

# FLOOR STANDING TYPE SPLIT UNIT



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TRUST AIR CONDITIONING EQUIPMENT CO.  
Prepared By: Engineering & R & D Department.

# TRUST R410A T3 Top-discharge Split Type Series 50Hz Technical Manual

**توجه:**

شرکت تراست حق تغییر مشخصات دستگاه ها را در جهت بهبود و ارتقای کیفیت برای خود محفوظ می دارد.

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# Part. 1 General information

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## 1. External Appearance

### 1.1 Indoor units

**TMSN100HT3C/I4TS1R3N1T**



### 1.2 Outdoor unit

**TMSN100C(H)T3C /O4TS1R3N1T**



## **Part. 2 Indoor Unit**

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# Floor-standing Type

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# 1. Features

- ◇ Highly capacity of cooling and heating, and energy-saving.
- ◇ Thin size, even can installed at limited place.
- ◇ All round steel shell, for high quality protection of transportation.
- ◇ Auto swing louver, wide angle and long distance of air supply.



- ◇ Available for wireless remote control and screen control.

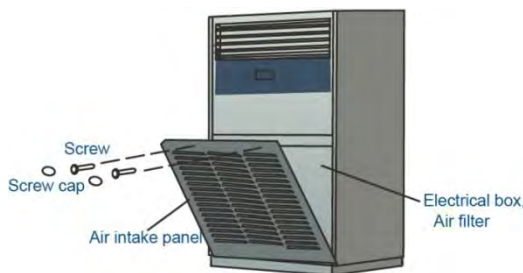


- ◇ Screen 'LOCK' is available.
- ◇ With auto restart function and self-diagnosis function.
- ◇ Easy installation and maintenance.
- ◇ High efficient scroll compressor, with thermal protectors to prevent motor overheating.
- ◇ High performance heat exchanger

The heat exchanger fins are coated with anti-corrosive and hydrophilic layers. The special coated layers serve as protection against corrosion from air, water and other corrosive agents, assures longer coil life and save maintenance cost. Inner-thread coil pipe enhance heat exchange efficiency. Copper pipe and aluminum fin have passed 600 hours Salt Spray Test.

Large capacity axial fan increase the heat exchange in the condenser.

- ◇ Direct drive motor. Outdoor unit with axial fan directly drove by motor, and indoor with centrifugal fan directly drove by motor.





## 2. Specifications

Model		TMSN100HT3C/I4TS1R3N1T	TMSN100CT3C/I4TS1R3N1T	
Power supply		\	220~240V-1Ph-50Hz	
Cooling	Capacity (T1/T3)	Btu/h	95,600/81,500	95,600/81,500
		W	28,000/23,900	28,000/23,900
	Input power (T1/T3)	W	9,600/11,320	9,600/11,320
	EER (T1)	W/W	2.92	2.92
Heating	Capacity	Btu/h	105,000	\
		W	31,000	\
	Input power	W	10,300	\
	COP	W/W	3.01	\
Rated input (Whole units)		W	14,400	14,400
Rated current (Whole units)		A	23.7	23.7
Indoor air flow		m <sup>3</sup> /h	5,100	5,100
Indoor noise level		dB(A)	61	61
Refrigerant type		\	R410A	
Refrigerant control		\	Capillary	
Fan	Type	\	Centrifugal fan	
	Motor model	\	YSK300-6	YSK300-6
	Motor input(hi/med/lo)	W	600/500/437	600/500/437
	Capacitor	\	25μF/450V	25μF/450V
	Motor speed(hi/med/lo)	rpm	870/760/670	870/760/670
Coil	Type	\	Copper tube and aluminum fin	
	Tube size	mm	Φ9.52	Φ9.52
	No. of rows	\	3	3
	Tube pitch(a)×row pitch(b)	mm	25.4×44	25.4×44
	Fin spacing	mm	1.6	1.6
	Coil(W×H)	mm	982×711.2	982×711.2
	Number of circuits	\	14	14
Controller		\	R51/E	R51/CE
Refrigerant pipe (Liquid/ Gas)		mm	Φ9.52/Φ25	Φ9.52/Φ25
Drain pipe size		mm	Φ41	Φ41
Dimension (W×H×D)		mm	1,200×1,860×420	
Packing (W×H×D)		mm	1,362×2,050×582	
Net/Gross weight		kg	158/174	158/174

**Notes:**

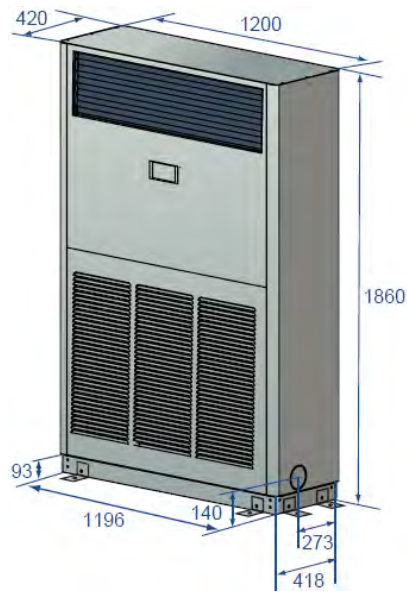
**1. Nominal cooling capacities are based on the following conditions:**

**T1: Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB, 24°CWB; T3: Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 46°CDB; Equivalent refrigerant piping: 7.5m (horizontal).**

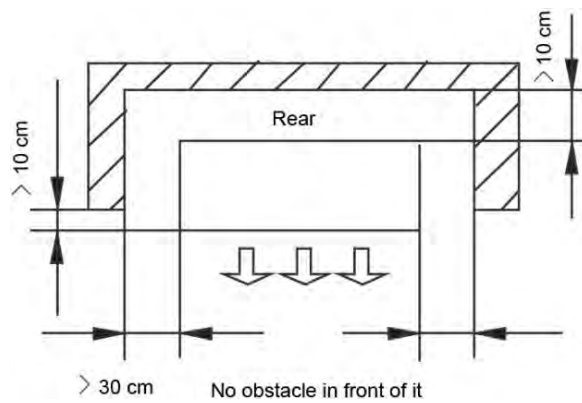
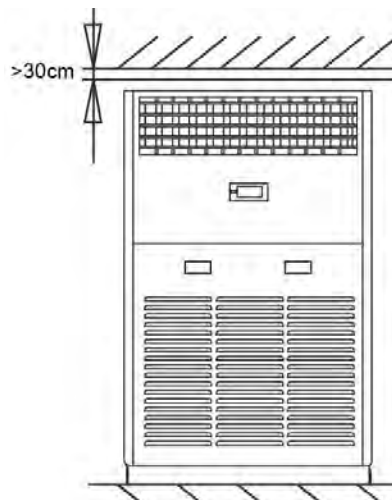
**2. Nominal heating capacities are based on the following conditions:**

**Indoor temp: 20°CDB, 15°CWB; Outdoor temp: 7°CDB, 6°CWB; Equivalent refrigerant piping: 7.5m (horizontal).**

### 3. Dimensions

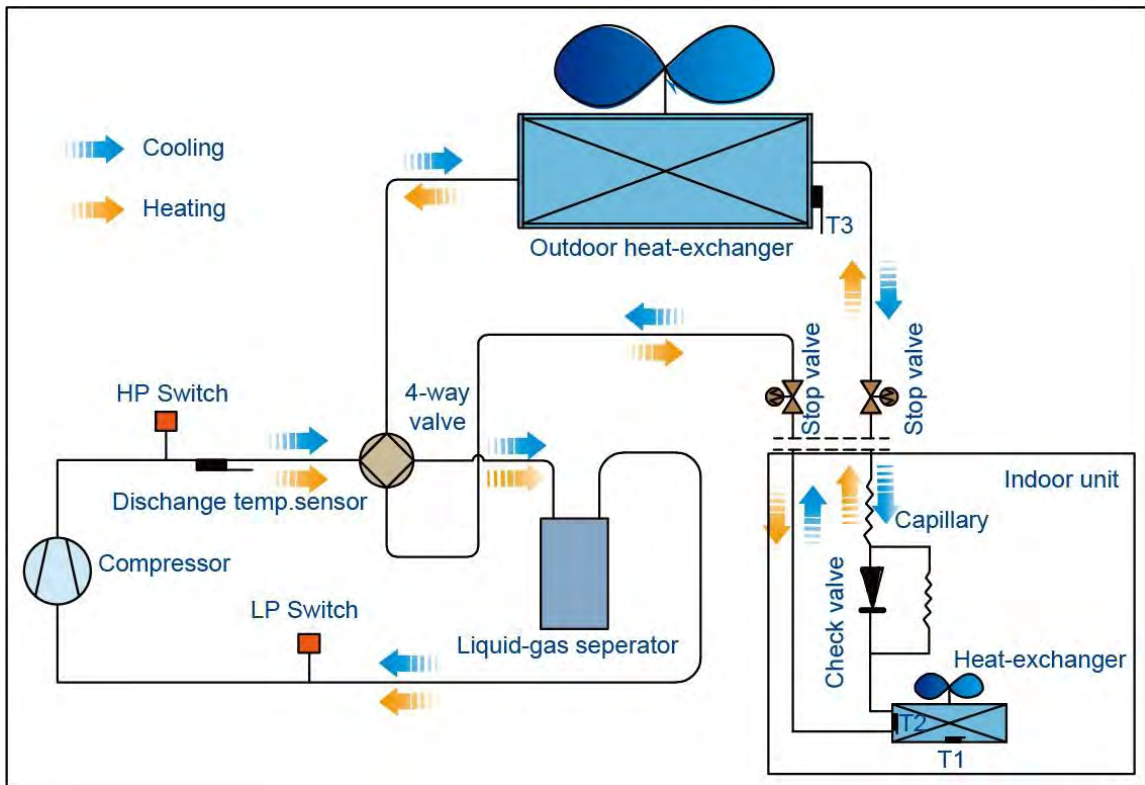


### 4. Service Space

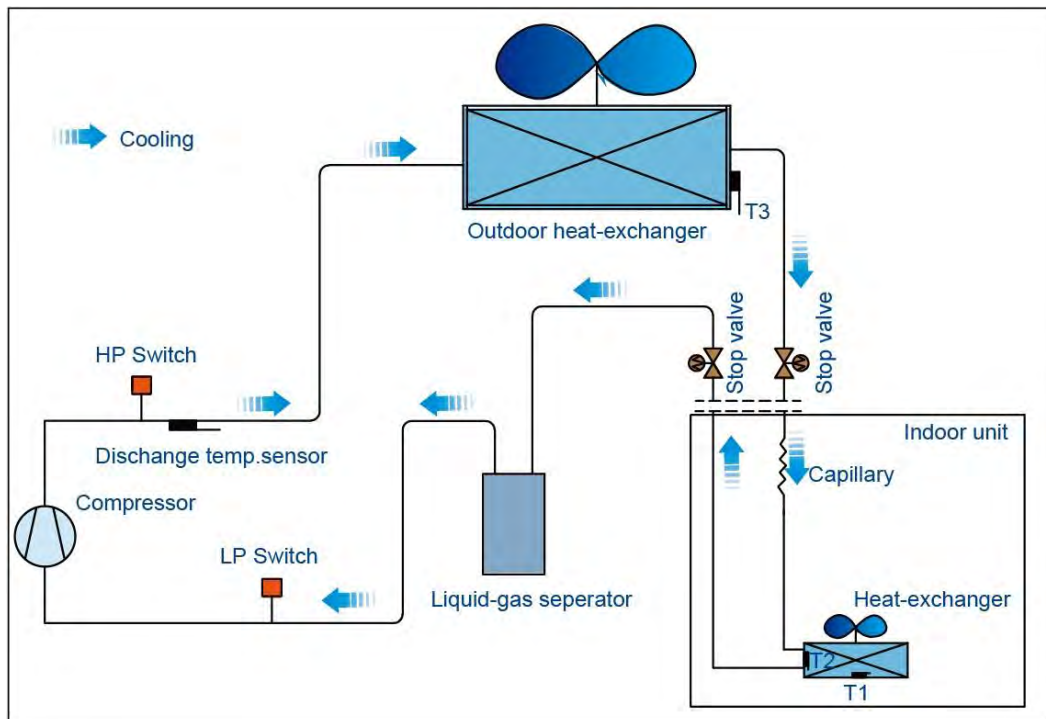


## 5. Refrigerant Circuit

Heat pump: TMSN100HT3C/I4TS1R3N1T

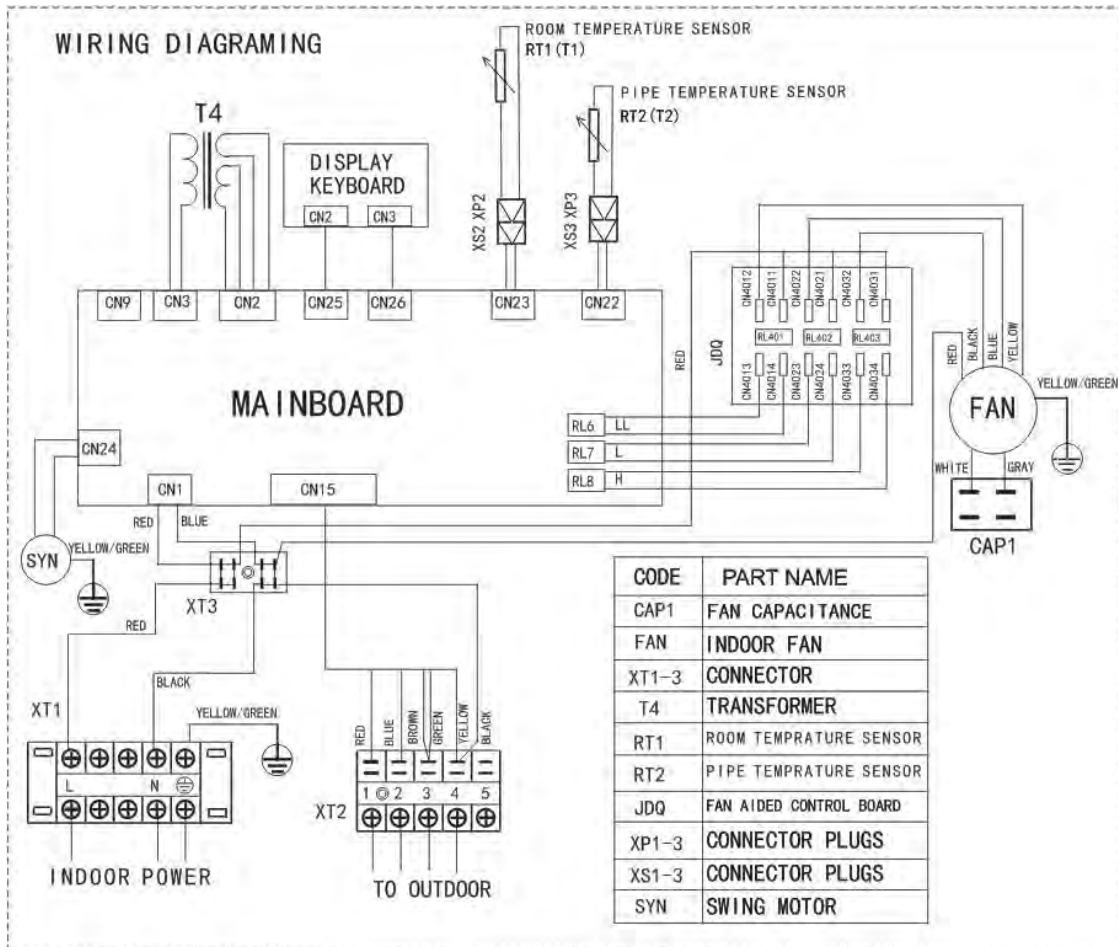


Cooling only: TMSN100CT3C/I4TS1R3N1T

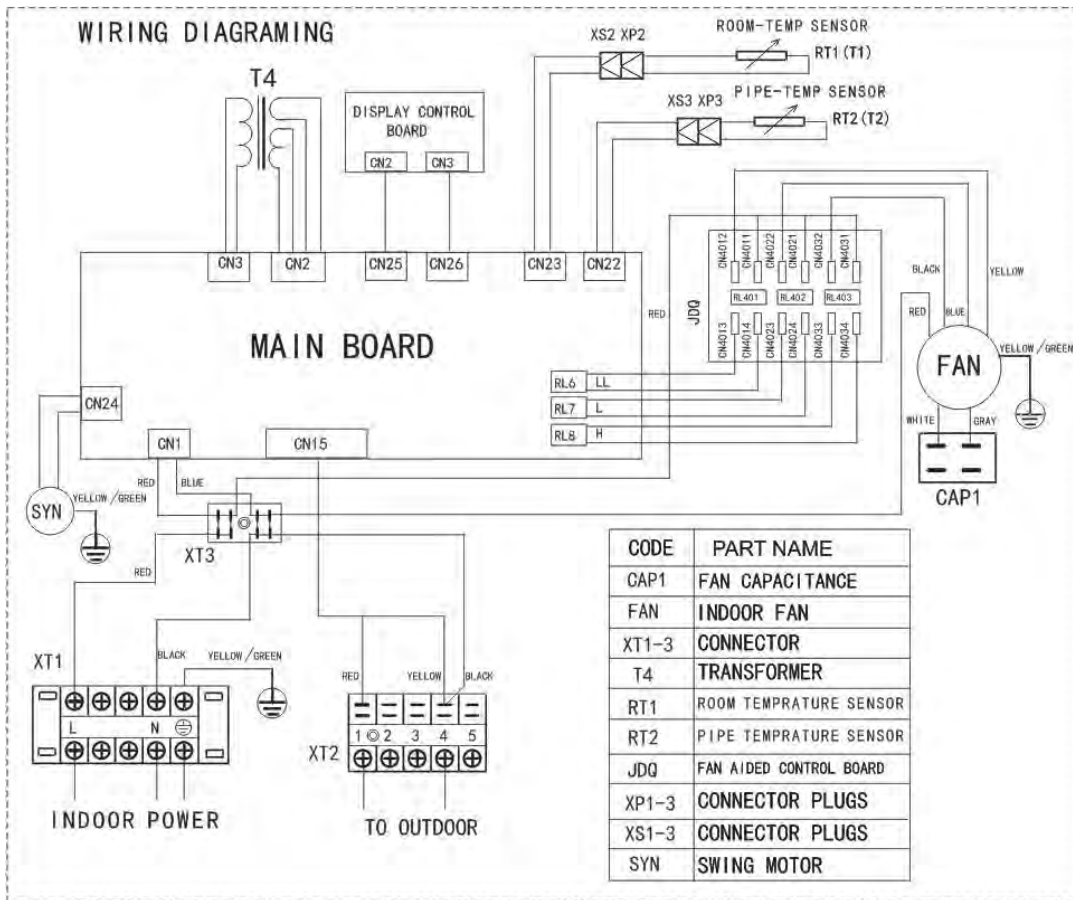


## 6. Wiring Diagrams

### TMSN100HT3C/(O)4TS1R3N1T



### TMSN100CT3C/I4TS1R3N1T



## 7. Capacity Tables

### TMSN100C(H)T3C/I(O)4TS1R3N1T

Gross Cooling Capacity (kW)																			
Outdoor DB(°C)		29.40									35.00								
Indoor	WB(°C)	16.10			19.40			22.80			16.10			19.40			22.80		
CFM	DB(°C)	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI
2360	23.9	25.9	21.2	8.71	28.0	15.8	8.91	29.4	6.8	9.04	25.2	20.6	9.14	26.8	15.2	9.37	28.1	6.5	9.51
	26.7	26.8	24.3	8.73	28.6	18.5	8.93	30.0	12.9	9.06	25.7	23.3	9.16	27.4	17.7	9.39	28.7	12.4	9.53
	29.4	27.7	26.7	8.75	29.2	23.9	8.95	30.6	18.2	9.08	26.2	25.2	9.18	27.9	22.9	9.41	29.3	17.4	9.55
	32.2	28.7	28.1	8.77	29.7	27.0	8.97	31.2	22.9	9.11	26.7	26.2	9.21	28.5	25.9	9.44	29.8	21.9	9.58
2,600	23.9	26.5	22.2	8.91	28.6	16.5	9.11	30.0	7.1	9.24	25.8	21.7	9.34	27.5	15.9	9.48	28.7	6.8	9.71
	26.7	27.4	25.4	8.93	29.2	20.7	9.13	30.6	13.4	9.26	26.3	24.4	9.36	28.0	19.9	9.51	29.3	12.9	9.73
	29.4	28.4	27.8	8.95	29.8	25.0	9.15	31.2	19.0	9.28	26.8	26.3	9.38	28.6	24.0	9.53	29.9	18.2	9.75
	32.2	29.4	29.4	8.97	30.4	28.1	9.18	31.8	23.8	9.31	27.4	27.4	9.41	29.1	27.0	9.55	30.5	22.7	9.78
3000	23.9	27.0	24.7	9.15	29.1	18.2	9.48	30.5	7.9	9.48	26.3	24.1	9.58	27.9	17.5	9.58	29.2	7.6	9.95
	26.7	27.9	27.9	9.17	29.7	22.8	9.37	31.1	14.9	9.50	26.8	26.8	9.60	28.0	21.9	9.60	29.8	14.3	9.97
	29.4	28.9	28.9	9.19	30.3	27.8	9.39	31.7	21.0	9.52	27.3	27.3	9.62	29.1	26.7	9.85	30.4	20.1	9.99
	32.2	29.9	29.9	9.22	30.9	28.1	9.42	32.4	26.3	9.55	27.9	27.9	9.65	29.7	27.0	9.88	31.0	25.2	10.02

**Notes:**

1. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
2. TC = Total Capacity (kW)
3. SC = Sensible Capacity (kW)
4. PI = Power Input (kW)

Gross Cooling Capacity (kW)																			
Outdoor DB(°C)		40.60									46.10								
Indoor	WB(°C)	16.10			19.40			22.80			16.10			19.40			22.80		
CFM	DB(°C)	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI	TC	SC	PI
2470	23.90	23.27	15.51	10.47	24.44	16.29	10.99	25.66	17.11	11.54	22.59	15.06	12.12	23.72	15.82	12.72	24.91	16.61	13.36
	26.70	24.20	18.62	10.89	25.41	19.55	11.43	26.68	20.53	12.00	23.50	18.08	12.60	24.67	18.98	13.23	25.91	19.93	13.89
	29.40	25.17	20.98	11.32	26.43	22.02	11.89	27.75	23.13	12.48	24.44	20.37	13.11	25.66	21.38	13.76	26.94	22.45	14.45
	32.20	26.18	23.80	11.77	27.49	24.99	12.36	28.86	26.24	12.98	25.42	23.11	13.63	26.69	24.26	14.31	28.02	25.47	15.03
3100	23.90	27.23	18.15	12.25	28.59	19.06	12.86	30.02	20.01	13.50	26.43	17.62	14.18	27.75	18.50	14.88	29.14	19.43	15.63
	26.70	28.31	21.78	12.74	29.73	22.87	13.37	31.22	24.01	14.04	27.49	21.15	14.74	28.86	22.20	15.48	30.31	23.31	16.25
	29.40	29.16	24.30	13.12	30.62	25.52	13.77	32.15	26.79	14.46	28.31	23.60	15.19	29.73	24.77	15.94	31.22	26.01	16.74
	32.20	30.04	27.31	13.51	31.54	28.67	14.19	33.12	30.11	14.90	29.16	26.51	15.64	30.62	27.84	16.42	32.15	29.23	17.24
3565	23.90	30.64	20.43	12.25	32.17	21.45	12.86	33.78	22.52	13.50	29.75	19.83	14.18	31.24	20.82	14.88	32.80	21.87	15.63
	26.70	31.87	24.51	12.74	33.46	25.74	13.37	35.13	27.03	14.04	30.94	23.80	14.74	32.49	24.99	15.48	34.11	26.24	16.25
	29.40	32.82	27.35	13.12	34.47	28.72	13.77	36.19	30.16	14.46	31.87	26.56	15.19	33.46	27.88	15.94	35.13	29.28	16.74
	32.20	33.81	30.74	13.51	35.50	32.27	14.19	37.27	33.89	14.90	32.82	29.84	15.64	34.47	31.33	16.42	36.19	32.90	17.24

**Notes:**

1. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
2. TC = Total Capacity (kW)
3. SC = Sensible Capacity (kW)
4. PI = Power Input (kW)

Gross Cooling Capacity (kW)										
Outdoor DB(°C)		51.70								
Indoor	WB(°C)	16.10			19.40			22.80		
CFM	DB(°C)	TC	SC	PI	TC	SC	PI	TC	SC	PI
2470	23.90	21.94	14.62	17.16	22.59	15.06	17.52	24.18	16.12	17.77
	26.70	22.81	17.55	17.20	23.50	18.08	17.56	25.15	19.35	17.81
	29.40	23.73	19.77	17.25	24.44	20.37	17.61	26.16	21.80	17.86
	32.20	24.68	22.43	17.29	25.42	23.11	17.65	27.20	24.73	17.90
3100	23.90	25.66	17.11	16.91	26.43	17.62	17.76	28.29	18.86	18.65
	26.70	26.69	20.53	16.95	27.49	21.15	17.80	29.42	22.63	18.69
	29.40	27.49	22.91	17.00	28.31	23.60	17.85	30.31	25.26	18.74
	32.20	28.31	25.74	17.04	29.16	26.51	17.89	31.22	28.38	18.79
3565	23.90	28.88	19.26	16.91	29.75	19.83	17.76	31.84	21.23	18.65
	26.70	30.04	23.11	16.95	30.94	23.80	17.80	33.12	25.47	18.69
	29.40	30.94	25.78	17.00	31.87	26.56	17.85	34.11	28.43	18.74
	32.20	31.87	28.97	17.04	32.82	29.84	17.89	35.13	31.94	18.79

**Notes:**

1. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
2. TC = Total Capacity (kW)
3. SC = Sensible Capacity (kW)
4. PI = Power Input (kW)



## 8. Electric Characteristics

Model	Indoor Unit				Power Supply		IFM	
	Hz	Voltage	Min.	Max.	MCA	MFA	KW	FLA
TMSN100HT3C/I4TS1R3N1T	50	220-240V	198V	254V	3.5	15	0.59	2.773
TMSN100CT3C/I4TS1R3N1T	50	220-240V	198V	254V	3.5	15	0.59	2.773

Note :

MCA: Min. Current Amps. (A)

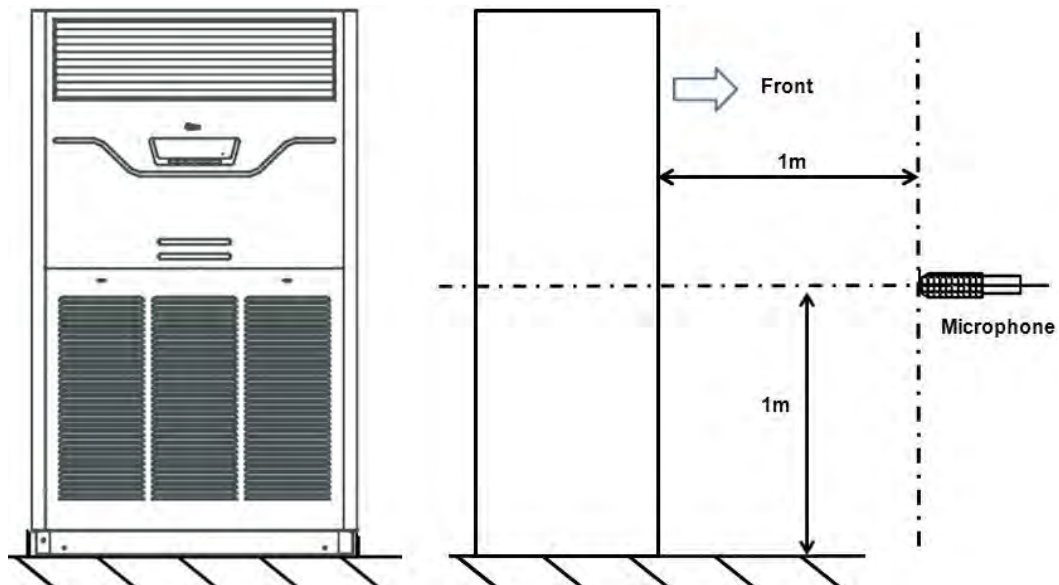
MFA: Max. Fuse Amps. (A)

KW: Fan Motor Rated Output (KW)

FLA: Full Load Amps. (A)






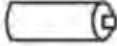
IFM: Indoor Fan Motor

## 9. Sound Levels



Model	Noise level
TMSN100C(H)T3C/I4TS1R3N1T	61 dB(A)

## 10. Accessories

Name	Qty.	Shape	Usage
Owner's manual	1		---
Installation manual	1		---
Remote controller manual	1		---
Water connective pipe	1	---	Connect to water drainage pipe
Remote controller	1		---
Remote controller mounting bracket	1		Placed the remote controller
AAA battery	2		---

## **Part. 3**

# **Outdoor Unit**

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# 1. Specifications

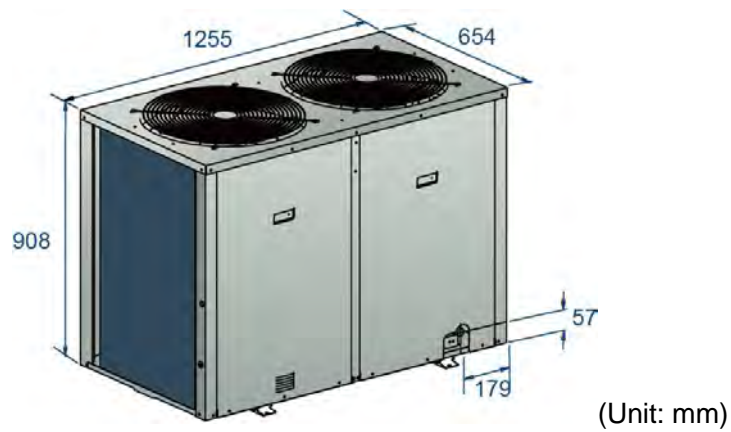
Model		TMSN100HT3C/O4TS1R3N1T	TMSN100CT3C/O4TS1R3N1T	
Power supply	\	380-415V~, 3Ph, 50Hz		
Ambient temp in cooling	°C	17~52	17~52	
Ambient temp in heating	°C	-7~24	/	
Rated input (Whole units)	W	14,400	14,400	
Rated current (Whole units)	A	23.7	23.7	
Noise level	dB(A)	67	67	
Compressor	Type xQty.	\	Scroll x1	Scroll x1
	Brand	\	Copeland	Copeland
	Model	\	ZP120KCE-TFD-522	ZP120KCE-TFD-522
	Capacity	W	29,200	29,200
	Input	W	9,200	9,200
	Rated current	A	20	20
	Locked rotor Amp	A	118	118
	Refrigerant oil	ml	3,253	3,253
Refrigerant	Type/Charge	\	R410A/6,000g	R410A/6,000g
Fan	Type xQty.	\	Axial fan x2	Axial fan x2
	Motor model	\	YDK400-4C	YDK400-4C
	Motor input	\	Hi: 621/587; Lo: 388/388	Hi: 621/587; Lo: 388/388
	Capacitor	\	25µF/450V	25µF/450V
	Motor speed	rpm	Hi: 1,180/1,230; Lo: 790/870 (4/3 fan blades)	
Coil	Type	\	Copper tube and aluminum fin	
	Tube size	mm	Φ7	Φ7
	No. of rows	\	3	3
	Fin space	mm	1.3	1.3
	Tube pitch(a)xrow pitch(b)	mm	21x13.37	21x13.37
	Coil (WxH)	mm	2,179x882	2,179x882
	Number of circuits	\	20	20
Refrigerant pipe	Liquid side/ Gas side	mm	Φ9.52/Φ25	Φ9.52/Φ25
	Max. pipe length	m	50	50
	Max. difference in level	m	30(Outdoor unit down), 25(Outdoor unit up)	
Connection wire	Power wire (Indoor unit)	\	3x2.5mm <sup>2</sup>	3x2.5mm <sup>2</sup>
	Power wire(Outdoor unit)	\	5x6.0mm <sup>2</sup>	5x6.0mm <sup>2</sup>
	Power wire(Double outdoor units, as power-main)	\	/	/
	Signal wire	\	4x1.0mm <sup>2</sup>	2x1.0mm <sup>2</sup>
Dimension (WxHxD)	mm	1,260x908x700		
Packing (WxHxD)	mm	1,320x1,060x730		
Net/ Gross weight	kg	187/204		
		185/202		

**Notes:**

**Nominal cooling capacities are based on the following conditions: Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Nominal heating capacities are based on the following conditions: Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. piping: 7.5m (horizontal).**

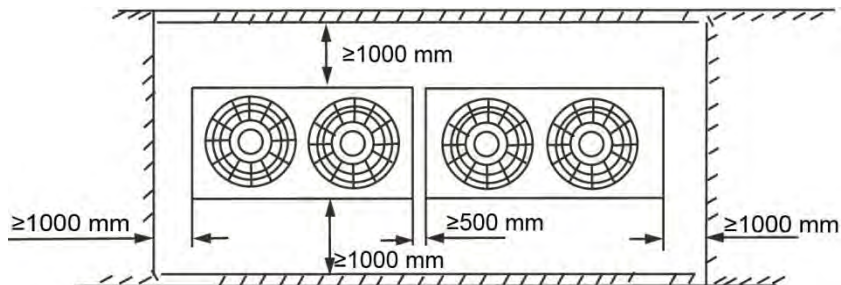
## 2. Dimension

TMSN100C(H)T3C/O4TS1R3N1T



## 3. Service Space

TMSN100C(H)T3C/O4TS1R3N1T

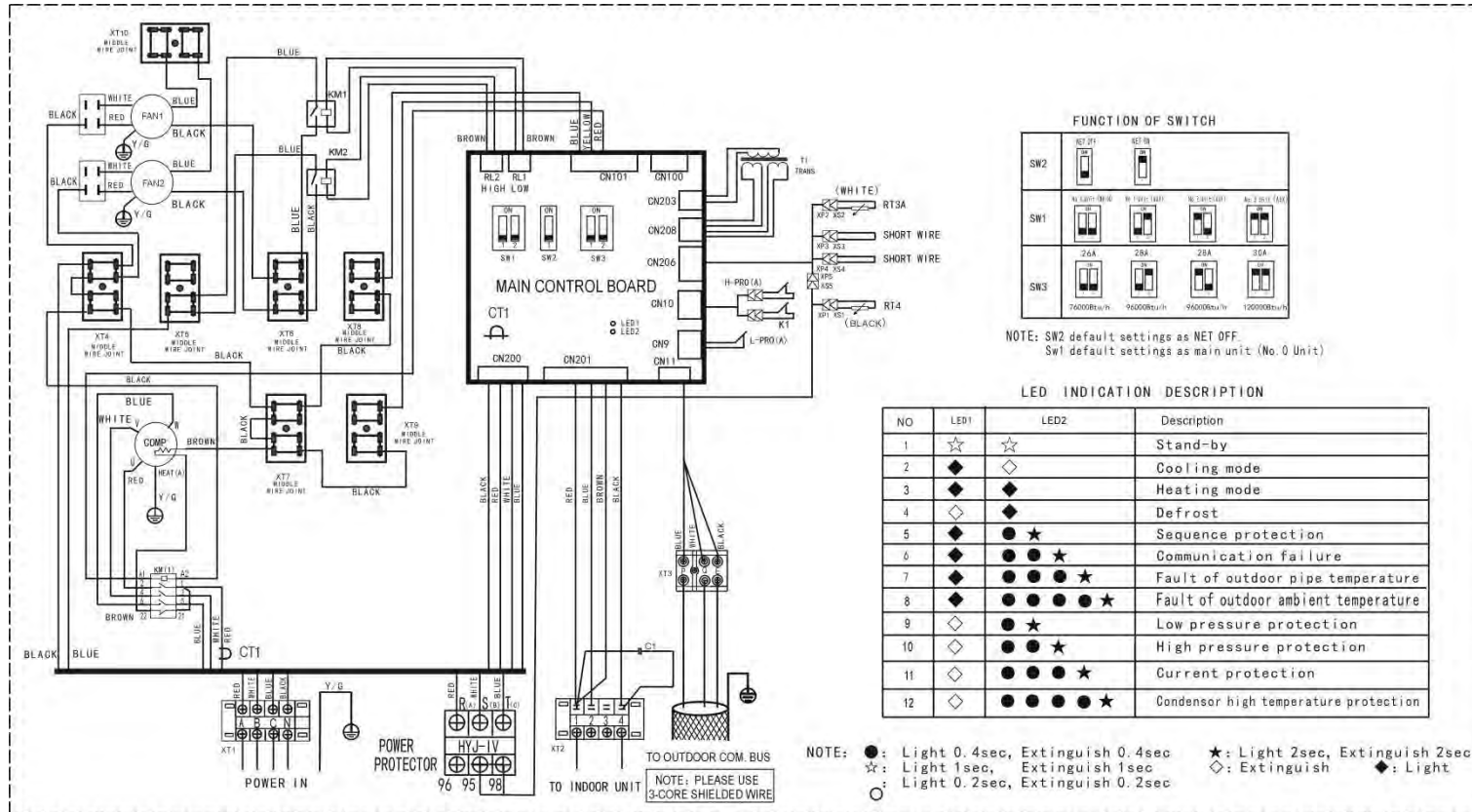


**Note:**

1. In case any obstacles exist above the outdoor unit, such obstacles must be 2000mm above the outdoor unit.
2. If miscellaneous articles are piled around the outdoor unit, such articles must be 400mm below the top of the outdoor unit.

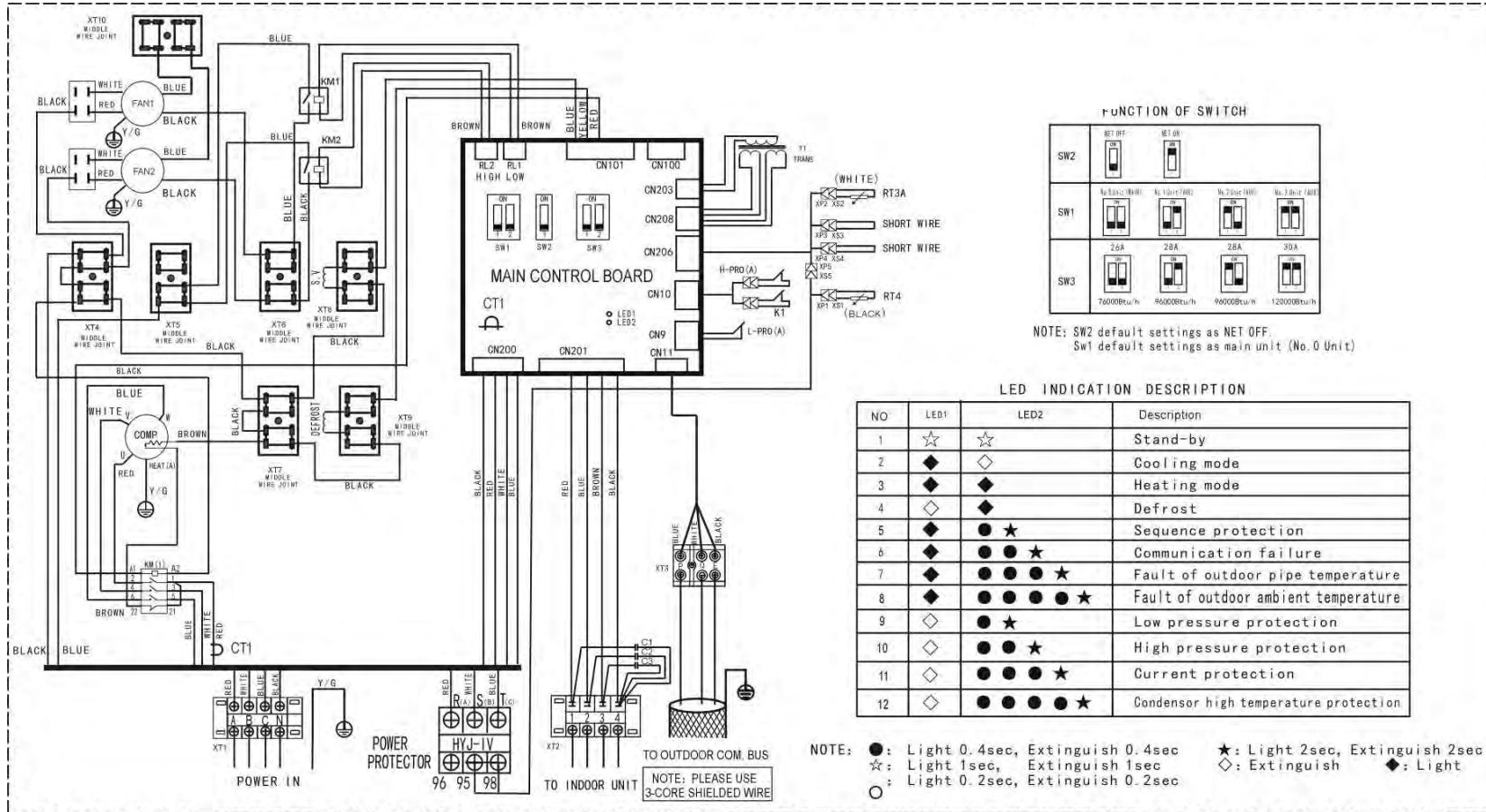
# 4. Wiring Diagrams

## TMSN100HT3C/O4TS1R3N1T



Item	Name	Item	Name	Item	Name	Item	Name
COMP	Compressor	HEAT(A)	Crank	RT3A	Pipe temp. sensor	T1	Transformer
FAN1-2	Outdoor fan	CT1	Current detector	RT4	Room temp. sensor	SW1-3	Switch
CAP1-2	Fan capacitance	XT1-2	4-way terminal	XS1-5, XP1-5	Connectors	C1	Filter capacitor
S.V	4-way valve	XT3	3-way terminal	L-PRO(A)	Low pressure switch	KM1-2	Relay
KM(1)	AC contactor	H-PRO(A)	High pressure switch	K1	Temp. protect switch	CN8-208	P.C. board socket
XT4-10	Middle wire joint	-	-	-	-	-	-

# TMSN100CT3C/O4TS1R3N1T



Item	Name	Item	Name	Item	Name	Item	Name
COMP	Compressor	HEAT(A)	Crank	RT3A	Pipe temp. sensor	T1	Transformer
FAN1-2	Outdoor fan	CT1	Current detector	RT4	Room temp. sensor	SW1-3	Switch
CAP1-2	Fan capacitance	XT1-2	4-way terminal	XS1-5, XP1-5	Connectors	C1-3	Filter capacitor
S.V	4-way valve	XT3	3-way terminal	L-PRO(A)	Low pressure switch	KM1-2	Relay
KM(1)	AC contactor	H-PRO(A)	High pressure switch	K1	Temp. protect switch	CN8-208	P.C. board socket
XT4-10	Middle wire joint	-	-	-	-	-	-

## 5. Electric Characteristics

Model	Outdoor Unit				Power Supply			Compressor		OFM	
	Hz	Voltage	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	KW	FLA
TMSN100HT3C/O4TS1R3N1T	50	380-415V	342V	438V	20	21	23.8	110	20	1.373	6.26
TMSN100CT3C/O4TS1R3N1T	50	380-415V	342V	438V	20	21	23.8	110	20	1.373	6.26

Remark:

**MCA: Min. Current Amps. (A)**

**MFA: Max. Fuse Amps. (A)**

**RLA: Rated Locked Amps. (A)**

**FLA: Full Load Amps. (A)**

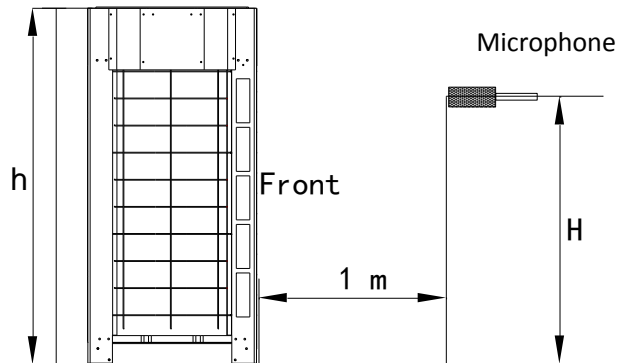
**TOCA: Total Over-current Amps. (A)**

**MSC: Max. Starting Amps. (A)**

**OFM: Outdoor Fan Motor.**

**KW: Rated Motor Output (kW)**

## 6. Sound Levels



Note:  $H = (h+1) / 2$

Model	Noise level
TMSN100HT3C/O4TS1R3N1T	67 dB(A)
TMSN100CT3C/O4TS1R3N1T	67 dB(A)



## **Part. 4 controller**

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# 1. Wireless Remote Controller (Standard)

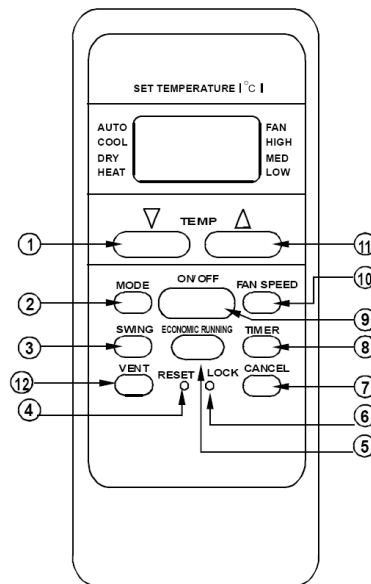
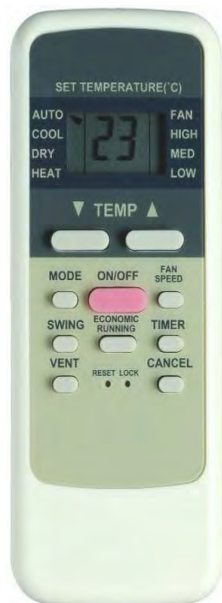
## 1.1 Remote controller specifications

Model	R51/E
Rated Voltage	3.0V
Lowest Voltage of CPU Emitting Signal	2.0V
Reaching Distance	8m (when using 3.0 voltage, it Gets 11m)
Environment Temperature Range	-5°C~60°C

### Performance Features

1. Operating Mode: Cooling, Heating, Dry, Fan and Auto.
2. Timer Setting Function in 24 hours.
3. Indoor Setting Temperature Range: 17°C ~30°C.
4. LCD (Liquid Crystal Display) of all functions.
5. Night Light Function (Optional).

## 1.2 Introduction of function buttons on the remote controller

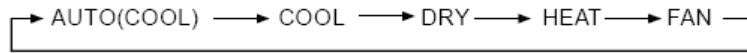


### Notes:

This illustration is for explanation purposes only. The actual shape or button names of the remote controller may be slightly different.

1. **TEMP** Button: Push the **TEMP** button to decrease the indoor temperature setting or to adjust the **TIMER** in a counter-clockwise direction.

**2. MODE Select Button:** Each time you push the button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, HEAT and FAN as the following figure indicates:



**▲ NOTE:** HEAT only for Heat Pump

**3. SWING Button:** Push this switch button to change the louver angle.

**4. RESET Button:** When the **RESET** button is pushed, all of the current settings are cancelled and the control will return to the initial settings.

**5. ECONOMIC RUNNING Button:** Push this button to go into the Energy-Saving operation mode.

**6. LOCK Button:** Push this button to lock in all the current settings. To release settings, push again.

**7. CANCEL Button:** Push this button to cancel the TIMER settings.

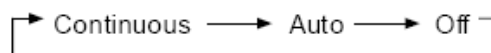
**8. TIMER Button:** This button is used to preset the time ON (start to operate) and the time OFF (turn off the operation).

**9. ON/OFF Button:** Push this button to start the unit operation. Push the button again to stop the unit operation.

**10. FAN SPEED Button:** This button is used for setting Fan Speed in the sequence that goes from AUTO, LOW, MED to HIGH, then back to AUTO.

**11. TEMP Button:** Push the button to increase the indoor temperature setting or to adjust the TIMER in a clockwise direction.

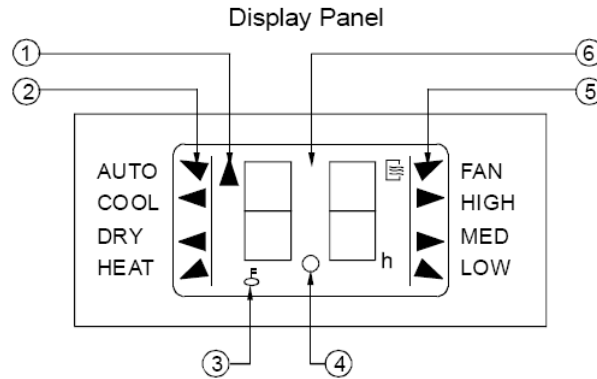
**12. VENT Button:** Push this button to set the ventilating mode. The ventilating mode will operate in the following sequence:



**Notes:** Ventilation function is available for the fresh air series.

---

### 1.3 Names and functions of indicators on remote controller



① **TRANSMISSION Indicator:** This indicator lights when remote controller transmits signals to indoor unit.

② **MODE Display:** Show the current operation modes-- AUTO, COOL, DRY and HEAT. HEAT is only available for heat pump model.

③ **LOCK display:** To displayed by pushing the **LOCK** button. Push the **LOCK** button again to clear display.

④ **TIMER Display:** This display area shows the settings of TIMER.

That is, if only the starting time of operation is set, it will display the **TIMER ON**. If only the turning off time of operation is set, it will display the **TIMER OFF**. If both operations are set, it will show **TIMER ON** and **TIMER OFF** which indicates you have chosen to set both the starting time and off time.

⑤ **FAN Display:** When push the **FAN** button, this indicator lights.

⑥ **Digital Display Area:** This area will show the temperature and, if in the TIMER mode, will show the ON and OFF settings of the TIMER.

**Notes:**

All items are shown in the previous picture for the purpose of clear presentation but during the actual operation only the relative functional items are shown on the display panel.

### 1.4 Operating the remote controller

#### 1) Install / Replace Batteries

The Remote Controller uses two alkaline dry batteries (R03/Ir03X2).

- ※ To install batteries, slide back the cover of the battery compartment and install the batteries according to the directions (+and -) shown on the Remote Controller.
- ※ To replace the old batteries, use the same method as mentioned above.

**Notes:**

1. When replacing batteries do not use old batteries or a different type battery. This may cause the remote controller to malfunction.
2. If you do not use the remote controller for several weeks remove the batteries. Otherwise battery leakage may damage the remote controller.
3. The average battery life under normal use is about 6 months.
4. Replace the batteries when there is no answering beep from the indoor unit or if the Transmission Indicator light fails to appear.

## 2) Automatic Operation

When the Air Conditioner is ready for use, switch on the power and the **OPERATION** indicator lamp on the display panel of the indoor unit starts flashing.

- ※ Use the **MODE** select button to select AUTO. In the multi system, to avoid mode conflict; auto-mode is taken as cool mode.
- ※ Push the **TEMP** button to set the desired room temperature.
- ※ The most comfortable temperature settings are between 21°C and 28°C
- ※ Push the **ON/OFF** button to start the air conditioner. The **OPERATION** lamp on the display panel of the indoor unit lights. The operating mode of AUTO FAN SPEED is automatically set and there are no indicators shown on the display panel of the remote controller.
- ※ Push the **ON/OFF** button again to stop the unit operation.

**Notes:**

1. In the AUTO mode, the air conditioner can logically choose the mode of COOL, FAN, HEAT and DRY by sensing the difference between the actual ambient room temperature and the set temperature on the remote controller.
2. If the AUTO mode is not comfortable for you, the desired mode can be selected manually.

## 3) COOL, HEAT, and FAN ONLY Operation

- ※ If the AUTO mode is not comfortable, you may manually change the settings by using COOL, DRY, HEAT (HEAT PUMP units only), or FAN ONLY modes.
- ※ Push the **TEMP** button to set the desired room temperature.
- ※ When in COOLING mode, the most comfortable settings are 21°C or above. When in

HEATING mode, the most comfortable settings are 28°C or below.

- ※ Push the **FAN SPEED** to select the FAN mode of AUTO, HIGH, MED or LOW.
- ※ Push the **ON/OFF** button. The operation lamp lights and the air conditioner start to operate per your settings. Push the **ON/OFF** button again to stop this unit operation.

**Notes:**

**The FAN ONLY mode cannot be used to control the temperature. While in this mode, only steps 1, 3 and 4 may be performed.**

#### **4) DRY Operation**

- ※ Push the **MODE** button to select DRY.
- ※ Push the **TEMP** button to set the desired temperature from 21°C to 28°C.
- ※ Push the **ON/OFF** button. The operation lamp lights and the air conditioner start to operate in the DRY mode. Push the **ON/OFF** button again to stop this unit operation.

**Notes:**

**Due to the difference of the set temperature of the unit and the actual indoor temperature, the Air Conditioner when in DRY mode will automatically operate many times without running the COOL and FAN mode.**

#### **5) TIMER Operation**

Push **TIMER** button to set the unit what time turn on or off.

**a. To set the STARTING time.**

- ※ Push the **CANCEL** button to cancel any former settings.
- ※ Push the **TIMER** button. The remote controller will show the **TIMER** and the signal "h" is shown on the display panel. The control is now ready to reset the **TIMER ON** to start the operation.
- ※ Push the **TEMP** button ( ▲ or ▼ ) to set desired unit **START** time.
- ※ After setting the **TIMER** there will be a one-half second delay before the remote controller transmits the signal to the Air Conditioner. Then, after approximately another 2 seconds, the set temperature will re-appear on the digital display.

**b. To set the STOPPING time.**

- ※ Press the **CANCEL** button to cancel any former settings.

- ※ Push the **TIMER** button and the remote controller will show the last set time for the START operation and the signal "**h**" will be shown on the display panel. You are now ready to readjust the TIMER OFF to stop the operation.
- ※ Push the **TEMP** button to cancel the TIMER ON setting. The digital area will show "**00**".
- ※ Push the **TIMER** button and the remote controller will show the last set time for the STOP operation and the signal "**h**" will be shown on the display panel. You are now ready to reset the time of the STOP operation.
- ※ Push the **TEMP** button (**▲** or **▼**) to set the time you want to stop the operation.
- ※ After setting the TIMER there will be a one-half second delay before the remote controller transmits the signals to the Air Conditioner. Then after approximately another 2 seconds, the set temperature will re-appear on the digital display.

#### **c. Set the STARTING & STOPPING time**

- ※ Press the **CANCEL** button to cancel any former settings.
- ※ Push the **TIMER** button and the remote controller will show the last set time for START operation and the signal "**h**" will be shown on the display panel. You are now ready to readjust the TIMER ON to start the operation.
- ※ Push the **TEMP** button (**▲** or **▼**) to set the time you want to start the operation.
- ※ Push the **TIMER** button and the remote controller will show the last set time for STOP operation and the signal "**h**" will be shown on the display panel. You are now ready to reset the time of the STOP operation.
- ※ Push the **TEMP** button (**▲** or **▼**) to set the time you want to stop the operation.
- ※ After setting the TIMER there will be a one-half second delay before the remote controller transmits the signal to the Air Conditioner. Then, after approximately another 2 seconds, the set temperature will re-appear on the digital display.

#### **Notes:**

- 1. Please reset the TIMER after cancelling the former time settings.**
- 2. The setting time is relative time. That is the time set is based on the delay of the current time.**

#### **Warning**

- 1. Be sure there are no barriers between the remote controller and the receiver of indoor unit otherwise the air conditioner will not work.**

2. Keep the Remote Controller away any liquids.
3. Protect the Remote Controller from high temperatures and exposure to radiation.
4. Keep the indoor receiver out of direct sunlight or the air conditioner may malfunction.
5. Keep controller away from EMI (Electro-Magnetic Interference) supplied by other household appliances.

## 2. Wired Controller: KJR-29B (Optional)



**KJR-29B/BK-E**

### 2.1 Wired controller specifications

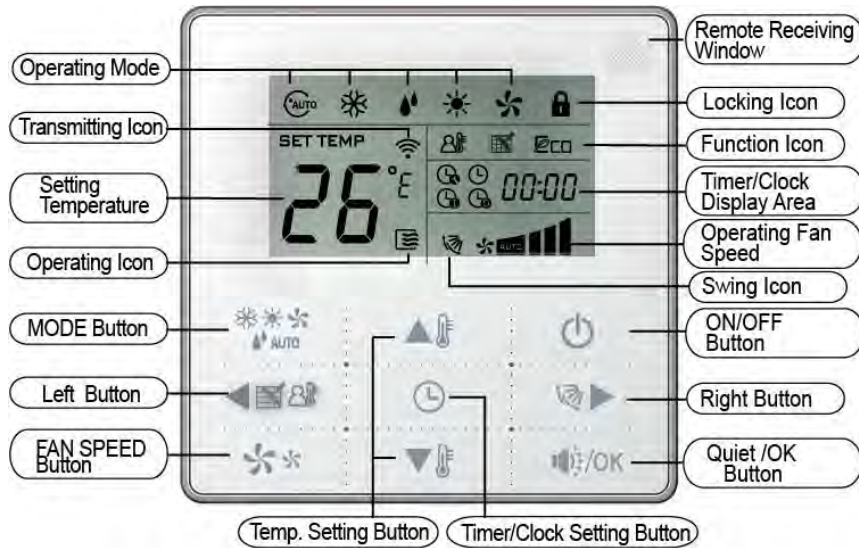
Model	KJR-29B/BK-E
Power Supply Voltage	5.0V DC
Ambient Temperature Range	-15°C~43°C
Ambient Humidity Range	RH40%~RH90%

#### Performance Features

1. Operating mode: Cool, heat, dry, fan and auto.
2. Set the mode through buttons.
3. Indoor setting temperature range: 17°C ~30°C.
4. LCD (Liquid Crystal Display).
5. Night light and follow me function
6. Remote receiving function.



## 2.2 Wired controller outlook



## 2.3 Operation instructions



### 1) Remote signal receiving function:



the wired controller can be a remote signal receiving device, it is possible to use the wireless remote controller to control the air conditioner through the wired controller when the system have been powered on.

**Notes:** The wired controller will not receive the swing controlling instruction. For the indoor unit with swinging function, you can directly use the wireless remote controller to control swinging through the display panel of the indoor unit, or use the swing button on the wired remote controller to control the indoor unit for swinging.


### 2) On and off the air conditioner:

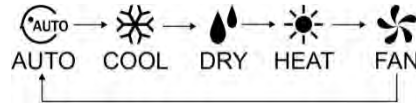
Press the  On/Off button to control the indoor unit on and off status.

When the unit is turned off, press the  On/Off button, the unit will be turned on and the operating icon  lights up.

When the unit is turned on, press the  On/Off button, the unit will be turned off the operating icon  lights off.


### 3) Set the operating mode

Press the mode button  to set the operating mode, after each button press the operating mode will circle as follow:

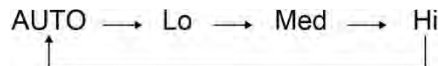


**Notes:** When the controller has been set to cool only, then there is no HEAT mode.

### 4) Fan speed setting



Under COOL, HEAT and FAN modes, press the fan speed button  can adjust the fan speed setting.

After each fan speed button press will circle as follow:





**Notes:** Under AUTO and DRY modes the fan speed is not adjustable and the default fan speed is auto.







### 5) Temperature setting


Under AUTO, COOL, DRY, HEAT modes, press the temperature setting buttons  and  to set the temperature, the adjusting range is 17°C~30 °C (or 62 °F~88 °F).



**Notes:** The setting temperature cannot be adjusted under fan mode.

### 6) Timer on and timer off setting

Press the timer/clock setting button , then enter into the timer on setting status, and screen will display  and *0-0h*.

Press the buttons  and  to adjust the timer. If the timer setting is less than 10 hours, each press  or  will increase or decrease 0.5 hour. When the timer setting is more than 10 hours, each press  or  will increase or decrease 1 hour, the maximum timer setting is 24 hours.

After finish adjusting the timer on setting, press the button  or wait for 5 seconds to confirm and exit the timer on setting.


Under the timer on setting status, press the timer/clock setting button , then enter into the timer off setting status, and the screen will display  and 0-0h.



The setting method of timer off is the same as the timer on.





Under timer setting state, set the timer on and the timer off to be 0.0h can cancel timer on and time off.


**Notes: If the wired controller has been set timer on/off, press the ON/OFF to turn on or turn off the unit then the timer will be canceled simultaneously.**

## 7) Clock setting


Press the timer/clock button  setting for 3 seconds, and then enter into the clock setting status.

The hour position of the clock will flash, and can press  and  to adjust the hour value.

After finishing the hour setting, press left button  or right button  to switch to minute position setting, then the minute position will flash, press  and  to adjust the minute value.




After finish the clock setting, press the  button or wait for 5 seconds to confirm and exit the setting state.

## 8) Quiet operation



Under COOL, HEAT, FAN modes, press the  button to set into the quiet operation, it is used to reduce the running noise through setting the fan speed to low.

**Notes: Under AUTO, DRY mode, the fan speed is auto and the  button does not work.**


## 9) Lock the wired controller


Press the temperature adjusting buttons  and  simultaneously, the wired controller enters into locking state, and the locking icon  will be lighted up.

Under the locking state, the wired controller will not respond to the buttons pressing and the control instruction from the wireless remote controller.

Simultaneously press the temperature adjusting buttons  and  again can cancel the locking state.



#### 10) Air filter cleaning reminding function

The wired controller records the total running time of the indoor unit, when the accumulated running time reaches the pre-set value, the air filter cleaning reminding icon  will be lighted up, to remind that the air filter of the indoor unit need to be cleaned.


Press  for 3 seconds, and reset the reminding icon and the wired controller will re-accumulate the total running time of the indoor unit.


Notes: The default setting value of the reminding function is 2,500 hours, and it can change to be 5,000 hours or 10,000 hours. The setting methods refer to the part of wired controller initial parameter setting.

#### 11) Swing function

If the indoor unit supports swing function, press the right button  to adjust the air outlet direction of the indoor unit. Press this button for 3 seconds can turn on or turn off the auto swing function, the swing icon  will be lighted up when the auto swing function is turned on.

#### 12) Follow-me function

When the system is running and the operating mode is AUTO, COOL or HEAT, press the  button will activate the follow-me function; press this button again to deactivate the function. Operating mode changeover will deactivate the function as well.

When the follow-me function is activated, the icon  will be light up, the wired controller will display room temperature read from local sensor, and transmit the temperature value to the indoor unit every 3 minutes.

## 2.4 Installation of wired controller

### 1) Safety precaution

- ✓ Stated below are important safety issues that must be obeyed. Confirm there is no abnormal phenomena during test operation after complete.
- ✓ Installation by other persons may lead to imperfect installation, electric shock or fire. Improper installation may lead to electric shock or fire. A random disassembly may cause abnormal operation or heating, which may result in fire.
- ✓ Do not install the controller in a place vulnerable to leakage of flammable gases. Once flammable gases are leaked and left around the wired controller, fire may occur.
- ✓ The wiring should adapt to the wired controller current. Otherwise, electric leakage or heating may occur and result in fire. The specified cables shall be applied in the wiring. No external force may be applied to the terminal. Otherwise, wire cut and heating may occur and result in fire.
- ✓ Don't place the wired controller near the lamps, to avoid the remote signal of the controller to be disturbed. Do not install the unit and controller in a place with much oil, steam, sulfide gas. Otherwise, the product may deform and fail.

### 2) Accessories

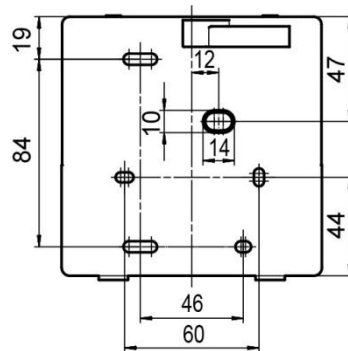
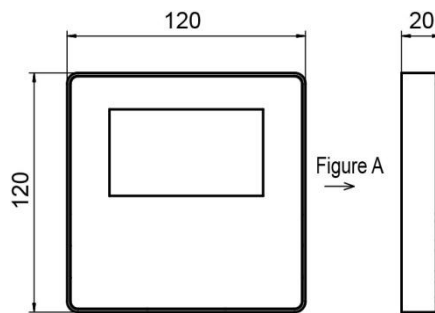
Name	Qty	Remarks
Wired controller	1	\
Cross round head wood mounting screw	3	M4×20 (For mounting on the wall.)
Cross round head mounting screw	2	M4×25 (For mounting on the electrical switch box.)
Installation manual	1	\
Owner's manual	1	\
Plastic expansion pipe	3	For mounting on the wall
Plastic screw bar	2	For fixing on the 86 electrician box.
Switching wires for signal receiving board	1	For connecting the signal receiving board and 4-core shield wire.
Switching wires for wired controller signal	1	(If needed) For connecting the main control panel and 4-core shielding wire.

### 3) Supplied assemblies on the site

Name	Qty (Embedded into wall)	Specification (Only for reference)	Remarks
4-core shielded cable	1	0.5mm <sup>2</sup> ×4	The longest is 15m.
86 Electrician box	1	\	\
Wiring tube (Insulating sleeve and tightening screw.)	1	\	\

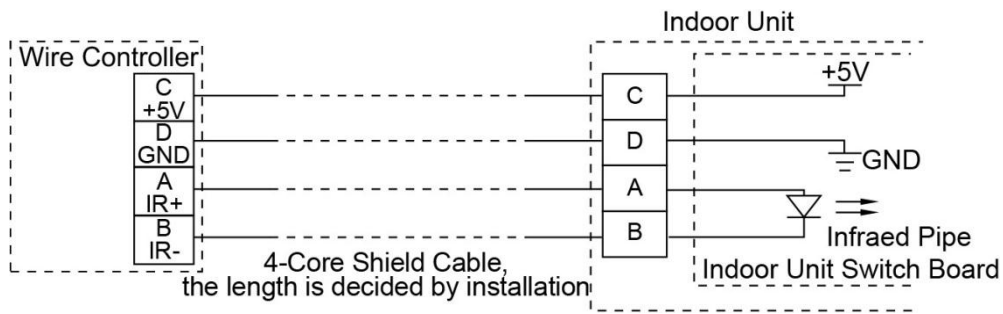
#### 4) Installation procedure

- ✓ The installation manual contains information about the procedure of installing wired controller. Please refer to indoor unit installation manual for connecting between wired controller and indoor unit.
- ✓ Circuit of wired controller is low voltage circuit. Never connect it with a standard 220V or 380V circuit or put it into a same wiring tube with the circuit.
- ✓ The shield cable must be connected stable to the ground, or transmission may fail.
- ✓ Don not attempt to extend the shield cable by cutting, if it is necessary, use terminal connection block to connect.
- ✓ After finishing connection, do not use muffer to have the insulation check to the signal wire.
- ✓ Wired remote controller structure size figure ( Unit: mm):



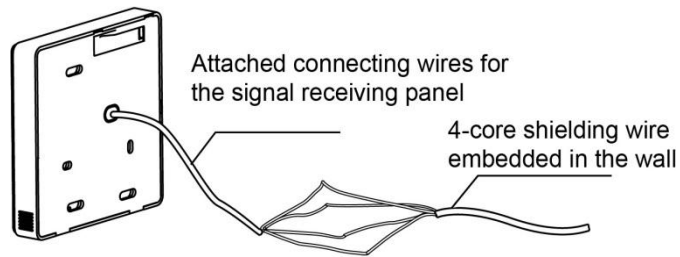
Rear view

- ✓ Wiring principle sketch:

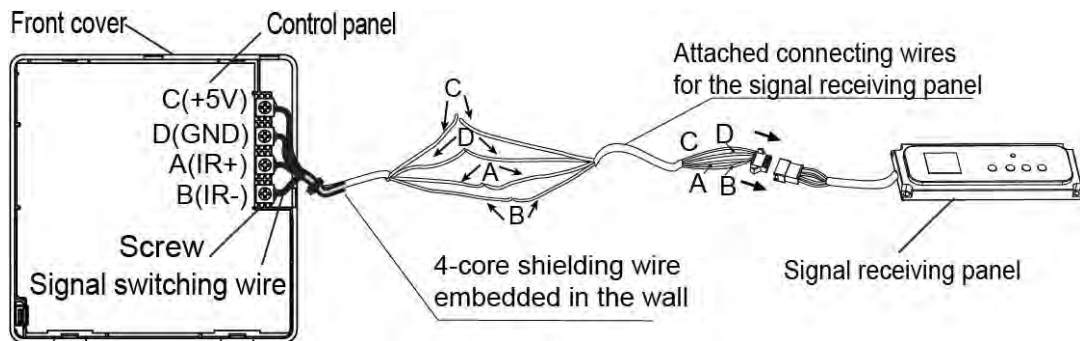


- ✓ Wiring figure:

Connect two terminals of embedded 4-core shielding wire with the switching wires of wired controller and signal receiving board. Make sure the sequence of 4 terminals (A, B, C and D) should correspond to the wire sequence of signal switching wires (A, B, C and D).



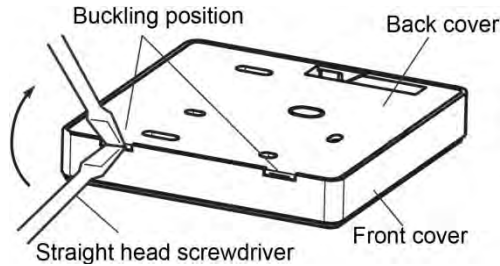
If the embedded 4-core shielding wire cannot go through the wired controller, it can use signal switching for connection, make sure the wires are reliable and firm.



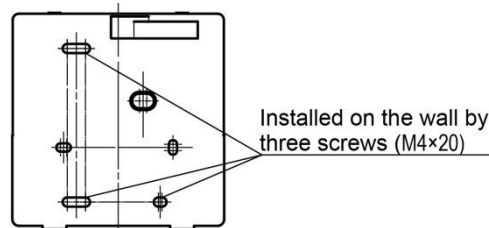
The tightening torque range of screw is: 0.8~1.2N·m (8~12kgf·cm).

- ✓ Wired controller back cover installation

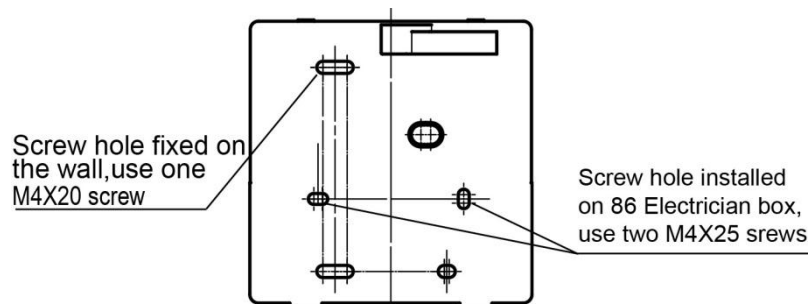
Use straight head screwdriver to insert into the buckling position in the bottom of wired controller, and spin the screwdriver to take down the back cover. Pay attention to spinning direction, otherwise will damage the back cover.



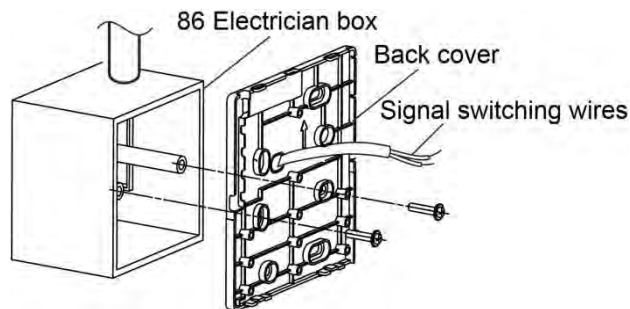
Use three M4×20 screws to directly install the back cover on the wall.



Use two M4×25 screws to install the back cover on the 86 electrician box, and use one M4×20 screws for fixing on the wall.



Adjust the length of two plastic screw bars in the accessory to be standard length from the electrical box screw bar to the wall. Make sure when install the screw bar to the electric box screw bar, make it as flat as the wall.



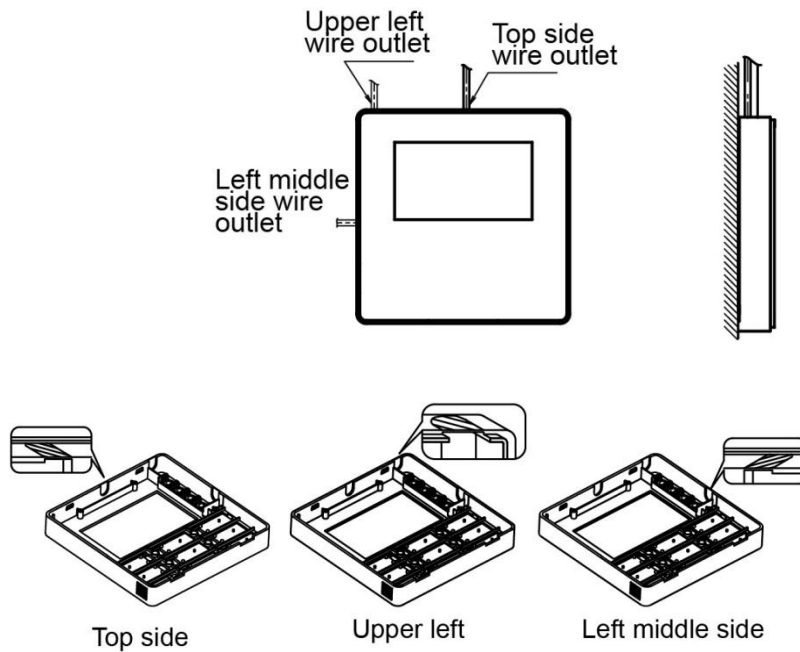


Use cross head screws to fix the wired controller bottom cover in the electrical box through the screw bar. Make sure the wired controller bottom cover is on the same level after installation, and then install the wired controller back to the bottom cover.

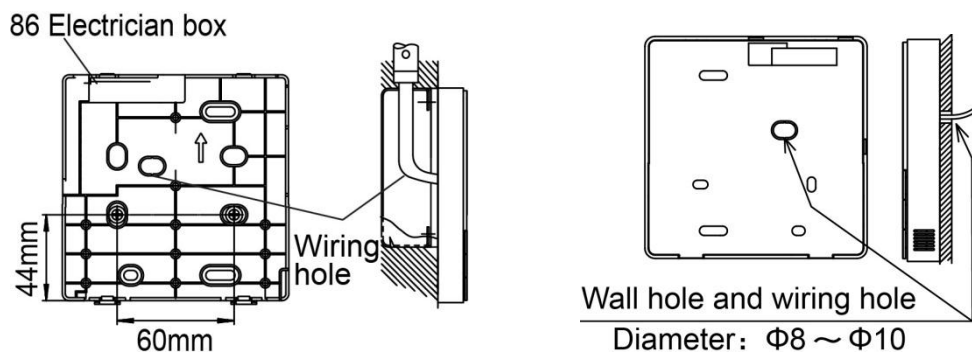
Over fasten the screw will lead to deformation of back cover.

- ✓ Neaten the wires of the wired controller

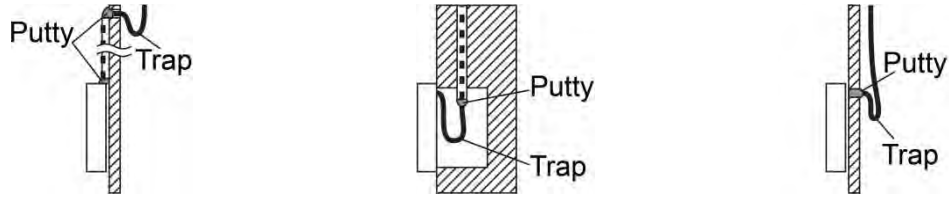
There are three positions of signal wire outlet around the wired controller, when the wired controller directly is installed on the flat wall.



When the wired controller is stalled with electrician box, the back cover of wired controller is already reserved one hole for wire outlet. It is also available for the shielded wire passing by the wall.

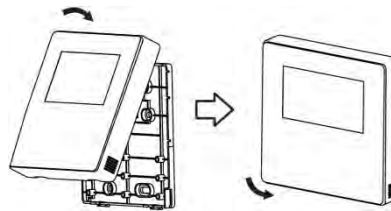


Avoid the water enter into the wired controller, use trap and putty to seal the connectors of wires during wiring installation. When under installation, reserve certain length of the connecting wire for convenient to take down the wired controller while during maintenance.

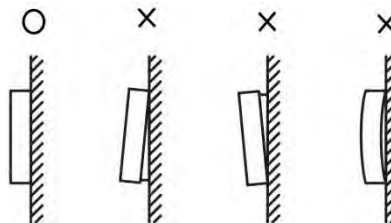


✓ Wired controller's front cover installation:

After adjusting the front cover and then buckle the front cover. Avoid clamping the communication switching wire during installation.





Correct install the back cover and firmly buckle the front cover and back over, otherwise will make the front cover drop off.






✓ Wired controller initial parameter setting


Change the related functions of the controller through adjusting the initial parameters.

The wired controller initial parameter includes two codes 'XY'. The first code 'X' means the function class, the second code 'Y' means detailed configuration of this function.

Step1: Simultaneously press the mode button  and fan speed button  of the wired controller for 5 seconds to enter the parameter setting state.

Step2: The value of the first code 'X' is '0', press the temperature setting buttons ▲ and ▼ to adjust the second code value.

Step3: After setting the second code value, press Quiet/OK button /OK to switch the first code to the next value.

Step4: When the first code value is '6', press Quiet/OK button /OK again to exit the parameters setting.

**The parameter setting table**

First code	Function	Second code				
		0	1	2	3	4
0	Cooling-only/Heat pump selection	Heat pump (Default)	Cooling only	\	\	\
1	Indoor unit communication address setting	Yes (Default)	None	\	\	\
2	Power-off memory	Yes (Default)	None	\	\	\
3	Filter cleaning reminding	Cancel the reminding function	1250 hours	2500 hours	5000 hours	10000 hours
5	Remote receiving function	Yes (Default)	None	\	\	\
6	Centigrade/Fahrenheit display	Centigrade (Default)	Fahrenheit	\	\	\

**Notes: The second code of the filter cleaning reminding is 2500hours, which as default.**

### 3. Centralized Controller: MD-CCM03(A) (Optional)



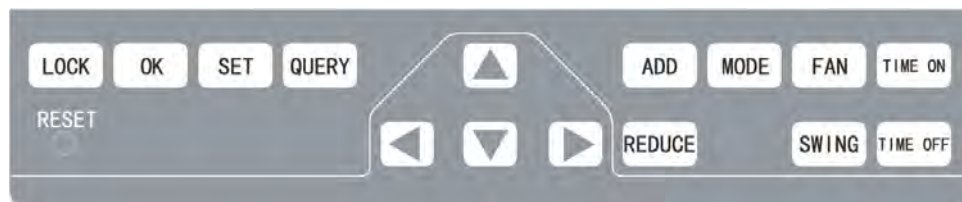
#### 3.1 Centralized controller specifications

Model	MD-CCM03(A)
Power Supply Voltage	220~240V 50Hz 1Ph
Ambient Temperature Range	-15°C~43°C
Ambient Humidity Range	RH40%~RH90%

#### Performance Features

1. System composition, centralized control.
2. Keywords and general function description.
3. Technical indices and requirements.
4. Indoor unit working status display.
5. Locking remote controller, locking keyboard of centralized controller and locking running mode.

#### 3.2 Keypad of centralized controller



- 1) **LOCK:** In the mode setting mode, press the lock key, and the remote controller of the currently selected air conditioner will be locked or unlocked. The operation mode is: If the

single-machine setting is selected, the operation is performed for the air conditioner of the current address only. If the remote controller of the air conditioner is locked currently, issue the lock command; otherwise, send the lock command. If the single-machine mode is not selected, and the remote controller of one or more currently selected air conditioners is locked, issue the unlock command; if the remote controllers of all currently selected air conditioners are in the non-locked status, issue the remote controller lock command.

When the remote controller of the air conditioner is locked, the air conditioner does not receive remote control signals from the remote controller or wired controller until the remote controller is unlocked. Press THE **QUERY** key and then press the **LOCK** key, and the keys of the centralized controller will be locked or unlocked. If the keys are currently locked, press the **LOCK** and ▲ keys concurrently again, and the keys will be unlocked; if the keys are currently unlocked, press the **LOCK** and ▲ keys concurrently, and the keys will be locked. If the keys are locked, pressing any key will be ineffective, except unlock operation. In the unified setting page, press the ▲ key and the **LOCK** key concurrently to lock all air conditioner modules in the network. The mode locking is cancelled when the key is pressed again.

**Note: When locking or cancelling lock, the corresponding icon indication appears or disappears only after all the attached air conditioners are set completely, so it takes a time period. When there are many attached air conditioners, please wait patiently.**

- 2) OK:** In the setting page, press it to send the currently selected mode status and the auxiliary function status to the selected air conditioner, and display the mode setting operation results. After select the operation mode and auxiliary function status information of the air conditioner, if do not press the **OK** key, the selected information will not be sent to the air conditioner, and will not affect the current operation of the air conditioner.

The operations of remote controller locking and unlocking need no pressing of the **OK** key. The command information is sent directly after the **LOCK** key is pressed.


- 3) SET:** In other display mode, press this key to enter the setting mode. By default, it is single setting, and the first in-service air conditioner is displayed. In setting operation mode, press

the key again, and the operation will be performed for all air conditioners in the network. Press it repeatedly to shift between single setting and global setting.



- 4) **QUERY:** Any time when pressing the key, the selected operation mode is to query the operation status of the air conditioner. By default, the first in-service air conditioner will be queried. Through the **ADD** and **REDUCE** keys, the parameter page can be changed to be queried. Through the ▲, ▼, ◀ and ▶ keys, the query status of other air conditioners can be changed.
- 5) ▲: In the query mode, every time when pressing the key, the operation status data of the air conditioner corresponding to the previous row of the matrix will be displayed. If it is currently in the first row, press the key, and the data of the air conditioner corresponding to the last row will be displayed. If this key was held down, the row will decrease one by one. In the setting mode, every time when press the key, if it is in the single operation mode, the air conditioner corresponding to the last row will be selected. If it is in the global operation mode, no effect will result after the key is pressed. In the main page, press the key to enter the query mode. By default, it is the first in-service air conditioner.
- 6) ▼: In the query mode, every time when pressing the key, the operation status data of the air conditioner corresponding to the next row of the matrix will be displayed. If it is currently in the last row, press the key, and the data of the air conditioner corresponding to the first row will be displayed. If this key was held down, the row will increase one by one. In the setting mode, every time when press the key, if it is in the single operation mode, the air conditioner corresponding to the last row will be selected. If it is in the global operation mode, no effect will result after the key is pressed. In the main page, press the key to enter the query mode. By default, it is the first in-service air conditioner.
- 7) ◀: In the query mode, every time when pressing the key, the operation status data of the

previous air conditioner will be displayed. If it is currently on the first machine, press it again, and the data of the last machine will be displayed. If this key was held down, the address will decrease one by one. In the setting mode, every time when pressing the key, if it is in single operation mode, the air conditioner of previous in-service address number will be selected. If it is in the global operation mode, no effect will result after the key is pressed. In the main page, press it to enter the query mode. By default, it is the first in-service air conditioner.

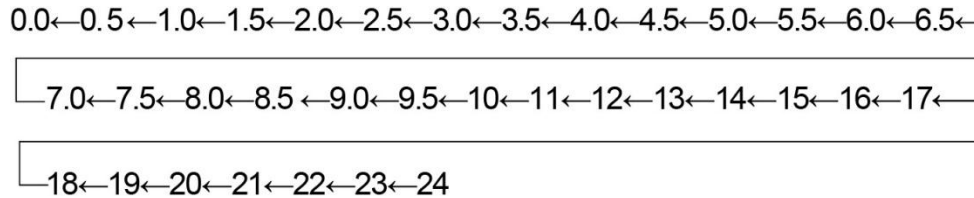
8) : In the query mode, every time when pressing the key, the operation status data of the last air conditioner will be displayed. If it is currently on the last machine, press it again, and the data of the first machine will be displayed. If this key was held down, the address will increase one by one. In the setting mode, every time when pressing the key, if it is in single operation mode, the air conditioner of previous in-service address number will be selected. If it is in the global operation mode, no effect will result after the key is pressed. In the main page, press it to enter the query mode. By default, it is the first in-service air conditioner.

9) **ADD**: In the main page or the query mode, every time when pressing the key, the data of the current page will be displayed. If it is now in the last page, press the key again, and the first page will be displayed. In the setting mode, every time when pressing the key, if it is in the temperature regulation mode, the set temperature will decrease by 1°C (or 2°C) until the highest allowed set temperature. If it is in the timing startup/shutdown time setting mode, select the upper-level set time, if no time is set, 0.0 will be displayed, if hold down the key, the upper-level data will be selected consecutively. The specific change mode is as follows:

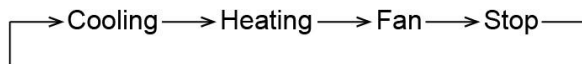
0.0→0.5→1.0→1.5→2.0→2.5→3.0→3.5→4.0→4.5→5.0→5.5→6.0→6.5→7.0  
→7.5→8.0→8.5→9.0→9.5→10→11→12→13→14→15→16→17→18→19  
→20→21→22→23→24

10) **REDUCE**: In the main page or the query mode, every time when pressing the key, the data of the current page will be displayed. If it is now in the first page, press the key again, and

the last page will be displayed. In the setting mode, every time when pressing the key, if it is in the temperature regulation mode, the set temperature will decrease by 1°C (or 2°C) until the lowest allowed set temperature. If it is in the timing startup/shutdown time setting mode, select the upper-level set time, if no time is set, 0.0 will be displayed, if hold down the key, the upper-level data will be selected consecutively. The specific change mode is as follows:

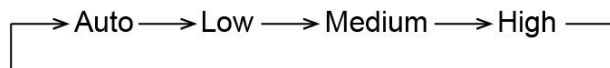


**11) MODE:** In setting operation mode, press this key to set the operation.

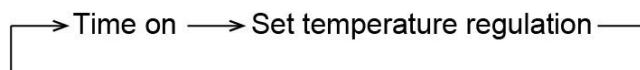


In other display mode, press this key to enter the setting mode. By default, it is single-machine setting, and the first in-service air conditioner is displayed.

**12) FAN:** In setting operation mode, press this key to set the fan of the indoor unit of the air conditioner to run in the following picture:



**13) TIME ON/TIME OFF:** In setting operation mode, press them to set the timing startup of air conditioner. Press them again to exit the timing setting, and restore the normal temperature regulation operation mode.



**14) SWING:** In the setting operation mode, press this key to enable or disable the swing function.

If all currently selected air conditioner have no swing function, no effect will result after pressing the key.

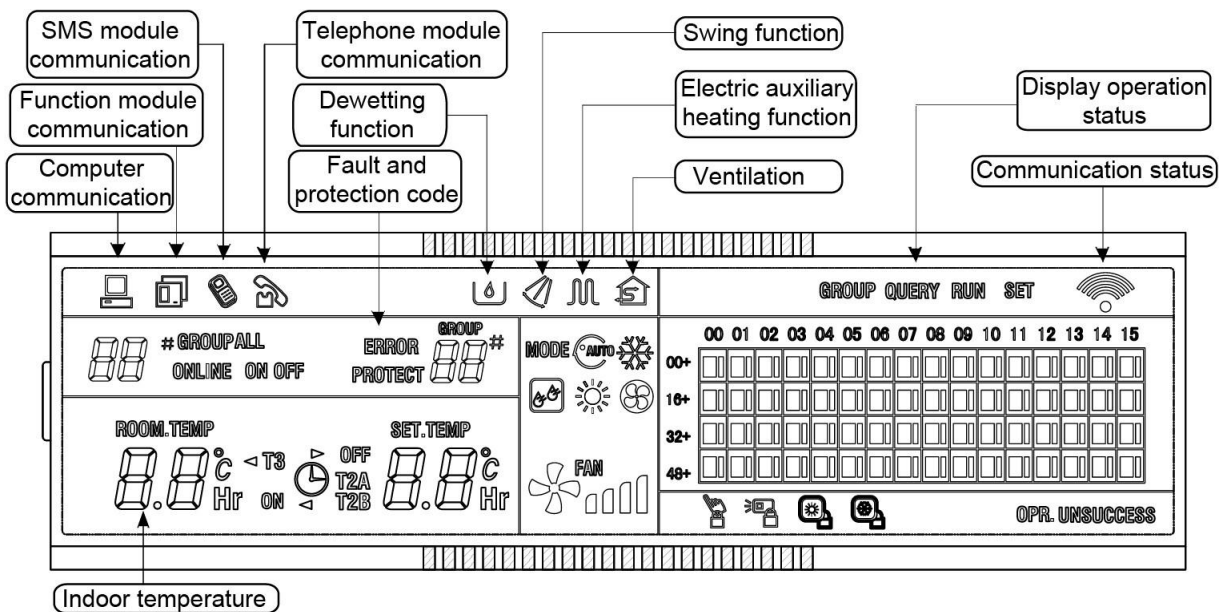
**15) RESET:** Anytime when the **RESET** key is pressed, the centralized controller will reset. The

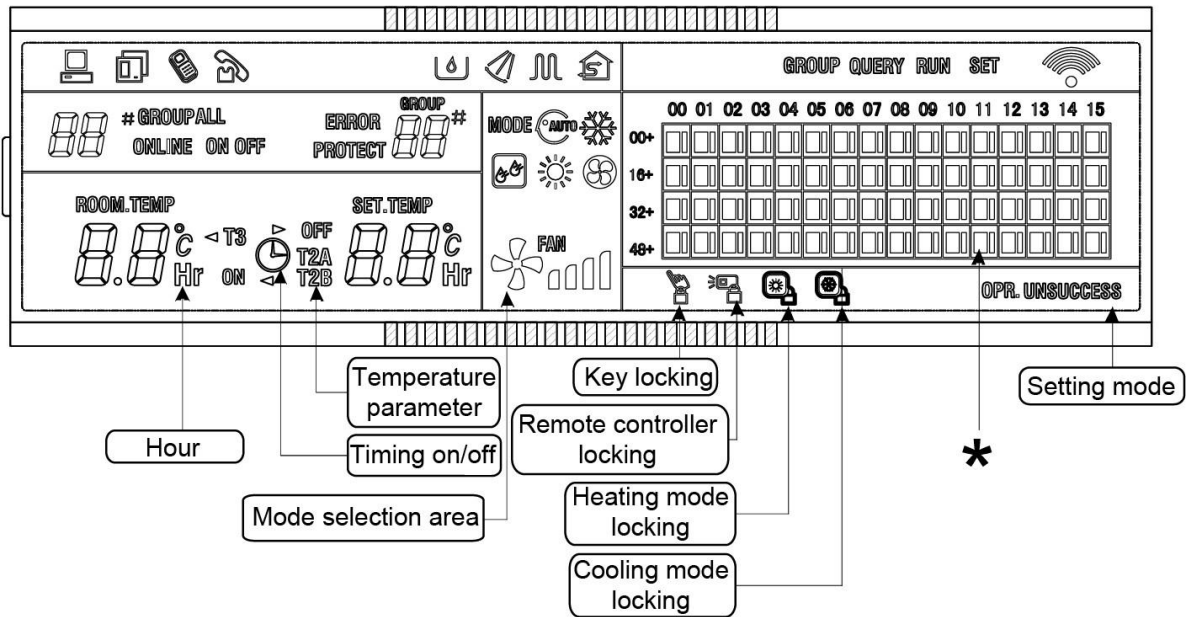


result is the same as the result of restoring power-on after power failure.

**16) ON/OFF:** Any time when pressing the key, the centralized startup/shutdown operation is performed for all current in-service air conditioners in the centralized controller network. If all in-service air conditioners in the network are in the power-off status, press the key to perform the startup operation. If it is in the mode setting page currently, and the parameters such as startup mode, temperature and air speed are selected, the air conditioner will be started according to the selected parameters. If no mode is selected currently, and the air conditioner is powered off or it is in other display page currently, and the default startup mode is: cooling, high speed fan air, set temperature 24°C, swing function enabled. The default startup mode is locked according to the system mode or judged according to other constraint conditions. If any conflict exists, the next conflict-free mode will apply automatically. If conflict exists for all modes, startup will be impossible. If one or more in-service air conditioners in the network (including in the timing process of timing startup/shutdown), pressing this key will shut down all air conditioners. When performing the shutdown operation, the shutdown command is issued to the air conditioners in the startup status only, and is not issued to those in the shutdown status.

### 3.3 Display of the centralized controller





\*: The matrix is composed of 4×16 grids and each grid is composed of two blocks of different sizes. The matrix include horizontal coordinates 00-15 and vertical coordinates 00+, 16+, 32+ and 48+, which indicate the address of the indoor unit. The sum of the horizontal coordinate and vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address.

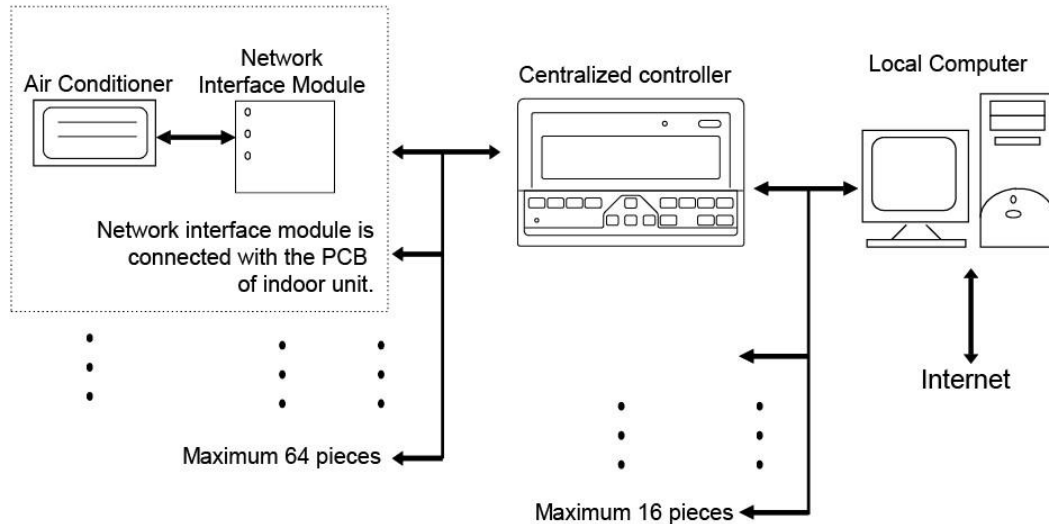
### 3.4 Operation instructions

#### 1) System composition:

- ✓ The centralized controller is used to perform centralized control and data query for the network air conditioner. Each centralized controller can communicate with a maximum of 64 air conditioners to make up an air conditioner LAN, and implement centralized monitoring for the air conditioners in the network.
- ✓ The centralized controller can be interfaced with computer or gateway to implement centralized control and status query for all air conditioners in the network. It can be connected with WAN via computer or gateway to implement remote computerized control (with support of computer software). Each local computer or gateway can be connected to 16 centralized controllers as a maximum.
- ✓ The master or slave answer mode is implemented for communication between the centralized controller and the air conditioner, between the computer and the centralized controller. In the LAN composed of centralized controller and air conditioner, the centralized

controller is a master, and the air conditioner is a slave. In the LAN composed of computer and centralized controller, the computer or gateway is a master, and the centralized controller is a slave.

- ✓ The schematic diagram of network control system composition of air conditioner:



## 2) Keywords and general function description:

- ✓ Power on or reset:

When the centralized controller is powered on or reset, all display segments of the LCD are luminous for 2 seconds and then goes off. 1 second later, the system enters the normal display status. The centralized controller is in the main page display status and displays the first page, and searches the in-service air conditioners in the network. Once the search is finished, the centralized controller enters the mode setting page, and sets the first in-service air conditioner by default.

- ✓ Network area address of centralized controller:

The local computer or gateway can be connected with 16 centralized controllers for communication. Each centralized controller serves as an area of the air conditioner network. The centralized controllers are differentiated by bit selection address. The configurable range is 0~15.

- ✓ State indication:

If any local keypad operation is setting the operation status of the air conditioner, the indicator is on when the signals are sent. Upon completion of the setting process, the

indicator goes off. If an in-service air conditioner in the network is faulty, or the centralized controller network itself is faulty, the indicator will blink at 2Hz.

If one or more in-service air conditioners in the network are running, including under setting of timing start or shutdown, the indicator will be luminous. Otherwise, the indicator is off.

✓ Locking of centralized controller:

After receiving the centralized controller locking command sent from the computer, the centralized controller disables the startup or shutdown and setting of the air conditioner, and sends commands to lock remote controllers of all air conditioners in the network of the centralized controller. After receiving the unlocking command, the centralized controller enables the startup or shutdown operation, and sends commands to unlock the remote controller of all air conditioners.

The locking status of the remote controller can be locked or unlocked by the computer or centralized controller separately. The locking status of the centralized controller is memorized after power failure of the centralized controller, and will not vanish after the power supply is restored, unless the command of unlocking is received.

✓ Mode locking function:

After the mode locking command is received, the command is forwarded to the air conditioner, and the centralized controller displays the mode locking flag. After the command of unlocking is received, the non-conflict mode can be selected freely. The centralized controller can also lock modes of all indoor units.

✓ Emergent shutdown and compulsory startup:

If the emergent switch of the centralized controller was switch off, all air conditioners in the network of the centralized controller will be shut down compulsorily. The centralized controller and computer and all functional modules are disabled from startup and shutdown until the foregoing switch is turned off. If the switch was turned on, all air conditioners in the network of the centralized controller will be start up compulsorily. By default, they will run in the cooling mode. The startup and shut-down operations of the centralized controller and the computer and all functional modules will be disabled (Only the command of startup is sent to the air conditioner, without affecting operation of the remote controller after startup)

until the foregoing switch is turned off. If the foregoing two switches are turned on concurrently, the emergent shutdown switch shall have preference.

### 3.5 General display data entries

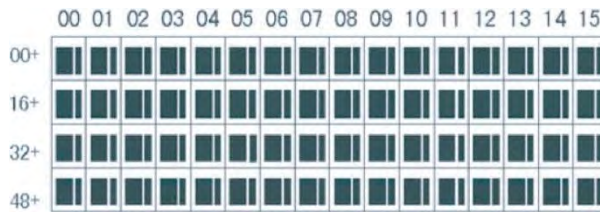
1) General display data is displayed in all display pages.

- ✓ Under the interconnected control of the computer or gateway, the data is displayed in graphic (🖨️). Otherwise, no data is displayed.
- ✓ If the centralized controller is connected with the functional module for communication, the data is displayed in graphics (🖨️). Otherwise, no data is displayed.
- ✓ If the centralized controller is connected with the SMS remote control module for communication, the data is displayed in graphics (📱). Otherwise, no data is displayed.
- ✓ If the centralized controller is connected with the telephone remote control module for communication, the data is displayed in graphics (📞). Otherwise, no data is displayed.
- ✓ In normal operation of the centralized controller, the periodical cycle module communicates with the network interface module, and the data is displayed dynamically and cyclically: (blank), ○, 📶, 📶.
- ✓ In the centralized control locked status or the keypad locked status, the locking flag (🔒) is displayed. After unlocking, it is not displayed. In the centralized controller locked status or the keypad locked status, the locking flag is displayed constantly. If both of them are locked concurrently, the locking flag is displayed constantly.
- ✓ In the setting page, if the selected air conditioner is in the remote controller locked status (in case of non-single machine operation, as long as one machine is in the remote controller locked status, it is deemed the locked status), the flag (🔒) is displayed constantly.
- ✓ If all indoor units lock the cooling mode, this flag (🔒) will display, and if all indoor units lock the heating mode, the flag (🔒) will display.

2) Data display handling

- ✓ Indoor unit code (address) display: display range: 00~63, and with # being luminous concurrently.

- ✓ Indoor temperature display: display range: 00~99°C. The indoor temperature is displayed concurrently. If the temperature is higher than 99°C, 99°C will be displayed. If the temperature value is invalid, '--' will be displayed.
- ✓ If timing startup or shutdown is set, the flag (⌚) is displayed.
- ✓ T3, T2A and T2B display: in the single-machine query page, display can shift between T3, T2A and T2B; by the way, the temperature value is displayed concurrently, with the corresponding °C being luminous.
- ✓ In case of air conditioner fault or protection, the corresponding fault code or protection, the corresponding fault code or protection code can be displayed.
- ✓ Liquid crystal matrix display description:



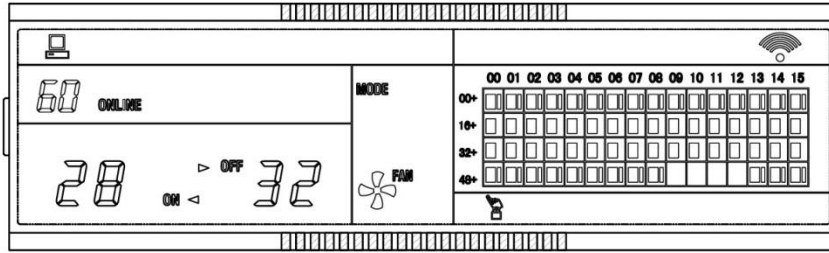
The liquid crystal matrix is composed of 4×16 grids, and each grid is composed of two blocks of different sizes. The matrix includes horizontal coordinates 00~15 on the upper side and vertical coordinates 00+, 16+, 32+ and 48+ on the left side, which indicate the address of the indoor unit. The sum of the horizontal coordinate and the vertical coordinate of the grid is the address of the grid. Each grid corresponds to an indoor unit of this address. One grid is composed of two blocks of different sizes. The status indication table is as follows;

	Constantly on	Slow blink		Fast blink
Big black block	In-service	Selected		Out of service
Small black block	Power on		Fault of indoor or outdoor unit	Power off

### 3) LCD display description

- ✓ Description of the standby page

The LCD displays the standby page, 60 air conditioners are in service, of which 28 are powered on and 32 off.



In the matrix, the bid dots from (00, 16+) to (15, 32+) are luminous, and the small dots are not luminous. It indicates the 32 air conditioners with the addresses from 16 to 47 are powered off.

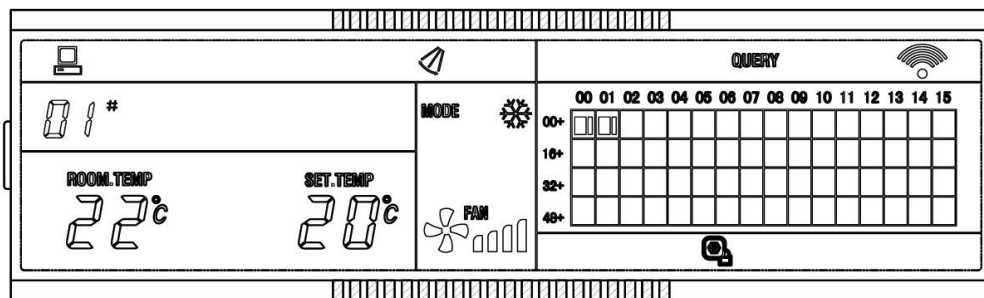
In the matrix, the big and small dots from (09, 48+) to (12, 48+) are not luminous. It indicates the four air conditioners with the address from 57 to 60 are outside the network.

All other big and small dots in the matrix are luminous. It indicates all other air conditioners are in the network and powered on.

The address of the air conditioner is sum of the coordinates. For example, the address of (09, 48+) is  $09+48=57$ .

The centralized controller keypad is locked, and the centralized controller communicates with the computer normally.

✓ Description of the query page

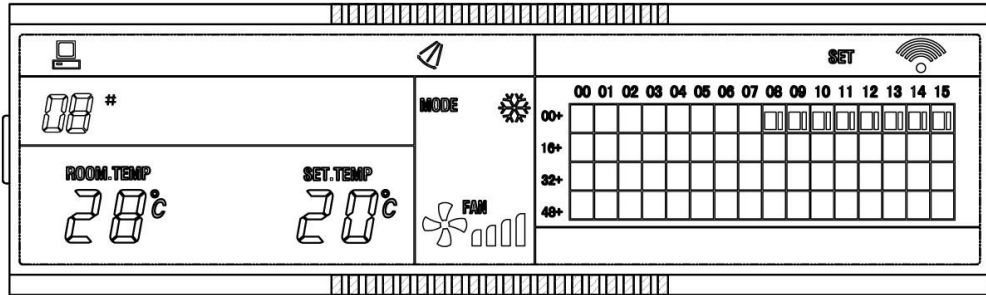


The LCD displays the query page, and the air conditioner with the address of 08 is being queried. Mode of the air conditioner with the address 01 is cooling, high speed air supply, swing on, indoor temperature 22°C, setting temperature 20°C and cooling mode locked.

In the matrix, only the big and small black dots at (00, 00+) and (01, 00+) are luminous. It indicates the in-service and power-on status of the air conditioners with the addresses of 00 and 01.

The centralized controller communicates with the computer normally.

✓ Description of the setting page

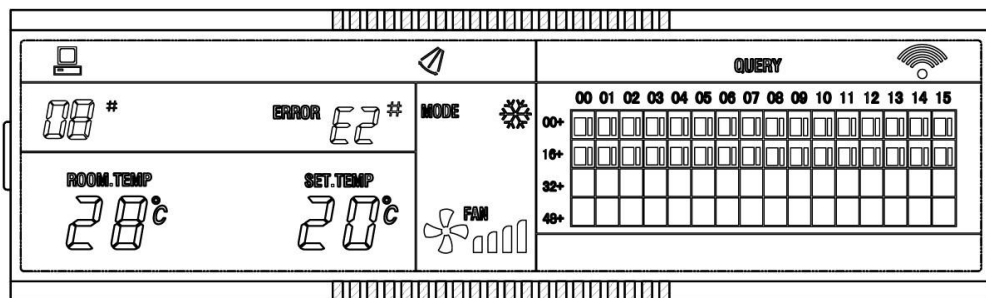


The LCD displays the setting page, and queries the air conditioner with the address of 08. The mode of the air conditioner with the address 08 is: cooling, high speed air supply, swing on, indoor temperature 28°C, setting temperature 22°C and cooling.

In the matrix, only the big black dots from (08, 00+) to (15, 00+) are luminous. It indicates the air conditioners with the addresses from 08 to 15 are in service.

The centralized controller communicates with the computer normally.

✓ Fault page display description



Query the air conditioner with the address of 08 in the query page. The air conditioner with the address of 08 is faulty, and the fault code is E2. The big black dot below (08, 00+) blinks.

In the matrix, only the big and small black dots from (00, 00+) to (15, 16+) illuminate. It indicates the in-service status of the air conditioners with the addresses from 00 to 31.



The centralized controller communicates with the computer normally.

Fault code table:

Fault code	Fault content
EF	Other faults
ED	Outdoor unit fault protection
EA	Over-current of compressor (4 times)
E9	Fault of communication between main board and display board
E7	EEPROM error
E6	Zero crossing detection error
E5	T3 or T4 temperature sensor fault
E4	T2B sensor fault
E3	T2A sensor fault
E2	T1 sensor fault
E1	Communication fault
E0	Phase order error or phase loss

Protection code table:

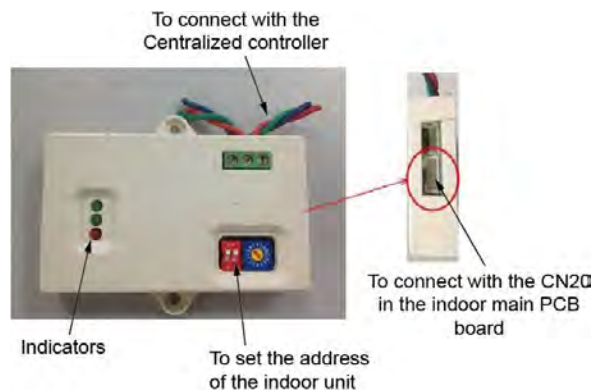
Fault code	Fault content
PF	Other protection
P8	Over-current of compressor
P6	Discharge low pressure protection
P5	Discharge high pressure protection
P4	Discharge pipe temperature protection
P2	Condenser hi-temperature protection
P1	Anti-cool air or defrost protection (Only for heat pump units)
P0	Evaporator temperature protection

### 3.6 Installation

The wireless remote controller is the standard controller for split series air conditioner. Wired controller as optional controller can directly be connected with the display board of the indoor units. Centralized controller should be connected with the main PCB board of the indoor unit through network interface module, which is named as MD-NIM01.

#### 1) The installation of network interface module

Outlook of MD-NIM01

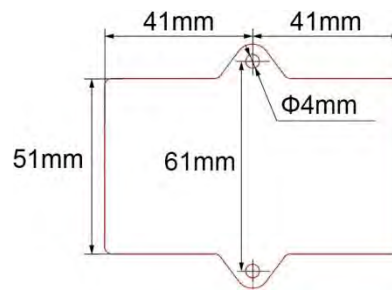


The first green lighter: Ready indicator. When the module and controller is connected rightly, the lighter will be on; otherwise, it will be off. If the unit is in the status of locking remote controller and locking mode, the lighter will flash.

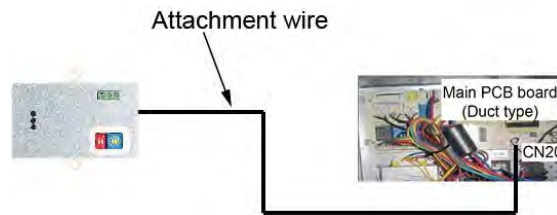
The second green lighter: Communication indicator. When there is any signal between the network interface module and centralized controller, the indicator will be on.

The third lighter: Alarm indicator. If there is any error between the module and controller for communication, it will be on.

### Dimension of MD-NIM01



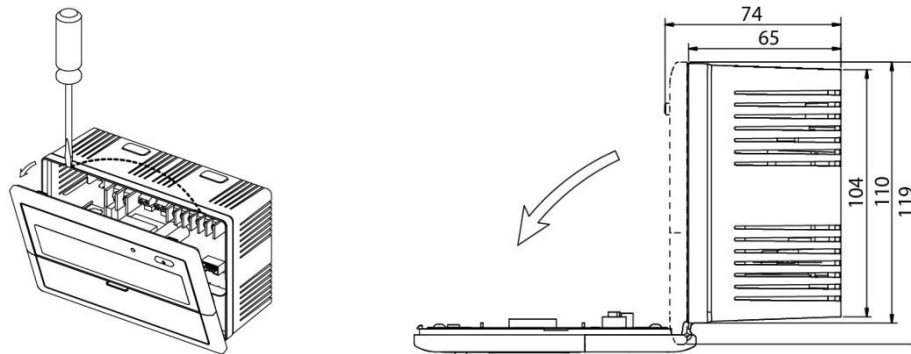
Connect the network interface module with the port CN20 in the main PCB board of indoor unit through the signal wire, which is as the attachment of the module.



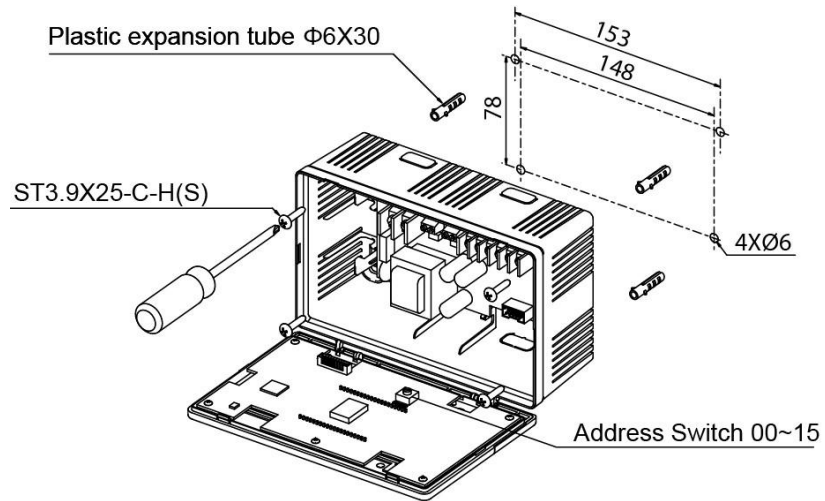
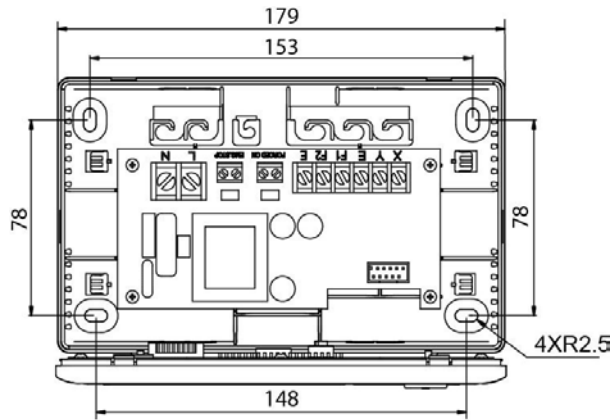
Fix the network interface module on the wall near the indoor unit. And set the different address of the indoor unit.

### 2) The installation of centralized controller

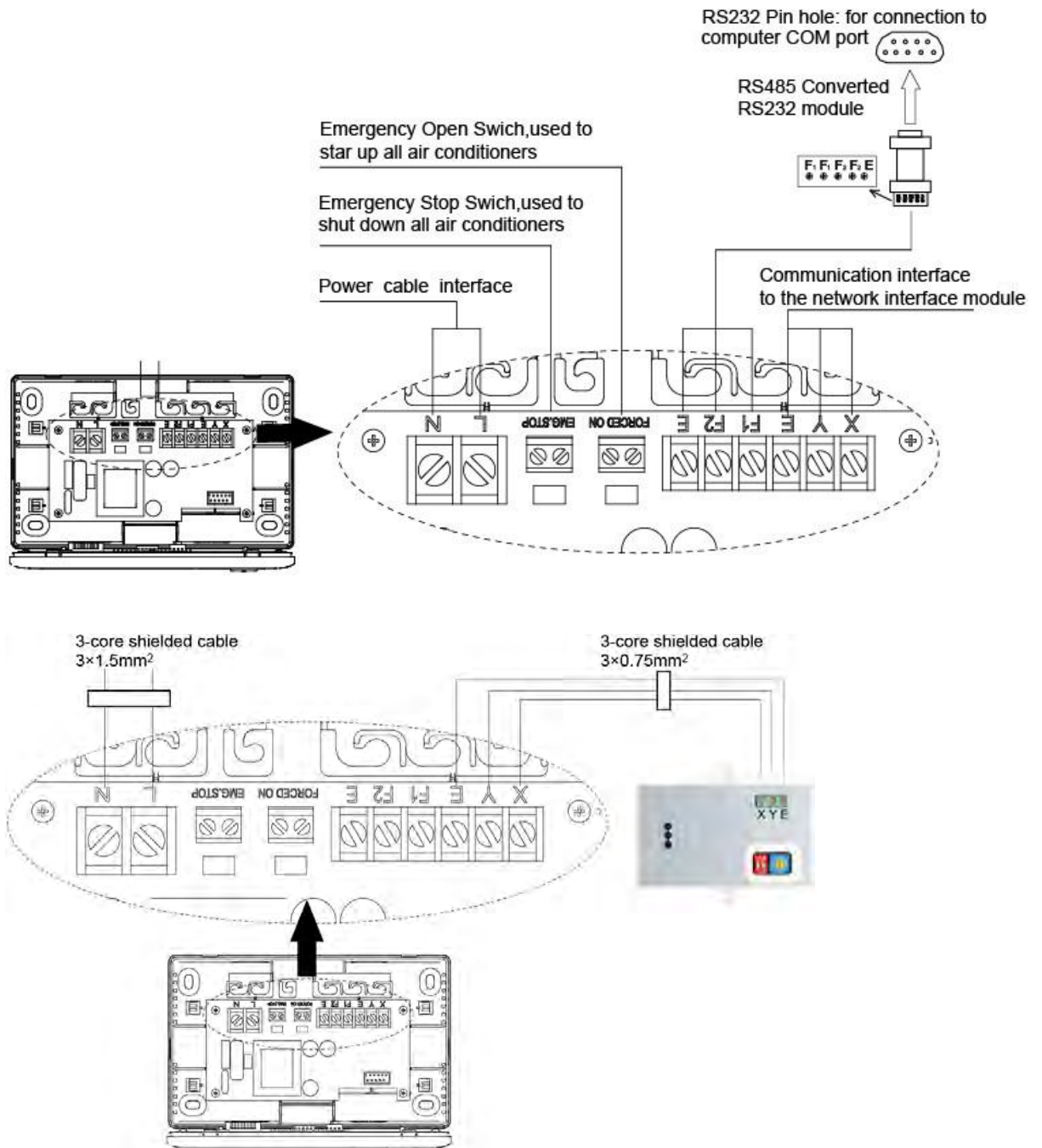
Open the front panel of the centralized controller by screwdriver as the following picture: (Unit: mm)

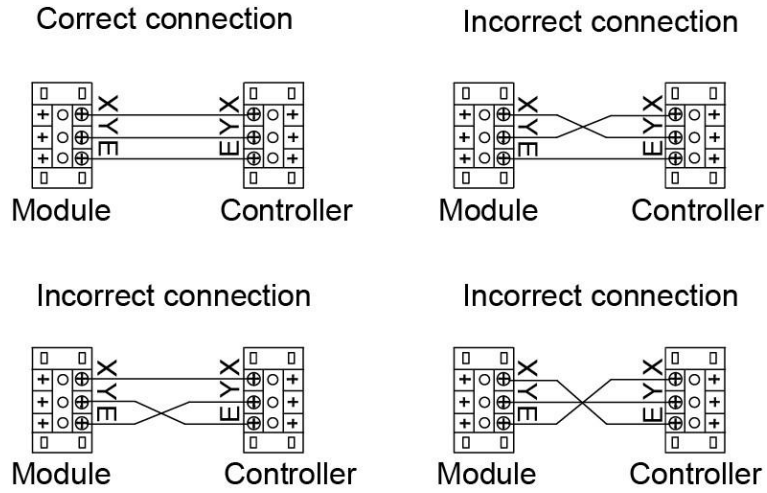


According to size of the hole in controller body, fix the controller on the place as needed. (Unit: mm)



### 3) The wire connection

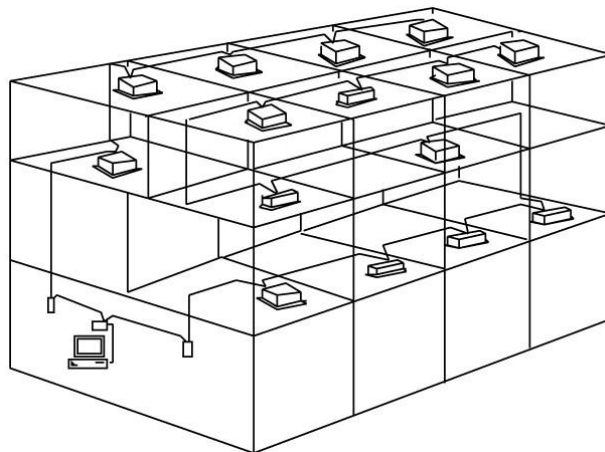




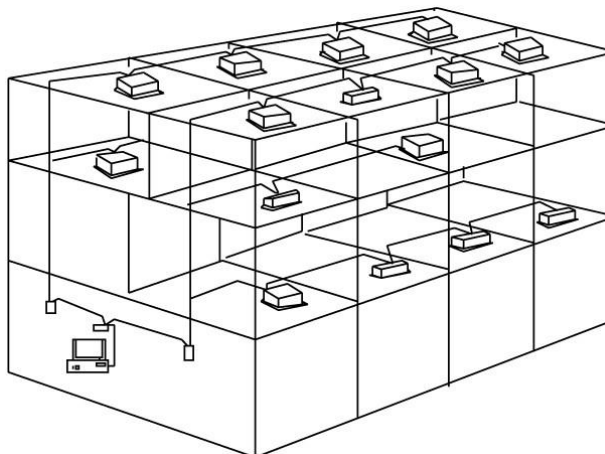
4) System wiring instruction

- ✓ Wiring diagram of building network air conditioning system

Wiring diagram with good communication effect



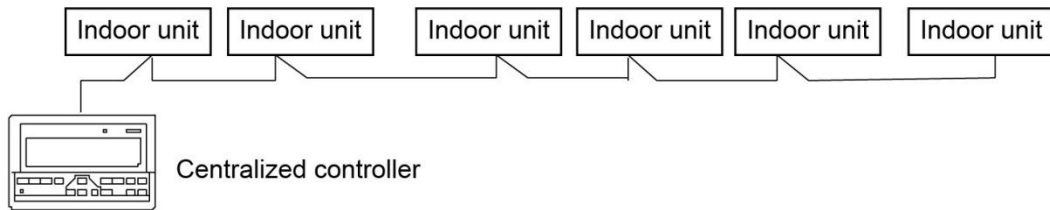
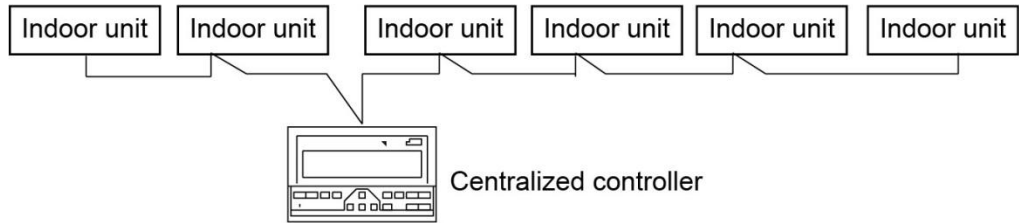
Wiring diagram with poor communication effect (not recommended because it may lead to poor communication)



- ✓ System wiring diagram of centralized monitoring and indoor unit of air conditioner

Both of the following wiring modes of centralized monitor and indoor unit are applicable:

(Quantity of indoor units connected with each centralized monitor is less than or equal to 64).





Air Conditioning Systems

Cooling & Heating

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برترین نام و نشان های تجاری ایران

