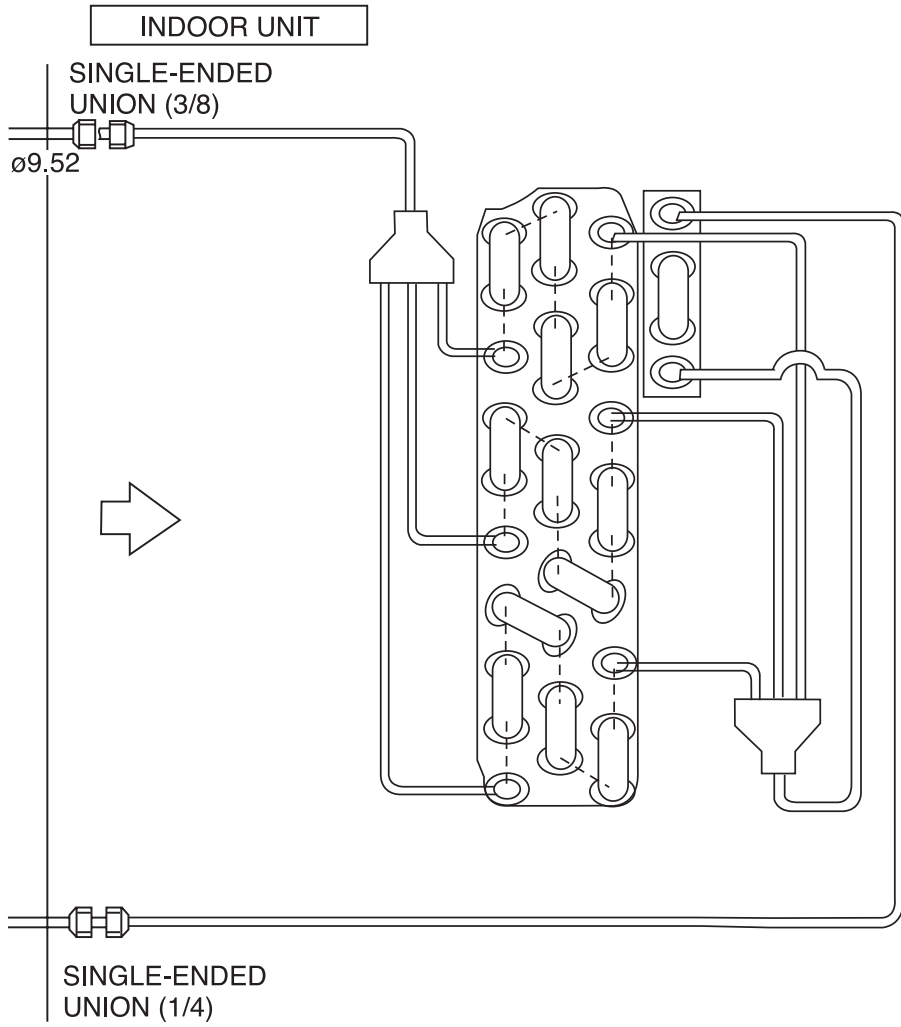
8.1.6. FLOOR TYPE: RAF-SH18QHLAE



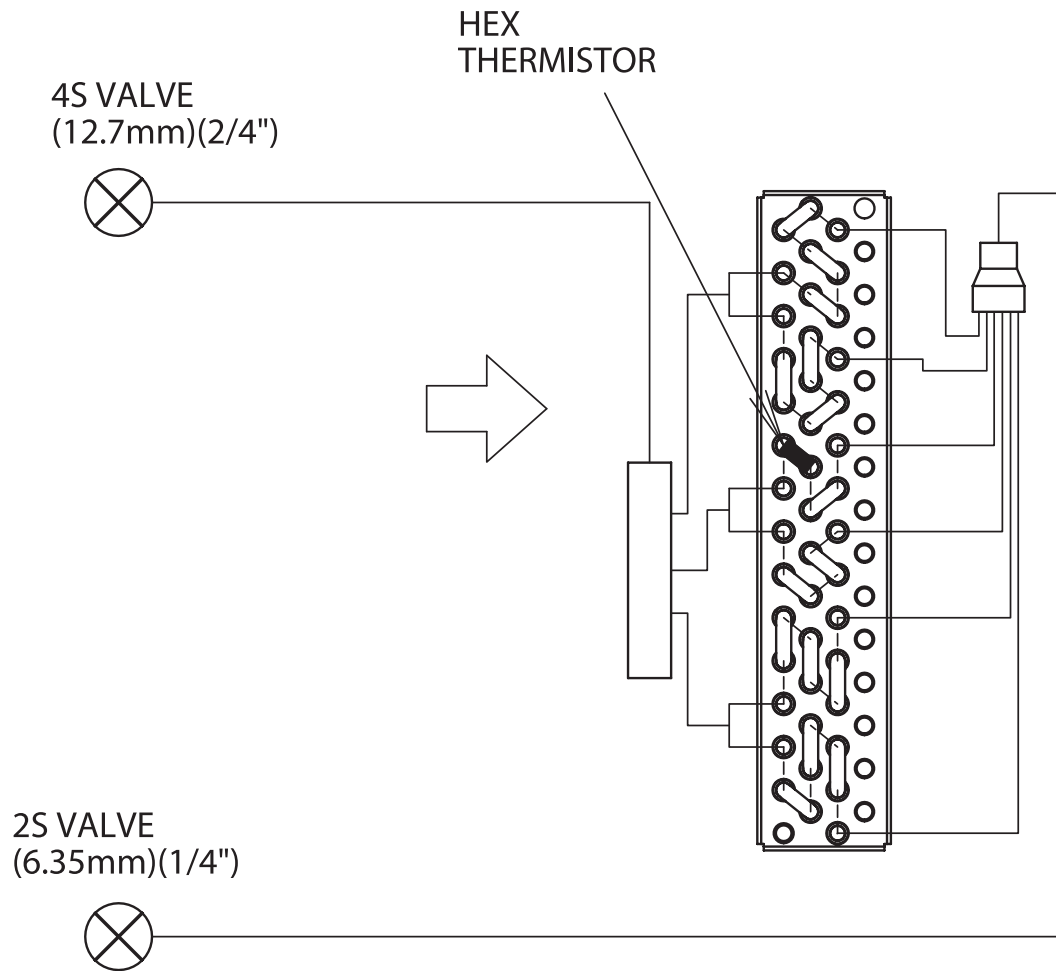
8.1.7. CEILING CASSETTE: RAI-SH07QHLAE, RAI-SH09QHLAE,RAI-SH12QHLAE, RAI-SH18QHLAE



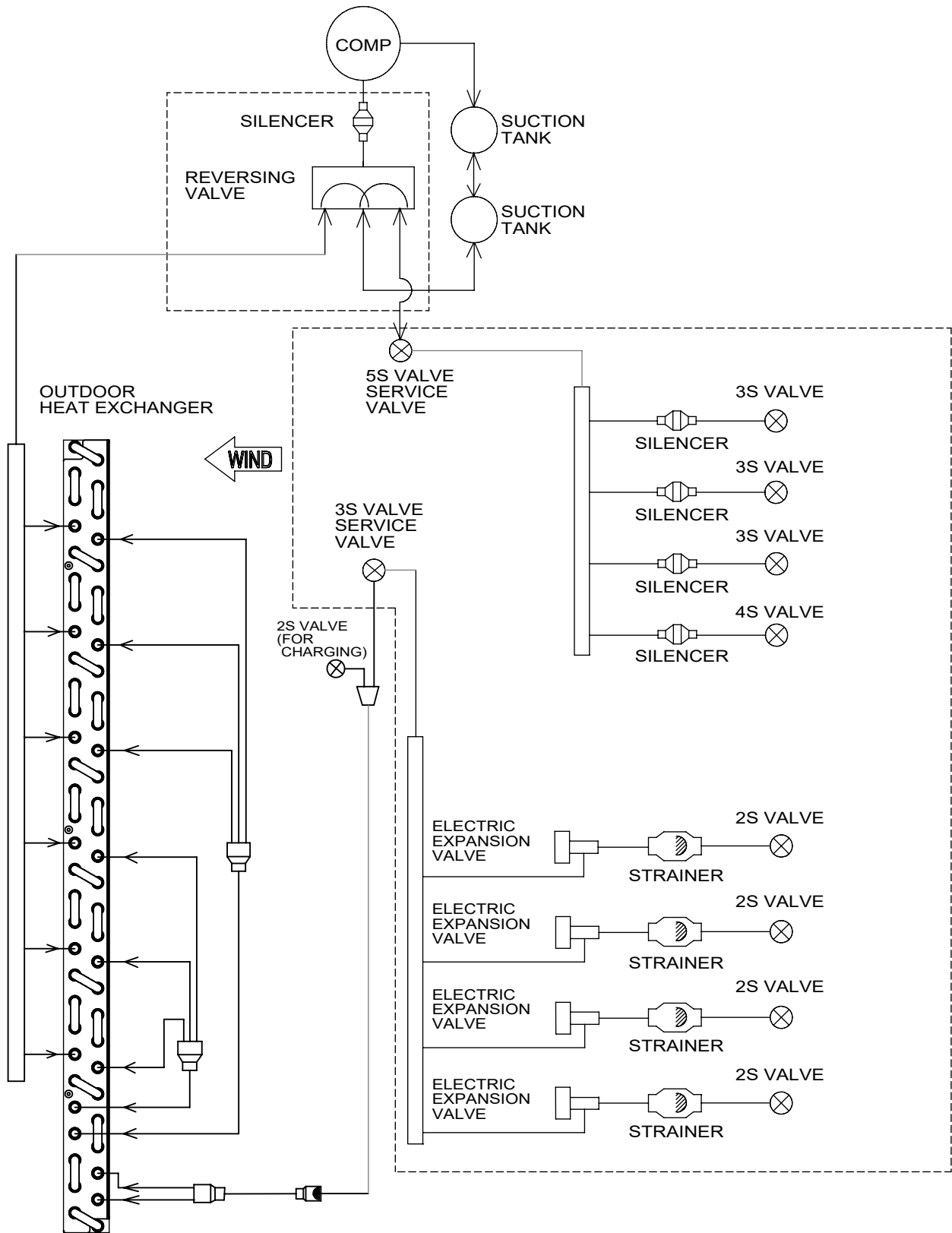
8.1.8. DUCT TYPE: RAD-SH07QHLAE, RAD-SH09QHLAE, RAD-SH12QHLAE



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



8.2 4 ROOMS MULTIZONE: RAM-S36U4HLAE



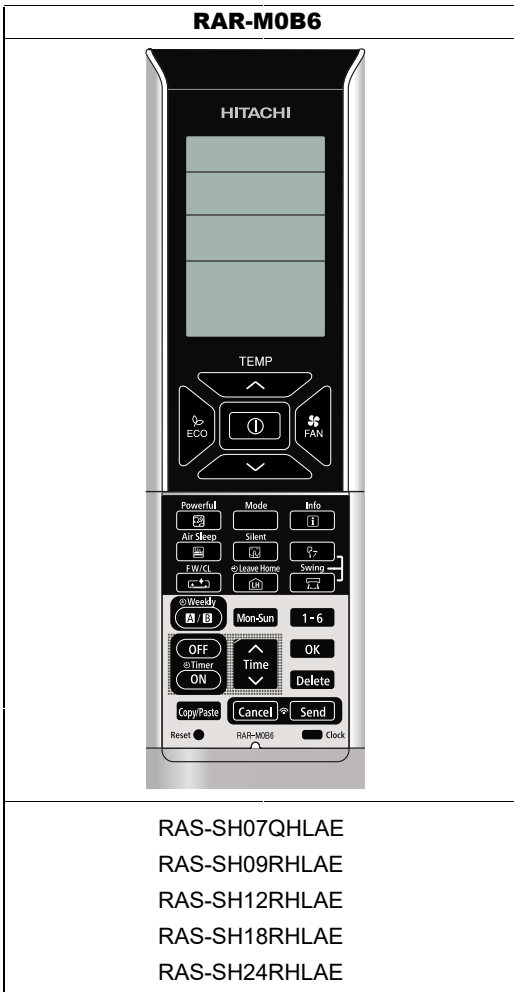
9 CONTROL AND FUNCTION










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9.1 WIRELESS REMOTE CONTROL FUNCTION

RAR-M0B6

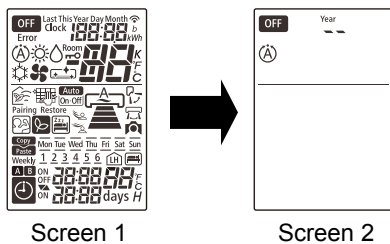


BUTTONS	FUNCTION
	MODE Selector Use this button to select the operating mode. Every time you press this button, the mode will change from (AUTO) → (HEAT) → (DEHUMIDIFY) → (COOL) and → (FAN) cyclically.
	FAN SPEED Selector Button This determines the fan speed. Every time you press this button, the airflow 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.

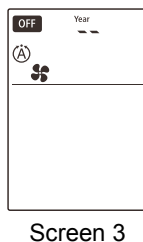
	AUTO SWING (Horizontal) button Controls the angle of the vertical air deflector.
	LEAVE HOME button Prevent the room temperature from falling too much by setting temperature 50°F~60°F when no one is at home.
	FROST WASH / CLEAN button The dust and dirt adhering to indoor heat exchanger which is the cause 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, then 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 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

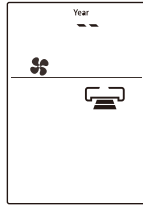
- Press and hold (START/STOP) button and (ON) button.
- Press [RESET] button on the same time. Release [RESET] button only, then release (START/STOP) and (ON) button once Screen 1 appears.




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



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

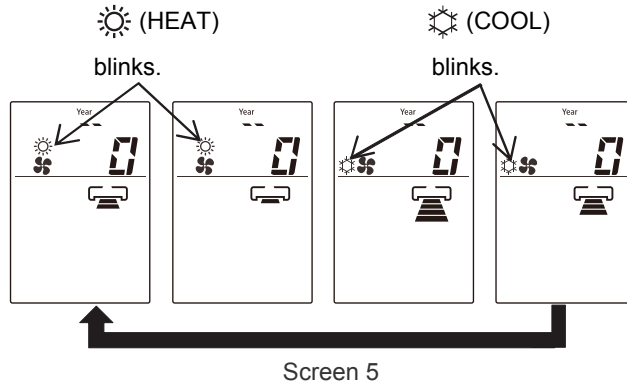




Screen 4

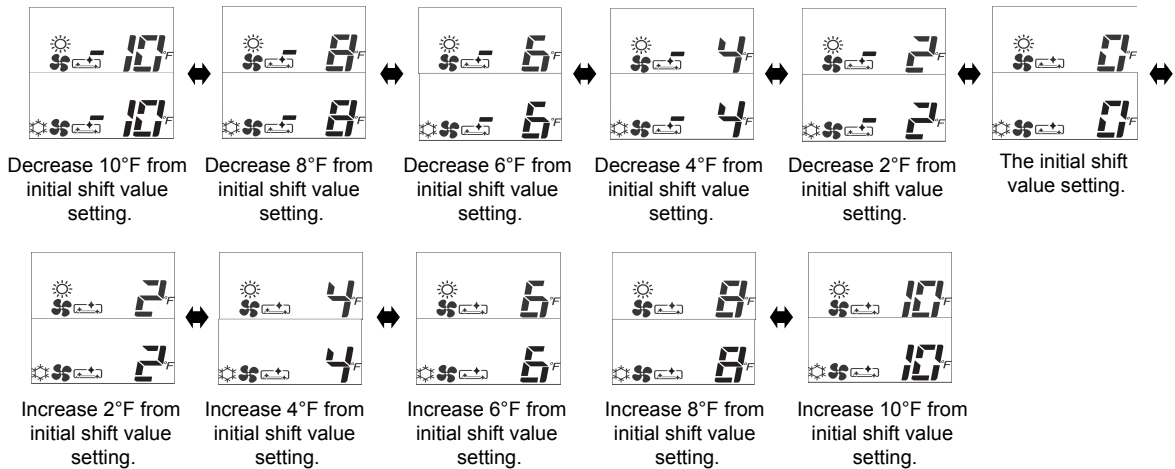
5. Select  (FAN SPEED) button to choose Heating Shift or Cooling Shift Mode (Screen 5).

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.







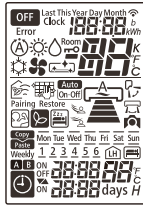
NOTE:

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

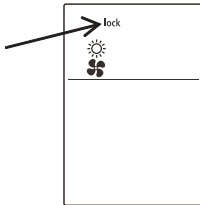
1. HEATING MODE

- 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

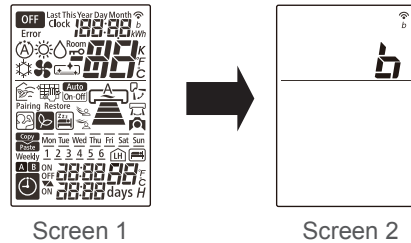
- c) The heating mode operation is locked.
 d) To unlock HEATING mode, repeat step (a). After all operations mode symbols displayed for 10 seconds, the operation mode symbol before cancellation will be display. The heating mode operation is unlocked.

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:

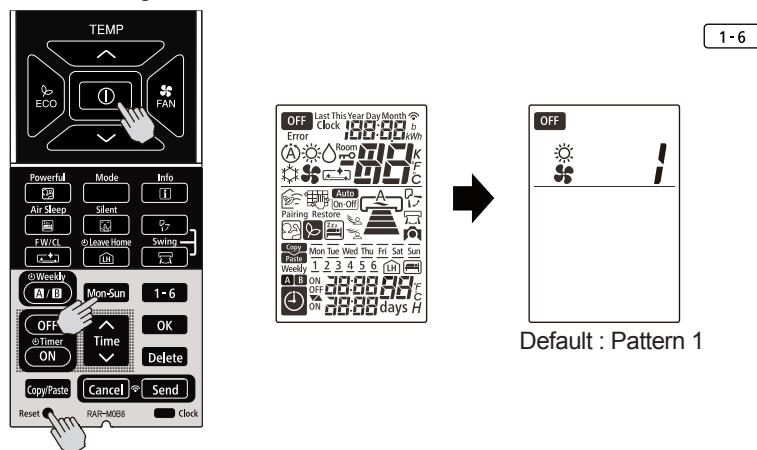
If indoor unit still not receive the correct signal from the correct remote controller, setting shall be made again. By setting again for the 2nd time, the signal address will change from B to A, then repeat again for the 3rd time.

9.5 INTERMITTENT FAN SPEED SETTING

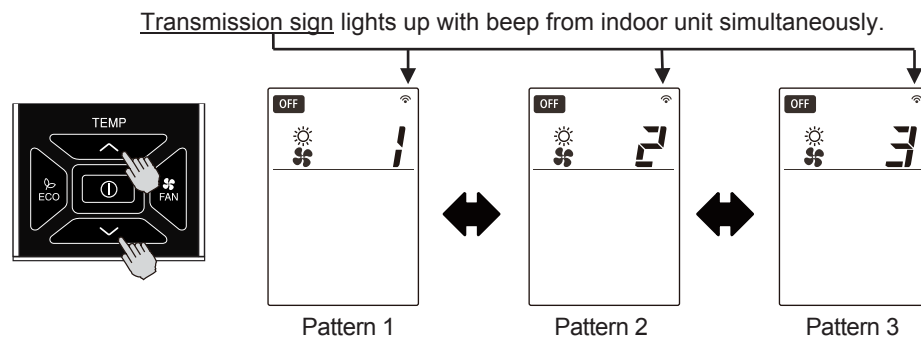
The intermittent fan control during thermo off in Heating Mode can be changed by the remote controller. (This procedure should be done only by service personnel.) It is possible to select from 3 patterns.

PROCEDURE

1. Press **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 **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.)



	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.

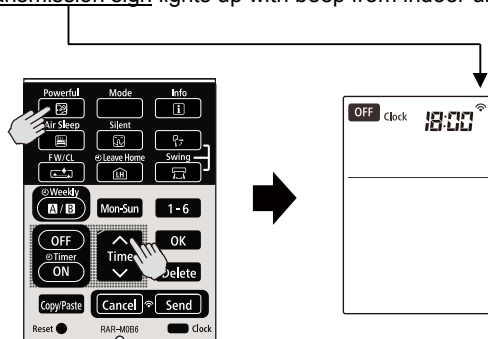
(This procedure shall be implemented strictly by service personnel only.)

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

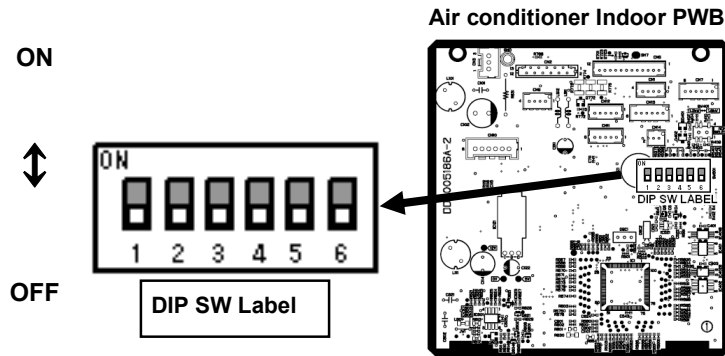
1. In case failure occurs to the air conditioner, by pressing  (INFO) button, an error code will be displayed.
2. Direct the remote controller towards the receiver of indoor unit (within 2 meters in front of indoor unit) and press  (INFO) button.
3. Wait for 2 seconds for signal transmission and the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



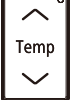





When this function is enabled, the operation mode could be locked to either Heating Only (Heating or Fan) or Cooling Only (Cooling, Fan or Dehumidifying) by setting the Pin No. 4 and 5 accordingly.







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-SH07QLAE RAI-SH07QLAE RAF-SH09QLAE RAI-SH09QLAE RAF-SH12QLAE RAI-SH12QLAE RAF-SH18QLAE RAI-SH18QLAE	RAD-SH07QLAE RAD-SH09QLAE RAD-SH12QLAE RAD-SH18QLAE RAD-SH24QLAE	RAS-EH07QLAE RAS-EH09RLAE RAS-EH12RLAE RAS-EH18RLAE RAS-EH24RLAE

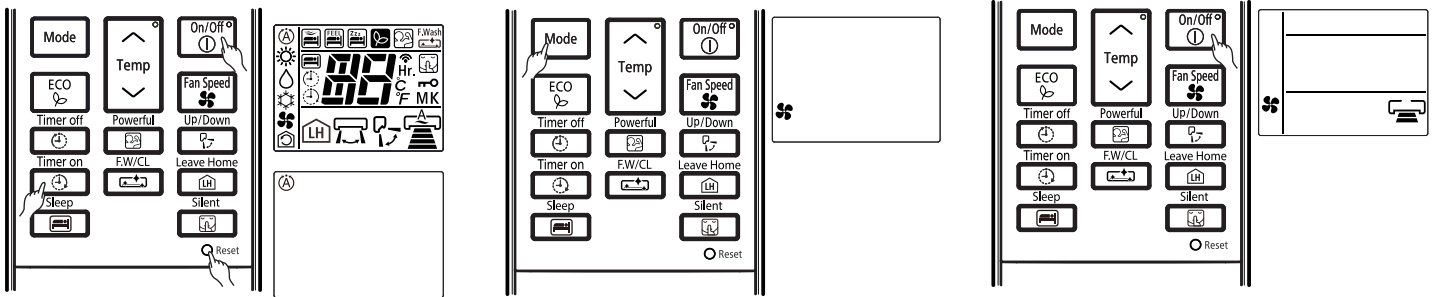
BUTTONS	FUNCTION
	MODE selector Button Use this button to select the operating mode. Every time you press this button, the mode will change from (A) (AUTO) → ☀ (HEAT) → 💧 (DEHUMIDIFY) → ❄ (COOL) and (FAN) → 🌀 cyclically.
	ECO Button Use this button to set the ECO mode.
	TEMPERATURE Button Room temperature 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.

 <p>F.W/CL</p>	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.
 <p>Clean</p>	ONE TOUCH CLEAN button Drying indoor heat exchanger after cooling operation to prevent mildew.
 <p>UP/DOWN</p>	UP/DOWN Button Control the angle of the horizontal air deflector.
 <p>LEAVE HOME</p>	LEAVE HOME Button Prevent the room temperature from falling too much by setting temperature 10°C~16°C when no one is at home.
 <p>SILENT</p>	SILENT button Use this button to set the SILENT mode.
 <p>ECO SLEEP TIMER</p>	ECO SLEEP TIMER button Use this button to set the ECO sleep timer.

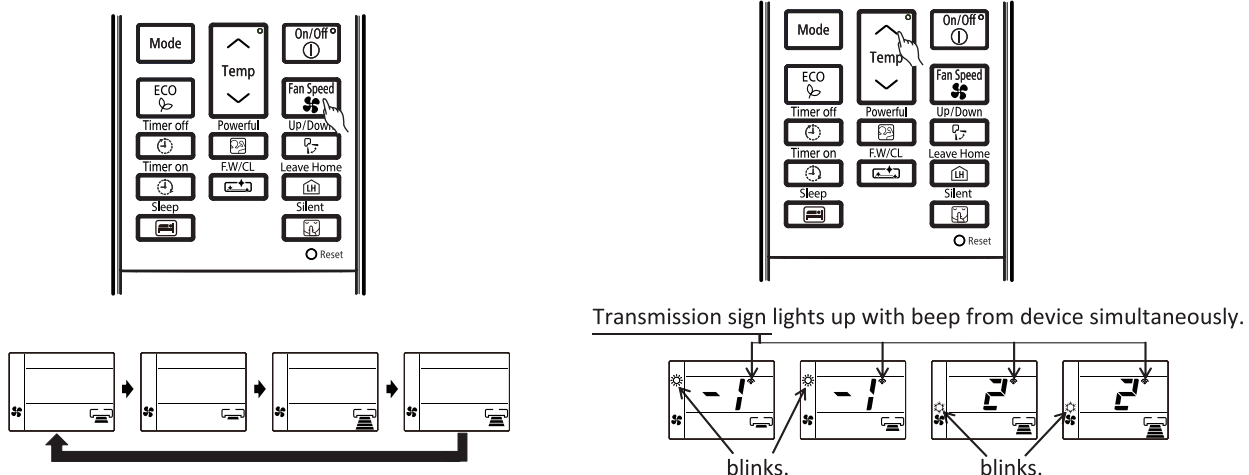
For more information, please refer to the operation manual.

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.

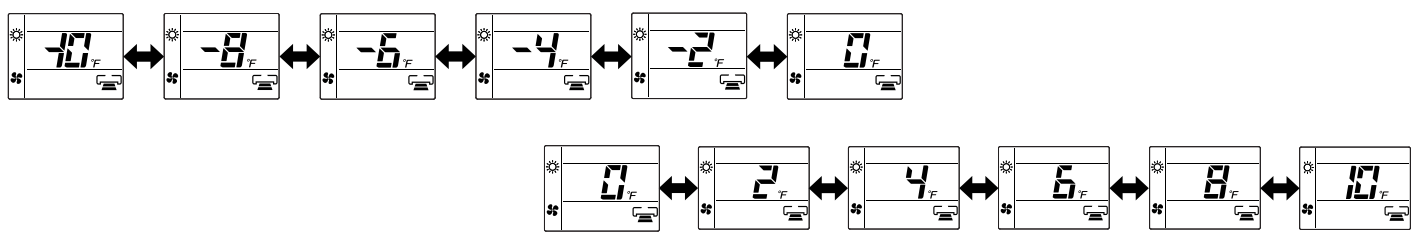


4. Set the FAN SPEED with the (FAN SPEED) button according to the following FAN speed setting in order to choose the desired operation mode that is required for shift value temperature modification.
 - To change the shift value for COOLING mode operation, select either (HIGH) or (MED) FAN SPEED.
 - To 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.)



Step 4

Step 5











NOTE :

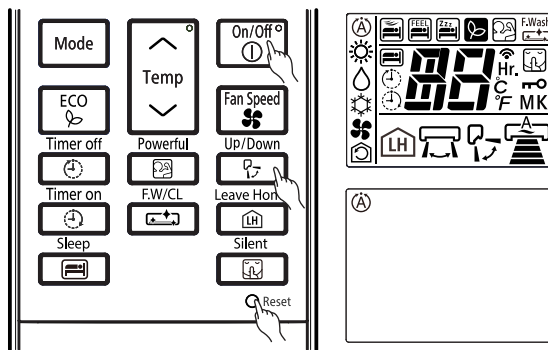
1. The displayed shift value, (HEAT) and (CO OL) symbol on the remote controller display will disappear after 10 seconds.
2. The changed shift value will remain unchanged after turned off the power.
3. If "0" is displayed on the remote controller display, it indicates the shift value is now at the initial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

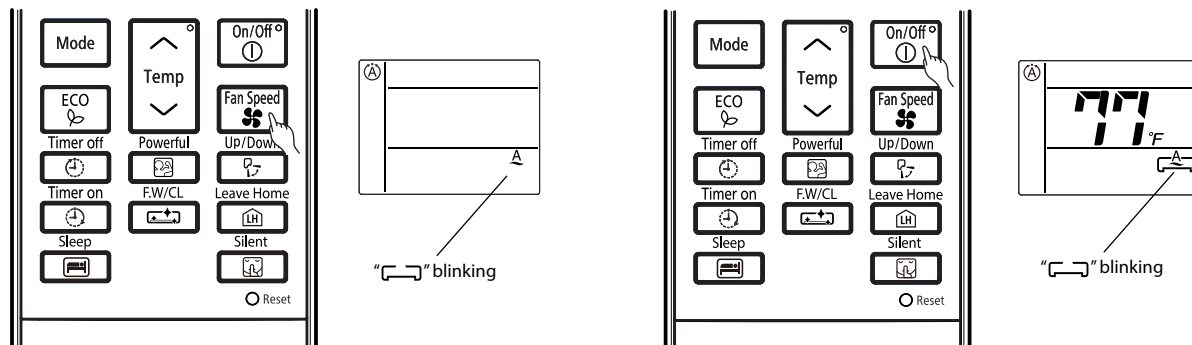
PROCEDURE

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.

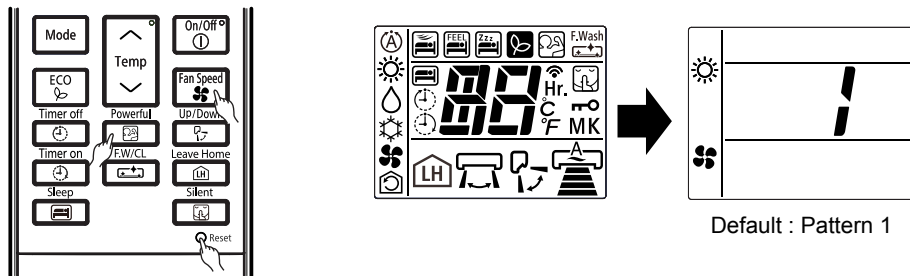
PROCEDURE

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

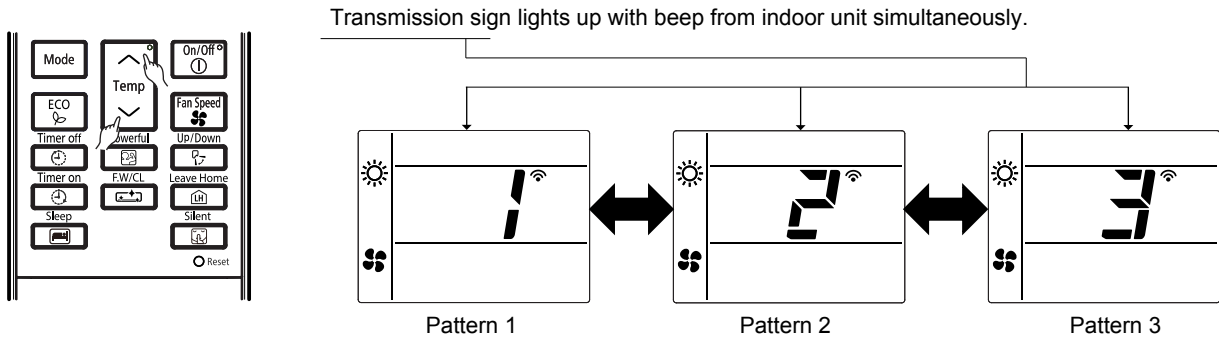
 (POWERFUL) button and  (FAN SPEED) button.

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



Press [ROOM TEMPERATURE setting] [^ (UP) / v (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.

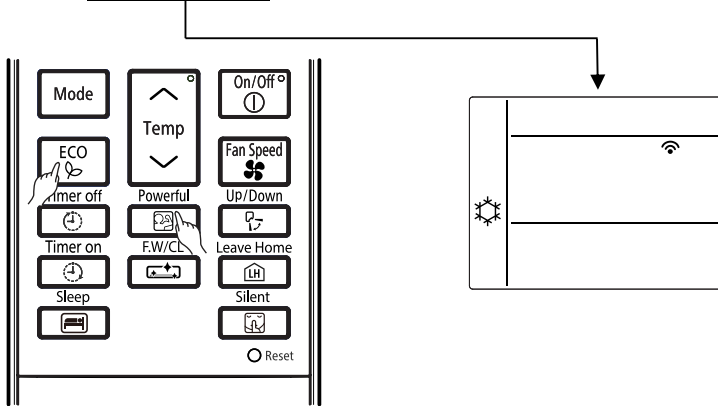
9.13. HOW TO CHANGE THE FAN SPEED IN COOLING MODE DURING THERMO OFF

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 :

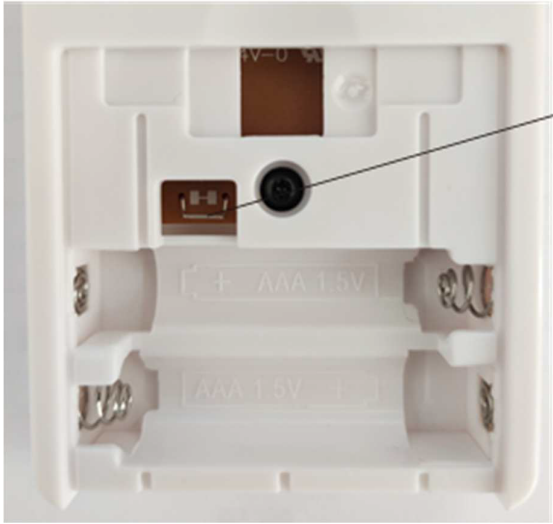
- (1) The selected fan speed will remain unchanged after the unit is turned off.
- (2) If Timer reservation has been set, it will be canceled.
- (3) During time setting and timer setting, this operation cannot be set.

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).



ON						ON
1	2	3	4	5	6	OFF

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
	
<p>RAD-SH07QHLAE RAD-SH09QHLAE RAD-SH12QHLAE RAD-SH18QHLAE RAD-SH24QHLAE</p>	<p>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</p>



BUTTONS	FUNCTION
	<p>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) cyclically.</p>
	<p>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).</p>
	<p>ON/OFF button Press this button to start operation. Press it again to stop operation.</p>
	<p>SLEEP button Use this button to set the SLEEP timer.</p>
	<p>SET button Timer setting reservation.</p>
	<p>OFF button Select the turn OFF timer.</p>
	<p>ON button Select the turn ON timer.</p>
	<p>CANCEL button Cancel timer reservation.</p>
	<p>AUTO SWING (Vertical) button Controls the angle of the horizontal air deflector.</p>
	<p>ROOM TEMPERATURE setting button</p>

10.1.1 SHIFT VALUE

1. Press and hold  (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  (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.





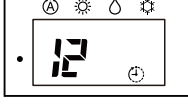





4. Press  (ROOM TEMPERATURE) button to change the shift value (-5°C ~ 0 ~ 5°C).
5. Press  (ON/OFF) button to end 'Shift value setting mode'.






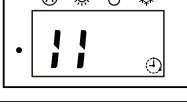
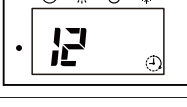
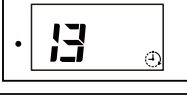

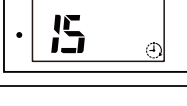

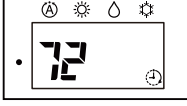
NOTE:



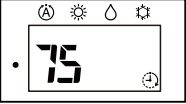








1. There are total of 11 shift values ranging from -5 to 5.
2. The changed shift value will remain unchanged after turned off the power.

10.1.2 ERROR CODE INFORMATION

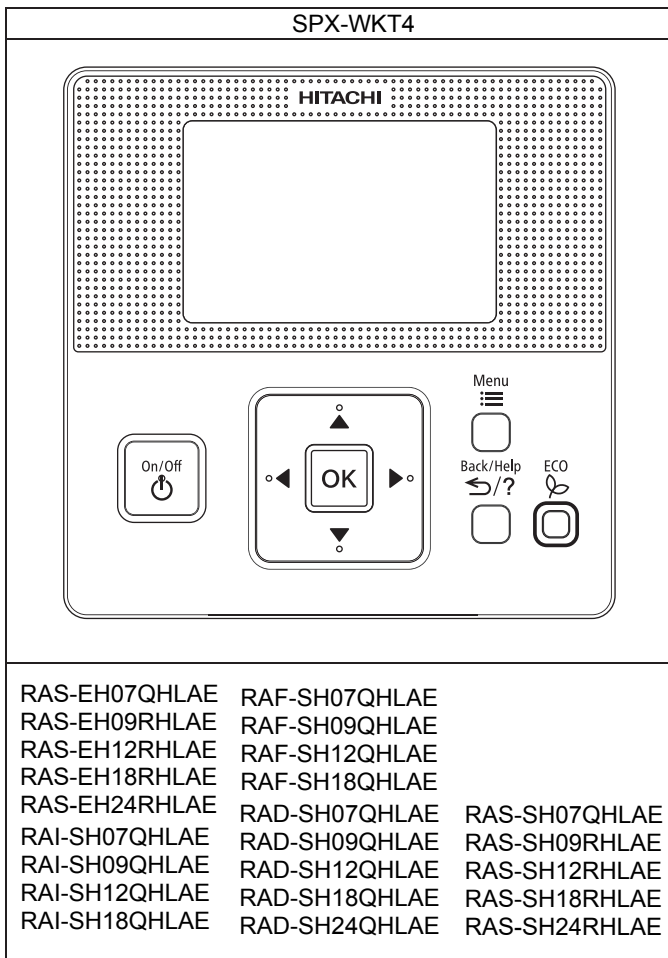
1. In case failure occurs to the air conditioner, the error code will constantly appear on the wired remote controller display.

	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.

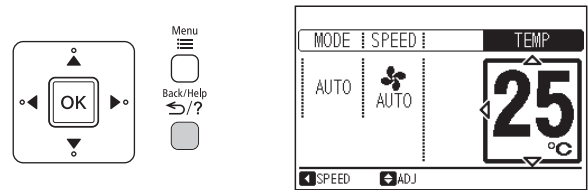
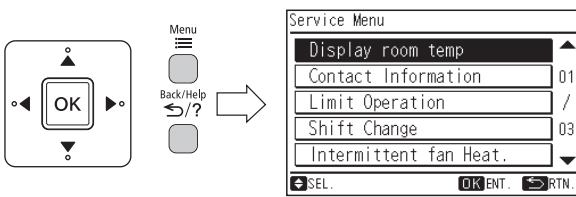
NOTE:



☒ : 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.

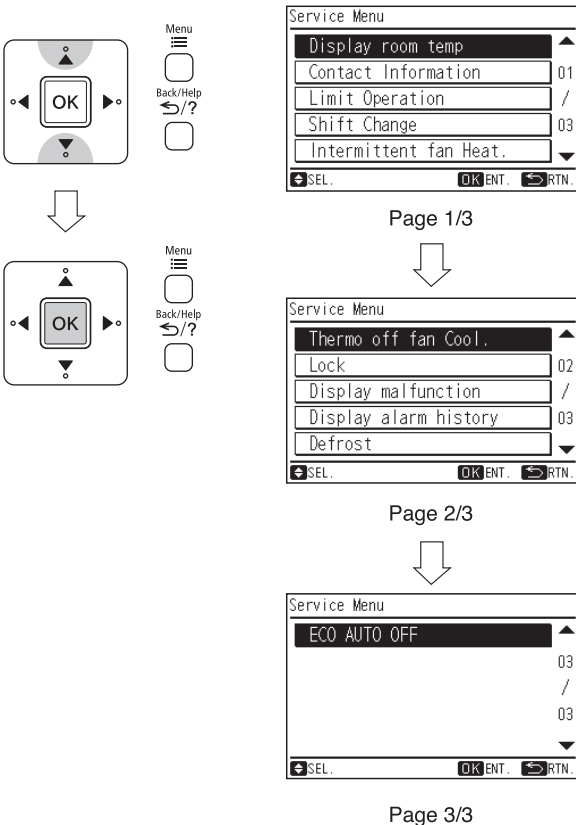
3 Press "/?" (return/help) to return to the normal mode.



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

NOTE:

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



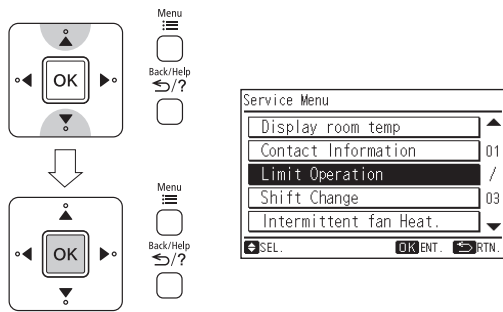
NOTE:

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

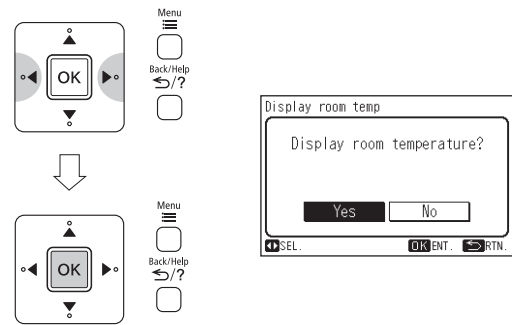
10.2.1.2 DISPLAY ROOM TEMPERATURE

Room temperature(around remote controller) can be displayed.

- 1 Select "Display room temp" from the service menu and press "OK".
The confirmation screen will be displayed.



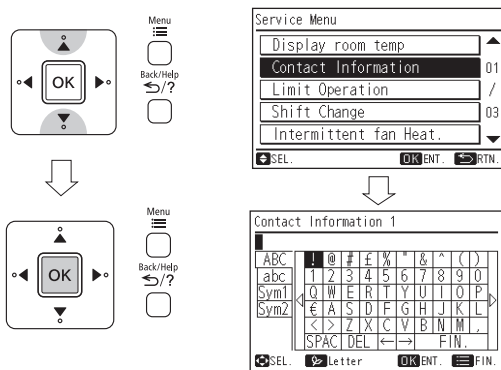
- 2 Select "Yes" by pressing "<" or ">" and press "OK". The setting will be confirmed and the screen will return to the normal mode.



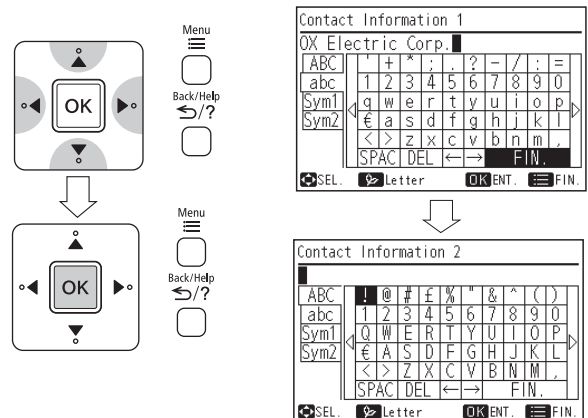
10.2.1.3 CONTACT INFORMATION REGISTRATION

Contact information can be registered from "Contact information".

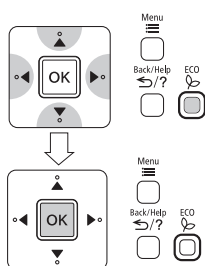
- 1 Select "Contact information" from the service menu and press "OK". The contact information 1 will be displayed.



- 5 Select "FIN." and press "OK" (or simply press Menu). "Contact information 2" will be displayed.

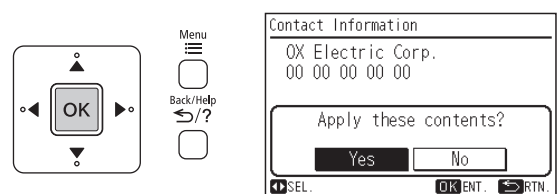
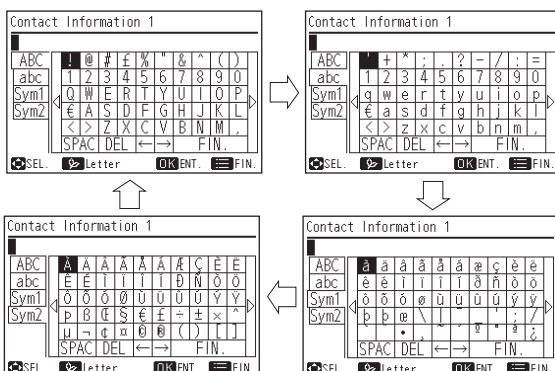


- 2 Press to change font type.
- 3 Press "< >" to select letter.
- 4 Press "OK" to confirm the letter. (Max.: 28 letters)



- 6 Repeat (3)-(5) to register the contact information 2.
Select "FIN." and press "OK", the confirmation screen will be displayed.
(Also press Menu and the confirmation screen will be displayed.)

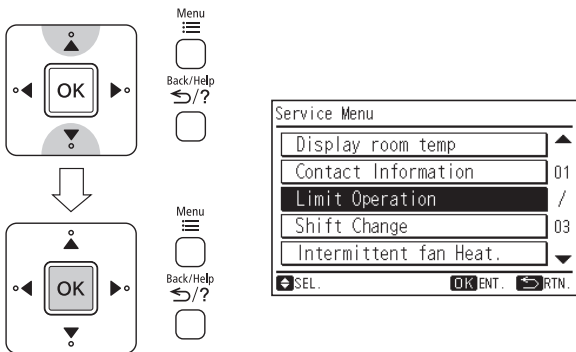
- 7 Select "Yes" and press "OK". The service menu will be displayed after setting is confirmed.
If "No" is pressed, the screen will return to (3).



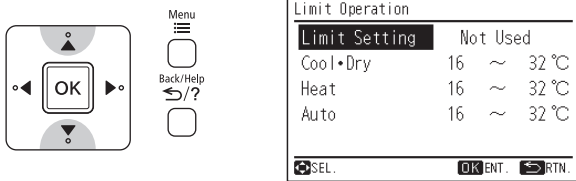
10.2.1.4 LIMIT OPERATION

Setting temperature range can be changed.

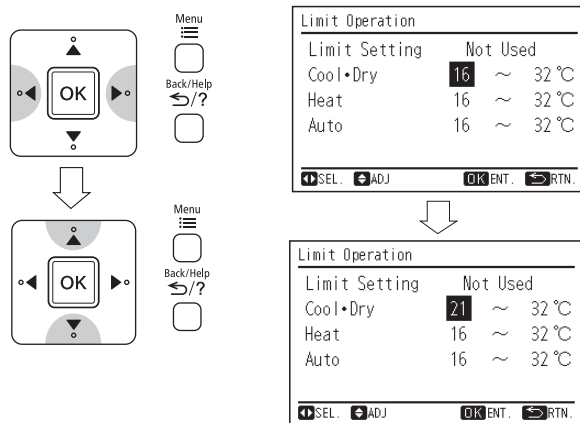
- 1 Select "Limit Operation" from the service menu and press "OK".
The limit operation setting will be displayed.



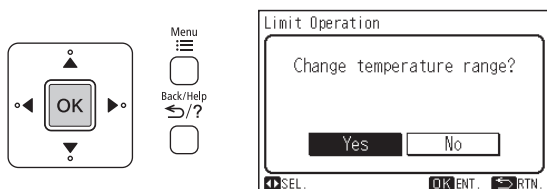
- 2 Press " Δ " or " ∇ " to select the setting items. The setting items are displayed "Limit Setting", "Cool-Dry", "Heat" and "Auto".



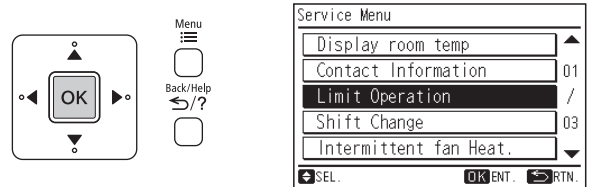
- 3 Press " \triangleleft " or " \triangleright " to set each setting content for the selected item. When "Limit Setting" is selected, the setting contents are switched in order of "Not Used" \leftrightarrow "Used" by pressing " Δ " or " ∇ ". When "Cool-Dry" or "Heat" or "Auto" is selected, the setting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



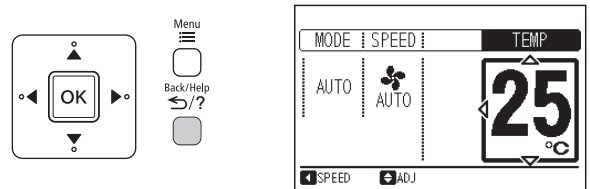
- 4 Press "OK" to finish the limit operation setting. The confirmation screen will be displayed.



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



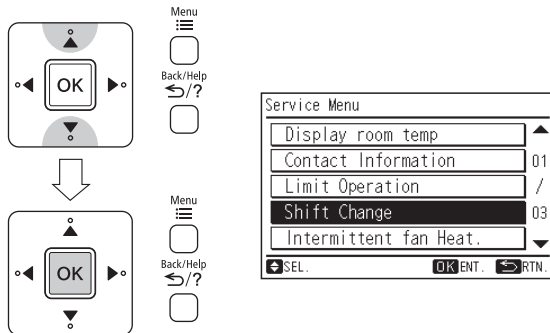
NOTE:

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

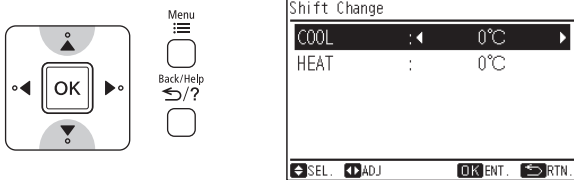
10.2.1.5 SHIFT CHANGE

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

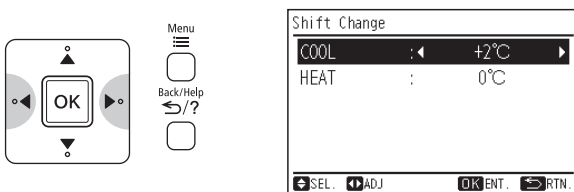
- 1 Select "Shift Change" from the service menu and press "OK". The shift change setting will be displayed.



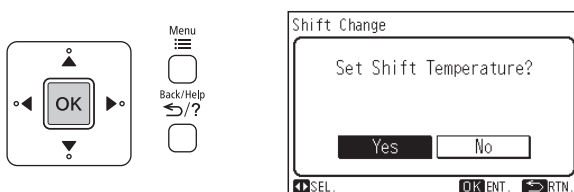
- 2 Press "△" or "▽" to select the operation mode. ("COOL" or "HEAT")



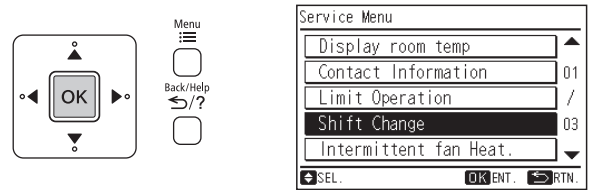
- 3 By pressing "◀" or "▶", the shift value will be changed as below.
 "...+5°C ↔ -5°C ↔ -4°C ↔ -3°C ↔ -2°C
 ↔ -1°C ↔ 0°C ↔ +1°C ↔ +2°C ↔
 +3°C ↔ +4°C ↔ +5°C ↔ -5°C (+10°F
 ↔ -10°F ↔ -8°F ↔ -6°F ↔ -4°F ↔
 -2°F ↔ 0°F ↔ +2°F ↔ +4°F ↔ +6°F
 ↔ +8°F ↔ +10°F ↔ -10°F...)"



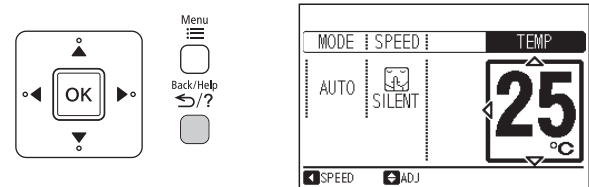
- 4 Press "OK" to finish the shift value setting. The confirmation screen will be displayed.



- 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.



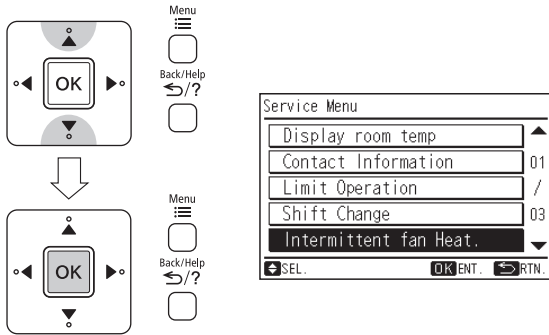
NOTE:

- 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.

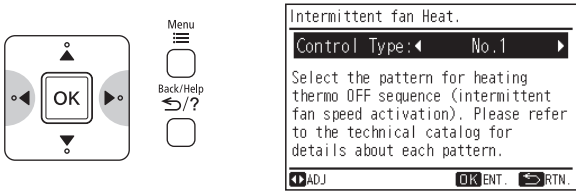
10.2.1.6 INTERMITTENT FAN CONTROL

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

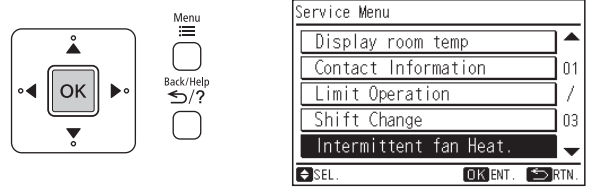
- 1 Select "Intermittent fan Heat." from the service menu and press "OK".
The intermittent fan control setting will be displayed.



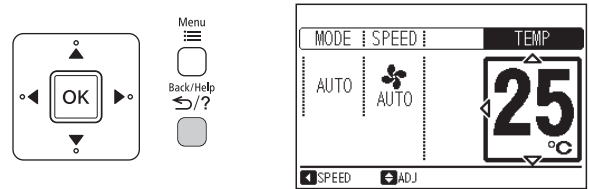
- 2 By pressing "<" or ">", the "Control Type" will be changed as below.
"... No.1 ↔ No.2 ↔ No.3 ↔ No.1 ..."



- 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.

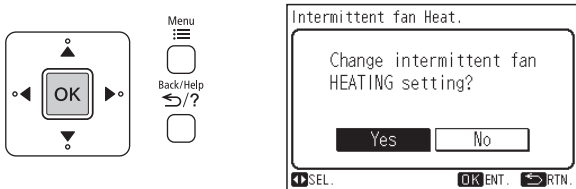


NOTE:

- 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

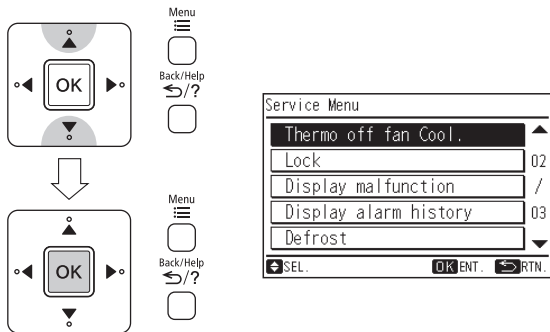
- 3 Press "OK" to finish the intermittent fan control setting. The confirmation screen will be displayed.



10.2.1.7 FAN SPEED DURING THERMO OFF

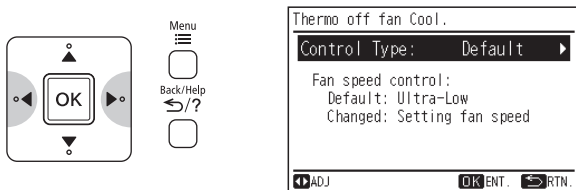
The fan speed during thermo off in Cooling mode can be changed.

- 1 Select "Thermo off fan Cool." from the service menu and press "OK".
The fan speed during thermo off setting will be displayed.



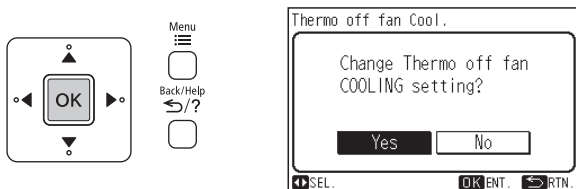
- 2 By pressing "<" or ">", the "Control Type" will be changed as below.

"Default" ↔ "Changed"

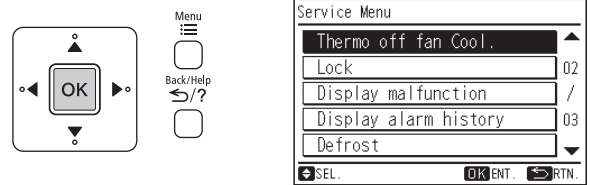


	Fan speed during thermo off
Default	Ultra low
Changed	Set fan speed (When auto fan is set, the fan speed is low.)

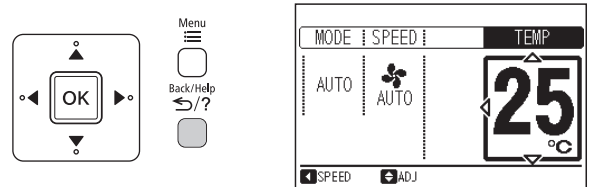
- 3 Press "OK" to finish the thermo off fan control setting. The confirmation screen will be displayed.



- 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:

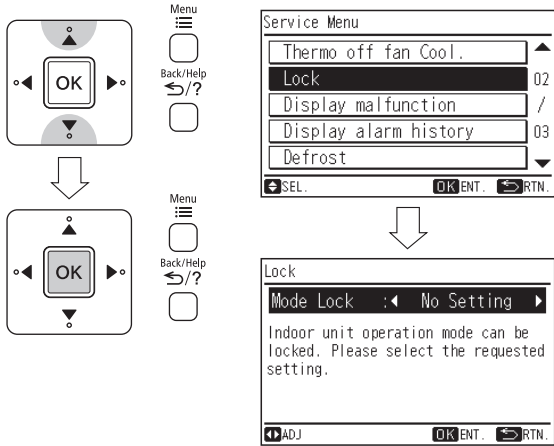
- This setting cannot use during operation.
- The fan speed during thermo off setting will remain unchanged after the unit is turned off.

10.2.1.8 OPERATION LOCK

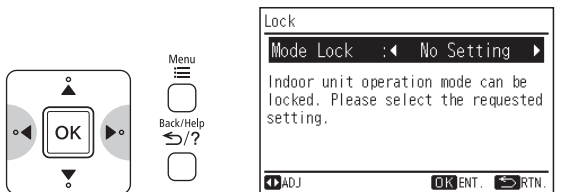
This function is used to lock the operation mode from the remote controller.

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

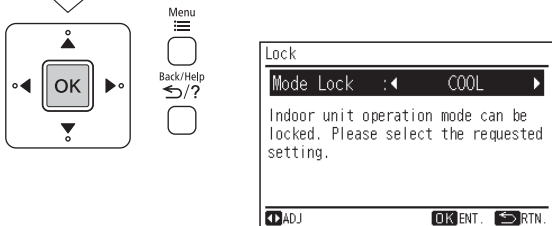
- When unit is OFF, select "Lock" from the service menu and press "OK".
The screen of "Mode Lock" selection will be displayed.



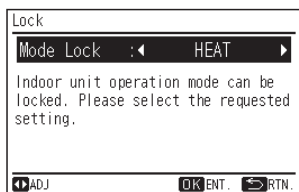
- By repeatedly pressing "<" or ">", the indication is changed in order of "No Setting" ↔ "COOL" ↔ "HEAT".
Select the function target and press "OK".
The confirmation screen will be displayed.



When this function is not used

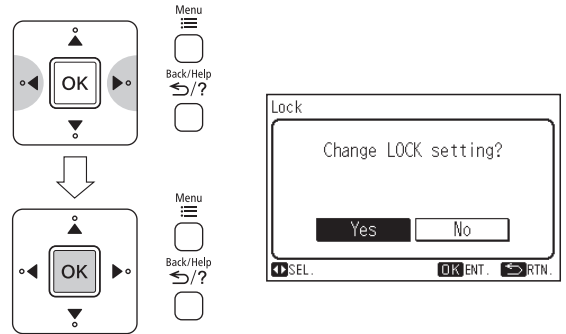


When "Cooling" mode lock is selected

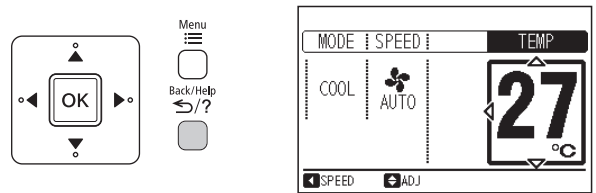


When "Heating" mode lock is selected

- 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:

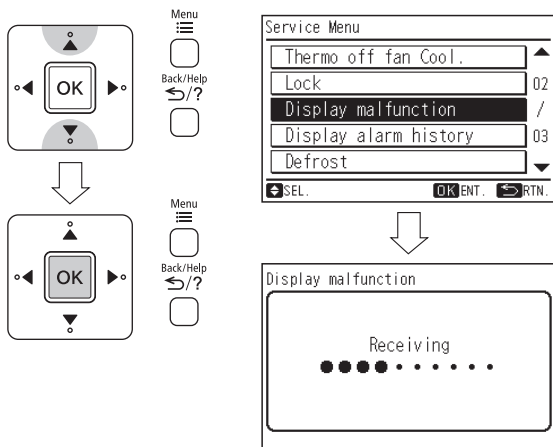
- The operation lock setting will remain unchanged after the unit is turned off.

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".



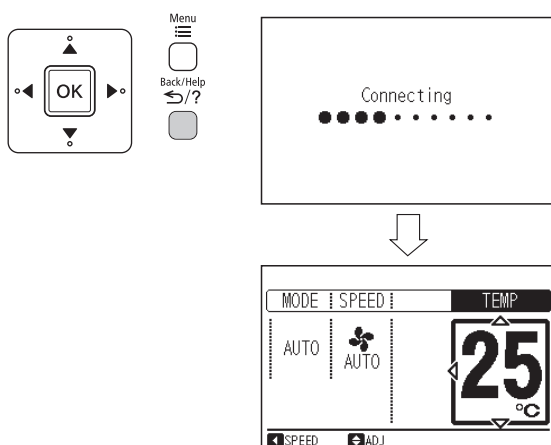
- 5 The last 5 failure modes from the memory will be displayed.

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.

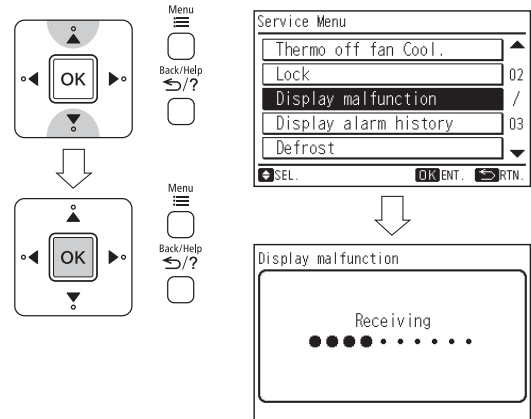
- 6 Press "Back/Help" (return/help) to return to the normal mode.



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".



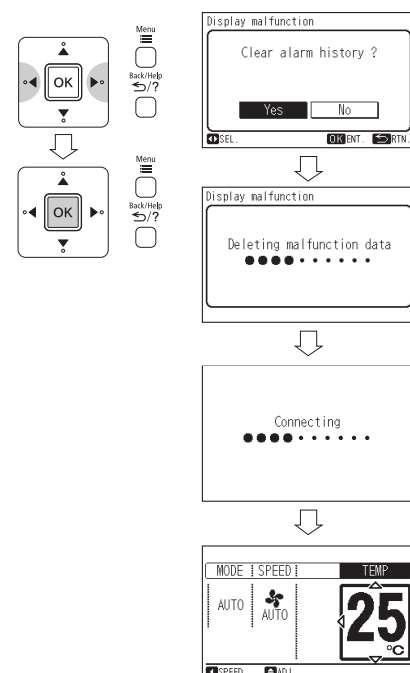
- 4 The last 5 failure modes from the memory will be displayed. "OK DeIAII" is displayed in this time.

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

Turned on

- 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:

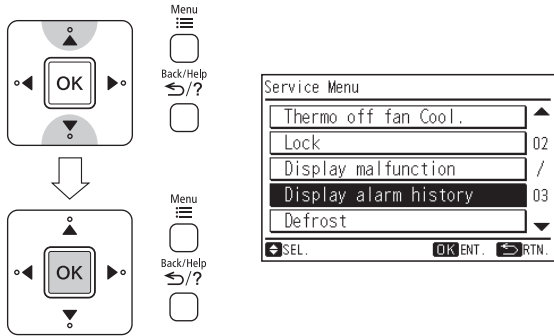
- The clear mode is valid only once after section "1.9.1" .

10.2.1.10 DISPLAY ALARM HISTORY

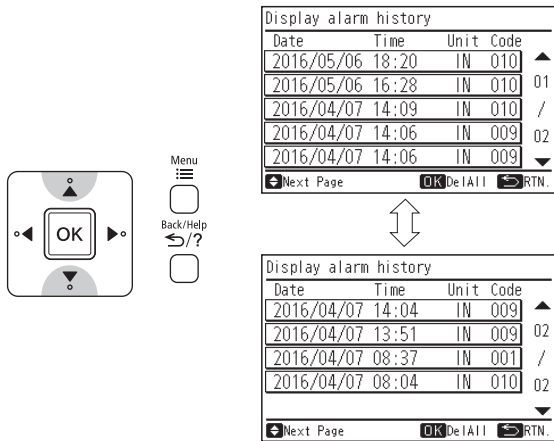
The history of failure modes are also stored in the nonvolatile memory of this remote controller. This function is useful for when a failure to check whether or not occurred. (Time and date is also indicated.)
The remote controller can memorize to last 10 failure modes in the memory.

a) How to display alarm history

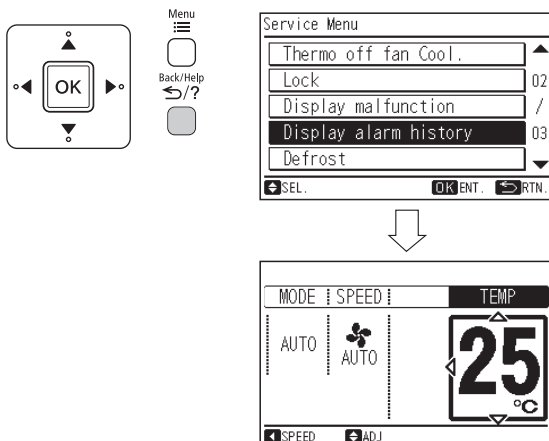
- 1 To enter the service menu.
- 2 Select "Display alarm history" from the service menu and press "OK".



- 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.

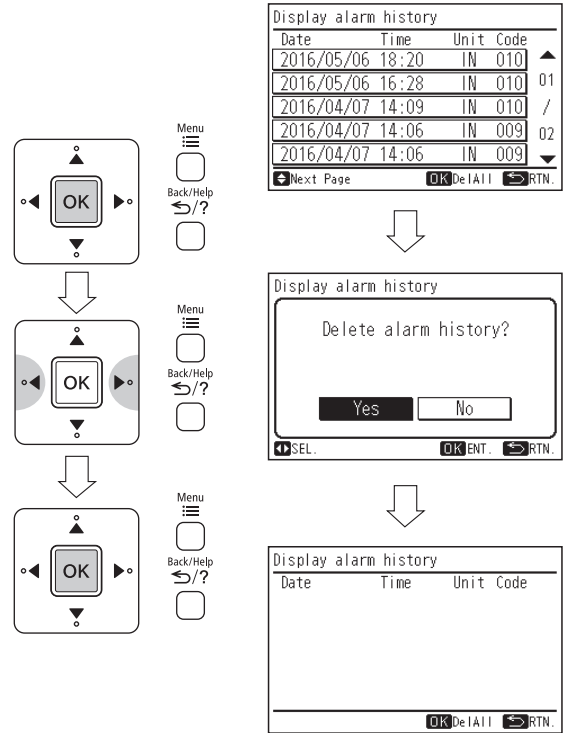


- 4 Press "Back/Help" (return/help) twice to return to the normal mode.

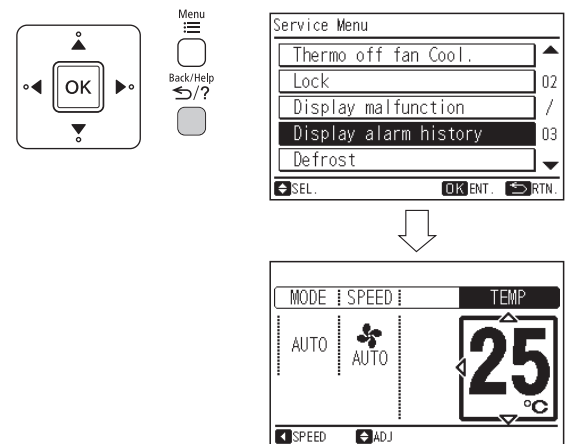


b) How to clear the alarm history

- 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".



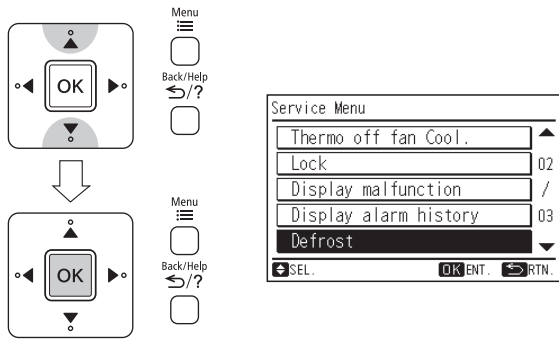
- 3 Press "Back/Help" (return/help) twice to return to the normal



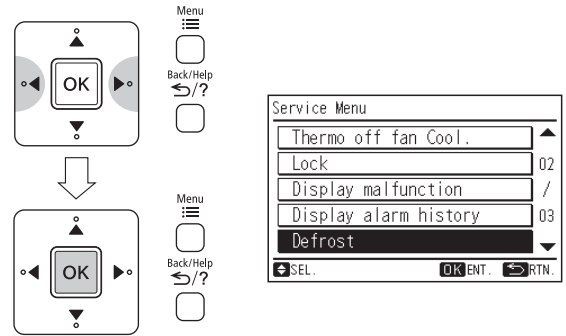
10.2.1.11 DEFROSTING INHIBIT PERIOD SELECTION

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".

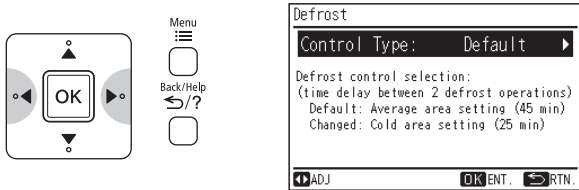


- 7 Select "Yes" by pressing "<" or ">" and press "OK".
The setting will be confirmed and the screen will return to the service menu.

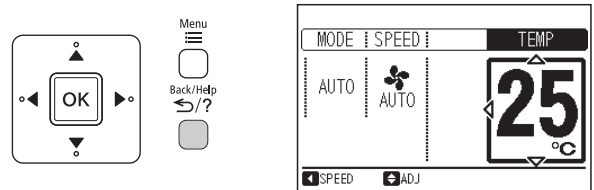


- 5 By pressing "<" or ">", the "Control Type" will be changed as below.

"Default" ↔ "Changed"



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

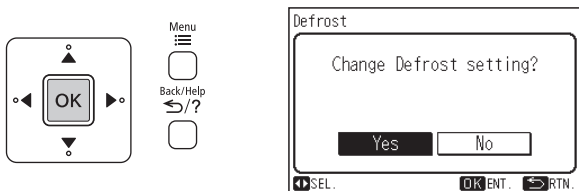


NOTE:

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

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

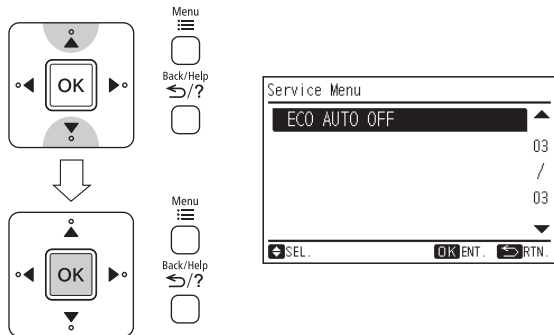
- 6 Press "OK" to finish the defrosting inhibit period selection setting. The confirmation screen will be displayed.



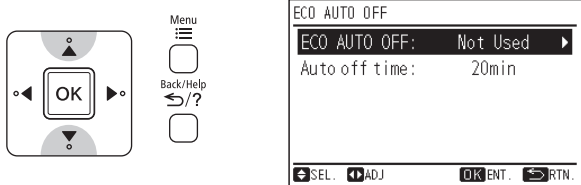
10.2.1.12 ECO AUTO OFF

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.

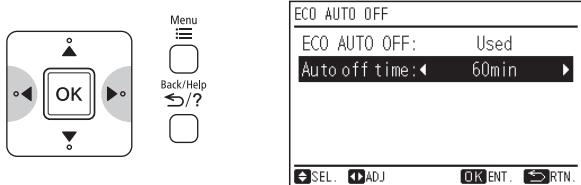


- 2 Press "△" or "▽" to select the setting items. The setting items are displayed "ECO AUTO OFF" and "Auto off time".

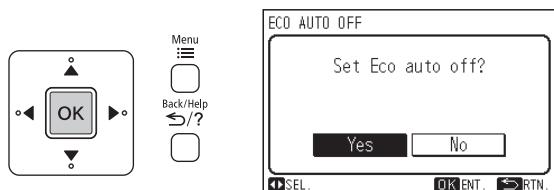


- 3 Press "◀" or "▶" to set each setting content for the selected item. When "ECO AUTO OFF" is selected, the setting contents are switched in order of "Not Used" ↔ "Used" by pressing "◀" or "▶".

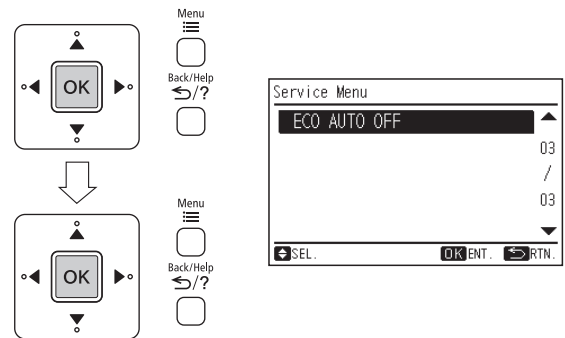
When "Auto off time" is selected, the setting time can be set between "20 min" and "120 min" by pressing "◀" or "▶" cyclically. (The set unit is 10 min.)



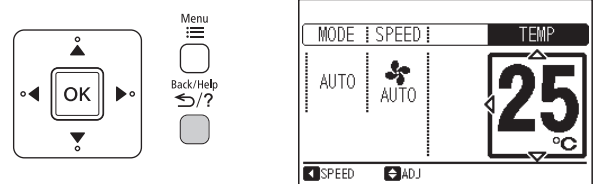
- 4 Press "OK" to finish the ECO AUTO OFF setting. The confirmation screen will be displayed.



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



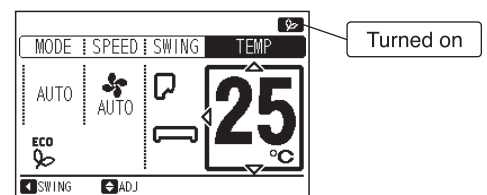
- 6 Press "Back/Help" (return/help) to return to the normal mode.



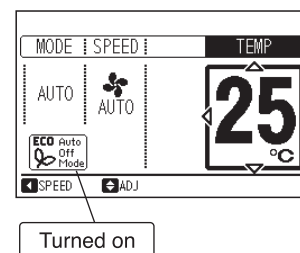
NOTE:

- 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.



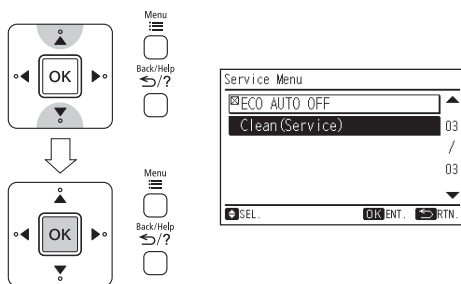
NOTE:

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.

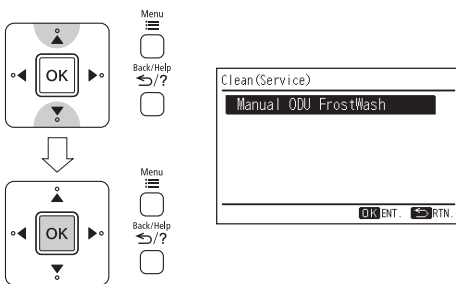
10.2.1.13 CLEAN (SERVICE)

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

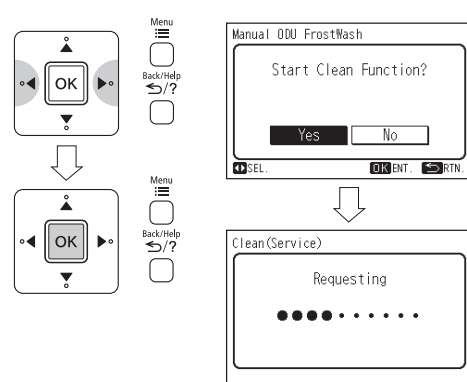
- 1 Select "Clean(Service)" from the service menu and press "OK".
Setting item will be displayed.



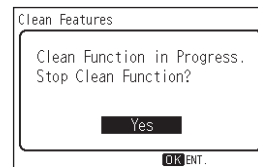
- 2 Press "△" or "▽" to select the setting items. And press "OK".
The confirmation screen will be displayed.



- 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.

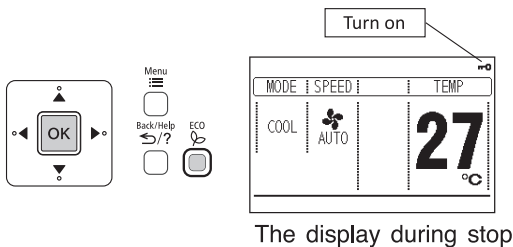
NOTE

- 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.

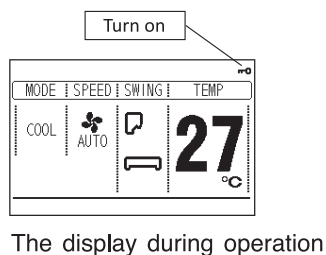
10.2.1.14 KEY LOCK

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.

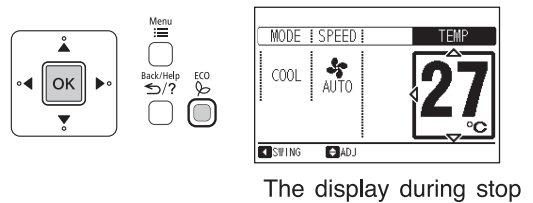


The display during stop

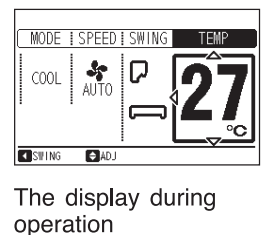


The display during operation

- 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

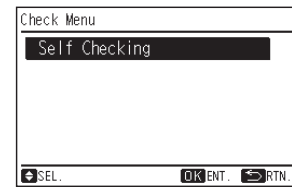
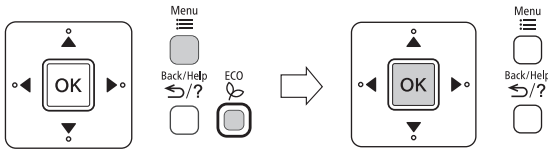
- Every time pressing "OK" and "ECO" (ECO) simultaneously for 3 seconds, the key lock state will be switched alternately to locked/unlocked.





10.2.2 CHECK MENU OPERATION

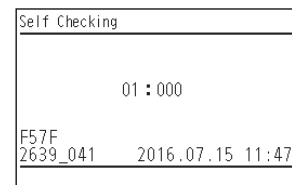
10.2.2.1 SELF CHECKING

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

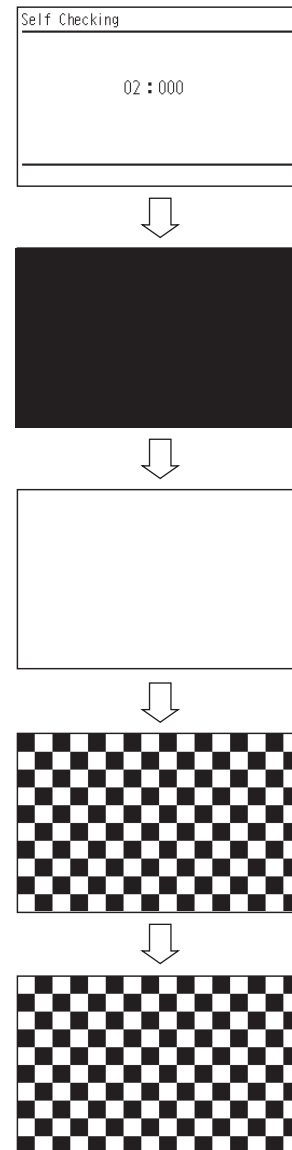
- (1) Press and hold  and  simultaneously for at least 3 seconds during the normal mode. The check menu will be displayed. Select "Self Checking" from the check menu and press "OK".

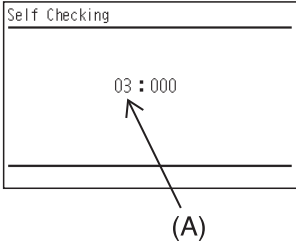
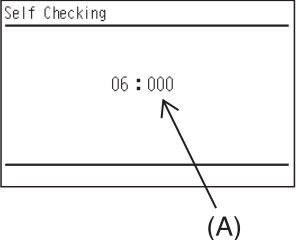

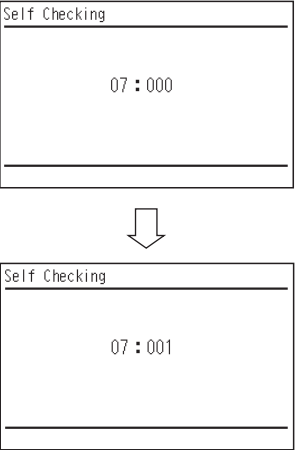
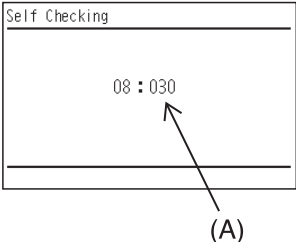
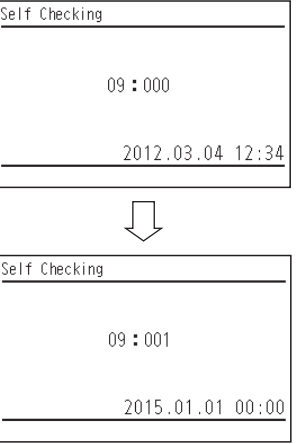


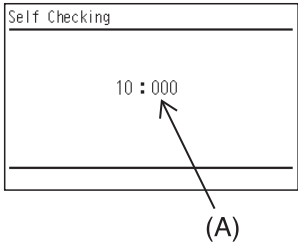
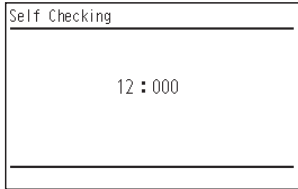
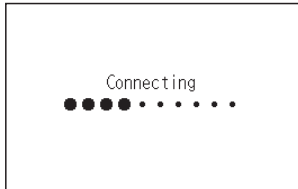
- (2) Select the process for "Self Checking".
- * To start self check, press "  ".
 - * To clear EEPROM, press "  " and "  " and "  " simultaneously. (see EEPROM clear process (14).)



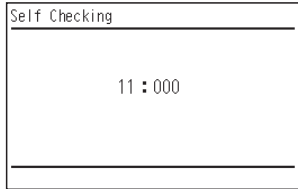
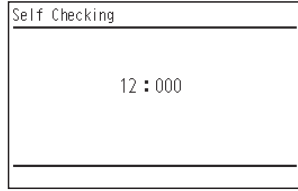
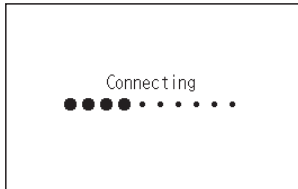
- (3) LCD test
Press "OK" and the screen will be switched as shown in the picture.



<p>(4) Back light test LCD brightness is changed gradually by pressing "OK"</p>	<p>(A) : 03 : Back light test 04 : Contrast test 05 : Operation indicator test</p>
<p>(5) Contrast test Contrast of the LCD gradually changes by pressing "OK"</p>	
<p>(6) Operation indicator test Press "OK" and the operation indicator will flash in red and green twice for each.</p>	
<p>(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.</p>	
<p>(8) Transmission circuit test The remote controller automatically starts to check the transmission circuit. * To proceed next step, press "  ".</p>	
<p>(9) Remote controller thermistor test The detected temperature by remote controller thermistor is displayed at "(A)" in the right picture.</p>	
<p>(10) Date/Time test The date and time is switched from "2012.03.04 12:34" to "2015.01.01 00:00".</p>	

<p>(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.</p>	
<p>(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.</p>	
<p>(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.</p>	

EEPROM process

<p>(14) Clear EEPROM The remote controller will automatically restart EEPROM clearing process.</p>	
<p>(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.</p>	
<p>(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.</p>	

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 them 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.


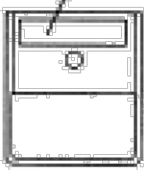

CAUTION:




- 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

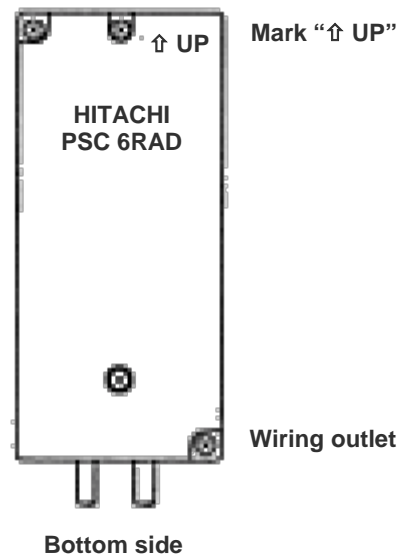
Check the contents and the number of the accessories in the packing.

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

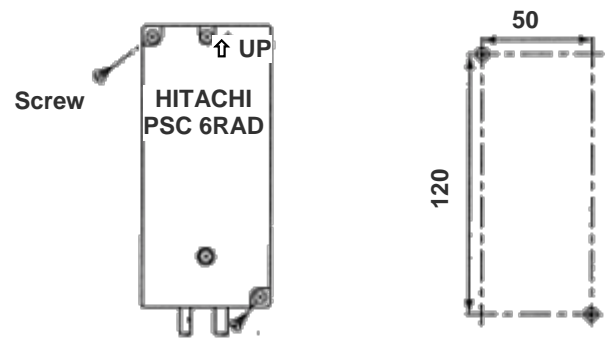
2 connectors for H-Link connection		
2 tapping screws for attaching to wall		φ3.0 x 10mm
2 screws for attaching to wooden wall		φ3.1 x 16mm

- 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.

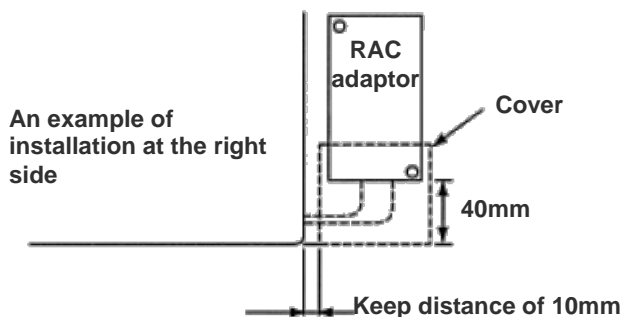
Upper side



- 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.

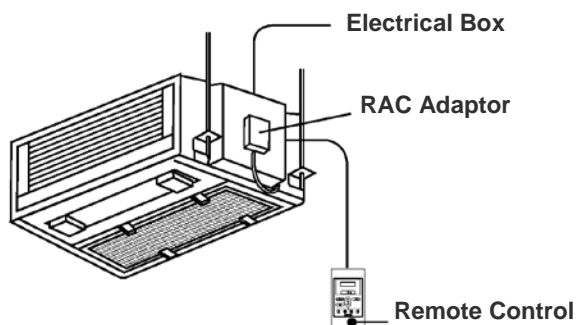
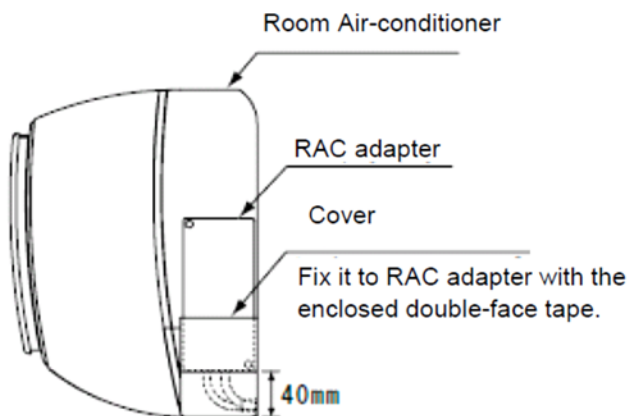


- ii) When using the cover
It can be installed at the right and left side of room air conditioner. Fix the cover and RAC adaptor with the two-sided tape (accessory).



An example of installation at the right side

- 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.
 - i) 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)
 - ii) Clean the surface to be installed with a dry cloth.

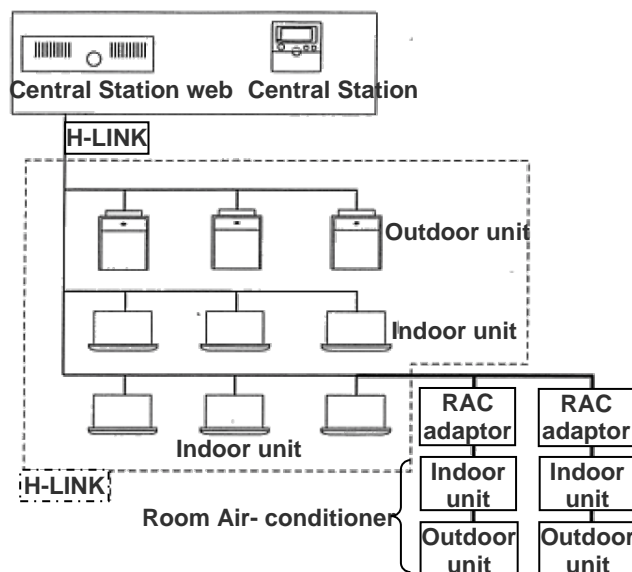


NOTE:

- 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



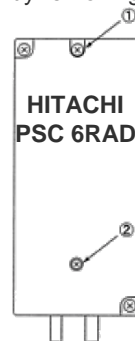
CAUTION:

- 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.

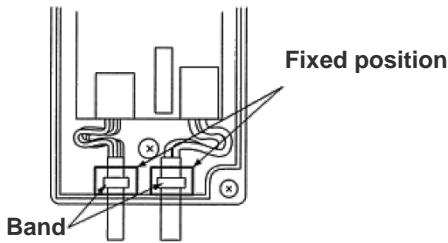
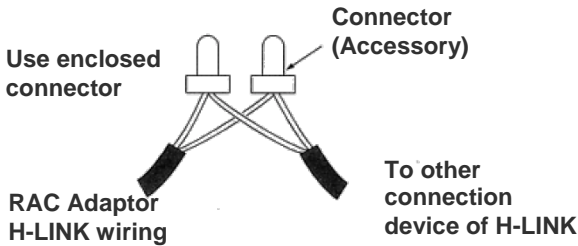


- Wiring Connection
Connection with Room Air-Conditioner
 - i) Remove the front cover of the room air-conditioner and the cover of electrical box.
 - ii) The cable attached with the connector of the RAC adaptor shall be connected with the connector of indoor PCB

- 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.

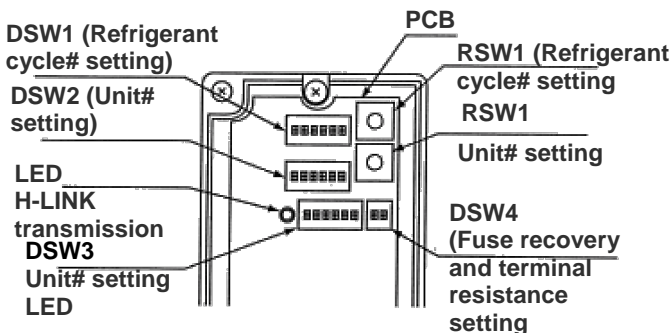


CAUTION:

- 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	
<p>No. 1 pin is OFF</p>	<p>The position is Set 5</p>

- 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	
<p>No. 1 pin is OFF</p>	<p>The position is Set 5</p>

- 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)

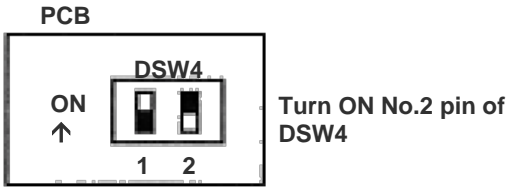
		Indoor Unit#							
		0	1	2	3	4	5	6	7
Refrigerant Unit#	0	●	○	○	○	○			
	1			●	○	○			
	2				●	○	○	○	○
	3		●						
	4								

CAUTION:

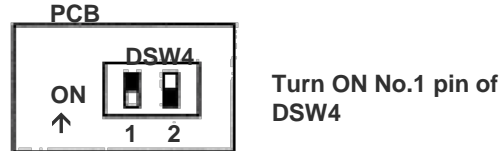
– DO NOT set various main adaptors in the same refrigerant cycle.

- 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)



- 7) Terminating resistance is set in whole H-LINK system.
 - a) 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.
 - b) 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.



10.3.5 TEST RUN

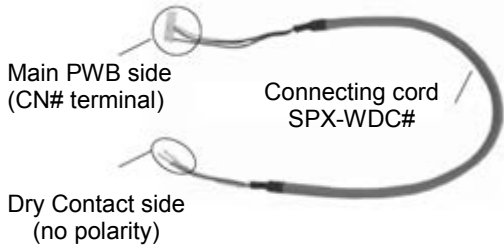
Test run should be performed in the following after finishing the installation, wiring and setting. Refer to the installation manuals enclosed with the control system equipment.

- 1) 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.
- 2) Registration
Confirm if the RAC adaptor connection is recognized.
- 3) 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)

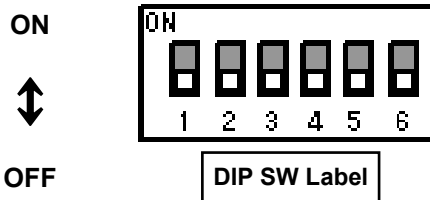
The dry contact system enables the operation of the air conditioner indoor unit to be controlled by using external dry contacts (with non voltage) such as card-key controller or window for facilities such as hotels.

Table 1 (Applicable models and related information)

Optional Connecting cord Accessory SPX-WDC#	Model	DIP SW Label	CN#	
	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:

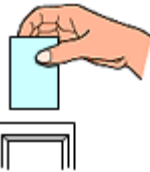
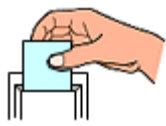




- 1) DRY CONTACT function is "Enable" by set pin No. 2 of the DIP SWITCH (refer to table 1 for the label) to ON position.
- 2) Select the proper setting for DRY CONTACT LOGIC INPUT pin No. 3 on DIP SWITCH (refer to Table 1 for the label)
 - i) Set to OFF position (Hi Input) if the type of Dry Contact 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	OFF	Disable	ON	Enable
3	DRY CONTACT Input Logic	OFF	HI Input Active	ON	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
CARD KEY (Door Switch)	REMOVE 	INSERT 
Contact type a	OPEN 	CLOSE 
Contact type b	CLOSE 	OPEN 

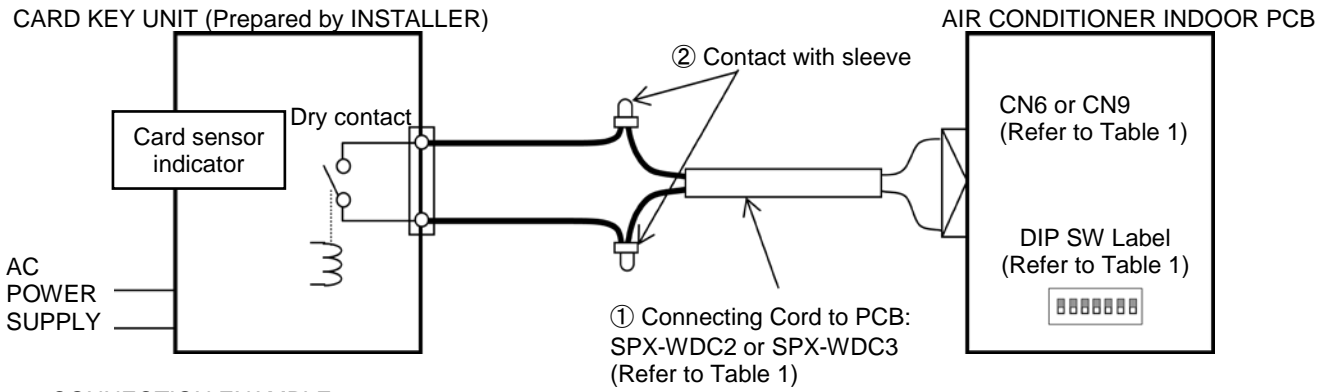
[2] SET THE POSITION OF DIP SWITCH

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.

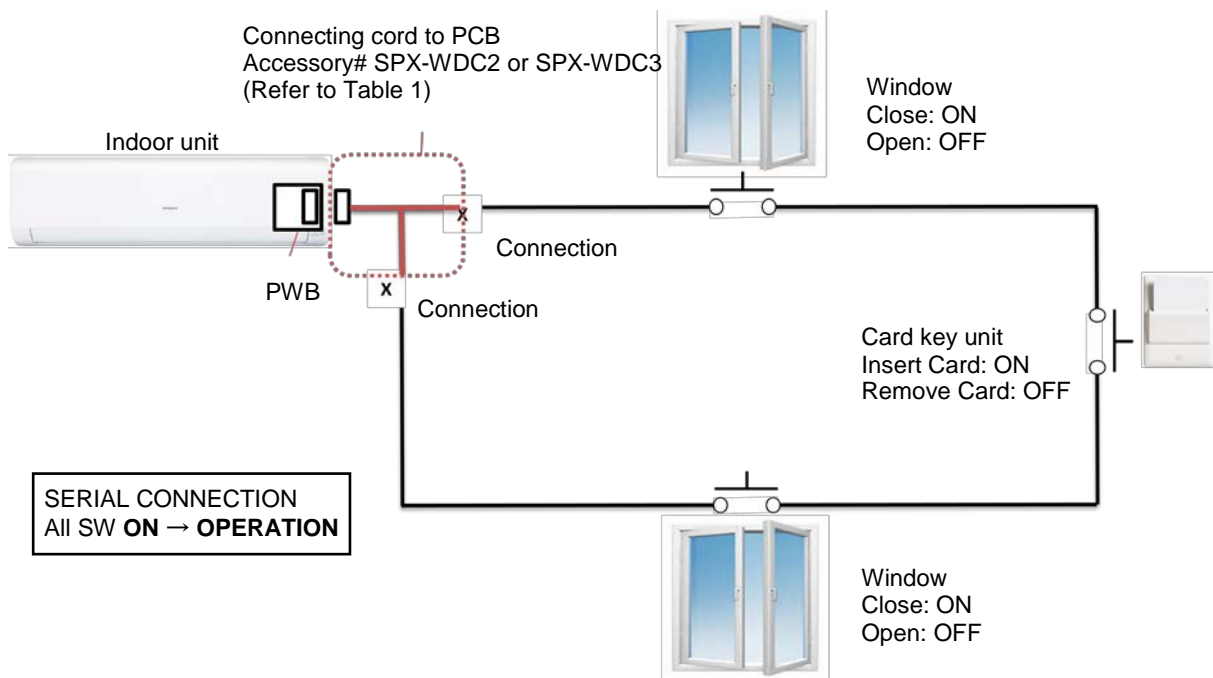
- When the CARD KEY is in insert condition, the air conditioner operation is allowable by remote controller.
- When the dry contact switch on the Card Key Unit is open (refer to diagram below for contact type a), the unit stops to operate (it takes 10 seconds to stop the unit operation after the dry 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)

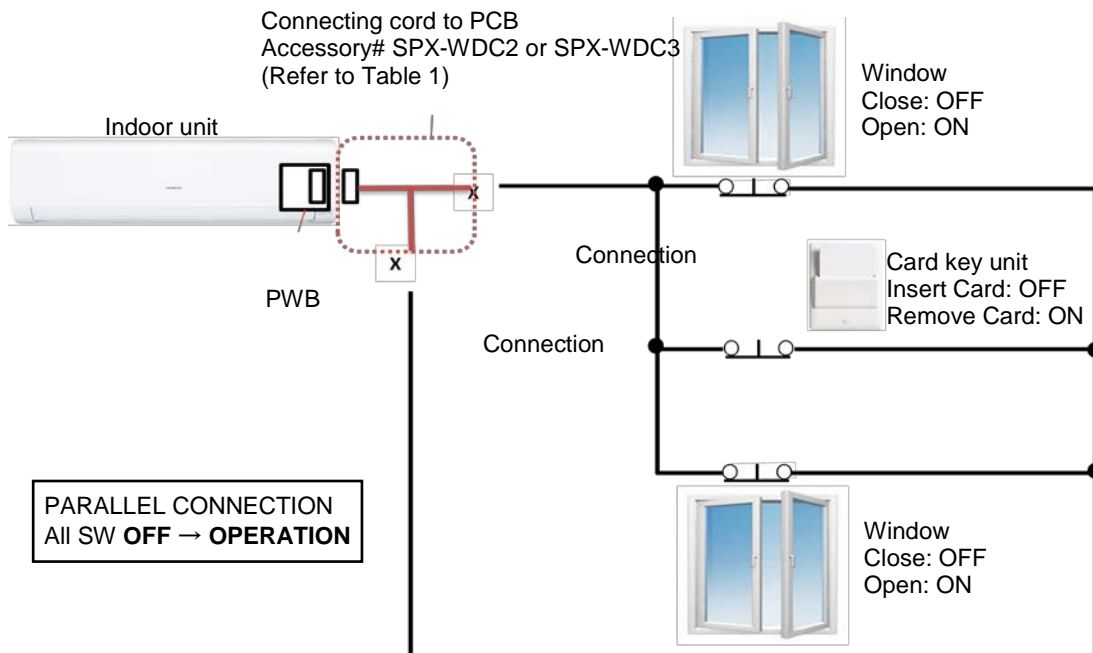


• CONNECTION EXAMPLE

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

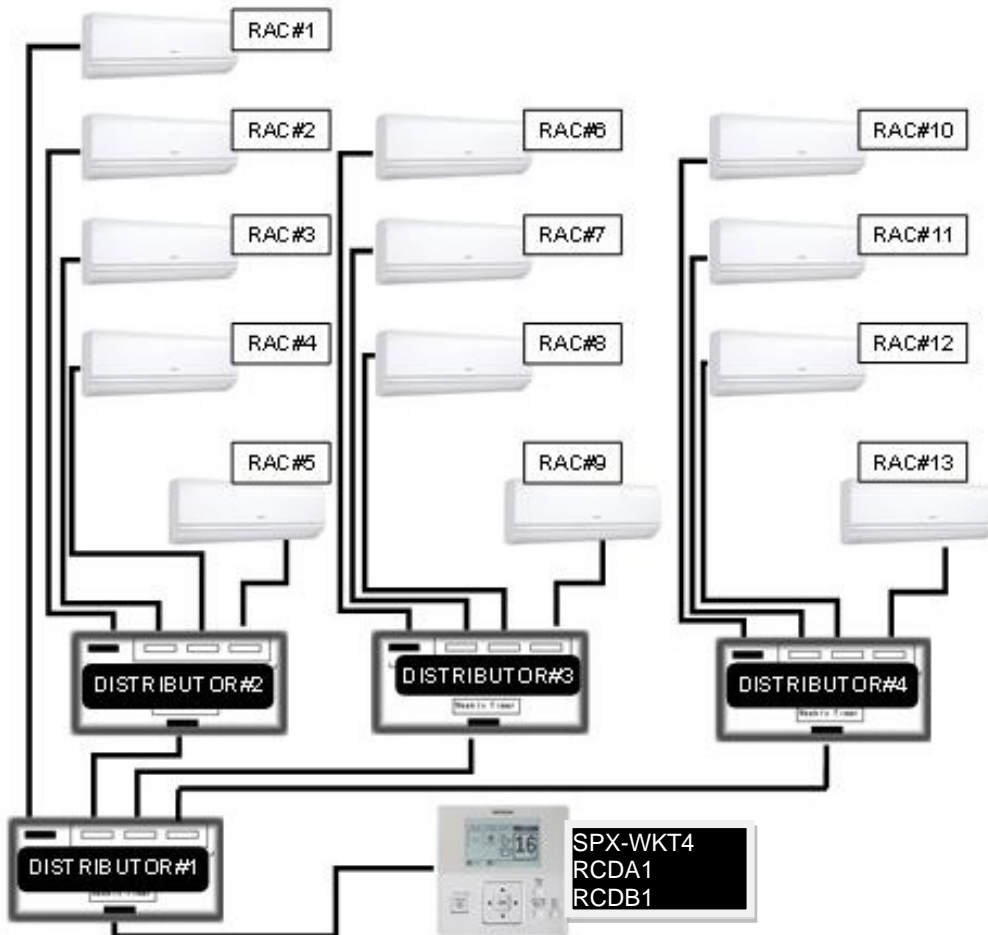
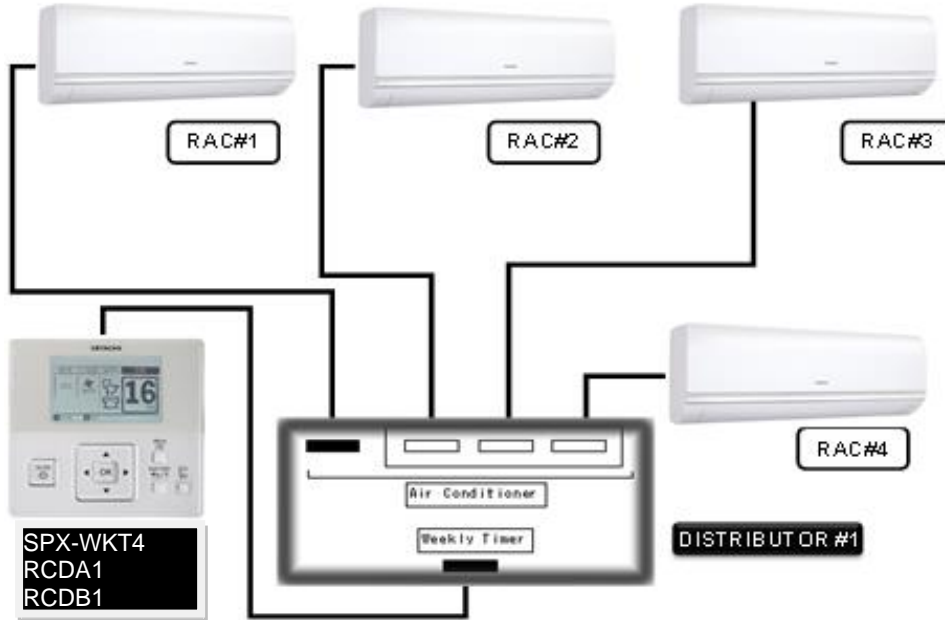


Please refer to the actual manual supplied with the optional connecting cords SPX-WDC2/WDC3 for more details.

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

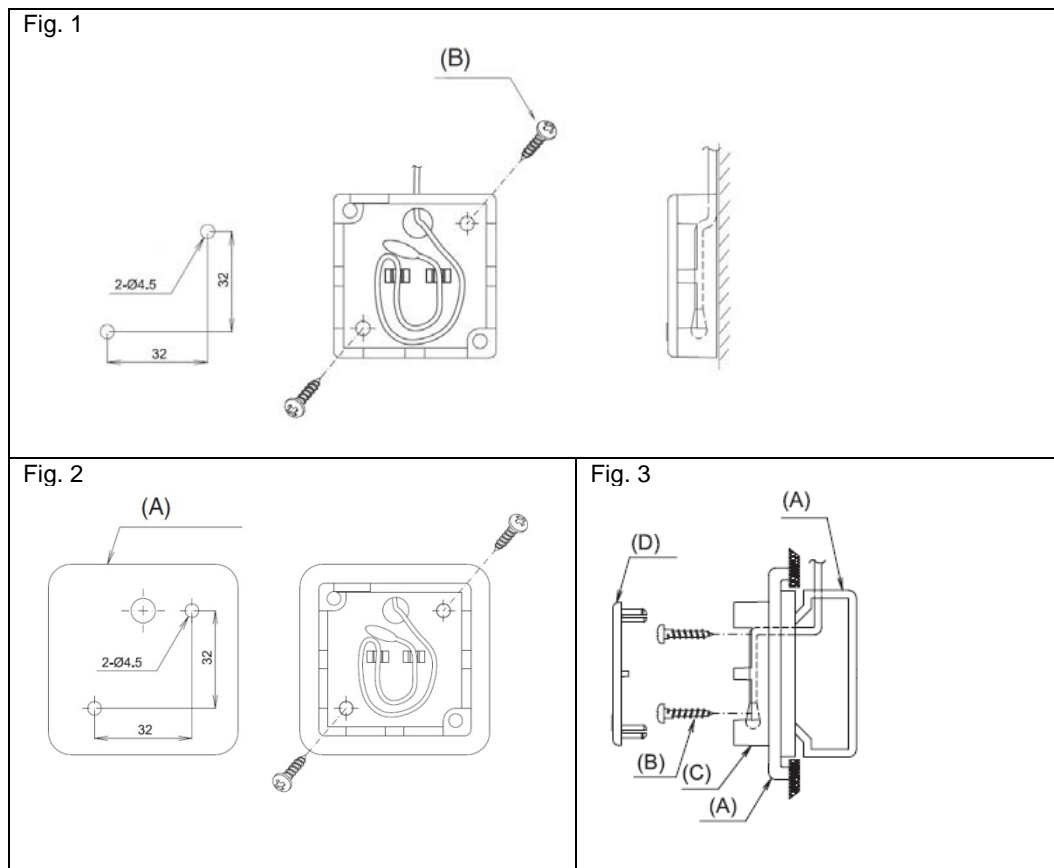
10.6.2 INSTALLATION PROCEDURE

▪ 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.



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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