

# TECHNICAL CATALOGUE

HITACHI

Cooling & Heating

RAS-EH09PHLAB  
RAS-EH12PHLAB  
RAS-EH09RHLAE  
RAS-EH12RHLAE  
RAS-EH18RHLAE



RAC-EH09WHLAB  
RAC-EH12WHLAB  
RAC-EH09WHLAE  
RAC-EH12WHLAE



RAS-EH24RHLAE  
RAS-EH36RHLAE



RAC-EH18WHLAE  
RAC-EH24WHLAE



RAC-EH36WHLAE



# HITACHI

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# 1 SPECIFICATIONS

## 1.1. WALL TYPE (RAS-EH09PHLAB/ RAC-EH09WHLAB, RAS-EH12PHLAB/ RAC-EH12WHLAB, RAS-EH09RHLAE/ RAC-EH09WHLAE)

| Indoor Model No   |                                  | RAS-EH09PHLAB | RAS-EH12PHLAB                           | RAS-EH09RHLAE                           |
|-------------------|----------------------------------|---------------|---|---|
| Outdoor Model No  |                                  | RAC-EH09WHLAB | RAC-EH12WHLAB                           | RAC-EH09WHLAE                           |
| Rated Performance | System Type                      |               | Heat Pump                               | Heat Pump                               |
|                   | Rated Cooling Capacity           | BTU/h         | 9000                                    | 12000                                   |
|                   | Cooling Capacity (Min-Max)       | BTU/h         | 5450-10500                              | 5500-13200                              |
|                   | Rated Heating Capacity           | BTU/h         | 10500                                   | 13000                                   |
|                   | Heating Capacity (Min-Max)       | BTU/h         | 4200 - 11500                            | 4400 - 14500                            |
|                   | EER                              |               | 12.5                                    | 9.8                                     |
|                   | SEER                             |               | 19                                      | 17.5                                    |
|                   | HSPF                             |               | 11                                      | 10.5                                    |
|                   | COP at 47°F                      |               | 3.30                                    | 3.20                                    |
|                   | COP at 17°F                      |               | 2.60                                    | 2.60                                    |
|                   | COP at 5°F                       |               | 2.40                                    | 2.40                                    |
|                   | Heating Capacity at +17 F (-8 C) | BTU/h         | 8400                                    | 10400                                   |
|                   | Heating Capacity at +5 F (-15 C) | BTU/h         | 6800                                    | 8500                                    |
|                   | Heating Capacity at -4 F (-20 C) | BTU/h         | NA                                      | NA                                      |
| Moisture Removal  | GPH (l/h)                        | 0.37(1.4)     | 0.42(1.6)                               |   |
| Electrical Data   | Rated Voltage                    | V-Ph-Hz       | 115/1/60                                | 115/1/60                                |
|                   | Rated Cooling Current            | Amps          | 6.80                                    | 11.20                                   |
|                   | Rated Heating Current            | Amps          | 9.40                                    | 11.50                                   |
|                   | MCA                              | Amps          | 18                                      | 18                                      |
|                   | MOCP                             | Amps          | 20                                      | 20                                      |
| Indoor Unit       | Set Temp Range                   | °F (°C)       | 60°F-90°F (16°C-32°C)                   | 60°F-90°F (16°C-32°C)                   |
|                   | Airflow (H/M/L/SL)               | CFM           | 290/250/218/170                         | 290/250/218/170                         |
|                   | Sound Pressure Level (H/M/S/SL)  | dB(A)         | 42/40/36/29                             | 44/40/36/29                             |
|                   | Unit Dimension (WxHxD)           | inch (mm)     | 30.70x11.07x9.05 (780x280x230)          | 30.70x11.07x9.05 (780x280x230)          |
|                   | Packaging Dimension (WxHxD)      | inch (mm)     | 32.28 x 10.43 x 12.60 (820 x 265 x 320) | 32.28 x 10.43 x 12.60 (820 x 265 x 320) |
|                   | Net / Gross Weight               | lbs (kg)      | 17.6/20.9 (8/9.5)                       | 17.6/20.9 (8/9.5)                       |
| Outdoor Unit      | Operation Range - Cooling        | °F (°C)       | -0.4°F to 114.8°F (-18°C to +46°C)      | -0.4°F to 114.8°F (-18°C to +46°C)      |
|                   | Operation Range - Heating        | °F (°C)       | -0.4°F to 75.2°F (-18°C to +24°C)       | -0.4°F to 75.2°F (-18°C to +24°C)       |
|                   | Refrigerant                      |               | R410A                                   | R410A                                   |
|                   | Refrigerant Charge               | oz (Kg)       | 31.04(0.88)                             | 31.04(0.88)                             |

|        |                             |           |   |   |   |
|--------|-----------------------------|-----------|---|---|---|
|        | Sound Pressure Level (High) | dB(A)     | 51                                      | 51                                      | 51                                      |
|        | Unit Dimension (WxHxD)      | inch (mm) | 25.98x20.86x10.94 (660x530x278)         | 25.98x20.86x10.94 (660x530x278)         | 25.98x20.86x10.94 (660x530x278)         |
|        | Packaging Dimension (WxHxD) | Inch (mm) | 30.16 x 22.52 x 14.29 (766 x 572 x 363) | 30.16 x 22.52 x 14.29 (766 x 572 x 363) | 30.16 x 22.52 x 14.29 (766 x 572 x 363) |
|        | Net / Gross Weight          | lbs (kg)  | 57.3/61.7 (26/28)                       | 57.3/61.7 (26/28)                       | 57.3/61.7 (26/28)                       |
| Piping | Max Total Piping Length     | Ft (m)    | 82.0ft (25)                             | 82.0ft (25)                             | 82.0ft (25)                             |
|        | Max Total Piping Height     | Ft (m)    | 49.2ft (15)                             | 49.2ft (15)                             | 49.2ft (15)                             |
|        | Piping Connection - Liquid  | inch      | 1/4                                     | 1/4                                     | 1/4                                     |
|        | Piping Connection - Gas     | inch      | 3/8                                     | 3/8                                     | 3/8                                     |
|        | Piping Connection - Drain   | inch      | Dia-0.657                               | Dia-0.657                               | Dia-0.657                               |

**1.2. WALL TYPE (RAS-EH12PHLAE/ RAC-EH12WHLAE, RAS-EH18PHLAE/ RAC-EH18WHLAE, RAS-EH24RHLAE/ RAC-EH24WHLAE)**

| Indoor Model No   |                                  | RAS-EH12RHLAE | RAS-EH18RHLAE                              | RAS-EH24RHLAE                              |   |
|-------------------|----------------------------------|---------------|--|--|---|
| Outdoor Model No  |                                  | RAC-EH12WHLAE | RAC-EH18WHLAE                              | RAC-EH24WHLAE                              |   |
| Rated Performance | Ssystem Type                     |               | Heat Pump                                  | Heat Pump                                  | Heat Pump                                 |
|                   | Rated Cooling Capacity           | BTU/h         | 12000                                      | 17600                                      | 24000                                     |
|                   | Cooling Capacity (Min-Max)       | BTU/h         | 5500-13200                                 | 5700-18600                                 | 8200 - 25200                              |
|                   | Rated Heating Capacity           | BTU/h         | 13000                                      | 19000                                      | 25000                                     |
|                   | Heating Capacity (Min-Max)       | BTU/h         | 4400 - 14500                               | 6700-20500                                 | 8300-26500                                |
|                   | EER                              |               | 9.8  | 9  | 9   |
|                   | SEER                             |               | 17.5                                       | 17   | 18  |
|                   | HSPF                             |               | 10.5                                       | 10   | 10  |
|                   | COP at 47°F                      |               | 3.20                                       | 2.95                                       | 3.20                                      |
|                   | COP at 17°F                      |               | 2.60                                       | 2.35                                       | 2.50                                      |
|                   | COP at 5°F                       |               | 2.40                                       | 2.20                                       | 2.30                                      |
|                   | Heating Capacity at +17 F (-8 C) | BTU/h         | 10400                                      | 15000                                      | 17800                                     |
|                   | Heating Capacity at +5 F (-15 C) | BTU/h         | 8500                                       | 12350                                      | 15000                                     |
|                   | Heating Capacity at -4 F (-20 C) | BTU/h         | NA   | NA   | NA  |
|                   | Moisture Removal                 | GPH(l/h)      | 0.42(1.6)                                  | 0.77(2.9)                                  | 0.90(3.4)                                 |
| Electrical Data   | Rated Voltage                    | V-Ph-Hz       | 208-230/1/60                               | 208-230/1/60                               | 208-230/1/60                              |
|                   | Rated Cooling Current            | Amps          | 5.30                                       | 8.70                                       | 10.40                                     |
|                   | Rated Heating Current            | Amps          | 5.40                                       | 8.50                                       | 9.60                                      |
|                   | MCA                              | Amps          | 10   | 16   | 18  |
|                   | MOCP                             | Amps          | 15   | 20   | 20  |
| Indoor Unit       | Set Temp Range                   | °F (°C)       | 60°F-90°F<br>(16°C-32°C)                   | 60°F-90°F<br>(16°C-32°C)                   | 60°F-90°F<br>(16°C-32°C)                  |
|                   | Airflow (H/M/L/SL)               | CFM           | 320/250/218/170                            | 400/280/240/200                            | 620/430/350/280                           |
|                   | Sound Pressure Level (H/M/S/SL)  | dB(A)         | 44/40/36/29                                | 48/42/38/35                                | 51/45/40/35                               |
|                   | Unit Dimension (WxHxD)           | inch (mm)     | 30.70x11.07x9.05<br>(780x280x230)          | 30.70x11.07x9.05<br>(780x280x230)          | 43.3x11.81x10.23<br>(1100x300x260)        |
|                   | Packaging Dimension (WxHxD)      | Inch (mm)     | 32.28 x 10.43 x 12.60<br>(820 x 265 x 320) | 32.28 x 10.43 x 12.60<br>(820 x 265 x 320) | 45.47 x 12.99 x 14.37<br>(1155 x330 x365) |
|                   | Net / Gross Weight               | lbs (kg)      | 17.6/20.9 (8/9.5)                          | 17.6/20.9 (8/9.5)                          | 33.1/37.5 (15/17)                         |
| Outdoor Unit      | Operation Range - Cooling        | °F (°C)       | -0.4°F to 114.8°F<br>(-18°C to +46°C)      | -0.4°F to 114.8°F<br>(-18°C to +46°C)      | -0.4°F to 114.8°F<br>(-18°C to +46°C)     |
|                   | Operation Range - Heating        | °F (°C)       | -0.4°F to 75.2°F<br>(-18°C to +24°C)       | -0.4°F to 75.2°F<br>(-18°C to +24°C)       | -0.4°F to 75.2°F<br>(-18°C to +24°C)      |
|                   | Refrigerant                      |               | R410A                                      | R410A                                      | R410A                                     |
|                   | Refrigerant Charge               | oz (Kg)       | 31.04(0.88)                                | 52.2(1.48)                                 | 70.6(2.0)                                 |
|                   | Sound Pressure Level (High)      | dB(A)         | 51   | 53   | 53  |
|                   | Unit Dimension (WxHxD)           | inch (mm)     | 25.98x20.86x10.94<br>(660x530x278)         | 33.46x25.59x11.73<br>(850x650x298)         | 33.46x25.59x11.73<br>(850x650x298)        |

|        |                             |           |   |  |  |
|--------|-----------------------------|-----------|---|--|--|
|        | Packaging Dimension (WxHxD) | Inch (mm) | 30.16 x 22.52 x 14.29 (766 x 572 x 363) | 39.69 x 27.48 x 15.91 (1008 x 698 x 404) | 39.69 x 27.48 x 15.91 (1008 x 698 x 404) |
|        | Net / Gross Weight          | lbs (kg)  | 57.3/61.7 (26/28)                       | 94.8/102.5 (43/46.5)                     | 97/103.6 (44/47)                         |
| Piping | Max Total Piping Length     | Ft (m)    | 82.0ft (25)                             | 82.0ft (25)                              | 82.0ft (25)                              |
|        | Max Total Piping Height     | Ft (m)    | 49.2ft (15)                             | 49.2ft (15)                              | 49.2ft (15)                              |
|        | Piping Connection - Liquid  | inch      | 1/4                                     | 1/4                                      | 1/4                                      |
|        | Piping Connection - Gas     | inch      | 3/8                                     | 1/2                                      | 5/8                                      |
|        | Piping Connection - Drain   | inch      | Dia-0.657                               | Dia-0.657                                | Dia-0.657                                |

### 1.3. WALL TYPE (RAS-EH36PHLAE/ RAC-EH36WHLAE)

| Indoor Model No   |                                  | RAS-EH36PHLAE |   |
|-------------------|----------------------------------|---------------|---|
| Outdoor Model No  |                                  | RAC-EH36WHLAE |   |
| Rated Performance | Sytem Type                       |               | Heat Pump                                   |
|                   | Rated Cooling Capacity           | BTU/h         | 33000                                       |
|                   | Cooling Capacity (Min-Max)       | BTU/h         | 9950 - 34000                                |
|                   | Rated Heating Capacity           | BTU/h         | 36000                                       |
|                   | Heating Capacity (Min-Max)       | BTU/h         | 12600 - 37500                               |
|                   | EER                              |               | 8.3   |
|                   | SEER                             |               | 17.5  |
|                   | HSPF                             |               | 9   |
|                   | COP at 47°F                      |               | TBD   |
|                   | COP at 17°F                      |               | TBD   |
|                   | COP at 5°F                       |               | TBD   |
|                   | Heating Capacity at +17 F (-8 C) | BTU/h         | 24500                                       |
|                   | Heating Capacity at +5 F (-15 C) | BTU/h         | 19800                                       |
|                   | Heating Capacity at -4 F (-20 C) | BTU/h         | NA  |
|                   | Moisture Removal                 | GPH(l/h)      | 1.29(4.9)                                   |
| Electrical Data   | Rated Voltage                    | V-Ph-Hz       | (208/230)/1/60                              |
|                   | Rated Cooling Current            | Amps          | 18.00                                       |
|                   | Rated Heating Current            | Amps          | 17.80                                       |
|                   | MCA                              | Amps          | TBD   |
|                   | MOCP                             | Amps          | TBD   |
| Indoor Unit       | Set Temp Range                   | °F (°C)       | 60.8°F-86°F<br>(16°C-30°C)                  |
|                   | Airflow (H/M/L/SL)               | CFM           | 640/530/420/320                             |
|                   | Sound Pressure Level (H/M/S/SL)  | dB(A)         | 54/48/45/38                                 |
|                   | Unit Dimension (WxHxD)           | inch (mm)     | 43.3x11.81x10.23<br>(1100x300x260)          |
|                   | Packaging Dimension (WxHxD)      | Inch (mm)     | 45.47 x 12.99 x 14.37<br>(1155 x330 x365)   |
|                   | Net / Gross Weight               | lbs (kg)      | 33.1/37.5(15/17)                            |
| Outdoor Unit      | Operation Range - Cooling        | °F (°C)       | -0.4°F to 114.8°F<br>(-18°C to +46°C)       |
|                   | Operation Range - Heating        | °F (°C)       | -0.4°F to 75.2°F<br>(-18°C to +24°C)        |
|                   | Refrigerant                      |               | R410A                                       |
|                   | Refrigerant Charge               | oz (Kg)       | 93.5(2.65)                                  |
|                   | Sound Pressure Level (High)      | dB(A)         | 58  |
|                   | Unit Dimension (WxHxD)           | inch (mm)     | 37.40x37.20x14.57<br>(950x945x370)          |
|                   | Packaging Dimension (WxHxD)      | Inch (mm)     | 42.20 x 34.53 x 20.28<br>(1072 x 877 x 515) |
|                   | Net / Gross Weight               | lbs (kg)      | 183.6/210.10(83.3/95.3)                     |
| Piping            | Max Total Piping Length          | Ft (m)        | 98.5ft (30)                                 |
|                   | Max Total Piping Height          | Ft (m)        | 65.6ft (20)                                 |

|                            |      |           |
|----------------------------|------|-----------|
| Piping Connection - Liquid | inch | 1/4       |
| Piping Connection - Gas    | inch | 5/8       |
| Piping Connection - Drain  | inch | Dia-0.657 |

**NOTE:**

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

| <b>Operation Conditions</b>  |           | <b>Cooling</b> | <b>Heating</b> |
|--|-----------|----------------|----------------|
| Indoor Air Inlet Temperature   | <b>dB</b> | 80 °F          | 70 °F          |
|  | <b>WB</b> | 67 °F          |                |
| Outdoor Air Inlet Temperature  | <b>dB</b> | 95 °F          | 47 °F          |
|  | <b>WB</b> |                | 43 °F          |
| <b>Piping Length:</b> 16.4f (5.0 meters); <b>Piping Lift:</b> 0f (0 meter)<br><b>dB:</b> Dry Bulb; <b>WB:</b> Wet Bulb |           |                |                |

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

**INDOOR**

- 2.62ft (0.8 meter) beneath indoor height center
- 3.28ft (1 meter) from Discharge grille

**OUTDOOR**

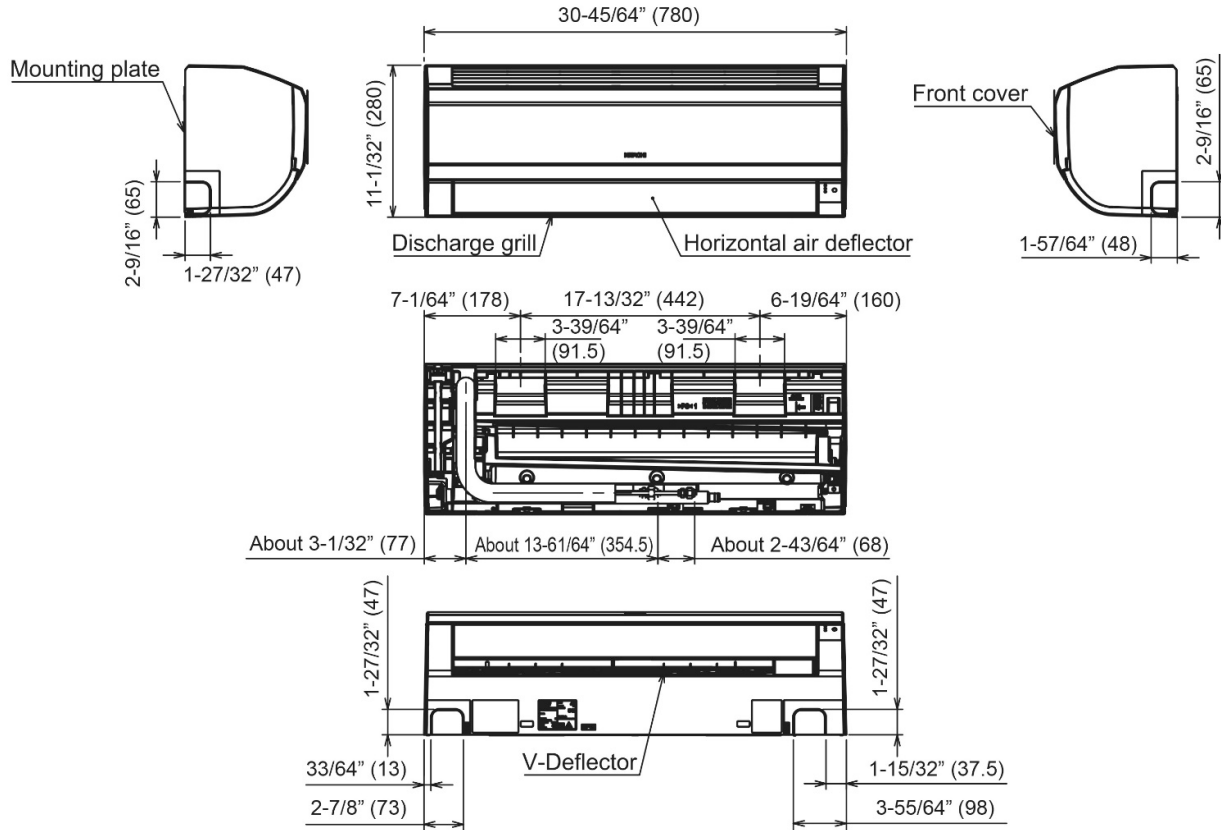
- 3.28ft (1 meter) from the unit front surface and 3.28ft (1 meter) from floor level.

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

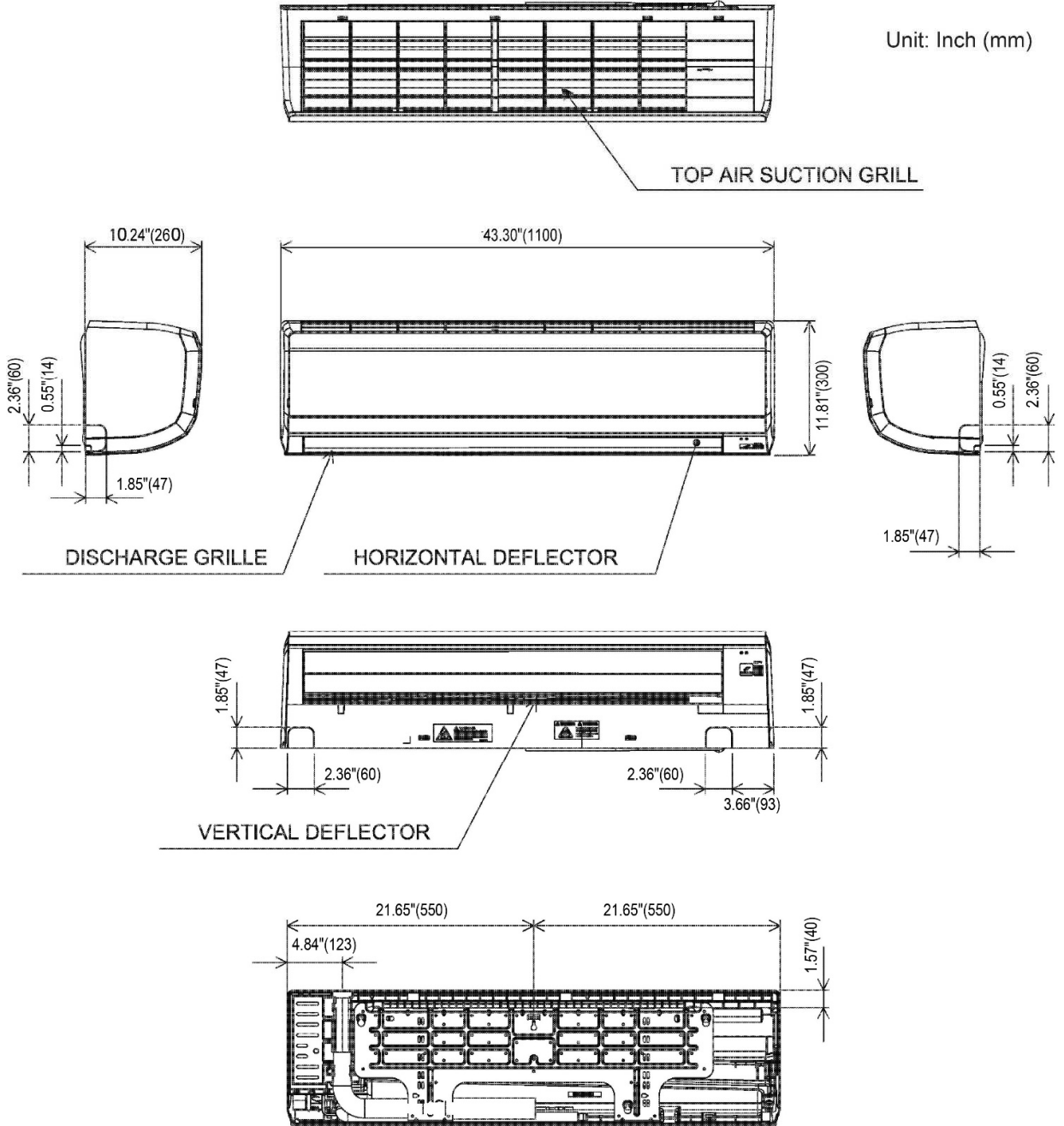
## 2 DIMENSIONAL DATA

### 2.1. INDOOR WALL TYPE: RAS-EH09PHLAB, RAS-EH12PHLAB, RAS-EH09RHLAE, RAS-EH12RHLAE, RAS-EH18RHLAE

Unit: Inch (mm)



2.3. INDOOR WALL TYPE: RAS-EH24RHLAE, RAS-EH36RHLAE

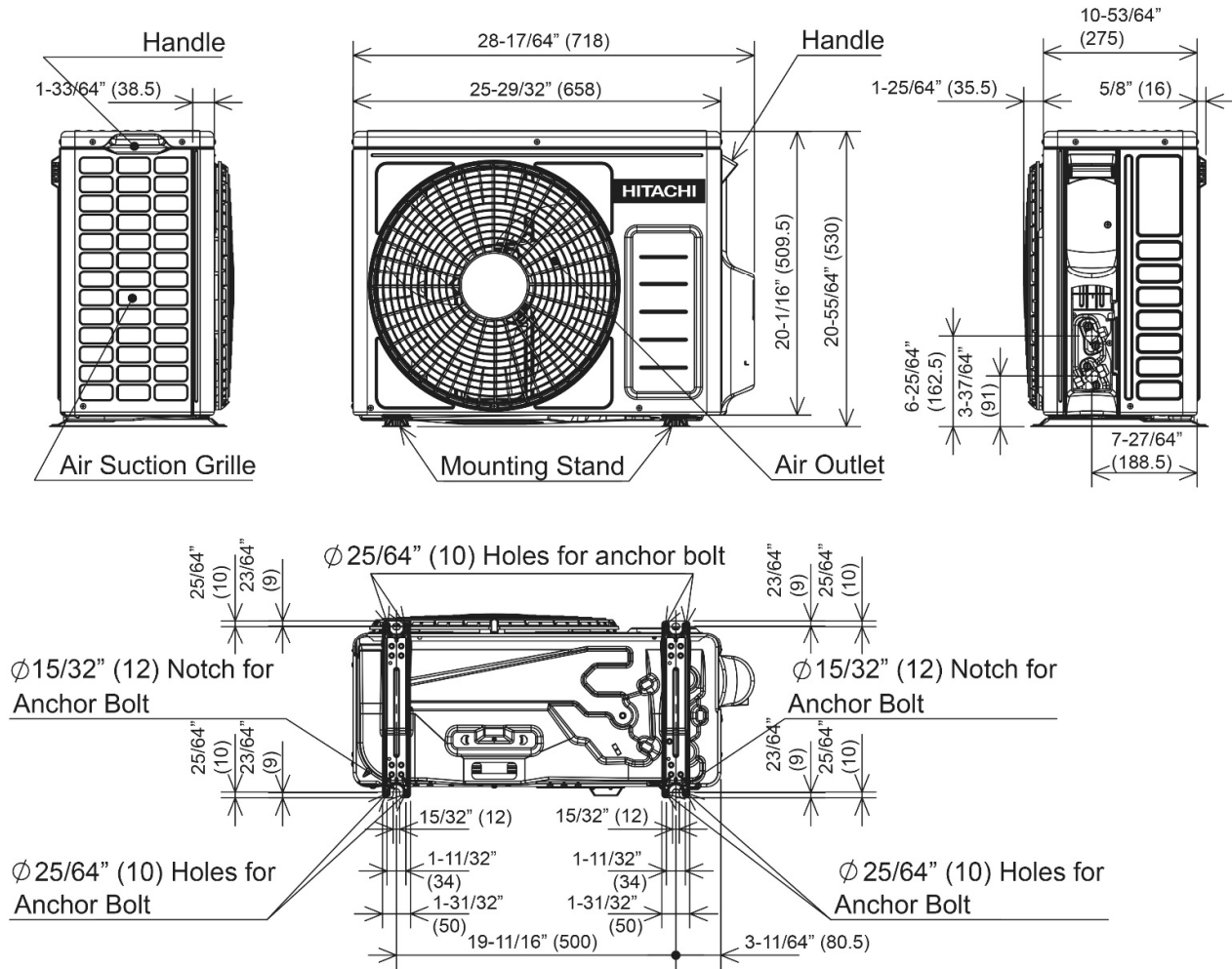




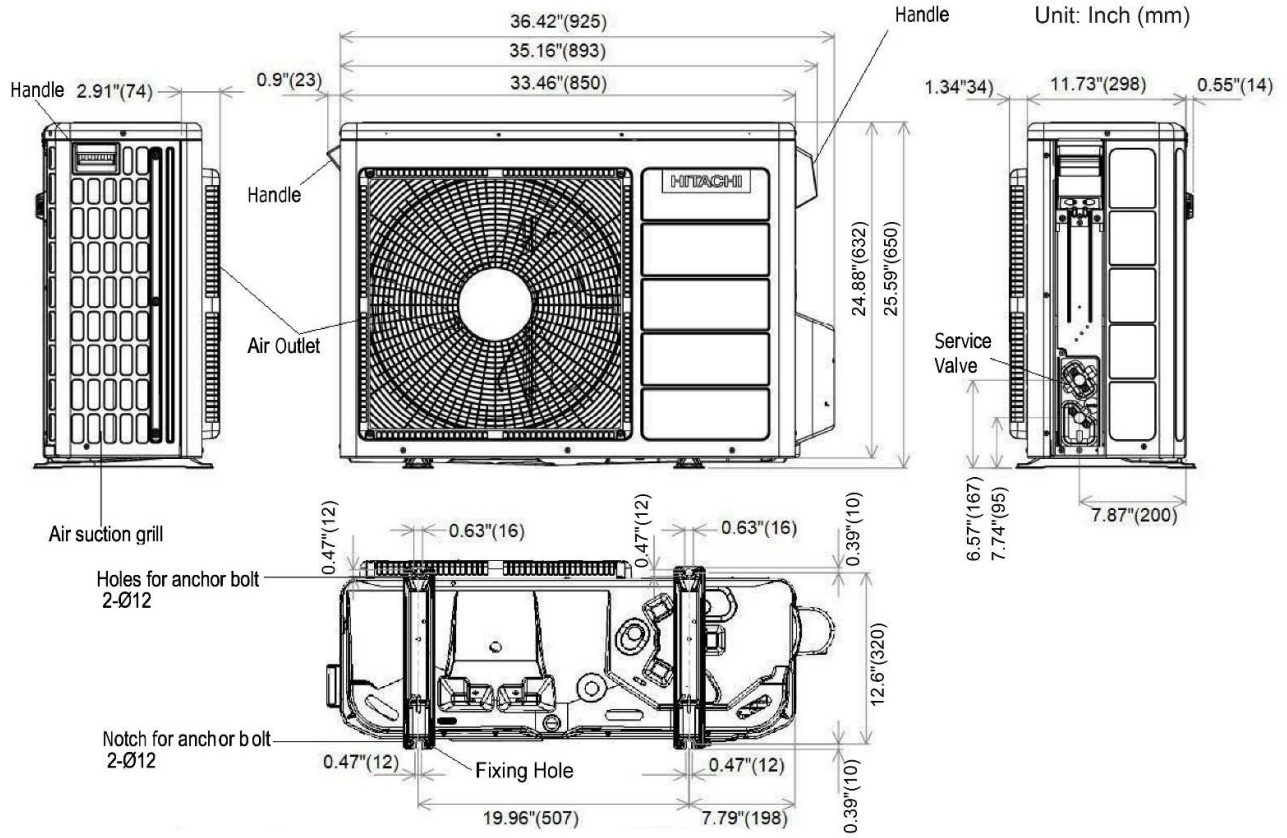
2.5. OUTDOOR: RAC-EH09WHLAB, RAC-EH12WHLAB, RAC-EH09WHLAE, RAC-EH12WHLAE

OUTDOOR UNIT

Unit: Inch (mm)



2.6. OUTDOOR: RAC-EH18WHLAE, RAC-EH24WHLAE



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**2.7. OUTDOOR: RAC-EH36WHLAE**

WUHU

TBA

### 3 CAPACITIES TABLE

#### 3.1. CAPACITY CHARACTERISTIC CURVES

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: 16.4ft (5m) / 0ft (0m)    ③ Capacity loss due to white frost and defrost operation is not included.  
 ② Indoor fan speed at High mode

##### 3.1.1. RAS-EH09PHLAB/ RAC-EH09WHLAB

#### COOLING [60Hz, 230V]

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |      |     |       |      |     |       |      |     |       |      |     |      |      |     |      |      |     |
|--------|-----|----------------------------|------|-----|-------|------|-----|-------|------|-----|-------|------|-----|-------|------|-----|------|------|-----|------|------|-----|
| EWB    | EDB | 14                         |      |     | 70    |      |     | 81    |      |     | 90    |      |     | 95    |      |     | 104  |      |     | 110  |      |     |
|        |     | °F                         | °F   | TC  | SHC   | PI   | TC  | SHC   | PI   | TC  | SHC   | PI   | TC  | SHC   | PI   | TC  | SHC  | PI   | TC  | SHC  | PI   |     |
| 54     | 64  | 5229                       | 4243 | 285 | 8460  | 8082 | 484 | 7830  | 7460 | 571 | 7380  | 7071 | 630 | 7110  | 6761 | 658 | 6660 | 6372 | 706 | 6390 | 6061 | 733 |
| 57     | 68  | 5229                       | 4243 | 285 | 9090  | 8082 | 484 | 8460  | 7538 | 577 | 7920  | 7071 | 637 | 7650  | 6838 | 664 | 7110 | 6372 | 712 | 6840 | 6139 | 747 |
| 61     | 72  | 5229                       | 4515 | 290 | 9720  | 8082 | 491 | 9000  | 7538 | 584 | 8460  | 7071 | 644 | 8190  | 6838 | 678 | 7650 | 6372 | 726 | 7380 | 6139 | 754 |
| 64     | 77  | 5607                       | 4841 | 294 | 10350 | 8781 | 497 | 9540  | 8159 | 591 | 9000  | 7693 | 651 | 8640  | 7382 | 678 | 8100 | 6916 | 733 | 7740 | 6605 | 760 |
| 66     | 81  | 5796                       | 5004 | 299 | 10710 | 9247 | 503 | 9900  | 8548 | 597 | 9360  | 8082 | 658 | 9000  | 7771 | 685 | 8460 | 7305 | 733 | 8100 | 6994 | 760 |
| 72     | 86  | 6426                       | 4950 | 299 | 11880 | 9170 | 503 | 10980 | 8470 | 597 | 10350 | 8004 | 664 | 9990  | 7693 | 692 | 9000 | 7460 | 760 | 8370 | 7305 | 801 |
| 75     | 90  | 6867                       | 4950 | 303 | 12690 | 9170 | 510 | 11700 | 8470 | 604 | 11070 | 8004 | 664 | 10620 | 7693 | 699 | 9360 | 7615 | 781 | 8550 | 7538 | 829 |

#### HEATING [60Hz, 230V]

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |    |     |      |    |     |      |    |     |      |    |     |       |    |      |       |    |      |       |    |      |
|--------|-----|----------------------------|----|-----|------|----|-----|------|----|-----|------|----|-----|-------|----|------|-------|----|------|-------|----|------|
|        | EDB | 5                          |    |     | 14   |    |     | 23   |    |     | 32   |    |     | 47    |    |      | 50    |    |      | 59    |    |      |
|        |     | °F                         | TC | SHC | PI   | TC | SHC | PI   | TC | SHC | PI   | TC | SHC | PI    | TC | SHC  | PI    | TC | SHC  | PI    | TC | SHC  |
|        | 61  | 3780                       | 0  | 696 | 5985 | 0  | 714 | 7382 | 0  | 765 | 8988 | 0  | 856 | 10616 | 0  | 868  | 11582 | 0  | 891  | 13367 | 0  | 935  |
|        | 64  | 3728                       | 0  | 705 | 5933 | 0  | 724 | 7308 | 0  | 785 | 8894 | 0  | 878 | 10563 | 0  | 912  | 11540 | 0  | 931  | 13314 | 0  | 979  |
|        | 68  | 3675                       | 0  | 714 | 5880 | 0  | 733 | 7245 | 0  | 799 | 8820 | 0  | 893 | 10500 | 0  | 940  | 11288 | 0  | 973  | 13230 | 0  | 1025 |
|        | 72  | 3623                       | 0  | 724 | 5828 | 0  | 743 | 7140 | 0  | 820 | 8726 | 0  | 915 | 10437 | 0  | 978  | 11414 | 0  | 1009 | 13167 | 0  | 1067 |
|        | 75  | 3570                       | 0  | 733 | 5775 | 0  | 752 | 7077 | 0  | 839 | 8652 | 0  | 936 | 10374 | 0  | 1015 | 11351 | 0  | 1047 | 12978 | 0  | 1110 |

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

## 3.1.2. RAS-EH12PHLAB/ RAC-EH12WHLAB

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |      |     |       |      |     |       |      |      |       |      |      |       |      |      |       |      |      |
|--------|-----|----------------------------|------|-----|-------|------|-----|-------|------|-----|-------|------|------|-------|------|------|-------|------|------|-------|------|------|
| EWB    | EDB | 14                         |      |     | 70    |      |     | 81    |      |     | 90    |      |      | 95    |      |      | 104   |      |      | 110   |      |      |
| °F     | °F  | TC                         | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI   | TC    | SHC  | PI   | TC    | SHC  | PI   | TC    | SHC  | PI   |
| 54     | 64  | 4238                       | 1481 | 306 | 8880  | 3654 | 673 | 8219  | 3373 | 793 | 9840  | 4061 | 1113 | 9480  | 3883 | 1162 | 8880  | 3660 | 1246 | 8520  | 3481 | 1295 |
| 57     | 68  | 4238                       | 1481 | 306 | 9541  | 3654 | 673 | 8880  | 3408 | 803 | 10560 | 4061 | 1125 | 10200 | 3927 | 1174 | 9480  | 3660 | 1258 | 9120  | 3526 | 1319 |
| 61     | 72  | 4238                       | 1576 | 311 | 10203 | 3654 | 682 | 9447  | 3408 | 812 | 11280 | 4061 | 1137 | 10920 | 3927 | 1198 | 10200 | 3660 | 1283 | 9840  | 3526 | 1331 |
| 64     | 77  | 4545                       | 1690 | 316 | 10864 | 3970 | 691 | 10014 | 3689 | 821 | 12000 | 4418 | 1150 | 11520 | 4240 | 1198 | 10800 | 3972 | 1295 | 10320 | 3793 | 1343 |
| 66     | 81  | 4698                       | 1747 | 321 | 11242 | 4181 | 700 | 10391 | 3865 | 831 | 12480 | 4641 | 1162 | 12000 | 4463 | 1210 | 11280 | 4195 | 1295 | 10800 | 4017 | 1343 |
| 72     | 86  | 5209                       | 1728 | 321 | 12470 | 4146 | 700 | 11525 | 3830 | 831 | 13800 | 4597 | 1174 | 13320 | 4418 | 1222 | 12000 | 4284 | 1343 | 11160 | 4195 | 1416 |
| 75     | 90  | 5566                       | 1728 | 326 | 13320 | 4146 | 709 | 12281 | 3830 | 840 | 14760 | 4597 | 1174 | 14160 | 4418 | 1234 | 12480 | 4374 | 1379 | 11400 | 4329 | 1464 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |     |      |     |     |      |     |      |       |     |      |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|-----|------|-----|-----|------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |     | 14   |     |     | 23   |     |      | 32    |     |      | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI  | TC   | SHC | PI  | TC   | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 4680                       | 0   | 903 | 7410 | 0   | 927 | 9139 | 0   | 993  | 11128 | 0   | 1111 | 13143 | 0   | 1126 | 14339 | 0   | 1157 | 16549 | 0   | 1214 |
|        | 64  | 4615                       | 0   | 915 | 7345 | 0   | 939 | 9048 | 0   | 1019 | 11011 | 0   | 1139 | 13078 | 0   | 1183 | 14287 | 0   | 1208 | 16484 | 0   | 1271 |
|        | 68  | 4550                       | 0   | 927 | 7280 | 0   | 952 | 8970 | 0   | 1037 | 10920 | 0   | 1159 | 13000 | 0   | 1220 | 13975 | 0   | 1263 | 16380 | 0   | 1330 |
|        | 72  | 4485                       | 0   | 939 | 7215 | 0   | 964 | 8840 | 0   | 1064 | 10803 | 0   | 1187 | 12922 | 0   | 1269 | 14131 | 0   | 1309 | 16302 | 0   | 1385 |
|        | 75  | 4420                       | 0   | 952 | 7150 | 0   | 976 | 8762 | 0   | 1089 | 10712 | 0   | 1215 | 12844 | 0   | 1318 | 14053 | 0   | 1359 | 16068 | 0   | 1441 |

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

## 3.1.3. RAS-EH09RHLAE/ RAC-EH09WHLAE

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |      |     |       |      |     |       |      |     |       |      |     |      |      |     |      |      |     |
|--------|-----|----------------------------|------|-----|-------|------|-----|-------|------|-----|-------|------|-----|-------|------|-----|------|------|-----|------|------|-----|
| EWB    | EDB | 14                         |      |     | 70    |      |     | 81    |      |     | 90    |      |     | 95    |      |     | 104  |      |     | 110  |      |     |
| °F     | °F  | TC                         | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI  | TC   | SHC  | PI  | TC   | SHC  | PI  |
| 54     | 64  | 5229                       | 3965 | 290 | 8460  | 7553 | 491 | 7830  | 6972 | 579 | 7380  | 6609 | 639 | 7110  | 6319 | 667 | 6660 | 5955 | 716 | 6390 | 5665 | 744 |
| 57     | 68  | 5229                       | 3965 | 290 | 9090  | 7553 | 491 | 8460  | 7045 | 586 | 7920  | 6609 | 646 | 7650  | 6391 | 674 | 7110 | 5955 | 723 | 6840 | 5738 | 758 |
| 61     | 72  | 5229                       | 4220 | 294 | 9720  | 7553 | 498 | 9000  | 7045 | 593 | 8460  | 6609 | 653 | 8190  | 6391 | 688 | 7650 | 5955 | 737 | 7380 | 5738 | 765 |
| 64     | 77  | 5607                       | 4525 | 299 | 10350 | 8207 | 504 | 9540  | 7626 | 599 | 9000  | 7190 | 660 | 8640  | 6900 | 688 | 8100 | 6464 | 744 | 7740 | 6173 | 771 |
| 66     | 81  | 5796                       | 4677 | 303 | 10710 | 8643 | 511 | 9900  | 7989 | 606 | 9360  | 7553 | 667 | 9000  | 7263 | 695 | 8460 | 6827 | 744 | 8100 | 6537 | 771 |
| 72     | 86  | 6426                       | 4626 | 303 | 11880 | 8570 | 511 | 10980 | 7916 | 606 | 10350 | 7481 | 674 | 9990  | 7190 | 702 | 9000 | 6972 | 771 | 8370 | 6827 | 813 |
| 75     | 90  | 6867                       | 4626 | 308 | 12690 | 8570 | 517 | 11700 | 7916 | 613 | 11070 | 7481 | 674 | 10620 | 7190 | 709 | 9360 | 7118 | 792 | 8550 | 7045 | 841 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |     |      |     |     |      |     |     |      |     |     |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |     | 14   |     |     | 23   |     |     | 32   |     |     | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI  | TC   | SHC | PI  | TC   | SHC | PI  | TC   | SHC | PI  | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 3780                       | 0   | 710 | 5985 | 0   | 730 | 7382 | 0   | 781 | 8988 | 0   | 875 | 10616 | 0   | 886  | 11582 | 0   | 910  | 13367 | 0   | 955  |
|        | 64  | 3728                       | 0   | 720 | 5933 | 0   | 739 | 7308 | 0   | 802 | 8894 | 0   | 897 | 10563 | 0   | 931  | 11540 | 0   | 950  | 13314 | 0   | 1000 |
|        | 68  | 3675                       | 0   | 730 | 5880 | 0   | 749 | 7245 | 0   | 816 | 8820 | 0   | 912 | 10500 | 0   | 960  | 11288 | 0   | 994  | 13230 | 0   | 1046 |
|        | 72  | 3623                       | 0   | 739 | 5828 | 0   | 758 | 7140 | 0   | 837 | 8726 | 0   | 934 | 10437 | 0   | 998  | 11414 | 0   | 1030 | 13167 | 0   | 1090 |
|        | 75  | 3570                       | 0   | 749 | 5775 | 0   | 768 | 7077 | 0   | 857 | 8652 | 0   | 956 | 10374 | 0   | 1037 | 11351 | 0   | 1069 | 12978 | 0   | 1134 |

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

## 3.1.4. RAS-EH12RHLAE/ RAC-EH12WHLAE

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |      |     |       |      |     |       |      |      |       |      |      |       |      |      |       |      |      |
|--------|-----|----------------------------|------|-----|-------|------|-----|-------|------|-----|-------|------|------|-------|------|------|-------|------|------|-------|------|------|
| EWB    | EDB | 14                         |      |     | 70    |      |     | 81    |      |     | 90    |      |      | 95    |      |      | 104   |      |      | 110   |      |      |
| °F     | °F  | TC                         | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI  | TC    | SHC  | PI   | TC    | SHC  | PI   | TC    | SHC  | PI   | TC    | SHC  | PI   |
| 54     | 64  | 4450                       | 3243 | 322 | 8880  | 7618 | 673 | 8219  | 7032 | 793 | 9840  | 8467 | 1113 | 9480  | 8095 | 1162 | 8880  | 7630 | 1246 | 8520  | 7258 | 1295 |
| 57     | 68  | 4450                       | 3243 | 322 | 9541  | 7618 | 673 | 8880  | 7105 | 803 | 10560 | 8467 | 1125 | 10200 | 8188 | 1174 | 9480  | 7630 | 1258 | 9120  | 7351 | 1319 |
| 61     | 72  | 4450                       | 3451 | 327 | 10203 | 7618 | 682 | 9447  | 7105 | 812 | 11280 | 8467 | 1137 | 10920 | 8188 | 1198 | 10200 | 7630 | 1283 | 9840  | 7351 | 1331 |
| 64     | 77  | 4772                       | 3700 | 332 | 10864 | 8277 | 691 | 10014 | 7691 | 821 | 12000 | 9211 | 1150 | 11520 | 8839 | 1198 | 10800 | 8281 | 1295 | 10320 | 7909 | 1343 |
| 66     | 81  | 4933                       | 3825 | 337 | 11242 | 8717 | 700 | 10391 | 8057 | 831 | 12480 | 9677 | 1162 | 12000 | 9305 | 1210 | 11280 | 8746 | 1295 | 10800 | 8374 | 1343 |
| 72     | 86  | 5469                       | 3783 | 337 | 12470 | 8643 | 700 | 11525 | 7984 | 831 | 13800 | 9584 | 1174 | 13320 | 9211 | 1222 | 12000 | 8932 | 1343 | 11160 | 8746 | 1416 |
| 75     | 90  | 5844                       | 3783 | 342 | 13320 | 8643 | 709 | 12281 | 7984 | 840 | 14760 | 9584 | 1174 | 14160 | 9211 | 1234 | 12480 | 9118 | 1379 | 11400 | 9025 | 1464 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |     |      |     |     |      |     |      |       |     |      |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|-----|------|-----|-----|------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |     | 14   |     |     | 23   |     |      | 32    |     |      | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI  | TC   | SHC | PI  | TC   | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 4680                       | 0   | 903 | 7410 | 0   | 927 | 9139 | 0   | 993  | 11128 | 0   | 1111 | 13143 | 0   | 1126 | 14339 | 0   | 1157 | 16549 | 0   | 1214 |
|        | 64  | 4615                       | 0   | 915 | 7345 | 0   | 939 | 9048 | 0   | 1019 | 11011 | 0   | 1139 | 13078 | 0   | 1183 | 14287 | 0   | 1208 | 16484 | 0   | 1271 |
|        | 68  | 4550                       | 0   | 927 | 7280 | 0   | 952 | 8970 | 0   | 1037 | 10920 | 0   | 1159 | 13000 | 0   | 1220 | 13975 | 0   | 1263 | 16380 | 0   | 1330 |
|        | 72  | 4485                       | 0   | 939 | 7215 | 0   | 964 | 8840 | 0   | 1064 | 10803 | 0   | 1187 | 12922 | 0   | 1269 | 14131 | 0   | 1309 | 16302 | 0   | 1385 |
|        | 75  | 4420                       | 0   | 952 | 7150 | 0   | 976 | 8762 | 0   | 1089 | 10712 | 0   | 1215 | 12844 | 0   | 1318 | 14053 | 0   | 1359 | 16068 | 0   | 1441 |

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

## 3.1.5. RAS-EH18RHLAE/ RAC-EH18WHLAE

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |      |      |       |      |      |       |       |      |       |       |      |       |       |      |       |       |      |
|--------|-----|----------------------------|------|-----|-------|------|------|-------|------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| EWB    | EDB | 14                         |      |     | 70    |      |      | 81    |      |      | 90    |       |      | 95    |       |      | 104   |       |      | 110   |       |      |
| °F     | °F  | TC                         | SHC  | PI  | TC    | SHC  | PI   | TC    | SHC  | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   |
| 54     | 64  | 5729                       | 3548 | 457 | 11840 | 8634 | 991  | 10959 | 7970 | 1168 | 14432 | 10556 | 1803 | 13904 | 10092 | 1882 | 13024 | 9512  | 2019 | 12496 | 9048  | 2097 |
| 57     | 68  | 5729                       | 3548 | 457 | 12722 | 8634 | 991  | 11840 | 8053 | 1182 | 15488 | 10556 | 1823 | 14960 | 10208 | 1901 | 13904 | 9512  | 2038 | 13376 | 9164  | 2136 |
| 61     | 72  | 5729                       | 3776 | 465 | 13604 | 8634 | 1005 | 12596 | 8053 | 1196 | 16544 | 10556 | 1842 | 16016 | 10208 | 1940 | 14960 | 9512  | 2078 | 14432 | 9164  | 2156 |
| 64     | 77  | 6143                       | 4049 | 472 | 14485 | 9382 | 1018 | 13352 | 8717 | 1210 | 17600 | 11484 | 1862 | 16896 | 11020 | 1940 | 15840 | 10324 | 2097 | 15136 | 9860  | 2176 |
| 66     | 81  | 6350                       | 4185 | 479 | 14989 | 9880 | 1031 | 13856 | 9133 | 1223 | 18304 | 12064 | 1882 | 17600 | 11600 | 1960 | 16544 | 10904 | 2097 | 15840 | 10440 | 2176 |
| 72     | 86  | 7040                       | 4140 | 479 | 16627 | 9797 | 1031 | 15367 | 9049 | 1223 | 20240 | 11948 | 1901 | 19536 | 11484 | 1980 | 17600 | 11136 | 2176 | 16368 | 10904 | 2293 |
| 75     | 90  | 7523                       | 4140 | 486 | 17760 | 9797 | 1044 | 16375 | 9049 | 1237 | 21648 | 11948 | 1901 | 20768 | 11484 | 1999 | 18304 | 11368 | 2234 | 16720 | 11252 | 2372 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |      | 14    |     |      | 23    |     |      | 32    |     |      | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 6840                       | 0   | 1428 | 10830 | 0   | 1467 | 13357 | 0   | 1571 | 16264 | 0   | 1758 | 19209 | 0   | 1781 | 20957 | 0   | 1830 | 24187 | 0   | 1920 |
|        | 64  | 6745                       | 0   | 1448 | 10735 | 0   | 1486 | 13224 | 0   | 1612 | 16093 | 0   | 1803 | 19114 | 0   | 1872 | 20881 | 0   | 1911 | 24092 | 0   | 2011 |
|        | 68  | 6650                       | 0   | 1467 | 10640 | 0   | 1505 | 13110 | 0   | 1641 | 15960 | 0   | 1834 | 19000 | 0   | 1930 | 20425 | 0   | 1998 | 23940 | 0   | 2104 |
|        | 72  | 6555                       | 0   | 1486 | 10545 | 0   | 1525 | 12920 | 0   | 1683 | 15789 | 0   | 1878 | 18886 | 0   | 2007 | 20653 | 0   | 2071 | 23826 | 0   | 2191 |
|        | 75  | 6460                       | 0   | 1505 | 10450 | 0   | 1544 | 12806 | 0   | 1723 | 15656 | 0   | 1922 | 18772 | 0   | 2084 | 20539 | 0   | 2150 | 23484 | 0   | 2279 |

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



## 3.1.6. RAS-EH24RHLAE/ RAC-EH24WHLAE

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |      |     |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |
|--------|-----|----------------------------|------|-----|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| EWB    | EDB | 14                         |      |     | 70    |       |      | 81    |       |      | 90    |       |      | 95    |       |      | 104   |       |      | 110   |       |      |
| °F     | °F  | TC                         | SHC  | PI  | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   |
| 54     | 64  | 8853                       | 5727 | 635 | 19051 | 14508 | 1432 | 17632 | 13392 | 1688 | 19680 | 15033 | 2207 | 18960 | 14372 | 2303 | 17760 | 13546 | 2471 | 17040 | 12886 | 2567 |
| 57     | 68  | 8853                       | 5727 | 635 | 20469 | 14508 | 1432 | 19051 | 13532 | 1707 | 21120 | 15033 | 2231 | 20400 | 14537 | 2327 | 18960 | 13546 | 2495 | 18240 | 13051 | 2615 |
| 61     | 72  | 8853                       | 6094 | 645 | 21888 | 14508 | 1451 | 20267 | 13532 | 1727 | 22560 | 15033 | 2255 | 21840 | 14537 | 2375 | 20400 | 13546 | 2543 | 19680 | 13051 | 2639 |
| 64     | 77  | 9493                       | 6535 | 654 | 23307 | 15764 | 1470 | 21483 | 14648 | 1747 | 24000 | 16355 | 2279 | 23040 | 15694 | 2375 | 21600 | 14703 | 2567 | 20640 | 14042 | 2663 |
| 66     | 81  | 9813                       | 6755 | 664 | 24117 | 16601 | 1488 | 22293 | 15345 | 1767 | 24960 | 17181 | 2303 | 24000 | 16520 | 2399 | 22560 | 15529 | 2567 | 21600 | 14868 | 2663 |
| 72     | 86  | 10880                      | 6681 | 664 | 26752 | 16461 | 1488 | 24725 | 15206 | 1767 | 27600 | 17015 | 2327 | 26640 | 16355 | 2423 | 24000 | 15859 | 2663 | 22320 | 15529 | 2807 |
| 75     | 90  | 11627                      | 6681 | 674 | 28576 | 16461 | 1507 | 26347 | 15206 | 1787 | 29520 | 17015 | 2327 | 28320 | 16355 | 2447 | 24960 | 16189 | 2735 | 22800 | 16024 | 2903 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |      | 14    |     |      | 23    |     |      | 32    |     |      | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 9000                       | 0   | 1635 | 14250 | 0   | 1680 | 17575 | 0   | 1799 | 21400 | 0   | 2013 | 25275 | 0   | 2040 | 27575 | 0   | 2095 | 31825 | 0   | 2199 |
|        | 64  | 8875                       | 0   | 1658 | 14125 | 0   | 1702 | 17400 | 0   | 1845 | 21175 | 0   | 2064 | 25150 | 0   | 2144 | 27475 | 0   | 2188 | 31700 | 0   | 2303 |
|        | 68  | 8750                       | 0   | 1680 | 14000 | 0   | 1724 | 17250 | 0   | 1879 | 21000 | 0   | 2100 | 25000 | 0   | 2210 | 26875 | 0   | 2287 | 31500 | 0   | 2409 |
|        | 72  | 8625                       | 0   | 1702 | 13875 | 0   | 1746 | 17000 | 0   | 1927 | 20775 | 0   | 2150 | 24850 | 0   | 2298 | 27175 | 0   | 2371 | 31350 | 0   | 2508 |
|        | 75  | 8500                       | 0   | 1724 | 13750 | 0   | 1768 | 16850 | 0   | 1974 | 20600 | 0   | 2201 | 24700 | 0   | 2387 | 27025 | 0   | 2462 | 30900 | 0   | 2610 |

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

## 3.1.7. RAS-EH36RHLAE/ RAC-EH36WHLAE

**COOLING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |       |      |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |       |       |      |
|--------|-----|----------------------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| EWB    | EDB | 14                         |       |      | 70    |       |      | 81    |       |      | 90    |       |      | 95    |       |      | 104   |       |      | 110   |       |      |
| °F     | °F  | TC                         | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   | TC    | SHC   | PI   |
| 54     | 64  | 15802                      | 9452  | 1322 | 14019 | 9872  | 1230 | 12975 | 9112  | 1449 | 27060 | 19114 | 3542 | 26070 | 18273 | 3696 | 24420 | 17223 | 3966 | 23430 | 16383 | 4120 |
| 57     | 68  | 15802                      | 9452  | 1322 | 15063 | 9872  | 1230 | 14019 | 9207  | 1466 | 29040 | 19114 | 3581 | 28050 | 18483 | 3735 | 26070 | 17223 | 4004 | 25080 | 16593 | 4197 |
| 61     | 72  | 15802                      | 10058 | 1343 | 16107 | 9872  | 1246 | 14913 | 9207  | 1483 | 31020 | 19114 | 3619 | 30030 | 18483 | 3812 | 28050 | 17223 | 4081 | 27060 | 16593 | 4235 |
| 64     | 77  | 16944                      | 10785 | 1363 | 17150 | 10726 | 1262 | 15808 | 9967  | 1500 | 33000 | 20794 | 3658 | 31680 | 19954 | 3812 | 29700 | 18693 | 4120 | 28380 | 17853 | 4274 |
| 66     | 81  | 17515                      | 11148 | 1384 | 17747 | 11296 | 1278 | 16405 | 10441 | 1518 | 34320 | 21844 | 3696 | 33000 | 21004 | 3850 | 31020 | 19744 | 4120 | 29700 | 18904 | 4274 |
| 72     | 86  | 19419                      | 11027 | 1384 | 19686 | 11201 | 1278 | 18194 | 10346 | 1518 | 37950 | 21634 | 3735 | 36630 | 20794 | 3889 | 33000 | 20164 | 4274 | 30690 | 19744 | 4505 |
| 75     | 90  | 20752                      | 11027 | 1405 | 21028 | 11201 | 1294 | 19388 | 10346 | 1535 | 40590 | 21634 | 3735 | 38940 | 20794 | 3927 | 34320 | 20584 | 4389 | 31350 | 20374 | 4659 |

**HEATING [60Hz, 230V]**

| INDOOR |     | OUTDOOR TEMPERATURE (°FDB) |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |       |     |      |
|--------|-----|----------------------------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|-------|-----|------|
|        | EDB | 5                          |     |      | 14    |     |      | 23    |     |      | 32    |     |      | 47    |     |      | 50    |     |      | 59    |     |      |
|        | °F  | TC                         | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   | TC    | SHC | PI   |
|        | 61  | 12960                      | 0   | 2960 | 20520 | 0   | 3040 | 25308 | 0   | 3256 | 30816 | 0   | 3644 | 36396 | 0   | 3692 | 39708 | 0   | 3792 | 45828 | 0   | 3980 |
|        | 64  | 12780                      | 0   | 3000 | 20340 | 0   | 3080 | 25056 | 0   | 3340 | 30492 | 0   | 3736 | 36216 | 0   | 3880 | 39564 | 0   | 3960 | 45648 | 0   | 4168 |
|        | 68  | 12600                      | 0   | 3040 | 20160 | 0   | 3120 | 24840 | 0   | 3400 | 30240 | 0   | 3800 | 36000 | 0   | 4000 | 38700 | 0   | 4140 | 45360 | 0   | 4360 |
|        | 72  | 12420                      | 0   | 3080 | 19980 | 0   | 3160 | 24480 | 0   | 3488 | 29916 | 0   | 3892 | 35784 | 0   | 4160 | 39132 | 0   | 4292 | 45144 | 0   | 4540 |
|        | 75  | 12240                      | 0   | 3120 | 19800 | 0   | 3200 | 24264 | 0   | 3572 | 29664 | 0   | 3984 | 35568 | 0   | 4320 | 38916 | 0   | 4456 | 44496 | 0   | 4724 |

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

### 3.2. 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)

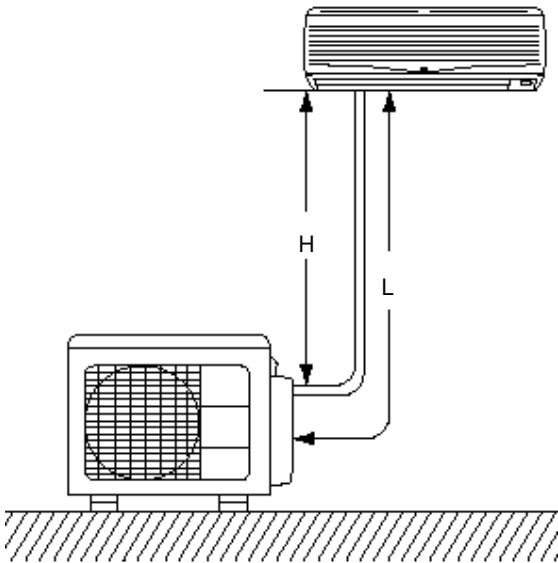
HC: Heating Capacity in the Performance Table (kcal/h)

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 1.64ft (0.5m)
- One 180° Curve is 4.92ft (1.5m)

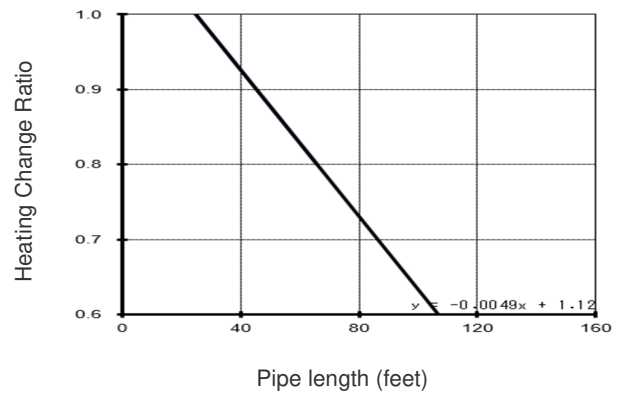
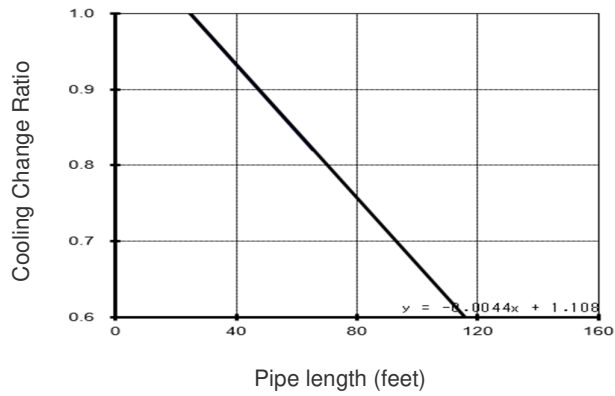


H: Vertical Distance Between Indoor Unit and Outdoor Units in feet

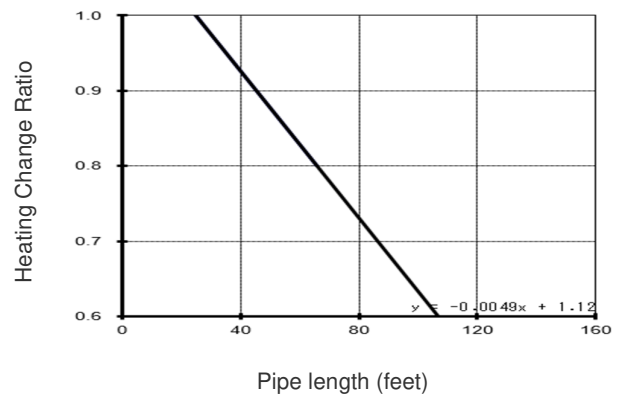
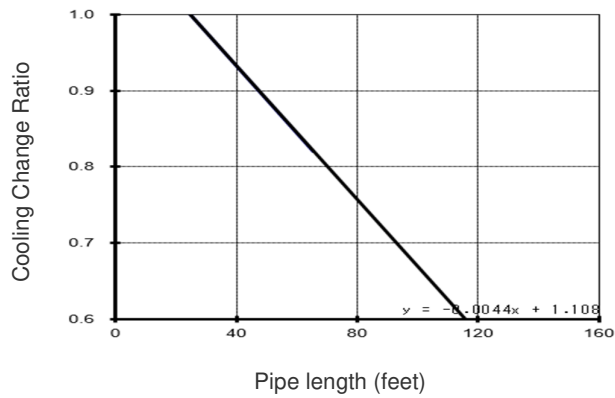
L: Actual One-Way Piping Length Between Indoor Unit and Outdoor Unit in feet

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

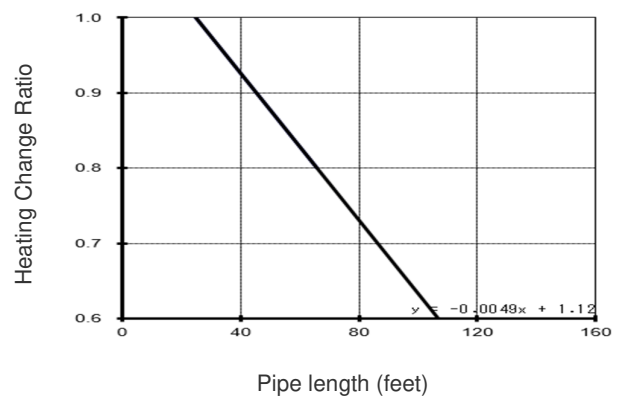
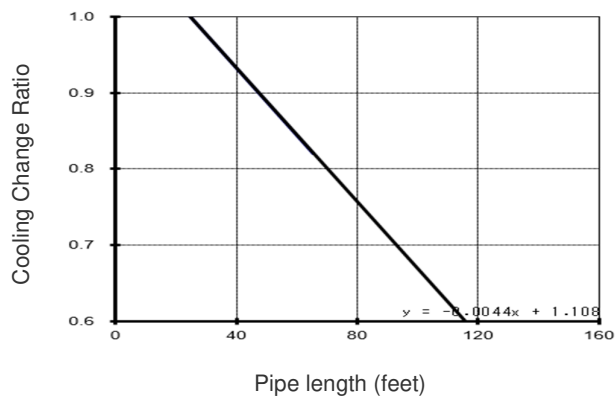
Models : RAC-EH09WHLAB



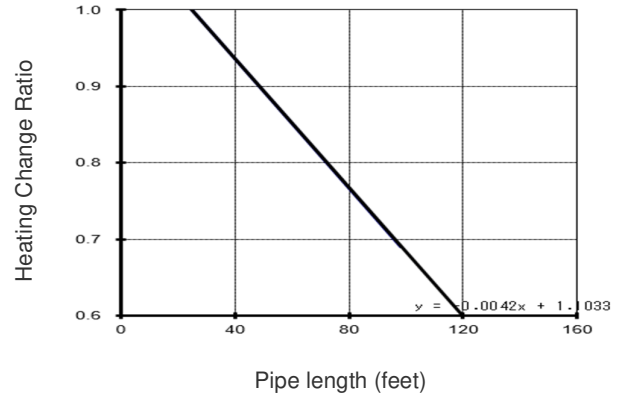
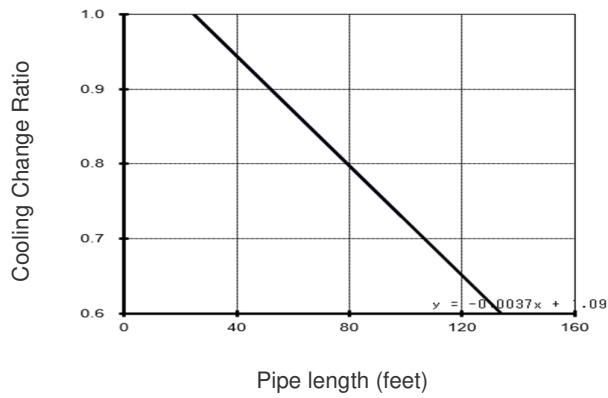
Models : RAC-EH12WHLAB



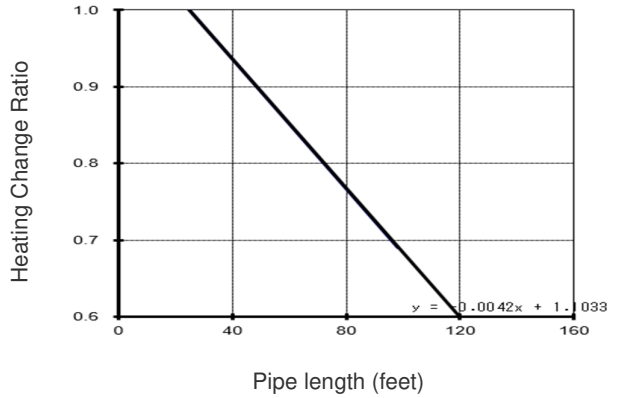
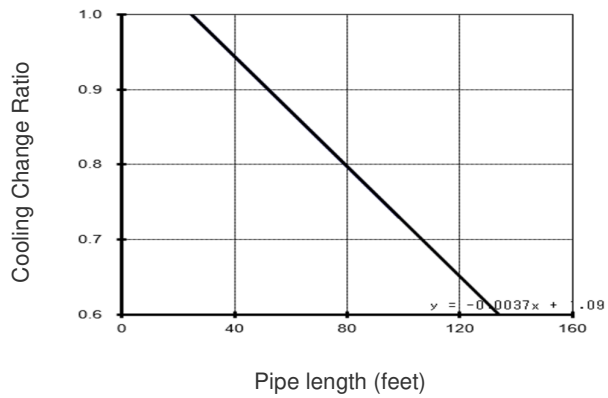
Models : RAC-EH09WHLAE



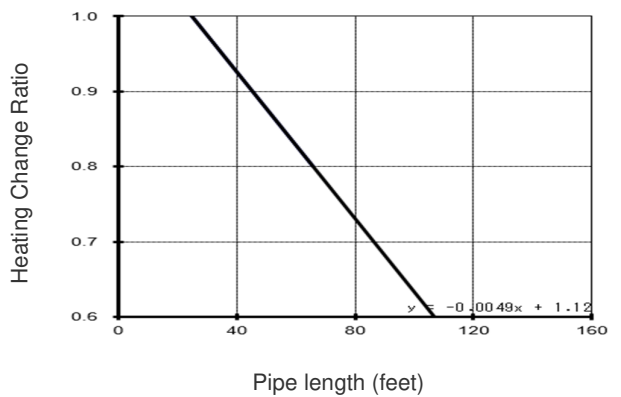
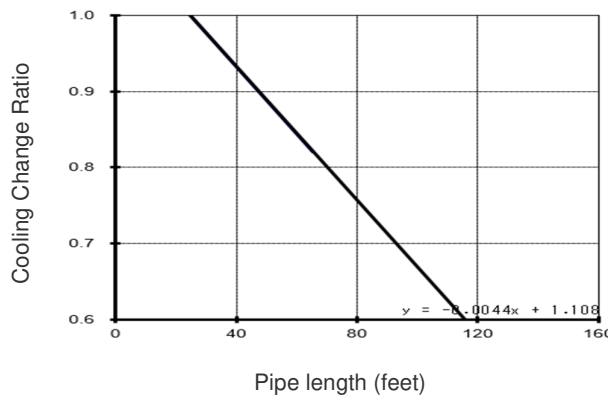
Models : RAC-EH12WHLAE



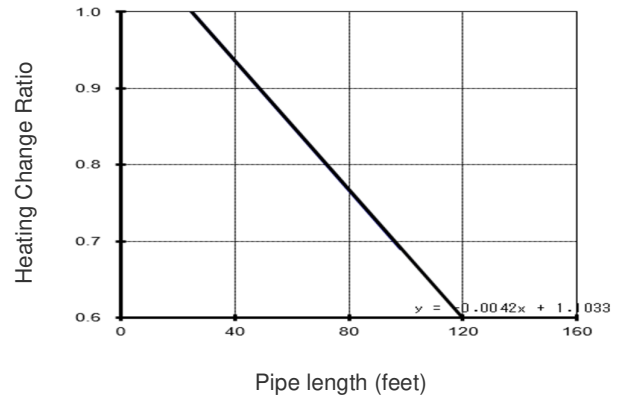
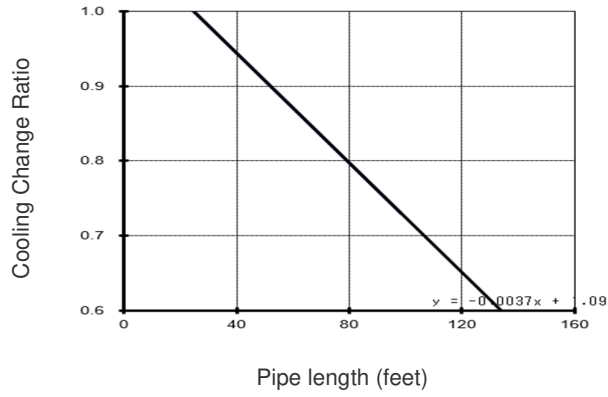
Models : RAC-EH18WHLAE



Models : RAC-EH24WHLAE



Models : RAC-EH36WHLAE



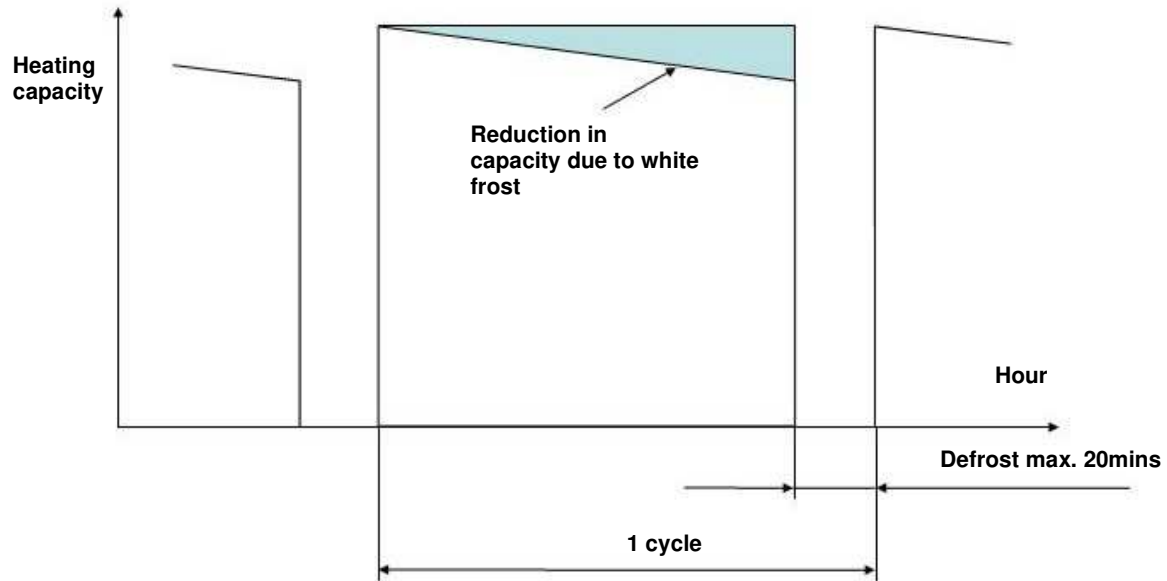
### 3.3. CORRECTION FACTORS ACCORDING TO DEFROSTING OPERATION

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 (°FDB)               | 5    | 14   | 19.4 | 23   | 32   | 44.6 | 50  | 59  |
| Correction factor (humidity rate 85% RH) | 0.95 | 0.95 | 0.89 | 0.85 | 0.81 | 1.0  | 1.0 | 1.0 |

Correction Factor

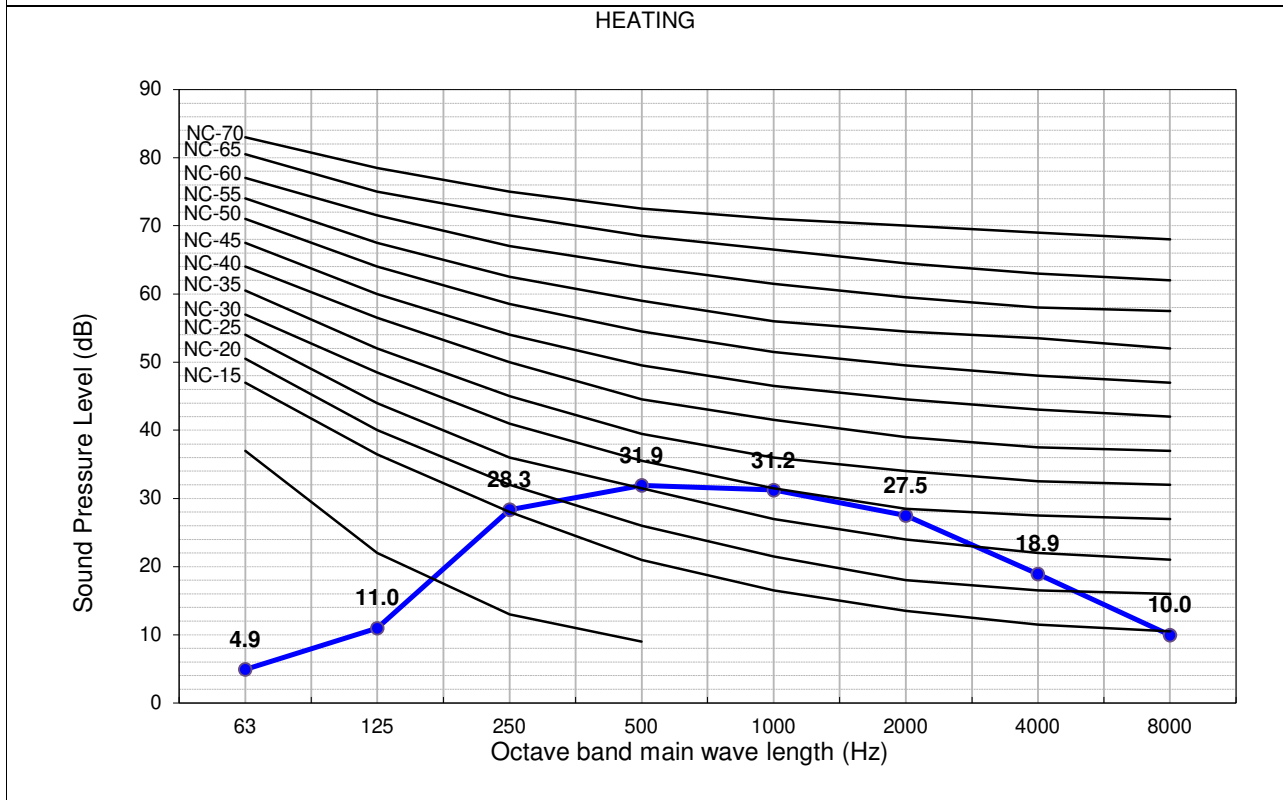
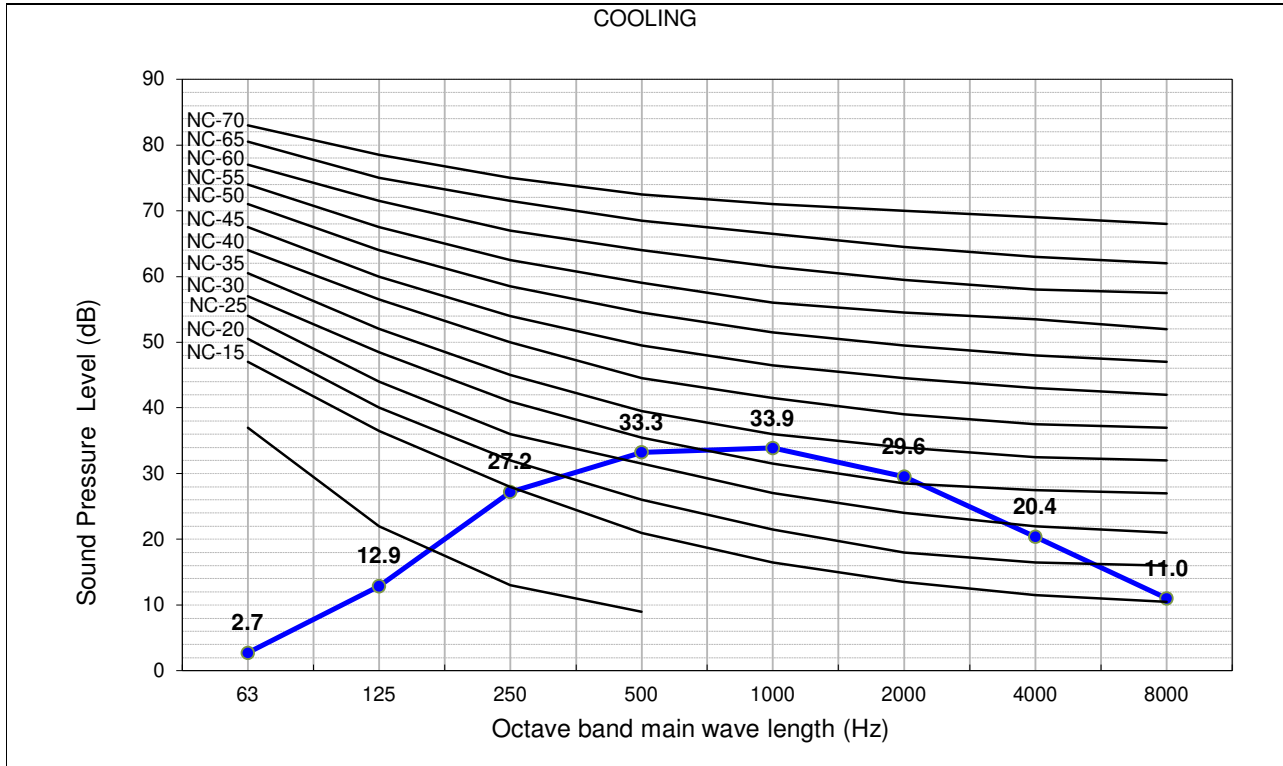


**NOTE:**

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

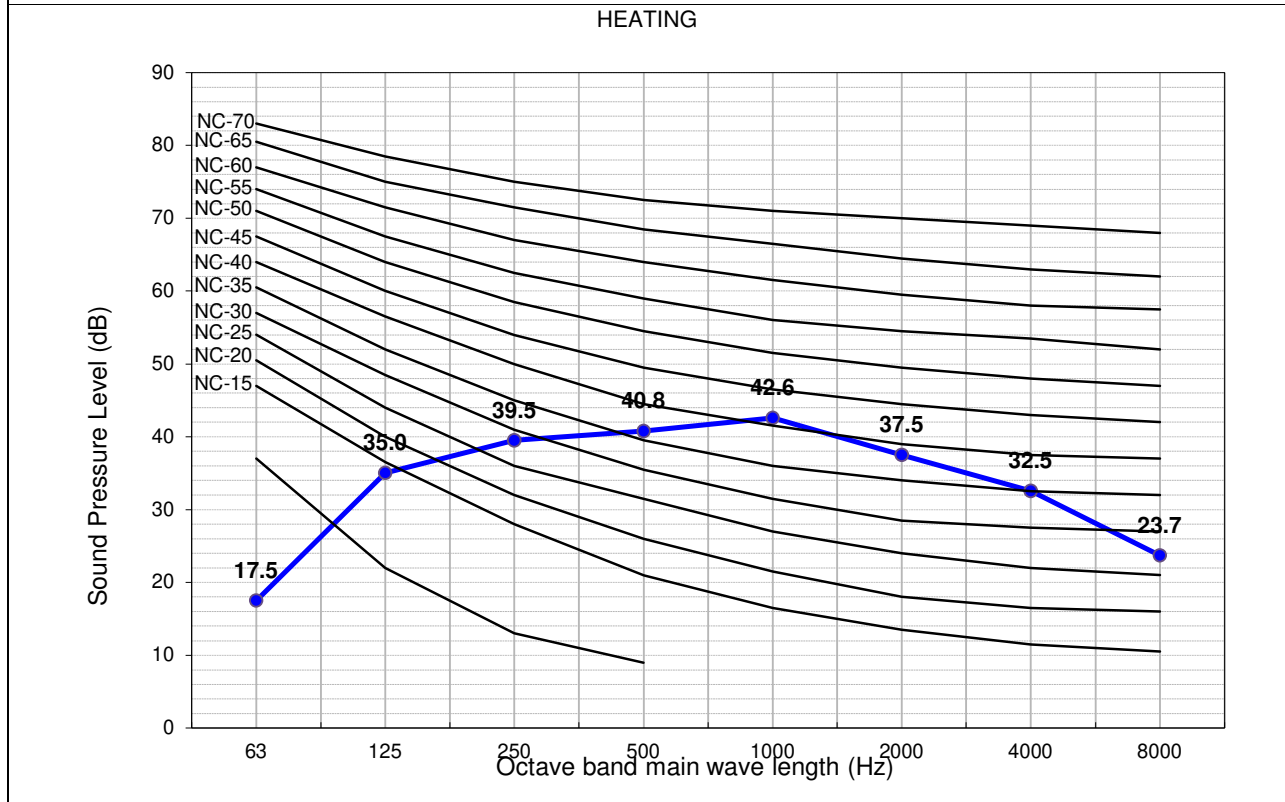
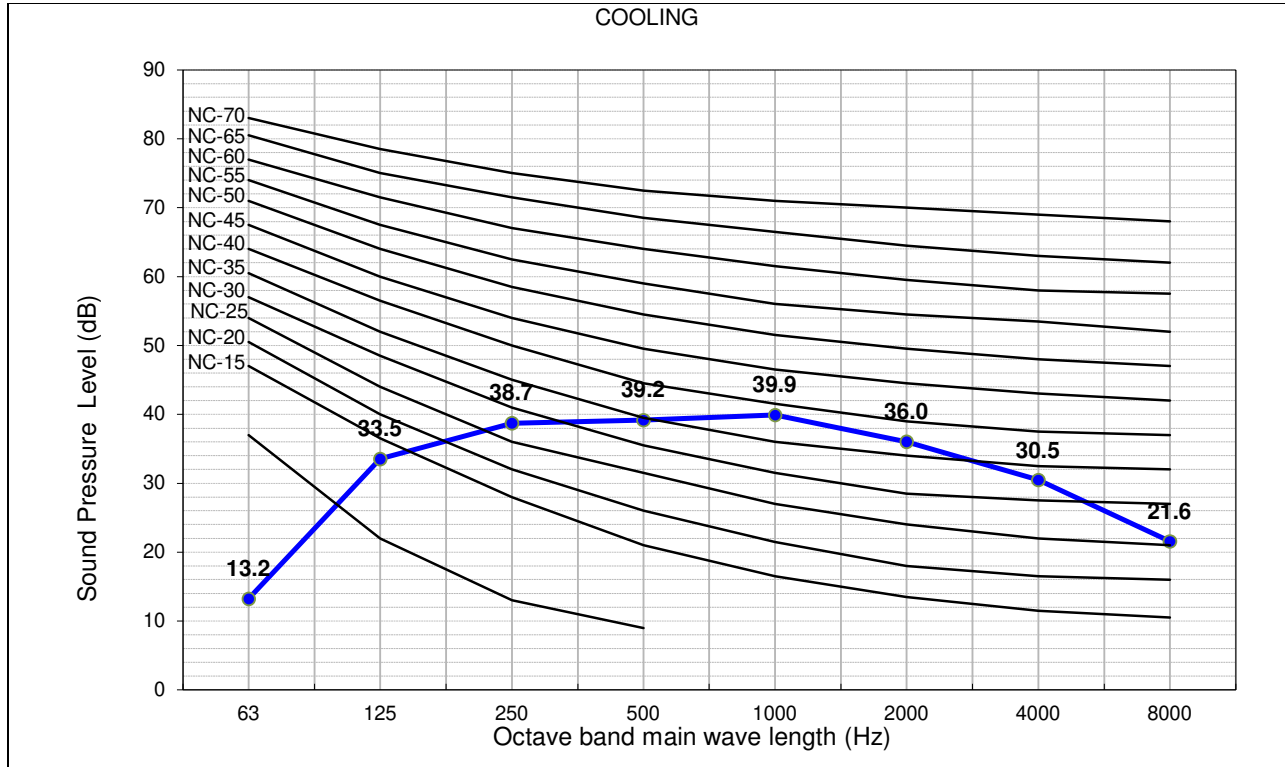
## 4 SOUND DATA

### 4.1. RAS-EH09PHLAB

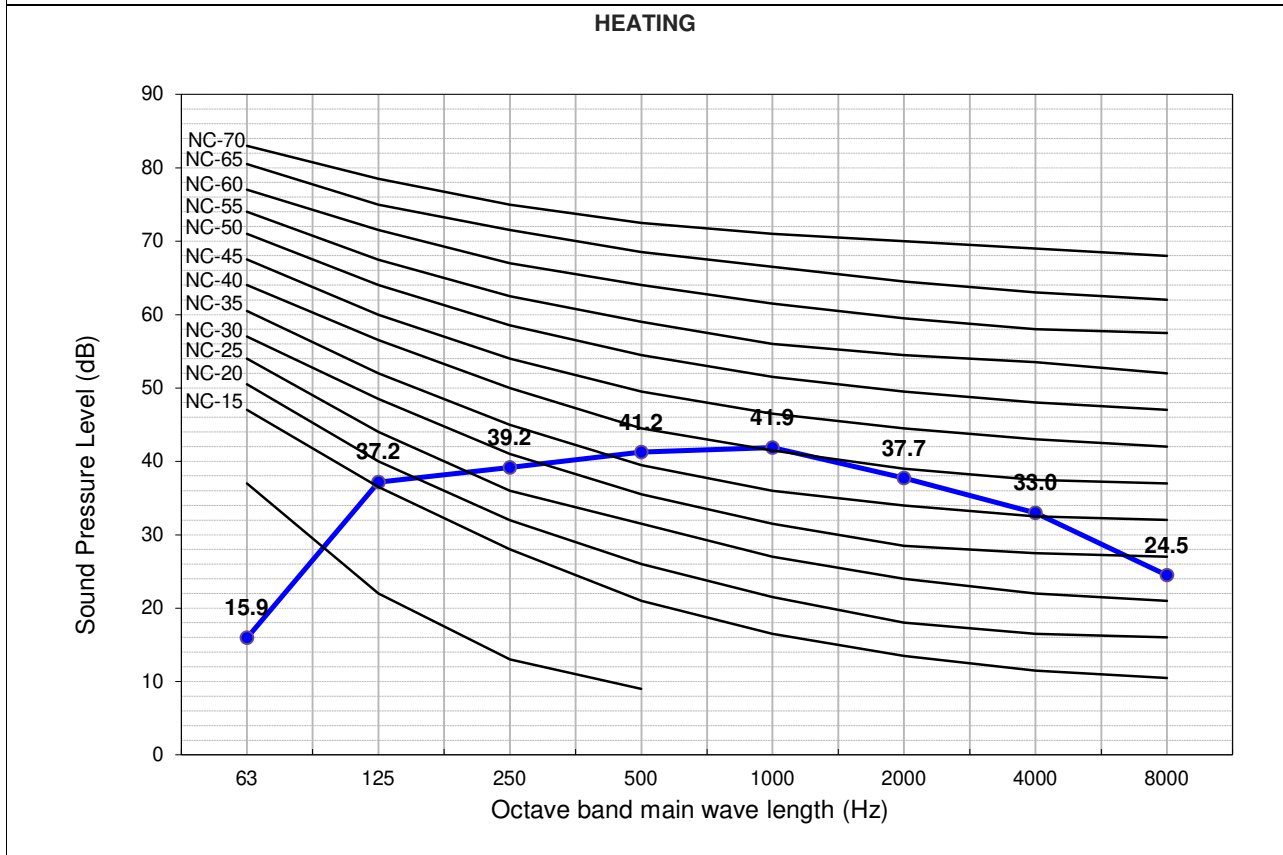
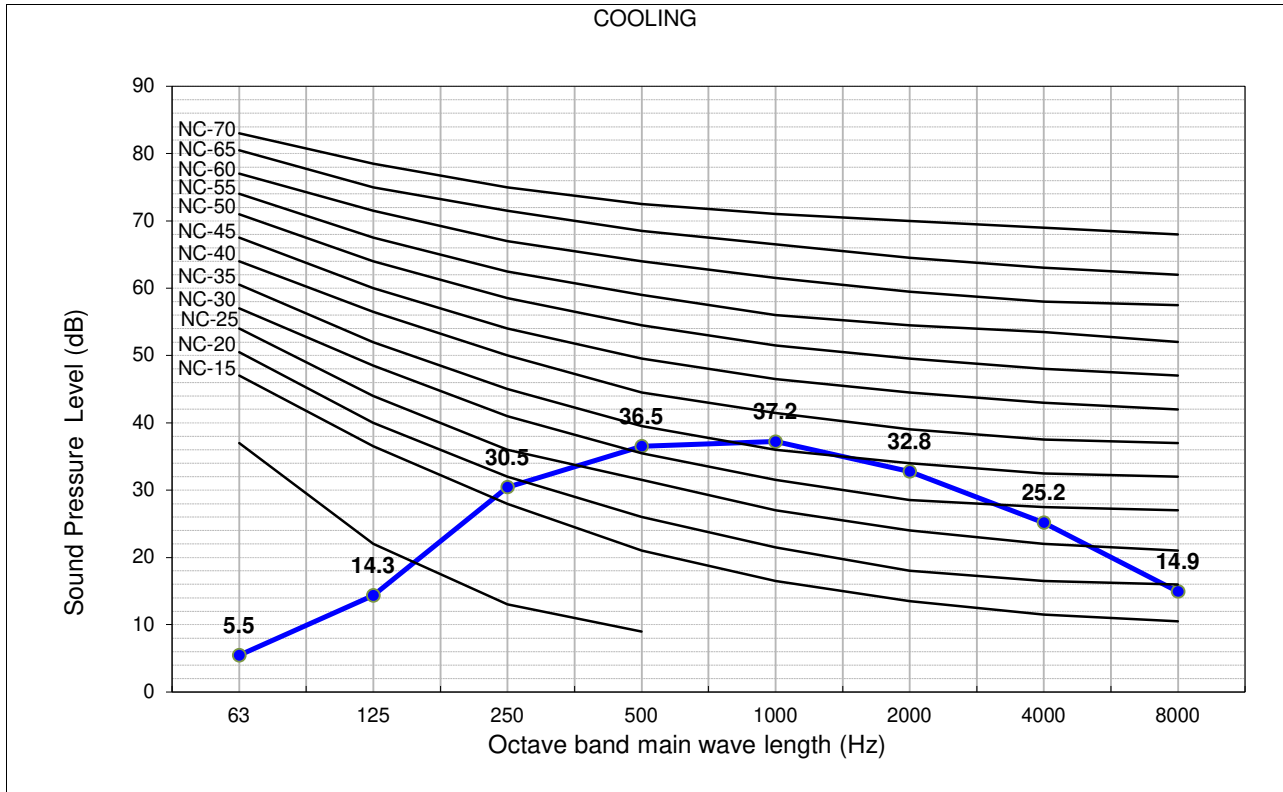




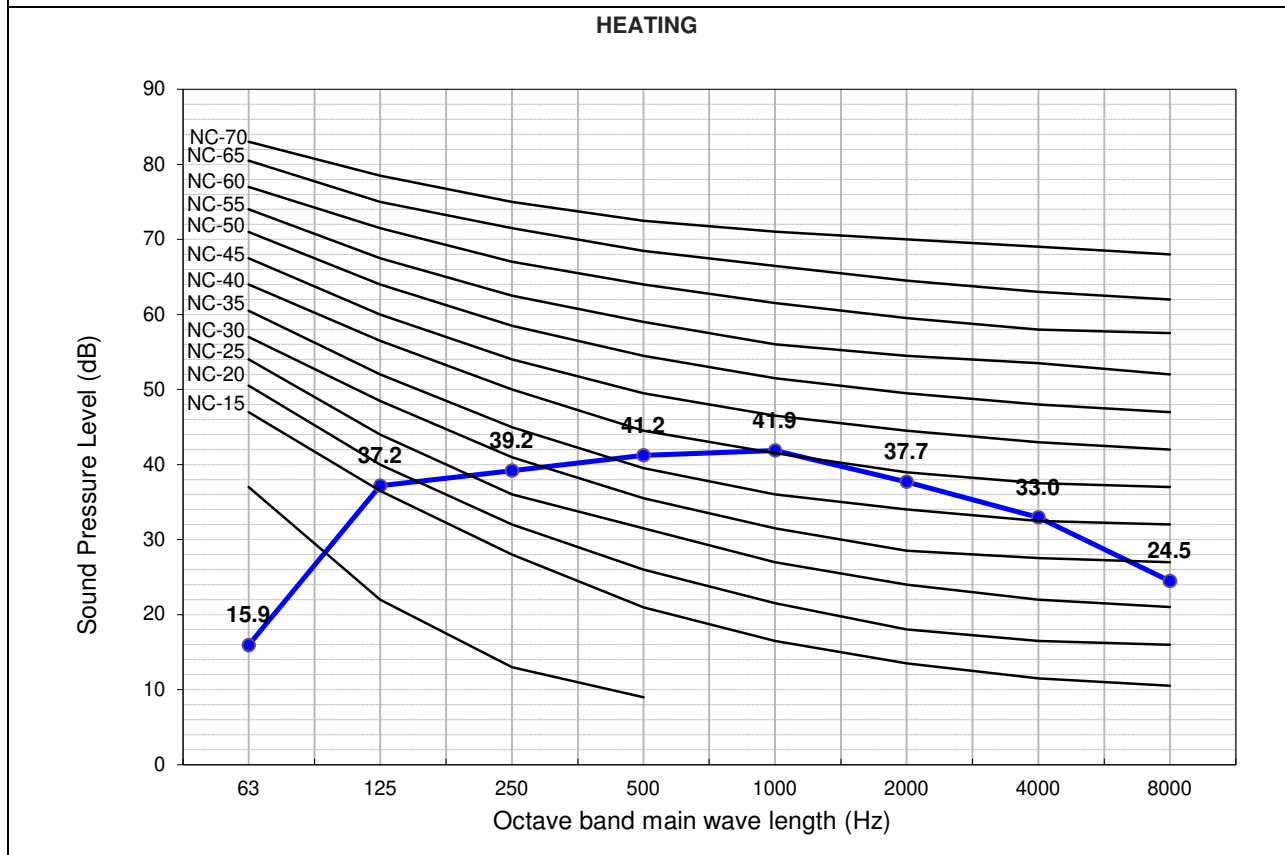
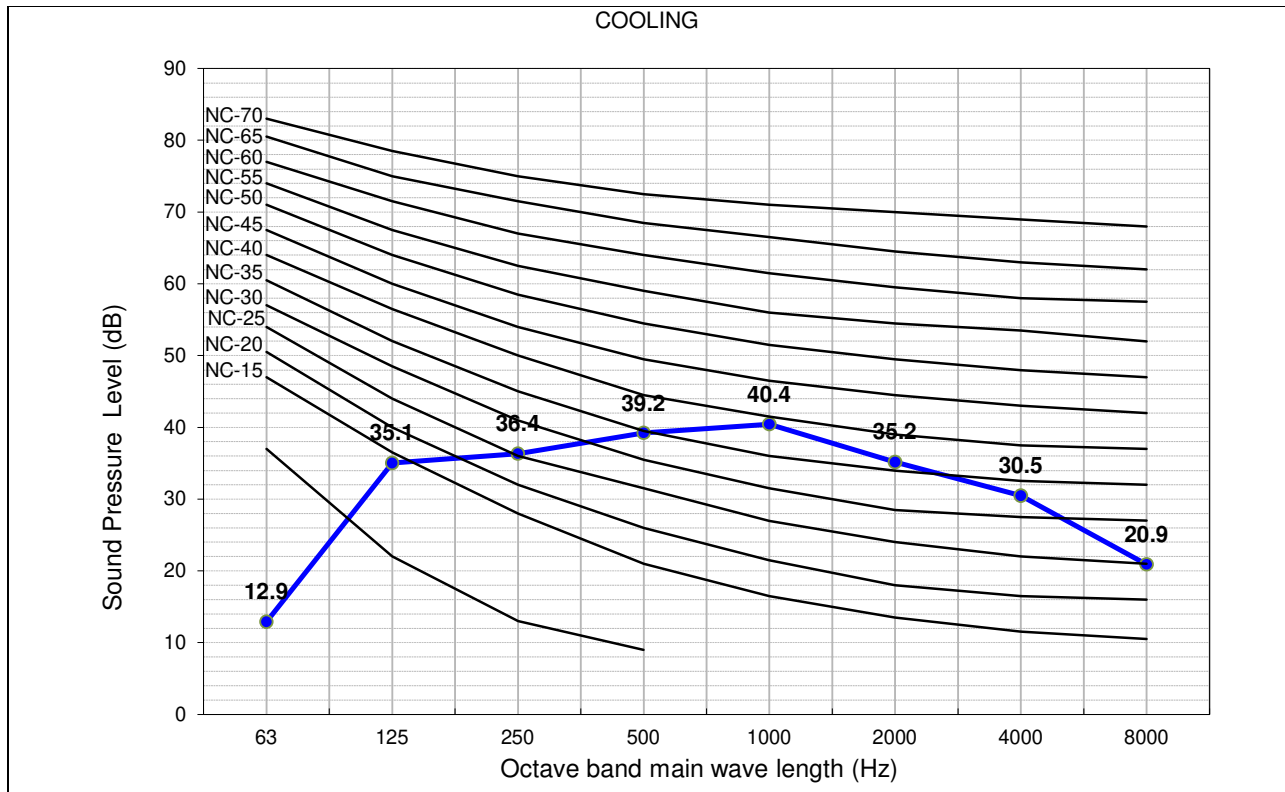
4.2. RAC-EH09WHLAB



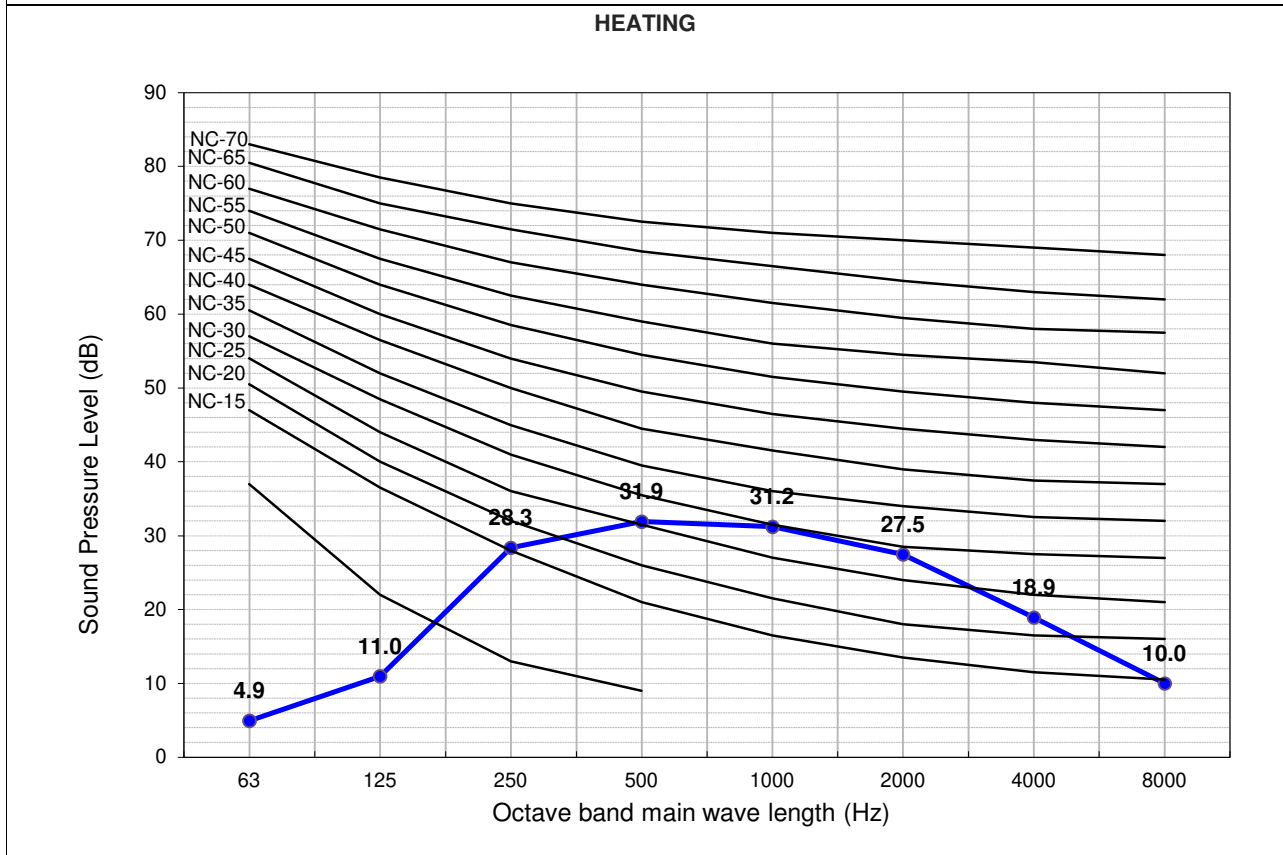
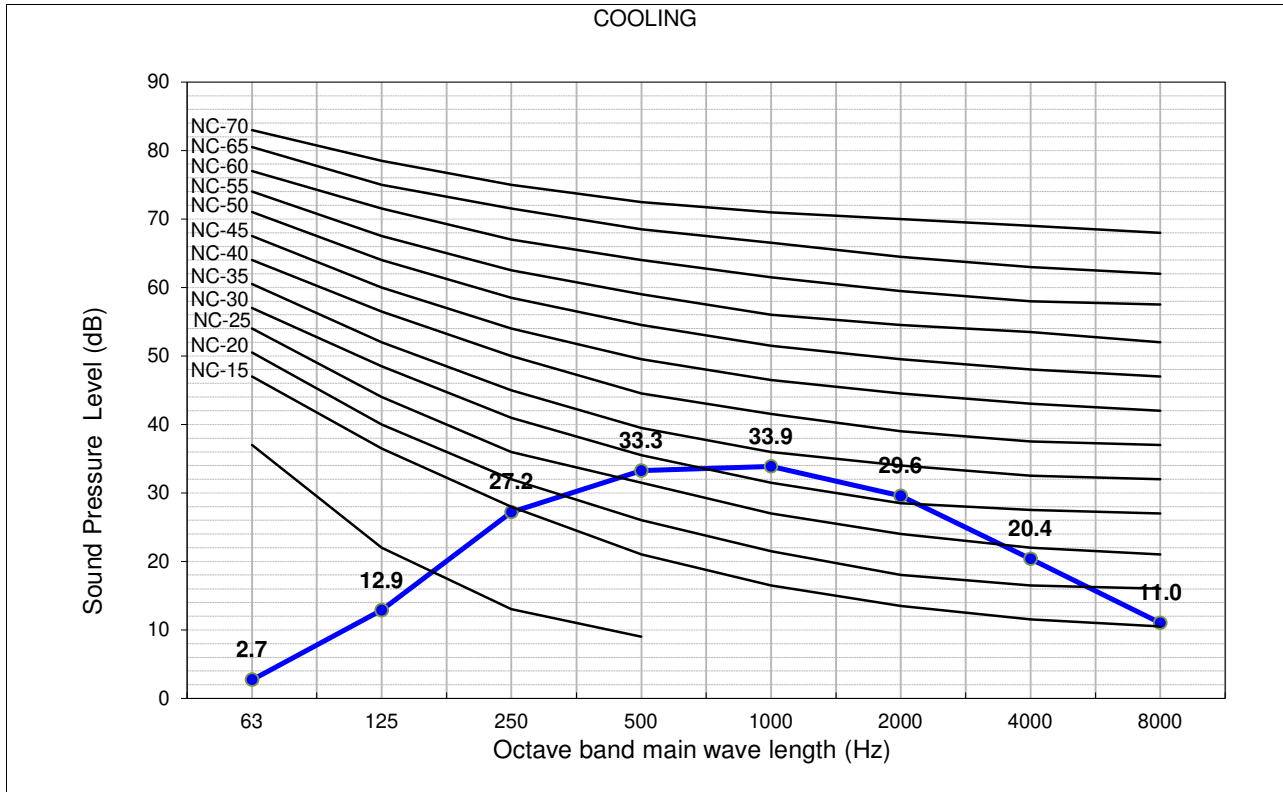
4.3. RAS-EH12PHLAB



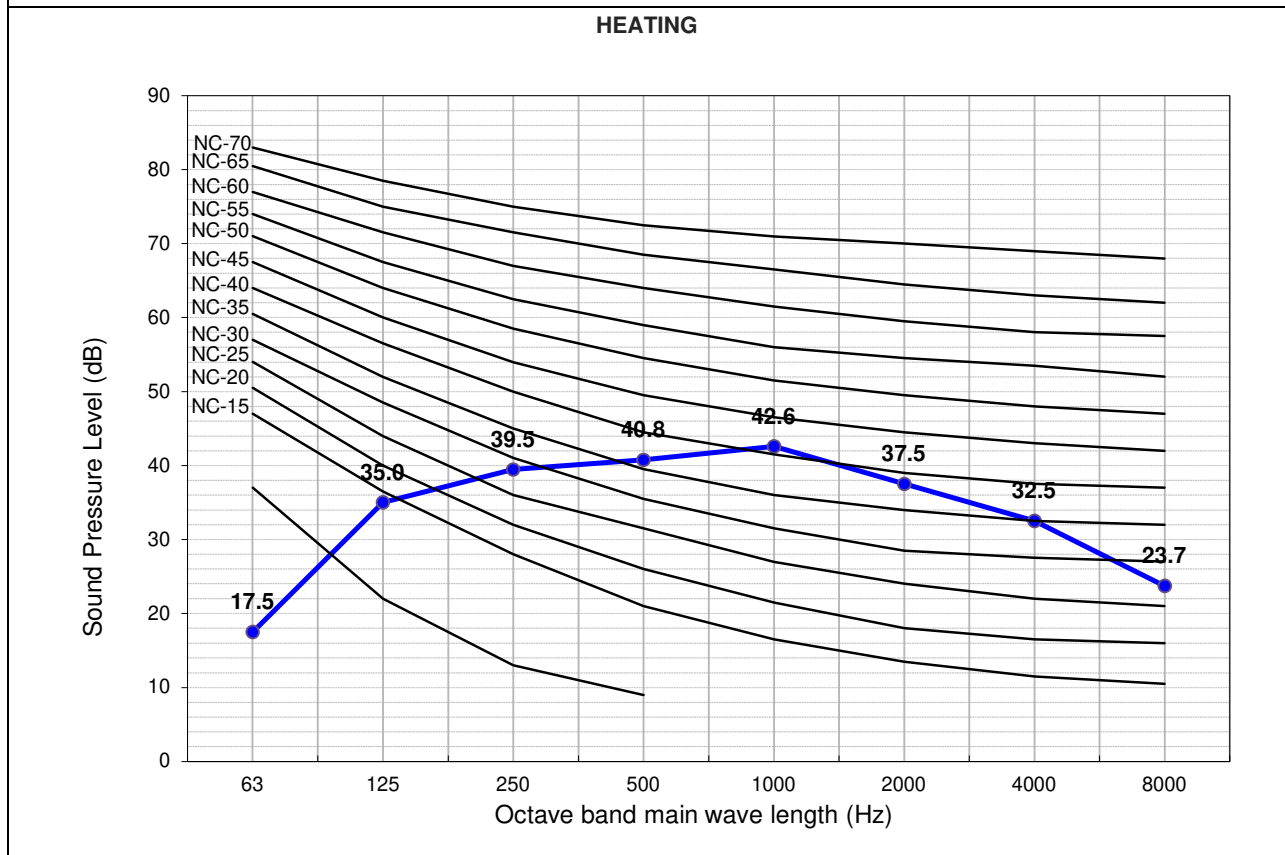
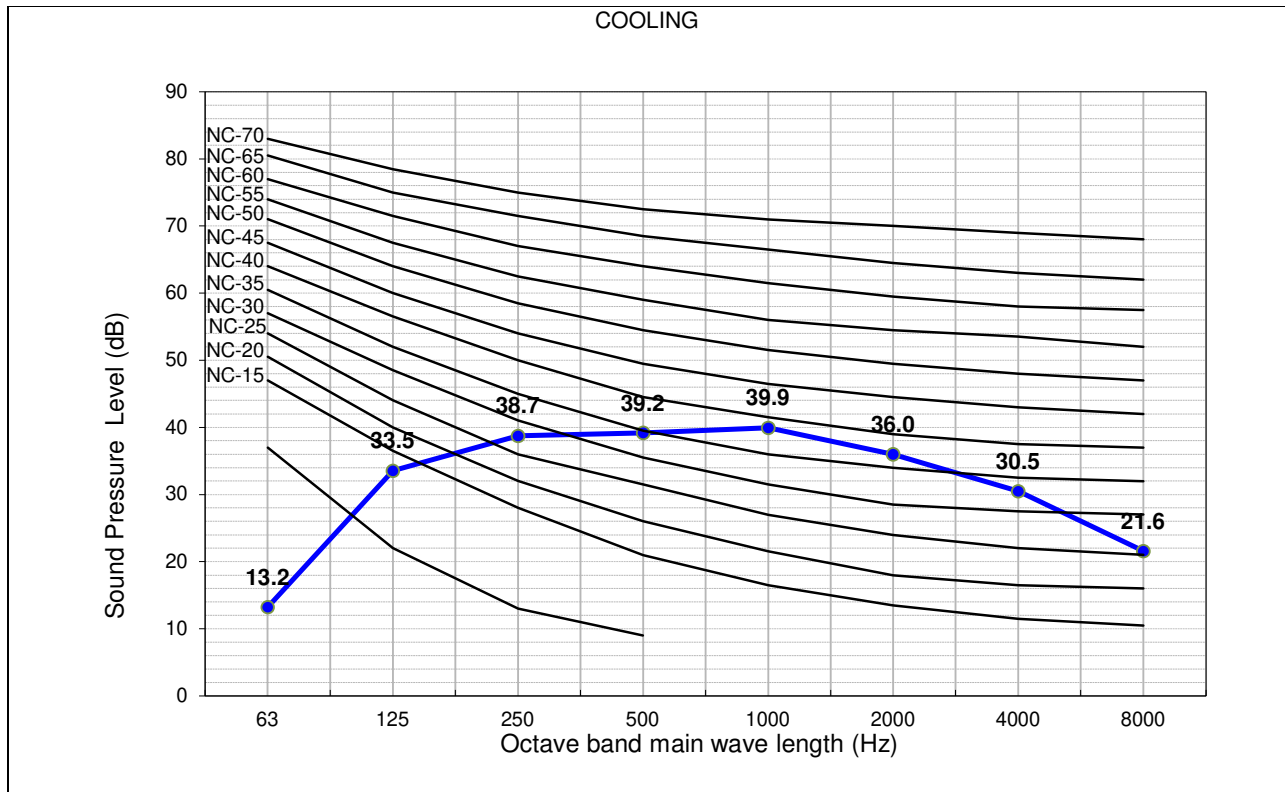
4.4. RAC-EH12WHLAB



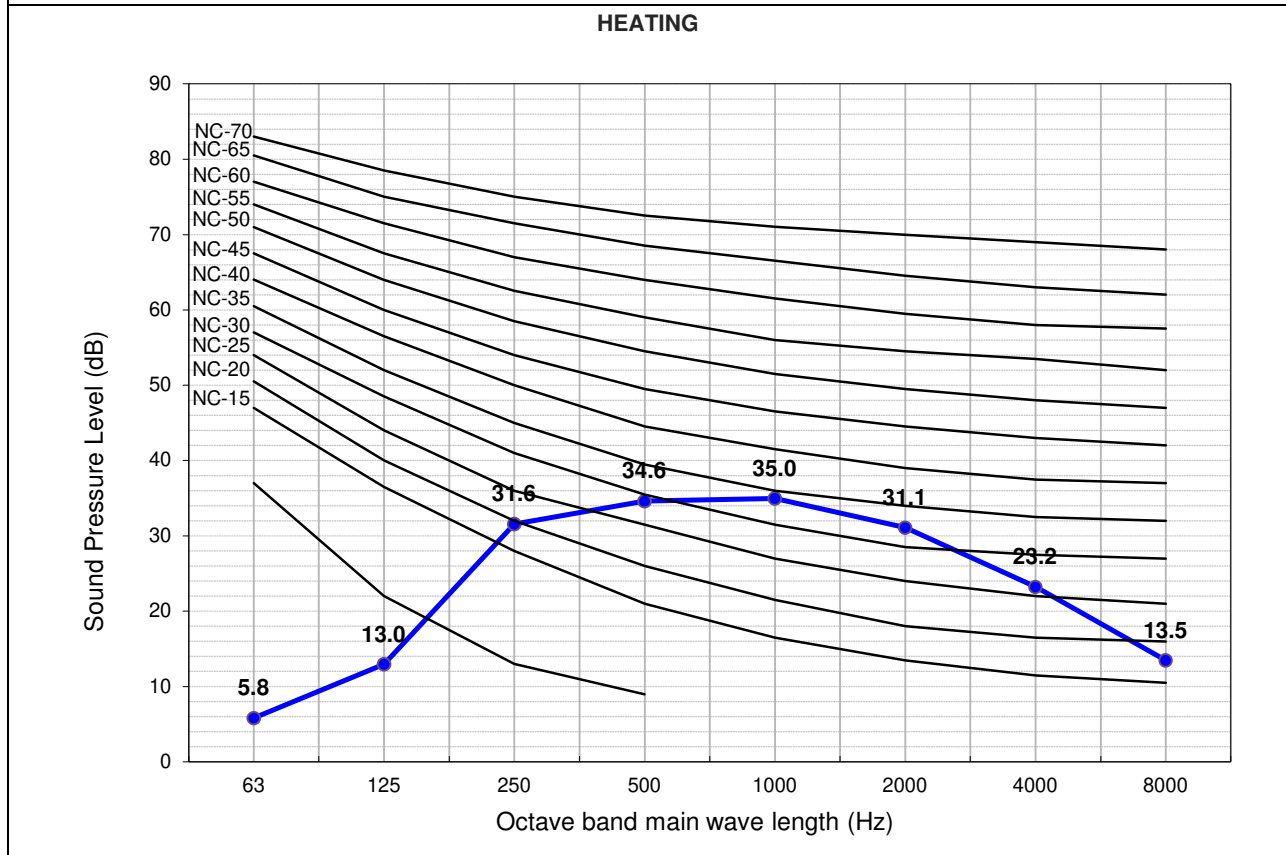
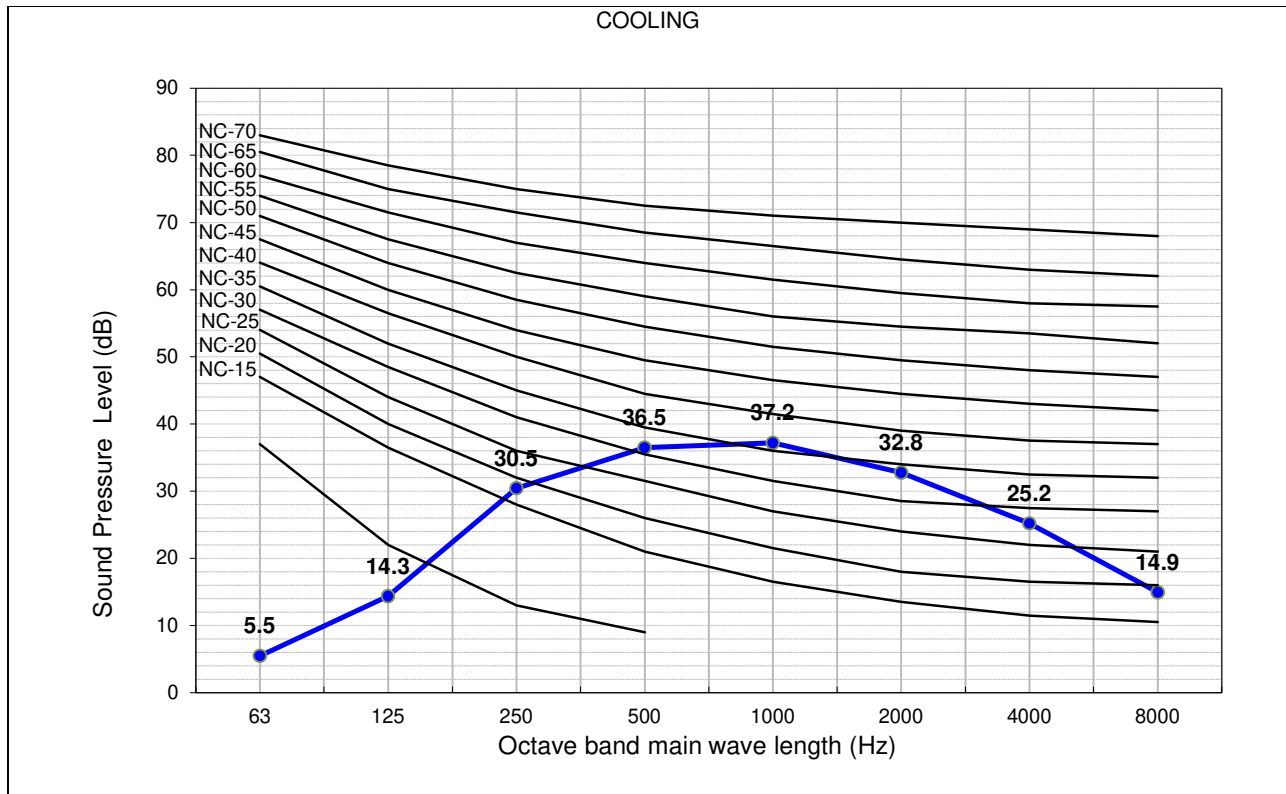
4.5. RAS-EH09RHLAE



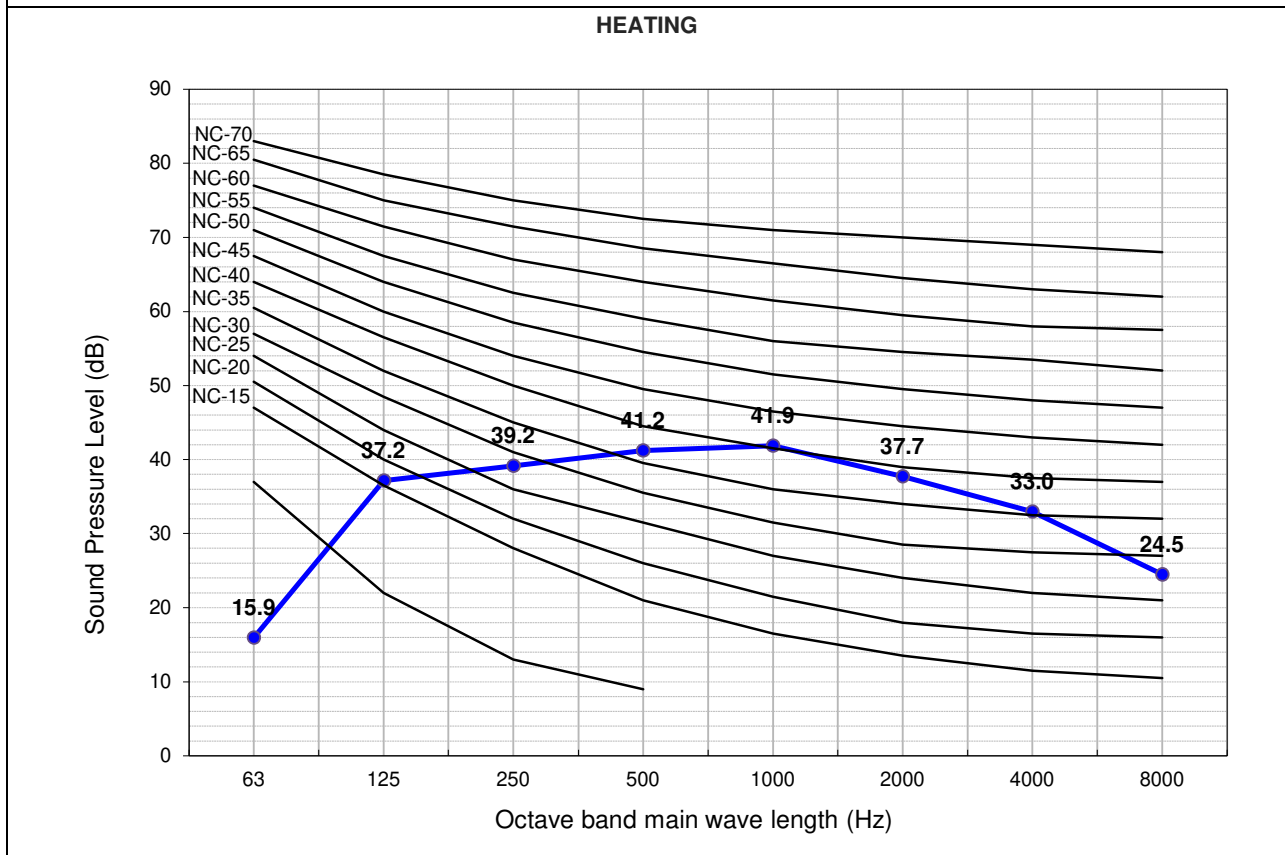
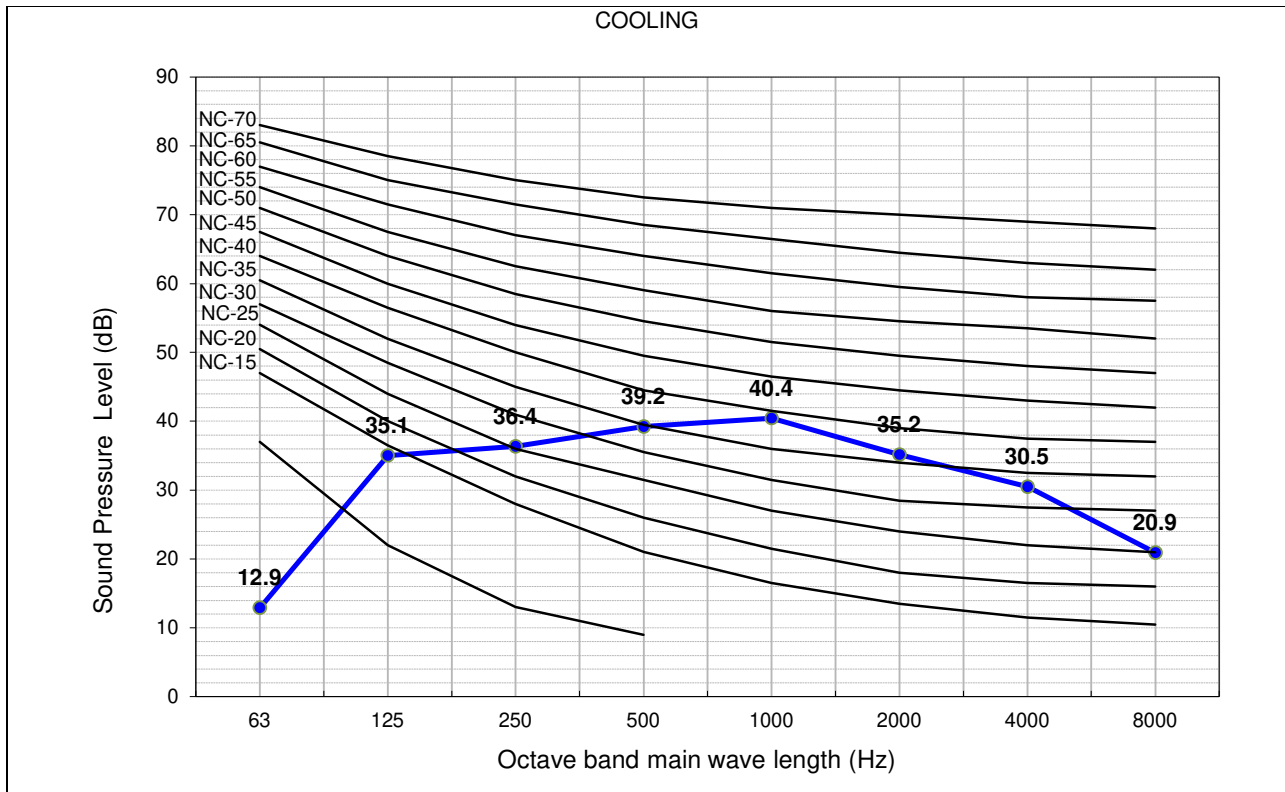
4.6. RAC-EH09WHLAE



4.7. RAS-EH12RHLAE

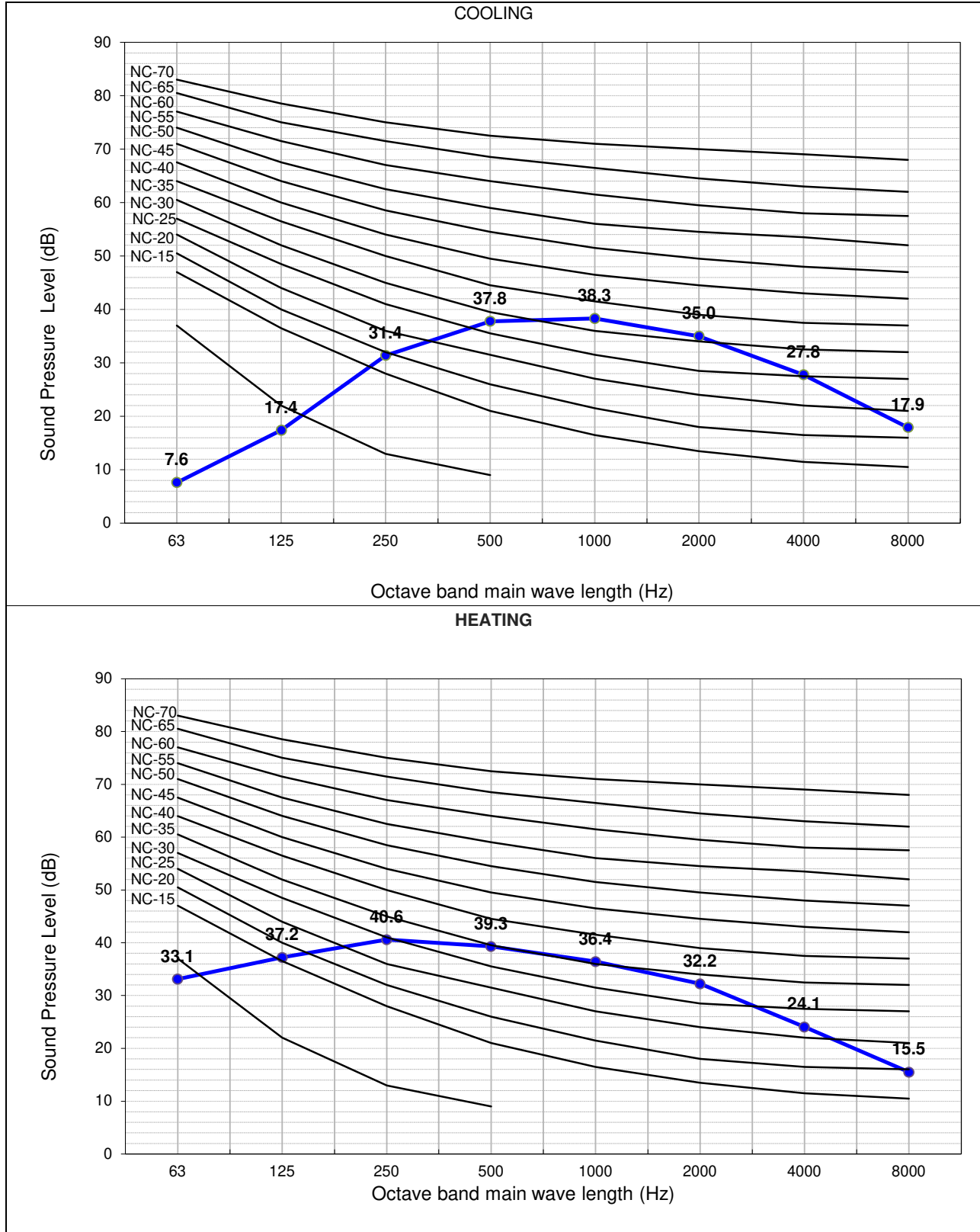


4.8. RAC-EH12WHLAE



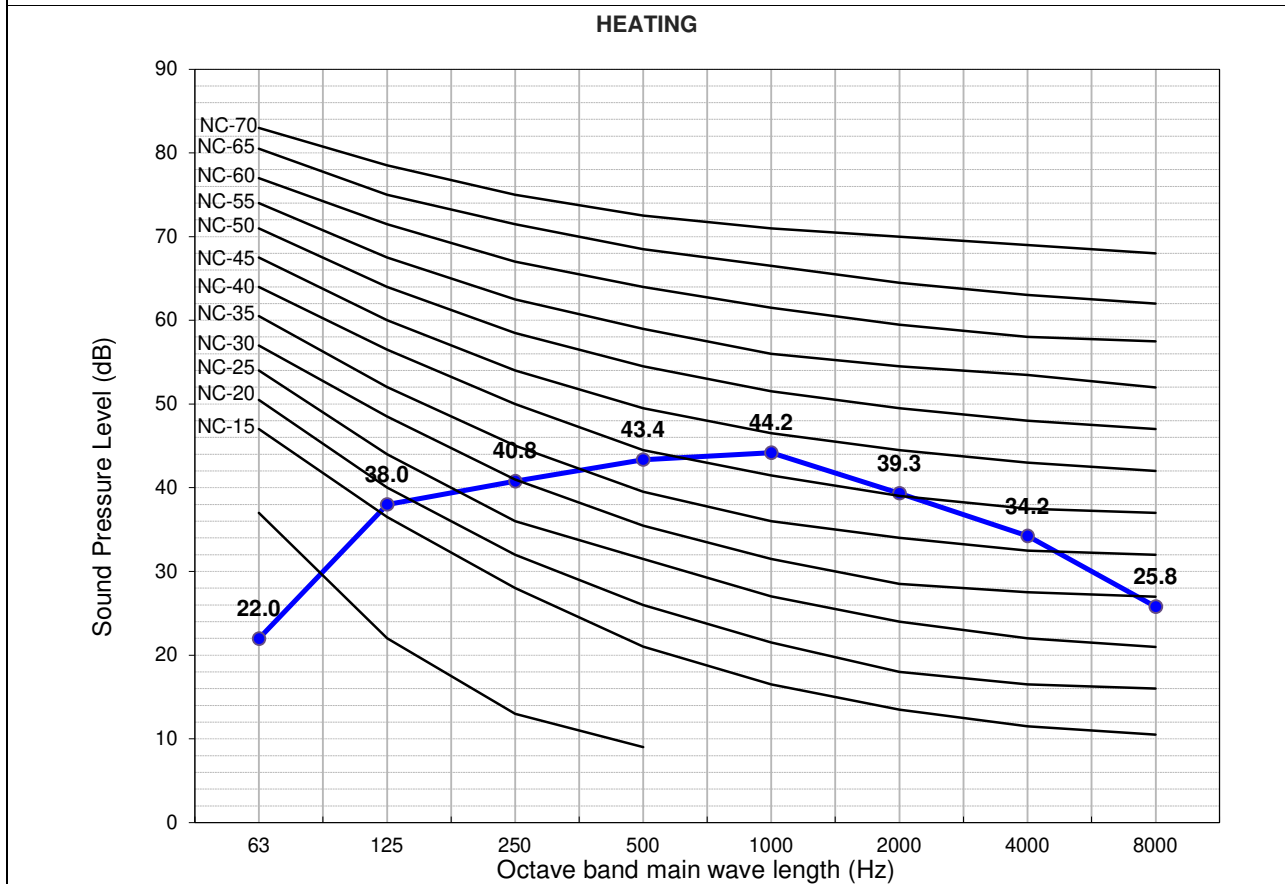
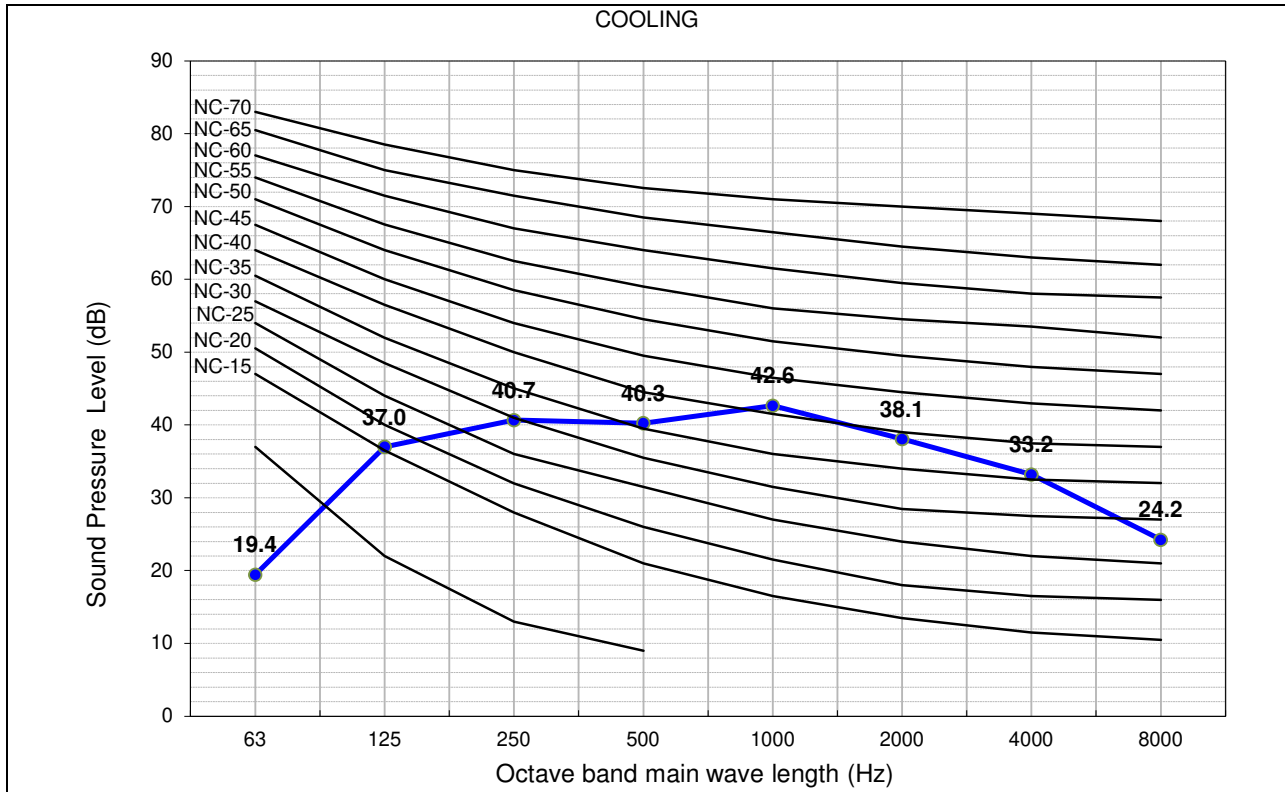


4.9. RAS-EH18RHLAE

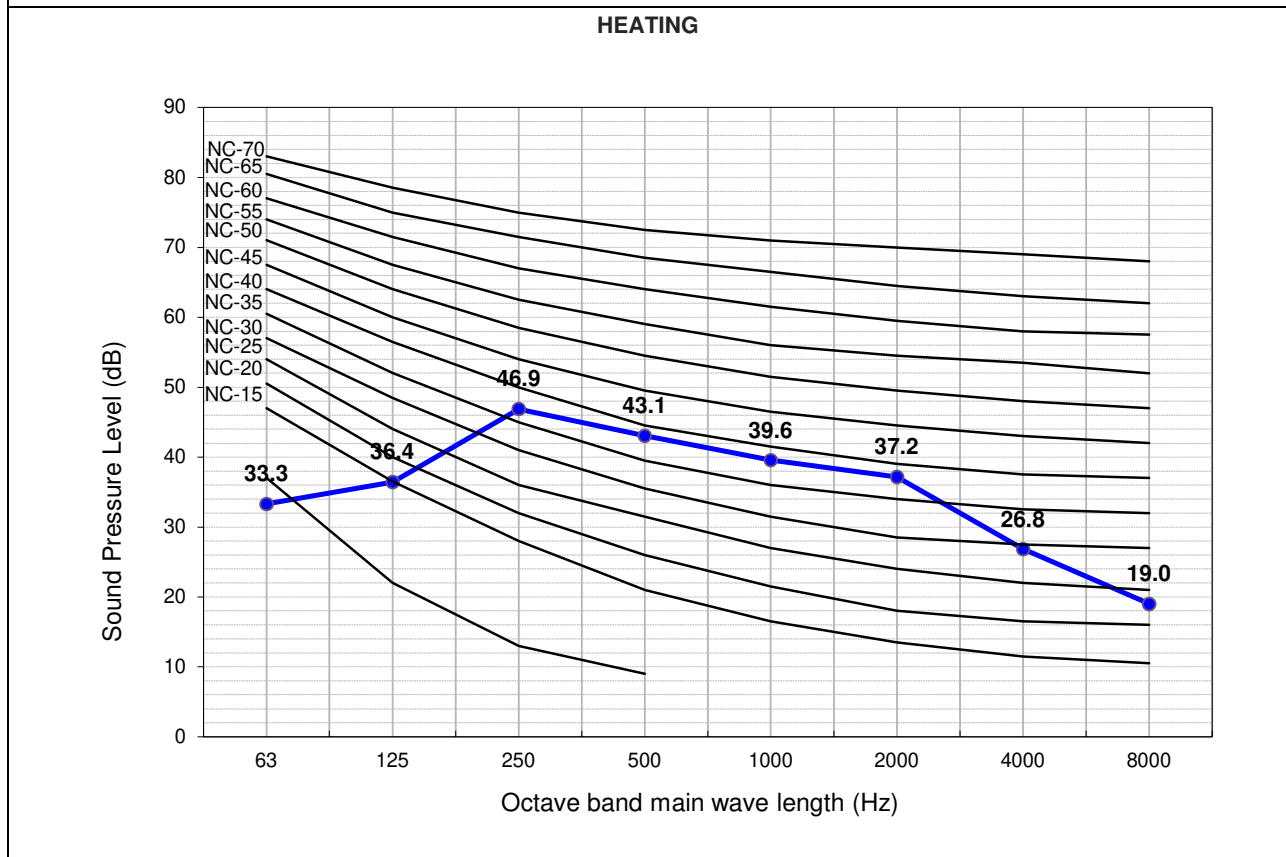
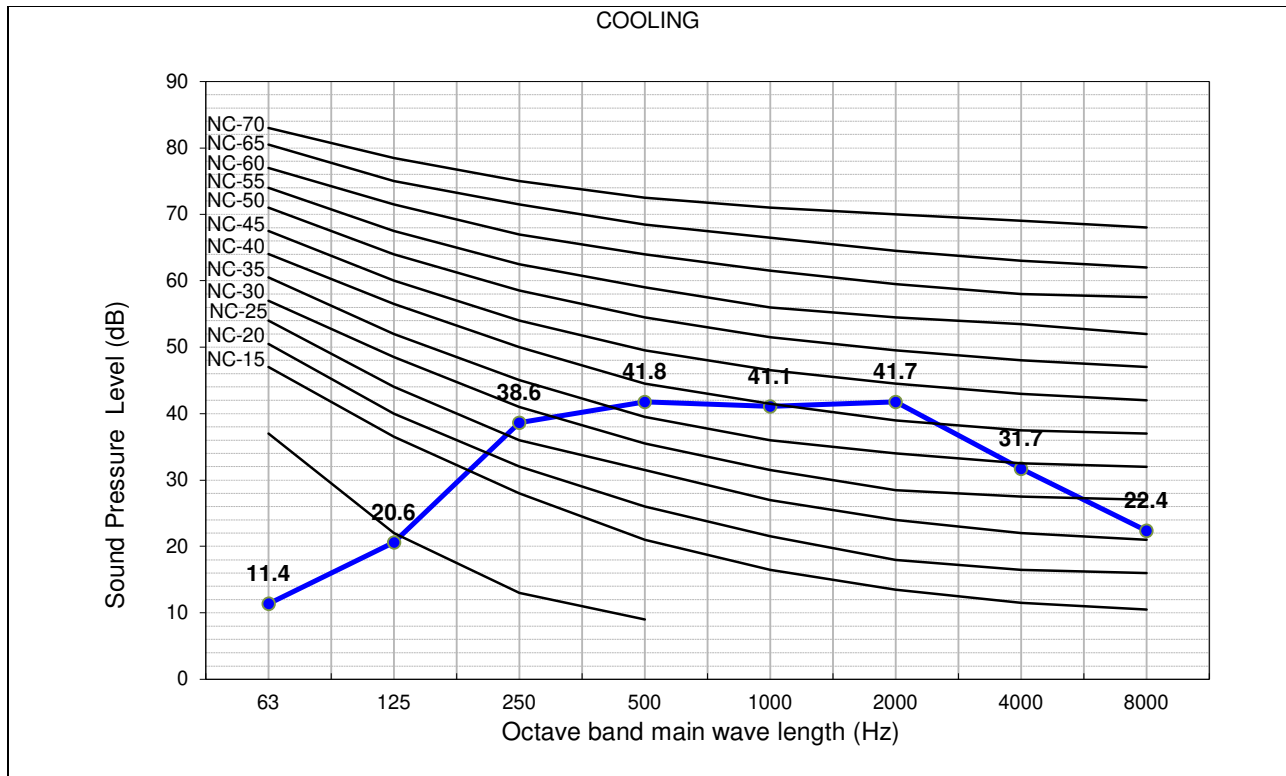




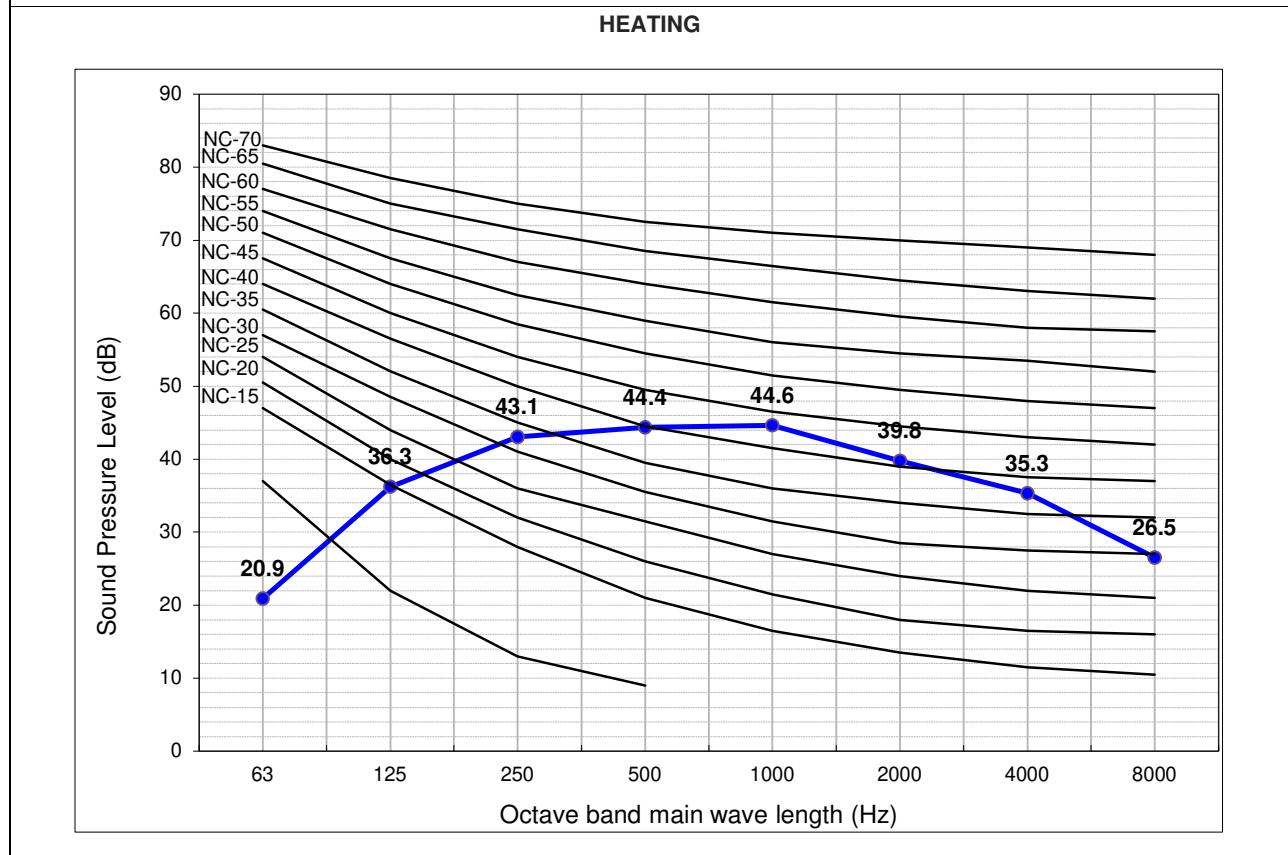
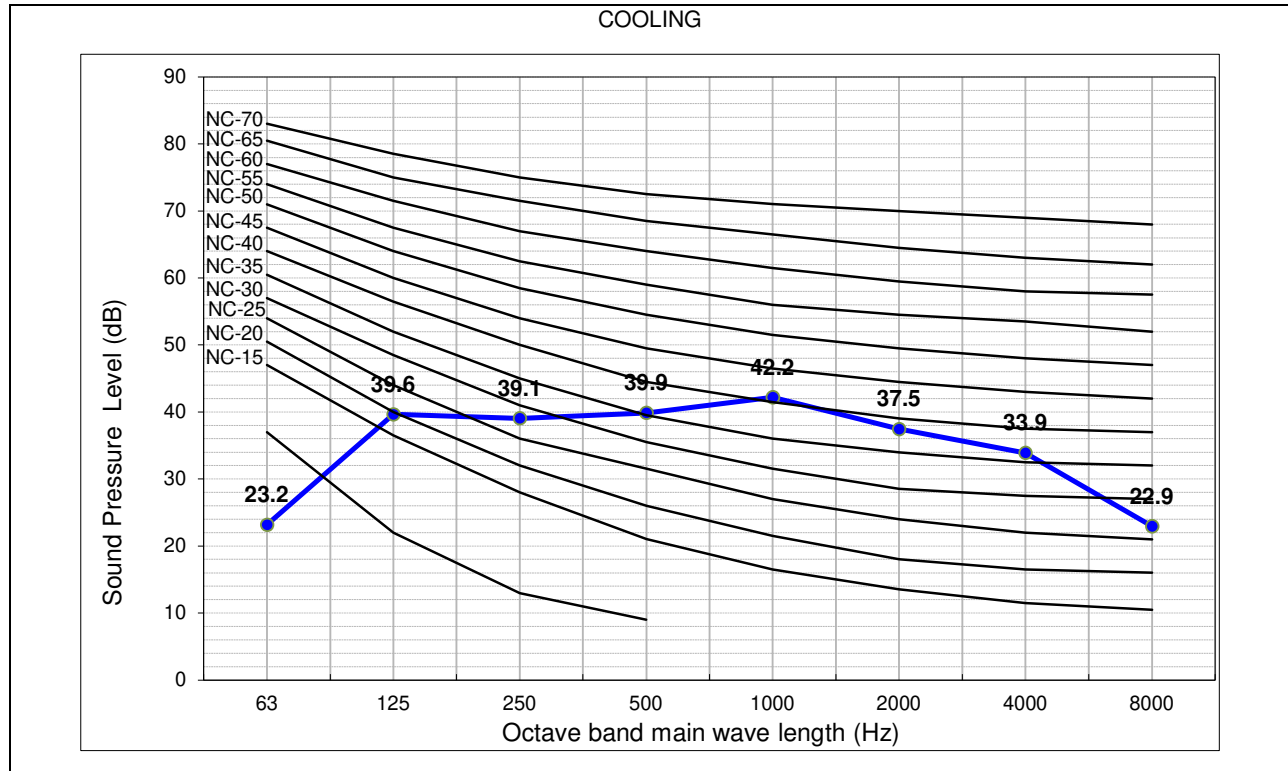
4.10. RAC-EH18WHLAE



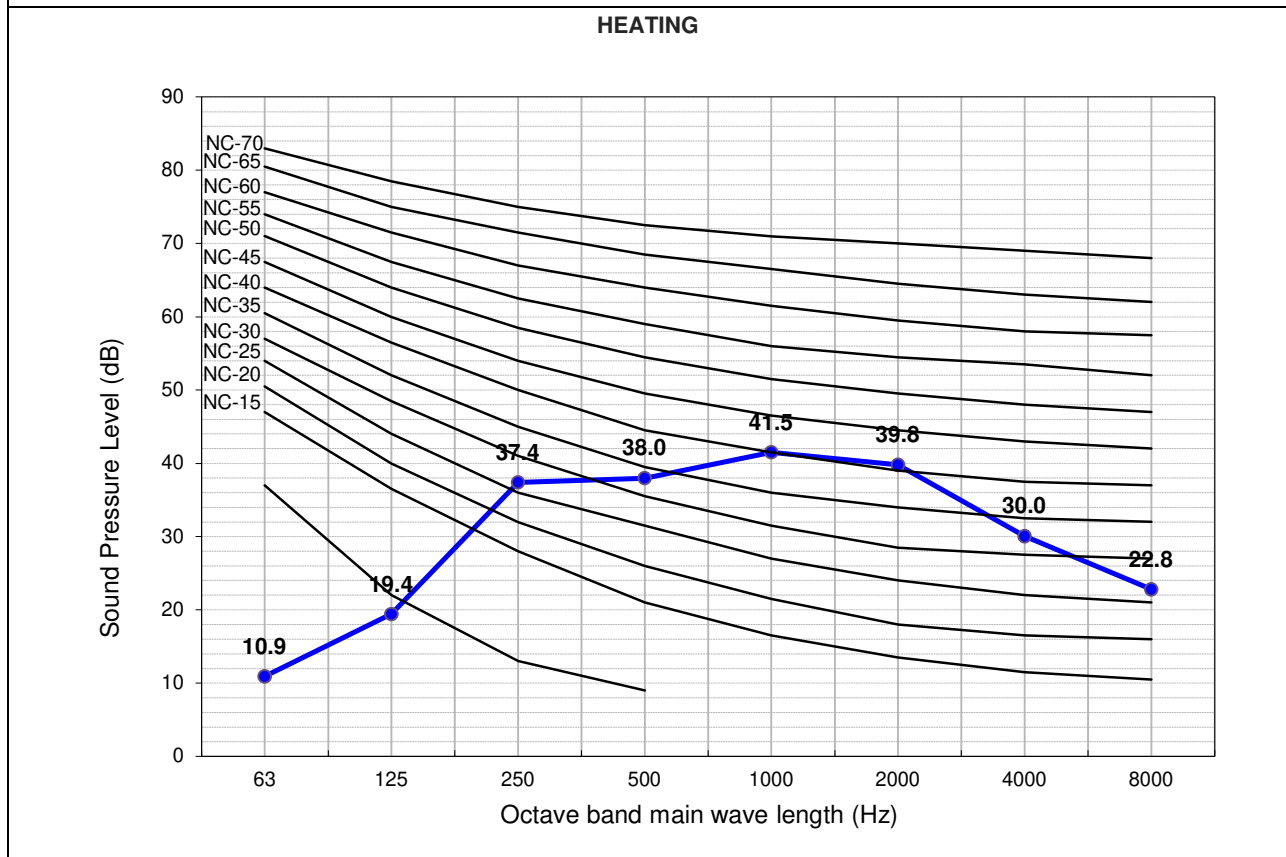
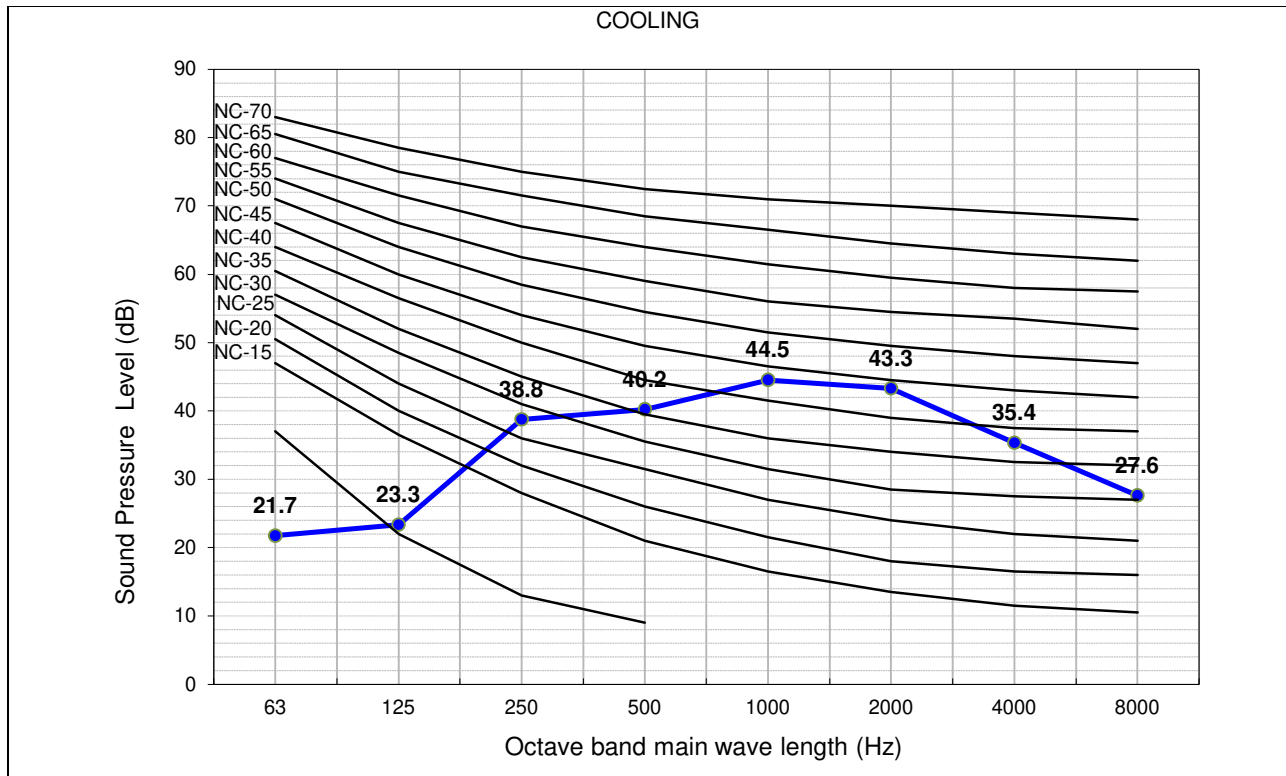
4.11. RAS-EH24RHLAE



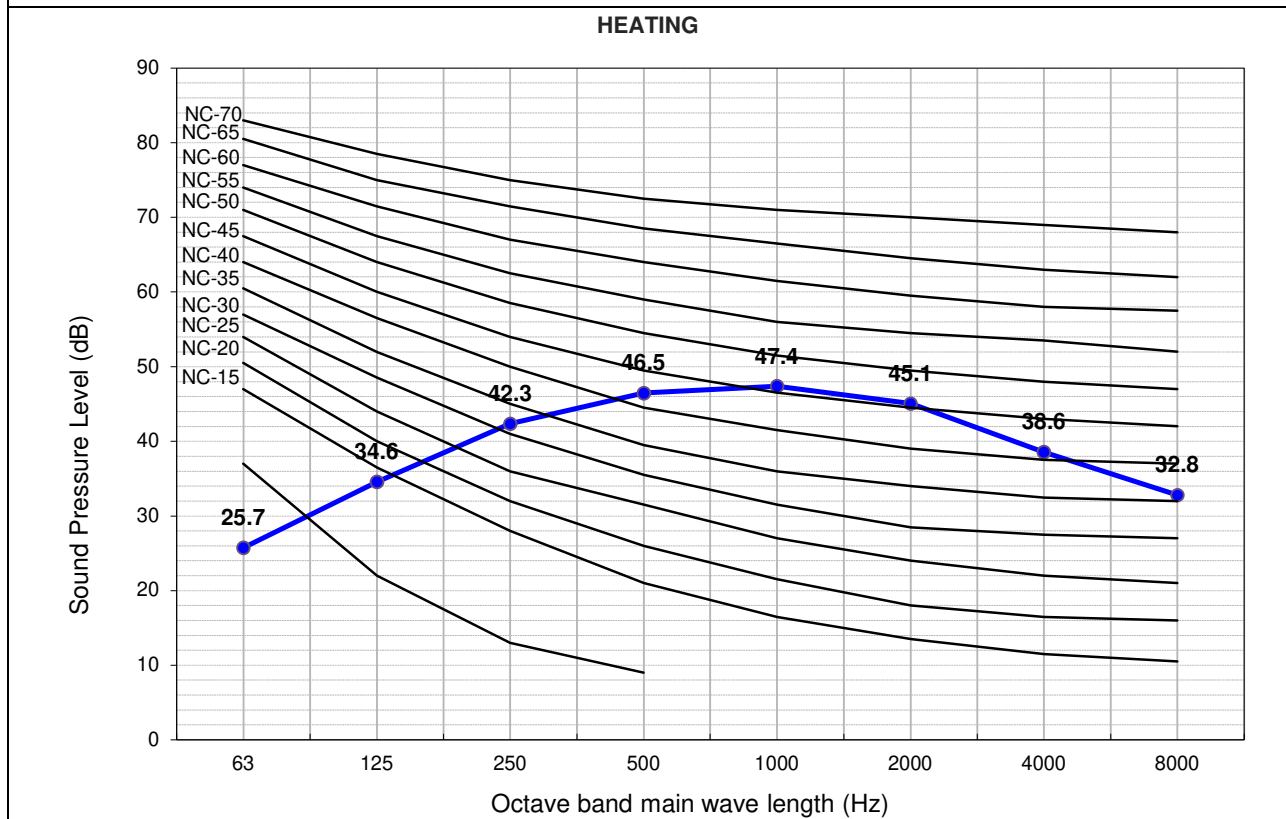
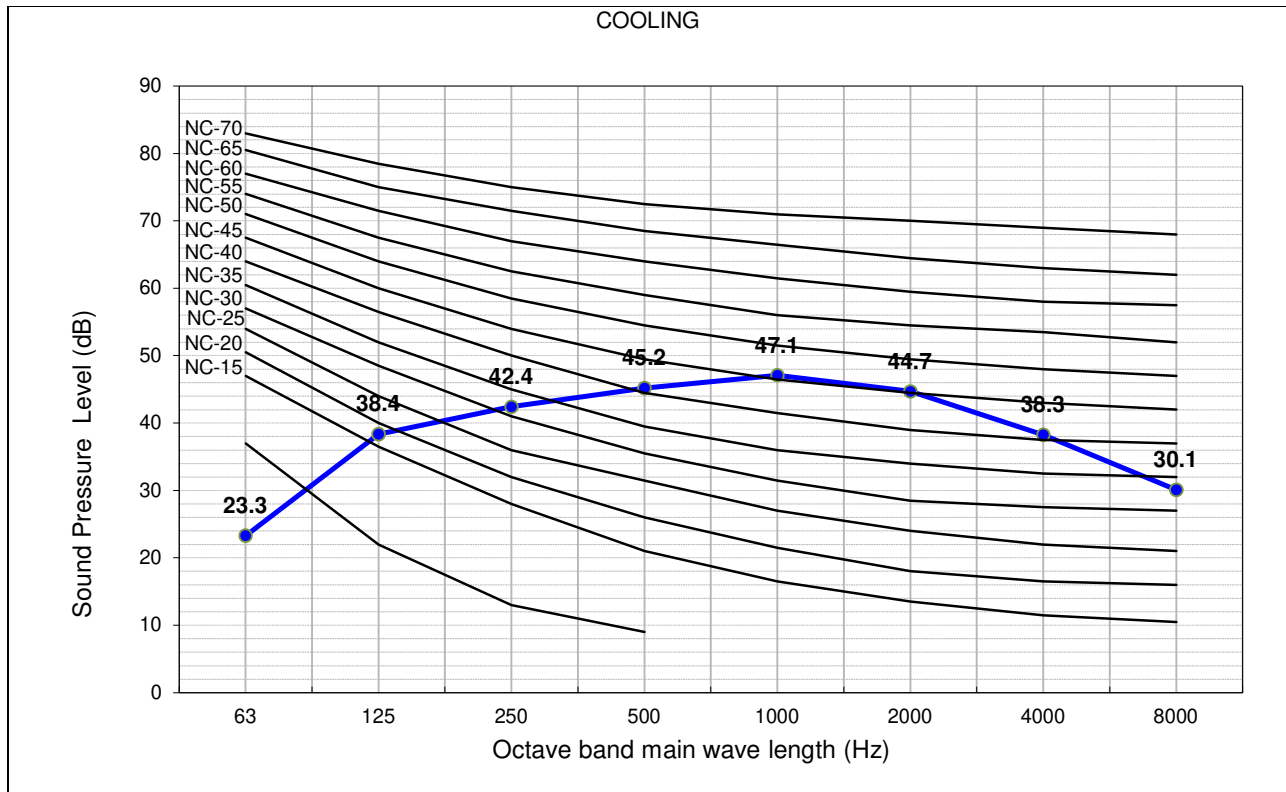
4.12. RAC-EH24WHLAE



4.13. RAS-EH36RHLAE



4.14. RAC-EH36WHLAE



## 5 WORKING RANGE

### 5.1. POWER SUPPLY

|                          |  |
|--------------------------|--|
| <b>Working Voltage</b>   | 187V ~ 253V<br>103V ~ 126V (RAC-EH09WHLAB, RAC-EH12WHLAB)                    |
| <b>Voltage Imbalance</b> | Within a 3% Deviation from Each Voltage at the Main Terminal of Outdoor Unit |
| <b>Starting Voltage</b>  | Higher than 85% of the Rated Voltage   |

### 5.2. WORKING RANGE

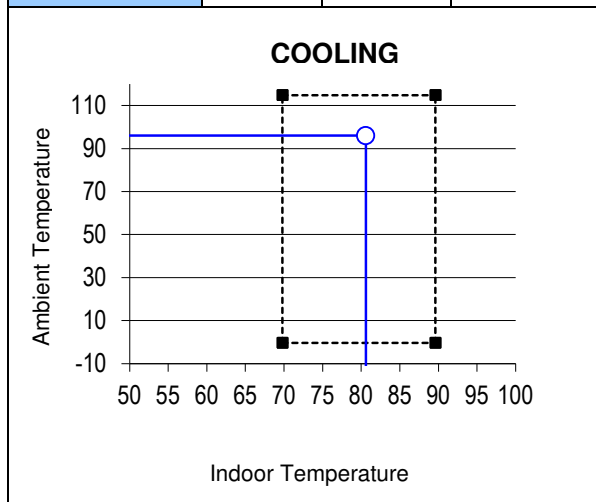
Applicable models:

|               |
|---------------|
| RAC-EH09WHLAB |
| RAC-EH12WHLAB |
| RAC-EH09WHLAE |
| RAC-EH12WHLAE |
| RAC-EH18WHLAE |
| RAC-EH24WHLAE |
| RAC-EH36WHLAE |

The temperature range is indicated in the following table.

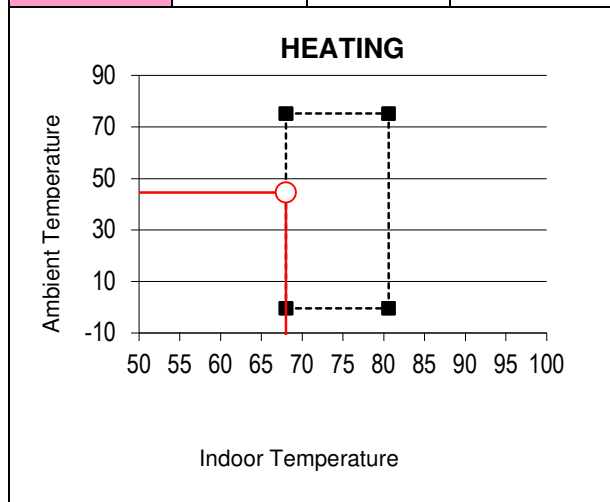
#### Cooling

| working range | min (°F) | max (°F) | rated (°F) |
|---------------|----------|----------|------------|
| outdoor       | -0.4     | 114.8    | 96         |
| indoor        | 69.8     | 89.6     | 80.6       |



#### Heating

| working range | min (°F) | max (°F) | rated (°F) |
|---------------|----------|----------|------------|
| outdoor       | -0.4     | 75.2     | 44.6       |
| indoor        | 68       | 80.6     | 68         |



## 6 ELECTRICAL DATA

### 6.1. INDOOR UNIT

| Model         | Unit Main Power |  | Rated input current of power conversion equipment (A) | Indoor Fan Motor |     |
|---------------|-----------------|--|---|------------------|-----|
|               | VOL, PH, Hz     |  |   | RNC              | IPT |
| RAS-EH09PHLAB | 115, 1, 60      |  | 0.45  | 0.83             | 21  |
| RAS-EH12PHLAB | 115, 1, 60      |  | 0.45  | 0.83             | 21  |
| RAS-EH09RHLE  | 208-230, 1, 60  |  | 0.45  | 0.67             | 38  |
| RAS-EH12RHLE  | 208-230, 1, 60  |  | 0.45  | 0.67             | 38  |
| RAS-EH18RHLE  | 208-230, 1, 60  |  | 0.45  | 0.67             | 38  |
| RAS-EH24RHLE  | 208-230, 1, 60  |  | 0.56  | 0.16             | 45  |
| RAS-EH36PHLE  | 208-230, 1, 60  |  | TBA   | TBA              | TBA |

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

RNC: Running Current (A)  
 PH: Phase ( $\phi$ )

### 6.2. OUTDOOR UNIT

| Model         | Unit Main Power |   | Electrical Data           |                           |     |     |
|---------------|-----------------|---|---------------------------|---------------------------|-----|-----|
|               | VOL, PH, Hz     | Rated input current of power conversion equipment (A) | Rated Cooling Current (A) | Rated Heating Current (A) | MCA | MOP |
| RAC-EH09WHLAB | 115, 1, 60      | 13.5  | 6.8                       | 9.4                       | 18  | 20  |
| RAC-EH12WHLAB | 115, 1, 60      | 13.5  | 11.2                      | 11.5                      | 18  | 20  |
| RAC-EH09WHLAE | 208-230, 1, 60  | 7.5   | 3.2                       | 4.25                      | 10  | 15  |
| RAC-EH12WHLAE | 208-230, 1, 60  | 7.5   | 5.3                       | 5.4                       | 10  | 15  |
| RAC-EH18WHLAE | 208-230, 1, 60  | 12.0  | 8.7                       | 8.5                       | 16  | 20  |
| RAC-EH24WHLAE | 208-230, 1, 60  | 14.49   | 10.4                      | 9.6                       | 18  | 20  |
| RAC-EH36WHLAE | 208-230, 1, 60  | TBA   | TBA                       | TBA                       | TBA | TBA |

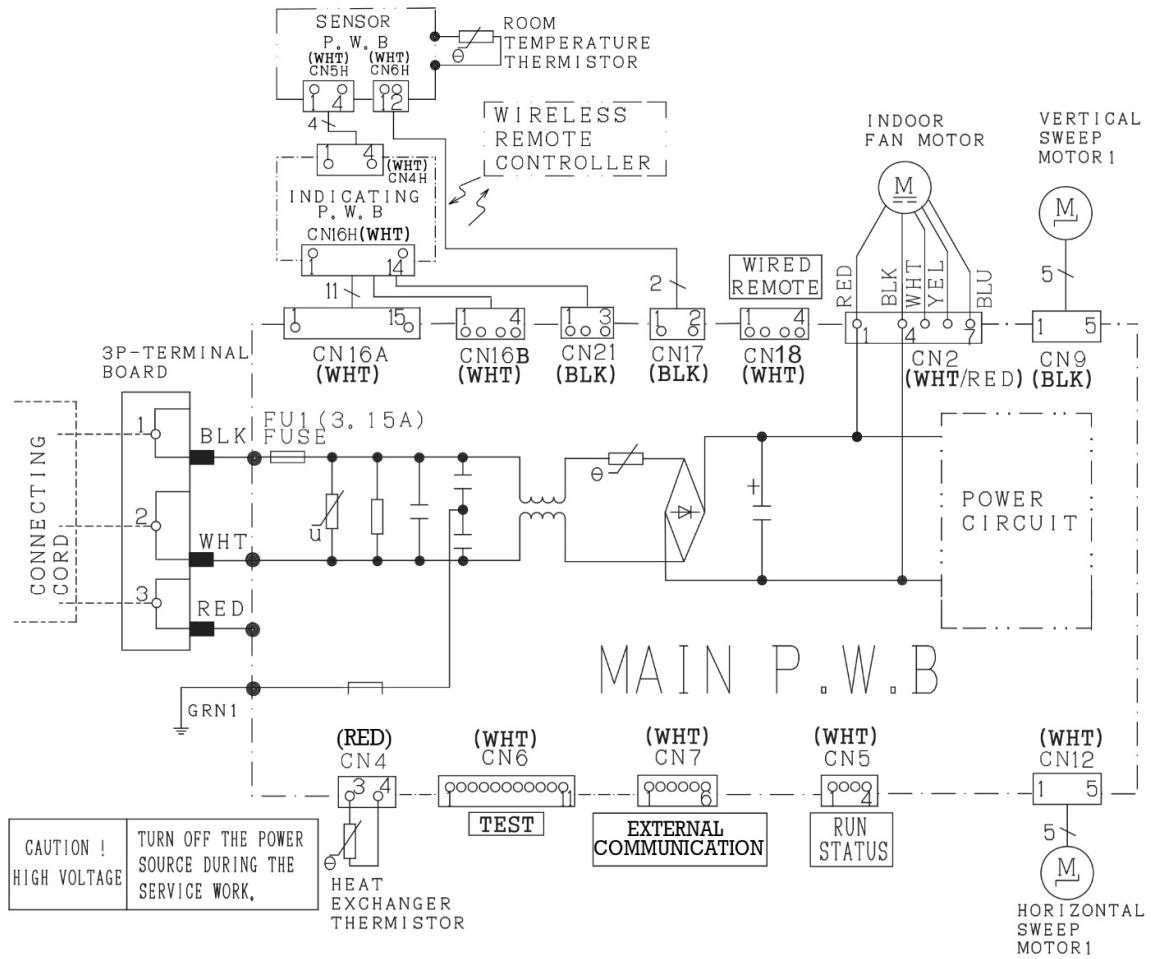
VOL: Rated Unit Power Supply Voltage (V)  
 HZ: Frequency (Hz)  
 MCA: Minimum Circuit Ampacity (A)

PH: Phase ( $\phi$ )  
 MOP: Maximum Overcurrent Protection (A)

# 7 WIRING DIAGRAM

## 7.1. RAS-EH09PHLAB, RAS-EH12PHLAB, RAS-EH09RHLAE, RAS-EH12RHLAE, RAS-EH18RHLAE

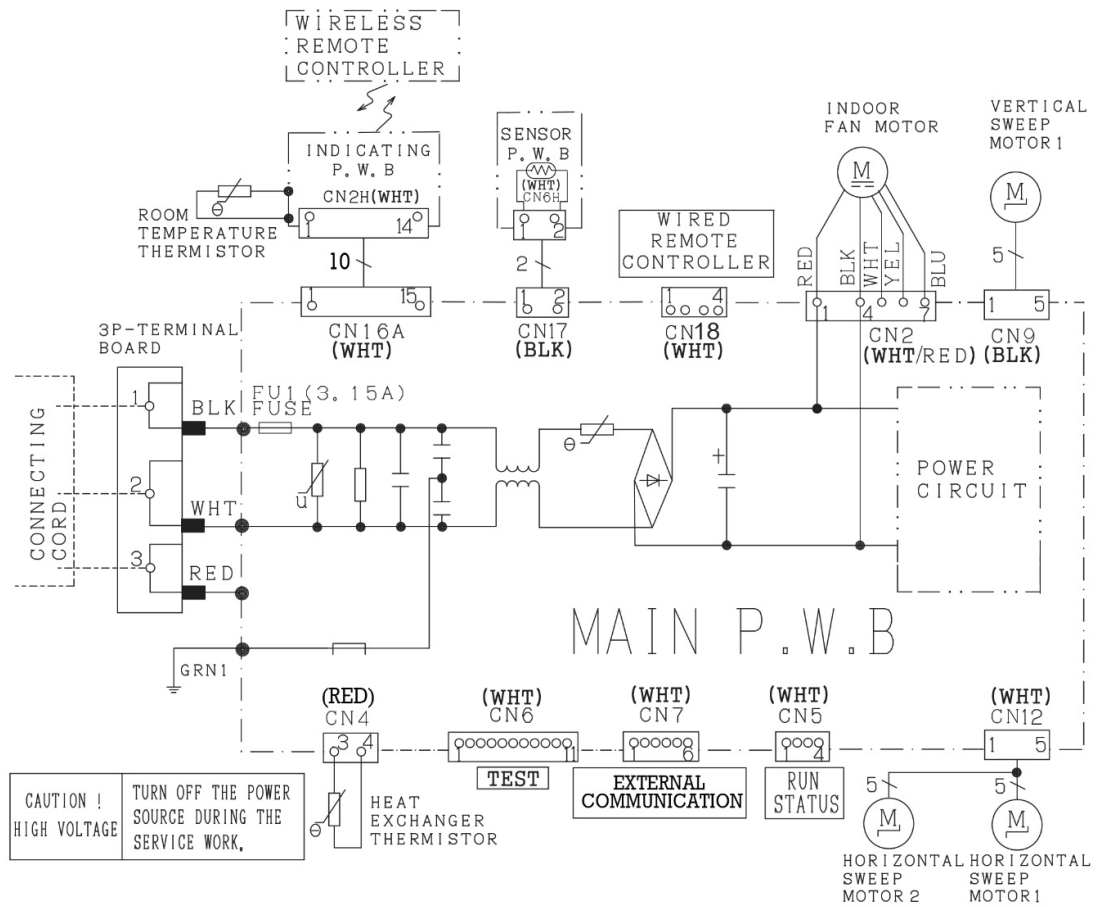
|             |              |              |             |
|-------------|--------------|--------------|-------------|
| BLU : BLUE  | YEL : YELLOW | BRN : BROWN  | WHT : WHITE |
| GRY : GRAY  | ORN : ORANGE | GRN : GREEN  | RED : RED   |
| BLK : BLACK | PNK : PINK   | VIO : VIOLET | IVO : IVORY |



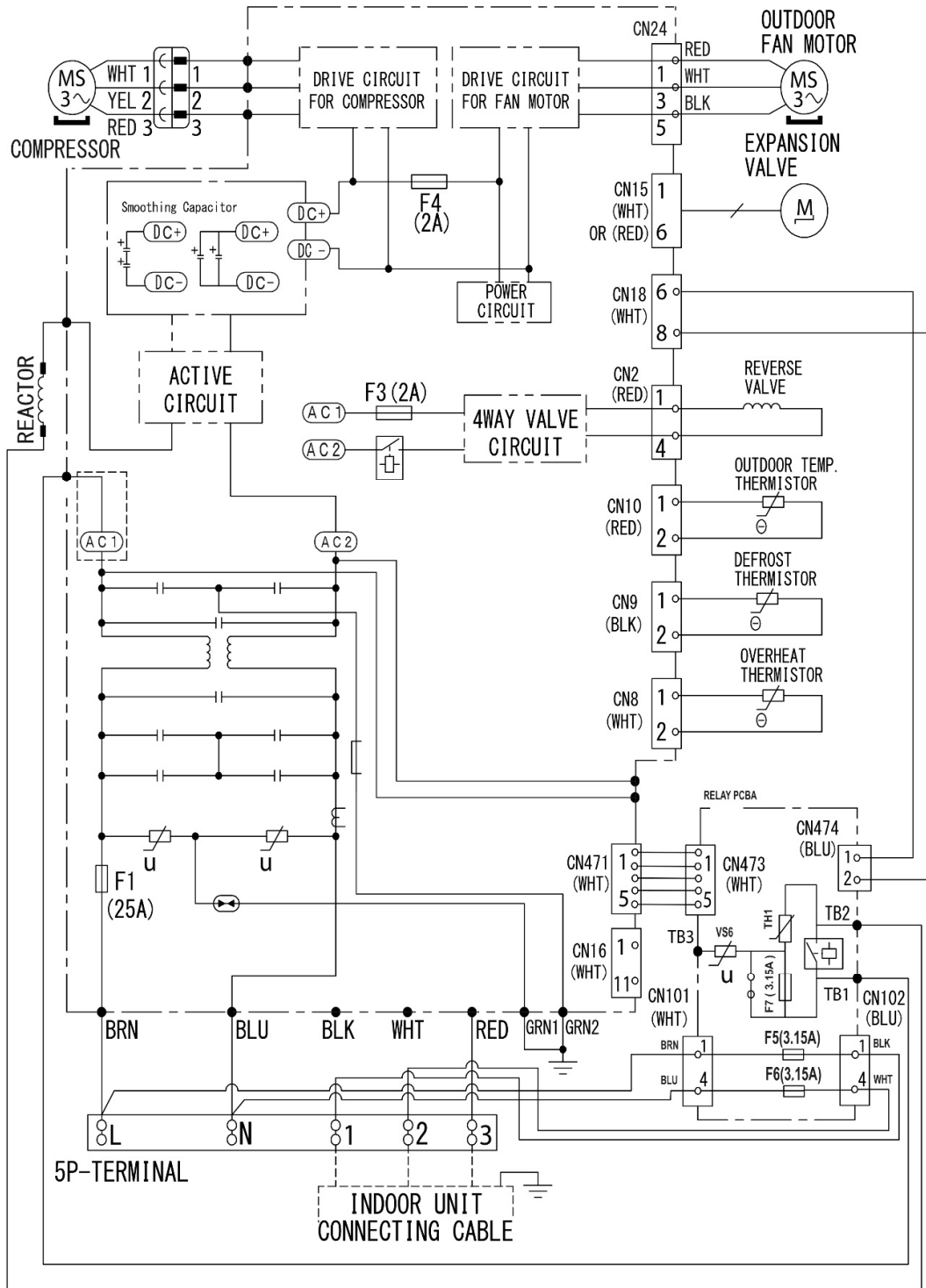


7.2. RAS-EH24RHLAE, RAS-EH36PHLAE

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

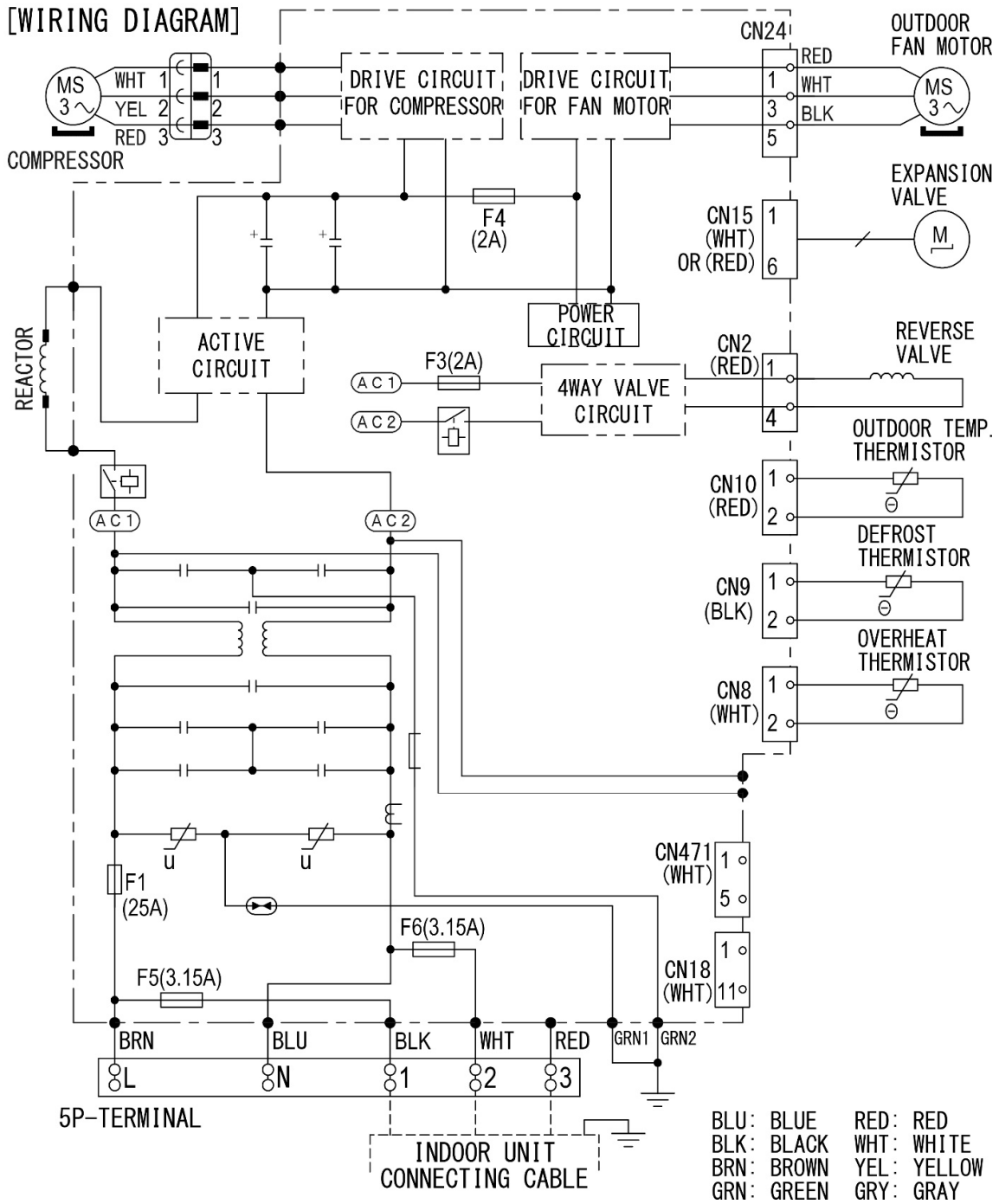


7.3. RAC-EH09WHLAB, RAC-EH12WHLAB

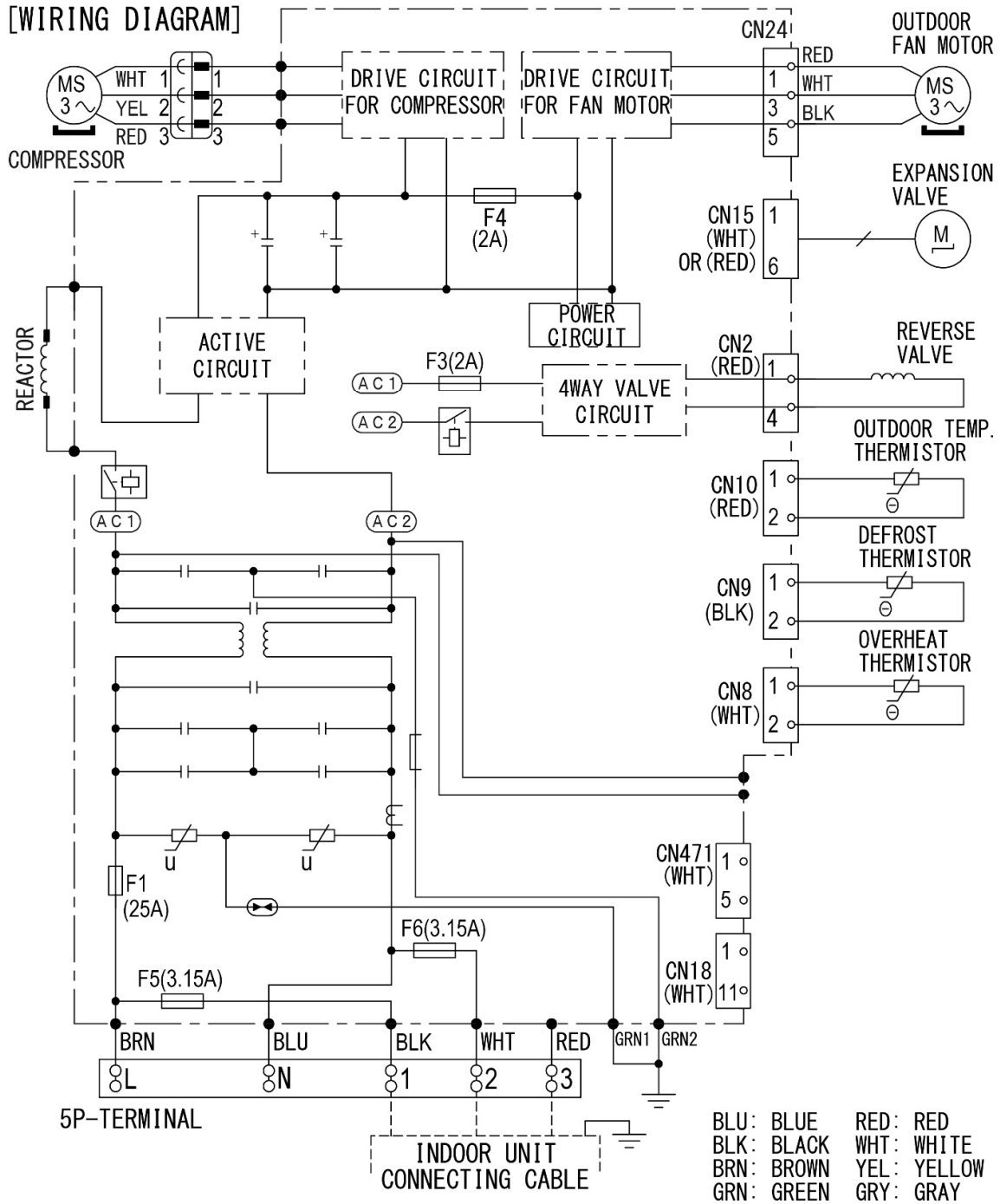


BLU: BLUE    RED: RED  
 BLK: BLACK    WHT: WHITE  
 BRN: BROWN    YEL: YELLOW  
 GRN: GREEN    GRY: GRAY

7.4. RAC-EH09WHLAE, RAC-EH12WHLAE



7.5. RAC-EH18WHLAE, RAC-EH24WHLAE



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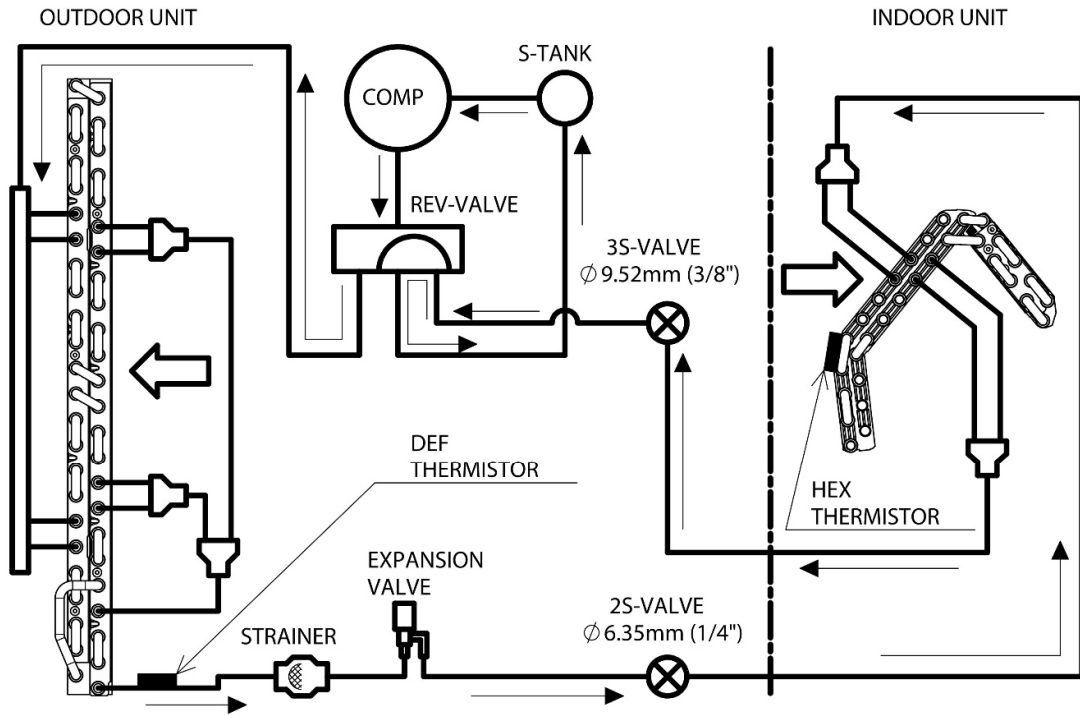
**7.6. RAC-EH36WHLAE**

TBA

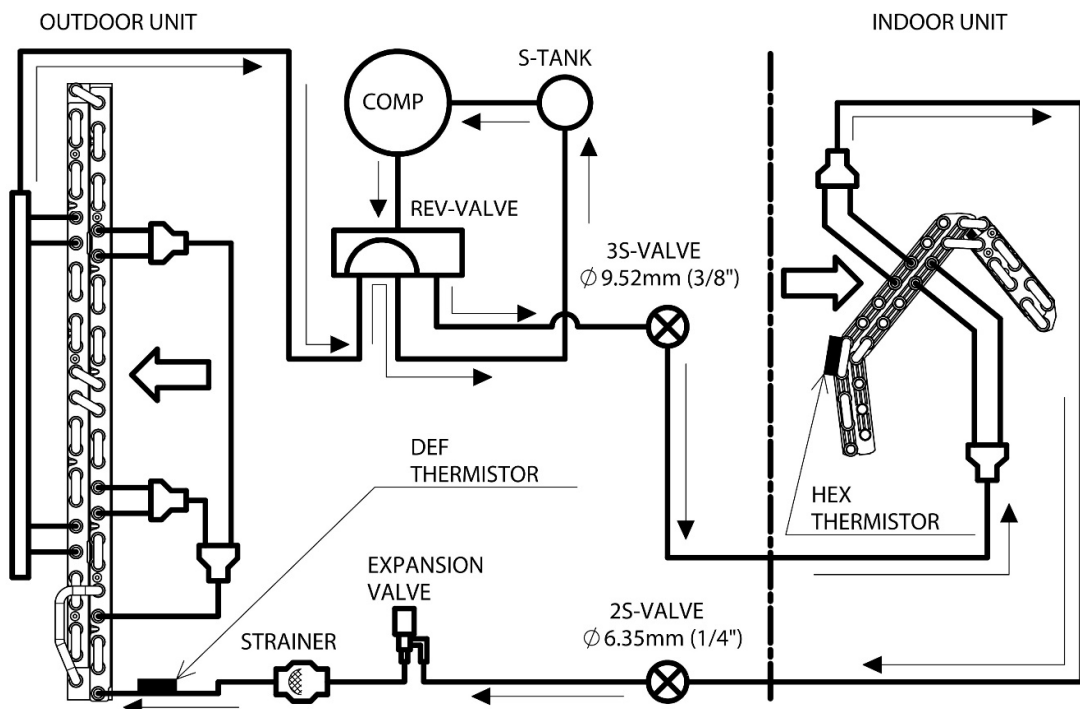
**8 REFRIGERANT CYCLE**

**8.1. RAS-EH09PHLAB/RAC-EH09WHLAB, RAS-EH12PHLAB/RAC-EH12WHLAB, RAS-EH09RHLAE/RAC-EH09WHLAE, RAS-EH12RHLAE/RAC-EH12WHLAE**

**COOLING, DEHUMIDIFYING, DEFROSTING**

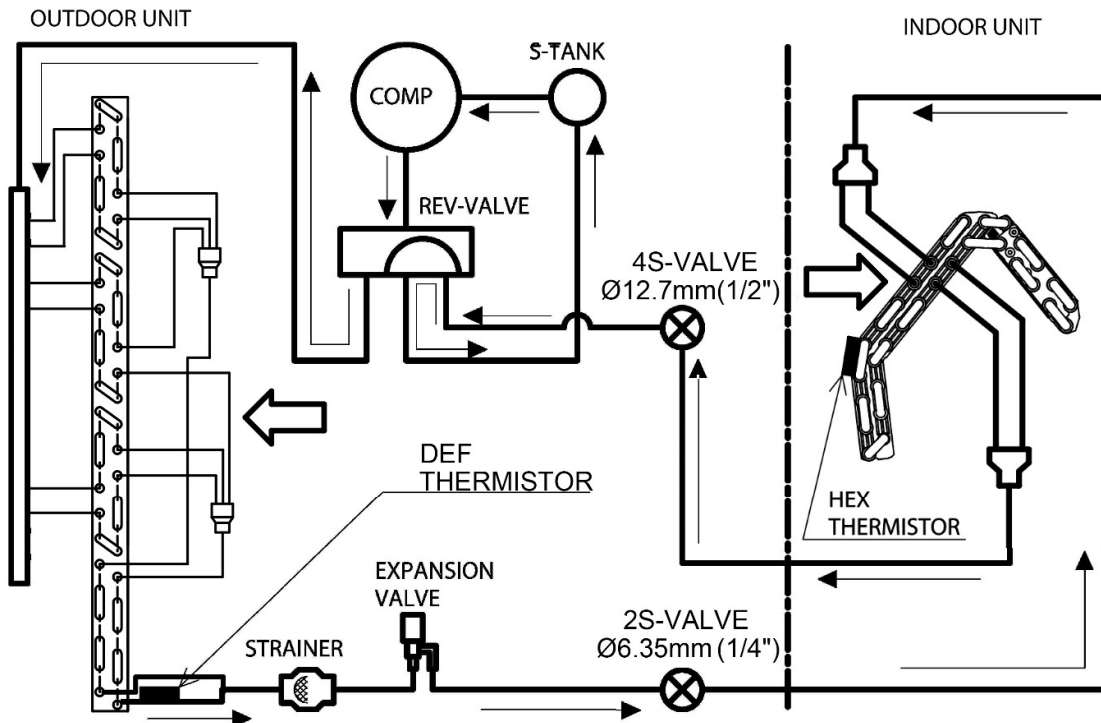


**HEATING**

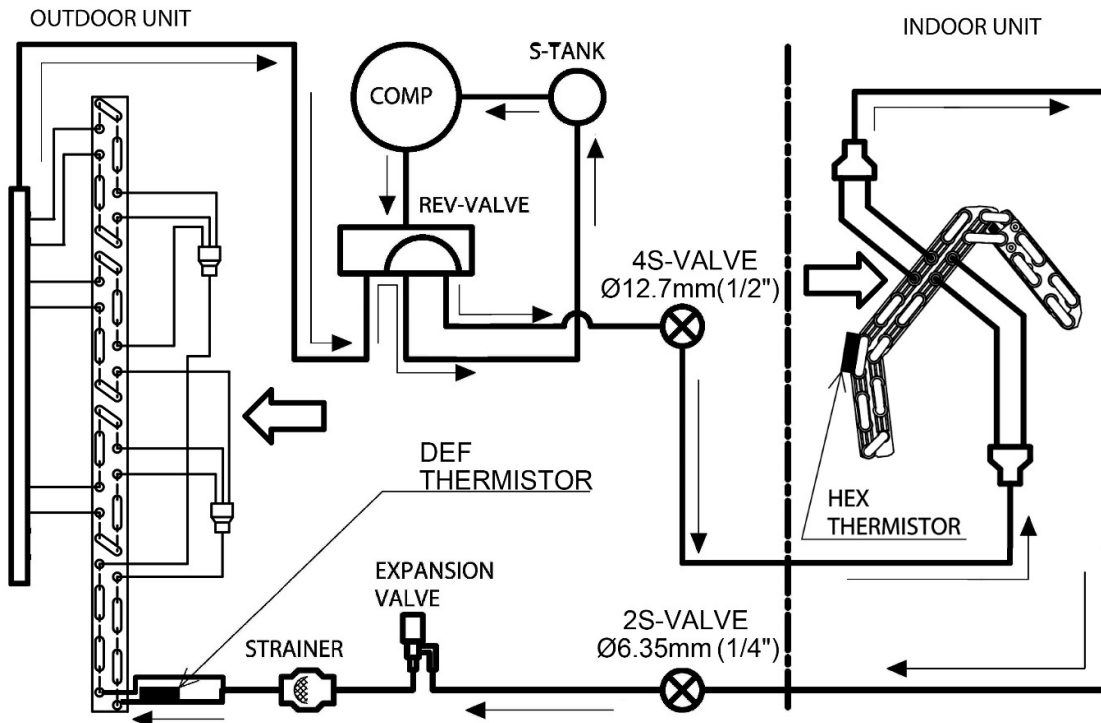


## 8.2. RAS-EH18RHLAE/RAC-EH18WHLAE

## COOLING, DEHUMIDIFYING, DEFROSTING

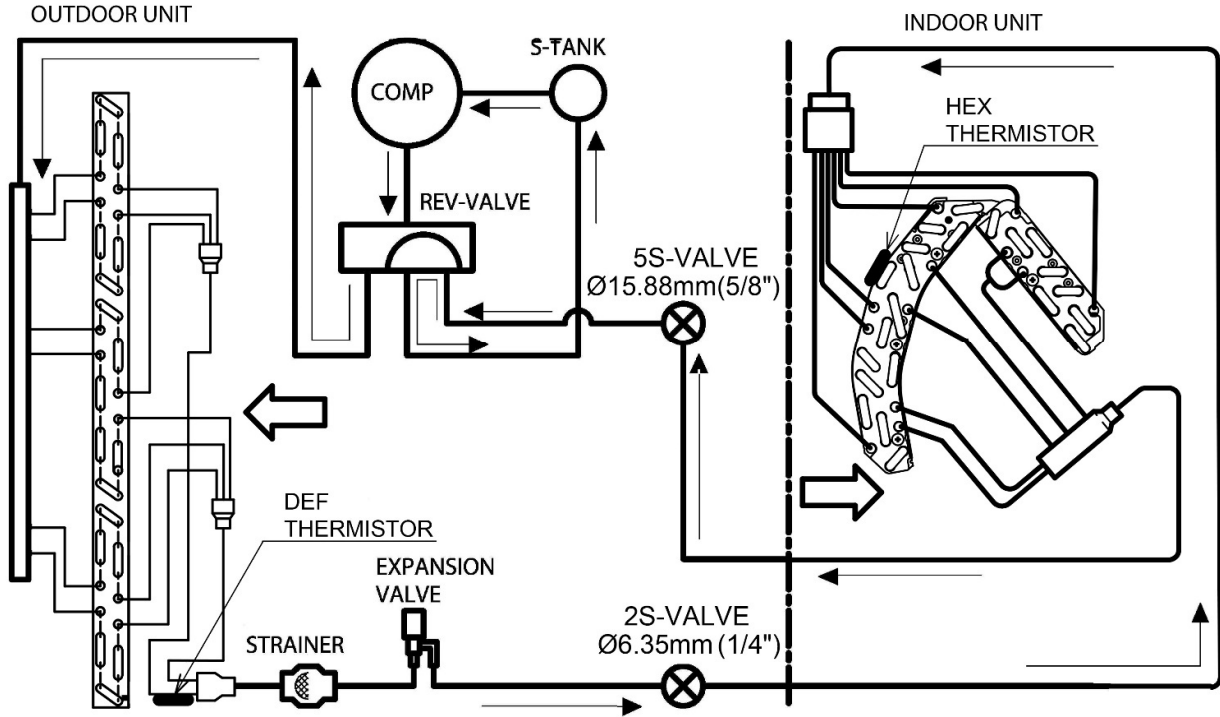


## HEATING

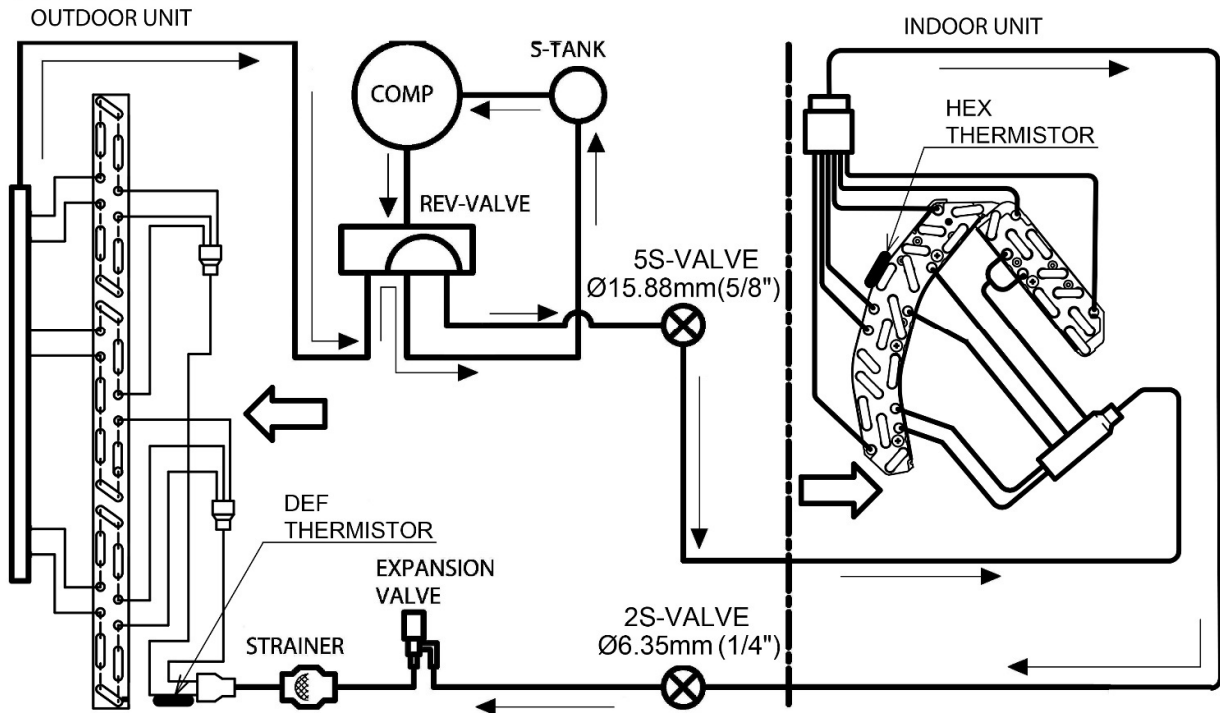


8.3. RAS-EH24RHLAE/RAC-EH24WHLAE

COOLING, DEHUMIDIFYING, DEFROSTING



HEATING





#### 8.4. RAS-EH36PHLAE/RAC-EH36WHLAE

COOLING, DEHUMIDIFYING, DEFROSTING

TBA

HEATING

TBA





## 9 CONTROL FUNCTION

### 9.1. WIRELESS REMOTE CONTROL FUNCTION

#### REMOTE CONTROLLER TYPE












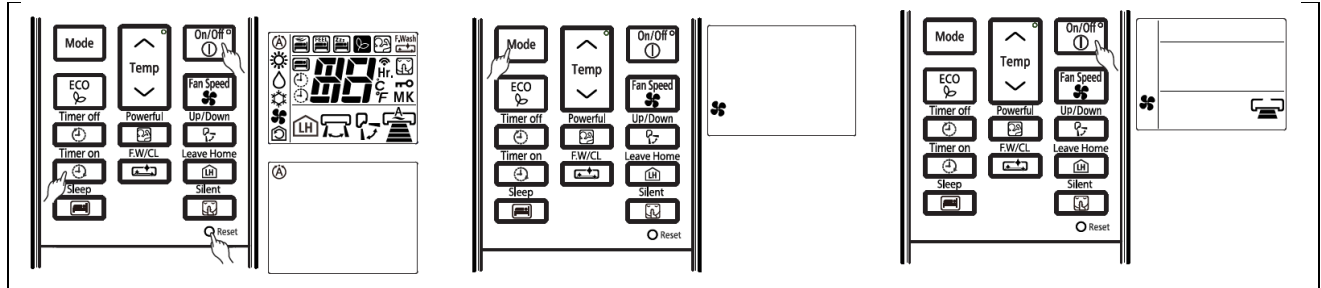
| BUTTONS | FUNCTION   |
|---------|--|
|         | <b>MODE Selector</b><br>Use this button to select the operating mode. Every time you press this button, the mode will change from  (AUTO) →  (HEAT) →  (DEHUMIDIFY) →  (COOL) and →  (FAN) cyclically.   |
|         | <b>ECO button</b><br>Use this button to set the ECO mode.  |
|         | <b>TEMPERATURE button</b><br>Room temperature setting.<br>Value will change quicker when keep pressing.  |
|         | <b>ON/OFF button</b><br>Press this button to start operation. Press it again to stop operation.  |
|         | <b>FAN SPEED Selector Button</b><br>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). |
|         | <b>TIMER OFF Button</b><br>Select the turn OFF time  |
|         | <b>TIMER ON Button</b><br>Select the turn ON time  |
|         | <b>POWERFUL button</b><br>Use this button to set the POWERFUL mode.  |
|         | <b>FROST WASH/CLEAN button</b><br>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  |








|   |   |
|---|---|
|  | <b>AUTO SWING (Horizontal) button</b><br>Controls the angle of the vertical air deflector.  |
|  | <b>LEAVE HOME button</b><br>Prevent the room temperature from falling too much by setting temperature 10°C~16°C when no one is at home. |
|  | <b>SILENT button</b><br>Use this button to set the SILENT mode  |
|  | <b>ECO SLEEP TIMER button</b><br>Use this button to set the ECO sleep timer   |

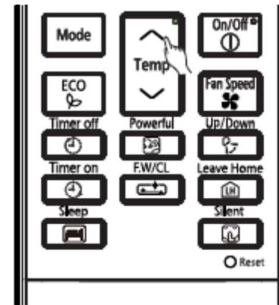
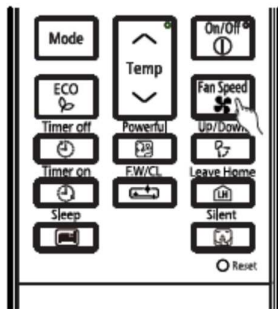
For more information, please refer to the operation manual

9.1.1. SHIFT VALUE

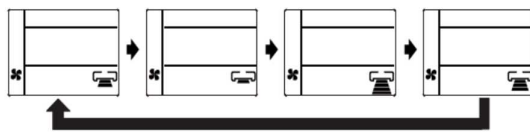
1. While pressing and holding  (ON/OFF) button and  button, press  [RESET] button on the same. Release  [RESET] button only and make sure that all marks on the remote controller display are indicated, then release the  (ON/OFF) button and  button. Remote controller now enters "Shift Value Change Mode".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



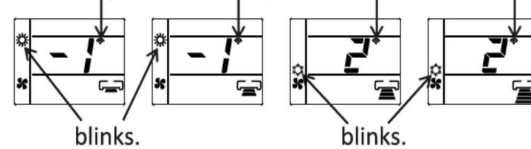
4. Set the FAN SPEED with the  (FAN SPEED) button according to the following FAN speed setting in order to choose the desired operation mode that is required for shift value setting temperature modification.
  - To change the shift value for COOLING mode operation, select either  (HIGH) or  (MED) FAN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



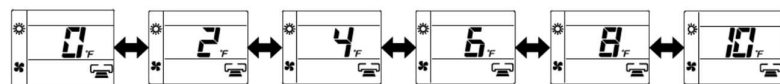
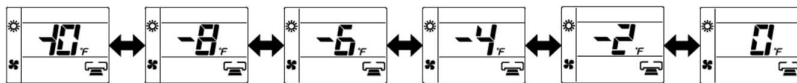
Transmission sign lights up with beep from device simultaneously.





Step 4



Step 5











NOTE:

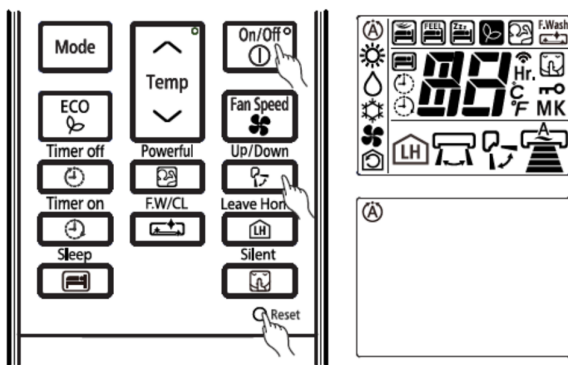
1. The displayed shift value,  (HEAT) and  (COOL) symbol on the remote controller display will be disappear after 10 seconds.
2. The changed shift value will remain unchanged after turned off the power.
3. If "0" is displayed on the remote controller display, it indicates the shift value is now at the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



## 9.2. DISPLAY OPERATION MODE SETTING

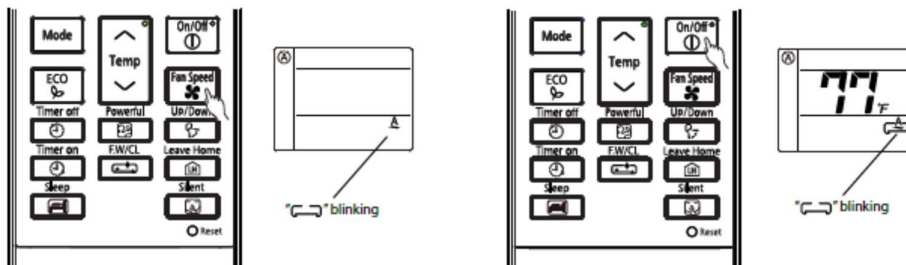
For operating indoor unit independently (without outdoor unit connection), remote controller must be set according to below procedures before send the signal to the indoor unit. New communication format between indoor and outdoor is required to communicate with outdoor unit.

### PROCEDURE


- 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.



- Press the  (MODE) selector button to choose the desired operation mode.
- Press  (ON/OFF) button.  
Then, the indoor unit will start to operate independently according to the selected operation mode.



### NOTE:

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




### 9.3. HOW TO CHANGE THE INTERMITTENT FAN CONTROL SETTING

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



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

It is possible to select from 3 patterns.

#### PROCEDURE



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

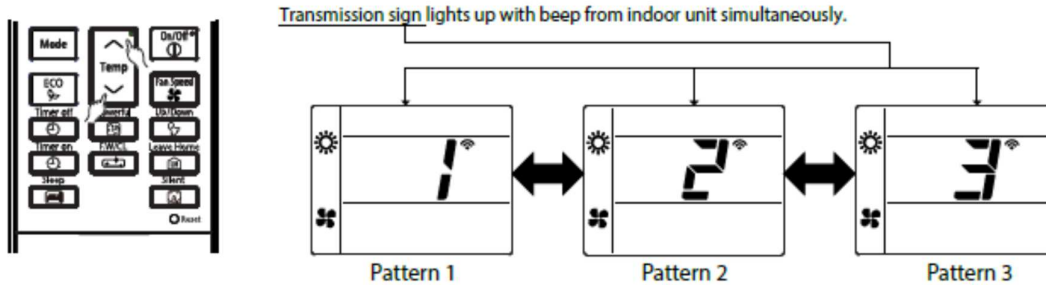
Release  [RESET] button only and make sure that all marks on the remote controller display are indicated, then release

 (POWERFUL) button and  (FAN SPEED) button.

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



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



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


NOTE:

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

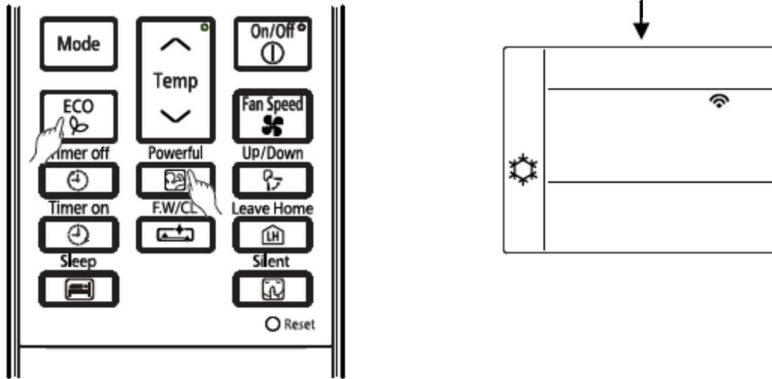
### 9.4. HOW TO CHANGE THE FAN SPEED IN COOLING MODE DURING THERMO OFF

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.

## 9.5. SETTING THE PREVENTION OF MUTUAL INTERFERENCE

a.) Other indoor circuit breakers should be disconnected.



- b.) Remove the back cover of the remote control.
- c.) Cut the jumper as shown below.
- d.) Press "Reset" button after installing the battery.
- e.) Corresponding to the room electrical box dial code 6 to dial on.



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



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

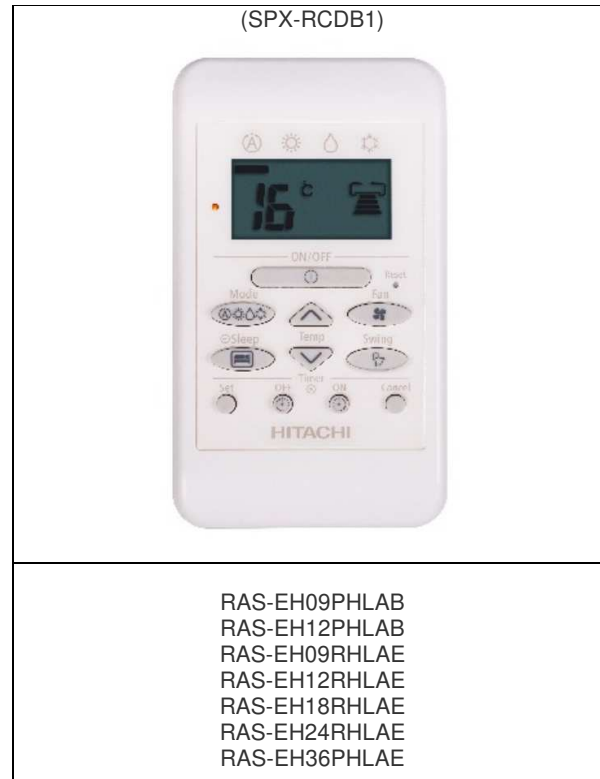


## 10 OPTION LIST

### 10.1. WIRED REMOTE CONTROL SPX-RCDB1






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

\*Maximum length cable can be up to 49.21ft (15m). Use extension cable SPX-WKT5MB 16.4ft (5m)





| BUTTONS | FUNCTION  |
|---------|---|
|         | <b>MODE Selector</b><br>Use this button to select the operating mode. Every time you press this button, the mode will change from (AUTO) → (HEAT) → (DEHUMIDIFY) → (COOL) cyclically.   |
|         | <b>FAN SPEED Selector Button</b><br>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). |
|         | <b>ON/OFF button</b><br>Press this button to start operation. Press it again to stop operation.   |
|         | <b>SLEEP button</b><br>Use this button to set the SLEEP timer.  |
|         | <b>SET button</b><br>Timer setting reservation.   |
|         | <b>OFF button</b><br>Select the turn OFF timer.   |
|         | <b>ON button</b><br>Select the turn ON timer.   |
|         | <b>CANCEL button</b><br>Cancel timer reservation.   |
|         | <b>AUTO SWING (Vertical) button</b><br>Controls the angle of the horizontal air deflector.  |
|         | <b>ROOM TEMPERATURE setting button</b>  |



### 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 (23°F ~ 0 ~ 41°F).
5. Press  (ON/OFF) button to end 'Shift value setting mode'.


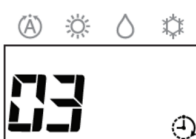









#### NOTE:






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







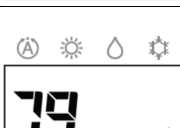




## 10.1.2. ERROR CODE INFORMATION

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             | 9 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               |
|         | 4 times | 6 times  |    | OH thermistor temperature rise         |
|         | 4 times | 7 times  |   | Abnormal outdoor thermistor            |
|         | 4 times | 8 times  |  | Acceleration defective                 |
|         | 4 times | 9 times  |  | Communication error                    |
|         | 4 times | 10 times |  | Abnormal power source                  |
|         | 4 times | 11 times |  | Fan stop for strong wind               |
|         | 4 times | 12 times |  | Fan motor fault                        |

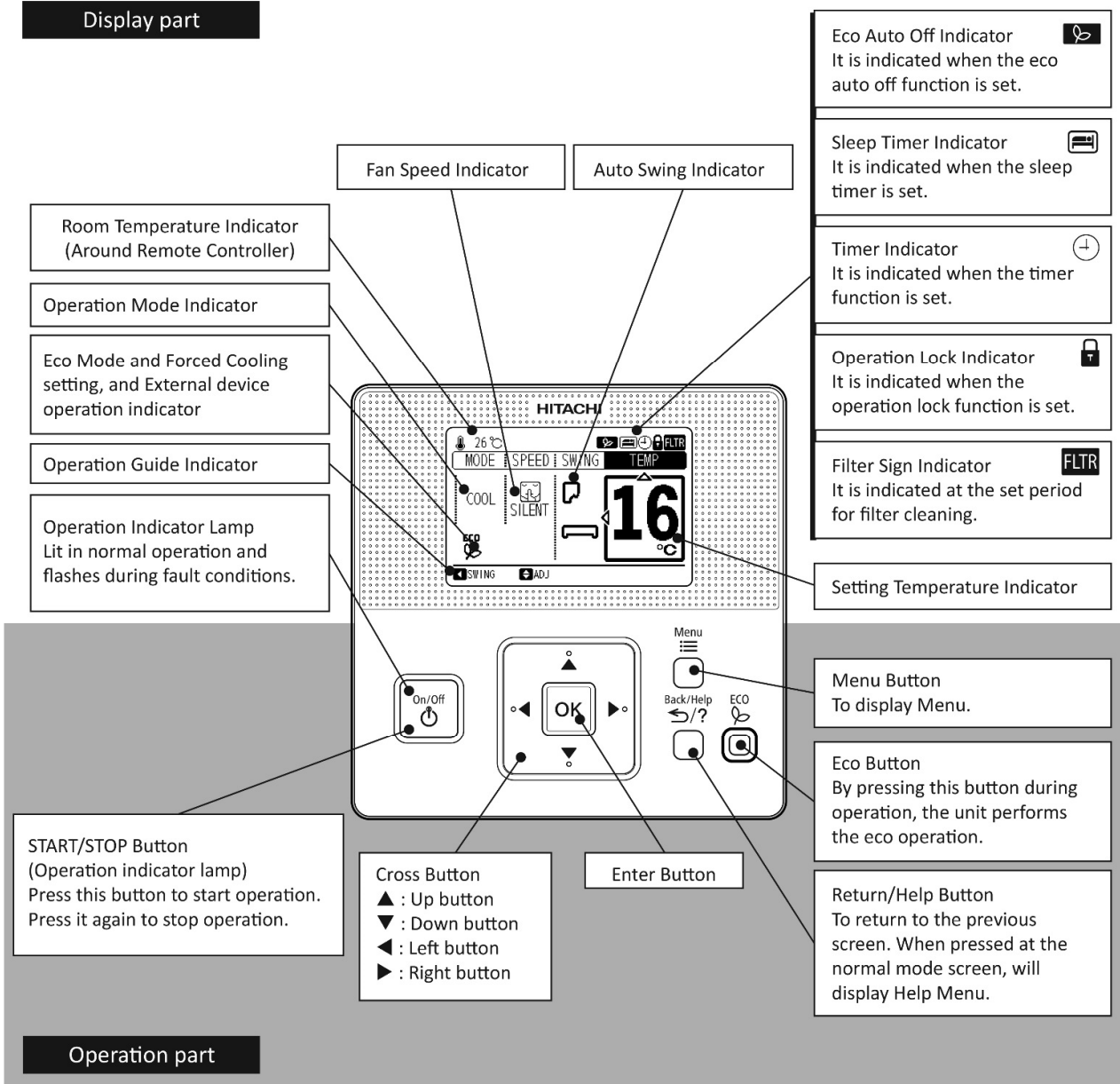
|  |         |   |  |                            |
|--|---------|---|--|----------------------------|
|  | 4 times | 13 times                                  |   | EEPROM reading error       |
|  | 4 times | 14 times                                  |   | Active converter defective |
|  | 4 times | 15 times                                  |   | Abnormal PWB circuit       |
|  |         | <b>LD1351 Lit<br/>LD1352<br/>BLINKING</b> |  |                            |
|  | 4 times | 1 time                                    |   | 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)   |

### 10.3. WIRED FULL DOT REMOTE – SPX-WKT4

#### 10.3.1. NAMES AND FUNCTIONS OF REMOTE CONTROLLER

\*Maximum length cable can be up to 49.21ft (15m). Use extension cable SPX-WKT5M 16.4ft (5m)



### 10.3.2. SERVICE MENU

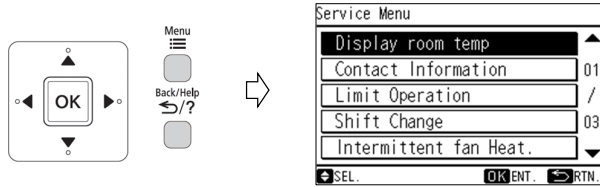
Various setting functions are displayed in the service menu. This procedure shall be implemented strictly by service personnel only. Refer to the following sections for each function.

**NOTE**

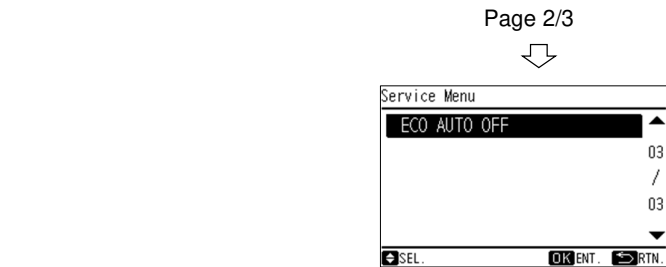
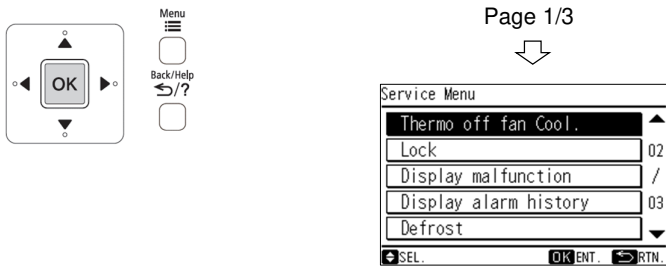
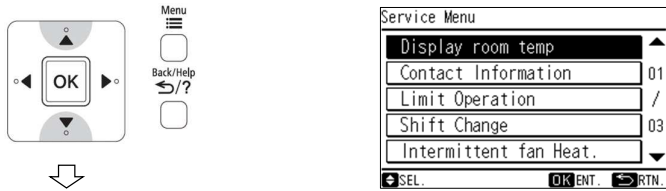
: Unable to set

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 an example.

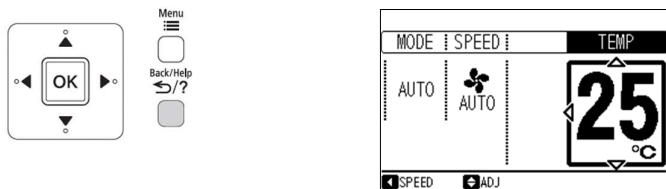
- 1 Press and hold and simultaneously for at least 3 seconds during the normal mode. The service menu will be displayed.



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



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

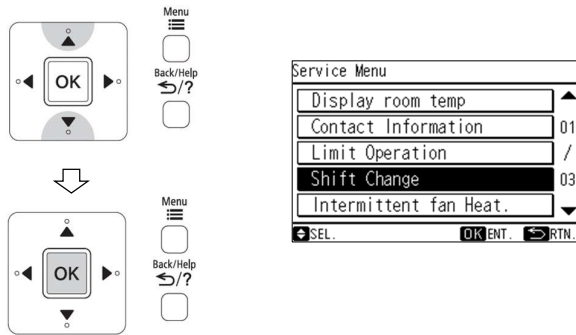




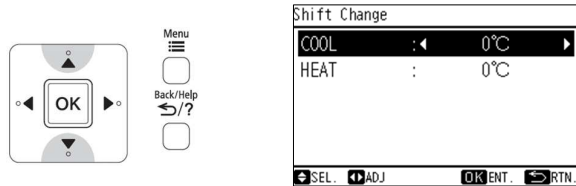
### 10.3.3. SHIFT VALUE CHANGE

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.

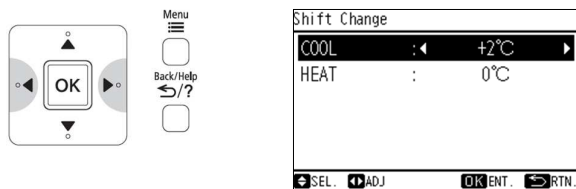


2 Press "▲" or "▼" to select the operation mode. ("COOL" or "HEAT")

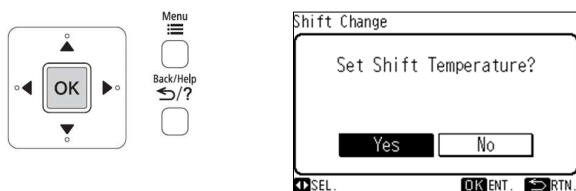


3 By pressing "◀" or "▶", the shift value will be changed as below.

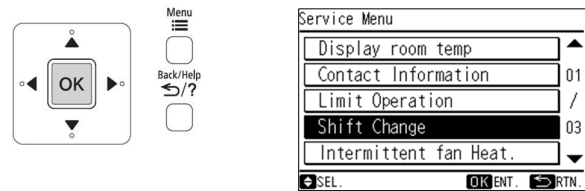
"...+5°C ⇔ -5°C ⇔ -4°C ⇔ -3°C ⇔ -2°C ⇔ -1°C ⇔ 0°C ⇔ +1°C ⇔ +2°C ⇔ +3°C ⇔ +4°C ⇔ +5°C..." ("...+10°F ⇔ -10°F ⇔ -8°F ⇔ -6°F ⇔ -4°F ⇔ -2°F ⇔ 0°C ⇔ +2°F ⇔ +4°F ⇔ +6°F ⇔ +8°F ⇔ +10°F...")



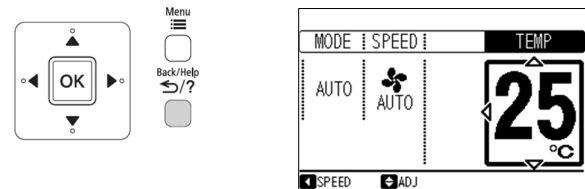
4 Press "OK" to finish the shift value setting. The confirmation screen will be displayed.



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



#### NOTE

- When the setting is done, fan speed will be changed to "silent".
- This setting cannot use during operation.
- The "shift value 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.

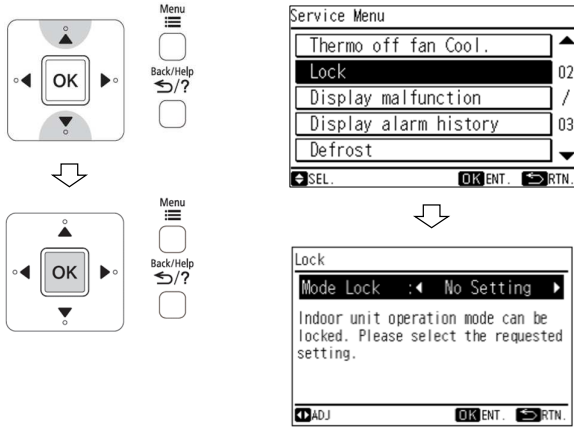
### 10.3.4. OPERATION LOCK

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.

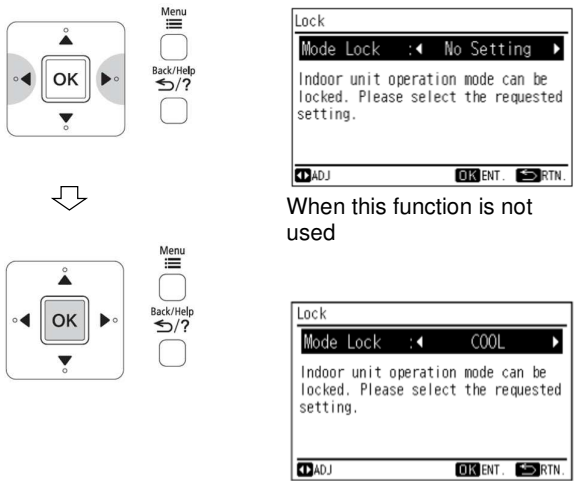
1 When unit is OFF, select "Lock" from the service menu and press "OK".

The screen of "Mode Lock" selection will be displayed.



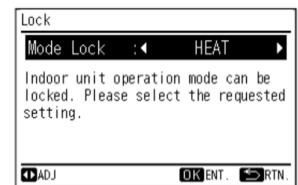
2 By repeatedly pressing "◀" or "▶", the indication is changed in order of "No Setting" <---> "COOL" <---> "HEAT"

Select the function target and press "OK".  
The confirmation screen will be displayed.



When this function is not used

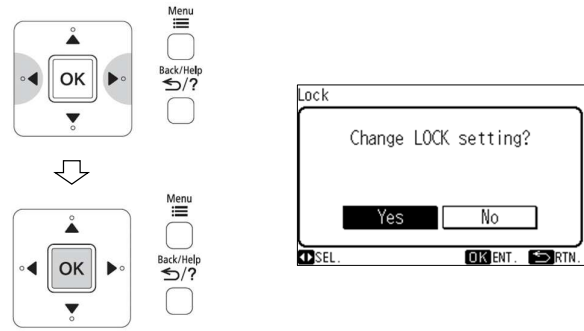
When "Cooling" mode lock is selected



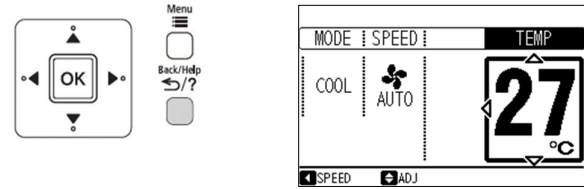
When "Heating" mode lock is selected

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

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



4 Press "◀/?" to return to the normal mode.



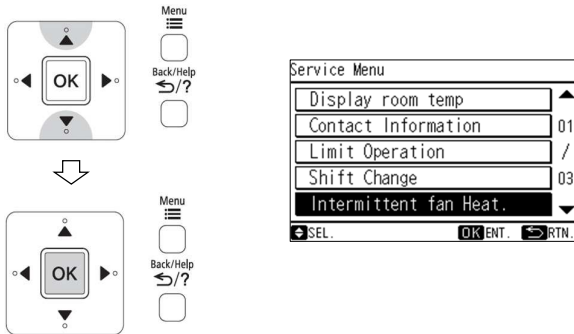
Example: Select "Cooling" mode lock

**NOTE:**  
The operation lock setting will remain unchanged after the unit is turned off.

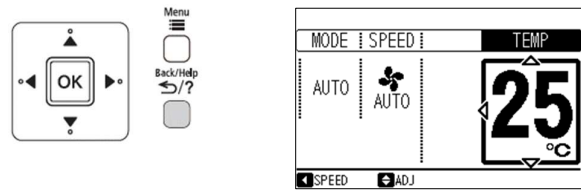
### 10.3.5. INTERMITTENT FAN CONTROL

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

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



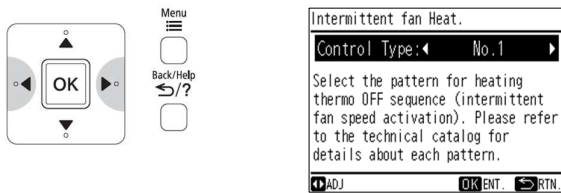
5 Press "Back/Help" to return to the normal mode.



**NOTE**

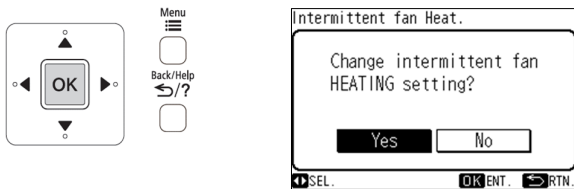
- This setting cannot use during operation.
- The intermittent fan control setting will remain unchanged after the unit is turned off.

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

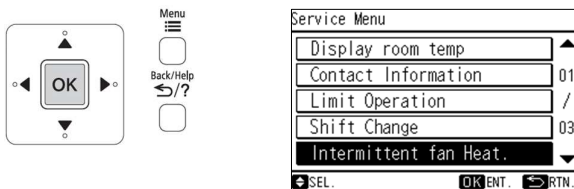


|      | Single model                       | Multi model                        |
|------|------------------------------------|------------------------------------|
| No 1 | Continuous                         | 30 sec ON / 210 sec OFF repeatedly |
| No 2 | 30 sec ON / 210 sec OFF repeatedly | 50 sec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



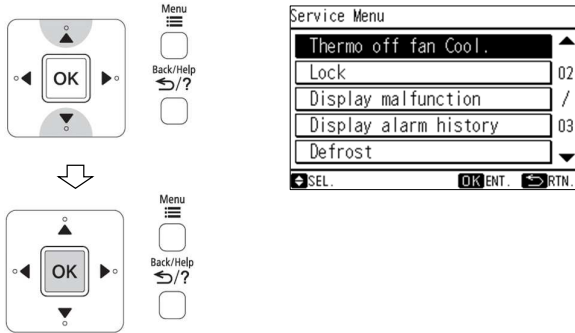
4 Select "Yes" by pressing "◀" or "▶" and press "OK".  
The setting will be confirmed and the screen will return to the service menu.



### 10.3.6. FAN SPEED DURING THERMO OFF

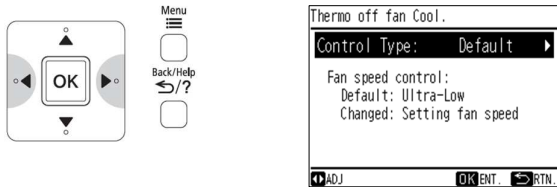
The fan speed during thermo off in Cooling mode can be changed.

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

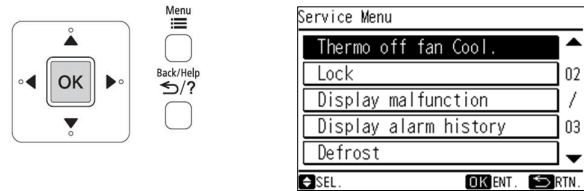


2 By pressing "◀" or "▶", the "Control Type" will be changed as below.

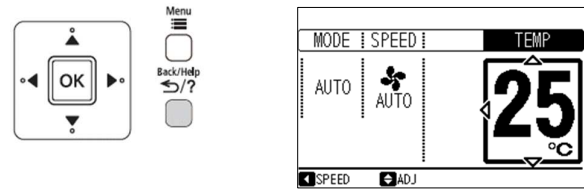
"Default" <---> "Changed"



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



5 Press "Back/Help" to return to the normal mode.

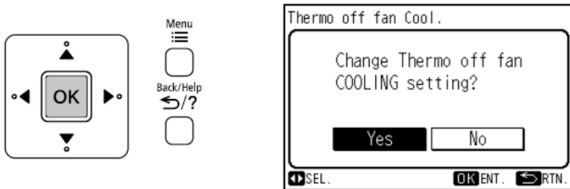


**NOTE:**

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

|         | Fan speed during thermo off                                   |
|---------|---|
| Default | Ultra low   |
| Changed | Set fan speed<br>(When auto fan is set, the fan speed is low) |

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



## 10.4. H-LINK ADAPTOR – PSC 6RAD

### 10.4.1. SAFETY SUMMARY

**DANGER:**

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

**WARNING:**


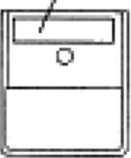


- DO NOT perform installation work and electrical wiring connection by yourself. Contact your distributor or dealer of HITACHI and ask then for installation work and electrical wiring by service person. The specified cable should be used to connect (i) room air conditioner and adaptor, and (ii) controller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



**CAUTION:**

- DO NOT install the indoor unit, outdoor unit, controller and cable as such places as:
  - where there is oil vapor and dispersion of oil
  - where there is sulfuric environment (near the hot springs)
  - where there is a flammable gas
  - where there is salty environment (near the sea)
- DO NOT install the indoor unit, outdoor unit, controller and cable within approximately 9.84ft (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.

### 10.4.2. INSTALLATION WORK

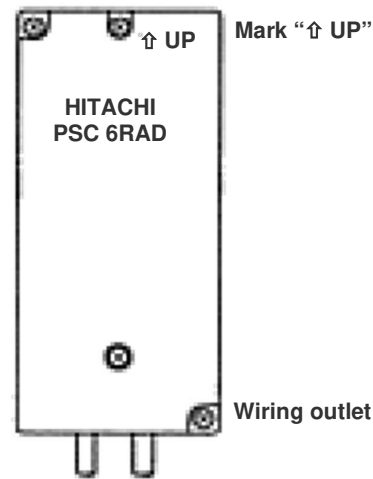
Before installation  
Check the contents and the number of the accessories in the packing.

|  |  |
|--|--|
| Adaptor                                  |  <p>With two 1.8m cables (70 inches cables)</p> |
| 1 piece of cover for hiding the covering |  <p>Attached 2 sided tapes</p>                  |
| Two-sided tape for attaching to Adaptor  |  <p>4.33x1.57x0.12 inch (110x40x3mm)</p>        |
| 2 connectors for H-Link connection       |   |

|  |  |
|--|--|
| 2 tapping screws for attaching to wall |  <p>φ3.0 x 10mm (φ0.120 x 3/8 inch)</p> |
| 2 screws for attaching to wooden wall  |  <p>φ3.1 x 16mm (φ0.122 x 5/8 inch)</p> |

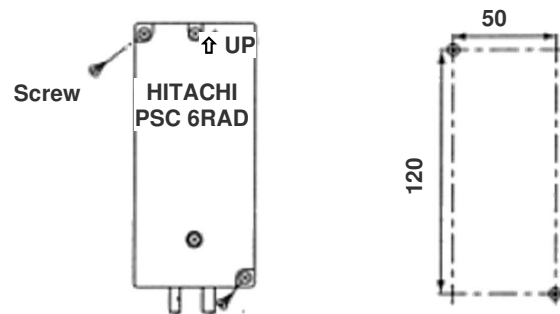
- 1) RAC adaptor can be installed to the wall as well as on the air conditioner itself
- 2) Install RAC adaptor in the vertical surface as shown below.

Upper side

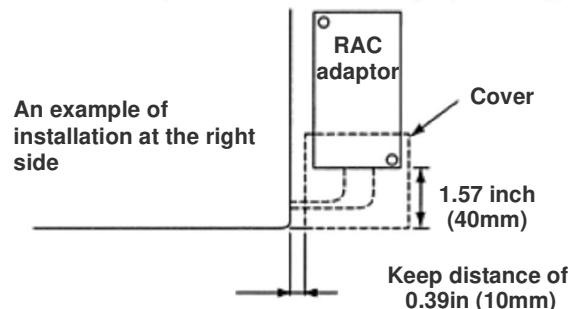


Bottom side

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



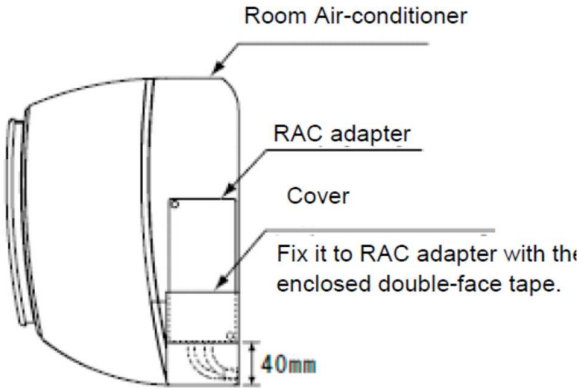
- ii) When using the cover  
It can be installed at the right and left side of room air conditioner. Fix the cover and RAC adaptor with the two-sided tape (accessory).



- b) When installing on the room air-conditioner

In case that it cannot be installed to the wall due to the space or material problem, install the RAC adaptor with the two-sided tape (accessory) on the room air-conditioner.

- 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.

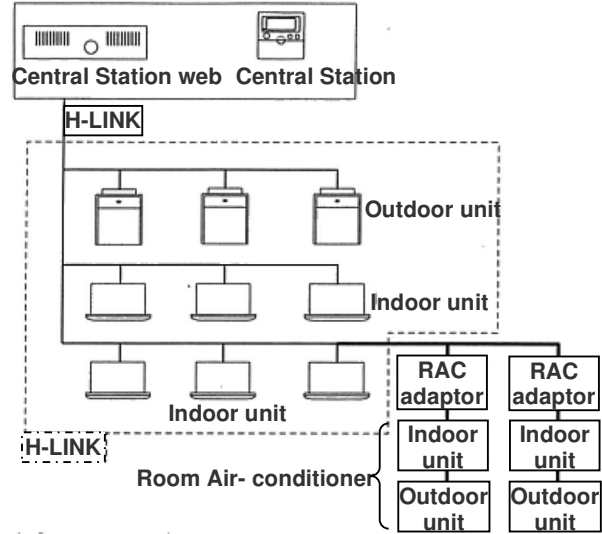


**NOTE:**

- 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.

**10.4.3. ELECTRICAL WIRING**

System configuration

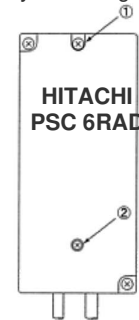


**CAUTION:**

- 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 11.8 inches. (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 (0.0011in(0.7mm<sup>2</sup>) to 0.0019in(1.25mm<sup>2</sup>) 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 3.2ft (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.

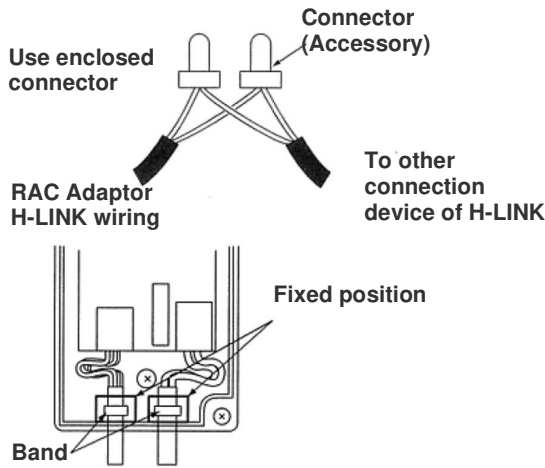


- Wiring Connection  
Connection with Room Air-Conditioner
  - i) Remove the front cover of the room air-conditioner and the cover of electrical box.
  - ii) The cable attached with the connector of the RAC adaptor shall be connected with the connector of indoor PCB

- 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.

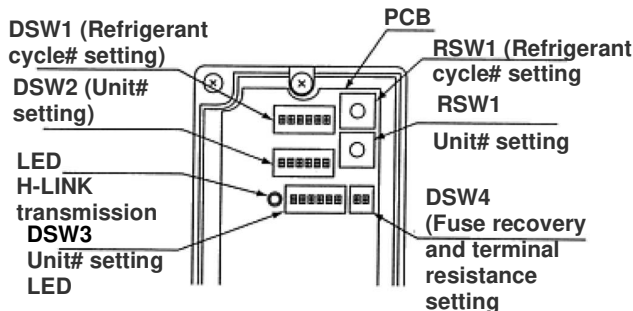


**CAUTION:**

- 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.

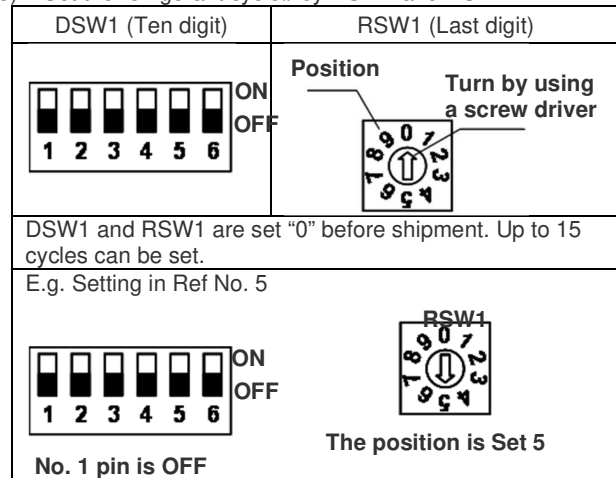
**10.4.4. DIP SWITCH SETTING**

- 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.

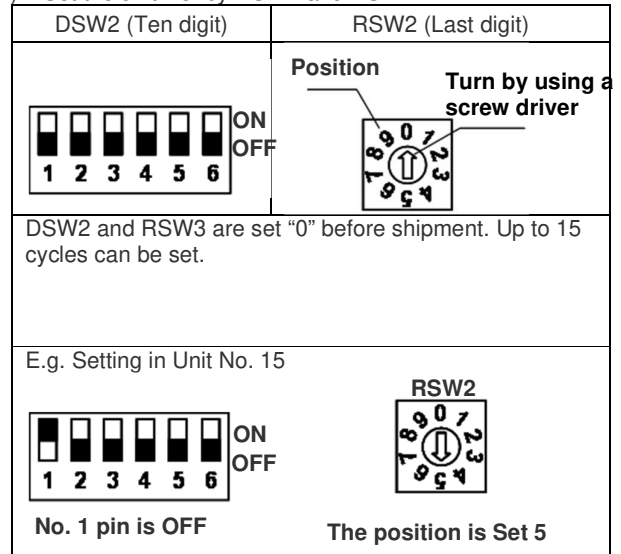


**CAUTION:**

- DO NOT turn ON various pins of DSW1 and DSW2
- 3) Set the refrigerant cycle# by RSW1 and DSW1

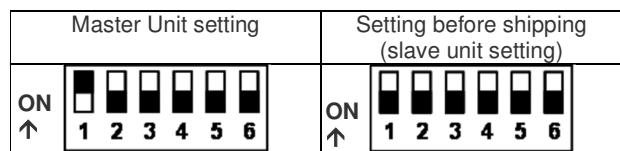


- 4) Set the unit No. by RSW2 and DSW2



- 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)

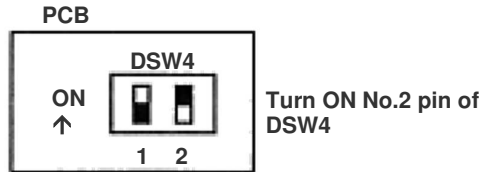
|                   |   | Indoor Unit# |   |   |   |   |   |   |   |
|-------------------|---|--------------|---|---|---|---|---|---|---|
|                   |   | 0            | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Refrigerant Unit# | 0 | ●            | ○ | ○ | ○ | ○ |   |   |   |
|                   | 1 |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

**CAUTION:**

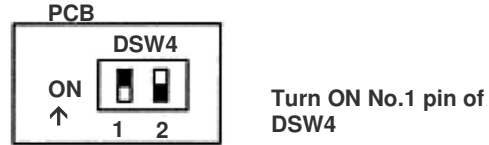
– DO NOT set various main adaptors in the same refrigerant cycle.

- 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.



**10.4.5. 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.

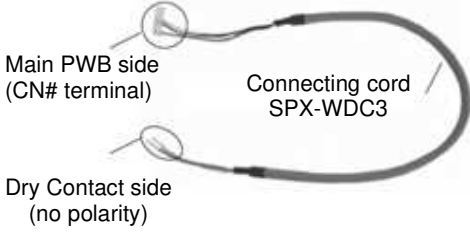
- 1) Confirmation of RAC Adaptor Connection  
Confirm if the RAC adaptor connection is recognized in the control system equipments. In case that it is not confirmed, check the transmission cable, refrigerant cycle #, indoor unit #, terminal resistance setting etc.
- 2) Registration  
Confirm if the RAC 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.



### 10.5. DRY CONTACT (SPX-WDC3) APPLICATION (USING DIP SWITCH)

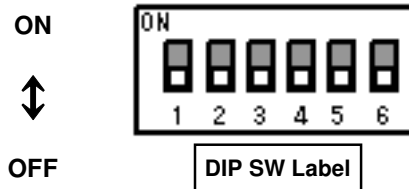
The dry contact system enables the operation of the air conditioner indoor unit to be controlled by using external dry contacts (with non voltage) such as card-key controller or window for facilities such as hotels.

Table 1 (Applicable models and related information)

| Optional Connecting cord Accessory SPX-WDC3                                       | Model   | DIP SW Label | CN# |
|---|---|--------------|-----|
|  | SPX-WDC3<br><br>RAS-EH09PHLAB<br>RAS-EH12PHLAB<br>RAS-EH09RHLAE<br>RAS-EH12RHLAE<br>RAS-EH18RHLAE<br>RAS-EH24RHLAE<br>RAS-EH36PHLAE | DSW1         | CN6 |

Note:

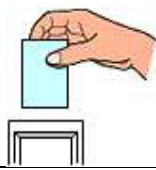
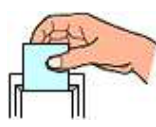




- 1) DRY CONTACT function is "Enable" by set pin No. 2 of the DIP SWITCH (refer to table 1 for the label) to ON position.
- 2) Select the proper setting for DRY CONTACT LOGIC INPUT pin No. 3 on DIP SWITCH (refer to Table 1 for the label)
  - i) Set to OFF position (Hi Input) if the type of Dry Contact 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.




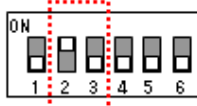

| Pin No. | Function                | Switch Position / Setting |                 |    |                 |
|---------|-------------------------|---------------------------|-----------------|----|-----------------|
|         |                         | OFF                       | Disable         | ON | 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  |
|------------------------|--|--|
|                        | REMOVE   | INSERT   |
| CARD KEY (Door Switch) |           |           |
| Contact type a         | OPEN<br>  | CLOSE<br> |
| Contact type b         | CLOSE<br> | OPEN<br>  |

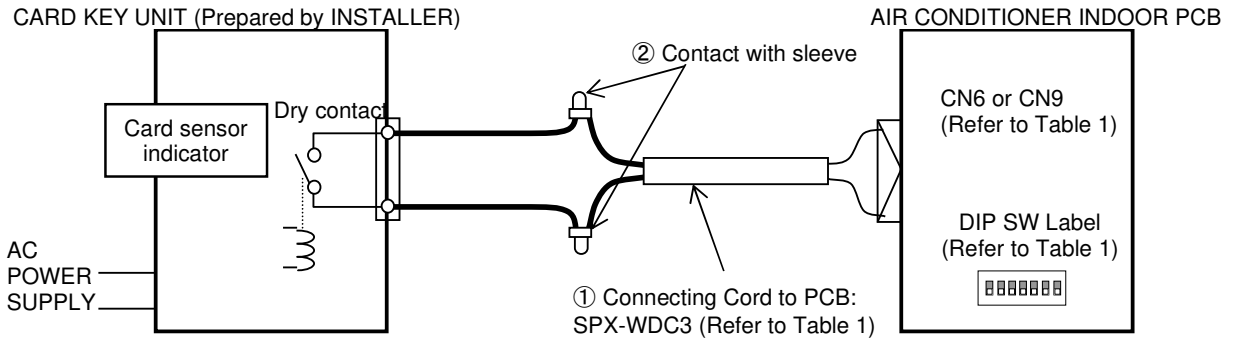
## [2] SET THE POSITION OF DIP SWITCH

| POSITION CONDITION OF DIP SWITCH   |   |
|--|---|
| INITIAL CONDITION<br>(CARD KEY NO USE)<br> | No. 2 : OFF<br>No. 3 : OFF                          |
|    | <b>HI Input Active</b><br>No. 2 : ON<br>No. 3 : OFF |
|    | <b>LO Input Active</b><br>No. 2 : ON<br>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.

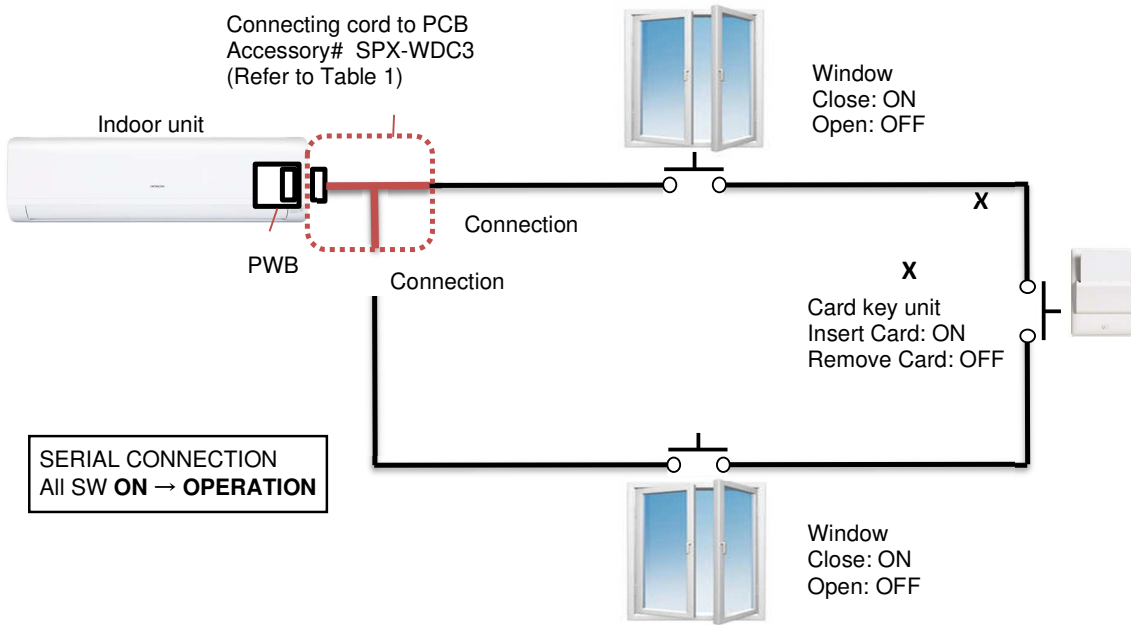
- When the CARD KEY is in insert condition, the air conditioner operation is allowable by remote controller.
- When the dry contact switch on the Card Key Unit is open (refer to diagram below for contact type a), the unit stops to operate (it takes 10 seconds to stop the unit operation after the dry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

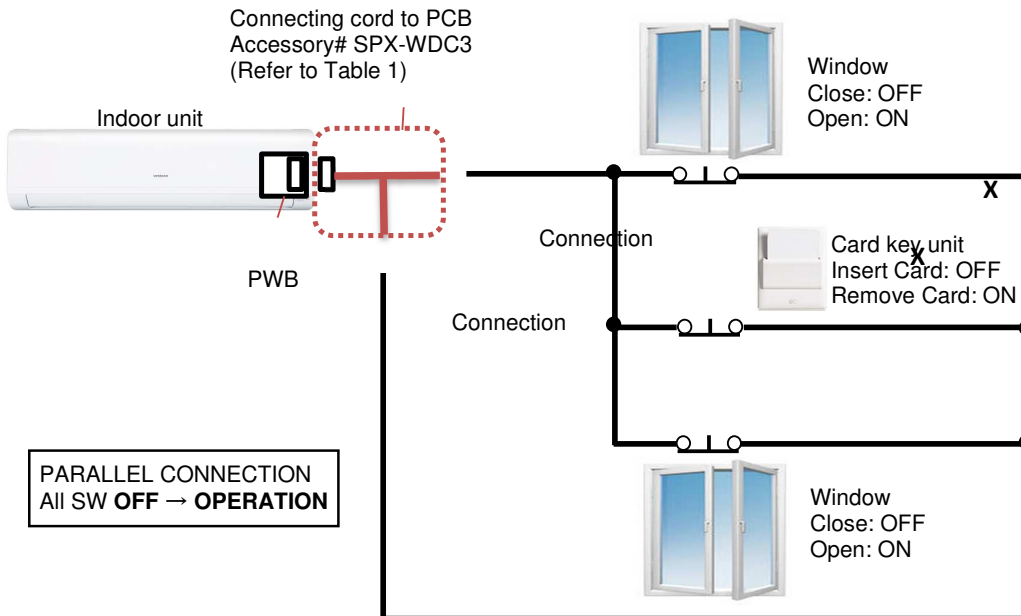


• CONNECTION EXAMPLE

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

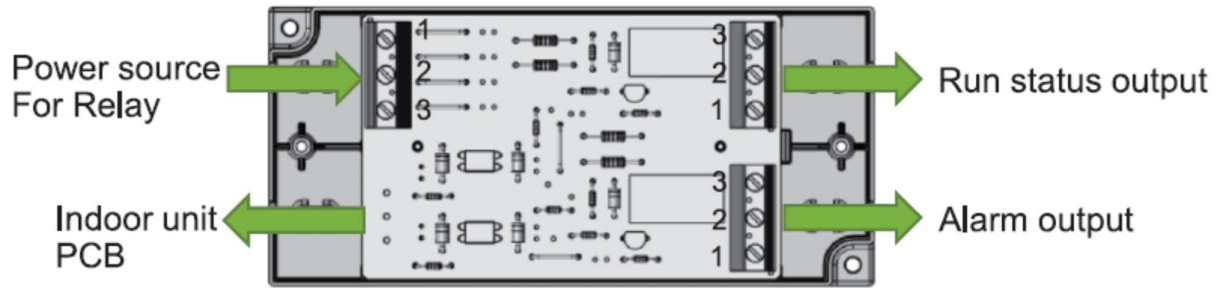


ii. Pin No. 3 of DIP SWITCH is set to ON position (LO Input Active) for Dry Contact Type b



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

10.6. RUN STATUS AND ALARM SIGNAL – SPX-WDC8



When operating RAC, Run Status signal is output  
 When operation stops, the signal disappears.  
 When RAC gets malfunction, alarm signal is output.  
 Each signal has to be taken out through the relay kit

The relay kit must to be used because of noise interference. The noise will cause air-condition failure.  
 The voltage from customer's home supply to adapter must be in the 5 ~ 24V, the current is less than 10mA.  
 If the voltage is lower than 5V, optocouplers will not be in action; once the voltage is higher than 24V, optocouplers adapter will be damaged.  
 Load side is a high voltage line, please be careful from electric shock and install the indication lamp as near as possible to the relay kit.  
 The maximum length of the wiring cable should be below 100m.

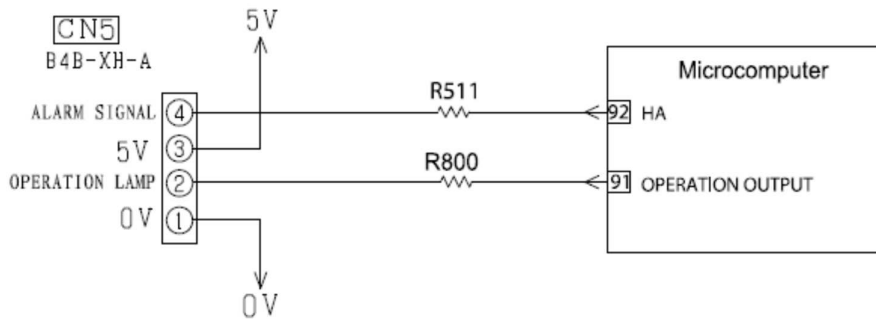
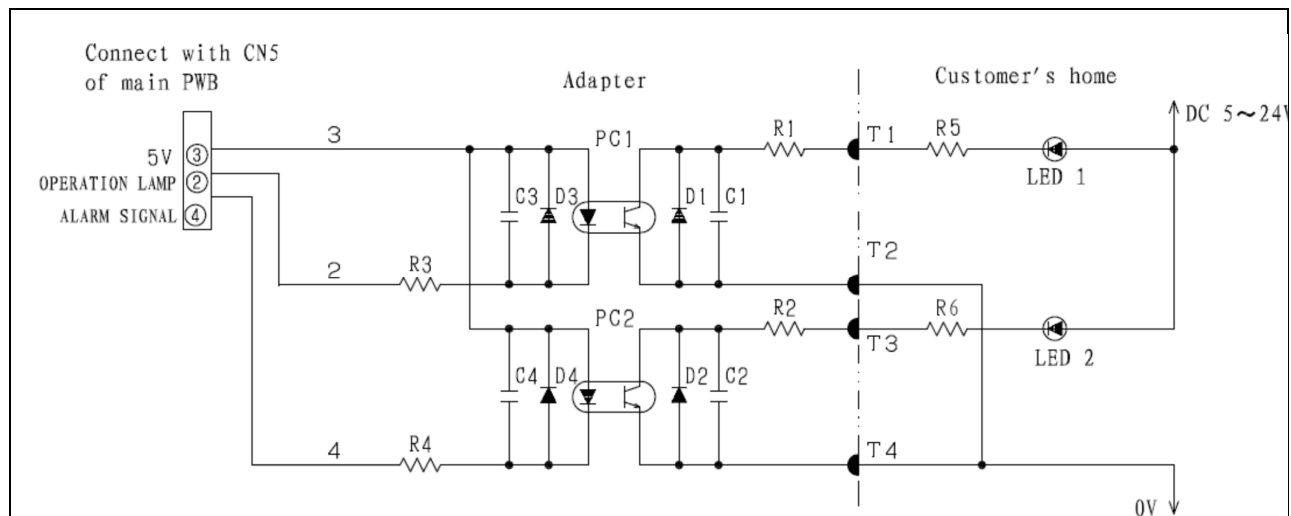


Fig 13-1

Fig. 13-1 is control circuit of run status and signal output in main PWB. The pin ② of CN5 is used to show run status and the pin ④ of CN5 is used to warn people when failure occurrence.  
 If customer want to use this function, need to use the adapter (sold separately) to achieve it. The adapter is an optional and the detail circuit refer to following circuit.



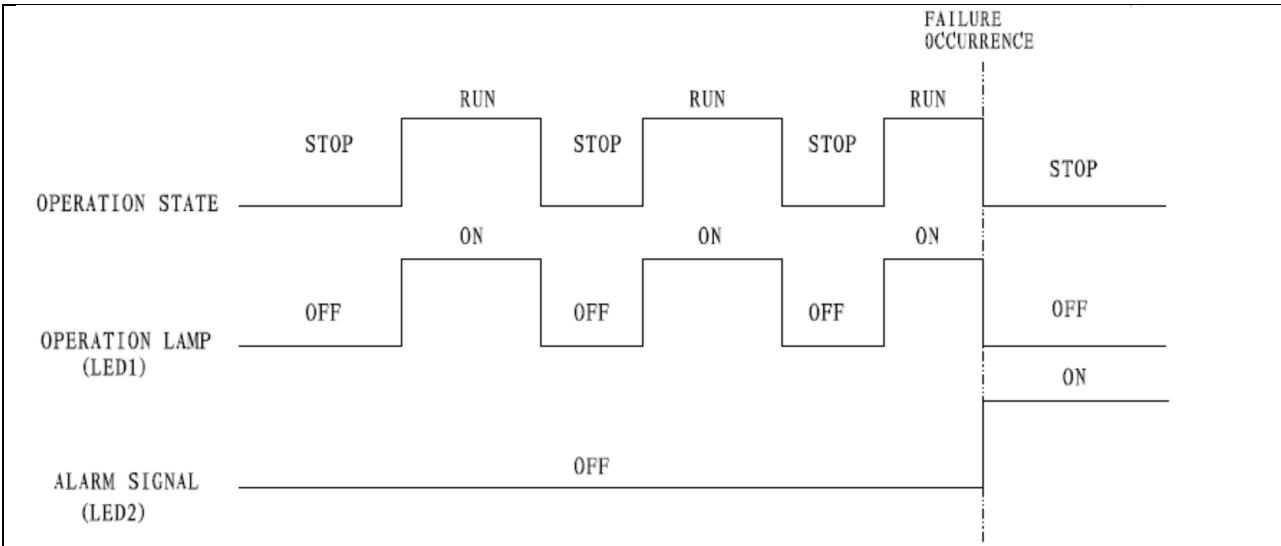


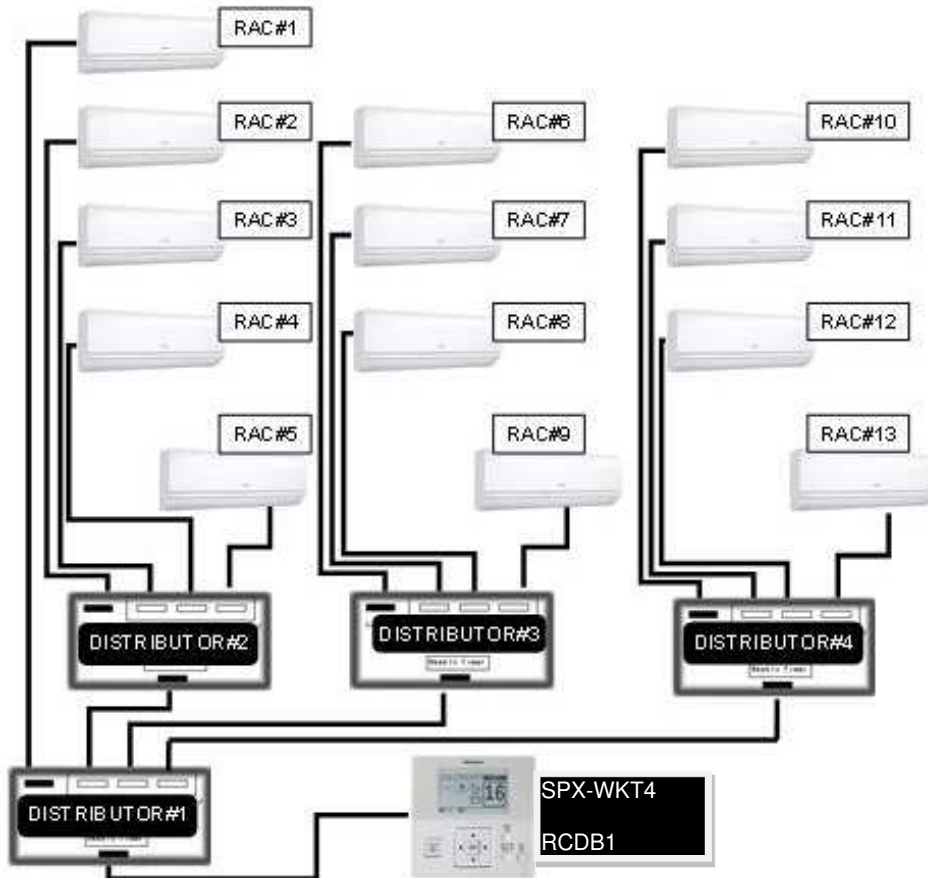
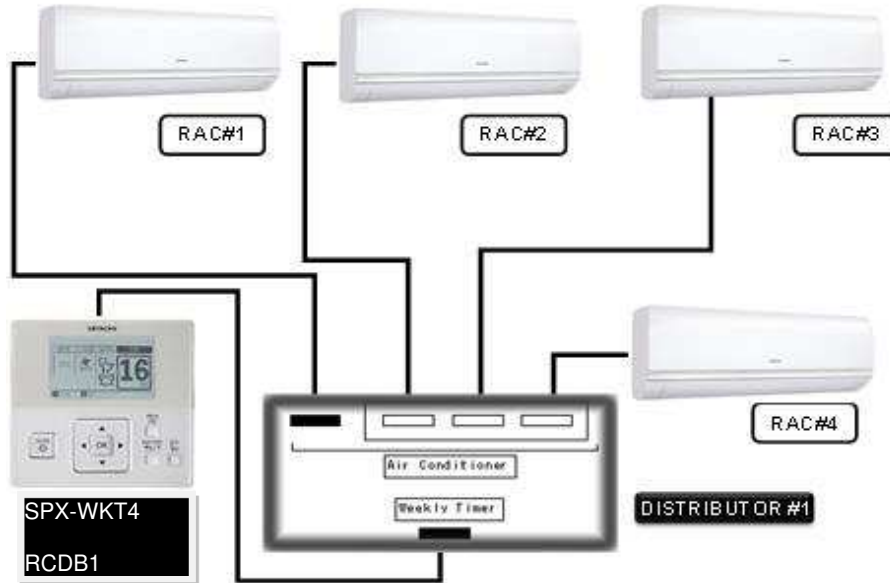
Fig. 13-2

LED1 is on when air-conditioner is running and is off when air conditioner is stopping. We can know the status of air conditioner by LED1.  
LED2 is off when air conditioner is in normal condition and is on when air conditioner is in failure mode. We can repair it in time.  
The brightness of the lamp (LED1, LED2) can be determined by adjusting the resistance (R5, R6) value.

### 10.7. 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.



Specification in this document are subject to change without notice, in order that Johnson Controls Hitachi Air Conditioning Malaysia Sdn. Bhd. may bring the latest innovations to their customers.

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