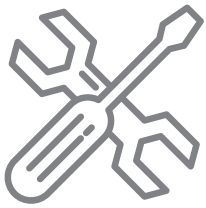




**MRCOOL<sup>®</sup>**

COMFORT MADE SIMPLE

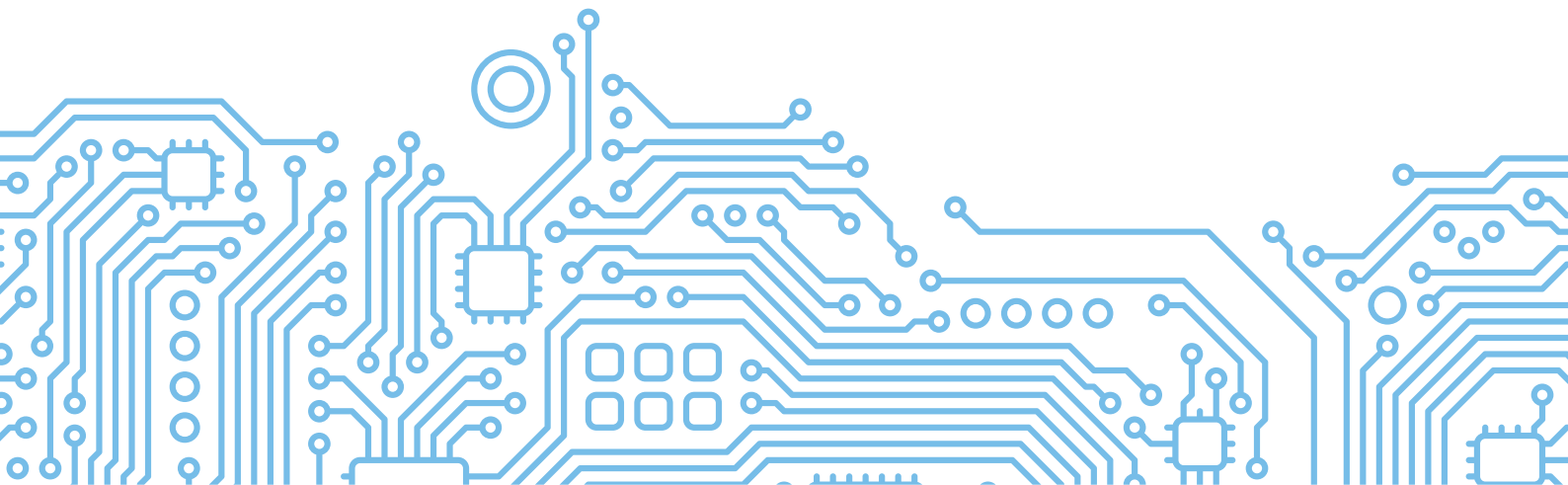


**Hyper Heat Single-Zone 24k-60k  
Ducted Air Handler & Condenser**

---

**SERVICE MANUAL**

**Version Date: 06/27/23**



---

# Indoor Unit-Air Handler

## Contents

|    |                                 |    |
|----|---------------------------------|----|
| 1. | Feature.....                    | 8  |
| 2. | Dimensional Drawings.....       | 9  |
| 3. | Part names .....                | 10 |
| 4. | Service Place.....              | 10 |
| 5. | Accessories .....               | 11 |
| 6. | Fan Performance.....            | 12 |
| 7. | Noise Criterion Curves.....     | 14 |
| 8. | Electrical Characteristics..... | 16 |
| 9. | Electrical Wiring Diagrams..... | 17 |

---

## **1. Feature**

### **1.1 Full Multi-position installation**

- This AHU is capable of upflow, downflow, horizontal left, or horizontal right configurations.

### **1.2 Installation Convenience**

- It simplifies the airflow volume adjustment process and saves lots of installation efforts. The traditional adjustment method needs the installers to manually set the motor speed, according to the installation instruction and ducting design. It takes lots of time if this thing doesn't go well and decreases the marginal profits.

### **1.3 Easy Fault Code Checking**

- Thanks to advanced mutual data communication technology, the AHU system can intelligently self-detecting the failure cause and generate a corresponding code.
- Installer or user can easily check the fault code displayed on the electric function board by just opening the lid.
- It helps you proactively determine the failure cause, prepare for repairing parts ahead of field maintenance work, greatly improve the work efficiency.

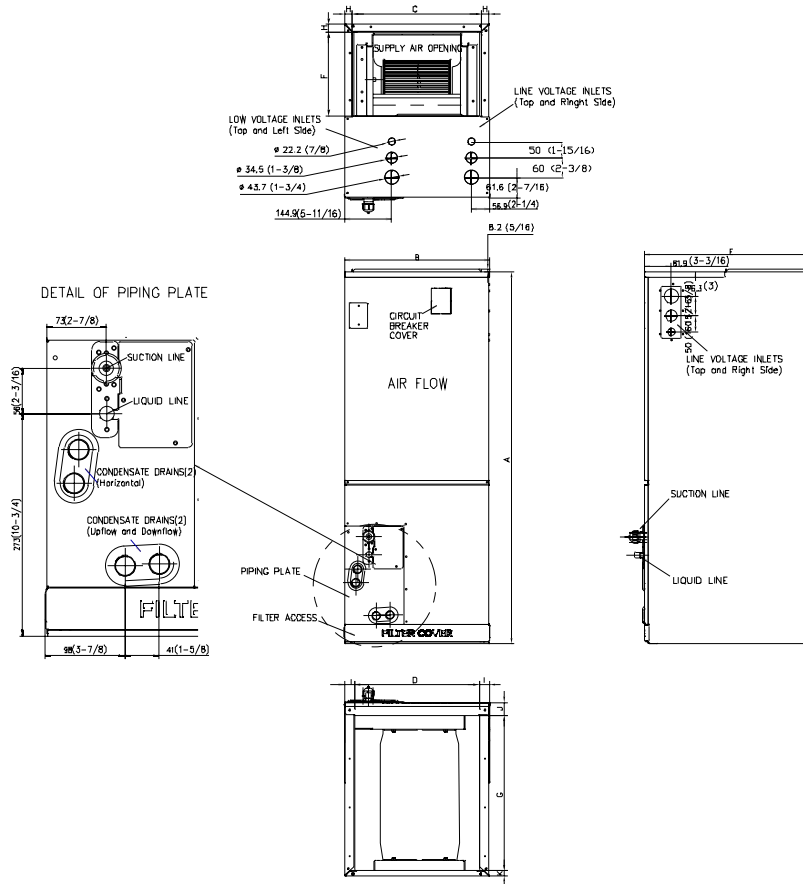
### **1.4 Nitrogen Charge and Leakage Check Valve**

- Midea AHU indoor unit is standard with Nitrogen injection to maintain positive pressure of the indoor unit. It is easy to check from the check valve whether there is leakage in the evaporator or not.

### **1.5 Automatic Airflow Adjustment**

- During the operation, when the dust filter or evaporator is clogged with dust, the load of the system and motor torque increases. The MPU(microprocessor) on the unit can detect this change and adjust the fan speed to keep the CFM stable.

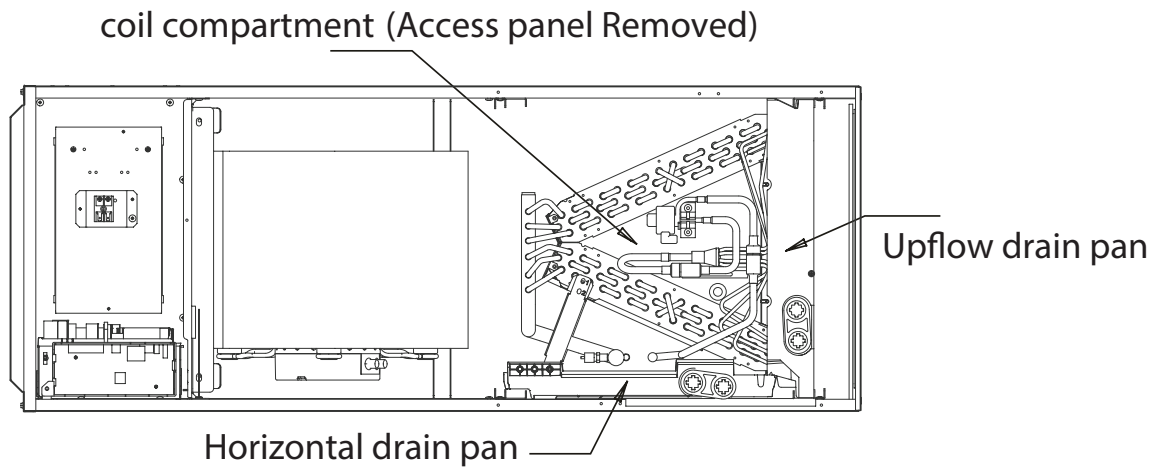
## 2. Dimensional Drawings



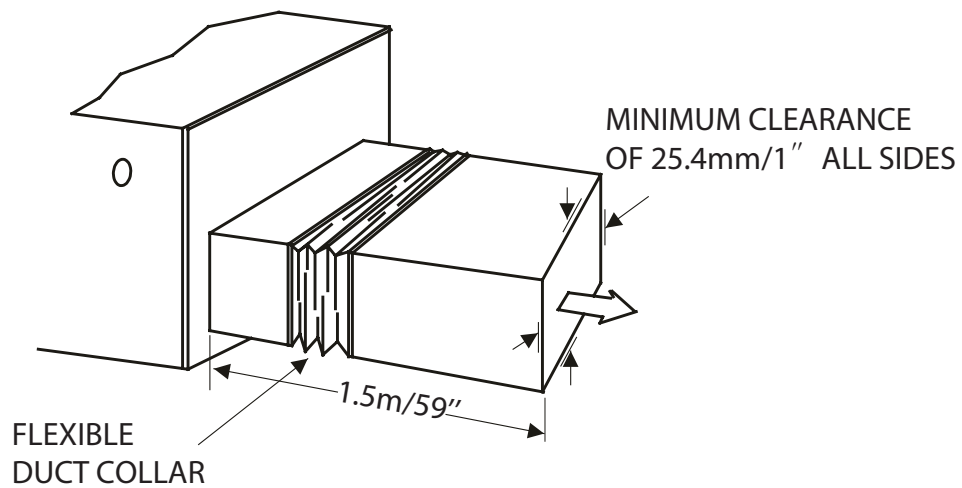
| Dimensions |                                    | Model | 18k/24k |      | 30k/36/48k |      | 60k    |      |
|------------|------------------------------------|-------|---------|------|------------|------|--------|------|
|            |                                    |       | inch    | mm   | inch       | mm   | inch   | mm   |
| A          | Model Height                       |       | 45      | 1143 | 49         | 1245 | 53     | 1346 |
| B          | Model Width                        |       | 17-1/2  | 445  | 21         | 534  | 24-1/2 | 622  |
| C          | Supply Air Opening Width           |       | 15-5/8  | 397  | 19-1/8     | 486  | 22-5/8 | 575  |
| D          | Return Air Opening Width           |       | 15-1/8  | 384  | 18-5/8     | 473  | 22-1/8 | 562  |
| E          | Model Depth                        |       | 21      | 534  | 21         | 534  | 21     | 534  |
| F          | Supply Air Opening Depth           |       | 10-1/4  | 260  | 10-1/4     | 260  | 10-1/4 | 260  |
| G          | Return Air Opening Depth           |       | 18-3/4  | 476  | 18-3/4     | 476  | 18-3/4 | 476  |
| H          | Supply Air Opening Clearance       |       | 15/16   | 24   | 15/16      | 24   | 15/16  | 24   |
| I          | Return Air Opening Side Clearance  |       | 1-1/4   | 32   | 1-1/4      | 32   | 1-1/8  | 28   |
| J          | Return Air Opening Front Clearance |       | 1-1/2   | 38   | 1-5/8      | 41   | 1-5/8  | 41   |
| K          | Return Air Opening Back Clearance  |       | 5/8     | 16   | 5/8        | 16   | 3/4    | 19   |

---

### 3. Part names




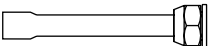
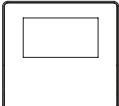





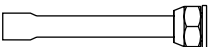


### 4. Service Place







## 5. Accessories

The air conditioning system comes with the following accessories. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock and fire, or equipment failure.

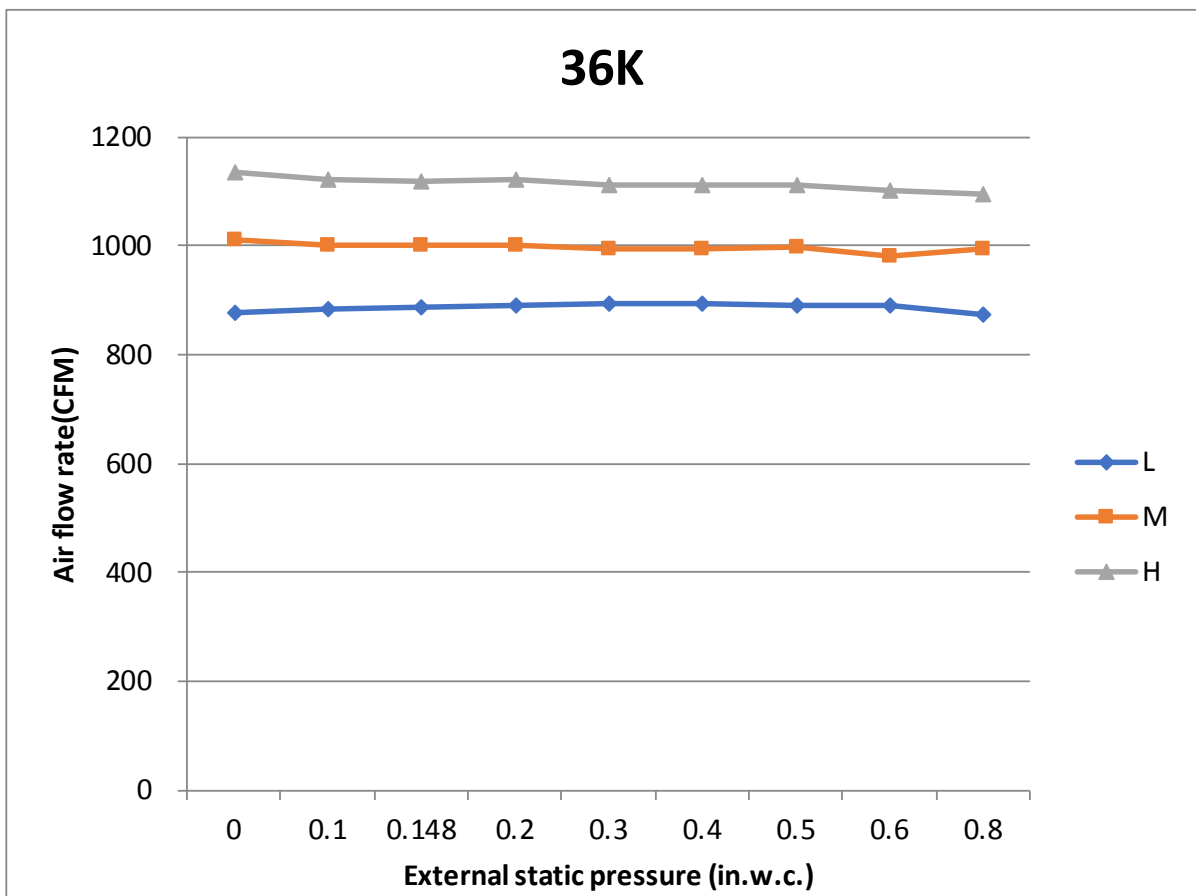
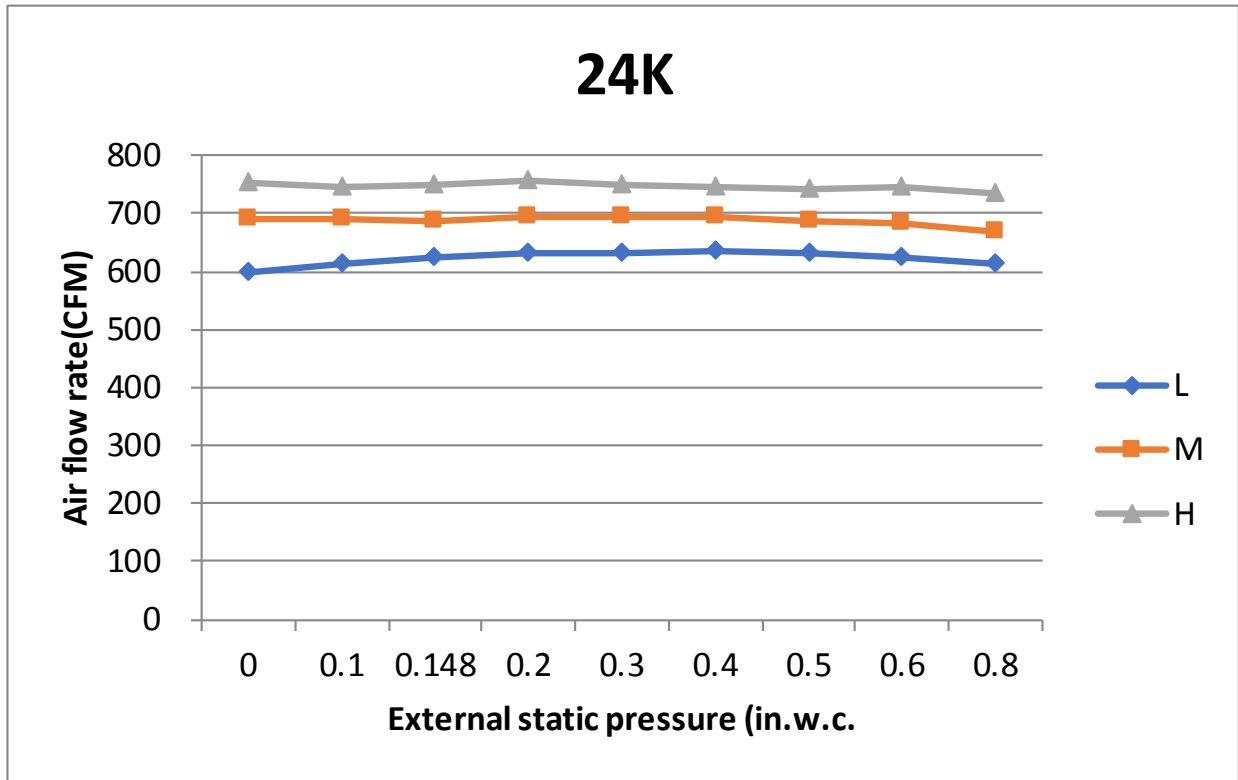
| Name                         | Shape  | Quantity   |   |
|------------------------------|--|--|---|
| Manual                       |   | 3  |   |
| Remote controller            |  | 1  |   |
| Battery                      |   | 2  |   |
| Transfer connector           |  | 2  |   |
| Wired remote controller      |   | 1  |   |
| Fasten belt                  |  | 2  |   |
| Sponge                       |   | 4  |   |
| Flare nut                    |  | 2  |   |
| Packed with the outdoor unit | Drain joint  |   | 1 |
|                              | Seal   |   | 1 |
|                              | Transfer connector   |  | 2 |

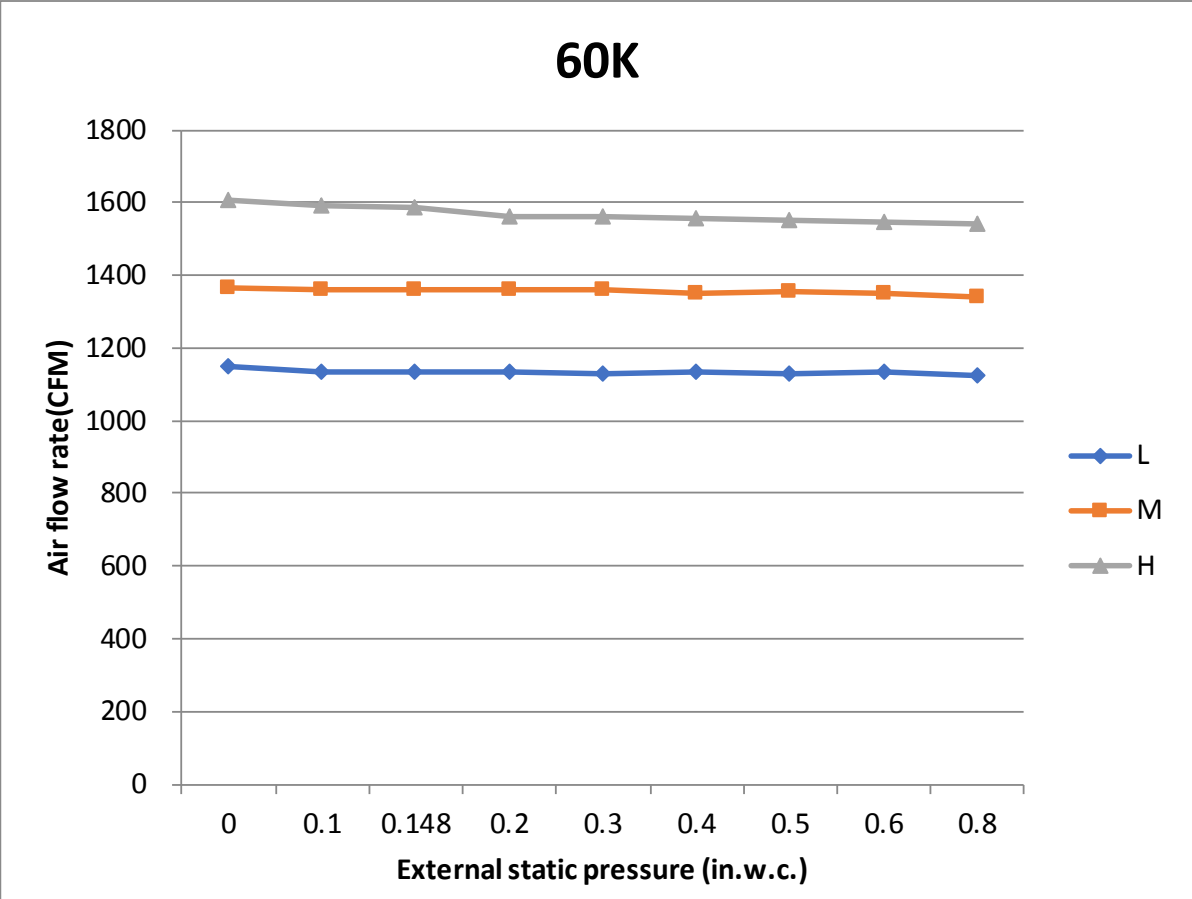
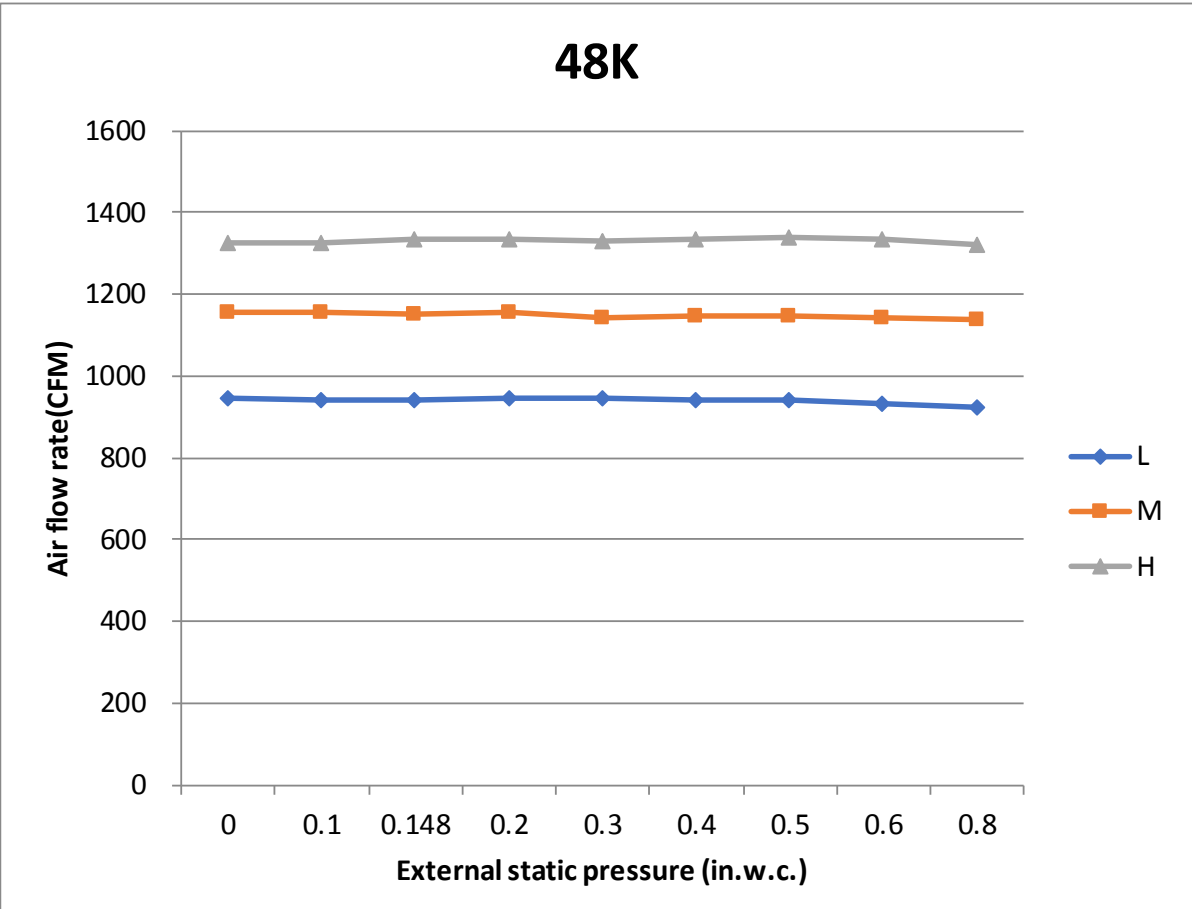
Note: The remote control is only used to adjust the parameters.

Installation of Electric Auxiliary Heat Module (for some models) (not supplied)

| Name                                      | Shape   | Quantity |
|---|---|----------|
| Owner's manual & Installation manual      |  | 2        |
| Seal sponge                               |  | 1        |
| Screw                                     |  | 7        |
| Rubber cap                                |  | 1        |
| Electric auxiliary heating wiring diagram | /   | 1        |
| Air switch label                          | /   | 1        |

## 6. Fan Performance

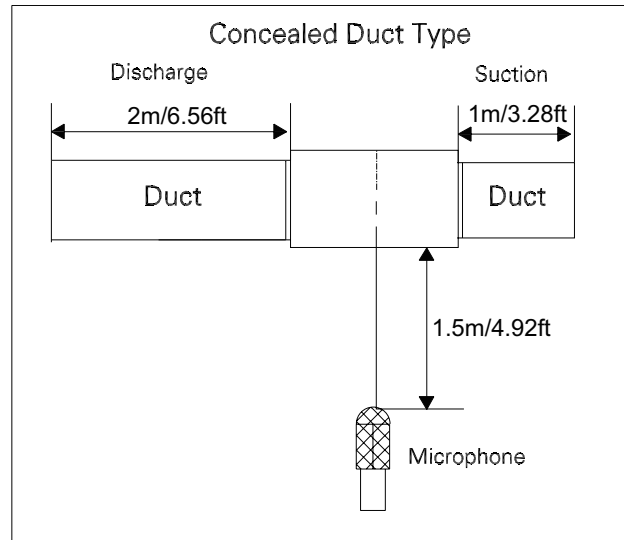






---

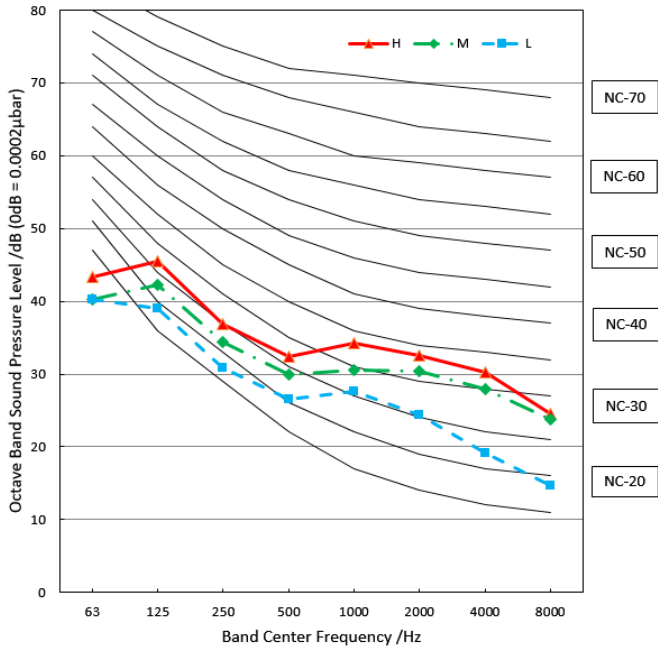
## 7. Noise Criterion Curves



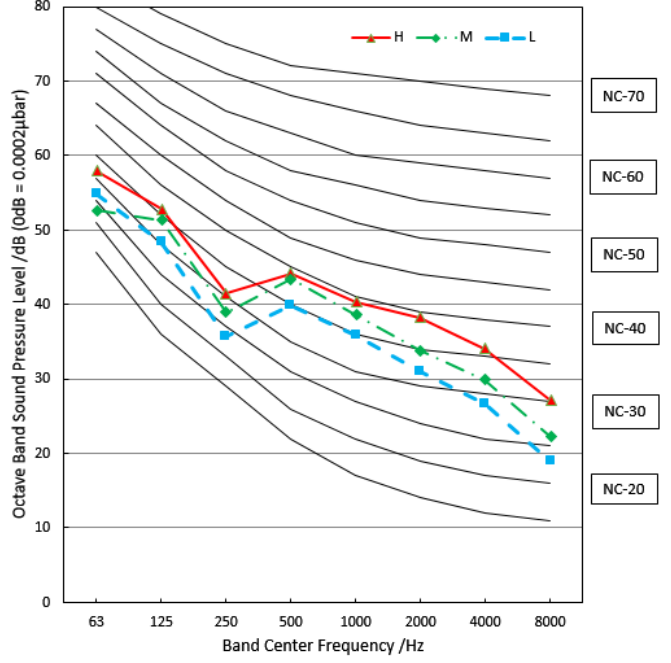
### Notes:

- Sound measured at 1.5m away from the center of the unit.
- Data is valid at free field condition
- Data is valid at nominal operation condition
- Reference acoustic pressure  $OdB = 20\mu Pa$
- Sound level will vary depending on a range of factors such as the construction -(acoustic absorption coefficient) of particular room in which the equipment is installed.
- The operating conditions are assumed to be standard.

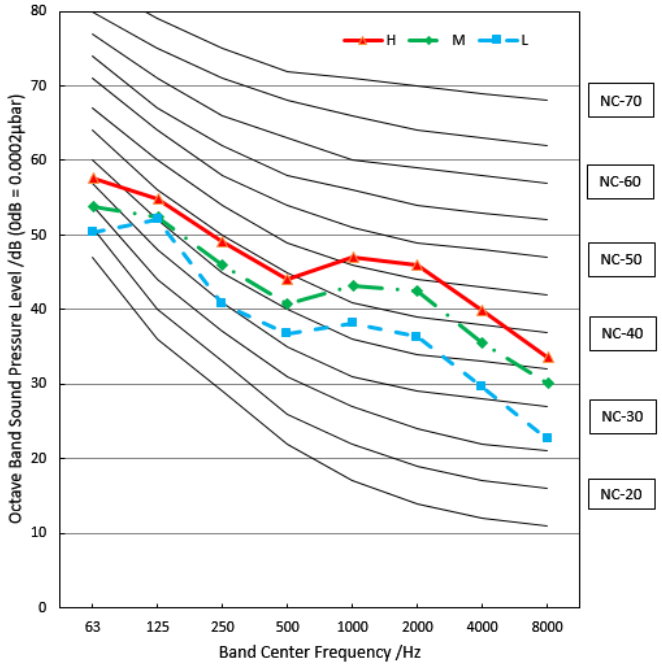
24k



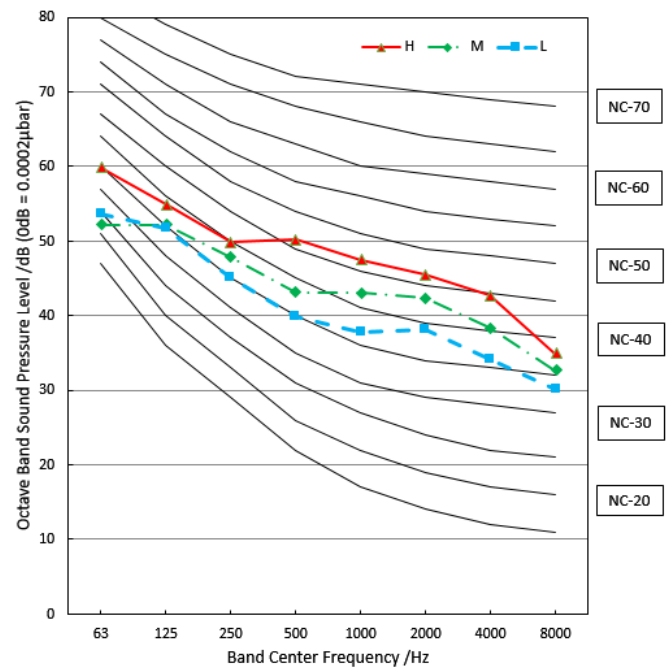
36k



48k



60k



## 8. Electrical Characteristics

| Capacity (Btu/h)              |                    | 24k                    | 36k                    | 48k                    | 60k                    |
|-------------------------------|--------------------|------------------------|------------------------|------------------------|------------------------|
| Power (indoor)                | Phase              | 1                      | 1                      | 1                      | 1                      |
|                               | Frequency And Volt | 208/230V,60Hz          |                        |                        |                        |
| Power (Outdoor)               | Phase              | 1                      | 1                      | 1                      | 1                      |
|                               | Frequency And Volt | 208/230V,60Hz          |                        |                        |                        |
| Max fuse                      | Indoor unit(A)     | 15                     | 15                     | 15                     | 15                     |
|                               | Outdoor unit(A)    | 35                     | 40                     | 50                     | 60                     |
| Indoor unit<br>Power line     | Line quantity      | 3                      | 3                      | 3                      | 3                      |
|                               | Line diameter(AWG) | 16/1.5mm <sup>2</sup>  | 16/1.5mm <sup>2</sup>  | 16/1.5mm <sup>2</sup>  | 16/1.5mm <sup>2</sup>  |
| Outdoor unit<br>Power line    | Line quantity      | 3                      | 3                      | 3                      | 3                      |
|                               | Line diameter(AWG) | 12/4.0mm <sup>2</sup>  | 12/4.0mm <sup>2</sup>  | 10/6.0mm <sup>2</sup>  | 10/6.0mm <sup>2</sup>  |
| Outdoor-indoor<br>Signal line | Line quantity      | 2                      | 2                      | 2                      | 2                      |
|                               | Line diameter(AWG) | 20/0.5mm <sup>2</sup>  | 20/0.5mm <sup>2</sup>  | 20/0.5mm <sup>2</sup>  | 20/0.5mm <sup>2</sup>  |
| Thermostat<br>Signal line     | Line quantity      |                        |                        |                        |                        |
|                               | Line diameter(AWG) | 18//1.0mm <sup>2</sup> | 18//1.0mm <sup>2</sup> | 18//1.0mm <sup>2</sup> | 18//1.0mm <sup>2</sup> |

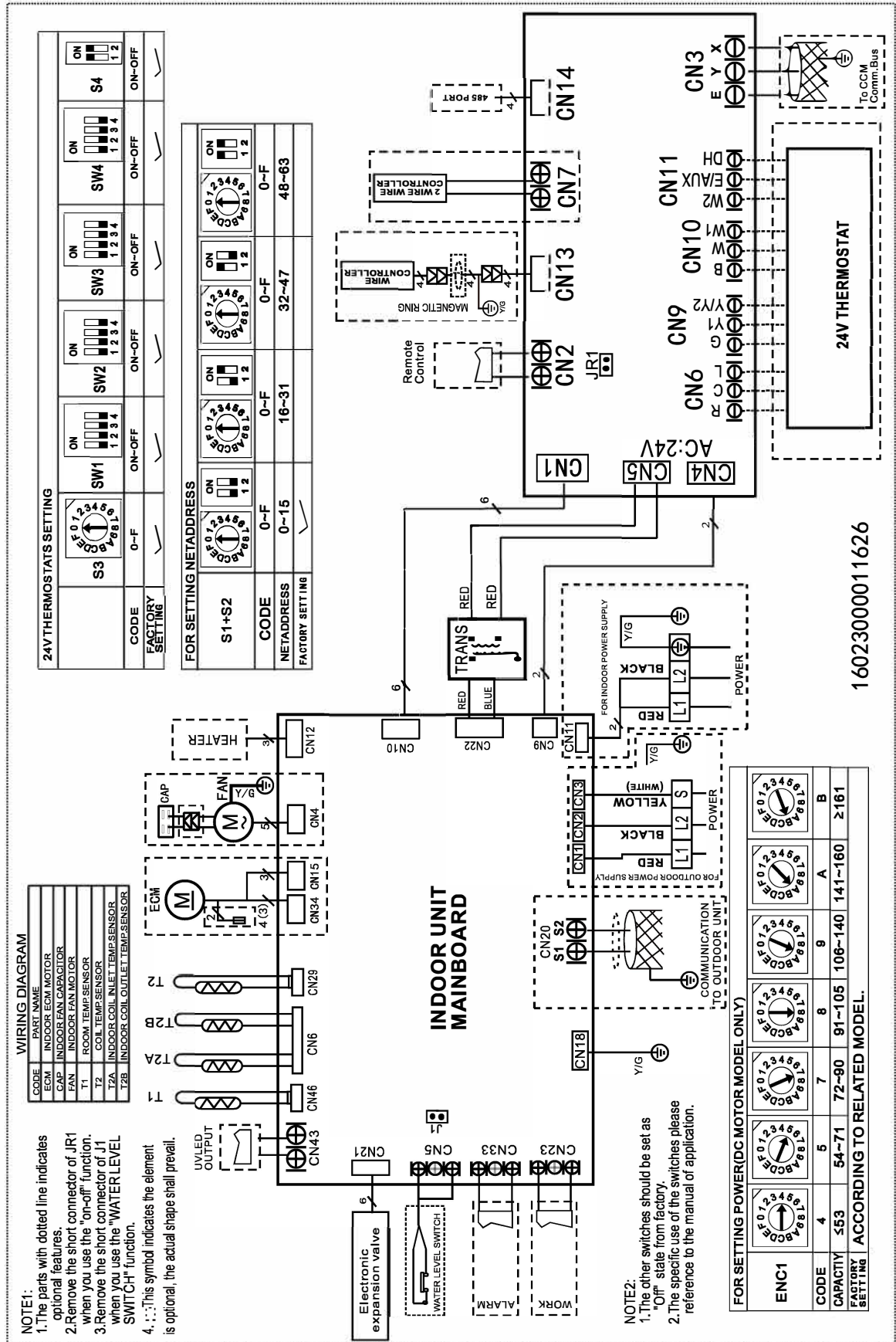
| Capacity (Btu/h)              |                    | 36k hyper heat         | 48k hyper heat         | 60k hyper heat         |
|-------------------------------|--------------------|------------------------|------------------------|------------------------|
| Power (indoor)                | Phase              | 1                      | 1                      | 1                      |
|                               | Frequency And Volt | 208/230V,60Hz          |                        |                        |
| Power (Outdoor)               | Phase              | 1                      | 1                      | 1                      |
|                               | Frequency And Volt | 208/230V,60Hz          |                        |                        |
| Max fuse                      | Indoor unit(A)     | 15                     | 15                     | 15                     |
|                               | Outdoor unit(A)    | 50                     | 50                     | 60                     |
| Indoor unit<br>Power line     | Line quantity      | 3                      | 3                      | 3                      |
|                               | Line diameter(AWG) | 16/1.5mm <sup>2</sup>  | 16/1.5mm <sup>2</sup>  | 16/1.5mm <sup>2</sup>  |
| Outdoor unit<br>Power line    | Line quantity      | 3                      | 3                      | 3                      |
|                               | Line diameter(AWG) | 8/8.0mm <sup>2</sup>   | 8/8.0mm <sup>2</sup>   | 8/8.0mm <sup>2</sup>   |
| Outdoor-indoor<br>Signal line | Line quantity      | 2                      | 2                      | 2                      |
|                               | Line diameter(AWG) | 20/0.5mm <sup>2</sup>  | 20/0.5mm <sup>2</sup>  | 20/0.5mm <sup>2</sup>  |
| Thermostat<br>Signal line     | Line quantity      |                        |                        |                        |
|                               | Line diameter(AWG) | 18//1.0mm <sup>2</sup> | 18//1.0mm <sup>2</sup> | 18//1.0mm <sup>2</sup> |

---

## 9. Electrical Wiring Diagrams

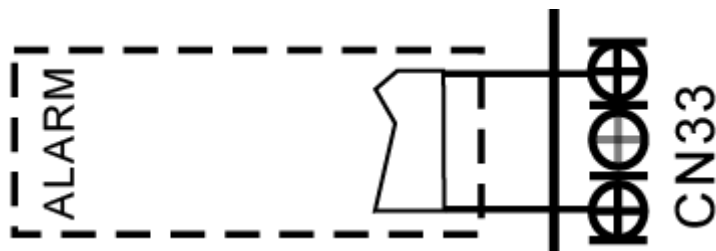
| IDU Capacity (Btu/h) | IDU Wiring Diagram |
|----------------------|--------------------|
| 24k~60k              | 16023000011626     |

| Abbreviation    | Paraphrase                            |
|-----------------|---------------------------------------|
| Y/G             | Yellow-Green Conductor                |
| CAP             | Indoor Fan Capacitor                  |
| FAN             | Indoor Fan Motor                      |
| ECM             | Indoor ECM Motor                      |
| TO CCM Comm.Bus | Central Controller                    |
| T1              | Indoor Room Temperature Sensor        |
| T2A             | Indoor Coil Inlet Temperature Sensor  |
| T2B             | Indoor Coil Outlet Temperature Sensor |
| T2              | Indoor Coil Temperature Sensor        |



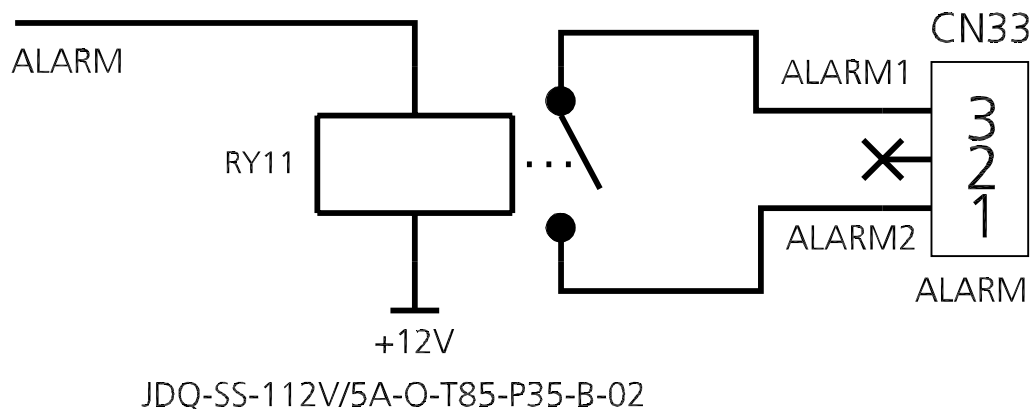
---

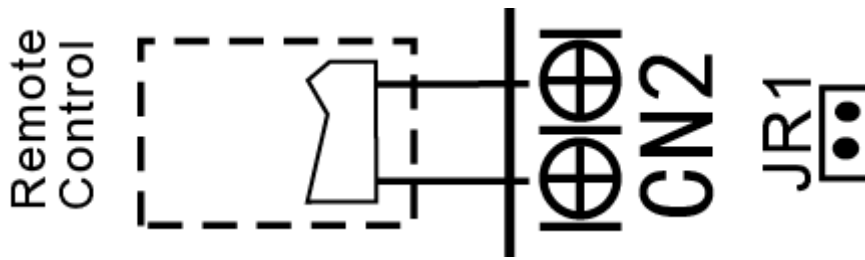
## 10.1 Micro-Switch Introduce:



A For ALARM terminal port CN33

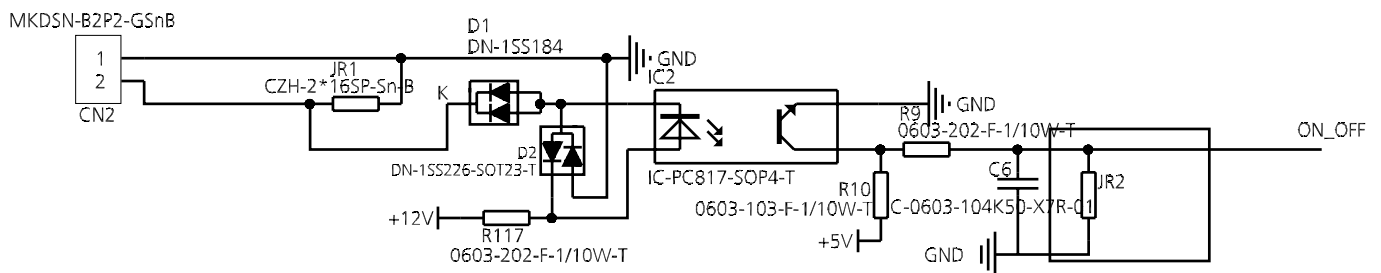
1. Provide the terminal port to connect ALARM, but no voltage of the terminal port , the power from the ALARM system (not from the unit )
2. Although design voltage can support higher voltage ,but we strongly ask you connect the power less than 24V, current less than 0.5A
3. When the unit occurs the problem , the relay would be closed , then ALARM works



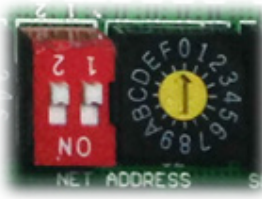


B. For remote control (ON-OFF) terminal port CN2 and short connector of JR1

1. Remove the short connector of JR1 when you use ON-OFF function;
2. When remote switch off (OPEN); the unit would be off;
3. When remote switch on (CLOSE); the unit would be on;
4. When close/open the remote switch, the unit would be responded the demand within 2 seconds;
5. When the remote switch on, you can use remote controller/ wire controller to select the mode what you want; when the remote switch off, the unit would not respond the demand from remote controller/wire controller.  
when the remote switch off, but the remote controller/wire controller are on, CP code would be shown on the display board.
6. The voltage of the port is 12V DC, design Max. current is 5mA.



## 10.2 Micro-Switch Introduce:



| FOR SETTING NETADDRESS |      |       |       |       |
|------------------------|------|-------|-------|-------|
| S1+S2                  |      |       |       |       |
| CODE                   | 0~F  | 0~F   | 0~F   | 0~F   |
| NETADDRESS             | 0~15 | 16~31 | 32~47 | 48~63 |
| FACTORY SETTING        | ✓    |       |       |       |

A. Micro-switch S1 and dial-switch S2 are for address setting when you want to control this unit by a central controller. Range: 00-63



| FOR SETTING POWER(DC MOTOR MODEL ONLY) |                             |       |       |        |         |         |      |
|--|-----------------------------|-------|-------|--------|---------|---------|------|
| ENC1                                   |                             |       |       |        |         |         |      |
| CODE                                   | 4                           | 5     | 7     | 8      | 9       | A       | B    |
| POWER                                  | ≤53                         | 54~71 | 72~90 | 91~105 | 106~140 | 141~160 | ≥161 |
| FACTORY SETTING                        | ACCORDING TO RELATED MODEL. |       |       |        |         |         |      |

B. Dial-switch ENC1: The indoor PCB is universal designed for whole series units from 7K to 68K. This ENC1 setting will tell the main program what size the unit is.

NOTE: Usually there is glue on it because the switch position cannot be changed at random unless you want to use this PCB as a spare part to use in another unit. Then you have to select the right position to match the size of the unit.

"53" means 5.3kW (18K), "105" means 10.5kW(36K), and so on.



| 24V THERMOSTATS SETTING |     |        |        |        |        |        |
|-------------------------|-----|--------|--------|--------|--------|--------|
| S3                      |     |        |        |        |        |        |
| CODE                    | 0~F | ON-OFF | ON-OFF | ON-OFF | ON-OFF | ON-OFF |
| FACTORY SETTING         | ✓   | ✓      | ✓      | ✓      | ✓      | ✓      |

C. Function DIP Switch Settings

| Dial code | Features   | ON  | OFF(default)        |
|-----------|--|---|---------------------|
| S3(ENC 2) | Electric heating turns on outdoor T4 temperature | 0 means that the temperature protection is not turned on, 1-F is -20-8°C (-4-46°F) respectively, and each scale represents 2°C(3.6°F) |                     |
| SW1-1     | Whether 24V control selection                    | Yes   | No                  |
| SW1-2     | Cold wind protection option                      | No  | Yes                 |
| SW1-3     | Single cooling / heating and cooling options     | Cooling   | heating and cooling |
| SW1-4     | Set machine/single internal machine selection    | Indoor unit   | Kit                 |



|       |   |   |  |
|-------|---|---|--|
| SW2-1 | The first group controls the electric heating to turn on the temperature difference | 1°C(1.8°F)  | 2°C(3.6°F)   |
| SW2-2 | Whether the electric heating is delayed   | Yes   | No   |
| SW2-3 | Electric auxiliary heating delay start time   | 30min   | 15min  |
| SW2-4 | Electric heating/compressor allow opening limit                                     | Compressor allowed to operate to low limit set by ENC 2 | Electric heating allowed to operate to high limit set by ENC |
| SW3-1 | Continuous running time when the set temperature of 1°C(1.8°F) is not reached       | E-square value(0.5 hour)                                | 1.5 hours  |
| SW3-2 | Cooling and heating Y2 signal setting temperature adjustment value A                | 1°C(1.8°F)  | 2°C(3.6°F)   |
| SW3-3 | Hysteresis of the second group of electric heating                                  | 2°C(3.6°F)  | 3°C(5.4°F)   |
| SW3-4 | Reserve   | /   | /  |
| S4-1  | Default ON  | Short circuit W1 and W2                                 | W1, W2 separate  |
| S4-2  | Default ON  | DH is off by default                                    | DH on  |

|       |  |
|-------|--|
| SW4-1 | 000 is the default<br>000/001/010/011/100/101/110/111, internal machines with different abilities, electric heating and PSC classification for use |
| SW4-2 |  |
| SW4-3 |  |

NOTICE: The SW4 DIP switch is only for Certified service technicians to debug and use, please do not touch it.