

# TECHNICAL GUIDE

## PREMIUM SERIES

**DUCTLESS SINGLE-SPLIT  
AIR CONDITIONERS AND HEAT PUMPS**  
**22 SEER – 1 PHASE**  
**3/4 THRU 3 NOMINAL TONS**  
**MODELS: DCPM/DHPM**



**Intertek**

**Due to continuous product improvement, specifications are subject to change without notice.**

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### WARRANTY SUMMARY\*

Standard 2-Years limited parts warranty.  
Standard 6-Years limited compressor warranty.

## DESCRIPTION

The Single-Split Series are ductless climate systems. They are designed with a matching indoor unit for optimum performance and efficiency. These climate systems are supported with accessories and documents to serve specific functions.

## FEATURES

**Variable Frequency Rotary Compressor** - Twin rotary inverter compressor on all models features high efficiency operation that modulates down to 15 Hz and as high as 120 Hz for reduced vibration and quiet operation. Brushless DC motor uses powerful Neodymium magnets that are approximately 15-20 times stronger than ferrite magnets used in conventional AC compressors. The DC Inverter Control provides continuous operation, while adjusting capacity according to room temperature. The accurate sensing of cooling or heating loads prevents frequent changes in capacity and ensures efficient, economical operation.

**Low Ambient Cooling Operation Down to 5 °F** - This feature allows for a space to be air-conditioned even in outdoor temperatures as low as 5 °F. This cooling ability is important when dealing with server equipment rooms, surveillance mechanical rooms, restaurant kitchens, fitness centers, and more.

**Load Variation Management System** - The outdoor coil thermistor continuously monitors the temperature and communicates with the microprocessor. Depending on the temperature measured, the compressor will be allowed to increase the frequency if needed to meet the load or reduce frequency as the load is reduced.

**High Pressure Discharge Temperature** - The compressor discharge line thermistor continuously monitors the temperature and communicates with the microprocessor. Depending on the temperature measured, the compressor will be allowed to increase the frequency to meet the load or is forced to run at the current or reduced frequency. If the temperature gets excessively high, the compressor will be de-energized.

**Defrost Control (Heat Pump Models)** - Defrost cycle is automatically enabled if there is a build-up of frost on the outdoor coil. Outdoor fan and indoor blower operation is terminated during the defrost cycle. H1 is displayed on the indoor unit panel on the front cover during a defrost cycle.

**Reversing Valve (Heat Pump Models)** - 4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa. Valve operates on system pressure differential between outdoor unit and indoor unit.

**R-410A Refrigerant** - Unit is pre-charged with R410A refrigerant that uses PVE refrigerant oil. Polyvinyl ether (PVE) is an innovative refrigerant oil specially formulated for hydrofluorocarbon (HFC) refrigeration systems. In addition to providing lubricating properties, it also has a number of other applied advantages that help to increase the reliability of the refrigeration systems where it is applied.

**Refrigerant Line Connections, Service Valve** - Outdoor units are designed with easy service and maintenance in mind. Maintenance points are located behind easy-access panels, to make installation and service a breeze for a trained technician. Flare connection lines are located on side of unit cabinet. Fully serviceable brass service valve prevents corrosion and provide access to refrigerant system. Shut-off valve that can be fully shut off while 2-way suction/vapor valve (with service port) may be front seated to manage refrigerant charge while servicing system.

**Air Deflection Louvers** - Horizontal louvers default to the cooling or heating position when the unit is operating. Horizontal louvers can be set to a preset oscillating range or fixed position from the wireless remote control. Full oscillating is the default setting when button is pushed. Vertical louvers can be manually adjusted to direct the airflow for optimal comfort.

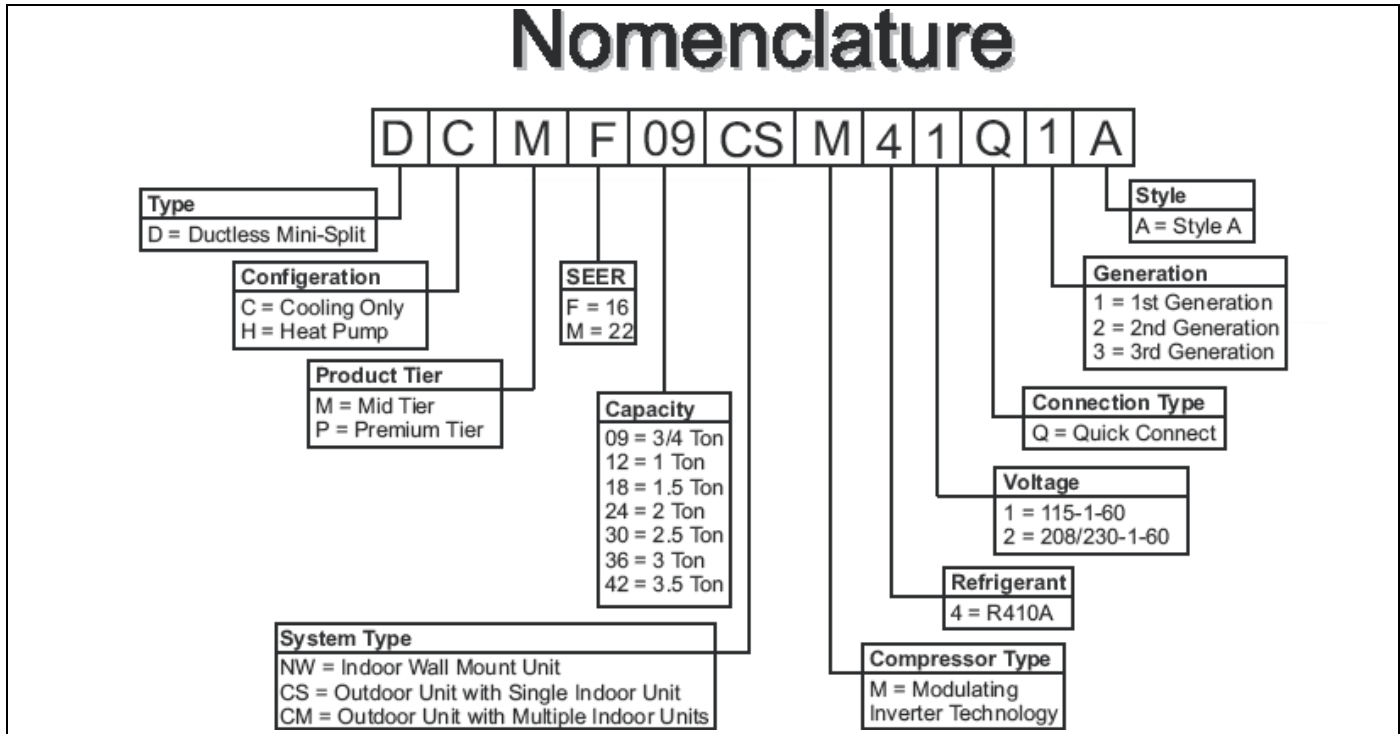
**Indoor Coil Freeze Protection** - The indoor coil thermistor monitors the coil temperature continuously. Any time the coil temperature drops below 30°F, the compressor and the outdoor fan (30 seconds later) will be switched off until the coil temperature rises above 43°F and the compressor has been off for a minimum of 3 minutes.

**I FEEL Function** - When I FEEL is activated, the system will satisfy the cooling or heating temperature set point where the remote control is located. When I FEEL is deactivated, the system will satisfy the cooling or heating temperature set point where the indoor unit is located. This feature provides homeowners with optimum comfort whether they are near or far from the indoor unit.

**Hot Heat Pump (cold air prevention)** - In heating mode, the indoor fan will be delayed from 1 to 3 minutes to allow refrigerant to warm up and avoid cold blow. This may occur during:

- Initial start-up of a heating cycle
- Immediately after completion of an Auto mode operation
- Heating under extremely low indoor temperatures

# Nomenclature



## SPECIFICATIONS

| <b>AIR CONDITIONERS - 230V</b>                 |  |                             |                             |                             |                             |                             |
|--|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Model  | DCPM09<br>NWM42Q1                                    | DCPM12<br>NWM42Q1           | DCPM18<br>NWM42Q1           | DCPM24<br>NWM42Q1           | DCPM36<br>NWM42Q1           |                             |
|  | DCPM09<br>CSM42Q1                                    | DCPM12<br>CSM42Q1           | DCPM18<br>CSM42Q1           | DCPM24<br>CSM42Q1           | DCPM36<br>CSM42Q1           |                             |
| Function                                       | Cooling  | Cooling                     | Cooling                     | Cooling                     | Cooling                     |                             |
| Rated Voltage                                  | 208/230  | 208/230                     | 208/230                     | 208/230                     | 208/230                     |                             |
| Frequency (Hz)                                 | 60Hz   | 60Hz                        | 60Hz                        | 60Hz                        | 60Hz                        |                             |
| Total Capacity (Btu/h) (High/ Standard/Low)    | 9600/9000/3000                                       | 13000/12000/3100            | 22350/18000/5970            | 25000/21400/9600            | 36,000/33,600/7,400         |                             |
| Total Capacity (W) (High/Standard/Low)         | 2813/2637/1025                                       | 3810/3517/909               | 6550/5275/1750              | 7325/6270/2812              | 10,550/9,850/2,170          |                             |
| Rated Power Input (W)                          | 634  | 1000                        | 1500                        | 1783                        | 3,650                       |                             |
| Nominal Input Current (A)                      | 2.88   | 4.55                        | 6.82                        | 8.10                        | 15.90                       |                             |
| SEER   | 22   | 20                          | 18                          | 18                          | 16                          |                             |
| Air Flow Volume (CFM) (SH/H/M/L)               | 307/277/254/218                                      | 307/277/254/218             | 501/460/383/324             | 590/472/413/354             | 824/706/677                 |                             |
| Air Flow Volume (m <sup>3</sup> /h) (SH/H/M/L) | 520/470/430/370                                      | 570/470/430/370             | 850/780/650/550             | 1000/800/700/600            | 1400/1200/1150              |                             |
| Dehumidifying Volume (cu.ft./h)                | 0.042  | 0.049                       | 0.064                       | 0.088                       | 0.124                       |                             |
| Dehumidifying Volume (l/h)                     | 1.2  | 1.4                         | 1.8                         | 2.5                         | 3.5                         |                             |
| EER  | 14.2   | 12                          | 12                          | 12                          | 9.21                        |                             |
| <b>Indoor Unit</b>                             | <b>Model of Indoor Unit</b>                          | <b>DCPM09<br/>NWM42Q1</b>   | <b>DCPM12<br/>NWM42Q1</b>   | <b>DCPM18<br/>NWM42Q1</b>   | <b>DCPM24<br/>NWM42Q1</b>   | <b>DCPM36<br/>NWM42Q1</b>   |
|  | Fan Motor Speed (r/min) (SH/H/M/L)                   | 1260/1100/950/750           | 1330/1100/950/750           | 1500/1200/1050/900          | 1500/1200/1050/900          | 1550/1400/1300              |
|  | Output of Fan Motor (w)                              | 20                          | 20                          | 20                          | 60                          | 60                          |
|  | Fan Motor Capacitor (uF)                             | 1                           | 1                           | 1.5                         | 1.5                         | 3.5                         |
|  | Fan Motor RLA(A)                                     | 0.2                         | 0.2                         | 0.28                        | 0.24                        | 0.47                        |
|  | Fan Type-Piece                                       | Cross-flow - 1              | Cross-flow - 1              | Cross-flow - 1              | Cross-flow - 1              | Cross-flow - 1              |
|  | Diameter-Length (inch)                               | 3.6 x 25.4                  | 3.6 x 25.4                  | 3.9 x 28.0                  | 3.9 x 30.1                  | 4.25 x 20.57                |
|  | Diameter-Length (mm)                                 | 92x645                      | 92x645                      | 98x710                      | 98x765                      | 108x522.7                   |
|  | Evaporator   | Aluminum<br>Fin-copper Tube | Aluminum<br>Fin-copper Tube | Aluminum<br>Fin-copper Tube | Aluminum<br>Fin-copper Tube | Aluminum<br>Fin-copper Tube |
|  | Pipe Diameter (inch)                                 | Φ 0.276                     | Φ 0.276                     | Φ 0.276                     | Φ 0.276                     | Φ 0.276                     |
|  | Pipe Diameter (mm)                                   | φ7                          | φ7                          | φ7                          | φ7                          | φ7                          |
|  | Row-Fin Gap (inch)                                   | 2 - 0.055                   | 2 - 0.055                   | 2 - 0.055                   | 2 - 0.059                   | 2 - 0.055                   |
|  | Row-Fin Gap (mm)                                     | 2-1.4                       | 2-1.4                       | 2-1.4                       | 2-1.5                       | 2-1.4                       |
|  | Coil length (L) x height (H) x coil width (W) (inch) | 22.9 x 1.0 x 10.4           | 22.9 x 1.0 x 10.4           | 28.1 x 1.0 x 12.0           | 30.1 x 1.0 x 13.5           | 42.3 x 1 x 15               |
|  | Coil length (L) x height (H) x coil width (W) (mm)   | 581x25.4x264                | 581x25.4x264                | 715x25.4x304.8              | 765x25.4x342.9              | 1074x25.4x381               |
|  | Output of Swing Motor (W)                            | 2                           | 2                           | 2.5                         | 3                           | 2                           |
|  | Fuse (A)   | 3.15                        | 3.15                        | 3.15                        | 3.15                        | 3.15                        |
|  | Sound Pressure Level dB (A)(SH/H/M/L)                | 42 / 38 / 35 / 32           | 44 / 39 / 36 / 33           | 49 / 44 / 40 / 35           | 53 / 45 / 41 / 37           | 59 / 56 / 53                |
|  | Sound Power Level dB (A) (SH/H/M/L)                  | 52 / 48 / 45 / 42           | 54 / 49 / 46 / 43           | 59 / 54 / 50 / 45           | 63 / 55 / 51 / 47           | 69 / 66 / 63                |
|  | Dimension (W/D/H) (inch)                             | 33.3 x 7 x 11               | 33.3 x 7 x 11               | 37.0 x 8 x 12               | 39.7 x 8.7 x 12.4           | 53.1 x 10 x 12.8            |
|  | Dimension (W/D/H) (mm)                               | 845 x 178 x 279             | 845 x 178 x 279             | 940 x 203 x 305             | 1008 x 221 x 315            | 1349 x 254 x 325            |
| Dimension of Package (L/W/H) (inch)            | 36.1 x 10.2 x 14.6                                   | 36.1 x 10.2 x 14.6          | 39.8 x 11.2 x 15.0          | 42.4 x 12.9 x 15.7          | 56.7 x 14.1 x 16.6          |                             |
| Dimension of Package (L/W/H) (mm)              | 917 x 259 x 371                                      | 917 x 259 x 371             | 1011 x 285 x 381            | 1076 x 328 x 399            | 1440 x 358 x 422            |                             |
| Net Weight /Gross Weight (lbs)                 | 22.0 / 31  | 22.0 / 31                   | 28.6 / 38                   | 35.2 / 45                   | 44.1 / 60                   |                             |
| Net Weight /Gross Weight (kg)                  | 10 / 14  | 10 / 14                     | 13 / 17                     | 16 / 20                     | 20 / 27                     |                             |

| AIR CONDITIONERS - 230V (Continued) |   |                            |                            |                            |                            |                            |
|-------------------------------------|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                     | Model of Outdoor Unit   | DCPM09<br>CSM42Q1          | DCPM12<br>CSM42Q1          | DCPM18<br>CSM42Q1          | DCPM24<br>CSM42Q1          | DCPM36<br>CSM42Q1          |
| Outdoor Unit                        | Compressor Manufacturer/trademark                                     | MITSUBISHI                 | MITSUBISHI                 | MITSUBISHI                 | MITSUBISHI                 | MITSUBISHI                 |
|                                     | Compressor Type   | Inverter Rotary            | Inverter Rotary            | Inverter Rotary            | Inverter Rotary            | Inverter Rotary            |
|                                     | L.R.A. (A)  | 10.2                       | 10.2                       | 13.8                       | 18.5                       | 67                         |
|                                     | Compressor RLA(A)   | 6.21                       | 5.34                       | 9.35                       | 10.45                      | 13.5                       |
|                                     | Compressor Power Input (W)  | 860                        | 860                        | 1200                       | 1420                       | 3010                       |
|                                     | Throttling Method   | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
|                                     | Working Temp Range (°F)   | 5 ~ 115                    | 5 ~ 115                    | 5 ~ 115                    | 5 ~ 115                    | 5 ~ 115                    |
|                                     | Working Temp Range (°C)   | -15 ~ 46                   | -15 ~ 46                   | -15 ~ 46                   | -15 ~ 46                   | -15 ~ 46                   |
|                                     | Condenser   | Aluminum Fin-copper Tube   | Aluminum Fin-copper Tube   | Aluminum Fin-copper Tube   | Aluminum Fin-copper Tube   | Aluminum Fin-copper Tube   |
|                                     | Pipe Diameter (inch)  | Φ 0.375                    | Φ 0.375                    | Φ 0.276                    | Φ 0.276                    | φ3/8                       |
|                                     | Pipe Diameter (mm)  | φ9.52                      | φ9.52                      | φ7                         | φ7                         | φ9.52                      |
|                                     | Rows-Fin Gap (inch)   | 2 - 0.055                  | 2 - 0.055                  | 2 - 0.055                  | 2 - 0.055                  | 2 - 0.055                  |
|                                     | Rows-Fin Gap (mm)   | 2-1.4                      | 2-1.4                      | 2-1.4                      | 2-1.4                      | 2-1.4                      |
|                                     | Coil length (l) x height (H) x coil width (L) (inch)                  | 29.4 x 20.0 x 1.7          | 29.4 x 22.0 x 1.7          | 33.0 x 26.0 x 1.5          | 38.1 x 29.4 x 1.5          | 37 x 1.75 x 30             |
|                                     | Coil length (l) x height (H) x coil width (L) (mm)                    | 747x44x508                 | 747x44x559                 | 837x38.1x660               | 967x38.1x748               | 940.5x44x762               |
|                                     | Fan Motor Speed (rpm)   | 680/900                    | 680/900                    | 800                        | 800                        | 900                        |
|                                     | Output of Fan Motor (W)   | 30                         | 30                         | 60                         | 90                         | 170                        |
|                                     | Fan Motor RLA (A)   | 0.14                       | 0.14                       | 0.32                       | 1.1                        | 0.45                       |
|                                     | Fan Motor Capacitor (uF)  | /                          | /                          | /                          | 4                          | /                          |
|                                     | Fuse (A)  | 15A                        | 15A                        | 20A                        | 20A                        | 25A                        |
|                                     | Air Flow Volume of Outdoor Unit (CFM)                                 | 944                        | 944                        | 1887                       | 2359                       | 2603                       |
|                                     | Air Flow Volume of Outdoor Unit (m <sup>3</sup> /h)                   | 1600                       | 1600                       | 3200                       | 4000                       | 4400                       |
|                                     | Fan Type-Piece  | Axial-flow                 | Axial-flow                 | Axial-flow                 | Axial-flow                 | Axial-flow                 |
|                                     | Fan Diameter (inch)   | 15.7                       | 15.7                       | 20.5                       | 21.7                       | 21.7                       |
|                                     | Fan Diameter (mm)   | 400                        | 400                        | 520                        | 552                        | 552                        |
|                                     | Climate Type  | T1                         | T1                         | T1                         | T1                         | T1                         |
|                                     | Permissible Excessive Operating Pressure for the Discharge Side (PSI) | 624                        | 624                        | 624                        | 624                        | 624                        |
|                                     | Permissible Excessive Operating Pressure for the Discharge Side (MPa) | 4.3                        | 4.3                        | 4.3                        | 4.3                        | 4.3                        |
|                                     | Permissible Excessive Operating Pressure for the Suction Side (PSI)   | 363                        | 363                        | 363                        | 363                        | 363                        |
|                                     | Permissible Excessive Operating Pressure for the Suction Side (MPa)   | 2.5                        | 2.5                        | 2.5                        | 2.5                        | 2.5                        |
|                                     | Sound Pressure Level dB (A)   | 50                         | 52                         | 55                         | 58                         | 65                         |
|                                     | Sound Power Level dB (A)  | 60                         | 62                         | 65                         | 68                         | 75                         |
|                                     | Dimension (W/D/H) (inch)  | 33.4 x 12.6 x 21.2         | 33.4 x 12.6 x 23.2         | 37.6 x 15.6 x 27.6         | 38.6 x 16.8 x 31.1         | 38.6 x 16.8 x 31.1         |
| Dimension (W/D/H) (mm)              | 848 x 320 x 538   | 848 x 320 x 589            | 955 x 396 x 701            | 980 x 427 x 790            | 980 x 427 x 790            |                            |
| Dimension of Package (L/W/H) (inch) | 34.7 x 14.3 x 23.4  | 34.7 x 14.3 x 25.4         | 40.5 x 18.5 x 29.1         | 42.6 x 19.2 x 33.7         | 42.6 x 19.2 x 33.7         |                            |
| Dimension of Package (L/W/H) (mm)   | 881 x 363 x 595   | 881 x 363 x 645            | 1029 x 470 x 738           | 1083 x 488 x 855           | 1083 x 488 x 855           |                            |
| Net Weight /Gross Weight (lbs)      | 80 / 91   | 89 / 97                    | 100 / 111                  | 119 / 133                  | 161/170                    |                            |
| Net Weight /Gross Weight (kg)       | 36 / 41   | 40 / 44                    | 45 / 50                    | 54 / 60                    | 73/77                      |                            |
| Refrigerant Charge (oz)             | 45.8  | 45.8                       | 49.3                       | 56.4                       | 91.7                       |                            |
| Refrigerant Charge (kg)             | 1.30  | 1.30                       | 1.40                       | 1.60                       | 2.6                        |                            |
| MCA                                 | 10.0  | 10.0                       | 16.0                       | 16.0                       | 17.0                       |                            |
| MOP                                 | 15.0  | 15.0                       | 20.0                       | 20.0                       | 25.0                       |                            |
| Connection Pipe                     | Length (ft)   | 24.6                       | 24.6                       | 24.6                       | 24.6                       | 24.6                       |
|                                     | Length (m)  | 7.5                        | 7.5                        | 7.5                        | 7.5                        | 7.5                        |
|                                     | Gas additional charge (oz/ft)   | 0.2                        | 0.2                        | 0.2                        | 0.2                        | 0.6                        |
|                                     | Gas additional charge (g/m)   | 15                         | 15                         | 15                         | 15                         | 50                         |
|                                     | Outer Diameter Liquid Pipe (inch)                                     | Φ 1/4                      | Φ 1/4                      | Φ 1/4                      | Φ 1/4                      | Φ 1/4                      |
|                                     | Outer Diameter Liquid Pipe (mm)                                       | φ6                         | φ6                         | φ6                         | φ6                         | φ6                         |
|                                     | Outer Diameter Gas Pipe (inch)  | Φ 3/8                      | Φ 3/8                      | Φ 1/2                      | Φ 5/8                      | Φ 5/8                      |
|                                     | Outer Diameter Gas Pipe (mm)  | φ9.52                      | φ9.52                      | φ12                        | φ16                        | φ16                        |
|                                     | Max Height Distance (ft)  | 33                         | 33                         | 33                         | 33                         | 33                         |
|                                     | Max Height Distance (m)   | 10                         | 10                         | 10                         | 10                         | 10                         |
| Max Length Distance (ft)            | 50  | 50                         | 82                         | 82                         | 98.4                       |                            |
| Max Length Distance (m)             | 15  | 15                         | 25                         | 25                         | 30                         |                            |

| <b>HEAT PUMPS - 09 thru 18 - 230V</b>                |                          |                    |                          |                    |                          |                     |  |
|--|--------------------------|--------------------|--------------------------|--------------------|--------------------------|---------------------|--|
| <b>Model</b>   | <b>DHPM09NWM42Q1</b>     |                    | <b>DHPM12NWM42Q1</b>     |                    | <b>DHPM18NWM42Q1A</b>    |                     |  |
|  | <b>DHPM09CSM42Q1</b>     |                    | <b>DHPM12CSM42Q1</b>     |                    | <b>DHPM18CSM42Q1A</b>    |                     |  |
| <b>Function</b>                                      | Cooling                  | Heating            | Cooling                  | Heating            | Cooling                  | Heating             |  |
| Rated Voltage  | 208/230                  |                    | 208/230                  |                    | 208/230                  |                     |  |
| Frequency (Hz)                                       | 60Hz                     |                    | 60Hz                     |                    | 60Hz                     |                     |  |
| Total Capacity (Btu/h) (High/ Standard/Low)          | 9600/9000/3000           | 9800/9800/3000     | 13000/12000/3100         | 13000/13000/3100   | 22350/18000/5970         | 22350/19800/5970    |  |
| Total Capacity (W) (High/Standard/Low)               | 2813/2637/1025           | 2813/2637/1025     | 3810/3517/909            | 3810/3517/909      | 6550/5275/1750           | 6550/5275/1750      |  |
| Rated Power Input (W)                                | 633                      | 820                | 1000                     | 1270               | 1500                     | 2133                |  |
| Nominal Input Current (A)                            | 2.88                     | 3.73               | 4.55                     | 5.77               | 6.82                     | 9.70                |  |
| SEER/HSPF  | 22                       | 9.2                | 20                       | 9.2                | 18                       | 10                  |  |
| Air Flow Volume (CFM) (SH/H/M/L)                     | 307 / 277 / 254 / 218    |                    | 307 / 277 / 254 / 218    |                    | 501 / 460 / 383 / 324    |                     |  |
| Air Flow Volume (m <sup>3</sup> /h) (SH/H/M/L)       | 520/470/430/370          |                    | 570/470/430/370          |                    | 850/780/650/550          |                     |  |
| Dehumidifying Volume (cu.ft./h)                      | 0.042                    |                    | 0.049                    |                    | 0.064                    |                     |  |
| Dehumidifying Volume (l/h)                           | 1.2                      |                    | 1.4                      |                    | 1.8                      |                     |  |
| EER / C.O.P  | 14.2                     | 3.5                | 12                       | 3                  | 12                       | 2.72                |  |
| <b>Indoor Unit</b>                                   | <b>DHPM09NWM42Q1</b>     |                    | <b>DHPM12NWM42Q1</b>     |                    | <b>DHPM18NWM42Q1A</b>    |                     |  |
| Fan Motor Speed (r/min) (SH/H/M/L)                   | 1260/1100/950/750        | 1320/1180/1050/950 | 1330/1100/950/750        | 1350/1200/1080/950 | 1500/1200/1050/900       | 1500/1250/1150/1050 |  |
| Output of Fan Motor (w)                              | 20                       |                    | 20                       |                    | 20                       |                     |  |
| Fan Motor Capacitor (uF)                             | 1                        |                    | 1                        |                    | 1.5                      |                     |  |
| Fan Motor RLA (A)                                    | 0.2                      |                    | 0.2                      |                    | 0.28                     |                     |  |
| Fan Type-Piece                                       | Cross-flow - 1           |                    | Cross-flow - 1           |                    | Cross-flow - 1           |                     |  |
| Diameter-Length (inch)                               | 3.6 x 25.4               |                    | 3.6 x 25.4               |                    | 3.9 x 28.0               |                     |  |
| Diameter-Length (mm)                                 | 92x645                   |                    | 92x645                   |                    | 98x710                   |                     |  |
| Evaporator   | Aluminum Fin-copper Tube |                    | Aluminum Fin-copper Tube |                    | Aluminum Fin-copper Tube |                     |  |
| Pipe Diameter (inch)                                 | Φ 0.276                  |                    | Φ 0.276                  |                    | Φ 0.276                  |                     |  |
| Pipe Diameter (mm)                                   | φ7                       |                    | φ7                       |                    | φ7                       |                     |  |
| Row-Fin Gap (inch)                                   | 2 - 0.055                |                    | 2 - 0.055                |                    | 2 - 0.055                |                     |  |
| Row-Fin Gap (mm)                                     | 2-1.4                    |                    | 2-1.4                    |                    | 2-1.4                    |                     |  |
| Coil length (L) x height (H) x coil width (W) (inch) | 22.9 x 1.0 x 10.4        |                    | 22.9 x 1.0 x 10.4        |                    | 28.1 x 1.0 x 12.0        |                     |  |
| Coil length (L) x height (H) x coil width (W) (mm)   | 581x25.4x264             |                    | 581x25.4x264             |                    | 715x25.4x304.8           |                     |  |
| Output of Swing Motor (W)                            | 2                        |                    | 2                        |                    | 2.5                      |                     |  |
| Fuse (A)   | 3.15                     |                    | 3.15                     |                    | 3.15                     |                     |  |
| Sound Pressure Level dB (A) (SH/H/M/L)               | 42 / 38 / 35 / 32        |                    | 44 / 39 / 36 / 33        |                    | 49 / 44 / 40 / 35        |                     |  |
| Sound Power Level dB (A) (SH/H/M/L)                  | 52 / 48 / 45 / 42        |                    | 54 / 49 / 46 / 43        |                    | 59 / 54 / 50 / 45        |                     |  |
| Dimension (W/D/H) (inch)                             | 33.3 x 7 x 11            |                    | 33.3 x 7 x 11            |                    | 37.0 x 8 x 12            |                     |  |
| Dimension (W/D/H) (mm)                               | 846 x 178 x 279          |                    | 846 x 178 x 279          |                    | 940 x 203x 305           |                     |  |
| Dimension of Package (L/W/H) (inch)                  | 36.1 x 10.2 x 14.6       |                    | 36.1 x 10.2 x 14.6       |                    | 39.8 x 11.2 x 15.0       |                     |  |
| Dimension of Package (L/W/H) (mm)                    | 918 x 259 x 371          |                    | 918 x 259 x 371          |                    | 1011 x 285 x 381         |                     |  |
| Net Weight /Gross Weight (lbs)                       | 22.0 / 31                |                    | 22.0 / 31                |                    | 28.6 / 38                |                     |  |
| Net Weight /Gross Weight (kg)                        | 10 / 14                  |                    | 10 / 14                  |                    | 13 / 17                  |                     |  |

| HEAT PUMPS - 09 thru 18 - 230V (Continued)                            |                                   |          |                            |          |                            |          |  |
|---|-----------------------------------|----------|----------------------------|----------|----------------------------|----------|--|
| Model of Outdoor Unit   | DHPM09CSM42Q1                     |          | DHPM12CSM42Q1              |          | DHPM18CSM42Q1A             |          |  |
|   | Cooling                           | Heating  | Cooling                    | Heating  | Cooling                    | Heating  |  |
| Function  |                                   |          |                            |          |                            |          |  |
| Compressor Manufacturer/trademark                                     | MITSUBISHI                        |          | MITSUBISHI                 |          | MITSUBISHI                 |          |  |
| Compressor Type   | Rotary                            |          | Rotary                     |          | Rotary                     |          |  |
| L.R.A. (A)  | 10.2                              |          | 10.2                       |          | 13.80                      |          |  |
| Compressor RLA(A)   | 6.21                              |          | 5.34                       |          | 9.35                       |          |  |
| Compressor Power Input (W)  | 860                               |          | 860                        |          | 1200                       |          |  |
| Throttling Method   | Electronic Expansion Valve        |          | Electronic Expansion Valve |          | Electronic Expansion Valve |          |  |
| Working Temp Range (°F)   | 5 ~ 115                           | 14 ~ 75  | 5 ~ 115                    | 14 ~ 75  | 5 ~ 115                    | 14 ~ 75  |  |
| Working Temp Range (°C)   | -15 ~ 46                          | -10 ~ 24 | -15 ~ 46                   | -10 ~ 24 | -15 ~ 46                   | -10 ~ 24 |  |
| Condenser   | Aluminum Fin-copper Tube          |          | Aluminum Fin-copper Tube   |          | Aluminum Fin-copper Tube   |          |  |
| Pipe Diameter (inch)  | φ3/8                              |          | φ3/8                       |          | Φ 0.276                    |          |  |
| Pipe Diameter (mm)  | φ9.52                             |          | φ9.52                      |          | φ7                         |          |  |
| Rows-Fin Gap (inch)   | 2 - 0.055                         |          | 2 - 0.055                  |          | 2 - 0.055                  |          |  |
| Rows-Fin Gap (mm)   | 2-1.4                             |          | 2-1.4                      |          | 2-1.4                      |          |  |
| Coil length (l) x height (H) x coil width (L) (inch)                  | 29.4 x 20.0 x 1.7                 |          | 29.4 x 22.0 x 1.7          |          | 33.0 x 26.0 x 1.5          |          |  |
| Coil length (l) x height (H) x coil width (L) (mm)                    | 747x44x508                        |          | 747x44x559                 |          | 837x38.1x660               |          |  |
| Fan Motor Speed (rpm)   | 680/900                           |          | 680/900                    |          | 800                        |          |  |
| Output of Fan Motor (W)   | 30                                |          | 30                         |          | 60                         |          |  |
| Fan Motor RLA (A)   | 0.14                              |          | 0.14                       |          | 0.32                       |          |  |
| Fan Motor Capacitor (uF)  | /                                 |          | /                          |          | /                          |          |  |
| Fuse (A)  | 15A                               |          | 15A                        |          | 20A                        |          |  |
| Air Flow Volume of Outdoor Unit (CFM)                                 | 944                               |          | 944                        |          | 1887                       |          |  |
| Air Flow Volume of Outdoor Unit (m <sup>3</sup> /h)                   | 1600                              |          | 1600                       |          | 3200                       |          |  |
| Fan Type-Piece  | Axial-flow                        |          | Axial-flow                 |          | Axial-flow                 |          |  |
| Fan Diameter (inch)   | 15.7                              |          | 15.7                       |          | 20.5                       |          |  |
| Fan Diameter (mm)   | 400                               |          | 400                        |          | 520                        |          |  |
| Defrosting Method   | Automatic Defrosting              |          | Automatic Defrosting       |          | Automatic Defrosting       |          |  |
| Permissible Excessive Operating Pressure for the Discharge Side (PSI) | 624                               |          | 624                        |          | 624                        |          |  |
| Permissible Excessive Operating Pressure for the Discharge Side (MPa) | 4.3                               |          | 4.3                        |          | 4.3                        |          |  |
| Permissible Excessive Operating Pressure for the Suction Side (PSI)   | 363                               |          | 363                        |          | 363                        |          |  |
| Permissible Excessive Operating Pressure for the Suction Side (MPa)   | 2.5                               |          | 2.5                        |          | 2.5                        |          |  |
| Sound Pressure Level dB (A)   | 50                                |          | 52                         |          | 55                         |          |  |
| Sound Power Level dB (A)  | 60                                |          | 62                         |          | 65                         |          |  |
| Dimension (W/D/H) (inch)  | 33.4 x 12.6 x 21.2                |          | 33.3 x 12.6 x 23.2         |          | 37.6 x 15.6 x 27.6         |          |  |
| Dimension (W/D/H) (mm)  | 848 x 320 x 538                   |          | 846 x 320 x 589            |          | 955 x 396 x 701            |          |  |
| Dimension of Package (L/W/H) (inch)                                   | 34.7 x 14.3 x 23.4                |          | 34.7 x 14.3 x 25.4         |          | 40.5 x 18.5 x 29.1         |          |  |
| Dimension of Package (L/W/H) (mm)                                     | 881 x 363 x 595                   |          | 881 x 363 x 645            |          | 1029 x 470 x 738           |          |  |
| Net Weight /Gross Weight (lbs)  | 80 / 91                           |          | 89 / 97                    |          | 100 / 111                  |          |  |
| Net Weight /Gross Weight (kg)   | 36 / 41                           |          | 40 / 44                    |          | 45 / 50                    |          |  |
| Refrigerant Charge (oz)   | 45.8                              |          | 45.8                       |          | 49.3                       |          |  |
| Refrigerant Charge (kg)   | 1.30                              |          | 1.30                       |          | 1.40                       |          |  |
| Minimum Circuit Amps (MCA)  | 10.0                              |          | 10.0                       |          | 16.0                       |          |  |
| Minimum Output Power (MOP)  | 15.0                              |          | 15.0                       |          | 20.0                       |          |  |
| Connection Pipe   | Length (ft)                       | 24.6     |                            | 24.6     |                            | 24.6     |  |
|   | Length (m)                        | 7.5      |                            | 7.5      |                            | 7.5      |  |
|   | Gas additional charge (oz/ft)     | 0.2      |                            | 0.2      |                            | 0.2      |  |
|   | Gas additional charge (g/m)       | 20       |                            | 20       |                            | 20       |  |
|   | Outer Diameter Liquid Pipe (inch) | Φ 1/4    |                            | Φ 1/4    |                            | Φ 1/4    |  |
|   | Outer Diameter Liquid Pipe (mm)   | φ6       |                            | φ6       |                            | φ6       |  |
|   | Outer Diameter Gas Pipe (inch)    | Φ 3/8    |                            | Φ 3/8    |                            | Φ 1/2    |  |
|   | Outer Diameter Gas Pipe (mm)      | φ9.52    |                            | φ9.52    |                            | φ12      |  |
|   | Max Height Distance (ft)          | 33       |                            | 33       |                            | 33       |  |
|   | Max Height Distance (m)           | 10       |                            | 10       |                            | 10       |  |
| Max Length Distance (ft)  | 50                                |          | 50                         |          | 82                         |          |  |
| Max Length Distance (m)   | 15                                |          | 15                         |          | 25                         |          |  |

| <b>HEAT PUMPS - 24 thru 36 - 230V</b>          |  |                          |                     |                          |                  |                          |                  |
|--|--|--------------------------|---------------------|--------------------------|------------------|--------------------------|------------------|
| Model  | DHPM24NWM42Q1  |                          | DHPM30NWM42Q1       |                          | DHPM36NWM42Q1    |                          |                  |
|  | DHPM24CSM42Q1  |                          | DHPM30CSM42Q1       |                          | DHPM36CSM42Q1    |                          |                  |
| Function                                       | Cooling  | Heating                  | Cooling             | Heating                  | Cooling          | Heating                  |                  |
| Rated Voltage                                  | 208/230  |                          | 208/230             |                          | 208/230          |                          |                  |
| Frequency (Hz)                                 | 60Hz   |                          | 60Hz                |                          | 60Hz             |                          |                  |
| Total Capacity (Btu/h) (High/ Standard/Low)    | 25000/21400/9600                                     | 25000/23000/9600         | 36000/33600/7400    | 36000/34600/15000        | 36000/33600/7400 | 36000/34600/15000        |                  |
| Total Capacity (W) (High/Standard/Low)         | 7325/6270/2812                                       | 7325/6270/2812           | 10550/9850/2170     | 10550/10140/4390         | 10550/9850/2170  | 10550/10140/4390         |                  |
| Rated Power Input (W)                          | 1783   | 2451                     | 4097                | 3567                     | 4097             | 3567                     |                  |
| Nominal Input Current (A)                      | 8.10   | 11.14                    | 18.62               | 16.21                    | 18.62            | 16.21                    |                  |
| SEER/HSPF                                      | 18   | 10                       | 16                  | 8.2                      | 16               | 8.2                      |                  |
| Air Flow Volume (CFM) (SH/H/M/L)               | 590/472/413/354                                      |                          | - /824/706/677      |                          | - /824/706/677   |                          |                  |
| Air Flow Volume (m <sup>3</sup> /h) (SH/H/M/L) | 1000/800/700/600                                     |                          | 1400/1200/1150      |                          | 1400/1200/1150   |                          |                  |
| Dehumidifying Volume (cu.ft./h)                | 0.088  |                          | 1.66                |                          | 1.66             |                          |                  |
| Dehumidifying Volume (l/h)                     | 2.5  |                          | 3.5                 |                          | 3.5              |                          |                  |
| EER / C.O.P                                    | 12   | 2.75                     | 8.2                 | 2.85                     | 8.2              | 2.85                     |                  |
| Indoor Unit                                    | <b>Model of Indoor Unit</b>                          | <b>DHPM24NWM42Q1</b>     |                     | <b>DHPM30NWM42Q1</b>     |                  | <b>DHPM36NWM42Q1</b>     |                  |
|  | Fan Motor Speed (r/min) (SH/H/M/L)                   | 1500/1200/1050/900       | 1550/1350/1220/1050 | -/1550/1400/1300         | -/1550/1400/1300 | -/1550/1400/1300         | -/1550/1400/1300 |
|  | Output of Fan Motor (w)                              | 20                       |                     | 60                       |                  | 60                       |                  |
|  | Fan Motor Capacitor (uF)                             | 1.5                      |                     | 3.5                      |                  | 3.5                      |                  |
|  | Fan Motor RLA (A)                                    | 0.24                     |                     | 0.4                      |                  | 0.4                      |                  |
|  | Fan Type-Piece                                       | Cross-flow - 1           |                     | Cross-flow - 1           |                  | Cross-flow - 1           |                  |
|  | Diameter-Length (inch)                               | 3.9 x 30.1               |                     | 4.3 x 20.6               |                  | 4.3 x 20.6               |                  |
|  | Diameter-Length (mm)                                 | 99x765                   |                     | 108x522.7                |                  | 108x522.7                |                  |
|  | Evaporator   | Aluminum Fin-copper Tube |                     | Aluminum Fin-copper Tube |                  | Aluminum Fin-copper Tube |                  |
|  | Pipe Diameter (inch)                                 | Φ 0.276                  |                     | Φ 0.276                  |                  | Φ 0.276                  |                  |
|  | Pipe Diameter (mm)                                   | φ7                       |                     | φ7                       |                  | φ7                       |                  |
|  | Row-Fin Gap (inch)                                   | 2 - 0.059                |                     | 2 - 0.055                |                  | 2 - 0.055                |                  |
|  | Row-Fin Gap (mm)                                     | 2-1.5                    |                     | 2-1.4                    |                  | 2-1.4                    |                  |
|  | Coil length (L) x height (H) x coil width (W) (inch) | 30.1 x 1.0 x 13.5        |                     | 42.3 x 1.0 x 15.0        |                  | 42.3 x 1.0 x 15.0        |                  |
|  | Coil length (L) x height (H) x coil width (W) (mm)   | 765x25.4x342.9           |                     | 1074x25.4x381            |                  | 1074x25.4x381            |                  |
|  | Output of Swing Motor (W)                            | 3                        |                     | 2                        |                  | 2                        |                  |
|  | Fuse (A)   | 3.15                     |                     | 3.15                     |                  | 3.15                     |                  |
|  | Sound Pressure Level dB (A) (SH/H/M/L)               | 53/45/41/37              |                     | - /59/56/53              |                  | - /59/56/53              |                  |
|  | Sound Power Level dB (A) (SH/H/M/L)                  | 63/55/51/47              |                     | - /69/66/63              |                  | - /69/66/63              |                  |
|  | Dimension (W/D/H) (inch)                             | 39.7 x 8.7 x 12.4        |                     | 53.1 x 10 x 12.8         |                  | 53.1 x 10 x 12.8         |                  |
|  | Dimension (W/D/H) (mm)                               | 1008 x 221 x 315         |                     | 1349 x 254 x 325         |                  | 1349 x 254 x 325         |                  |
|  | Dimension of Package (L/W/H) (inch)                  | 42.4 x 12.9 x 15.7       |                     | 56.6x 13.5 x 16.5        |                  | 56.6x 13.5 x 16.5        |                  |
|  | Dimension of Package (L/W/H) (mm)                    | 1076 x 328 x 398         |                     | 1438 x 343 x 418         |                  | 1438 x 343 x 418         |                  |
| Net Weight /Gross Weight (lbs)                 | 35.2 / 45  |                          | 44.1/60             |                          | 44.1/60          |                          |                  |
| Net Weight /Gross Weight (kg)                  | 16 / 20  |                          | 20/27               |                          | 20/27            |                          |                  |

**HEAT PUMPS - 24 thru 36 - 230V (Continued)**

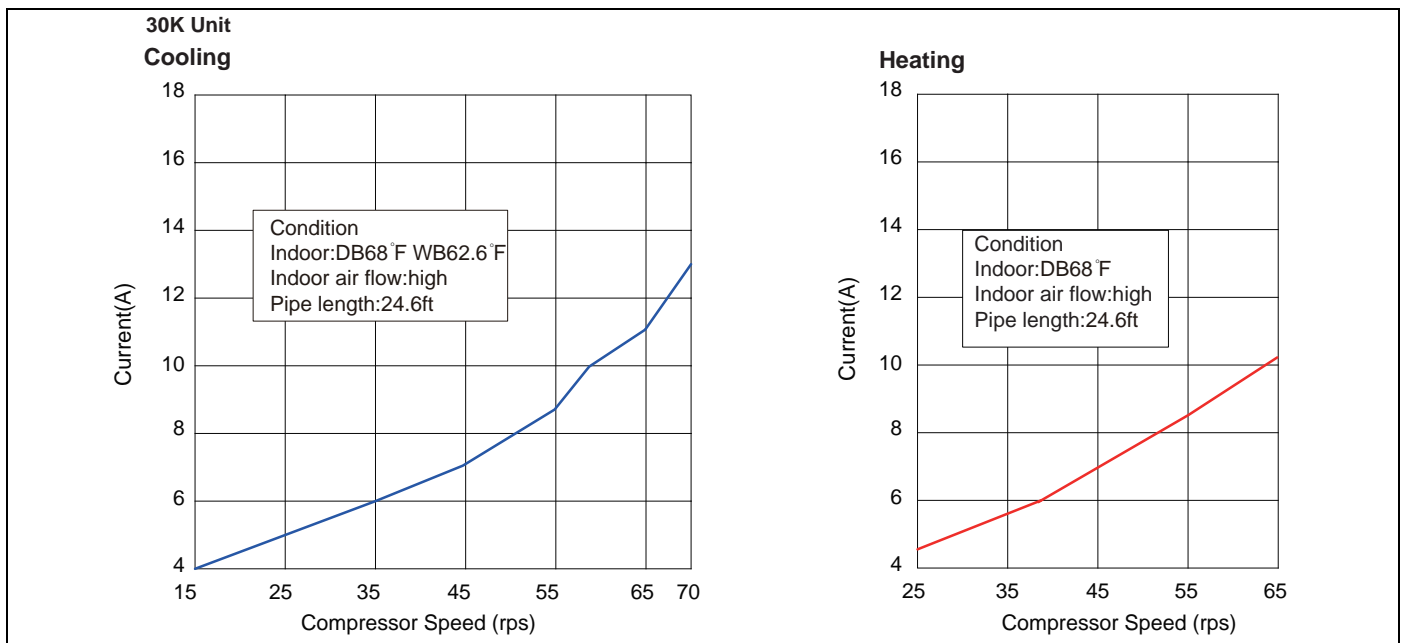
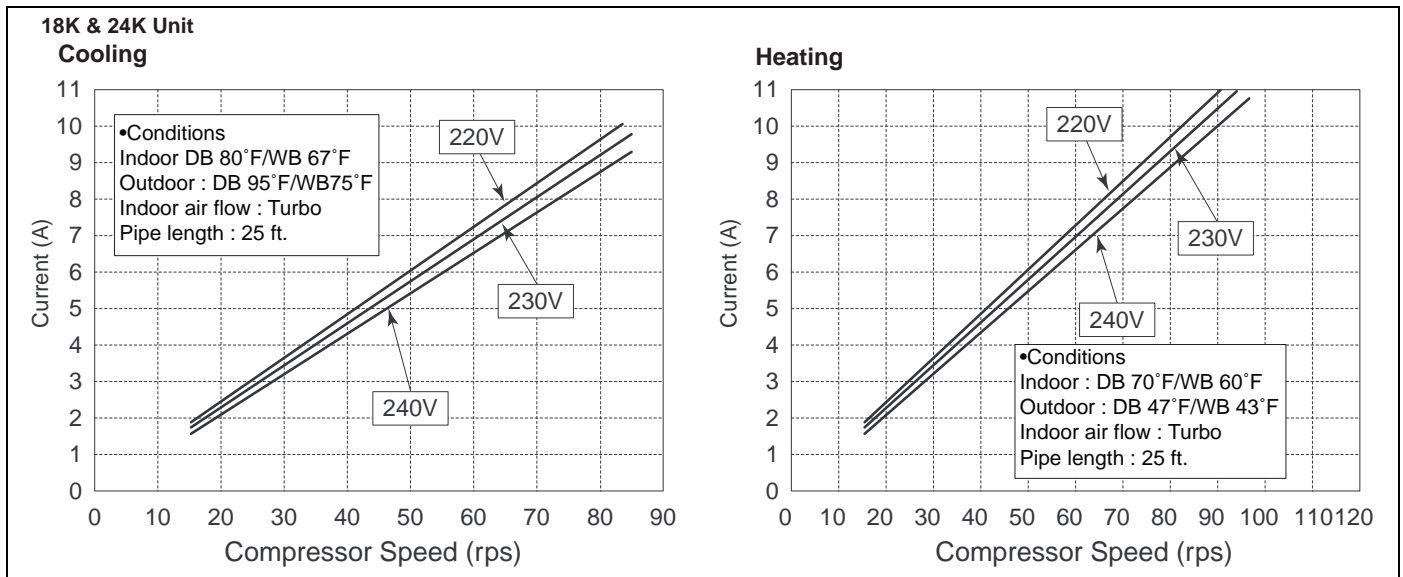
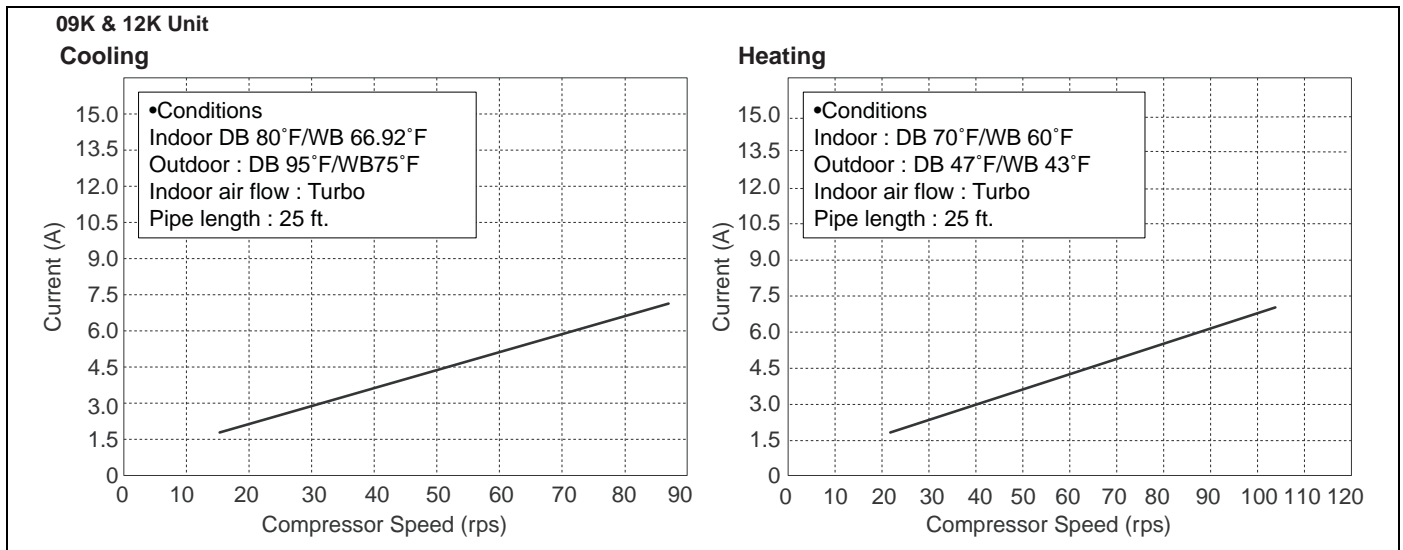
|                                     | Model of Outdoor Unit   | DHPM24CSM42Q1              |                    | DHPM30CSM42Q1A             |                    | DHPM36CSM42Q1              |          |
|-------------------------------------|---|----------------------------|--------------------|----------------------------|--------------------|----------------------------|----------|
|                                     | Function  | Cooling                    | Heating            | Cooling                    | Heating            | Cooling                    | Heating  |
| Outdoor Unit                        | Compressor Manufacturer/trademark                                     | MITSUBISHI                 |                    | MITSUBISHI                 |                    | MITSUBISHI                 |          |
|                                     | Compressor Type   | Inverter Rotary            |                    | Inverter Rotary            |                    | Inverter Rotary            |          |
|                                     | L.R.A. (A)  | 18.50                      |                    | 67                         |                    | 67                         |          |
|                                     | Compressor RLA(A)   | 10.45                      |                    | 12.66                      |                    | 12.66                      |          |
|                                     | Compressor Power Input (W)  | 1420                       |                    | 3010                       |                    | 3010                       |          |
|                                     | Throttling Method   | Electronic Expansion Valve |                    | Electronic Expansion Valve |                    | Electronic Expansion Valve |          |
|                                     | Working Temp Range (°F)   | 5 ~ 115                    | 14 ~ 75            | 5 ~ 115                    | 14 ~ 75            | 5 ~ 115                    | 14 ~ 75  |
|                                     | Working Temp Range (°C)   | -15 ~ 46                   | -10 ~ 24           | -15 ~ 46                   | -10 ~ 24           | -15 ~ 46                   | -10 ~ 24 |
|                                     | Condenser   | Aluminum Fin-copper Tube   |                    | Aluminum Fin-copper Tube   |                    | Aluminum Fin-copper Tube   |          |
|                                     | Pipe Diameter (inch)  | Φ 0.276                    |                    | Φ 0.375                    |                    | Φ 0.375                    |          |
|                                     | Pipe Diameter (mm)  | φ7                         |                    | φ9.52                      |                    | φ9.52                      |          |
|                                     | Rows-Fin Gap (inch)   | 2 - 0.055                  |                    | 2 - 0.055                  |                    | 2 - 0.055                  |          |
|                                     | Rows-Fin Gap (mm)   | 2-1.4                      |                    | 2-1.4                      |                    | 2-1.4                      |          |
|                                     | Coil length (l) x height (H) x coil width (L) (inch)                  | 38.1 x 29.4 x 1.5          |                    | 37.0 x 30 x 1.8            |                    | 37.0 x 30 x 1.8            |          |
|                                     | Coil length (l) x height (H) x coil width (L) (mm)                    | 967x38.1x748               |                    | 940.5x44x762               |                    | 940.5x44x762               |          |
|                                     | Fan Motor Speed (rpm)   | 800                        |                    | 900                        |                    | 900                        |          |
|                                     | Output of Fan Motor (W)   | 90                         |                    | 170                        |                    | 170                        |          |
|                                     | Fan Motor RLA (A)   | 1.1                        |                    | 0.45                       |                    | 0.45                       |          |
|                                     | Fan Motor Capacitor (uF)  | /                          |                    | /                          |                    | /                          |          |
|                                     | Fuse (A)  | 20A                        |                    | 25A                        |                    | 35A                        |          |
|                                     | Air Flow Volume of Outdoor Unit (CFM)                                 | 2359                       |                    | 2603                       |                    | 2603                       |          |
|                                     | Air Flow Volume of Outdoor Unit (m <sup>3</sup> /h)                   | 4000                       |                    | 4400                       |                    | 4400                       |          |
|                                     | Fan Type-Piece  | Axial-flow                 |                    | Axial-flow                 |                    | Axial-flow                 |          |
|                                     | Fan Diameter (inch)   | 21.7                       |                    | 21.7                       |                    | 21.7                       |          |
|                                     | Fan Diameter (mm)   | 552                        |                    | 552                        |                    | 552                        |          |
|                                     | Defrosting Method   | Automatic Defrosting       |                    | Automatic Defrosting       |                    | Automatic Defrosting       |          |
|                                     | Permissible Excessive Operating Pressure for the Discharge Side (PSI) | 624                        |                    | 624                        |                    | 624                        |          |
|                                     | Permissible Excessive Operating Pressure for the Discharge Side (MPa) | 4.3                        |                    | 4.3                        |                    | 4.3                        |          |
|                                     | Permissible Excessive Operating Pressure for the Suction Side (PSI)   | 363                        |                    | 363                        |                    | 363                        |          |
|                                     | Permissible Excessive Operating Pressure for the Suction Side (MPa)   | 2.5                        |                    | 2.5                        |                    | 2.5                        |          |
|                                     | Sound Pressure Level dB (A)   | 58                         |                    | 65                         |                    | 65                         |          |
|                                     | Sound Power Level dB (A)  | 68                         |                    | 75                         |                    | 75                         |          |
|                                     | Dimension (W/D/H) (inch)  | 38.6 x 16.8 x 31.1         |                    | 38.6 x 16.8 x 31.1         |                    | 38.6 x 16.8 x 31.1         |          |
| Dimension (W/D/H) (mm)              | 980 x 427 x 790   |                            | 980 x 427 x 790    |                            | 980 x 427 x 790    |                            |          |
| Dimension of Package (L/W/H) (inch) | 42.6 x 19.2 x 33.7  |                            | 42.6 x 19.2 x 33.7 |                            | 42.6 x 19.2 x 33.7 |                            |          |
| Dimension of Package (L/W/H) (mm)   | 1083 x 488 x 855  |                            | 1083 x 488 x 855   |                            | 1083 x 488 x 855   |                            |          |
| Net Weight /Gross Weight (lbs)      | 132.1 / 133   |                            | 161/164            |                            | 161/170            |                            |          |
| Net Weight /Gross Weight (kg)       | 60 / 60   |                            | 73/74              |                            | 73/77              |                            |          |
| Refrigerant Charge (oz)             | 56.4  |                            | 91.7               |                            | 91.7               |                            |          |
| Refrigerant Charge (kg)             | 1.60  |                            | 2.6                |                            | 2.6                |                            |          |
| Minimum Circuit Amps (MCA)          | 16.0  |                            | 17.0               |                            | 17.0               |                            |          |
| Minimum Output Power (MOP)          | 20.0  |                            | 25.0               |                            | 25.0               |                            |          |
| Connection Pipe                     | Length (ft)   | 24.6                       |                    | 24.6                       |                    | 24.6                       |          |
|                                     | Length (m)  | 7.5                        |                    | 7.5                        |                    | 7.5                        |          |
|                                     | Gas additional charge (oz/ft)   | 0.54                       |                    | 0.6                        |                    | 0.6                        |          |
|                                     | Gas additional charge (g/m)   | 50                         |                    | 50                         |                    | 50                         |          |
|                                     | Outer Diameter Liquid Pipe (inch)                                     | Φ 1/4                      |                    | Φ 1/4                      |                    | Φ 1/4                      |          |
|                                     | Outer Diameter Liquid Pipe (mm)                                       | φ6                         |                    | φ6                         |                    | φ6                         |          |
|                                     | Outer Diameter Gas Pipe (inch)  | Φ 5/8                      |                    | Φ 5/8                      |                    | Φ 5/8                      |          |
|                                     | Outer Diameter Gas Pipe (mm)  | φ16                        |                    | φ16                        |                    | φ16                        |          |
|                                     | Max Height Distance (ft)  | 33                         |                    | 33                         |                    | 33                         |          |
|                                     | Max Height Distance (m)   | 10                         |                    | 10                         |                    | 10                         |          |
| Max Length Distance (ft)            | 82  |                            | 98.4               |                            | 98.4               |                            |          |
| Max Length Distance (m)             | 25  |                            | 30                 |                            | 30                 |                            |          |

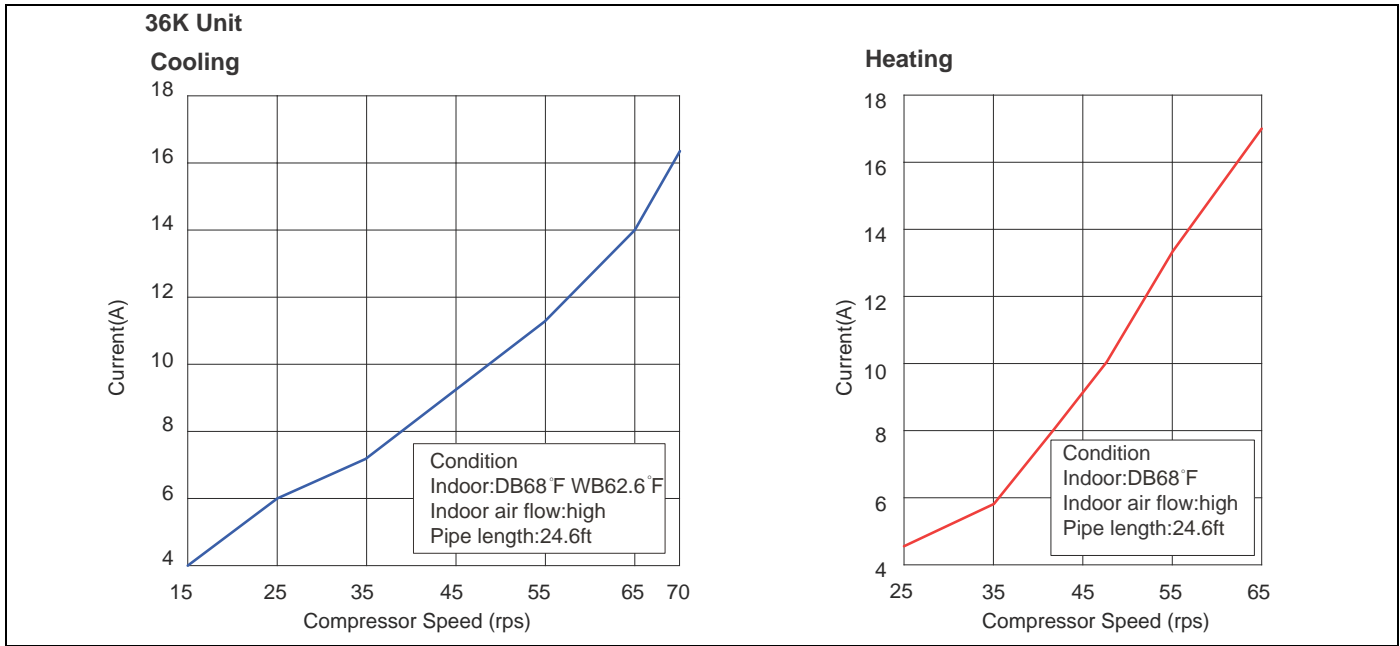


| <b>AIR CONDITIONERS - 115V</b>                      |                      |                      |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|
| <b>MODEL NUMBER</b>                                 | <b>OUTDOOR</b>       |                      | <b>INDOOR</b>        |                      |
|   | <b>DCPM09CSM41Q1</b> | <b>DCPM09NWM41Q1</b> | <b>DCPM12CSM41Q1</b> | <b>DCPM12NWM41Q1</b> |
| Nominal Cooling BTU/h                               | 9000                 |                      | 11800                |                      |
| Min.-Max. Cooling BTU/h                             | 4435~10600           |                      | 4500~14000           |                      |
| SEER  | 22                   |                      | 20                   |                      |
| EER   | 13.65                |                      | 11.94                |                      |
| Clg. Operating Range °F(°C)                         | 41°F~115°F(5°C~46°C) |                      | 41°F~115°F(5°C~46°C) |                      |
| Htg. Operating Range °F(°C)                         | 5°F~86°F(-15°C~30°C) |                      | 5°F~86°F(-15°C~30°C) |                      |
| Moisture Removal (l/h)                              | 0.8                  |                      | 1.2                  |                      |
| Moisture Removal Pt./h                              | 1.7                  |                      | 2.5                  |                      |
| Voltage/Frequency/Phase                             | 115/60/1             |                      | 115/60/1             |                      |
| Recommended Fuse Size (A)                           | 3.15A                |                      | 3.15A                |                      |
| Indoor Air Circ. C.F.M. (m3/h) Turbo                | 951(560)             |                      | 866(510)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Hi                   | 849(500)             |                      | 798(470)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Medium               | 730(430)             |                      | 730(430)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Low                  | 628(370)             |                      | 628(370)             |                      |
| Indoor Sound Pressure Level dB (A) Turbo            | 38                   |                      | 40                   |                      |
| Indoor Sound Pressure Level dB (A) Hi               | 34                   |                      | 36                   |                      |
| Indoor Sound Pressure Level dB (A) Medium           | 30                   |                      | 32                   |                      |
| Indoor Sound Pressure Level dB (A) Low              | 26                   |                      | 26                   |                      |
| Outdoor Fan Speed RPM Clg/Htg                       | 900                  |                      | 900                  |                      |
| Fuse (A)  | 25A                  | /                    | 25                   | /                    |
| Outdoor Noise Sound Pressure Level dB (A) (Clg/Htg) | 50                   |                      | 53                   |                      |
| Current Rated (A): Cooling                          | 7                    |                      | 11                   |                      |
| Heating   | 7.5                  |                      | 12.5                 |                      |
| Power Use Rated (kw): Cooling                       | 0.66                 |                      | 1                    |                      |
| Heating   | 0.7                  |                      | 1.2                  |                      |
| Indoor Fan Speeds Stage                             | 4                    |                      | 4                    |                      |
| Air Direction: Horizontal                           | Manual               |                      | Manual               |                      |
| Air Direction: Vertical                             | Automatic            |                      | Automatic            |                      |
| Air Filter  | Washable             |                      | Washable             |                      |
| Connection Method                                   | Flare                |                      | Flare                |                      |
| Combined Max. Lgth Ft                               | 50                   |                      | 50                   |                      |
| Max. Vertical Diff. Ft                              | 33                   |                      | 33                   |                      |
| Conn. Pipe Diameter Inch                            | Suc. 3/8 Dis. 1/4    |                      | Suc. 3/8 Dis. 1/4    |                      |
| Unit Height Inch                                    | 21                   | 11                   | 21                   | 11                   |
| Unit Height mm                                      | 533                  | 279                  | 533                  | 279                  |
| Unit Width Inch                                     | 33.4                 | 33                   | 33.4                 | 33                   |
| Unit Width mm                                       | 848                  | 838                  | 848                  | 838                  |
| Unit Depth Inch                                     | 12.6                 | 7                    | 12.6                 | 7                    |
| Unit Depth mm                                       | 320                  | 178                  | 320                  | 178                  |
| Refrigerant type                                    | R410A                |                      | R410A                |                      |
| Refrigerant Charge (ozs)                            | 42                   |                      | 45.5                 |                      |
| Carton Height in inches                             | 22.8                 | 14                   | 22.8                 | 14                   |
| Carton Width in inches                              | 36                   | 34.5                 | 36                   | 34.5                 |
| Carton Depth in inches                              | 14.2                 | 10                   | 14.2                 | 10                   |
| Unit Weight (lbs)                                   | 91                   | 31                   | 97                   | 31                   |
| Shipping Weight (lbs)                               | 110                  | 38                   | 118                  | 38                   |

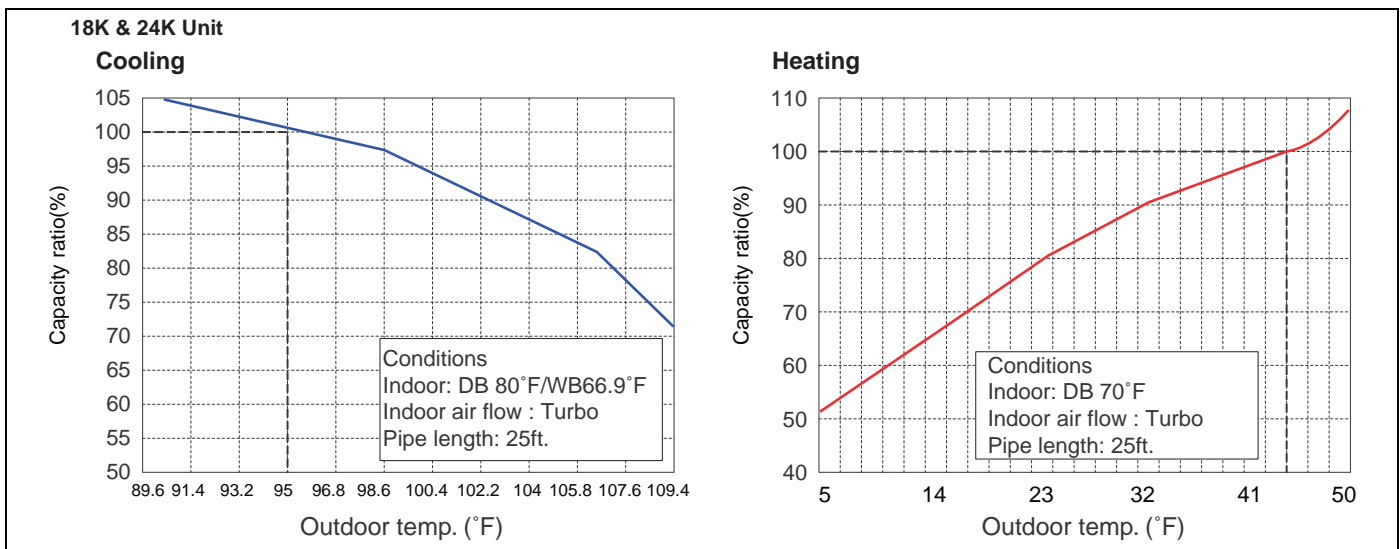
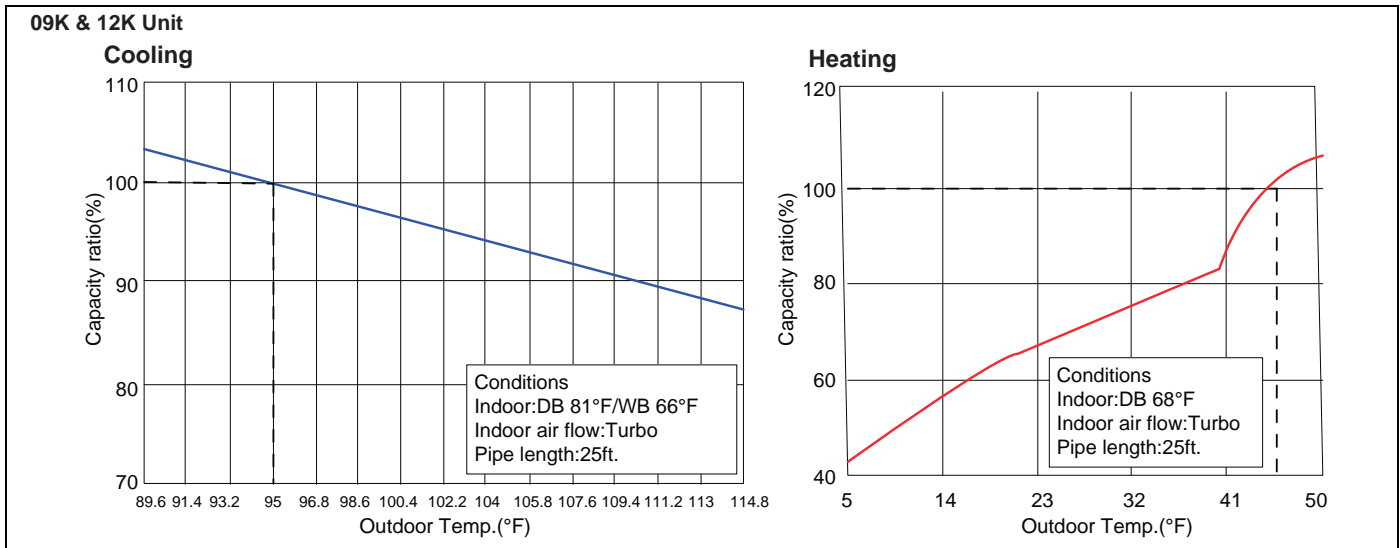
| <b>HEAT PUMPS - 115V</b>                            |                      |                      |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|
| <b>MODEL NUMBER</b>                                 | <b>OUTDOOR</b>       |                      | <b>INDOOR</b>        |                      |
|   | <b>DHPM09CSM41Q1</b> | <b>DHPM09NWM41Q1</b> | <b>DHPM12CSM41Q1</b> | <b>DHPM12NWM41Q1</b> |
| Nominal Cooling BTU/h                               | 9000                 |                      | 11800                |                      |
| Min.-Max. Cooling BTU/h                             | 4435~10600           |                      | 4500~14000           |                      |
| Nominal Heating BTU/h                               | 9300                 |                      | 13100                |                      |
| Min.-Max. Heating BTU/h                             | 3200~11100           |                      | 3250~14500           |                      |
| HSPF  | 9.8                  |                      | 9.6                  |                      |
| SEER  | 22                   |                      | 20                   |                      |
| EER   | 13.64/13.64          |                      | 11.94/10.92          |                      |
| Clg. Operating Range °F(°C)                         | 41°F~115°F(5°C~46°C) |                      | 41°F~115°F(5°C~46°C) |                      |
| Htg. Operating Range °F(°C)                         | 5°F~86°F(-15°C~30°C) |                      | 5°F~86°F(-15°C~30°C) |                      |
| Moisture Removal (l/h)                              | 0.8                  |                      | 1.4                  |                      |
| Moisture Removal Pt./h                              | 1.7                  |                      | 3                    |                      |
| Voltage/Frequency/Phase                             | 115/60/1             |                      | 115/60/1             |                      |
| Recommended Fuse Size (A)                           | 3.15A                |                      | 3.15A                |                      |
| Indoor Air Circ. C.F.M. (m3/h) Turbo                | 951(560)             |                      | 866(510)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Hi                   | 849(500)             |                      | 798(470)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Medium               | 730(430)             |                      | 730(430)             |                      |
| Indoor Air Circ. C.F.M. (m3/h) Low                  | 628(370)             |                      | 628(370)             |                      |
| Indoor Sound Pressure Level dB (A) Turbo            | 38                   |                      | 40                   |                      |
| Indoor Sound Pressure Level dB (A) Hi               | 34                   |                      | 36                   |                      |
| Indoor Sound Pressure Level dB (A) Medium           | 30                   |                      | 32                   |                      |
| Indoor Sound Pressure Level dB (A) Low              | 26                   |                      | 26                   |                      |
| Outdoor Fan Speed RPM Clg/Htg                       | 900                  |                      | 900                  |                      |
| Fuse (A)  | 25A                  | /                    | 25A                  | /                    |
| Outdoor Noise Sound Pressure Level dB (A) (Clg/Htg) | 50                   |                      | 53                   |                      |
| Current Rated (A): Cooling                          | 7                    |                      | 11                   |                      |
| Heating   | 7.5                  |                      | 12.5                 |                      |
| Power Use Rated (kw): Cooling                       | 0.66                 |                      | 1                    |                      |
| Heating   | 0.7                  |                      | 1.2                  |                      |
| Indoor Fan Speeds Stage                             | 4                    |                      | 4                    |                      |
| Air Direction: Horizontal                           | Manual               |                      | Manual               |                      |
| Air Direction: Vertical                             | Automatic            |                      | Automatic            |                      |
| Air Filter  | Washable             |                      | Washable             |                      |
| Connection Method                                   | Flare                |                      | Flare                |                      |
| Combined Max. Lgth Ft                               | 50                   |                      | 50                   |                      |
| Max. Vertical Diff. Ft                              | 33                   |                      | 33                   |                      |
| Conn. Pipe Diameter Inch                            | Suc. 3/8 Dis. 1/4    |                      | Suc. 3/8 Dis. 1/4    |                      |
| Unit Height Inch                                    | 21                   | 11                   | 21                   | 11                   |
| Unit Height mm                                      | 533                  | 279                  | 533                  | 279                  |
| Unit Width Inch                                     | 33.4                 | 33                   | 33.4                 | 33                   |
| Unit Width mm                                       | 848                  | 838                  | 848                  | 838                  |
| Unit Depth Inch                                     | 12.6                 | 7                    | 12.6                 | 7                    |
| Unit Depth mm                                       | 320                  | 178                  | 320                  | 178                  |
| Refrigerant type                                    | R410A                |                      | R410A                |                      |
| Refrigerant Charge (ozs)                            | 42                   |                      | 45.5                 |                      |
| Carton Height in inches                             | 22.8                 | 14                   | 22.8                 | 14                   |
| Carton Width in inches                              | 36                   | 34.5                 | 36                   | 34.5                 |
| Carton Depth in inches                              | 14.2                 | 10                   | 14.2                 | 10                   |
| Unit Weight (lbs)                                   | 91                   | 31                   | 97                   | 31                   |
| Shipping Weight (lbs)                               | 110                  | 38                   | 118                  | 38                   |

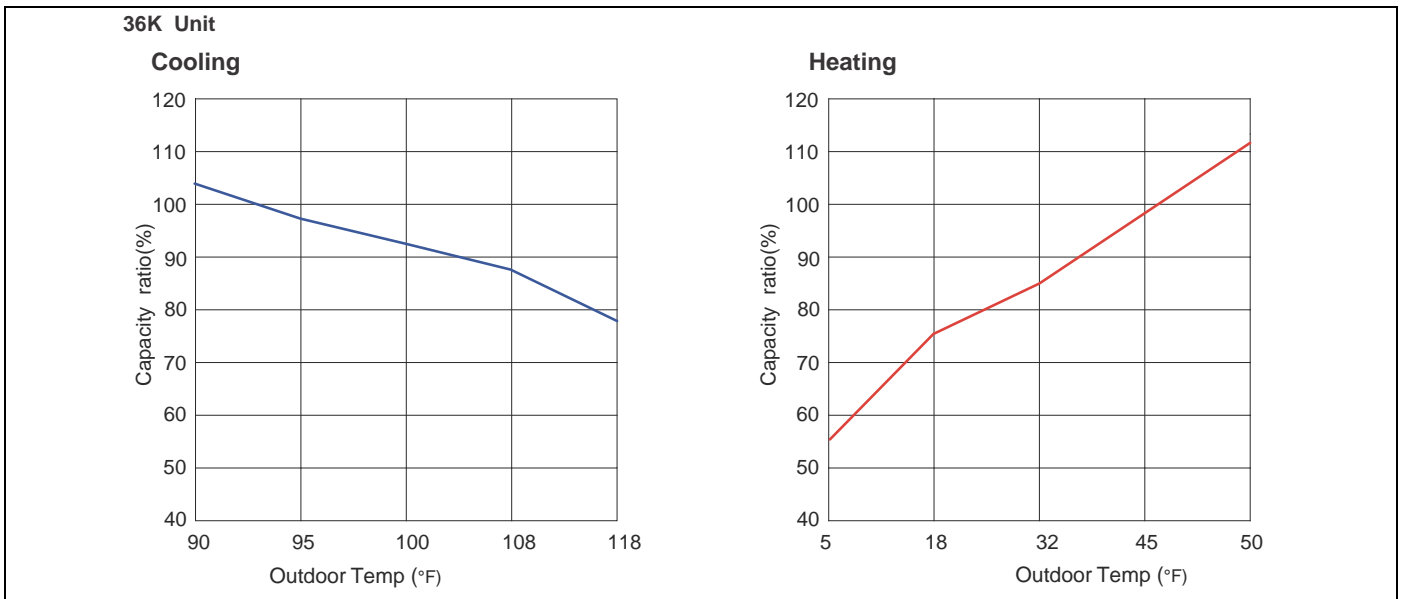
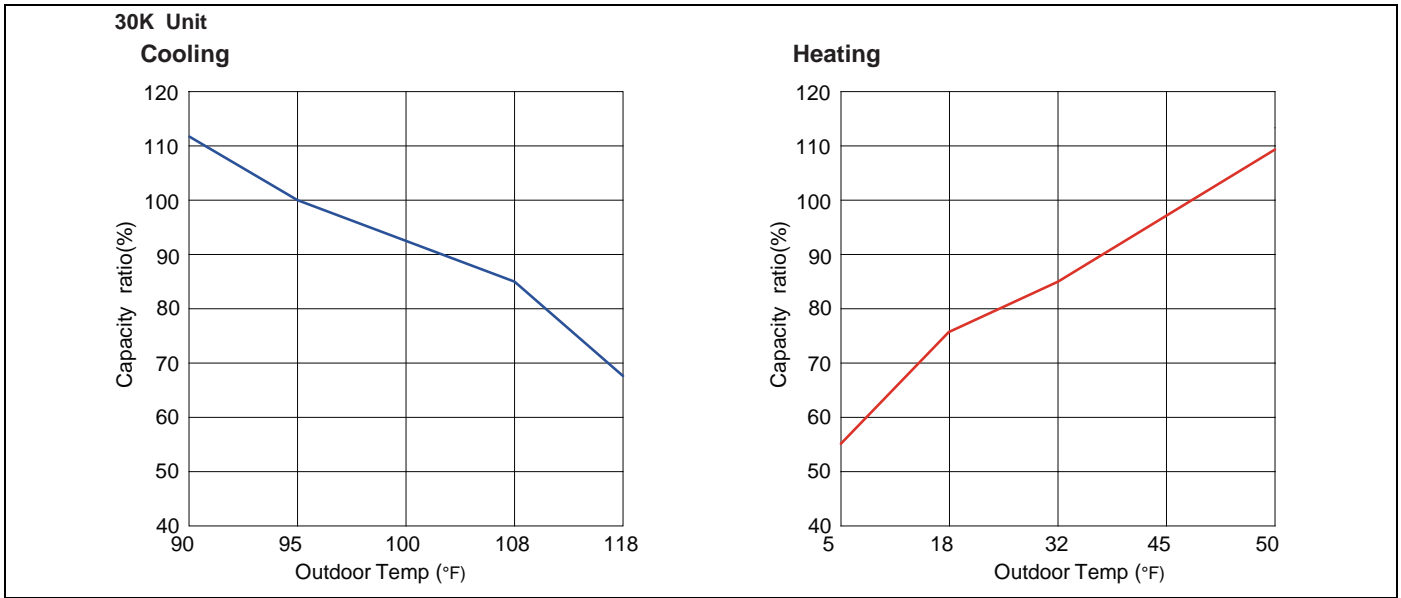
PRODUCT OPERATION CHARACTERISTIC CURVES





PRODUCT CAPACITY VARIATION RATIO





OPERATION DATA

| Temperature Condition (°F) |         | Model name | Standard Pressure<br>P (MPa) | Heat Exchanger Pipe Temperature |                | Indoor Fan Mode | Outdoor Fan Mode | Compressor Frequency (Hz) |
|----------------------------|---------|------------|------------------------------|---------------------------------|----------------|-----------------|------------------|---------------------------|
| Indoor                     | Outdoor |            |                              | T1 (°F)                         | T2 (°F)        |                 |                  |                           |
| <b>COOLING</b>             |         |            |                              |                                 |                |                 |                  |                           |
| 80/67                      | 95/75   | 09K        | 1.05                         | 59                              | 98.6           | Turbo           | High             | 46                        |
|                            |         | 12K        | 0.93                         | 57.2                            | 98.6           |                 |                  | 70                        |
|                            |         | 18K        | 0.9 to 1.1                   | 53.6 to 57.2                    | 109.4 to 105.8 |                 |                  | 77                        |
|                            |         | 24K        | 0.8 to 1.0                   | 50 to 53.6                      | 181.4 to 113   |                 |                  | 72                        |
| <b>HEATING</b>             |         |            |                              |                                 |                |                 |                  |                           |
| 70/60                      | 47/43   | 09K        | 2.62                         | 107.6                           | 41             | Turbo           | High             | 56                        |
|                            |         | 12K        | 2.77                         | 115                             | 41             |                 |                  | 72                        |
|                            |         | 18K        | 2.2 to 2.4                   | 100.4 to 98.6                   | 35.6 to 39.2   |                 |                  | 80                        |
|                            |         | 24K        | 2.5 to 2.7                   | 111.2 to 107.6                  | 32 to 37.4     |                 |                  | 80                        |

Notes:

Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor thermometer).

Connecting piping condition: 25 ft.

P: pressure of air pipe connected to the indoor and outdoor units (gas valve side),

T1: Inlet and outlet temperature for evaporator,

T2: Inlet and outlet temperature for condenser.

| Temperature Condition (°F) |         | Model name | Standard Pressure<br>P (MPa) | Heat Exchanger Pipe Temperature |             | Indoor Fan Mode | Outdoor Fan Mode | Compressor Frequency (Hz) |
|----------------------------|---------|------------|------------------------------|---------------------------------|-------------|-----------------|------------------|---------------------------|
| Indoor                     | Outdoor |            |                              | T1 (°F)                         | T2 (°F)     |                 |                  |                           |
| <b>COOLING</b>             |         |            |                              |                                 |             |                 |                  |                           |
| 80/66.9                    | 95/75   | 30K        | 0.9                          | 46.4 to 53.6                    | 124 to 98.7 | High            | High             | 65                        |
|                            |         | 36K        | 0.88                         | 46.8 to 52.8                    | 127 to 96.8 |                 |                  | 67                        |
| <b>HEATING</b>             |         |            |                              |                                 |             |                 |                  |                           |
| 70/60.1                    | 47/43   | 30K        | 3.1                          | 128.4 to 101                    | 35 to 38.9  | High            | High             | 68                        |
|                            |         | 36K        | 3.56                         | 134.4 to 102                    | 36 to 39    |                 |                  | 61                        |

Notes:

Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor thermometer).

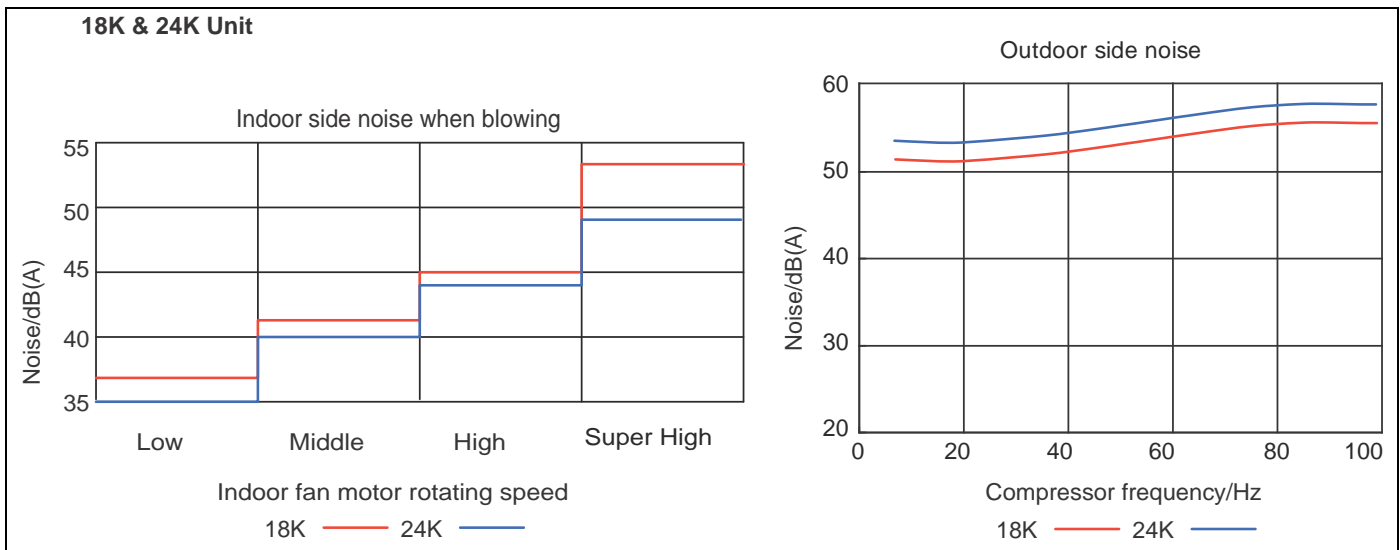
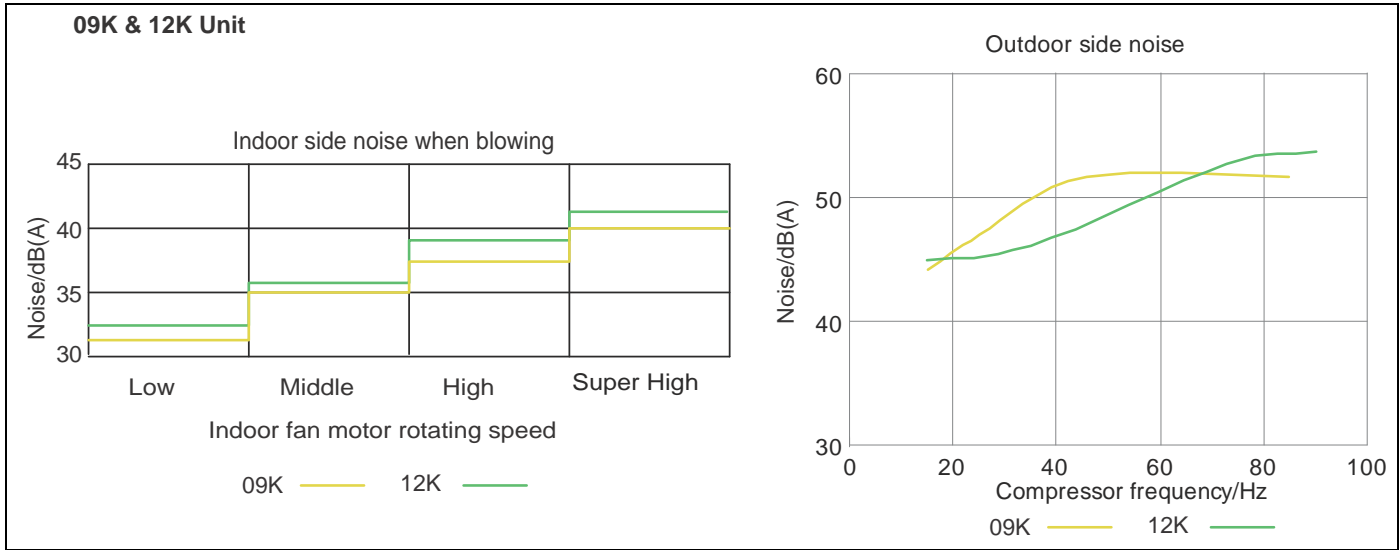
Connecting piping condition: 25 ft.

P: pressure of air pipe connected to the indoor and outdoor units (gas valve side),

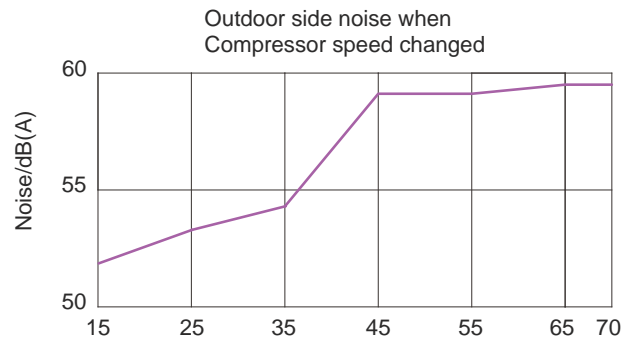
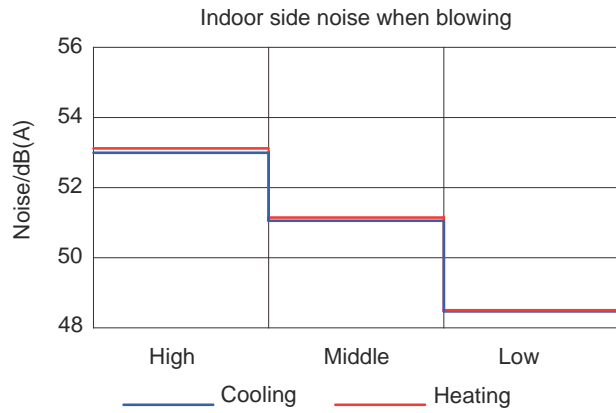
T1: Inlet and outlet temperature for evaporator,

T2: Inlet and outlet temperature for condenser.

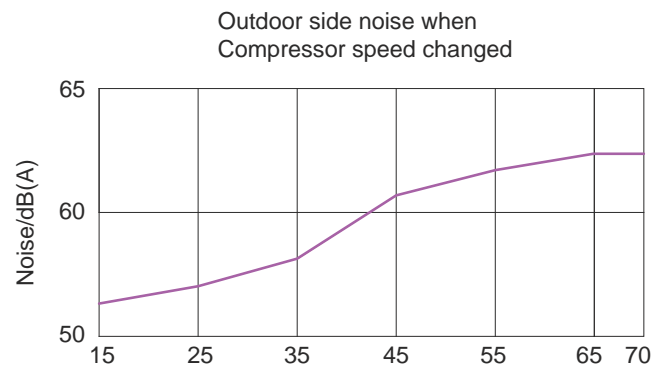
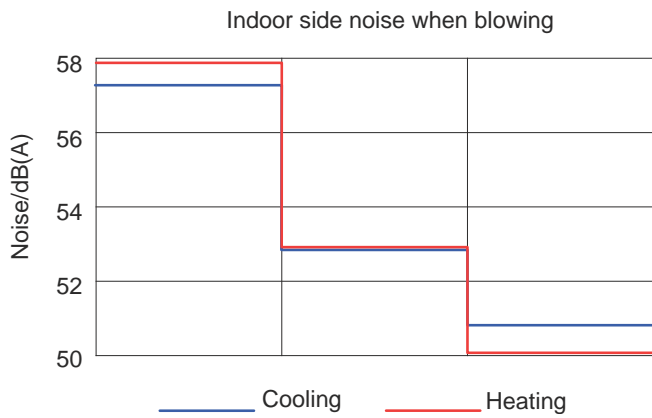
SOUND DATA



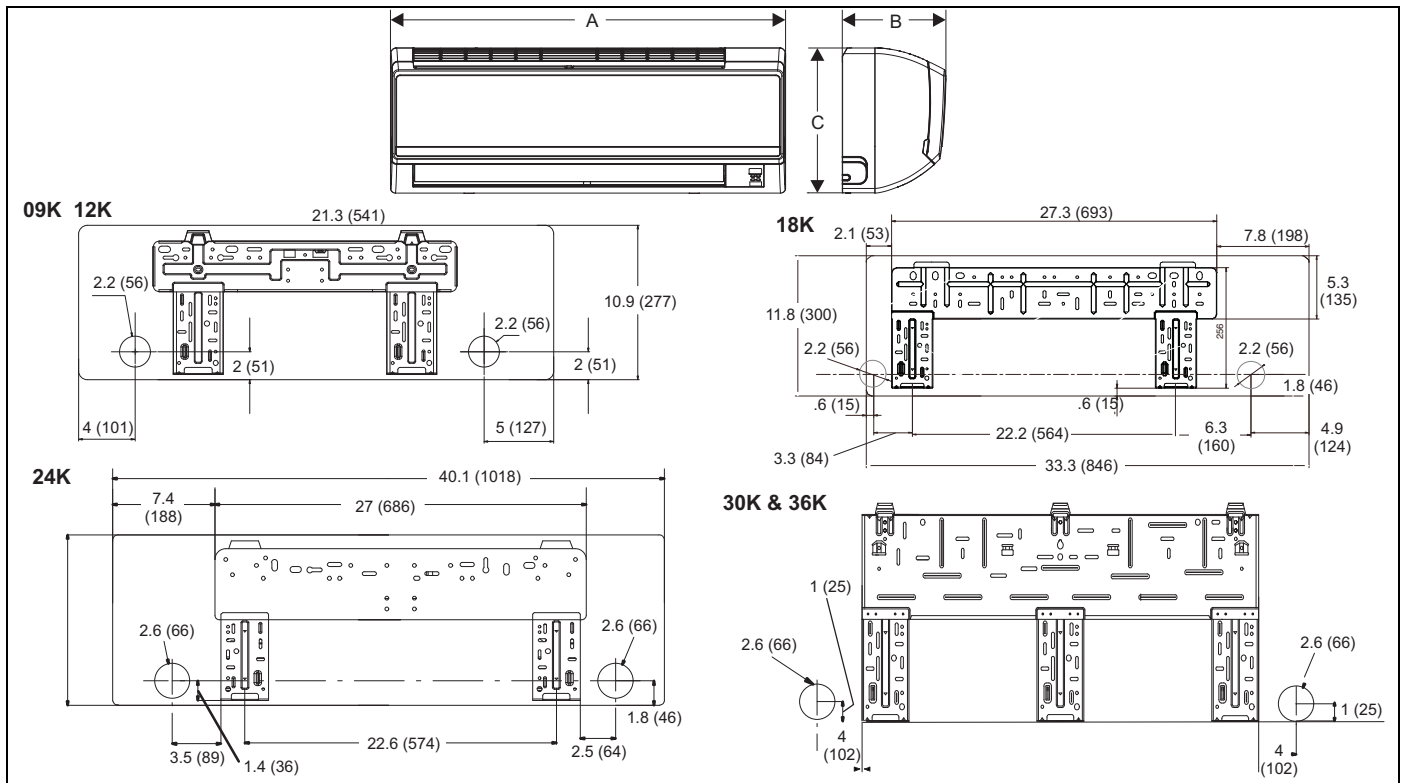
**30K Unit**



**36K Unit**

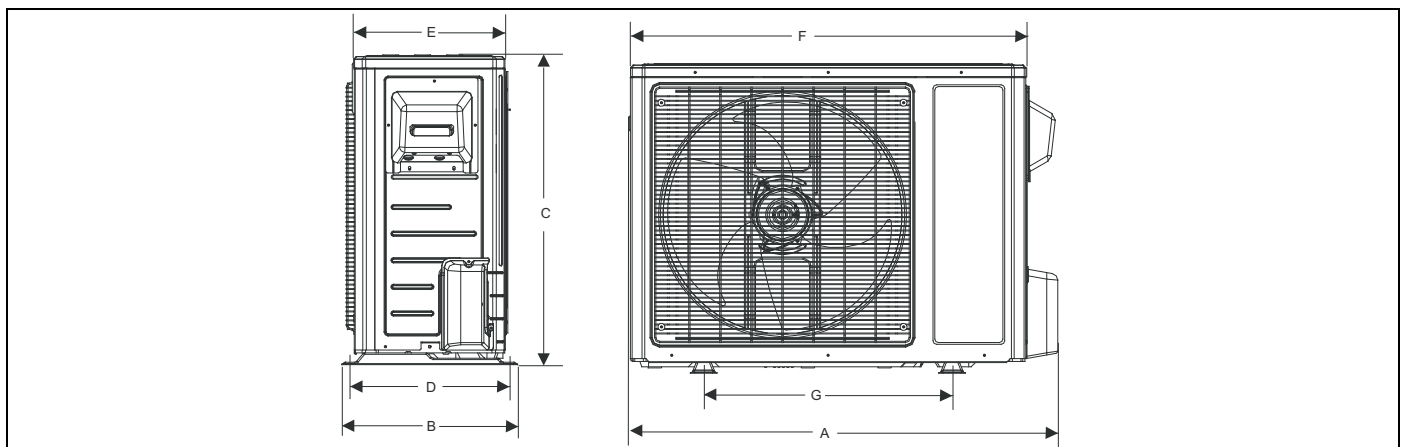


PRODUCT CONSTRUCTION VIEW & DIMENSIONS



Indoor Unit Dimensions

| Model Size | A           | B         | C          | Unit Gross Weight |                |
|------------|-------------|-----------|------------|-------------------|----------------|
|            |             |           |            | Air Conditioner   | Heat Pump      |
| 09K & 12K  | 33.3 (846)  | 7 (178)   | 11 (279)   | 31 lbs (14 kg)    | 31 lbs (14 kg) |
| 18K        | 37 (940)    | 8 (203)   | 12 (305)   | 38 lbs (17 kg)    | 38 lbs (17 kg) |
| 24K        | 39.7(1008)  | 8.7 (221) | 12.4 (315) | 45 lbs (20 kg)    | 45 lbs (20 kg) |
| 30K        | 53.1 (1349) | 10 (254)  | 12.8 (325) | NA                | 60 lbs (27 kg) |
| 36K        | 53.1 (1346) | 10 (254)  | 12.8 (325) | 60 lbs (27 kg)    | 60 lbs (27 kg) |

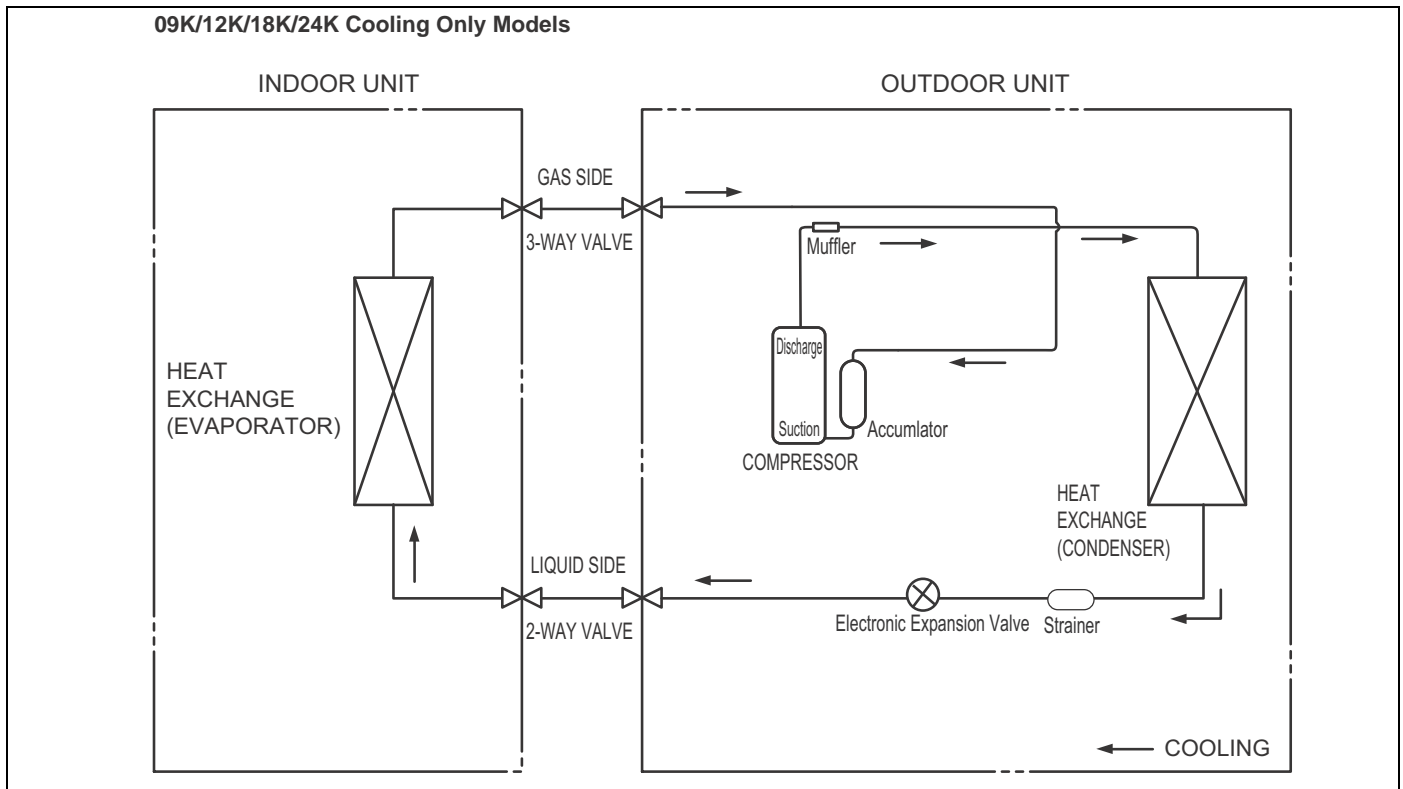


Outdoor Unit Dimensions

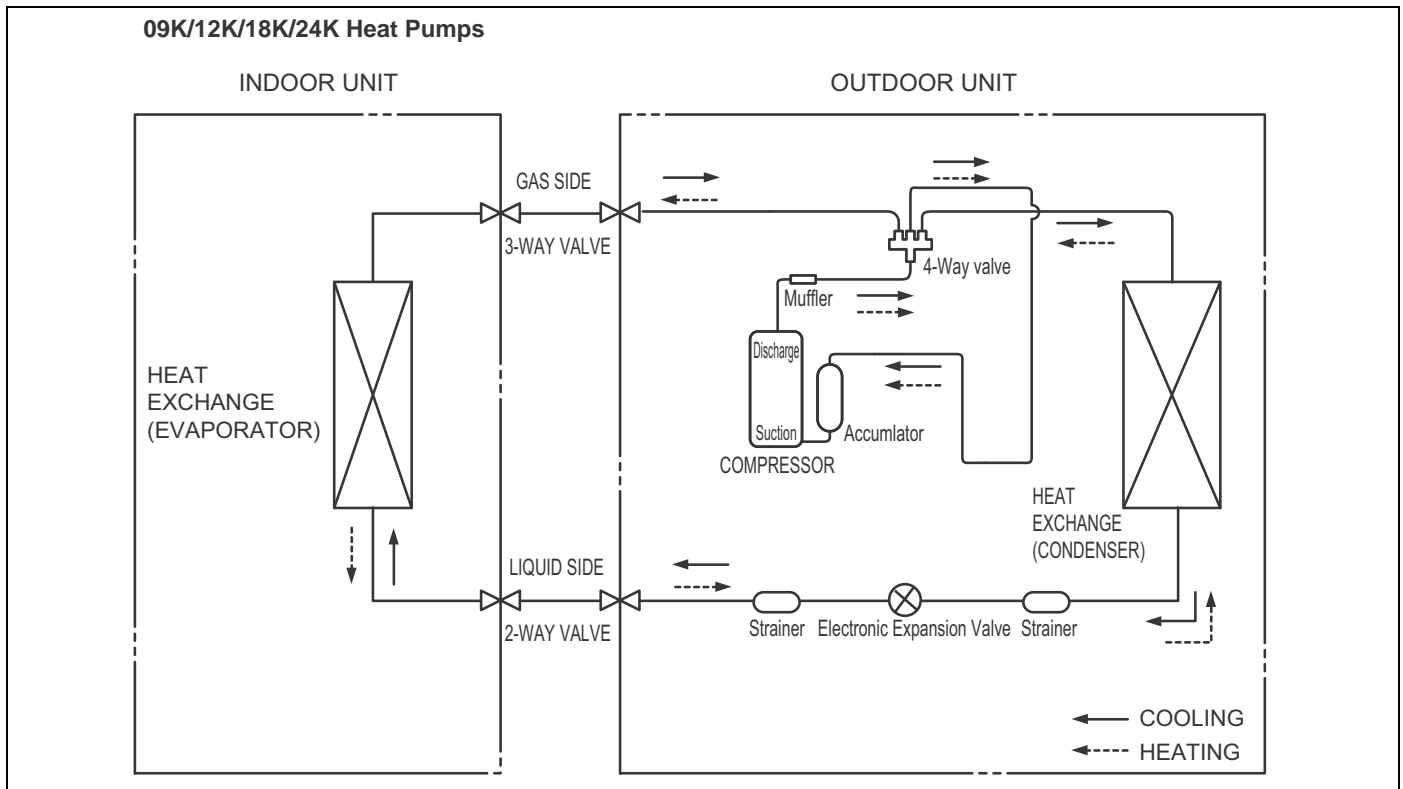
| Model Size | A          | B          | C          | D          | E          | F        | G          | Unit Gross Weight |                 |
|------------|------------|------------|------------|------------|------------|----------|------------|-------------------|-----------------|
|            |            |            |            |            |            |          |            | Air Conditioner   | Heat Pump       |
| 09K        | 33.4 (848) | 12.6 (320) | 21.2 (538) | 11.3 (287) | 10 (254)   | 30 (762) | 21.3 (541) | 91 lbs (41 kg)    | 91 lbs (41 kg)  |
| 12K        | 33.4 (848) | 12.6 (320) | 23.2 (589) | 11.3 (287) | 10 (254)   | 30 (762) | 21.3 (541) | 97 lbs (44 kg)    | 97 lbs (44 kg)  |
| 18K        | 37.6 (955) | 15.6 (396) | 27.6 (701) | 14.5 (368) | 13.4 (340) | 35 (889) | 22 (559)   | 111 lbs (50 kg)   | 111 lbs (50 kg) |
| 24K        | 38.6 (980) | 16.8 (427) | 31.1 (790) | 15.7 (399) | 14.6 (371) | 36 (914) | 24 (610)   | 133 lbs (60 kg)   | 133 lbs (60 kg) |
| 30K        | 38.6 (980) | 16.8 (427) | 31.1 (790) | 15.7 (399) | 14.6 (371) | 36 (914) | 24 (610)   | NA                | 164 lbs (74 kg) |
| 36K        | 38.6 (980) | 16.8 (427) | 31.1 (790) | 15.7 (399) | 14.6 (371) | 36 (914) | 24 (610)   | 170 lbs (77 kg)   | 170 lbs (77 kg) |



REFRIGERANT SYSTEM DIAGRAM



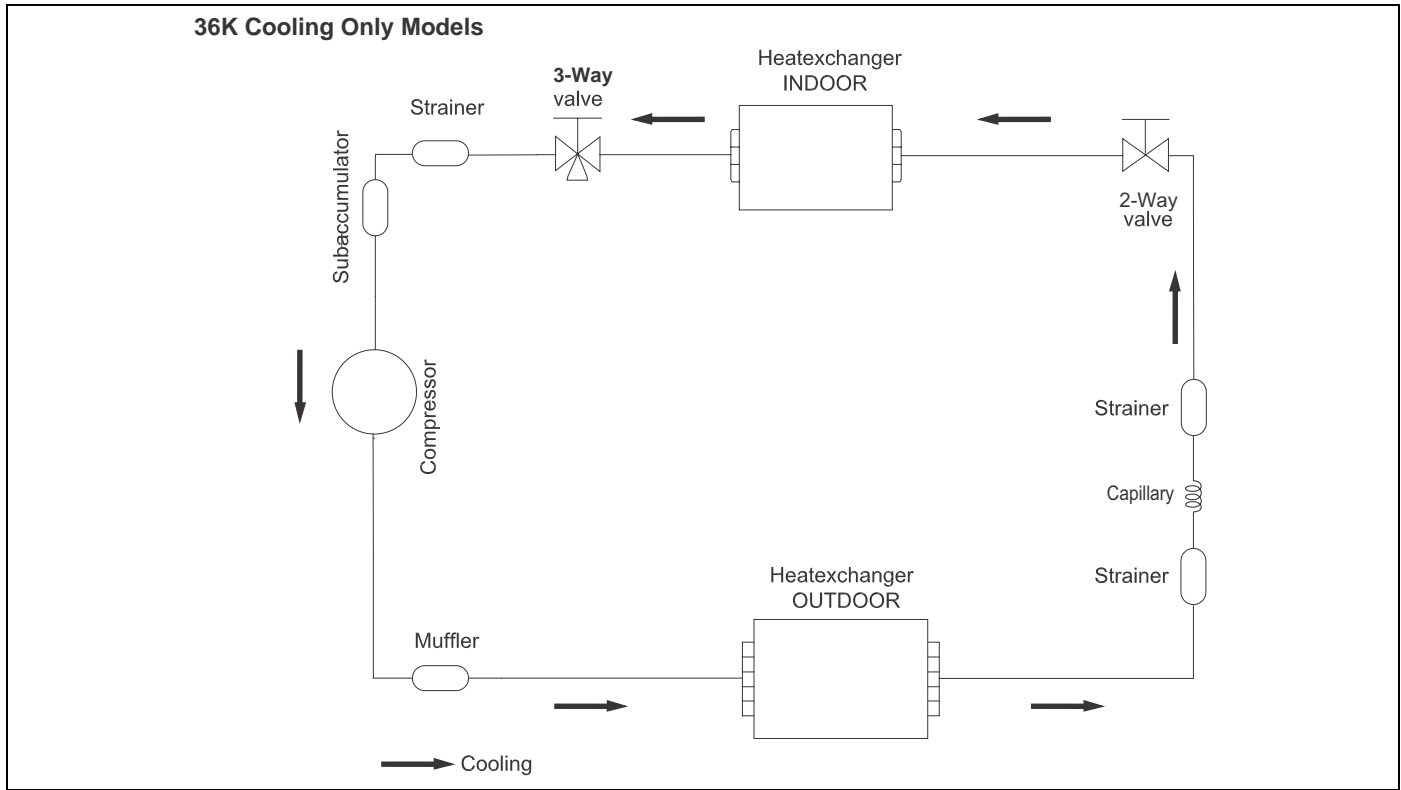
See below for notes.



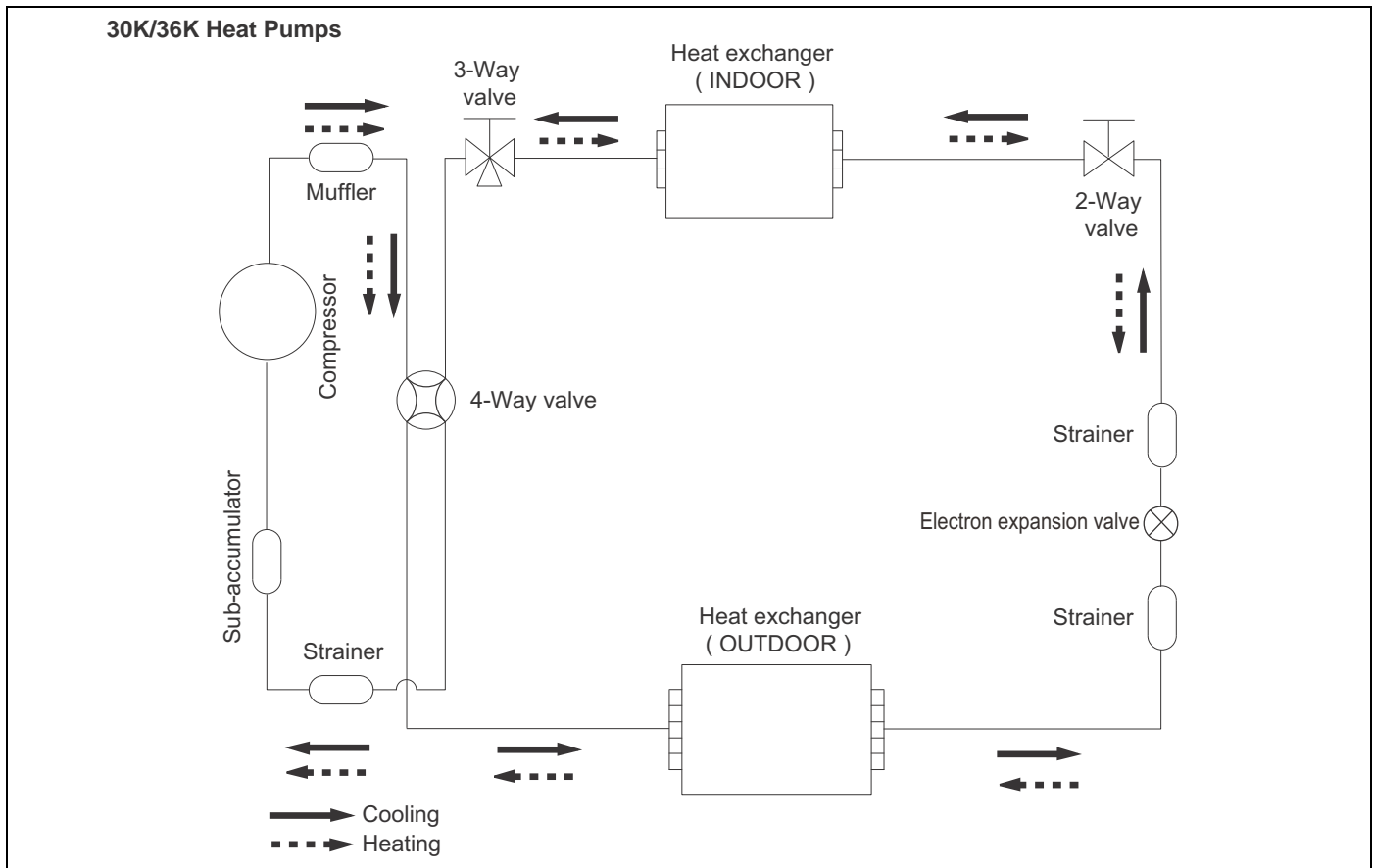
**NOTES:**

**Refrigerant pipe diameter**

- Liquid: 1/4" Gas: 3/8" (For 09K & 12K Units)
- Liquid: 1/4" Gas: 1/2" (For 18K Unit)
- Liquid: 1/4" Gas: 5/8" (For 24K Unit)



See below for notes.



**NOTES:**

**Refrigerant pipe diameter**

Liquid: 1/4"

Gas: 5/8"

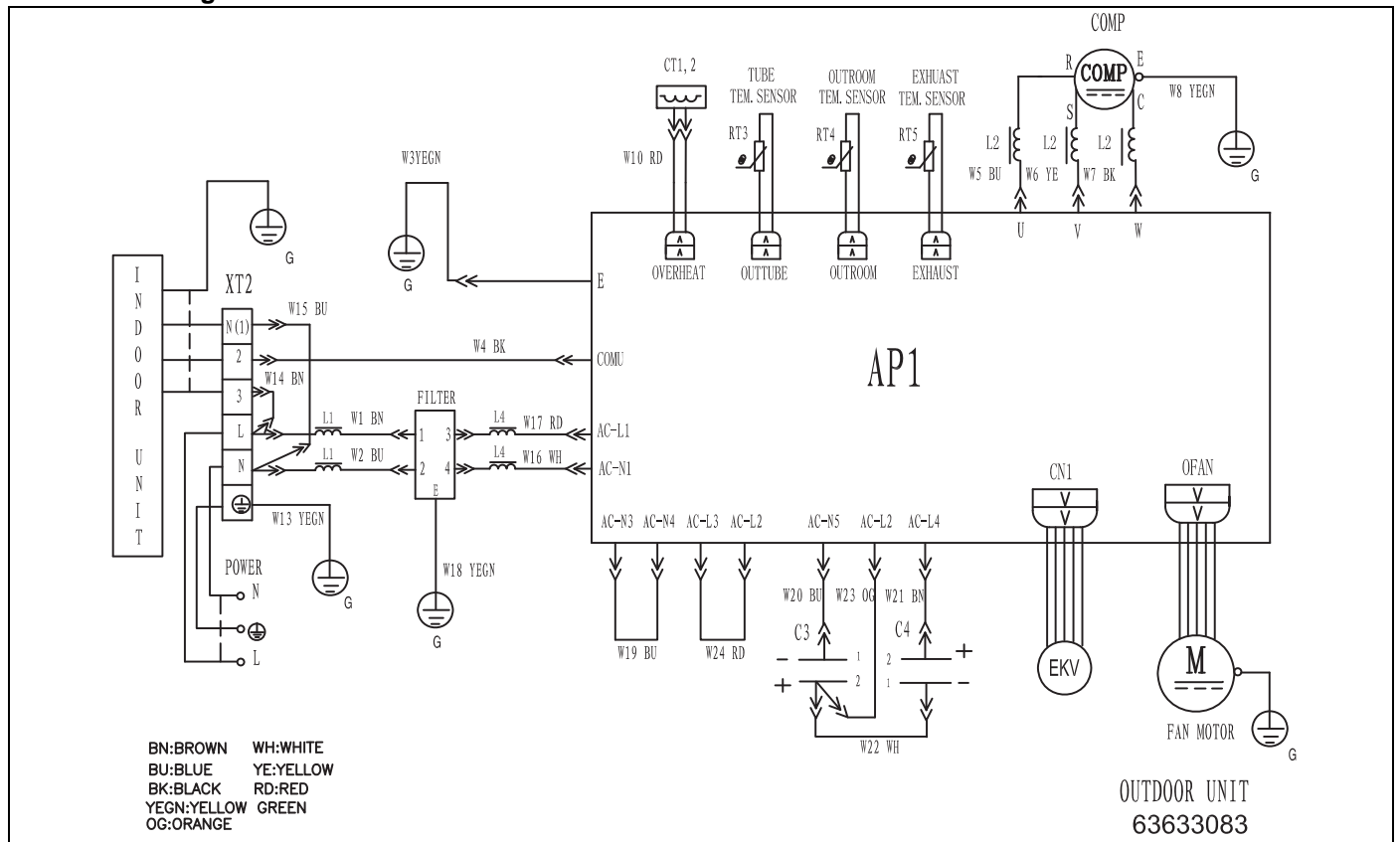
WIRING DIAGRAM

Electrical Data

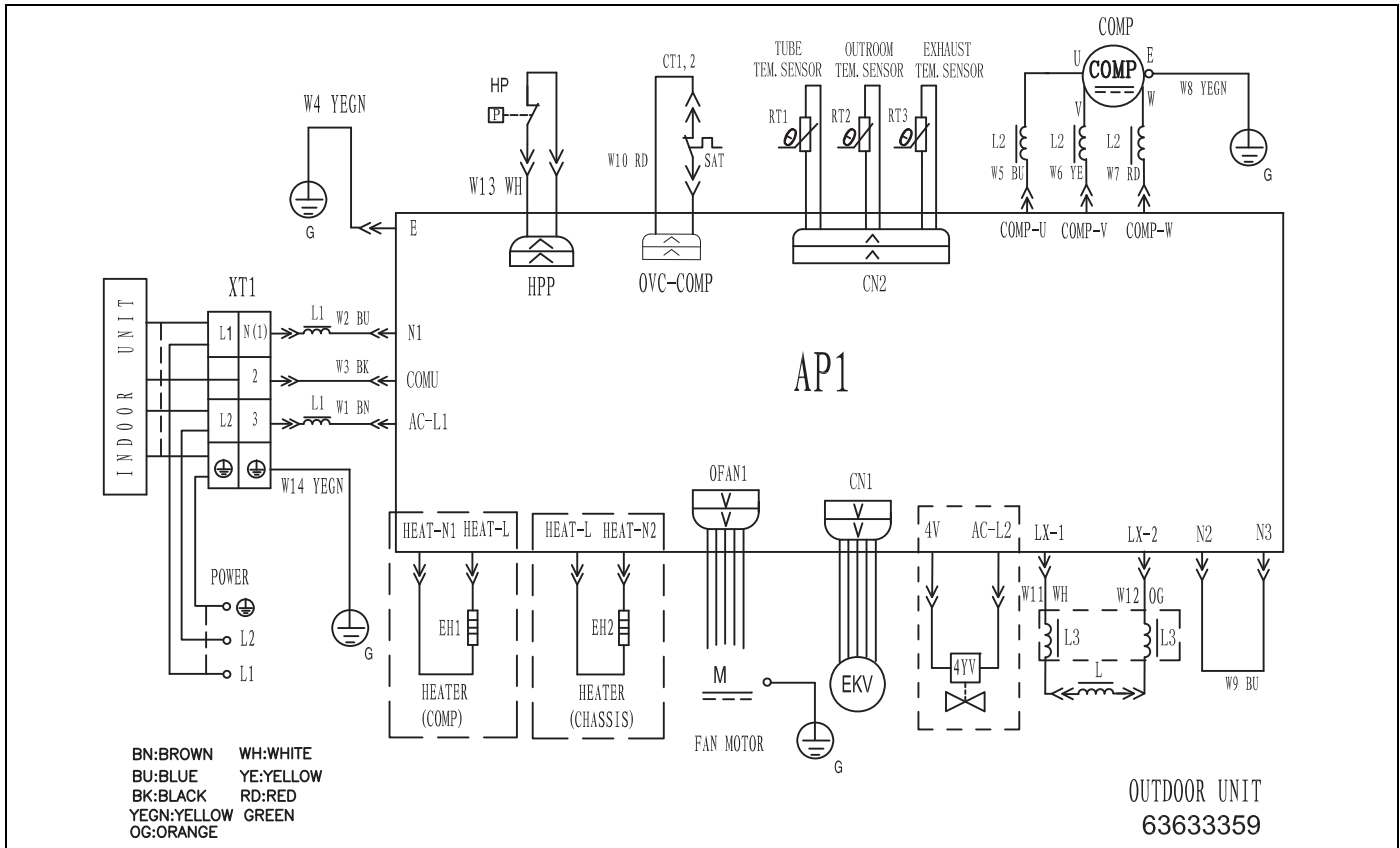
| Symbol             | Color Symbol | Symbol | Color Symbol | Symbol | Part Name        |
|--------------------|--------------|--------|--------------|--------|------------------|
| <b>INDOOR UNIT</b> |              |        |              |        |                  |
| BU                 | BIUE         | BN     | BROWN        | ⊕      | PROTECTIVE EARTH |
| YE                 | YELLOW       | GN     | GREEN        | /      | /                |
| RD                 | RED          | BK     | BLACK        | /      | /                |
| YEGN               | YELLOW GREEN | /      | /            | /      | /                |

| <b>OUTDOOR UNIT</b> |                  |        |              |        |              |
|---------------------|------------------|--------|--------------|--------|--------------|
| Symbol              | Part Name        | Symbol | Color Symbol | Symbol | Color Symbol |
| C1                  | CBB61            | BN     | BROWN        | WH     | WHITE        |
| C2                  | CBB65            | BU     | BLUE         | YE     | YELLOW       |
| SAT                 | OVERLOAD         | BK     | BLACK        | RD     | RED          |
| COMP                | COMPRESSOR       | OG     | ORANGE       | YEGN   | YELLOW GREEN |
| ⊕                   | PROTECTIVE EARTH | WH     | WHITE        | /      | /            |

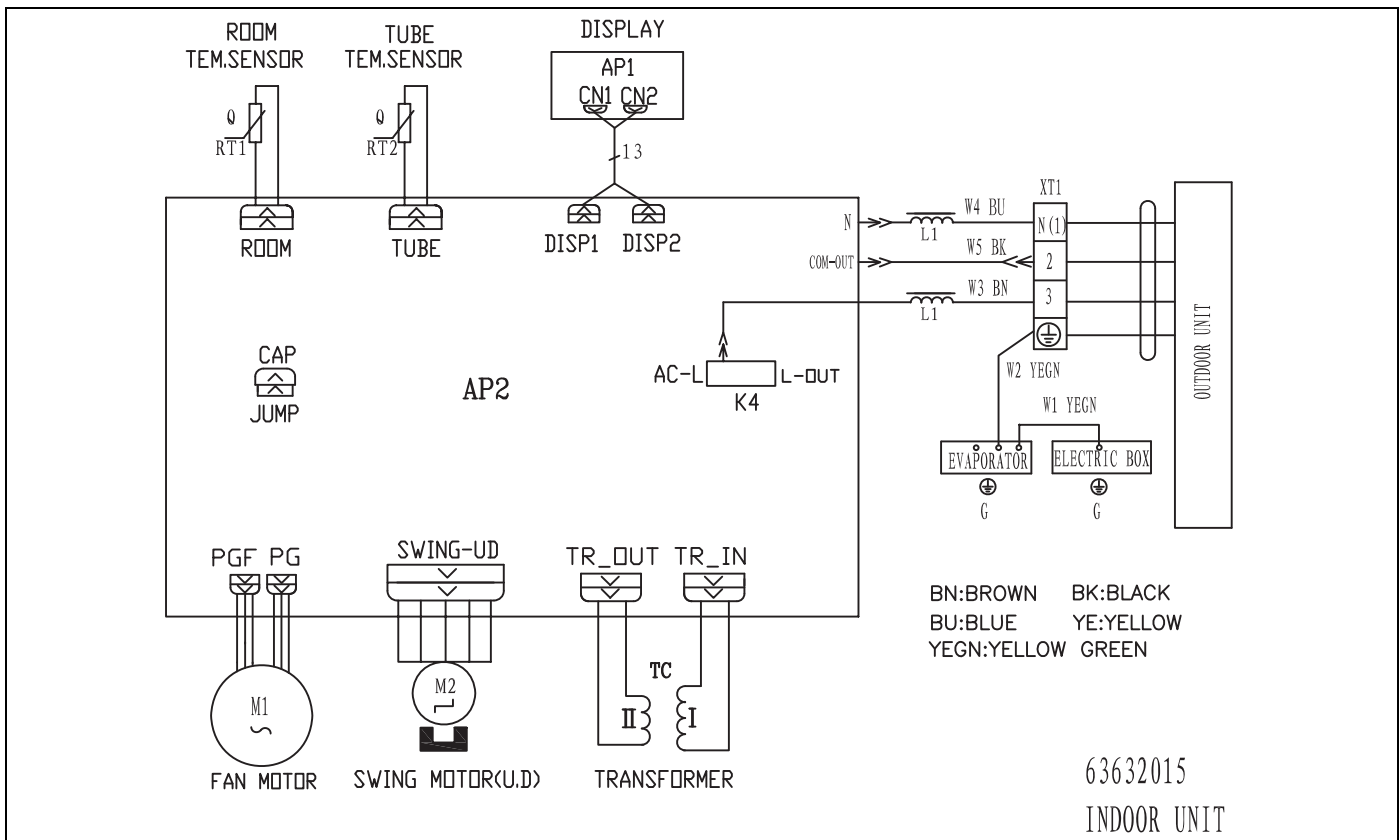
Electrical Wiring



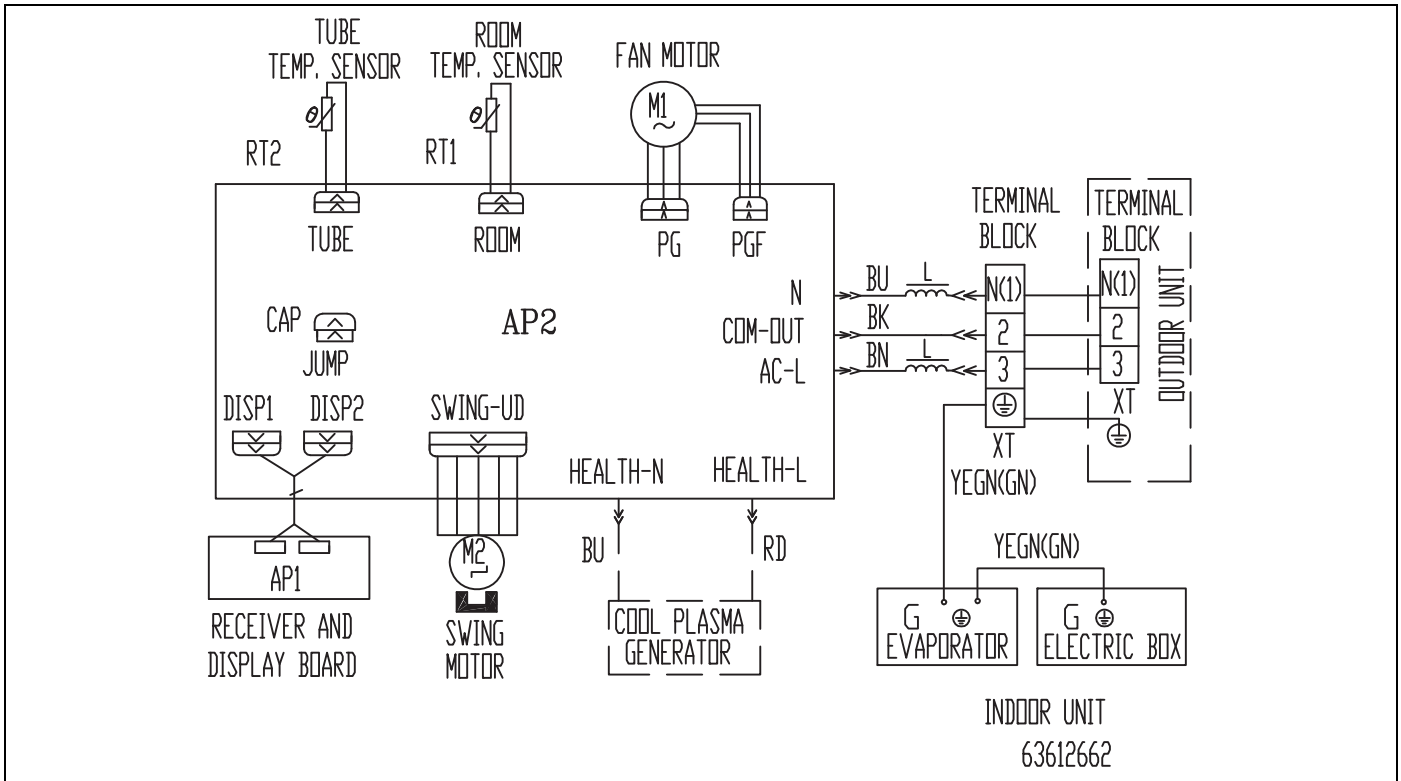
09K & 12K 115V Outdoor Air Conditioners



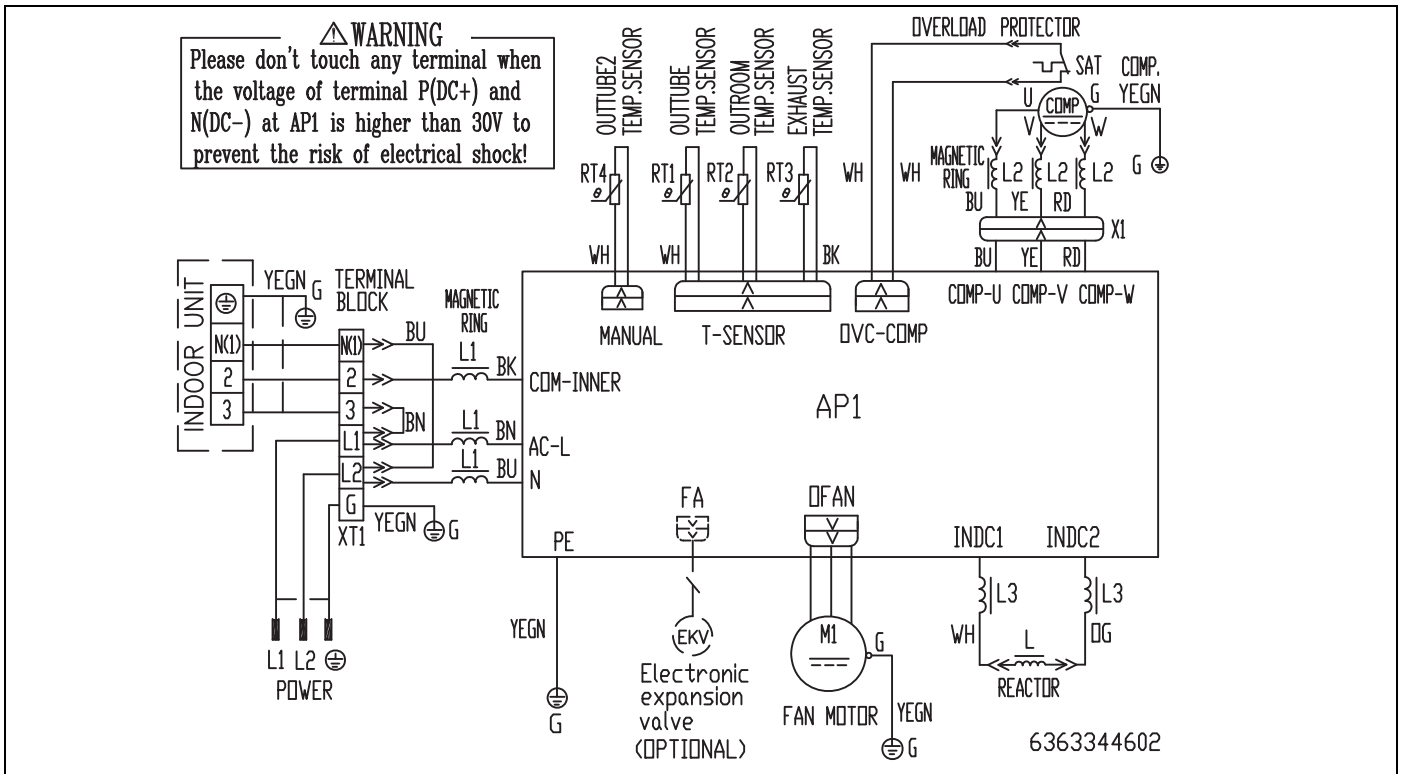
09K & 12K Outdoor Air Conditioners



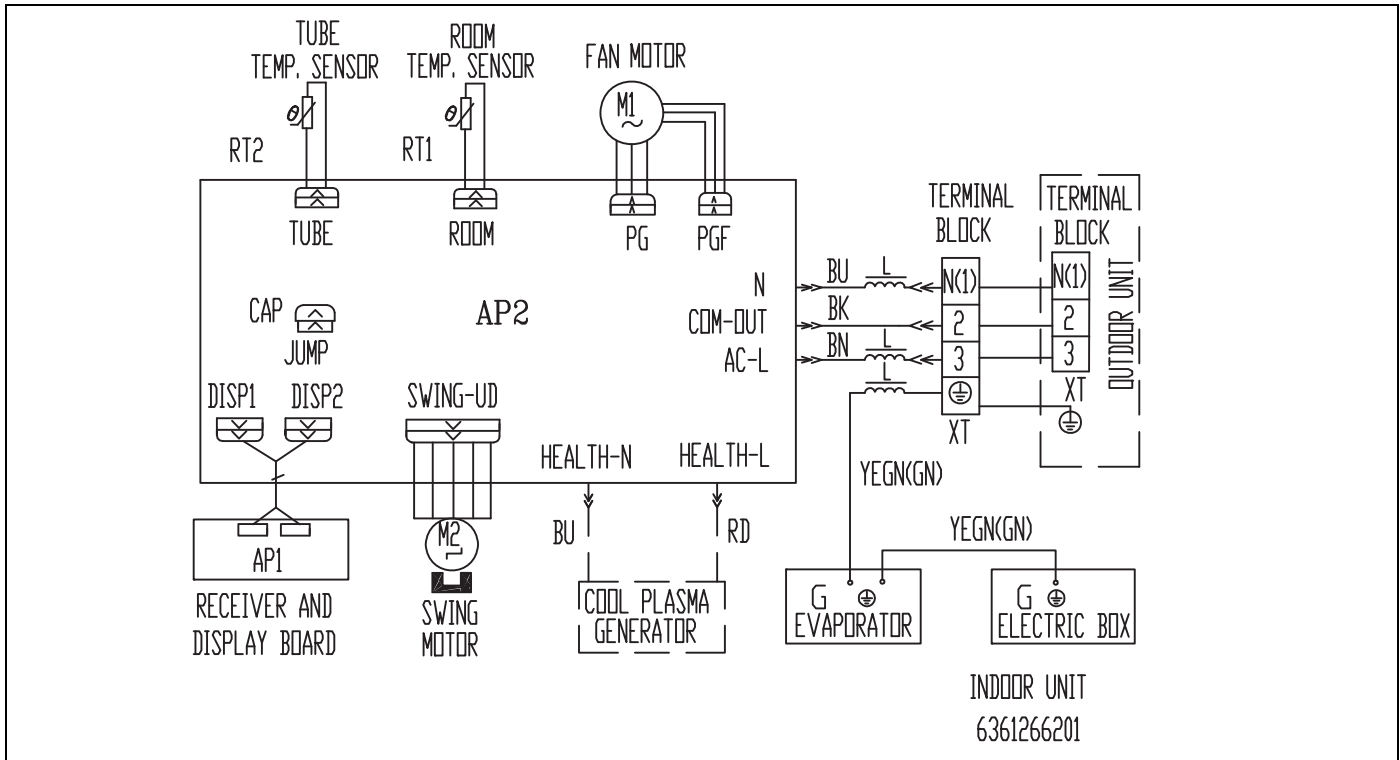
18K & 24K 115V Indoor Air Conditioners



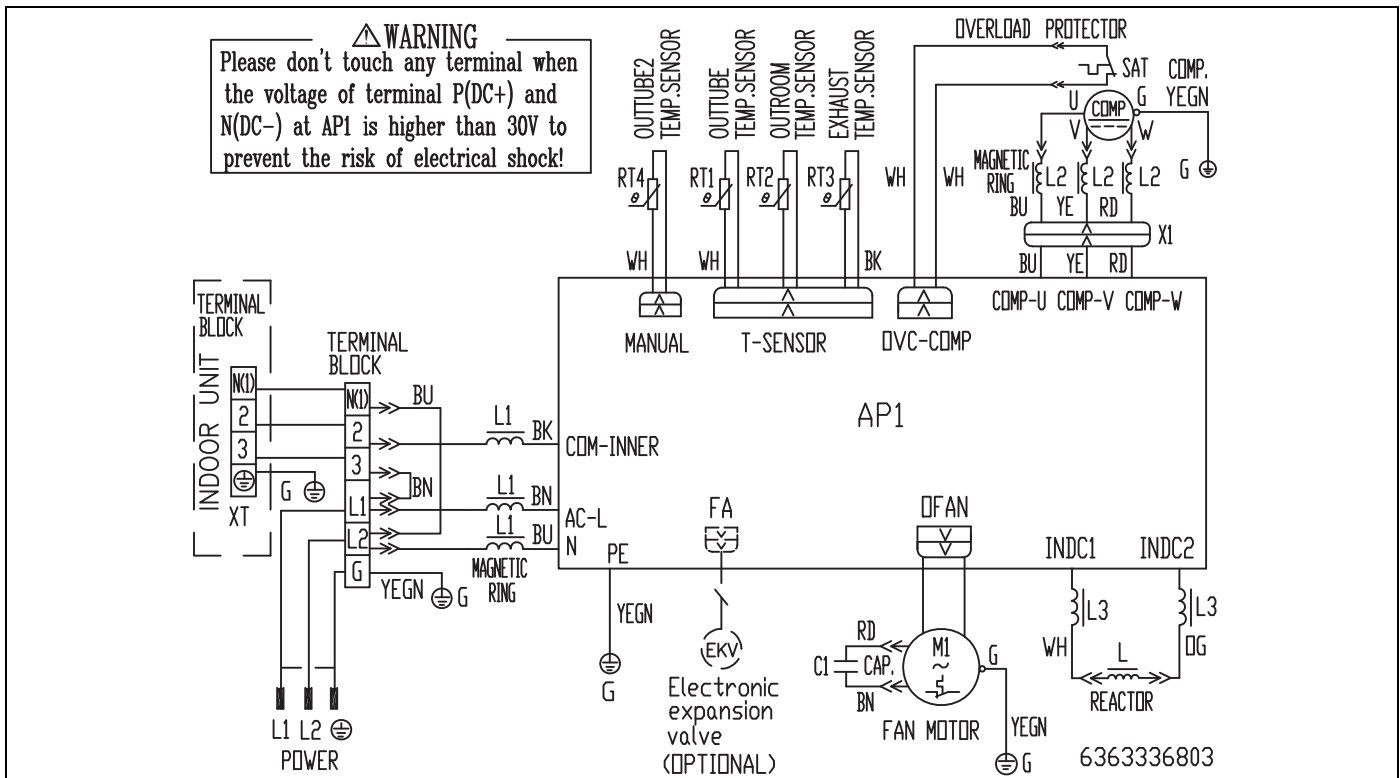
18K & 24K Indoor Air Conditioners



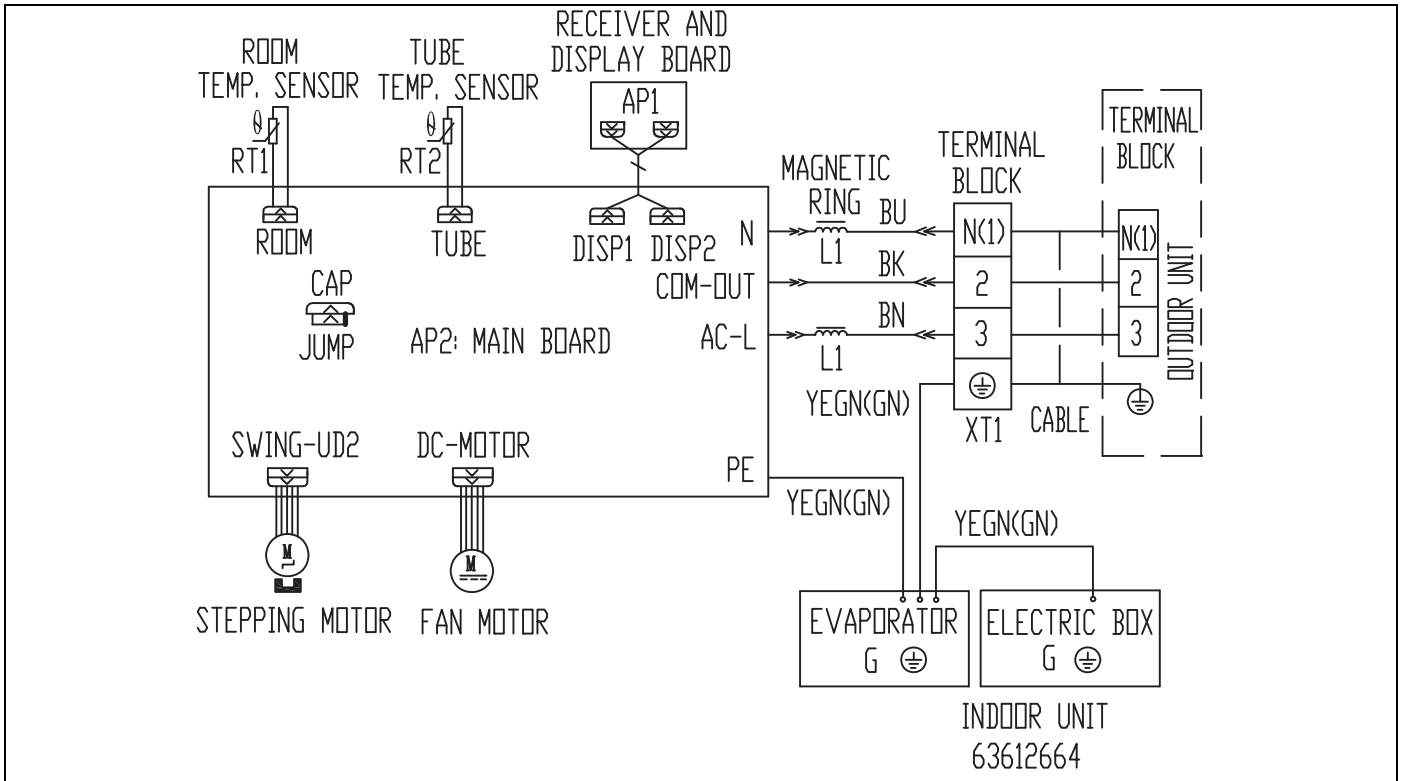
18K Outdoor Air Conditioners



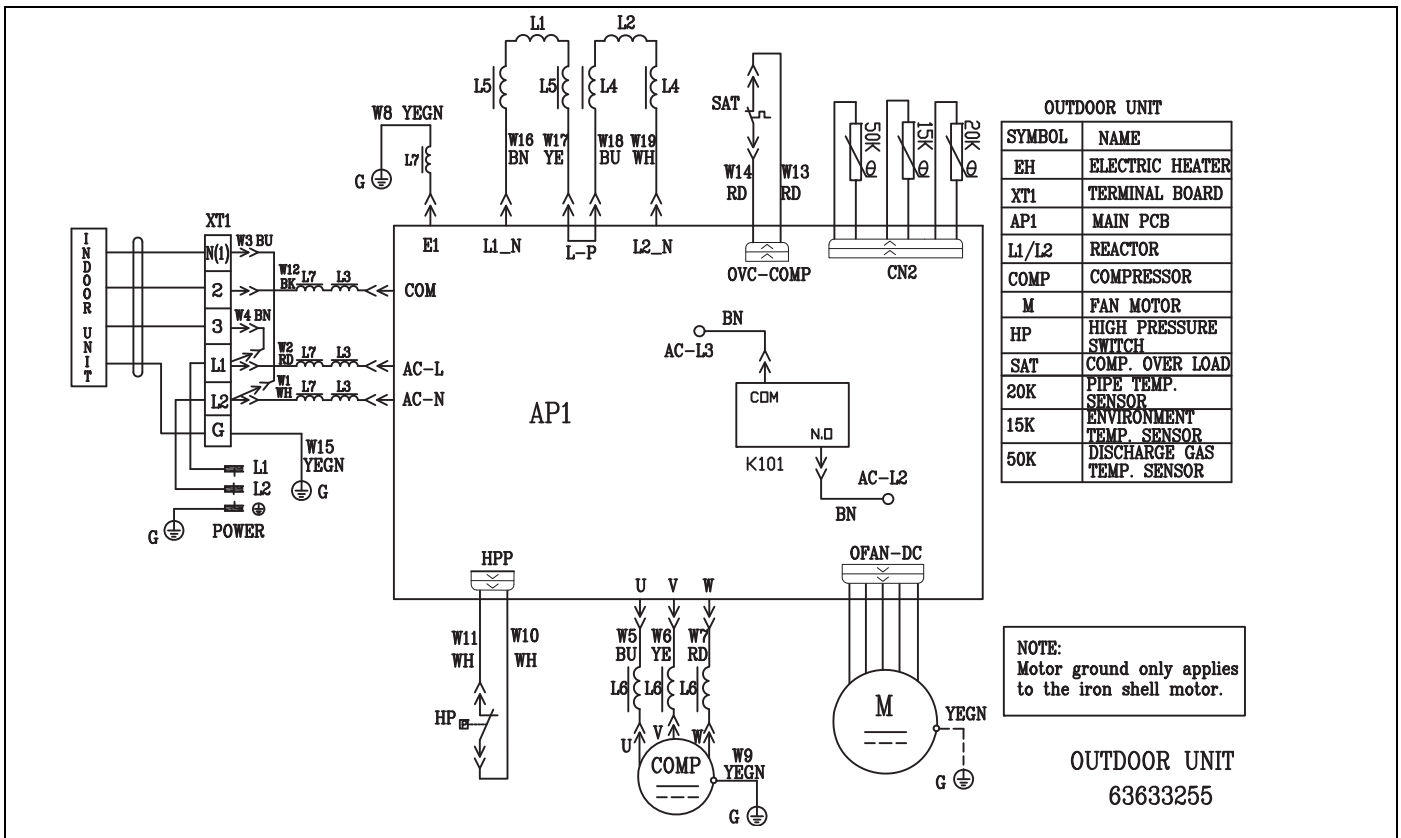
18K Indoor Air Conditioners



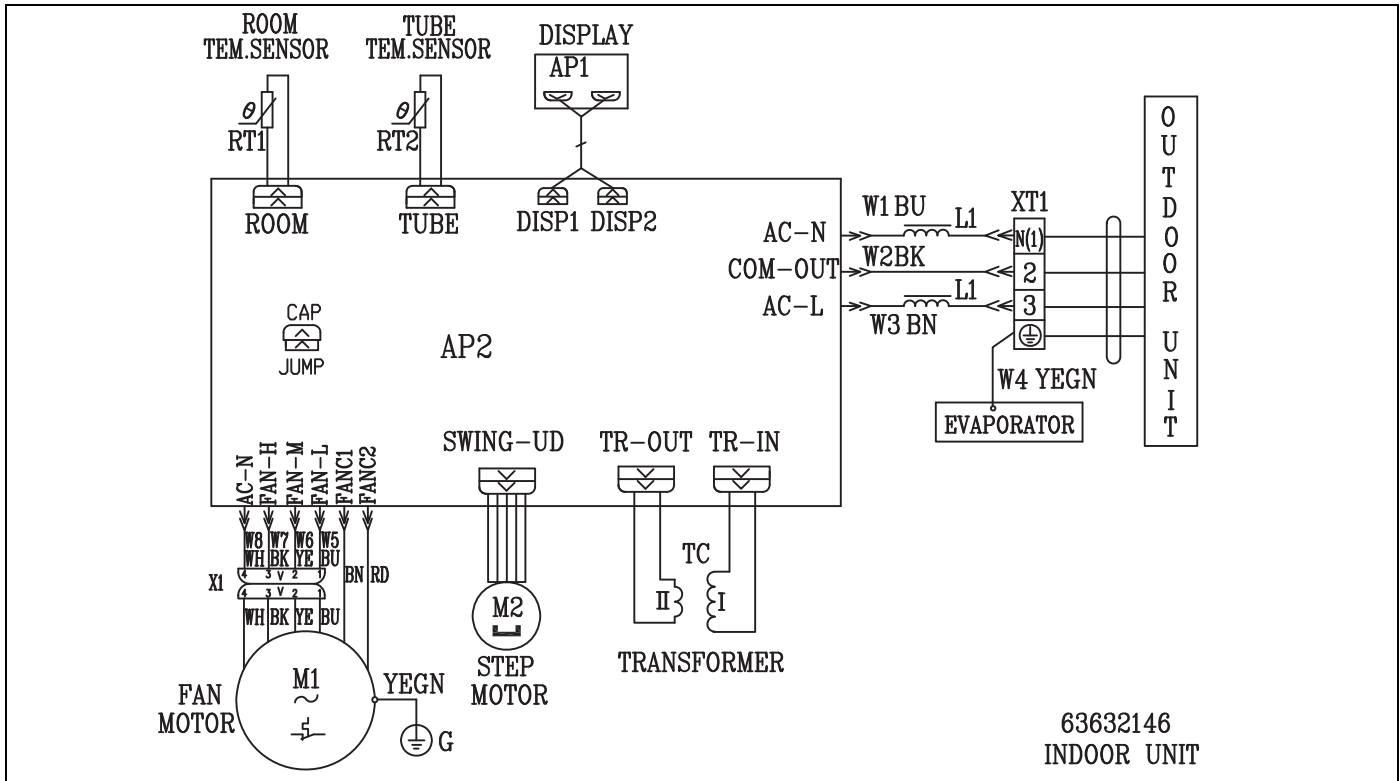
24K Outdoor Air Conditioners



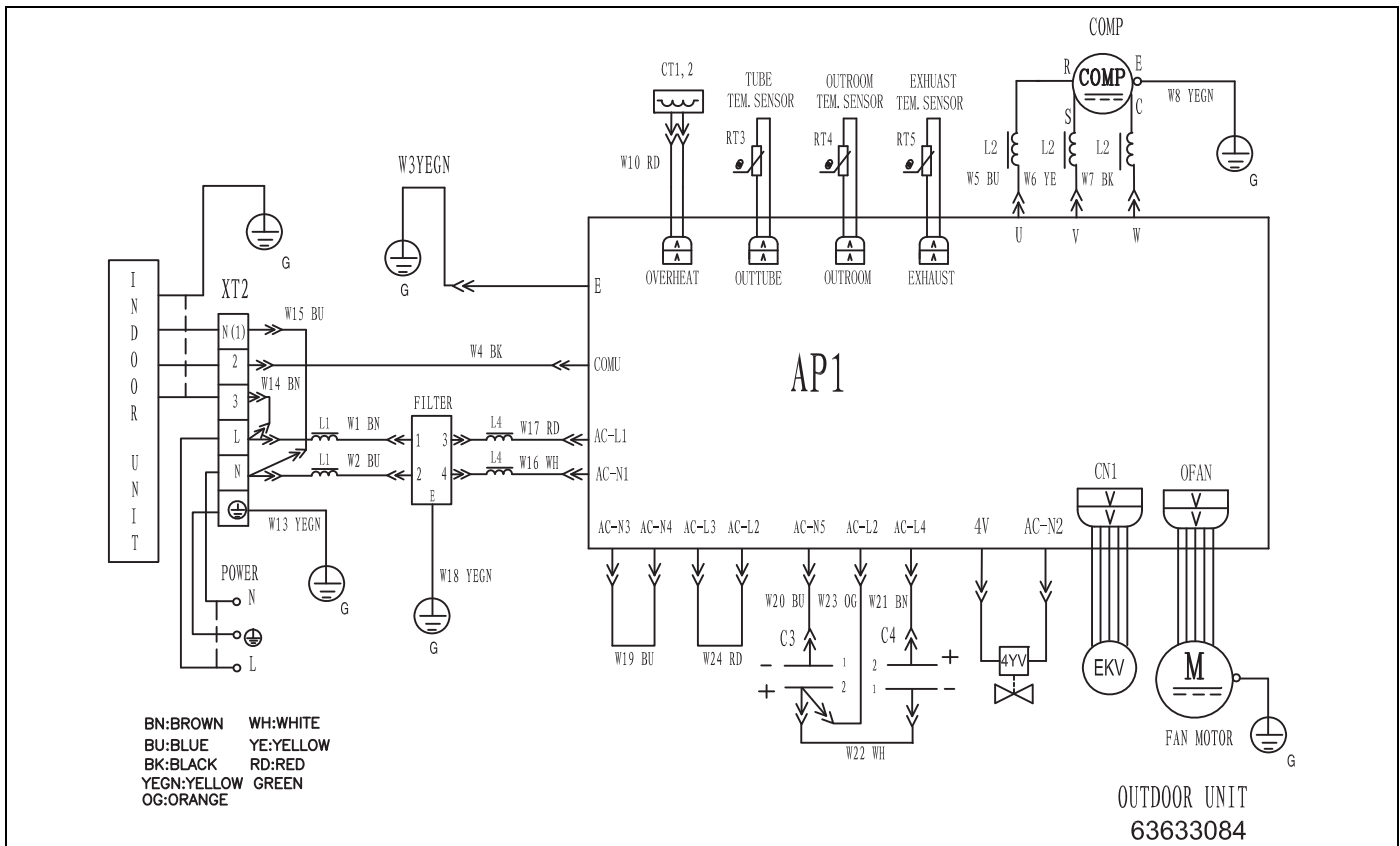
24K Indoor Air Conditioners



36K Outdoor Air Conditioners

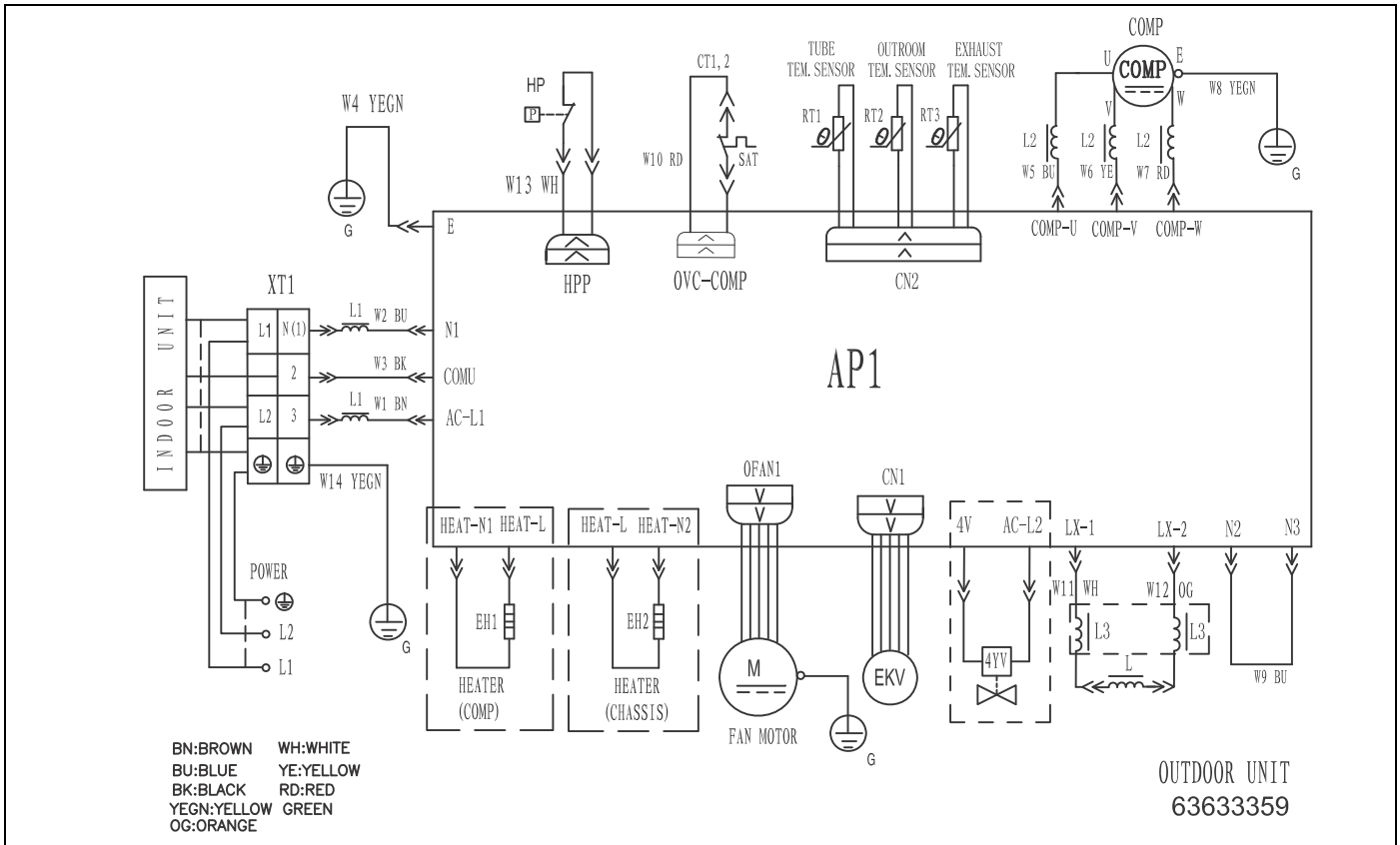


**36K Indoor Air Conditioners**

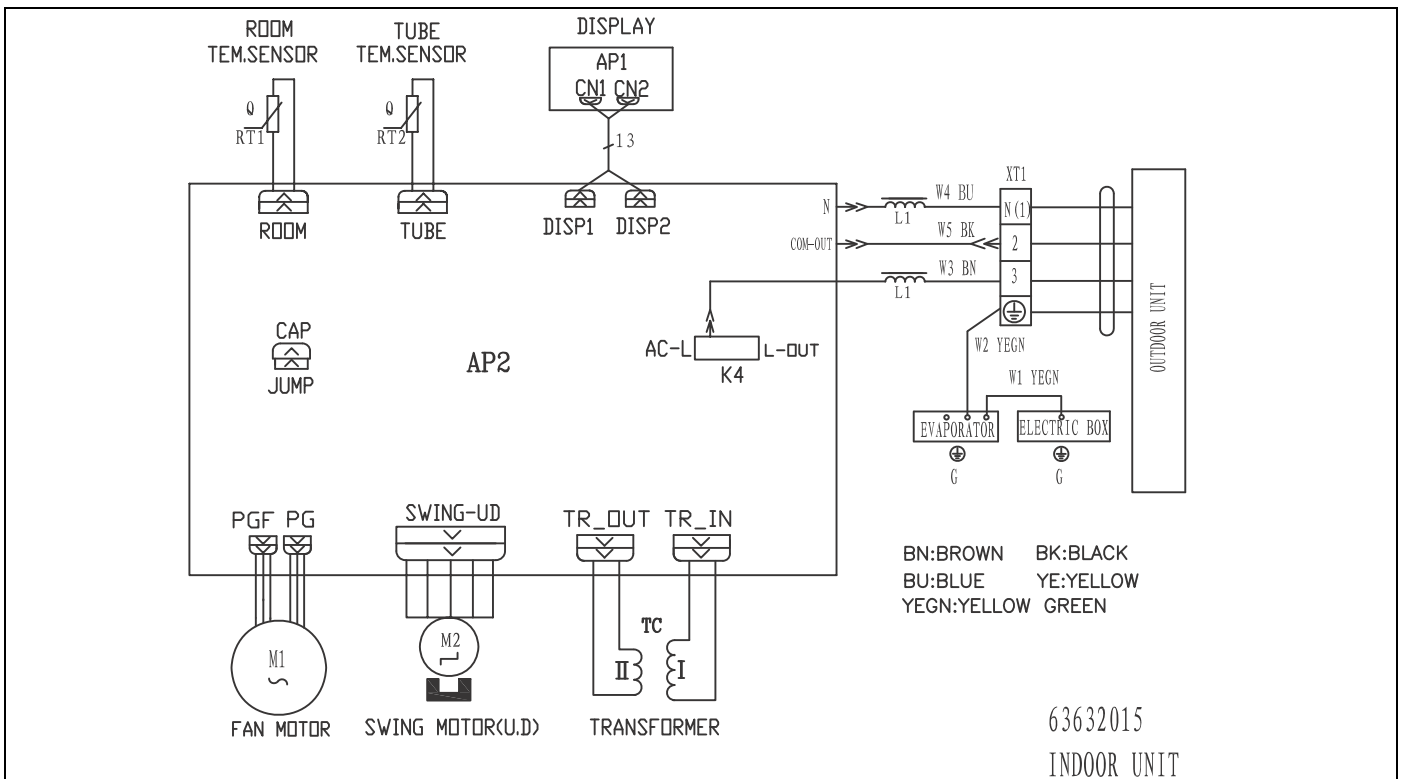


**09K & 12K 115V Outdoor Heat Pumps**

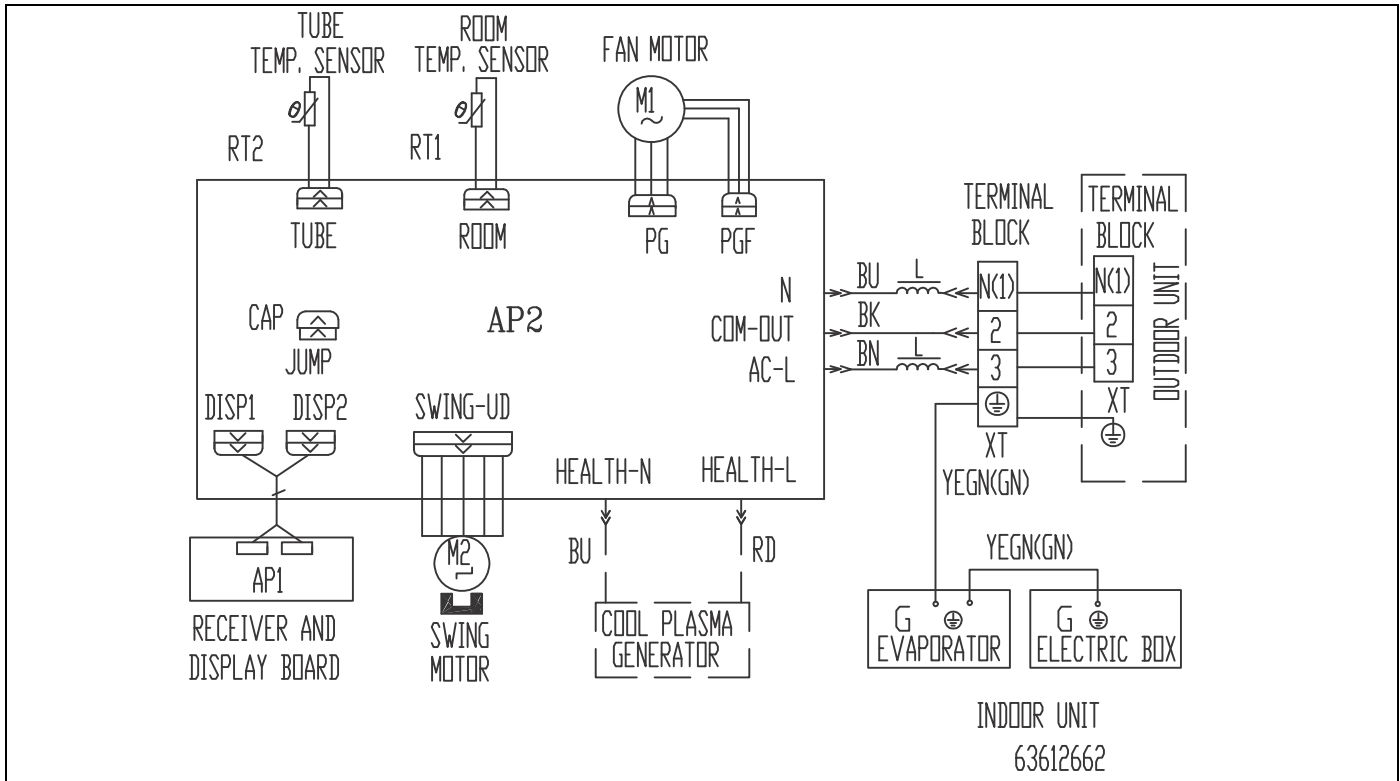




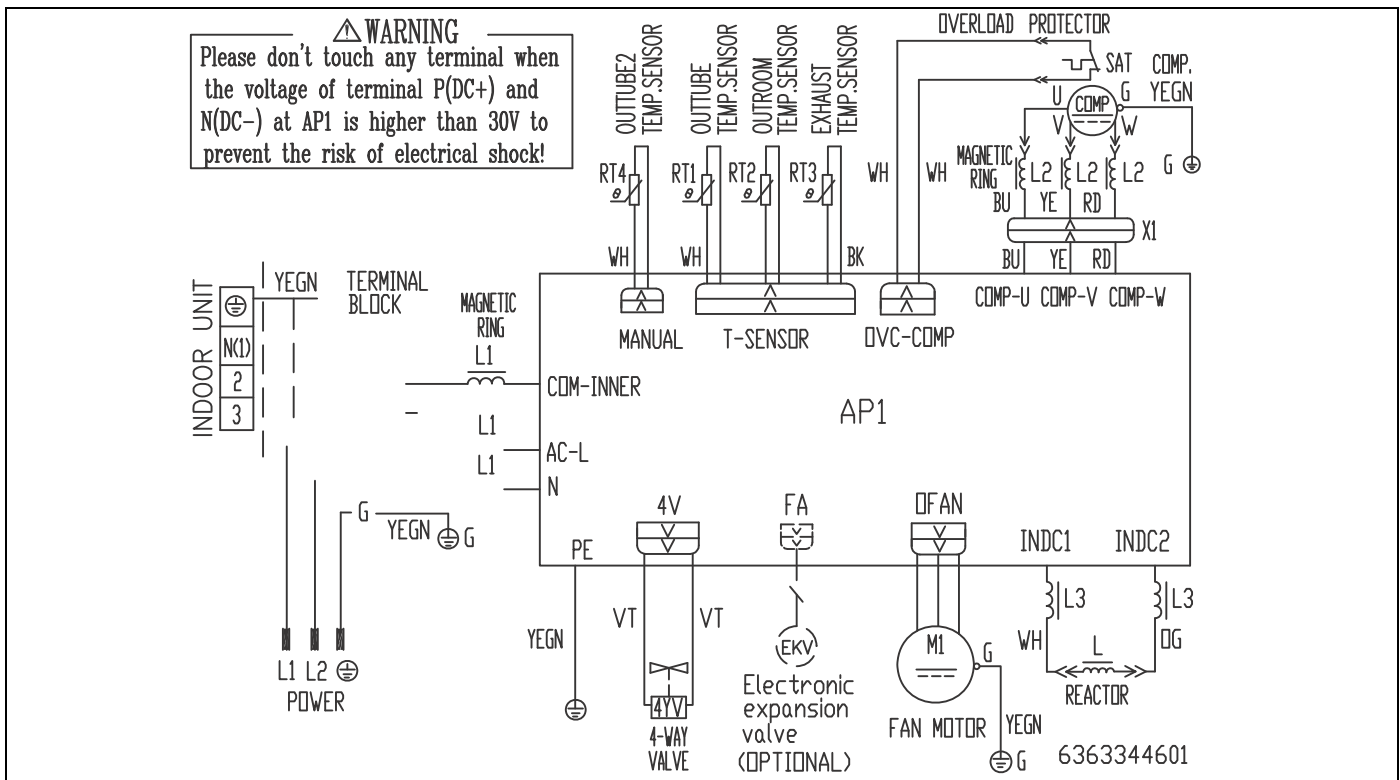
09K & 12K Outdoor Heat Pumps



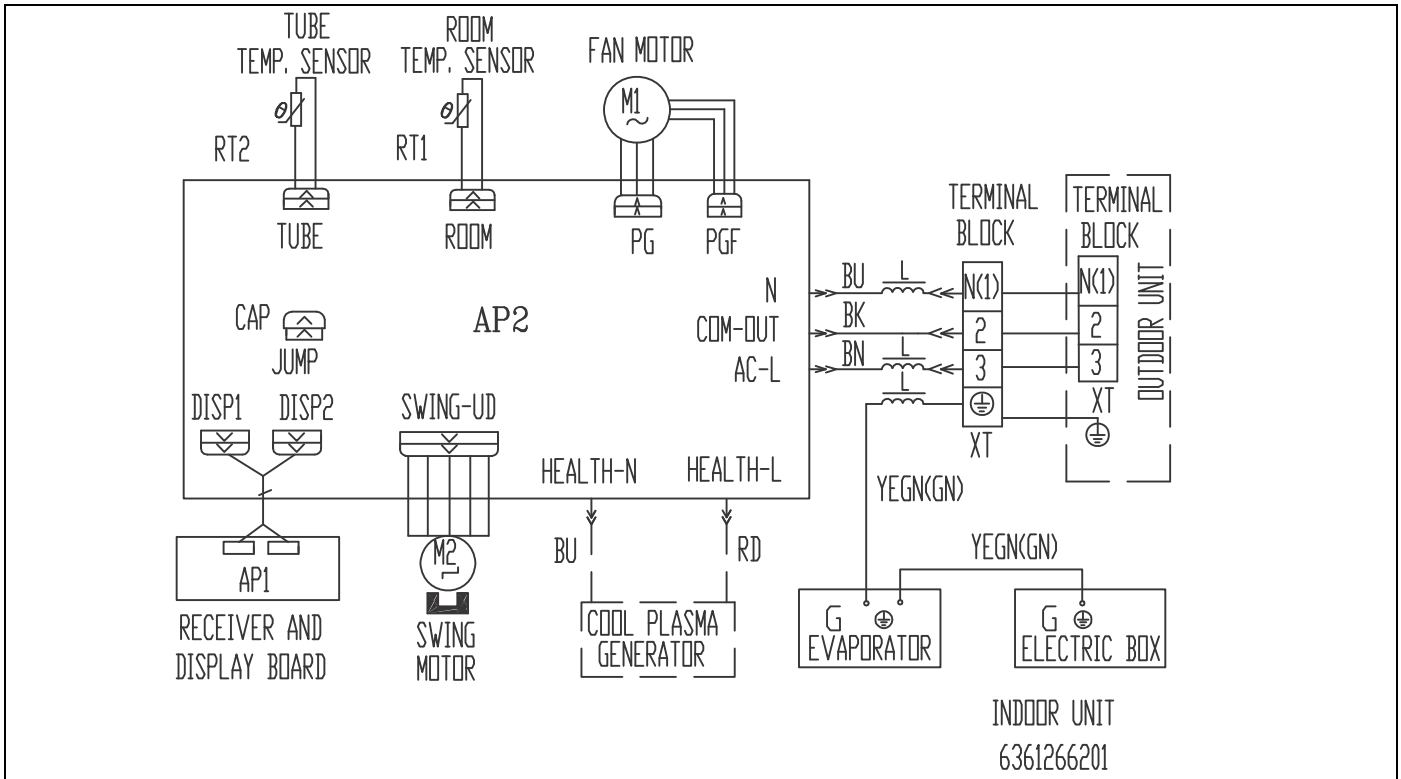
18K & 24K 115V Heat Pumps



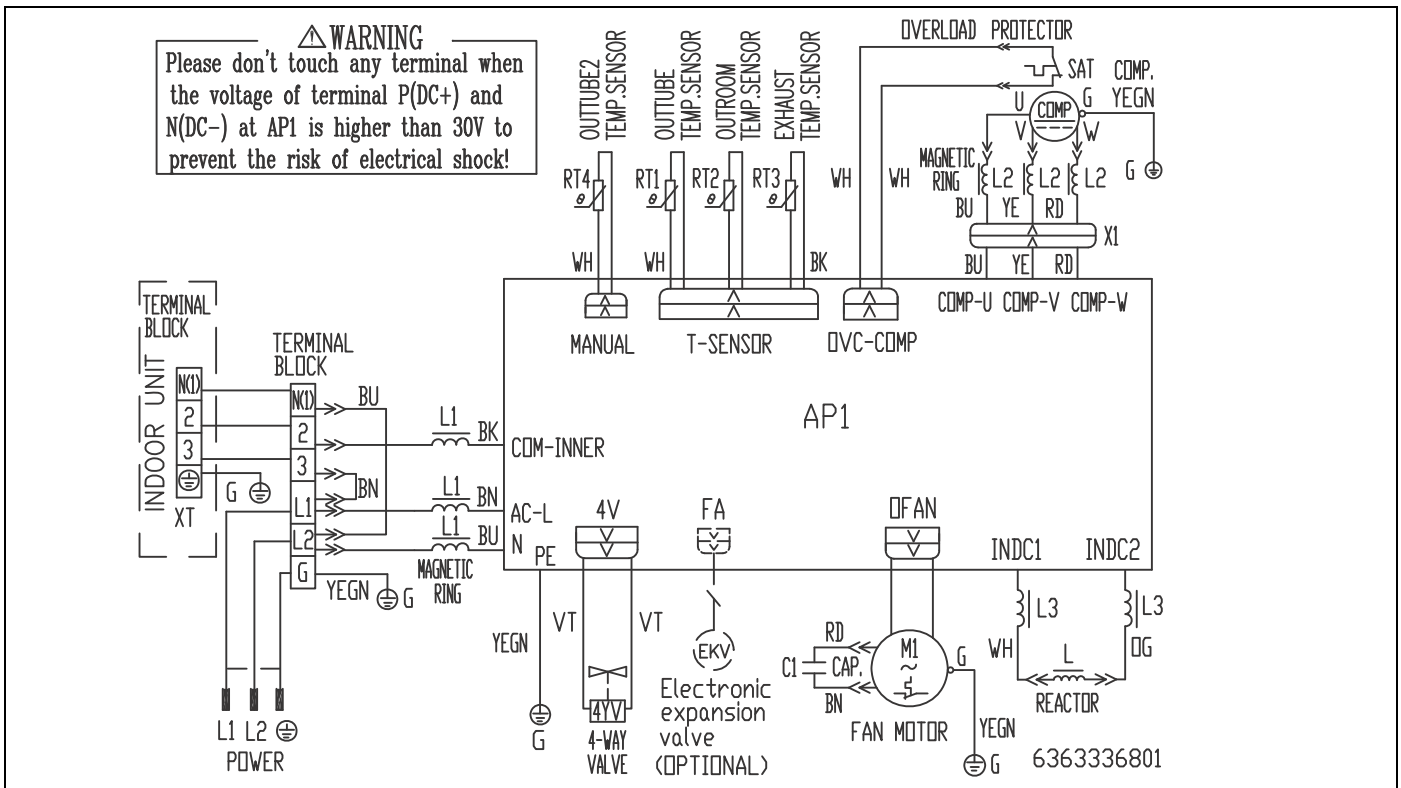
**18K & 24K Indoor Heat Pumps**



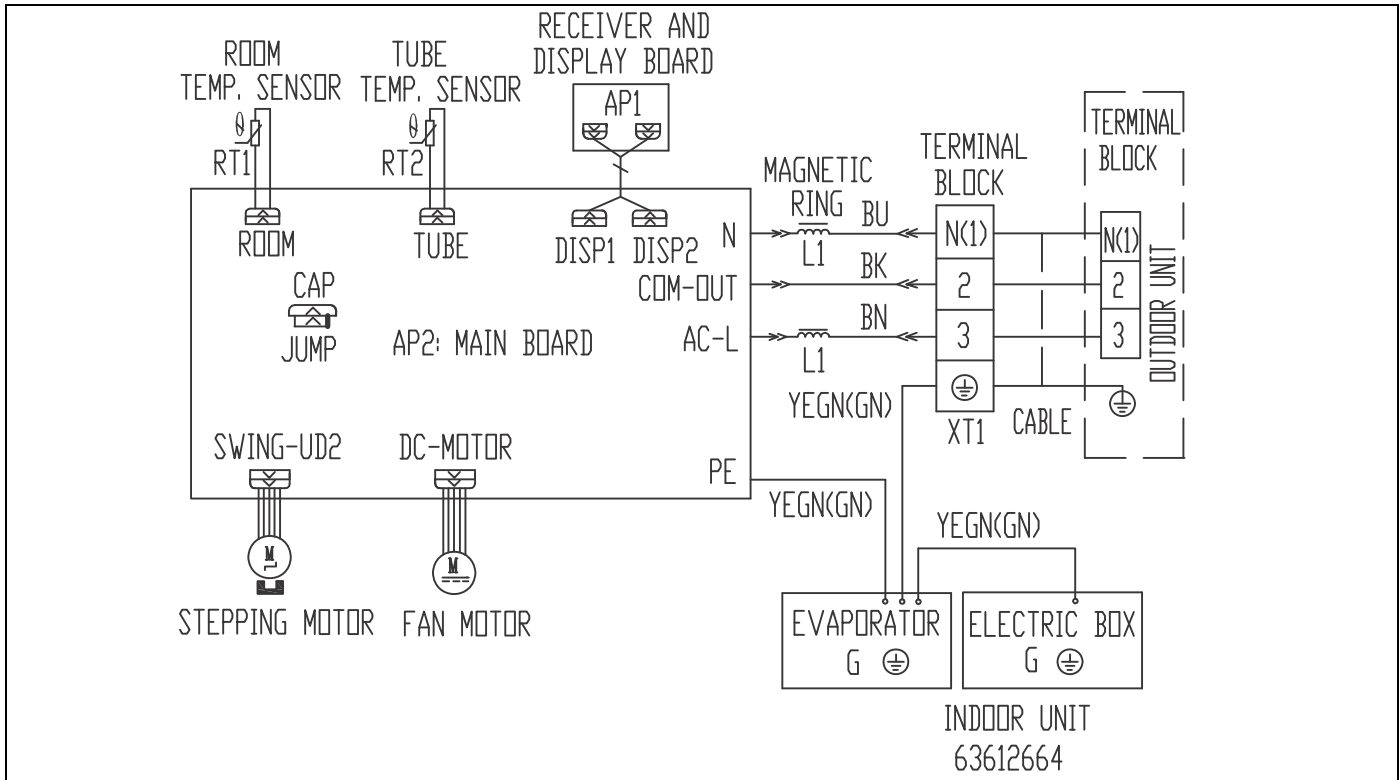
**18K Outdoor Heat Pumps**



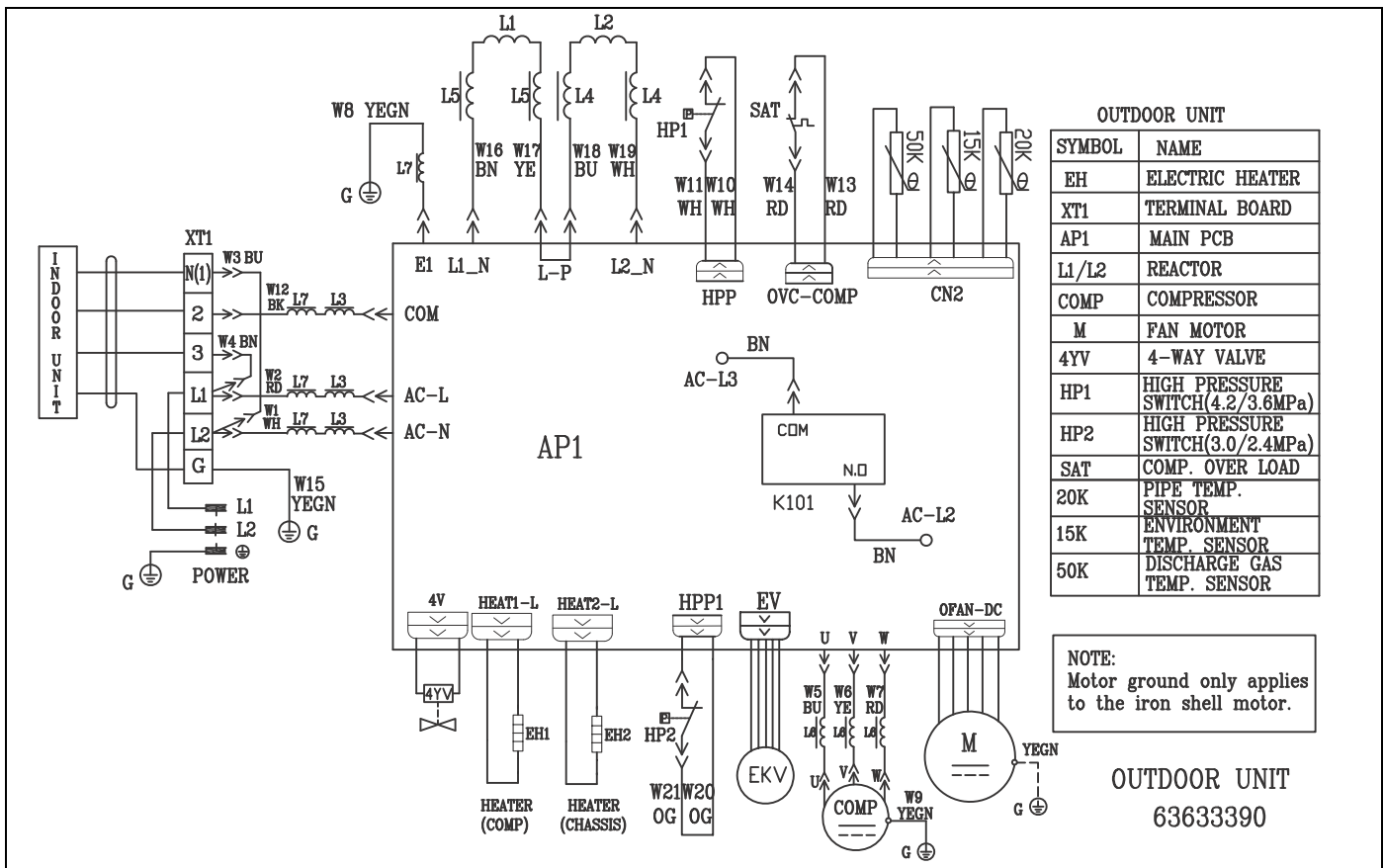
18K Indoor Heat Pumps



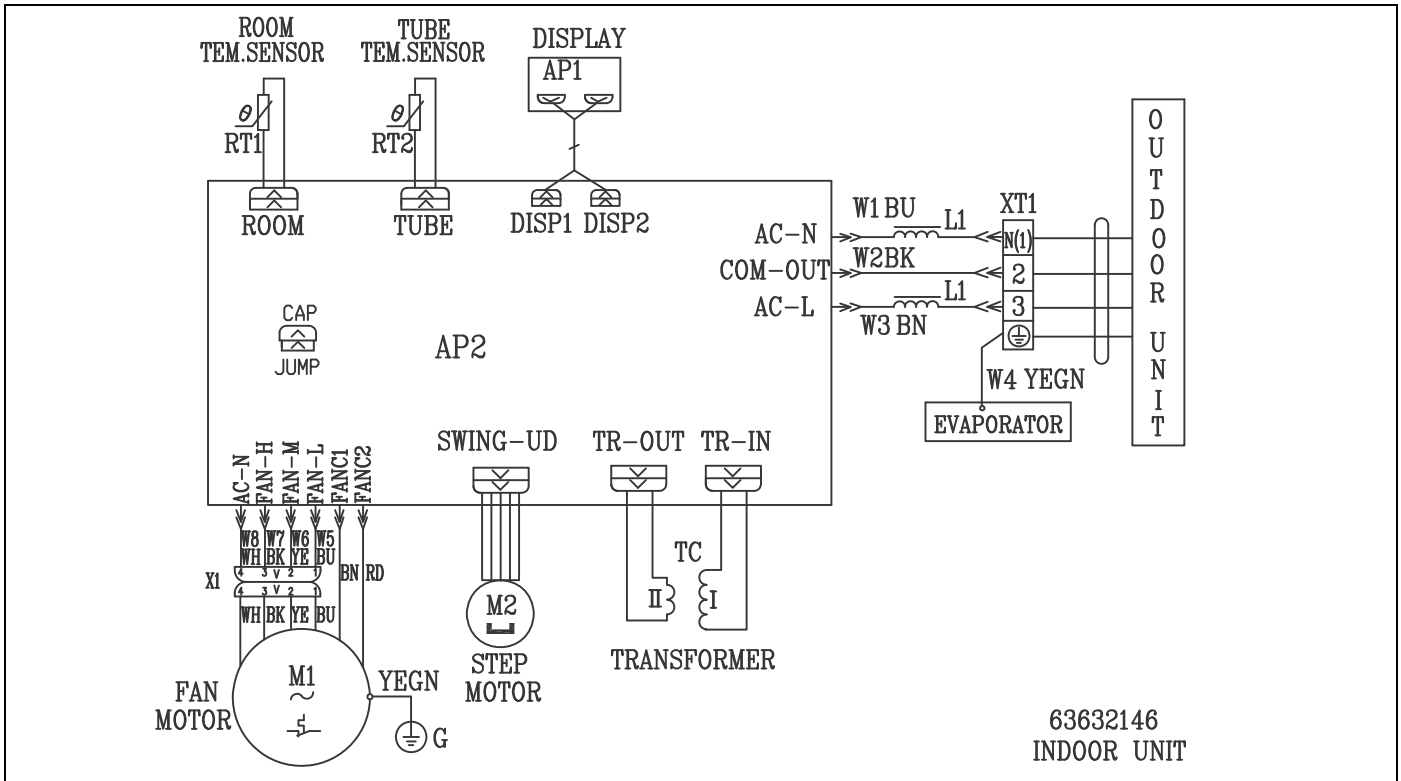
24K Outdoor Heat Pumps



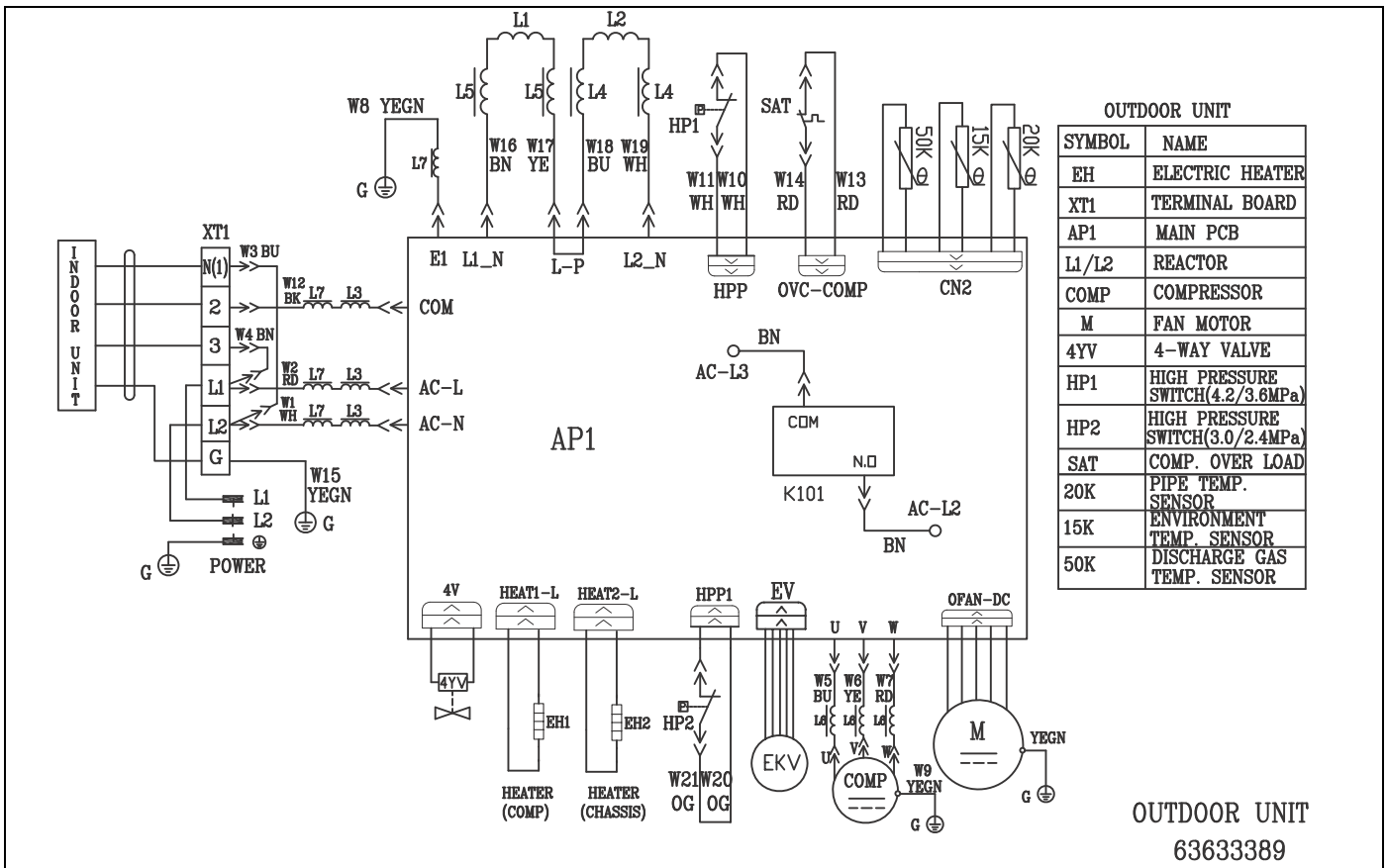
24K Indoor Heat Pumps



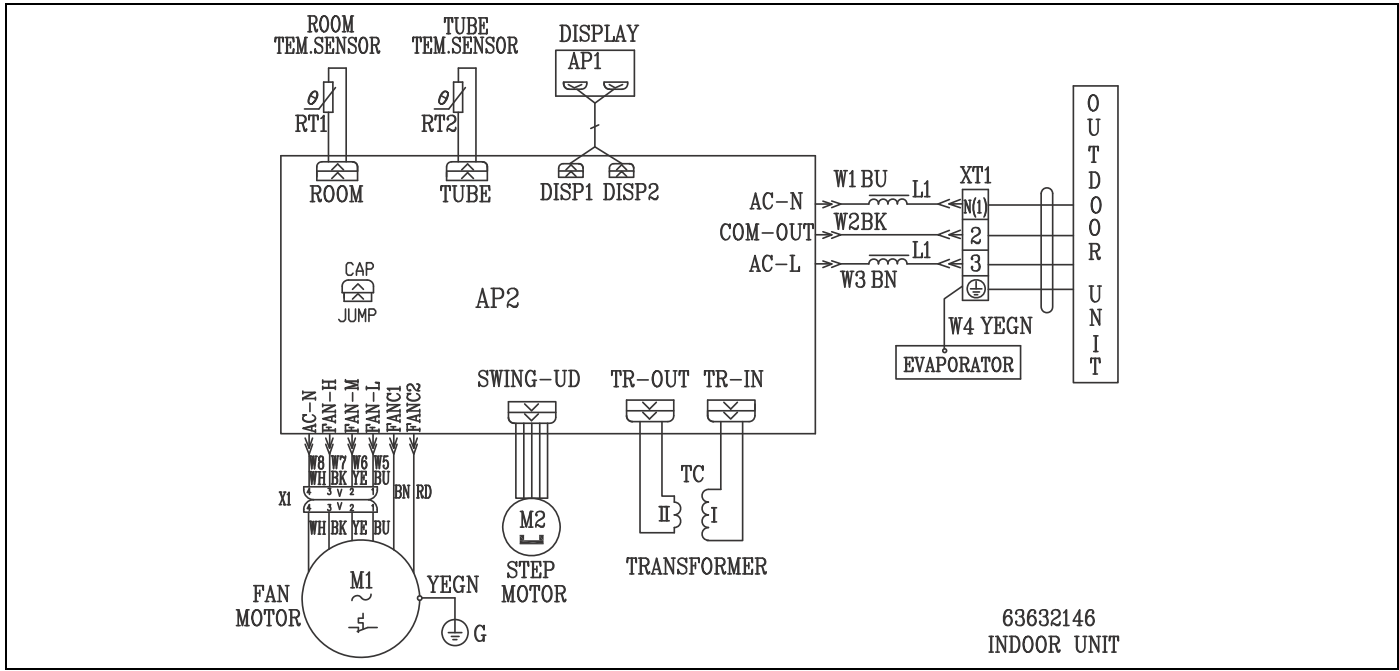
30K Outdoor Heat Pumps



30K Indoor Heat Pumps



36K Outdoor Heat Pumps



**36K Indoor Heat Pumps**

**DESCRIPTION OF EACH CONTROL OPERATION**

**Temperature & Current Parameters**

- Indoor preset temperature ( $T_{\text{preset}}$ )
- Indoor ambient temperature ( $T_{\text{amb}}$ )
- Evaporator coil temperature ( $T_{\text{evap}}$ )
- Condenser coil temperature ( $T_{\text{outdoor pipe}}$ )
- Defrost compensation temperature ( $T_{\text{compensation}}$ )
- Outdoor ambient temperature ( $T_{\text{outdoor amb}}$ )
- Measured temperature of outdoor condensing coil under cooling mode and measured temperature of indoor evaporator coil under heating mode ( $T_{\text{tube}}$ ).
- Indoor ambient temperature ( $T_{\text{indoor amb}}$ )

**Basic Functions**

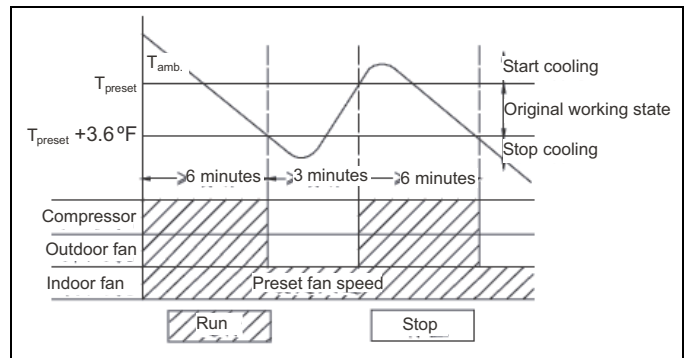
Once energized, the compressor should never be restarted within less than 3 minutes. In a situation where memory function is available when energized for the first time, if the compressor is at stop before de-energized, it will re-start without a 3-minute lag. If it has been in operation before de-energized, the compressor will start with a 3-minute lag. Once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature.

**Cooling Mode**

**1. Cooling Mode Operation**

- When  $T_{\text{amb}} \geq T_{\text{preset}}$ , cooling mode is activated. The indoor fan, outdoor fan and the compressor will operate simultaneously. The indoor fan will run at preset speed.
- When  $T_{\text{amb}} \leq T_{\text{preset}} - 3.6^\circ\text{F}$  the compressor will stop, the outdoor fan will stop with a time lag of 60 seconds, and the indoor fan will run at preset speed.
- When  $T_{\text{preset}} - 3.6^\circ\text{F} < T_{\text{amb}} < T_{\text{preset}} + 1.8^\circ\text{F}$ , the unit will remain at its previous state.

In cooling mode, the four-way valve will be de-energized and temperature can be set within a range from 61 to 86°F. If the compressor stops running, the indoor fan and the swing device will operate at original state.



**2. Protection – Cooling Mode**

- Antifreeze protection - In cooling and dehumidification mode, antifreeze protection is activated 6 minutes after the compressor has started if one of followings occur:
  - $T_{\text{evap}} \leq 35.6^\circ\text{F}$ , the compressor will operate at reduced frequency.
  - $T_{\text{evap}} \leq 30.2^\circ\text{F}$  is detected for a duration of 3 minutes, the compressor will stop and after 60 seconds, the outdoor fan will stop. In cooling mode, the indoor fan and the swing motor will remain at the original state.
  - $T_{\text{evap}} \geq 42.8^\circ\text{F}$  and the compressor has remained in OFF mode for at least 3 minutes, the compressor will resume its original operation state.
- Total current up and frequency down protection if the followings occur:
  - $I_{\text{total}} \leq 16\text{A}$ , the compressor frequency will start to increase
  - $I_{\text{total}} \geq 17\text{A}$ , the compressor frequency will not increase
  - $I_{\text{total}} \geq 18\text{A}$ , the compressor will run at reduced frequency
  - $I_{\text{total}} \geq 20\text{A}$ , the compressor will immediately stop and the outdoor fan will stop after 60 seconds

## Dehumidification Mode

### 1. Dehumidification Mode Operation

- When  $T_{amb} > T_{preset} + 1.8^{\circ}\text{F}$ , cooling and dehumidification mode will be activated. The compressor and the outdoor fan will operate while the indoor fan runs at low speed.
- When  $T_{preset} - 3.6^{\circ}\text{F} \leq T_{amb} \leq T_{preset} + 1.8^{\circ}\text{F}$ , the compressor remains at its original operation state.
- When  $T_{amb} < T_{preset} - 3.6^{\circ}\text{F}$ , the compressor will stop, the outdoor fan will stop after 60 seconds and the indoor fan will operate at low speed.

### 2. Protection – Dehumidification Mode

Protection is the same as that under cooling mode section.

## Heating Mode

### 1. Heating Mode Operation

- When  $T_{amb} \leq T_{preset} + 3.6^{\circ}\text{F}$ , heating mode is activated. The four-way valve, the compressor and the outdoor fan will operate simultaneously. The indoor fan will run at preset speed defined under “cold air prevention”.
- When  $T_{amb} \leq T_{preset} + 9^{\circ}\text{F}$ , the compressor will stop, the outdoor fan will stop after 60 seconds, and the indoor fan will continue to run at low speed for 60 seconds more.
- When  $T_{preset} + 3.6^{\circ}\text{F} < T_{amb} < T_{preset} + 9^{\circ}\text{F}$ , the unit will maintain its original operating status.

In heating mode, the four-way valve is energized and temperature can be set within a range of 61 - 86°F. The heating symbol and preset temperature are displayed on the indoor unit display.

### 2. Defrost Mode Operation

When the system has been running continuously in heating mode for more than 45 minutes, or an accumulated heating time of more than 90 minutes, and one of the following conditions are present, the unit will enter defrost mode after 3 minutes.

- $T_{outdoor\ amb.} \geq 41^{\circ}\text{F}$ ,  $T_{outdoor\ pipe} \leq 28.4^{\circ}\text{F}$ ;
- $28.4^{\circ}\text{F} \leq T_{outdoor\ amb.}$
- $23^{\circ}\text{F} \leq T_{outdoor\ amb.} < 28.4^{\circ}\text{F}$ ,  $T_{outdoor\ pipe} \leq 17.6^{\circ}\text{F}$ ;
- $14^{\circ}\text{F} \leq T_{outdoor\ amb.} < 23^{\circ}\text{F}$ ,  $T_{outdoor\ pipe} - T_{compensation} \leq (T_{outdoor\ amb.} - 5.4^{\circ}\text{F})$ ;
- $T_{outdoor\ amb.} < 14^{\circ}\text{F}$ ,  $T_{outdoor\ pipe} - T_{compensation} \leq (T_{outdoor\ amb.} - 5.4^{\circ}\text{F})$

#### NOTE:

After defrost mode is energized for the first time,  $T_{compensation} = 0^{\circ}\text{F}$ . After the first time,  $T_{compensation}$  is determined by the condensing coil temperature  $T_{outdoor\ pipe}$  of the last defrost cycle.

- $T_{outdoor\ pipe} > 35.6^{\circ}\text{F}$ ,  $T_{compensation} = 0^{\circ}\text{F}$ ;
- $T_{outdoor\ pipe} \leq 35.6^{\circ}\text{F}$ ,  $T_{compensation} = 5.4^{\circ}\text{F}$

When in defrost mode the following will occur in the order described:

- a. The indoor fan and compressor stop running
- b. The outdoor fan will stop running after 60 seconds.
- c. 30seconds later, the four-way valve will close.
- d. After 30 seconds, the compressor's frequency is increased to defrost frequency.
- e. When the compressor has operated in defrost mode for 10 minutes, or  $T_{outdoor\ pipe} \geq 50^{\circ}\text{F}$ , the compressor will adjust to 46Hz.
- f. After 30 seconds, the compressor will stop.
- g. After another 30 seconds, the four-way valve will open

- h. After 60 seconds, the compressor and the outdoor unit fan will start running. The indoor fan will run under preset cold air prevention conditions. H1 will be displayed on the indoor unit display. Defrost frequency is 70Hz.

### 3. Protection – Heating Mode

- Cold air prevention (Hot Heat Pump) - In heating mode, after the compressor is energized the indoor fan is delayed under these conditions to prevent discharging cold air:
  - ♦ When  $T_{indoor\ amb.} < 75^{\circ}\text{F}$  if:
    - $T_{tube} \leq 104^{\circ}\text{F}$ , the indoor fan will not run. The indoor fan will start running at low speed after 2 minutes.
    - Within 2 minutes, if  $T_{tube} > 104^{\circ}\text{F}$ , the indoor fan will start running at low speed.
    - After 1minute of operation at low speed, the indoor fan will run at preset speed.
    - Within 1-minute of low speed operation or 2-minute non-operation, if  $T_{tube} > 108^{\circ}\text{F}$ , the fan will run at preset speed.
  - ♦ When  $T_{indoor\ amb.} \geq 75^{\circ}\text{F}$  if:
    - $T_{tube} \leq 108^{\circ}\text{F}$ , the indoor fan will run at low speed. After one minute of operation, the indoor fan will run at preset speed.
    - Within one-minute of low speed operation, if  $T_{tube} > 104^{\circ}\text{F}$ , the indoor fan will run at preset speed.
- Total current up and frequency down protection occurs:
  - ♦ When  $I_{total} \leq 16\text{A}$ , compressor frequency can increase
  - ♦ When  $I_{total} \geq 17\text{A}$ , compressor frequency is not allowed to increase
  - ♦ When  $I_{total} \geq 18\text{A}$ , the compressor runs at reduced frequency
  - ♦ When  $I_{total} \geq 20\text{A}$ , the compressor stops running and the outdoor fan stops running after 60 seconds.

## Fan Mode

In this mode, the indoor fan will run at preset speed. The compressor, the outdoor fan and the four-way valve will not be running.

1. In fan mode, temperature can be set within a range of 61 - 86°F.

## AUTO Mode

### 1. AUTO Mode Operation

In AUTO mode, the default cooling set point temperature  $T_{preset}$  is 77°F and the default heating set point temperature  $T_{preset}$  is 68°F. Once activated, the following will occur under these conditions:

- When  $T_{amb.} \leq 71.6^{\circ}\text{F}$ , heating mode is activated.
- When  $71.6^{\circ}\text{F} < T_{amb.} < 78.8^{\circ}\text{F}$ , fan mode is activated and the fan icon is displayed on the indoor unit display.
- When  $T_{amb.} \geq 78.8^{\circ}\text{F}$ , cooling mode is activated.
- When  $T_{amb.} \geq T_{preset} + 1.8^{\circ}\text{F}$ , the system runs in cooling mode. The preset temperature is 77°F;
- When  $T_{amb.} \leq T_{preset} - 1.8^{\circ}\text{F}$ , the compressor stops running, the outdoor fan stops running after 1 minute, and the indoor fan continues to run at a preset speed.
- When  $T_{preset} - 1.8^{\circ}\text{F} < T_{amb.} < T_{preset} + 1.8^{\circ}\text{F}$ , the system continues to run normally.
- When  $T_{amb.} \leq T_{preset} + 3.6^{\circ}\text{F}$ , heating mode is activated.
- $T_{amb.} \geq T_{preset} + 9^{\circ}\text{F}$ , the compressor stops running, the outdoor fan stops running after 1 minute, and the indoor fan continues to run for about 30 seconds before it stops.

- When  $T_{\text{preset}} + 3.6^{\circ}\text{F} < T_{\text{amb.}} < T_{\text{preset}} + 41^{\circ}\text{F}$ , the system continues to run normally
- When  $71.6^{\circ}\text{F} < T_{\text{amb.}} < 78.8^{\circ}\text{F}$ , the system continues to run normally.

## 2. Protection – Auto Mode

- When the system is running in cooling mode, the protections described in “Protection - Cooling Mode” apply.
- When the system is running in heating mode, the protections described in “Protection – Heating Mode” apply.
- When the ambient temperature changes, operation mode will switch back and forth. Once the compressor is energized, it will keep running for a minimum of 6 minutes.

## COMMON PROTECTION FUNCTIONS AND FAULT DISPLAY UNDER COOL, HEAT, DRY AND AUTO MODES

### 1. Overload Protection

- Cooling Overload
  - ♦ When  $T_{\text{tube}} \leq 126^{\circ}\text{F}$ , the system operates normally.
  - ♦ When  $T_{\text{tube}} \geq 131^{\circ}\text{F}$ , compressor frequency is not allowed to increase.
  - ♦ When  $T_{\text{tube}} \geq 136^{\circ}\text{F}$ , compressor will run at reduced frequency.
  - ♦ When  $T_{\text{tube}} \geq 144^{\circ}\text{F}$ , compressor is de-energized and the indoor fan will continue to run at preset speed.
- Heating Overload
  - ♦ When  $T_{\text{tube}} \leq 126^{\circ}\text{F}$ , the system operates normally.
  - ♦ When  $T_{\text{tube}} \geq 131^{\circ}\text{F}$ , compressor frequency is not allowed to increase.
  - ♦ When  $T_{\text{tube}} \geq 136^{\circ}\text{F}$ , compressor will run at reduced frequency.

- ♦ When  $T_{\text{tube}} \geq 144^{\circ}\text{F}$ , compressor is de-energized and the indoor fan will continue to run for about 30 seconds and stops.

### 2. High Discharge Temperature Compressor Protection

- When compressor discharge temperature is  $\geq 208^{\circ}\text{F}$ , compressor frequency is not allowed to increase.
- When compressor discharge temperature is  $\geq 217^{\circ}\text{F}$ , compressor will run at reduced frequency.
- When compressor discharge temperature is  $\geq 230^{\circ}\text{F}$ , the compressor will stop.
- When compressor discharge temperature is  $\leq 194^{\circ}\text{F}$  and the compressor has been idle for at least 3 minutes, it will resume its operation.

### 3. Communication Fault

If the system fails to receive communication signals for more than 3 minutes, its operation will stop.

### 4. Module Protection

- Under module protection mode, the compressor will stop.
- If the compressor remains idle for at least 3 minutes, it will resume its operation.
- If module protection occurs six consecutive times, the compressor will not be allowed to start again.

### 5. Overload Protection

- If the overload temperature is over  $239^{\circ}\text{F}$ , the compressor will stop and the outdoor fan will stop after 30 seconds.
- If the overload temperature drops below  $203^{\circ}\text{F}$ , the compressor overload protection is reset.
- If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop after 30 seconds.
- When voltage on the DC bus returns to its normal value and the compressor has been idle for at least 3 minutes, the compressor will resume its operation.

### 6. Temperature Sensors Faults.

| Designation of Sensors      | Faults   |
|-----------------------------|--|
| Indoor ambient temperature  | The sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds.  |
| Indoor tube temperature     | The sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds.  |
| Outdoor ambient temperature | The sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds.  |
| Outdoor tube temperature    | The sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds and no detection is performed within 10 minutes after defrost begins. |
| Exhaust                     | After the compressor has operated for 3minutes, the sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds.                      |
| Overload                    | After the compressor has operated for 3minutes, the sensor is detected to be open-circuited or short-circuited for a continuous 30 seconds.                      |



## RESISTANCE TABLES

| Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (15K) |                 |            |                 |            |                 |            |                 |
|---|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| Temp. (°F)  | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) |
| -2.2  | 138.1           | 68         | 18.75           | 138.2      | 3.848           | 208.4      | 1.071           |
| -0.4  | 128.6           | 69.8       | 17.93           | 140        | 3.711           | 210.2      | 1.039           |
| 1.4   | 121.6           | 71.6       | 17.14           | 141.8      | 3.579           | 212        | 1.009           |
| 3.2   | 115             | 73.4       | 16.39           | 143.6      | 3.454           | 213.8      | 0.98            |
| 5   | 108.7           | 75.2       | 15.68           | 145.4      | 3.333           | 215.6      | 0.952           |
| 6.8   | 102.9           | 77         | 15              | 147.2      | 3.217           | 217.4      | 0.925           |
| 8.6   | 97.4            | 78.8       | 14.36           | 149        | 3.105           | 219.2      | 0.898           |
| 10.4  | 92.22           | 80.6       | 13.74           | 150.8      | 2.998           | 221        | 0.873           |
| 12.2  | 87.35           | 82.4       | 13.16           | 152.6      | 2.896           | 222.8      | 0.848           |
| 14  | 82.75           | 84.2       | 12.6            | 154.4      | 2.797           | 224.6      | 0.825           |
| 15.8  | 78.43           | 86         | 12.07           | 156.2      | 2.702           | 226.4      | 0.802           |
| 17.6  | 74.35           | 87.8       | 11.57           | 158        | 2.611           | 228.2      | 0.779           |
| 19.4  | 70.5            | 89.6       | 11.09           | 159.8      | 2.523           | 230        | 0.758           |
| 21.2  | 66.88           | 91.4       | 10.63           | 161.6      | 2.439           | 231.8      | 0.737           |
| 23  | 63.46           | 93.2       | 10.2            | 163.4      | 2.358           | 233.6      | 0.717           |
| 24.8  | 60.23           | 95         | 9.779           | 165.2      | 2.28            | 235.4      | 0.697           |
| 26.6  | 57.18           | 96.8       | 9.382           | 167        | 2.206           | 237.2      | 0.678           |
| 28.4  | 54.31           | 98.6       | 9.003           | 168.8      | 2.133           | 239        | 0.66            |
| 30.2  | 51.59           | 100.4      | 8.642           | 170.6      | 2.064           | 240.8      | 0.642           |
| 32  | 49.02           | 102.2      | 8.297           | 172.4      | 1.997           | 242.6      | 0.625           |
| 33.8  | 46.6            | 104        | 7.967           | 174.2      | 1.933           | 244.4      | 0.608           |
| 35.6  | 44.31           | 105.8      | 7.653           | 176        | 1.871           | 246.2      | 0.592           |
| 37.4  | 42.14           | 107.6      | 7.352           | 177.8      | 1.811           | 248        | 0.577           |
| 39.2  | 40.09           | 109.4      | 7.065           | 179.6      | 1.754           | 249.8      | 0.561           |
| 41  | 38.15           | 111.2      | 6.791           | 181.4      | 1.699           | 251.6      | 0.547           |
| 42.8  | 36.32           | 113        | 6.529           | 183.2      | 1.645           | 253.4      | 0.532           |
| 44.6  | 34.58           | 114.8      | 6.278           | 185        | 1.594           | 255.2      | 0.519           |
| 46.4  | 32.94           | 116.6      | 6.038           | 186.8      | 1.544           | 257        | 0.505           |
| 48.2  | 31.38           | 118.4      | 5.809           | 188.6      | 1.497           | 258.8      | 0.492           |
| 50  | 29.9            | 120.2      | 5.589           | 190.4      | 1.451           | 260.6      | 0.48            |
| 51.8  | 28.51           | 122        | 5.379           | 192.2      | 1.408           | 262.4      | 0.467           |
| 53.6  | 27.18           | 123.8      | 5.197           | 194        | 1.363           | 264.2      | 0.456           |
| 55.4  | 25.92           | 125.6      | 4.986           | 195.8      | 1.322           | 266        | 0.444           |
| 57.2  | 24.73           | 127.4      | 4.802           | 197.6      | 1.282           | 267.8      | 0.433           |
| 59  | 23.6            | 129.2      | 4.625           | 199.4      | 1.244           | 269.6      | 0.422           |
| 60.8  | 22.53           | 131        | 4.456           | 201.2      | 1.207           | 271.4      | 0.412           |
| 62.6  | 21.51           | 132.8      | 4.294           | 203        | 1.171           | 273.2      | 0.401           |
| 64.4  | 20.54           | 134.6      | 4.139           | 204.8      | 1.136           | 275        | 0.391           |
| 66.2  | 19.63           | 136.4      | 3.99            | 206.6      | 1.103           | 276.8      | 0.382           |

| Resistance Table of Outdoor and Indoor Tube Temperature Sensors (20K) |                 |            |                 |            |                 |            |                 |
|---|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| Temp. (°F)  | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) |
| -2.2  | 181.4           | 68         | 25.01           | 138.2      | 5.13            | 208.4      | 1.427           |
| -0.4  | 171.4           | 69.8       | 23.9            | 140        | 4.948           | 210.2      | 1.386           |
| 1.4   | 162.1           | 71.6       | 22.85           | 141.8      | 4.773           | 212        | 1.346           |
| 3.2   | 153.3           | 73.4       | 21.85           | 143.6      | 4.605           | 213.8      | 1.307           |
| 5   | 145             | 75.2       | 20.9            | 145.4      | 4.443           | 215.6      | 1.269           |
| 6.8   | 137.2           | 77         | 20              | 147.2      | 4.289           | 217.4      | 1.233           |
| 8.6   | 129.9           | 78.8       | 19.14           | 149        | 4.14            | 219.2      | 1.198           |
| 10.4  | 123             | 80.6       | 18.13           | 150.8      | 3.998           | 221        | 1.164           |
| 12.2  | 116.5           | 82.4       | 17.55           | 152.6      | 3.861           | 222.8      | 1.131           |
| 14  | 110.3           | 84.2       | 16.8            | 154.4      | 3.729           | 224.6      | 1.099           |
| 15.8  | 104.6           | 86         | 16.1            | 156.2      | 3.603           | 226.4      | 1.069           |
| 17.6  | 99.13           | 87.8       | 15.43           | 158        | 3.481           | 228.2      | 1.039           |
| 19.4  | 94              | 89.6       | 14.79           | 159.8      | 3.364           | 230        | 1.01            |
| 21.2  | 89.17           | 91.4       | 14.18           | 161.6      | 3.252           | 231.8      | 0.983           |
| 23  | 84.61           | 93.2       | 13.59           | 163.4      | 3.144           | 233.6      | 0.956           |
| 24.8  | 80.31           | 95         | 13.04           | 165.2      | 3.04            | 235.4      | 0.93            |
| 26.6  | 76.24           | 96.8       | 12.51           | 167        | 2.94            | 237.2      | 0.904           |
| 28.4  | 72.41           | 98.6       | 12              | 168.8      | 2.844           | 239        | 0.88            |
| 30.2  | 68.79           | 100.4      | 11.52           | 170.6      | 2.752           | 240.8      | 0.856           |
| 32  | 65.37           | 102.2      | 11.06           | 172.4      | 2.663           | 242.6      | 0.833           |
| 33.8  | 62.13           | 104        | 10.62           | 174.2      | 2.577           | 244.4      | 0.811           |
| 35.6  | 59.08           | 105.8      | 10.2            | 176        | 2.495           | 246.2      | 0.777           |
| 37.4  | 56.19           | 107.6      | 9.803           | 177.8      | 2.415           | 248        | 0.769           |
| 39.2  | 53.46           | 109.4      | 9.42            | 179.6      | 2.339           | 249.8      | 0.746           |
| 41  | 50.87           | 111.2      | 9.054           | 181.4      | 2.265           | 251.6      | 0.729           |
| 42.8  | 48.42           | 113        | 8.705           | 183.2      | 2.194           | 253.4      | 0.71            |
| 44.6  | 46.11           | 114.8      | 8.37            | 185        | 2.125           | 255.2      | 0.692           |
| 46.4  | 43.92           | 116.6      | 8.051           | 186.8      | 2.059           | 257        | 0.674           |
| 48.2  | 41.84           | 118.4      | 7.745           | 188.6      | 1.996           | 258.8      | 0.658           |
| 50  | 39.87           | 120.2      | 7.453           | 190.4      | 1.934           | 260.6      | 0.64            |
| 51.8  | 38.01           | 122        | 7.173           | 192.2      | 1.875           | 262.4      | 0.623           |
| 53.6  | 36.24           | 123.8      | 6.905           | 194        | 1.818           | 264.2      | 0.607           |
| 55.4  | 34.57           | 125.6      | 6.648           | 195.8      | 1.736           | 266        | 0.592           |
| 57.2  | 32.98           | 127.4      | 6.403           | 197.6      | 1.71            | 267.8      | 0.577           |
| 59  | 31.47           | 129.2      | 6.167           | 199.4      | 1.658           | 269.6      | 0.563           |
| 60.8  | 30.04           | 131        | 5.942           | 201.2      | 1.609           | 271.4      | 0.549           |
| 62.6  | 28.68           | 132.8      | 5.726           | 203        | 1.561           | 273.2      | 0.535           |
| 64.4  | 27.39           | 134.6      | 5.519           | 204.8      | 1.515           | 275        | 0.521           |
| 66.2  | 26.17           | 136.4      | 5.32            | 206.6      | 1.47            | 276.8      | 0.509           |

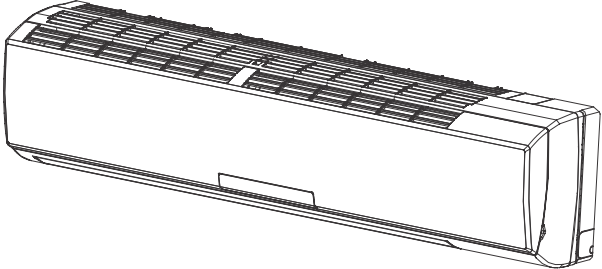
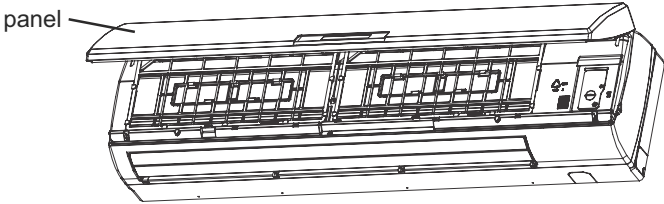
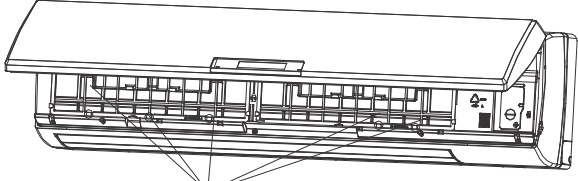
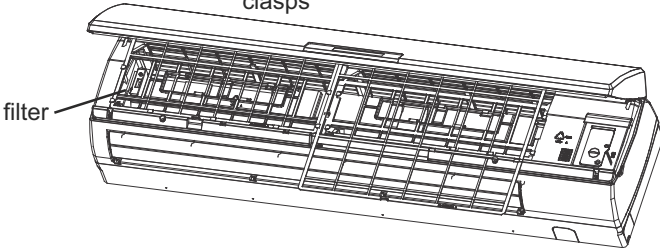
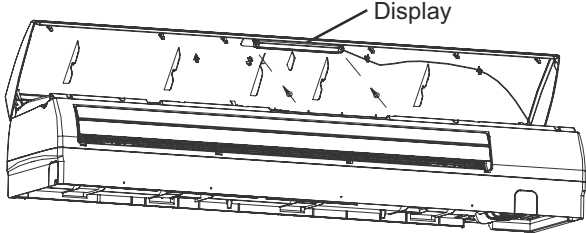
| Resistance Table of Outdoor Discharge Temperature Sensor (50K) |                 |            |                 |            |                 |            |                 |
|--|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| Temp. (°F)   | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) | Temp. (°F) | Resistance (kΩ) |
| -20.2  | 853.5           | 50         | 98              | 120.2      | 18.34           | 190.4      | 4.754           |
| -18.4  | 799.8           | 51.8       | 93.42           | 122        | 17.65           | 192.2      | 4.609           |
| -16.6  | 750             | 53.6       | 89.07           | 123.8      | 16.99           | 194        | 4.469           |
| -14.8  | 703.8           | 55.4       | 84.95           | 125.6      | 16.36           | 195.8      | 4.334           |
| -13  | 660.8           | 57.2       | 81.05           | 127.4      | 15.75           | 197.6      | 4.204           |
| -11.2  | 620.8           | 59         | 77.35           | 129.2      | 15.17           | 199.4      | 4.079           |
| -9.4   | 580.6           | 60.8       | 73.83           | 131        | 14.62           | 201.2      | 3.958           |
| -7.6   | 548.9           | 62.6       | 70.5            | 132.8      | 14.09           | 203        | 3.841           |
| -5.8   | 516.6           | 64.4       | 67.34           | 134.6      | 13.58           | 204.8      | 3.728           |
| -4   | 486.5           | 66.2       | 64.33           | 136.4      | 13.09           | 206.6      | 3.619           |
| -2.2   | 458.3           | 68         | 61.48           | 138.2      | 12.62           | 208.4      | 3.514           |
| -0.4   | 432             | 69.8       | 58.77           | 140        | 12.17           | 210.2      | 3.413           |
| 1.4  | 407.4           | 71.6       | 56.19           | 141.8      | 11.74           | 212        | 3.315           |
| 3.2  | 384.5           | 73.4       | 53.74           | 143.6      | 11.32           | 213.8      | 3.22            |
| 5  | 362.9           | 75.2       | 51.41           | 145.4      | 10.93           | 215.6      | 3.129           |
| 6.8  | 342.8           | 77         | 49.19           | 147.2      | 10.54           | 217.4      | 3.04            |
| 8.6  | 323.9           | 78.8       | 47.08           | 149        | 10.18           | 219.2      | 2.955           |
| 10.4   | 306.2           | 80.6       | 45.07           | 150.8      | 9.827           | 221        | 2.872           |
| 12.2   | 289.6           | 82.4       | 43.16           | 152.6      | 9.489           | 222.8      | 2.792           |
| 14   | 274             | 84.2       | 41.34           | 154.4      | 9.165           | 224.6      | 2.715           |
| 15.8   | 259.3           | 86         | 39.61           | 156.2      | 8.854           | 226.4      | 2.64            |
| 17.6   | 245.6           | 87.8       | 37.96           | 158        | 8.555           | 228.2      | 2.568           |
| 19.4   | 232.6           | 89.6       | 36.38           | 159.8      | 8.268           | 230        | 2.498           |
| 21.2   | 220.5           | 91.4       | 34.88           | 161.6      | 7.991           | 231.8      | 2.431           |
| 23   | 209             | 93.2       | 33.45           | 163.4      | 7.726           | 233.6      | 2.365           |
| 24.8   | 198.3           | 95         | 32.09           | 165.2      | 7.47            | 235.4      | 2.302           |
| 26.6   | 199.1           | 96.8       | 30.79           | 167        | 7.224           | 237.2      | 2.241           |
| 28.4   | 178.5           | 98.6       | 29.54           | 168.8      | 6.998           | 239        | 2.182           |
| 30.2   | 169.5           | 100.4      | 28.36           | 170.6      | 6.761           | 240.8      | 2.124           |
| 32   | 161             | 102.2      | 27.23           | 172.4      | 6.542           | 242.6      | 2.069           |
| 33.8   | 153             | 104        | 26.15           | 174.2      | 6.331           | 244.4      | 2.015           |
| 35.6   | 145.4           | 105.8      | 25.11           | 176        | 6.129           | 246.2      | 1.963           |
| 37.4   | 138.3           | 107.6      | 24.13           | 177.8      | 5.933           | 248        | 1.912           |
| 39.2   | 131.5           | 109.4      | 23.19           | 179.6      | 5.746           | 249.8      | 1.863           |
| 41   | 125.1           | 111.2      | 22.29           | 181.4      | 5.565           | 251.6      | 1.816           |
| 42.8   | 119.1           | 113        | 21.43           | 183.2      | 5.39            | 253.4      | 1.77            |
| 44.6   | 113.4           | 114.8      | 20.6            | 185        | 5.222           | 255.2      | 1.725           |
| 46.4   | 108             | 116.6      | 19.81           | 186.8      | 5.06            | 257        | 1.682           |
| 48.2   | 102.8           | 118.4      | 19.06           | 188.6      | 4.904           | 258.8      | 1.64            |

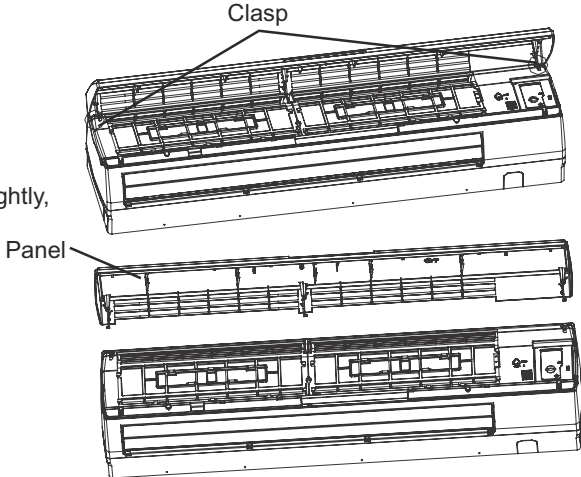
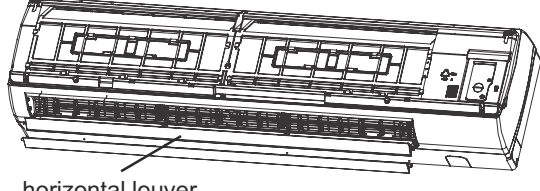
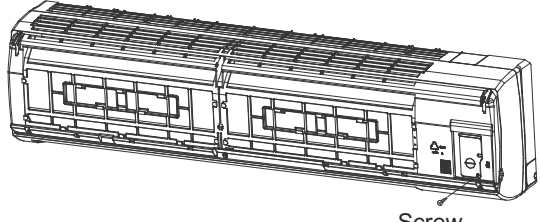
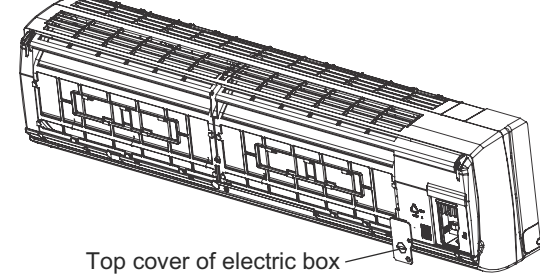
REMOVAL PROCEDURE

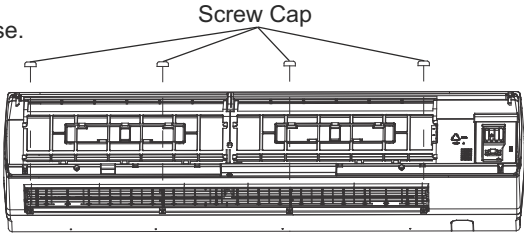
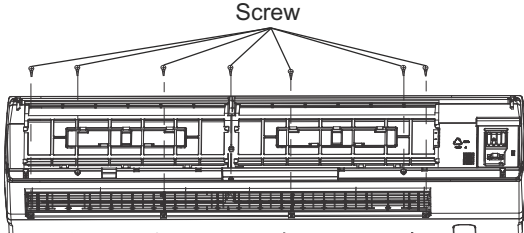
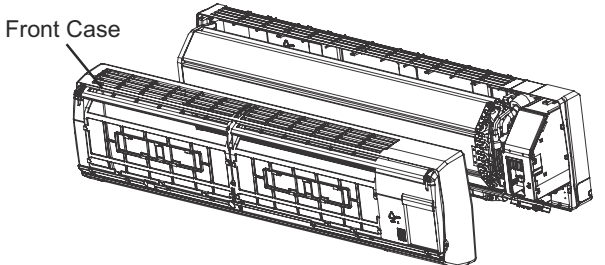
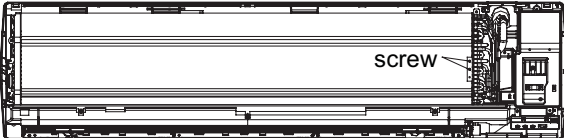
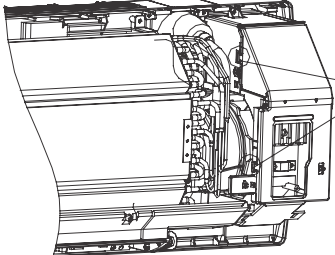
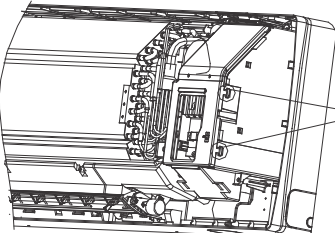
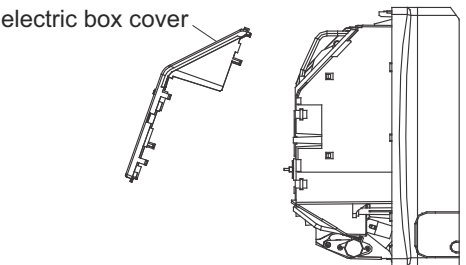
Removal Procedure of Indoor Unit

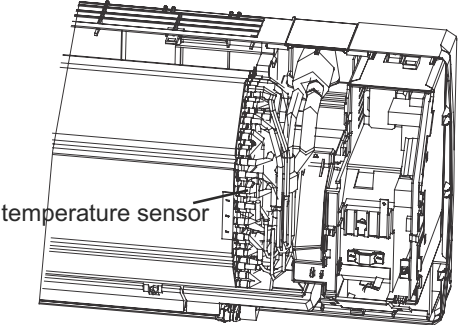
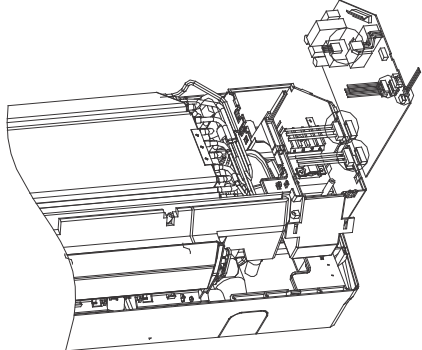
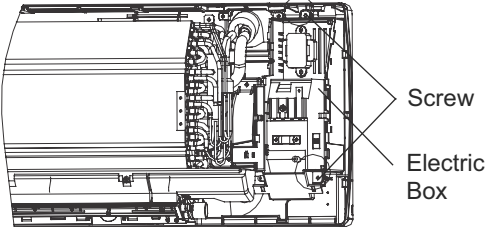
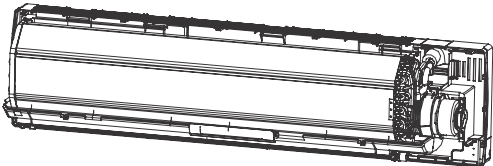
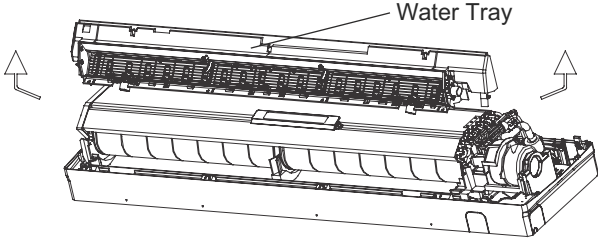
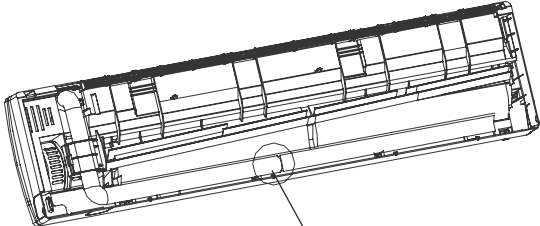


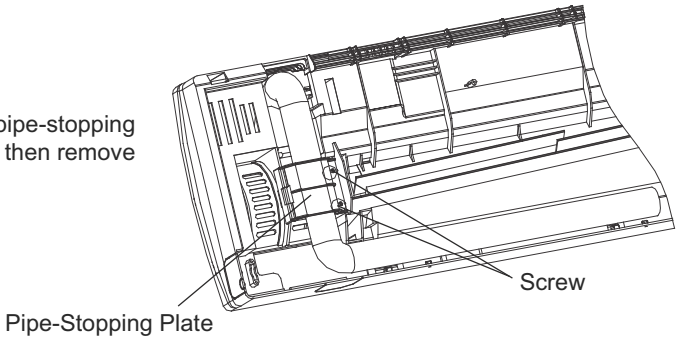
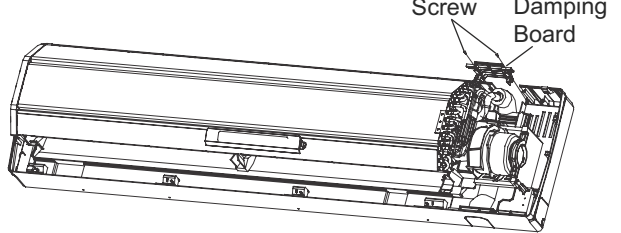
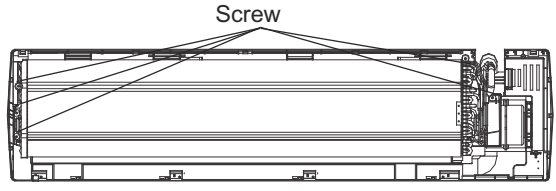
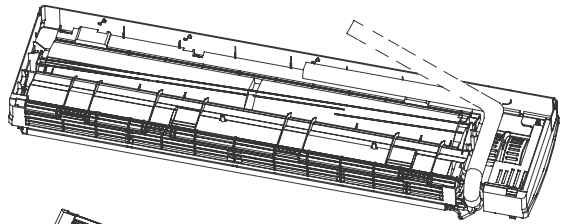
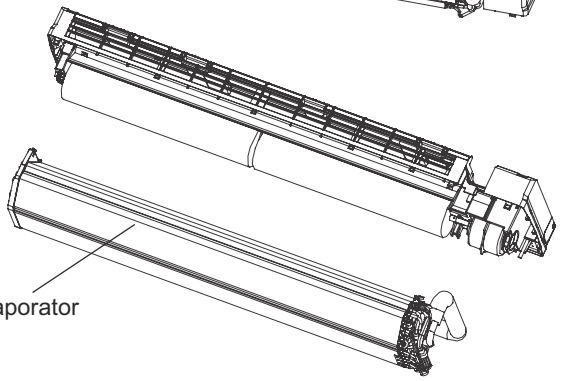
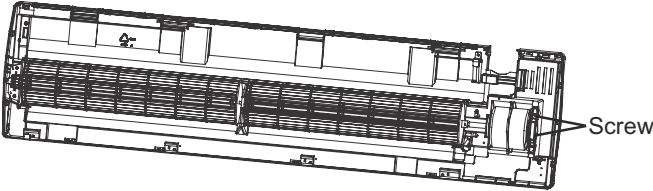
*Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.*

| STEPS   | PROCEDURES  |
|---|---|
| <p><b>1. Before disassembly of the unit</b></p> | <p>Axonometric drawing for the complete unit.</p>   |
| <p><b>2. Remove filter</b></p>                  | <p>a. Open the panel.</p>  <p>b. Loosen the clasps on the filter.</p>  <p>c. Draw out two pieces of filter.</p>  |
| <p><b>3. Remove display</b></p>                 | <p>Remove 2 screws fixing display, and then remove the filter.</p>    |

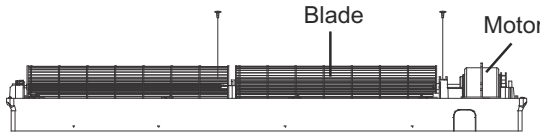
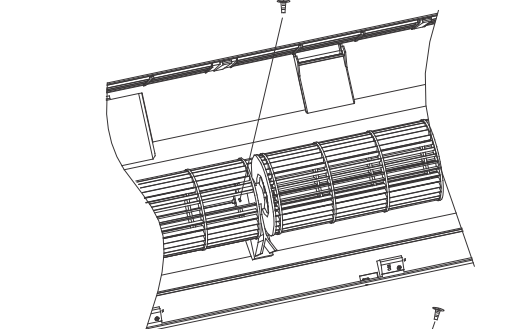
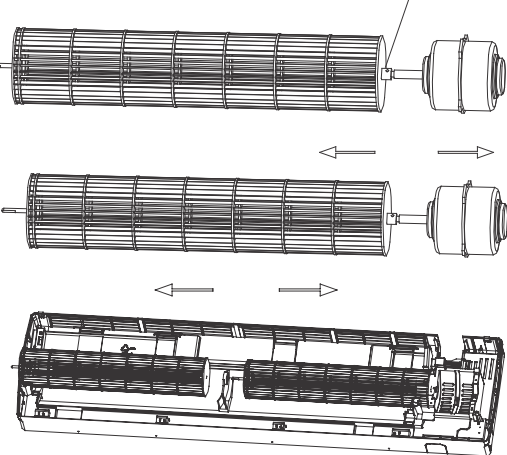
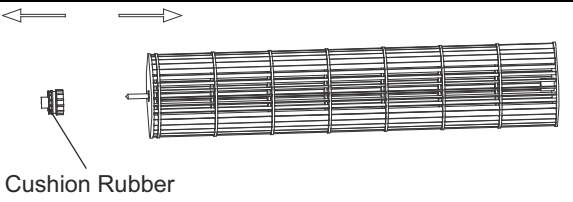
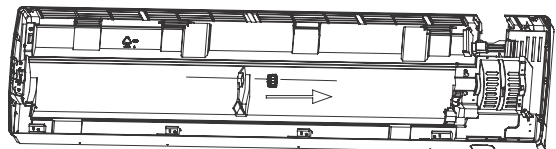
| STEPS   | PROCEDURES   |
|---|--|
| <p><b>4. Remove panel</b></p>                     | <p>Pull the clasps at both sides slightly, and then remove the panel.</p>    |
| <p><b>5. Remove horizontal louver</b></p>         | <p>Remove the axial bush on the horizontal louver, and then remove the horizontal louver.</p>    |
| <p><b>6. Remove top cover of electric box</b></p> | <p>a. Remove screws fixing the top cover of electric box.</p>  <p>b. Remove the top cover of electric box.</p>  |

| STEPS                                      | PROCEDURES  |
|--|---|
| <p><b>7. Remove front case</b></p>         | <p>a. Remove the screw caps on front case.</p>  <p>Screw Cap</p> <p>b. Remove screws connecting the front case.</p>  <p>Screw</p> <p>c. Remove the front case.</p>  <p>Front Case</p>                                   |
| <p><b>8. Remove earthing wire</b></p>      | <p>Remove earthing screws, and then remove the earthing wire.</p>  <p>screw</p>  |
| <p><b>9. Remove electric box cover</b></p> | <p>a. Loosen clasps at the left side of electric box.</p>  <p>Clasp</p> <p>b. Loosen clasps on the right side of electric box.</p>  <p>Clasp</p> <p>c. Remove electric box cover.</p>  <p>electric box cover</p> |

| STEPS   | PROCEDURES   |
|---|--|
| <p><b>10. Remove temperature sensor</b></p>                               | <p>Pull out the indoor temperature sensor.</p>  <p>temperature sensor</p>   |
| <p><b>11. Remove electric box</b></p>                                     | <p>a. Pull out 6 sockets on PCB board.</p>  <p>b. Pull out two screws on electric box.</p>  <p>Screw<br/>Electric Box</p> <p>c. Remove the electric box.</p>  |
| <p><b>12. Remove water tray</b></p>                                       | <p>Pull the water tray upwards, and then remove the water tray.</p>  <p>Water Tray</p>   |
| <p><b>13. Remove connection pipe between indoor and outdoor units</b></p> | <p>Separate the connection pipe between indoor and outdoor units.</p>  <p>Connection position for indoor and outdoor units' connection pipe</p>  |

| STEPS  | PROCEDURES   |
|--|--|
| <p><b>14. Remove pipe-stopping plate</b></p>       | <p>Remove two screws on pipe-stopping plate for indoor unit, and then remove the pipe-stopping</p>  <p>Pipe-Stopping Plate</p> <p>Screw</p>  |
| <p><b>15. Remove damping board</b></p>             | <p>Remove 2 screws on damping board, and then remove the damping board.</p>  <p>Screw</p> <p>Damping Board</p>   |
| <p><b>16. Remove evaporator</b></p>                | <p>a. Remove screws between evaporator and bottom case.</p>  <p>Screw</p> <p>b. Turn over the indoor unit and adjust the pipe line to the position as shown by the broken line.</p>  <p>c. Lift up the evaporator, and then remove the evaporator.</p>  <p>Evaporator</p> |
| <p><b>17. Remove the fixing plate of motor</b></p> | <p>Remove 2 screws on fixing plate of motor, and then remove the fixing plate of motor.</p>  <p>Screw</p>  |

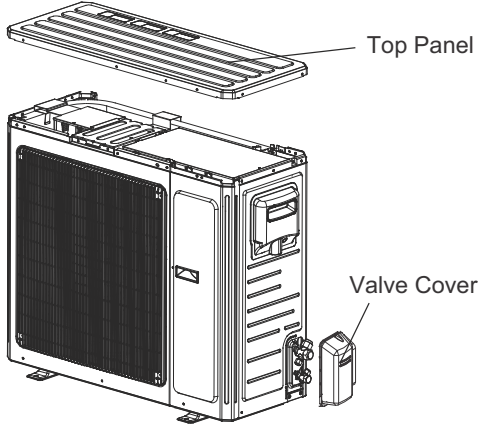
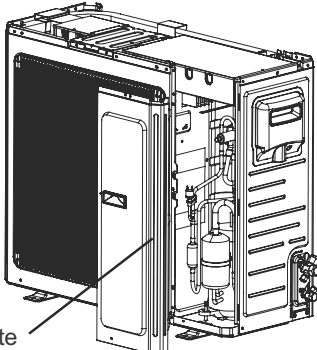
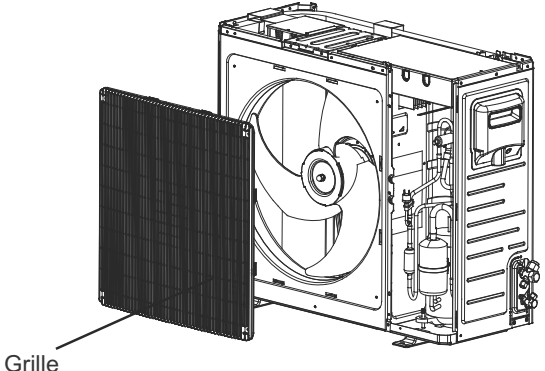
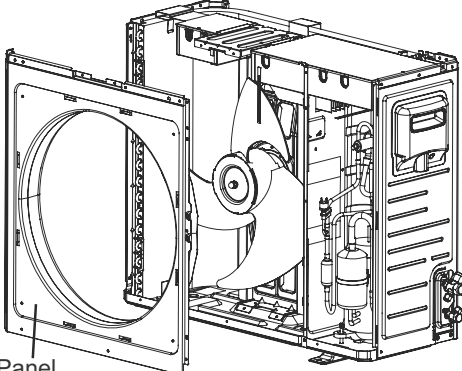


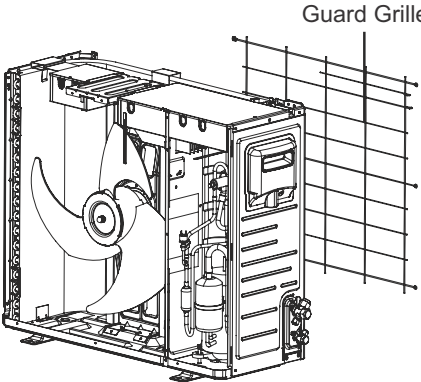
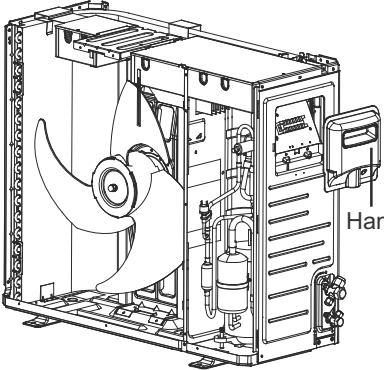
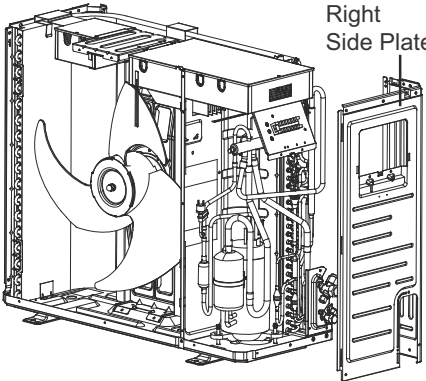
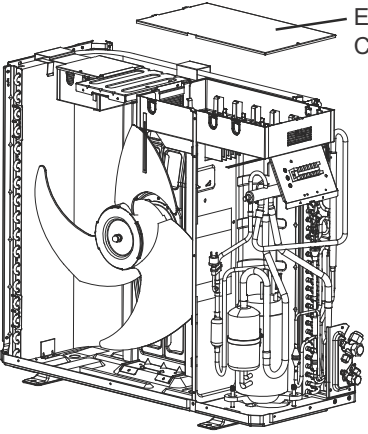
| STEPS   | PROCEDURES  |
|---|---|
| <p><b>18. Remove cross flow blade and motor</b></p> | <p>a. Remove screws fixing cross flow blade and motor.</p>  <p>b. Remove the motor sub-assy.</p>  <p>c. Separate two cross flow blade.</p>  |
| <p><b>19. Remove cushion rubber</b></p>             | <p>a. Remove the cushion rubber on cross flow blade.</p>  <p>b. Remove the cushion rubber from the base.</p>    |

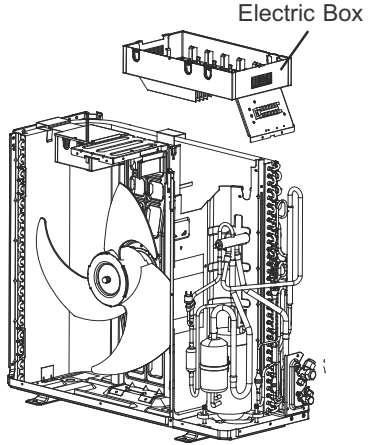
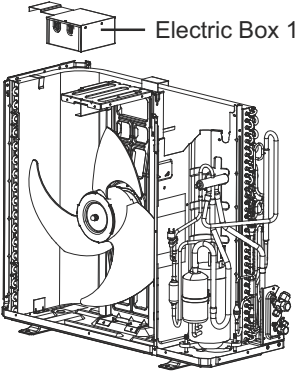
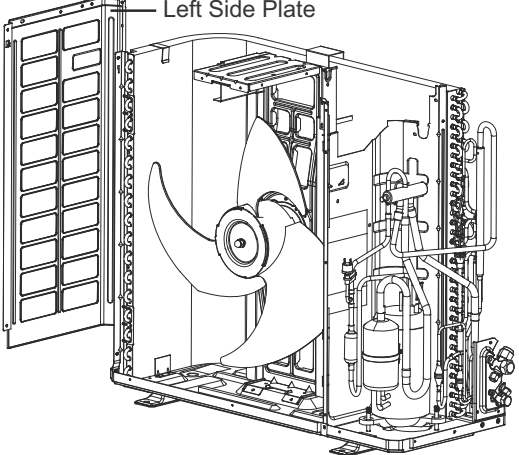
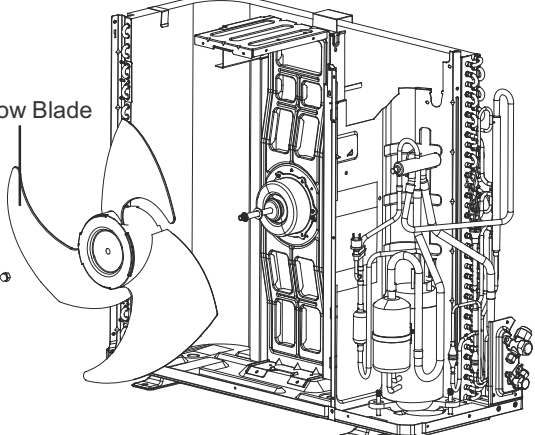
**Removal Procedure of Outdoor Unit**

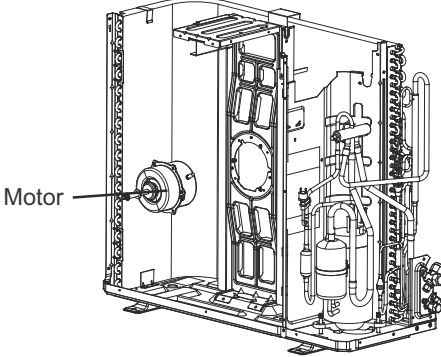
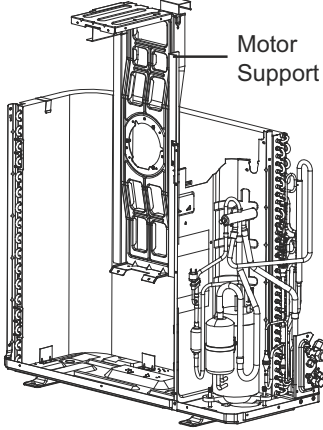
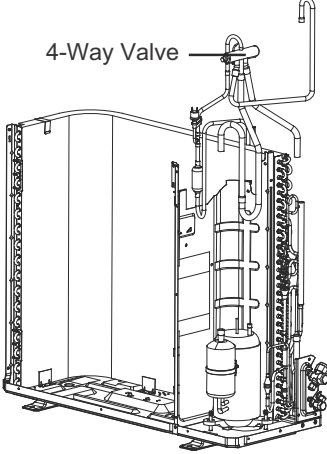
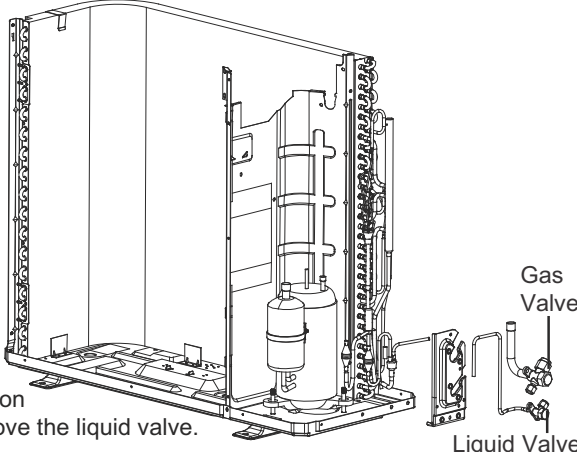
**WARNING**

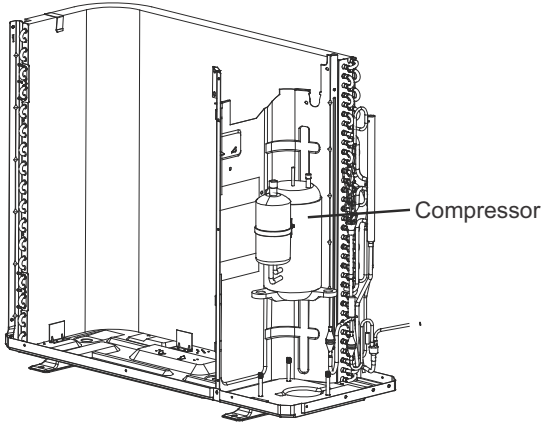
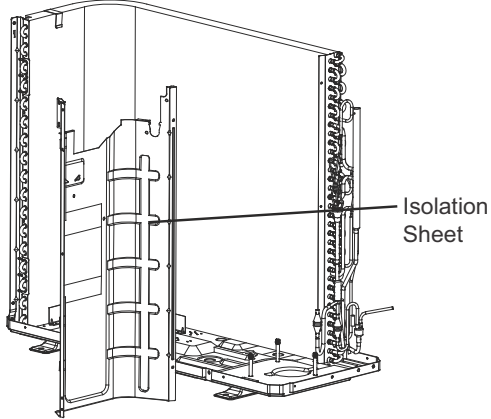
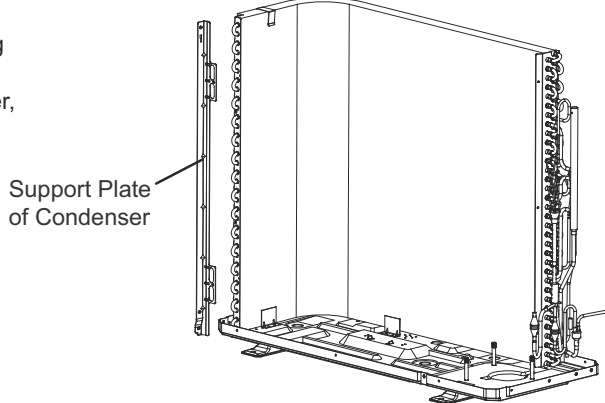
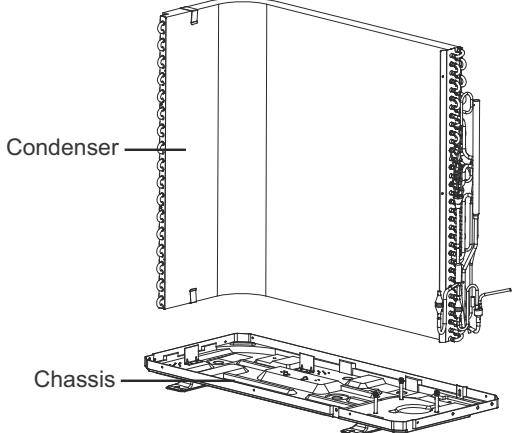
*Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.*

| STEPS  | PROCEDURES  |
|--|---|
| <p><b>1. Remove top cover and front side plate</b></p> | <p>a. Use the screwdriver to remove the screws connecting the top panel and panel and side panels. Remove the top panel. Loosen the screws fixing the valve cover and then remove the valve cover.</p> <p>b. Loosen the screws connecting the front side panel and mask and chassis. Remove the front side panel.</p>   |
| <p><b>2. Remove grille</b></p>                         | <p>Twist off the screws connecting the grille and panel, and then remove the grille.</p>    |
| <p><b>3. Remove panel</b></p>                          | <p>Twist off the screws connecting the panel, chassis and motor support with screwdriver, and then remove the panel.</p>   |

| STEPS                                    | PROCEDURES  |
|--|---|
| <p><b>4. Remove guard grille</b></p>     | <p>Twist off the screws fixing the guard grille and then remove the guard grille.</p>  <p style="text-align: right;">Guard Grille</p>  |
| <p><b>5. Remove handle</b></p>           | <p>Twist off the screws fixing the handle and then remove the handle.</p>  <p style="text-align: right;">Handle</p>  |
| <p><b>6. Remove right side plate</b></p> | <p>Twist off the screws connecting the right side plate and chassis, valve support and condenser, and then remove the right side plate.</p>  <p style="text-align: right;">Right Side Plate</p> |
| <p><b>7. Remove electric box</b></p>     | <p>a. Twist off the screws on electric box cover with screwdriver, and then remove the electric box cover.</p>  <p style="text-align: right;">Electric Box Cover</p>                           |

| STEPS  | PROCEDURES   |
|--|--|
| <p><b>7. Remove electric box (Continued)</b></p> | <p>b. Twist off the screws on electric box, cut off the tieline with scissors or pliers, pull out the wiring terminal, pull it upwards to remove the electric box.</p>  <p>Electric Box</p> <p>c. Twist off the screws between electric box 1 and left side plate with screwdriver, pull it upwards to remove the electric box 1.</p>  <p>Electric Box 1</p> |
| <p><b>8. Remove left side plate</b></p>          | <p>Twist off the screws connecting the left side plate and chassis with screwdriver, and then remove the left side plate.</p>  <p>Left Side Plate</p>   |
| <p><b>9. Remove axial flow blade</b></p>         | <p>Twist off the nuts on blade with wrench and then remove the axial flow blade.</p>  <p>Axial Flow Blade</p>  |

| STEPS   | PROCEDURES  |
|---|---|
| <p><b>10. Remove motor and motor support</b></p>    | <p>a. Twist off the tapping screws fixing the motor, pull out the pin of leading wire for motor and then remove the motor.</p>  <p>b. Twist off the tapping screws fixing the motor support, pull it upwards and then remove the motor support.</p>   |
| <p><b>11. Remove 4-way valve</b></p>                | <p>Unsolder the pipeline between compressor, condenser, gas and liquid valve, and then remove the 4-way valve. (note: release all refrigerant before unsoldering).</p>    |
| <p><b>12. Remove gas valve and liquid valve</b></p> | <p>Twist off the 2 bolts fixing the valve sub-assy. Unsolder the soldering joint between gas valve and air-return pipe and then remove the gas valve. (note: when unsoldering the soldering joint, wrap the gas valve with wet cloth completely to avoid the damage to valve, and release all refrigerant completely at first). Unsolder the soldering joint between liquid valve and connection pipe of liquid valve, and then remove the liquid valve.</p>  |

| STEPS   | PROCEDURES   |
|---|--|
| <p><b>13. Remove compressor</b></p>                 | <p>Twist off the 3 foot nuts on compressor and then remove the compressor.</p>   |
| <p><b>14. Remove isolation sheet</b></p>            | <p>Twist off the screws connecting isolation sheet and end plate of condenser and chassis, and then remove the isolation sheet.</p>                     |
| <p><b>15. Remove support plate of condenser</b></p> | <p>Twist off the screws connecting the support plate of condenser and condenser with screwdriver, and then remove the support plate of condenser.</p>  |
| <p><b>16. Remove chassis and condenser</b></p>      | <p>Pull it upwards to separate the chassis and condenser.</p>    |

## ACCESSORIES

| PART NUMBER                         | DESCRIPTION                              |
|-------------------------------------|--|
| <b>OTHER ACCESSORIES</b>            |  |
| S1-DL30510050                       | Remote Control                           |
| S1-DL26150003                       | Remote Control Holder                    |
| S1-DL11200511                       | Catechin Filter                          |
| S1-230-DL16                         | 5/8" Drain Line                          |
| <b>MOUNTING ACCESSORIES</b>         |  |
| S1-1836-2                           | PAD,UNIT,ECOPAD,18X36X2 (M50)            |
| S1-ACP1836-2                        | PAD,UNIT,DURAGRID,18X36X2 (M50)          |
| S1-EL1838-3                         | PAD,UNIT,ELITE PLASTIC,18X38X3 (M16)     |
| S1-UC1636-2                         | PAD,UNIT,ULTRALITE,16X36X2 (M20)         |
| S1-UC1636-3                         | PAD,UNIT,ULTRALITE,16X36X3 (M15)         |
| S1-230-MB14W                        | BLOCK,MOUNTING,MINISPLIT,14",PK OF 2(M6) |
| S1-230-MB17W                        | BLOCK,MOUNTING,MINISPLIT,17",PK OF 2(M6) |
| S1-230-MB36W                        | BLOCK,MOUNTING,MINISPLIT,36",PK OF 2(M6) |
| S1-230-MBCW                         | CAP,END,MTG BLOCK,MINISPLIT,4/PACK (M25) |
| S1-WBB300                           | BRACKET,WALL,MINISPLIT,300-LB            |
| S1-CNG                              | STAND,CONDENSER                          |
| S1-PR-351N-M                        | RISER,CONDENSER,4"H X 18"L (M20)         |
| S1-NP-R410 10PK                     | CAP,REFRIG,LOCKING,NOVENT,PINK,R-410     |
| S1-NP-R410 2PK                      | CAP,REFRIG,LOCKING,NOVENT,PINK,R-410     |
| S1-NP-R410 SDT                      | SCREWDRIVER/KEY,CAP,REFRIG,LOCKING,R-410 |
| <b>CONDENSATE HANDLING</b>          |  |
| S1-ASP-MA-UNI                       | KIT,PUMP,CONDS,MINISPLIT,100-250V,AQUA   |
| S1-ASP-MAXO-230                     | KIT,PUMP,CONDS,MINISPLIT,230V,ORANGE     |
| S1-ASP-MLF-UNI                      | KIT,PUMP,CONDS,MINISPLIT,100-250V,LIME   |
| S1-ASP-MW-UNI                       | KIT,PUMP,CONDS,MINISPLIT,100-250V,WHITE  |
| S1-CVMINI                           | PUMP,CONDS,MINISPLIT,120/230V (M6)       |
| S1-IQP-KUBE                         | PUMP,CONDS,0-15 FT,115V,MINISPLIT (M6)   |
| S1-IQP-KUBE-SHROUD                  | PUMP,CONDS,0-15 FT,115V,MINI,W/SHRD (M6) |
| S1-553676                           | PUMP,CONDS,46",230V,MINISPLIT,TPR (M4)   |
| S1-553712                           | PUMP,CONDS,29",230V,MSPLIT,EC-OP-K (M4)  |
| S1-EZT-180                          | TRAP,CONDENSATE,WATERLESS,5/8" (M10)     |
| S1-SS610E                           | SWITCH,CONDS,MINISPLIT,W/DIAG DISP (M12) |
| S1-230-DPML                         | PAN,CONDS,OUTDOOR,MINISPLIT,LARGE        |
| S1-230-DPMM                         | PAN,CONDS,OUTDOOR,MINISPLIT,MEDIUM       |
| S1-230-DPPL                         | PAN,CONDS,OUTDOOR,MINISPLIT,LARGE        |
| S1-230-DPPM                         | PAN,CONDS,OUTDOOR,MINISPLIT,MEDIUM       |
| S1-DH-16S                           | HOSE,DRAIN,16MM (5/8") X 20' (M5)        |
| S1-230-DL16                         | LINE,DRAIN,MINISPLIT,5/8" ID X 160'      |
| S1-230-DL20                         | LINE,DRAIN,MINISPLIT,3/4" ID X 160'      |
| S1-230-DLF16                        | ADAPTER,DRAIN,MINISPLIT,16MM (M10)       |
| S1-230-DLF18                        | ADAPTER,DRAIN,MINISPLIT,18MM (M10)       |
| S1-230-DLF20                        | ADAPTER,DRAIN,MINISPLIT,20MM (M10)       |
| S1-230-DLF25                        | ADAPTER,DRAIN,MINISPLIT,25MM (M10)       |
| S1-230-DLF32                        | ADAPTER,DRAIN,MINISPLIT,32MM (M10)       |
| S1-230-DLFY                         | Y,DRAIN,MINISPLIT (M10)                  |
| <b>LINESSET COVERS AND FITTINGS</b> |  |
| S1-LDK-122-W                        | KIT,LINESSET COVER,4.5" X 12',WHITE      |
| S1-LDK-92-W                         | KIT,LINESSET COVER,3.5" X 12',WHITE      |
| S1-NFP-75                           | SLEEVE,WALL,ADJUSTABLE,3"DIA (M10)       |
| S1-230-CP3                          | CPLG,UNION,SPEEDICHANNEL,3" (M10)        |
| S1-230-CP4                          | CPLG,UNION,SPEEDICHANNEL,4" (M10)        |
| S1-230-CP6                          | CPLG,UNION,SPEEDICHANNEL,6" (M10)        |
| S1-230-D3                           | COVER,LINESSET,SPEEDICHANNEL,3" (M6)     |
| S1-230-D4                           | COVER,LINESSET,SPEEDICHANNEL,4" (M6)     |
| S1-230-D6                           | COVER,LINESSET,SPEEDICHANNEL,6" (M5)     |
| S1-230-DC3                          | CAP,END,SPEEDICHANNEL,3" (M10)           |
| S1-230-DC4                          | CAP,END,SPEEDICHANNEL,4" (M10)           |
| S1-230-DC6                          | CAP,END,SPEEDICHANNEL,6" (M10)           |
| S1-230-DCLIP                        | CLIP,SPEEDICHANNEL,PK OF 50              |
| S1-230-DE3                          | END,DUCT,SPEEDICHANNEL,3" (M10)          |
| S1-230-DE4                          | END,DUCT,SPEEDICHANNEL,4" (M10)          |
| S1-230-DE6                          | END,DUCT,SPEEDICHANNEL,6" (M10)          |
| S1-230-DSCREW                       | SCREW,SPEEDICHANNEL,PK OF 100            |
| S1-230-EB3                          | ELBOW,INSIDE,90DEG,SPEEDICHANNEL,3"(M10) |
| S1-230-EB4                          | ELBOW,INSIDE,90DEG,SPEEDICHANNEL,4"(M10) |

| PART NUMBER  | DESCRIPTION                              |
|--|--|
| S1-230-EB6   | ELBOW,INSIDE,90DEG,SPEEDICHANNEL,6"(M10) |
| S1-230-EIN3  | ELBOW,OUTSD,90DEG,SPEEDICHANNEL,3"(M10)  |
| S1-230-EIN4  | ELBOW,OUTSD,90DEG,SPEEDICHANNEL,4"(M10)  |
| S1-230-EIN6  | ELBOW,OUTSD,90DEG,SPEEDICHANNEL,6"(M10)  |
| S1-230-FB3   | BEND,FLAT,90 DEG,SPEEDICHANNEL,3" (M10)  |
| S1-230-FB4   | BEND,FLAT,90 DEG,SPEEDICHANNEL,4" (M10)  |
| S1-230-FB453   | BEND,FLAT,45 DEG,SPEEDICHANNEL,3" (M10)  |
| S1-230-FB454   | BEND,FLAT,45 DEG,SPEEDICHANNEL,4" (M10)  |
| S1-230-FB456   | BEND,FLAT,45 DEG,SPEEDICHANNEL,6" (M10)  |
| S1-230-FB6   | BEND,FLAT,90 DEG,SPEEDICHANNEL,6" (M10)  |
| S1-230-FJ3   | JOINT,FLEX,SPEEDICHANNEL,3" (M10)        |
| S1-230-FJ4   | JOINT,FLEX,SPEEDICHANNEL,4" (M10)        |
| S1-230-FR3   | ESCUTCH,FLAT,WALL,SPEEDICHANNEL,3" (M10) |
| S1-230-FR4   | ESCUTCH,FLAT,WALL,SPEEDICHANNEL,4" (M10) |
| S1-230-FR6   | ESCUTCH,FLAT,WALL,SPEEDICHANNEL,6" (M10) |
| S1-230-LFB3  | BEND,FLAT,LGRAD,90DEG,SPEEDICHNL,3"(M10) |
| S1-230-LFB4  | BEND,FLAT,LGRAD,90DEG,SPEEDICHNL,4"(M10) |
| S1-230-LFB6  | BEND,FLAT,LGRAD,90DEG,SPEEDICHNL,6"(M10) |
| S1-230-TC34  | CPLG,REDUCER,SPEEDICHANNEL,3"X4" (M10)   |
| S1-230-TC46  | CPLG,REDUCER,SPEEDICHANNEL,4"X6" (M10)   |
| S1-230-TJ4   | TEE,SPEEDICHANNEL,4" (M10)               |
| S1-230-TJ6   | TEE,SPEEDICHANNEL,6" (M10)               |
| S1-230-WC3   | CVR,WALL PEN,SPEEDICHANNEL,3" (M10)      |
| S1-230-WC4   | CVR,WALL PEN,SPEEDICHANNEL,4" (M10)      |
| S1-230-WC6   | CVR,WALL PEN,SPEEDICHANNEL,6" (M10)      |
| S1-230-WR3   | ESCUTCHEON,WALL,SPEEDICHANNEL,3" (M10)   |
| S1-230-WR4   | ESCUTCHEON,WALL,SPEEDICHANNEL,4" (M10)   |
| S1-230-WR6   | ESCUTCHEON,WALL,SPEEDICHANNEL,6" (M10)   |
| S1-230-WS2   | SLV,WALL PEN,SPEEDICHANNEL,2-1/2" (M10)  |
| <b>MINISPLIT LINESETS (BOTH LINES INSULATED WITH FLARE NUTS)</b> |  |
| S1-52642437015   | LINESET,MINISPLIT,1/4LX3/8SX15',3/8(M8)  |
| S1-52642437020   | LINESET,MINISPLIT,1/4LX3/8SX20',3/8(M8)  |
| S1-52642437025   | LINESET,MINISPLIT,1/4LX3/8SX25',3/8(M8)  |
| S1-52642437030   | LINESET,MINISPLIT,1/4LX3/8SX30',3/8(M8)  |
| S1-52642437035   | LINESET,MINISPLIT,1/4LX3/8SX35',3/8(M8)  |
| S1-52642437050   | LINESET,MINISPLIT,1/4LX3/8SX50',3/8(M8)  |
| S1-52642438015   | LINESET,MINISPLIT,1/4LX1/2SX15',3/8(M8)  |
| S1-52642438020   | LINESET,MINISPLIT,1/4LX1/2SX20',3/8(M8)  |
| S1-52642438025   | LINESET,MINISPLIT,1/4LX1/2SX25',3/8(M8)  |
| S1-52642438030   | LINESET,MINISPLIT,1/4LX1/2SX30',3/8(M8)  |
| S1-52642438035   | LINESET,MINISPLIT,1/4LX1/2SX35',3/8(M8)  |
| S1-52642438050   | LINESET,MINISPLIT,1/4LX1/2SX50',3/8(M8)  |
| S1-52642439015   | LINESET,MINISPLIT,1/4LX5/8SX15',3/8(M8)  |
| S1-52642439020   | LINESET,MINISPLIT,1/4LX5/8SX20',3/8(M8)  |
| S1-52642439025   | LINESET,MINISPLIT,1/4LX5/8SX25',3/8(M8)  |
| S1-52642439030   | LINESET,MINISPLIT,1/4LX5/8SX30',3/8(M8)  |
| S1-52642439035   | LINESET,MINISPLIT,1/4LX5/8SX35',3/8(M8)  |
| S1-52642439050   | LINESET,MINISPLIT,1/4LX5/8SX50',3/8(M8)  |
| S1-52642440015   | LINESET,MINISPLIT,1/4LX3/4SX15',3/8(M8)  |
| S1-52642440020   | LINESET,MINISPLIT,1/4LX3/4SX20',3/8(M8)  |
| S1-52642440025   | LINESET,MINISPLIT,1/4LX3/4SX25',3/8(M8)  |
| S1-52642440030   | LINESET,MINISPLIT,1/4LX3/4SX30',3/8(M8)  |
| S1-52642440035   | LINESET,MINISPLIT,1/4LX3/4SX35',3/8(M8)  |
| S1-52642440050   | LINESET,MINISPLIT,1/4LX3/4SX50',3/8(M8)  |
| S1-52642441015   | LINESET,MINISPLIT,3/8LX5/8SX15',3/8(M8)  |
| S1-52642441020   | LINESET,MINISPLIT,3/8LX5/8SX20',3/8(M8)  |
| S1-52642441025   | LINESET,MINISPLIT,3/8LX5/8SX25',3/8(M8)  |
| S1-52642441030   | LINESET,MINISPLIT,3/8LX5/8SX30',3/8(M8)  |
| S1-52642441035   | LINESET,MINISPLIT,3/8LX5/8SX35',3/8(M8)  |
| S1-52642441050   | LINESET,MINISPLIT,3/8LX5/8SX50',3/8(M8)  |
| S1-52642442015   | LINESET,MINISPLIT,3/8LX3/4SX15',3/8(M8)  |
| S1-52642442020   | LINESET,MINISPLIT,3/8LX3/4SX20',3/8(M8)  |
| S1-52642442025   | LINESET,MINISPLIT,3/8LX3/4SX25',3/8(M8)  |
| S1-52642442030   | LINESET,MINISPLIT,3/8LX3/4SX30',3/8(M8)  |
| S1-52642442035   | LINESET,MINISPLIT,3/8LX3/4SX35',3/8(M8)  |
| S1-52642442050   | LINESET,MINISPLIT,3/8LX3/4SX50',3/8(M8)  |
| S1-52642443015   | LINESET,MINISPLIT,3/8LX7/8SX15',3/8(M8)  |
| S1-52642443025   | LINESET,MINISPLIT,3/8LX7/8SX25',3/8(M8)  |

# NOTES