Mini VRF Heat Pump Outdoor Unit
Climate 5000 VRF

MDCI series, SINGLE PHASE

BOSCH

Installation manual

6 720 862 439 (2016/10)

Before using your air conditioning unit, please read this manual carefully and keep it for future reference.

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1. PRECAUTIONS

- **Before installing this equipment, ensure all local and national regulations are complied with.**
- **Read these "PRECAUTIONS" carefully prior to Installation.**
- **Before performing maintenance ensure the electrical power circuit has been turned off. Failure to do so will result in serious injury.**
- **Ensure both the installation manual and the owners manual are kept together and handed to the customer upon completion.**

CAUTION

New Refrigerant Air Conditioner Installation

CAUTION

An all-pole disconnection device which has at least 3 mm separation distance in all poles and a residual current device (RCD) shall be incorporated into the fixed wiring in accordance with national wiring regulations.

WARNING

The appliance shall be installed in accordance with national wiring regulations.
When installing, ensure communication and electrical power supply cables do not touch the copper pipework.
The temperature of the refrigeration circuit will be high and may damage cables.
An all-pole disconnection device which has at least 3 mm separation distance between all poles and a residual current device(RCD)with the rating of above 10 mA shall be incorporated in the fixed wiring according to the national regulations.
Ensure only qualified persons carry out works on this equipment.
Incorrect installation may result in can damage or serious injury.
Do not modify this unit by removing any of the safety guards or by-passing any of the safety interlock switches.
Exposing the unit to water or other moisture before installation may cause a short-circuit on the electrical components.
Do not store the unit where it can be exposed to water or moisture.
After unpacking, ensure you inspect the unit for damage.
When installing this equipment, anti vibration pads must be installed to stop vibration.
To avoid personal injury (with sharp edges), care must be taken when handling components.
Installation of the unit must be done as per the instructions set in this installation manual.
Incorrect installation may result in component failure, damage to property or injury.
When the air conditioning unit is installed in a small room, provide appropriate measures to ensure that the concentration of refrigerant leakage in the room does not exceed the thickness level should a leak occur.
Install the air conditioning unit securely in a location where the base can sustain the weight adequately.
If refrigerant gas has leaked during the installation work, ventilate the room immediately.
If the leaked refrigerant gas comes in contact with a naked flame, noxious gas may be generated..
After installation is complete, ensure a satisfactory strength/tightness test has been performed to ensure there is no refrigerant gas leakage.
Electrical work must be performed by a qualified electrician in accordance with the Installation Manual.
Ensure equipment is grounded.
Do not connect ground wires to gas pipes, water pipes, lightning rods or ground wires for telephone cables.
Conform with national wiring standards.
Inappropriate grounding may cause electric shock.
Do not install the air conditioner in a location where it is at a risk of exposure to a combustible gas.

2. ATTACHED FITTINGS

Ensure all fittings are supplied with unit prior to installation.

	NAME	SHAPE	QUANTITY
INSTALLATION FITTINGS	1. Outdoor unit installation manual		1
	2. Outdoor unit owner's manual		1
	3. Indoor unit owner's manual		1
	4. Outflow connecting tube		1

CAUTION

- Install the unit so that its discharge port faces to the wall of the building. Keep a distance of 2000 mm or more between the unit and the wall surface.

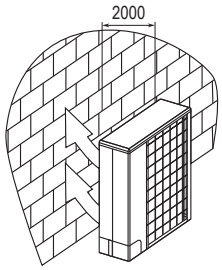


Fig. 2-1

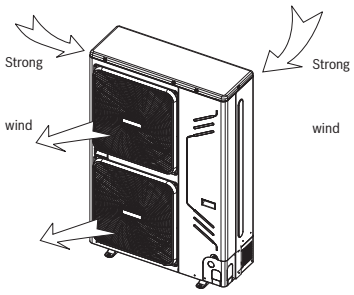


Fig. 2-2

- Do not install the unit in the following locations as component failure will occur.
  - Where machine oil is present.
  - Where sulphuric acid is present.
  - Where high frequency radio waves are likely to be generated.
  - Near a private power station or high Frequency equipment.
  - A location where the indoor/outdoor unit, power cord and connecting wires are less than 1m away from a tv or radio.
  - Installing the unit where there is insufficient maintenance access.

CAUTION

Keep the indoor and outdoor power supply wiring and communication wiring at least 1 meter away from televisions and radios. This is to prevent image and noise interference. In certain circumstances, 1m may not be sufficient.

3. OUTDOOR UNIT INSTALLATION

3.1 Installation location

The following locations may cause component failure.

- Where there is a combustible gas leakage.
- Where there is oil surrounding.
- Where there is salty air surrounding.
- Where there is caustic gas (the sulfide, for example) existing in the air.
- A location where discharge air will affect others.
- A location where noise affects neighbors.
- A location that is too weak to bear the weight of the unit.
- A location which is uneven.
- A location where there is insufficient ventilation.

3.2 Installation clearances (Unit:mm)

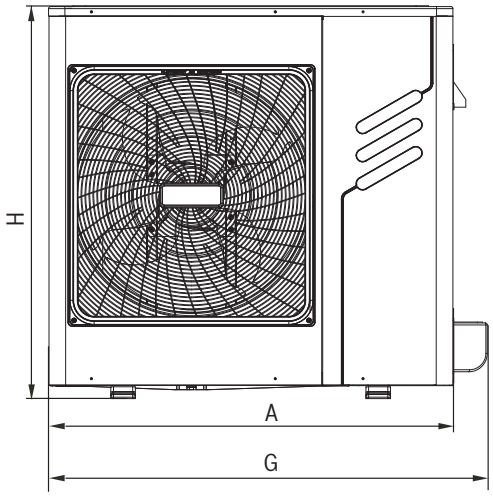


Fig. 3-1

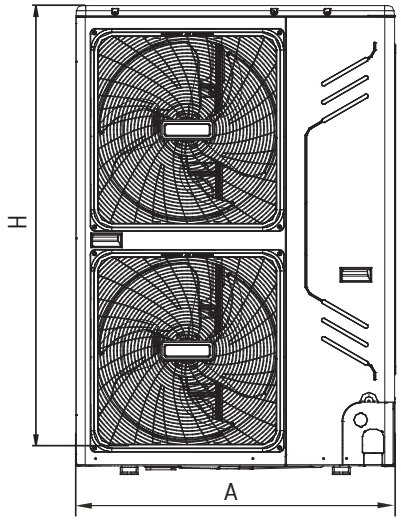


Fig. 3-2

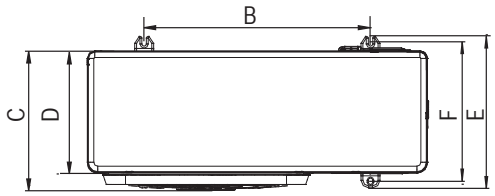


Fig. 3-3

MODEL (kW)	A	B	C	D	E	F	G	H	Fig.
8/10.5	990	624	380	339	396	366	1073	966	Fig. 3-1 Fig. 3-3
12/14/16/18	1280	600	366	320	400	360	–	1327	Fig. 3-2 Fig. 3-3

- Single unit installation

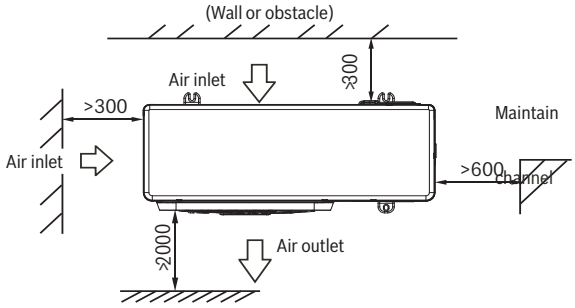


Fig. 3-4

- Parallel connection of two or more units.

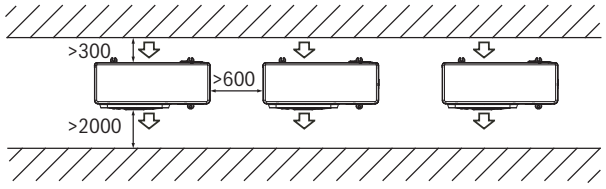


Fig. 3-5

- Parallel connection for units facing each other.

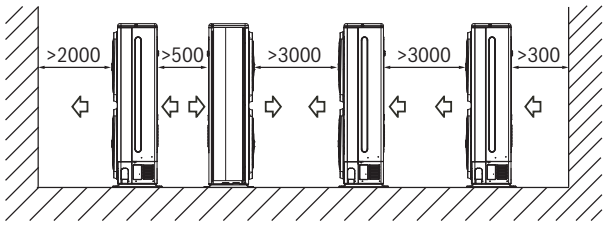


Fig. 3-6

3.3 Handling and installation

- Caution must be taken when handling the outdoor unit, the weight is not in the centre of the unit. The unit is heavier on the front right side. For lifting advice consult HSE and use specified lifting equipment.
- Do not touch the fan blades. The fan blades are sharp and could cause an injury.
- When handling the unit, ensure you do not lean the unit more than 45 degrees as this will cause internal damage to the compressor.
- Fasten the feet of this unit with bolts firmly to prevent it from toppling over. *(Refer to Fig. 3-7)*

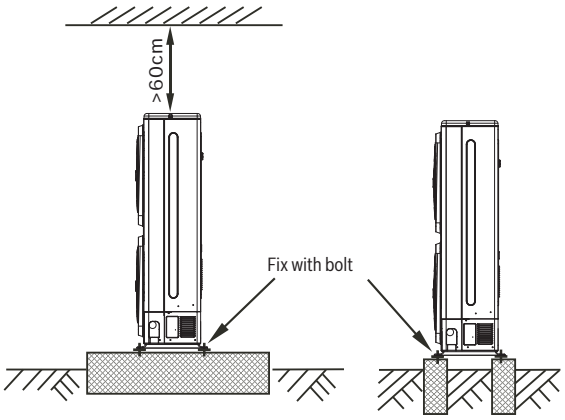


Fig. 3-7

NOTE

All the pictures in this manual are for illustration purposes only. The illustrations may be slightly different from the air conditioning unit you have purchased (dependent on model).

3.4 Condensate Outlet

There are four condense water outlets on the body of the unit shown on the figure below.

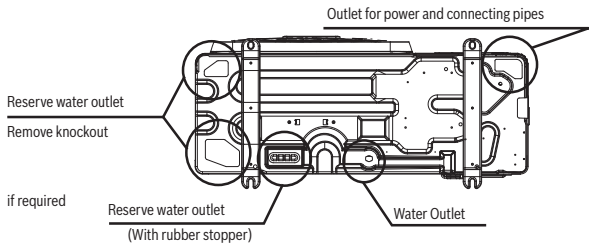


Fig. 3-8

CAUTION

When installing the outdoor unit, consider the drainage points.

4. INSTALLING THE CONNECTIVE PIPEWORK

Ensure the pipe limitations in this manual have been complied with. Failure to do so will cause the unit to malfunction.

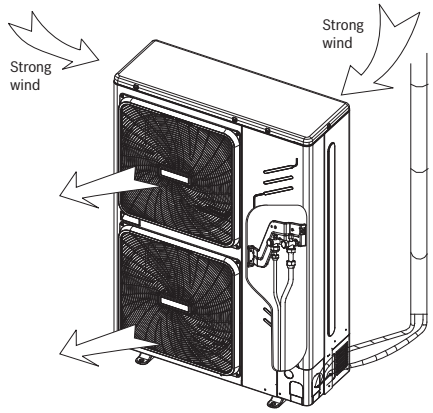


Fig. 4-1

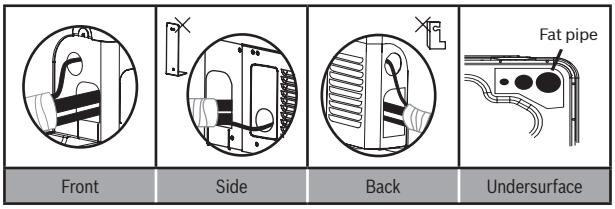
4.1 Refrigerant pipework

CAUTION

To prevent the refrigerant pipework from oxidising, it is necessary to purge nitrogen through the piping whilst brazing.

The outdoor unit can be piped in various ways. The pipes can run from the back, front and under the unit. Remove knock outs where appropriate.

Table 4-1



CAUTION

When piping from the side please remove the metal L shape plate, otherwise cabling will not fit.
When piping from the back, ensure you take out the rubber support blanket beside the inner outlet pipe.
When piping from the front side cut out the front knock out hole.
When piping the undersurface: Remove the knockouts from inside to outside.
Ensure you use the correct size hole when you are piping the unit.

4.2 Pipework Insulation

■ All refrigerant pipework must be correctly insulated in accordance with national standards.

4.3 Connecting method

■ **Select refrigerant pipe**

Table 4-2

Pipe definition	Pipe location	Code
Main pipe	The pipe between outdoor unit to the first branch of indoor unit.	L1
The main pipes for indoor unit	The pipe after the first branch which does not connect directly to the indoor unit.	L2~L5
The branch pipes for indoor unit	The pipe after the branch which does not connect directly to the indoor unit.	a, b, c, d, e, f
Indoor unit branch joint assembly	The branch connector, where the main pipe connects to the branch pipe supplying the indoor units.	A, B, C, D, E

- The first connection method

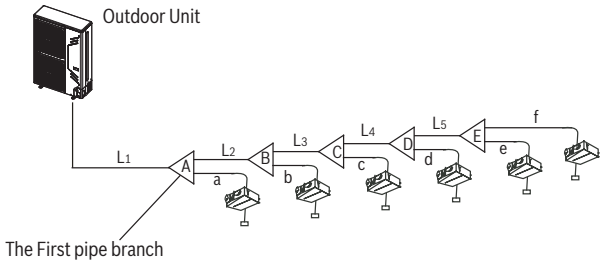


Fig. 4-4

- The second connection method

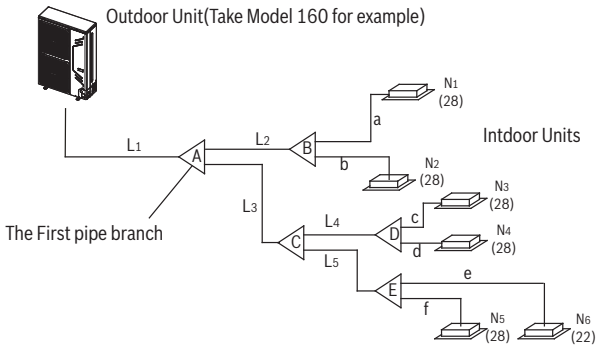


Fig. 4-5

NOTE

- When the distance between the first branch and the last branch is greater than 15m, refer to installation method 2..
- The pipe between the indoor unit to the closest branch must be less than 15 m.

4.4 Confirmation for the diameters of indoor unit connecting pipes

■ Size of main pipe and corresponding branch joint and branch header

1) R410A Indoor unit connecting pipe diameters 4-3.
2) Example 1: In the *Fig. 4-5*. The downstream inner units of L2, and its total capacity is 28×2=56, refer to the *Table 4.4*, the air/liquid side for L2 is Ø15.9/Ø9.5.

Table 4-3 R410A Indoor unit connecting pipes diameters

Total capactiy of the downstream inner units	Main pipe size (inches)		Branch Pipe
	Gas pipe	Liquid pipe	
A<166	Ø15.9	Ø9.5	IDU - 01
166≤A<230	Ø19.1	Ø9.5	IDU - 01

4.5 Confirmation for the diameters of outdoor unit connecting pipes

Table 4-4 R410A outdoor unit connecting pipes diameters

Total capactiy of the outdoor units	Main pipe size when the total equivalent pipework length of liquid + gas side is <90 m			Main pipe size when the total equivalent pipework length of liquid + gas side is ≥90 m		
	gas side (inches)	liquid side (inches)	The first Line Branch Pipe	gas side (inches)	liquid side (inches)	The first Line Branch Pipe
A<160	Ø15.9	Ø9.5	IDU - 01	Ø19.1	Ø9.5	IDU - 01
160≤A<230	Ø19.1	Ø9.5	IDU - 01	Ø22.2	Ø9.5	IDU - 02

NOTE

- When installing branch joints ensure there is at least 0.5 m of straight pipe before and after the branch joint;
- The straight distance between branchpipes must be at least 0.5 m;
- The straight distance where the branch pipes connect to the indoor unit must be at least 0.5 m;
- Branch header must be connected with the indoor units directly, further branch connections are not allowed.

- Select branch joint
- Select the branch joint required by the total designed capacity of the indoor units which it connects to. If this capacity is more than that of the outdoor unit, then select the connection according to the outdoor unit.
- The selection of branch header depends on the quantity of branches it connects to.

■ Connection method

Table 4-5

	Gas side	Liquid side
8kW	Flaring	Flaring
10.5kW	Flaring	Flaring
12kW	Flaring	Flaring
14kW	Flaring	Flaring
16kW	Flaring	Flaring
18kW	Flaring	Flaring
Indoor unit	Flaring	Flaring
Branch pipe	Brazing or Flaring	Brazing or Flaring

■ Pipework sizes at the branch pipe

Table 4-6

Refrigerant	Indoor Unit Capacity A(x100W)	Gas Side (Ø)	Liquid Side (Ø)
R410A	A≤45	12.7(Flaring nut)	6.4(Flaring nut)
	A≥56	15.9(Flaring nut)	9.5(Flaring nut)

■ Pipe diameter of the connections onto the outdoor unit.

Table 4-7

Pipework side / MODEL (kW)	Pipe diameter of outdoor unit's connections (inches)	
	Gas Side	Liquid Side
8	Ø15.9	Ø9.5
10.5	Ø15.9	Ø9.5
12	Ø15.9	Ø9.5
14	Ø15.9	Ø9.5
16	Ø19.1	Ø9.5
18	Ø19.1	Ø9.5

Table 4-8

Outdoor Unit (kW)	Capacity of Outdoor unit (horsepower)	Maximum Quantity of Indoor units	Sum Capacity of Indoor unit (horse-power)
8	2.5	4	45%~130%
10.5	3	5	45%~130%
12	4	6	45%~130%
14	5	6	45%~130%
16	6	7	45%~130%
18	6.5	9	45%~130%

When connecting more than one indoor unit, the largest capacity connected should be less than 8KW.
When the total capacity of the indoor units is greater than 100% of the outdoor units capacity, ensure you turn the indoor units on one by one one. Too many at once will cause damage to the compressor.
When the total capacity of the indoor units is greater than or equal to 16.8 kW, the size of primary gas pipe should be enlarged from Ø16 to Ø19.

Table 4-9

Capacity ranking	Capacity (horsepower)	Capacity ranking	Capacity (horsepower)
18	0.6	80	2.5
22	0.8	10.5	3
28	1	120	4
36	1.25	140	5
45	1.7	160	6
56	2		

■ When the outdoor unit connects to one indoor unit

Table 4-10

MODEL (kW)	The max height drop (m)		The length of refrigerant pipe (m)	The number of bends
	When out-door unit is top	When outdoor unit is bottom		
8	25	20	50	less than 10
10.5	25	20	50	
12	25	20	50	
14	25	20	50	
16	25	20	50	
18	25	20	50	

4.6 Illustration

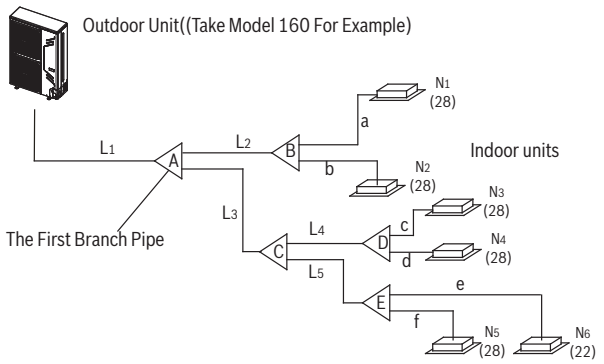


Fig. 4-6

Caution: Ensure both liquid and gas pipework combined does not exceed 90m.

- Indoor unit branch pipe

  Inner branch pipes are a~f, for size selection please refer to *Table 4-6*. Note: The Maximum length of the branch pipe should not exceed more than 15m.

- The main pipes for the indoor units and the indoor unit branch pipe components.

■ The downstream inner units of the main pipe L2 are N1, N2, and its total capacity is 28×2=56, the size of pipe L2 is Ø15.9/Ø9.5, and the branch pipe B should be IDU - 01.

■ The downstream inner units of the main pipe L4 are N3, N4, and its total capacity is 28×2=56, the size of pipe L4 is Ø15.9/Ø9.5, and the branch pipe D should be IDU - 01.

■ The downstream inner units of the main pipe L5 are N5, N6, and its total capacity is 28+22=50, the size of pipe L5 is Ø15.9/Ø9.5, and the branch pipe E should be IDU - 01.

- Allowable length and height difference of refrigerant pipes

Table 4-11

			Permitted value	Pipework
Pipe Length	Total Pipe Length (Actual)		≤100 m	L1+L2+L3+L4+L5+a+b+c+d+e+f
	Maximum Pipework (L)	Actual Length	≤45 m (8 kW, 10.5 kW) ≤60 m (12 kW, 14 kW, 16 kW, 18kW)	L1+L2+L3+L4+L5+f (The first connection method)
		Equivalent Length	≤50 m (8 kW, 10.5 kW) ≤70 m (12 kW, 14 kW, 16 kW, 18kW)	or L1+L3+L5+f (The second connection method)
	Pipe Length (from the first line branch pipe to furthest indoor unit)(m)		≤20 m	L2+L3+L4+L5+f (The first connection method) or L3+L5+f (The second connection method)
	Pipe Length (from the nearest branch pipe equivalent length(m)		≤15 m	a, b, c, d, e
Drop Height	Indoor Unit-Outdoor Unit Drop Height (H)	Outdoor Unit up	≤30 m	————
		Outdoor Unit Down	≤20 m	————
	Indoor Unit to Indoor Unit Drop Heihgt (H)		≤8 m	————

Note: When the distance of the refrigerant pipework is over 90m, the system will decrease in capacity. You must increase the gas pipe by one size.

- The first connection method

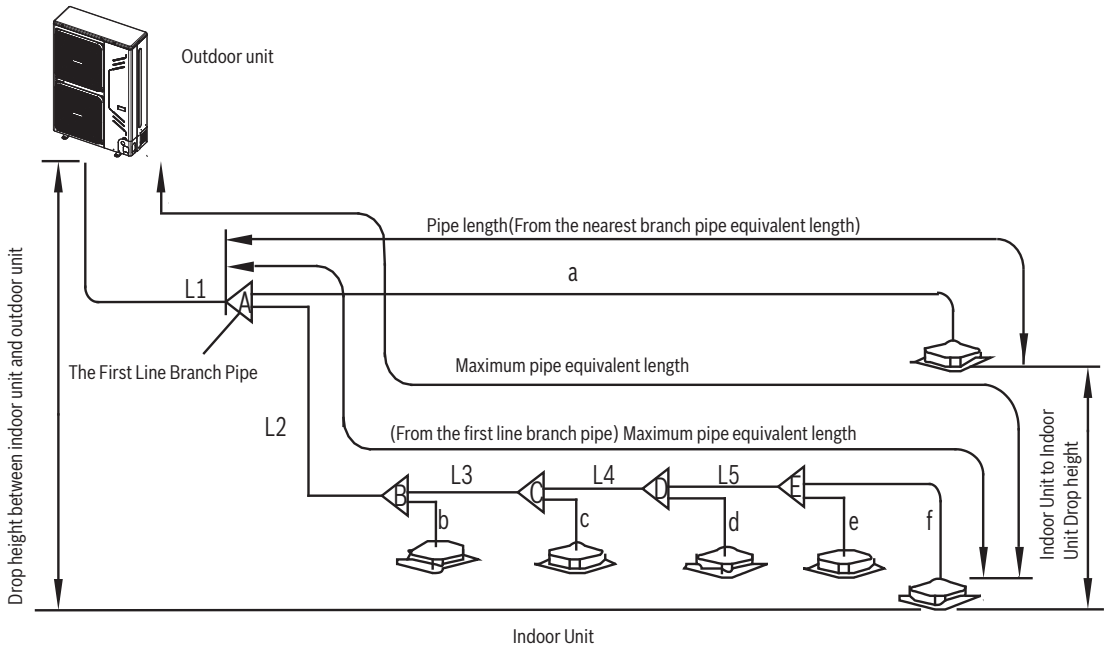


Fig. 4-7

- The second connection method

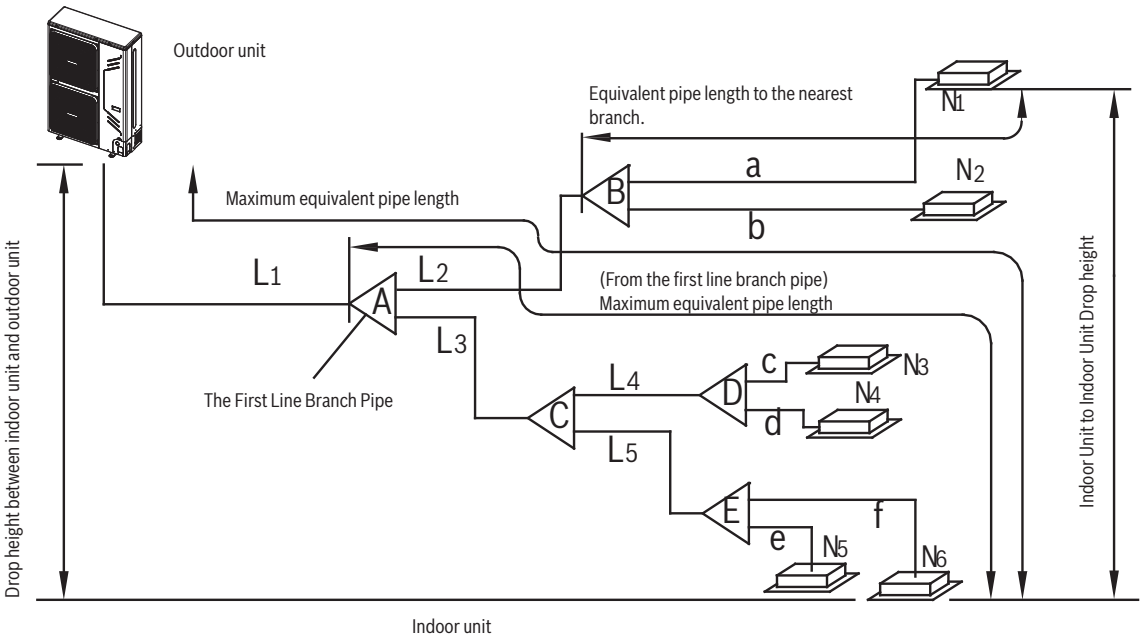


Fig. 4-8

4.7 Removing The Contaminants in the Pipework

Ensure pipework is clear from any water or dirt prior to connecting onto the outdoor unit.

When cleaning pipework, use nitrogen to flush through the system. Do not use refrigerant or water to clean the pipework.

4.8 Strength/Tightness Test

Pressure test the system with nitrogen to 44kgf/cm^2. Ensure a 24 hour strength test has been completed for all new installations. For guidance on tightness testing for existing installations, please refer to F Gas Regulations.

CAUTION

1 Pressured nitrogen [4.3 MPa (44kg/cm^2) for R410A] should be used for strength testing.

2 The high pressure/low pressure valves must be closed when applying pressured nitrogen.

4.9 Vacuuming the installation

- Use a vacuum pump to create the vacuum. do not use refrigerant to expel air.
- Vacuuming should be done on liquid, gas and oil balance pipework.

4.10 Refrigerant Amount to be Added

Calculate the additional refrigerant to be added according to the diameter and the length of the liquid side pipe.

- When the outdoor unit connects 1 indoor unit:

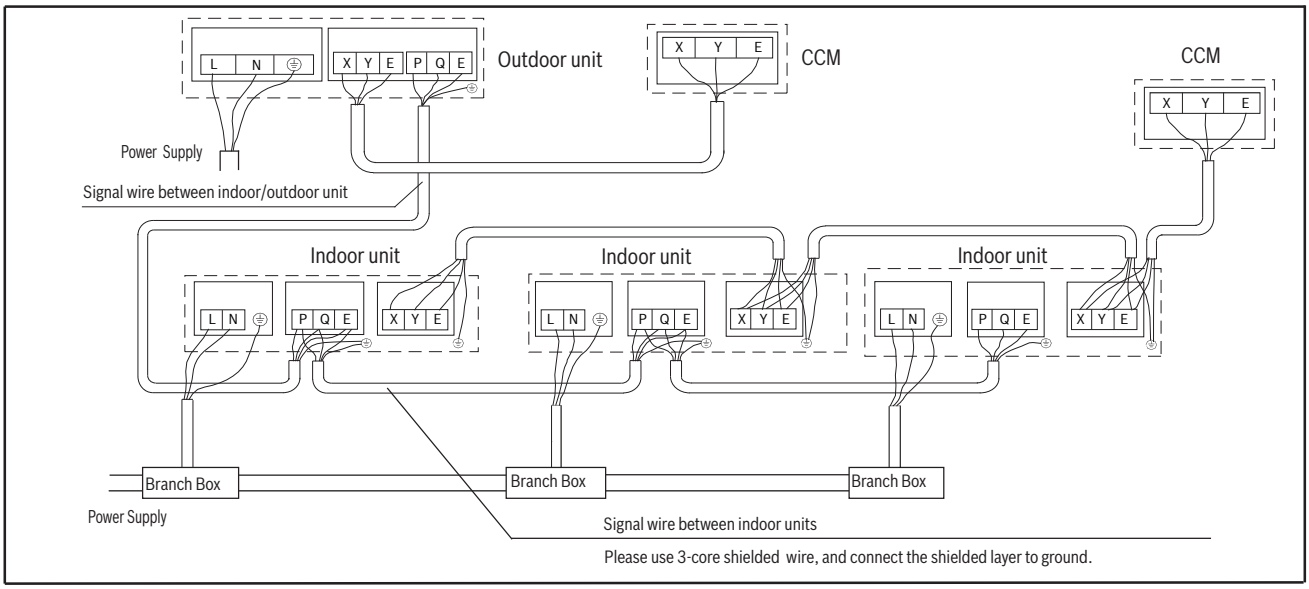
Table 4-12

Liquid Side Pipework Diameter	Refrigerant to be Added Per Meter Of Pipework
Ø6.4	0.022 kg
Ø9.5	0.054 kg
Ø12.7	0.110 kg
Ø15.9	0.170 kg
Ø19.1	0.260 kg
Ø22.2	0.360 kg

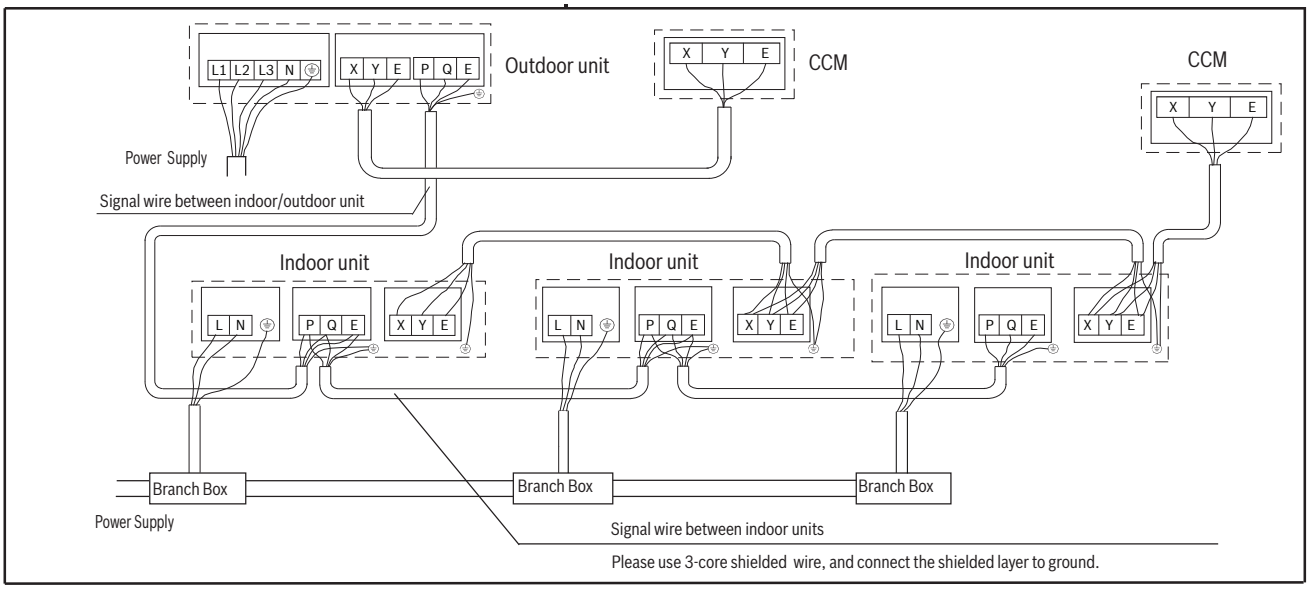
NOTE

Additional refrigerant volume of divergent pipe is 0.1 kg per meter (Consider the liquid side of divergent pipe only)

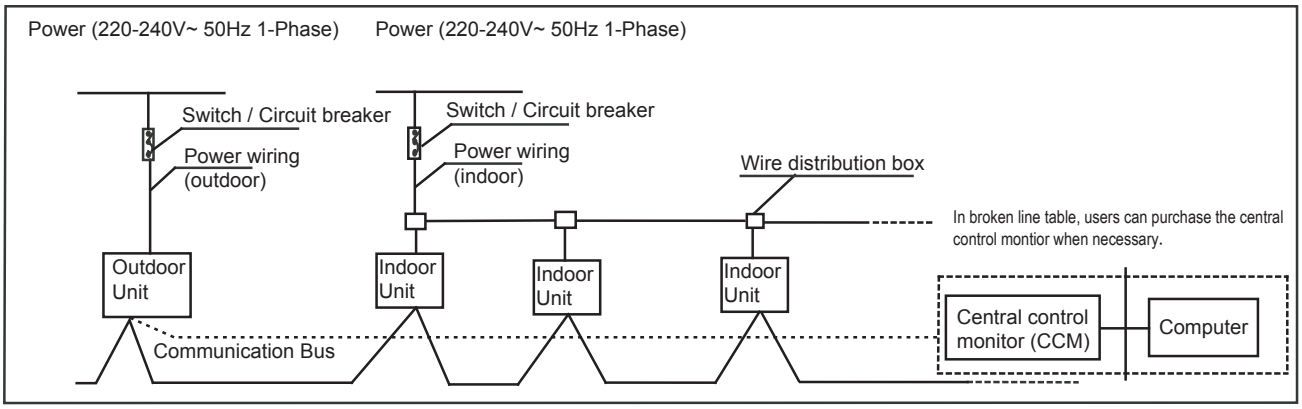
5. ELECTRICAL WIRING



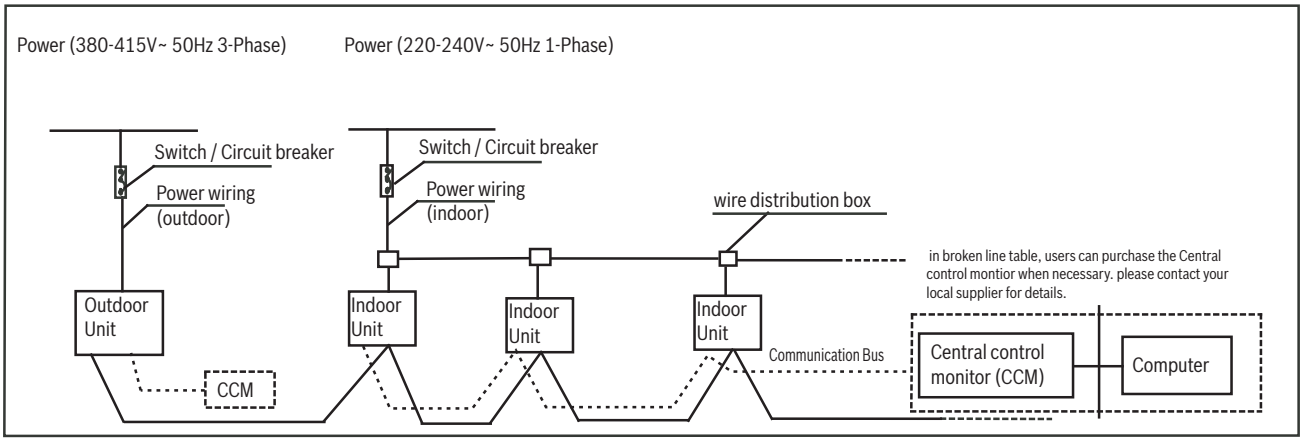
For 8~18 kw (1-Phase) *Fig. 5-1*



For 10.5~18 kw (3-Phase) *Fig. 5-2*



For 8~18 kW *Fig. 5-3*



For 10.5~18 kw

Fig. 5-4

CAUTION

- Please select power source for indoor unit and outdoor unit respectively.
- The power supply has specified branch circuit with leakage protector and manual switch.
- The outdoor unit should have a separate power supply. Ensure you consult national electrical guidelines.
- When installing multiple systems, ensure you connect the wires to the correct system.
- Use 3 core shielded wire for communication wire between indoor and outdoor.
- The installation should comply with local electric standards.
- Ensure electrical work is carried out by a qualified person.

5.1 Outdoor Unit Wiring

■ The Specification of Power

Table 5-1

Power Source	220-240V~ 1Ph 50Hz			208-230V~ 1Ph 60Hz		208-230V 3Ph~ 60Hz		380-415V 3Ph~ 50Hz		380-415V 3Ph~ 60Hz	
Capicity (kW)	8	12	16	8	12	8	12	8	12	8	12
	10.5	14	18	10.5	14	10.5	14	10.5	14	10.5	14
	/	/	/	/	16	/	16	/	16	/	16
	/	/	/	/	/	/	/	/	18	/	/
Power Wiring Size	Wire size must comply with local standards										
Circuit Breaker (A)	25	40	63	25	40	25	32	16	25	16	25
Indoor unit/Outdoor unit Signal wire (mm^2)	3-core shielded wire 3X0.75										

CAUTION

Equipment complying with IEC 61000-3-12.

A disconnection device having an air gap contact separation in all active conductors should be incorporated in the fixed wiring in accordance with the National Wiring Regulations.

CAUTION

The reserved function is indicated in broken line table,users can select it when necessary.

Indoor/Outdoor Unit communication cable

Communication wires are polarity sensitive.

NOTE

The air conditioning units can be connected to a Central Control Monitor (CCM). Before operation, ensure the wiring is completed and all internal and external units are addressed.

5.2 Indoor Unit Wiring

- Power Supply

Table 5-2

Capacity(KW)		1.8~16
Indoor Unit Power	Phase	1-Phase
	Voltage and Frequency	220-240V~ 50Hz
	Power Wiring Size	Wire size must comply with local standards
Circuit Breaker (A)		16
Indoor Unit/Outdoor Unit Signal Wire (mm^2)		3-core shielded wire 3X0.75

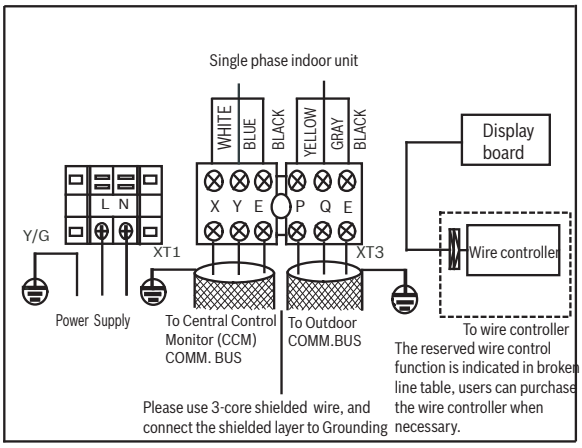


Fig. 5-5

1 Communication wires are polarity sensitive. Three core shielded cable must be used to prevent interference. Shielded layers must be connected to ground.

2 The control between units is a BUS type. Units addresses must be set during commissioning.

CAUTION

Indoor/Outdoor unit signal wire is a low voltage circuit. Do not connect signal wires to electrical power voltage terminals.

NOTE

The wire diameter and continuous length has been calculated and cannot have more than a 2% fluctuation in voltage.

Indoor unit power supply wiring

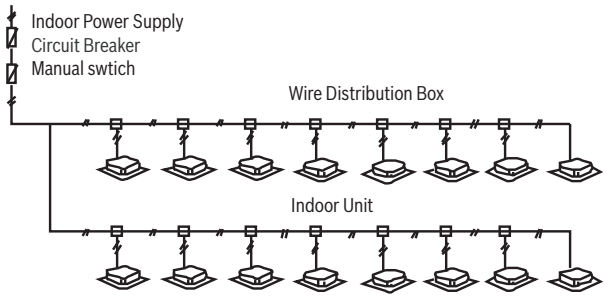


Fig. 5-6

CAUTION

1 Ensure the correct wires correspond with the correct pipework installation.

2 Ensure power cables and signal cables are installed in separate containment. A minimum distance of 300mm when power capacity output is less than 10A and a minimum of 500mm for a power capacity output over 10A.

Indoor/Outdoor unit signal wiring

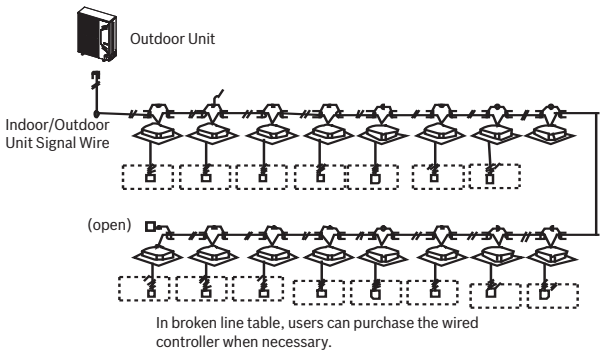


Fig. 5-7

5.3 Function setting dial switches instructions

- SW3(SW-1) definition: Auto Addressing Dial

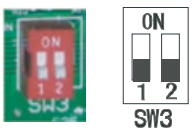


Table 5-3

SW3 (SW-1)		
1	ON	Obtain network address automatically
	OFF	Obtain network address manually
2	ON	Delete indoor unit network address
	OFF	/

- 12–16: SW4/SW7 definition: Auto addressing dial

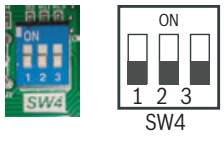
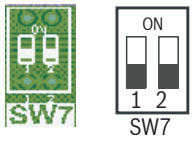
Single-Phase	Three-Phase
	

Table 5-4

SW4		Single-Phase
SW7		Three-Phase
1	ON	Obtain network address automatically
	OFF	Obtain network address manually
2	ON	Delete indoor unit network address
	OFF	/

6. TEST RUNNING

CAUTION

- Ensure power to the outdoor unit has been turned on for at least 12 hours prior to start up.
- Ensure isolation valves have been opened prior to running the unit.

7. PRECAUTIONS ON REFRIGERANT LEAKAGE

This air conditioning unit uses R410a as a refrigerant which is non flammable. The room for the air conditioning unit should big enough so that any refrigerant leakage is unable to reach critical thickness.

- Critical thickness------maximum exposure of refrigerant without any harm to person.
- Refrigerant critical thickness: 0.44 [kg/m^3] for R410A.

Confirm the critical thickness using the following steps, and take necessary actions.

1 Calculate the sum of the charge volume (A[kg]) Total Refrigerant volume of 10HP=factory refrigerant volume + superaddition

2 Calculate the indoor cubage (B[m]) (as the minimum cubage.

Calculate the refrigerant thickness

$$\frac{A[kg]}{B[m^3]} \leq \text{critical thickness}$$

Counter measure against over high thickness

1 Install a mechanical ventilator to reduce the refrigerant thickness under a critical level. (ventilate regularly)

2 Install leak alarm facility related to a mechanical ventilator if you can not regularly ventilate.

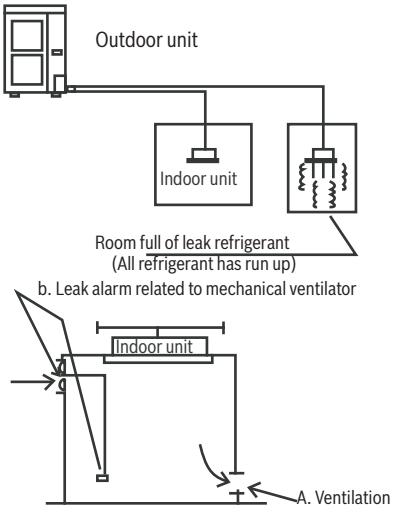


Fig. 7-1

Project Name:	
Project Address	
Project Reference Number	
Commissioning Date	
Commissioning Engineer	
Engineers Commissioning Number	
Engineers Service Number	

Notes

Installation Engineers Signature	Commissioning Engineers Signature
Print Name	Print Name

BOSCH

Pre Commissioning Checks

Condenser Installation Condition	
Condenser Access Condition	
Indoor Unit Installation Condition	
Indoor Unit Access	
Sbox Installation Condition	
Sbox Acces Condition	
Power Status	
Leak Tested Too	
Duration	
Pressure Tested Too	
Duration	
Strength Tested Too	
Duration	
Tripple Evacuated	
Duration	

Evacuation Reading (Must be 1.5 Torr or 0.5mb)

Notes

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Outdoor Unit Details

Outdoor Location	
Outdoor Serving Location	
Outdoor Model Number	
Outdoor Serial Number	
Compressor 1 Serial Number	
Compressor 2 Serial Number	
Outdoor Unit Address Setting	
Total Pipe Length	
Total Index of Indoors	
Standard Refrigeration Charge	
Additional Refrigerant	
Power Supply	

BOSCH

Indoor Details

Indoor Unit 1 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

Indoor Unit 2 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

Indoor Unit 3 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Setting	

Indoor Unit 4 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

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Indoor Details

Indoor Unit 5 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	
Indoor Unit 6 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	
Indoor Unit 7 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Setting	
Indoor Unit 8 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

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Indoor Details

Indoor Unit 9 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

Indoor Unit 10 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

Indoor Unit 11 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Setting	

Indoor Unit 12 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

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Indoor Details

Indoor Unit 13 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	
Indoor Unit 14 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	
Indoor Unit 15 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Setting	
Indoor Unit 16 Model Number	
Serial Number	
Power Supply	
Address Setting	
Sbox Port Setting	

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Indoor Unit Data

Unit Address	Model Number	Cooling Off	Return Air Cooling	Heating Off	Return Air Heating	Comms V

BOSCH

Outdoor/Sbox Data

Outdoor 1	Heating	Cooling
Model Number		
Serial Number		
Compressor Discharge Temp		
Compressor Frequency		
High Pressure Reading		
Low Pressure Reading		
Compressor Serial Num 1 & 2		

Outdoor 2	Heating	Cooling
Model Number		
Serial Number		
Compressor Discharge Temp		
Compressor Frequency		
High Pressure Reading		
Low Pressure Reading		
Compressor Serial Num 1 & 2		

Outdoor 3	Heating	Cooling
Model Number		
Serial Number		
Compressor Discharge Temp		
Compressor Frequency		
High Pressure Reading		
Low Pressure Reading		
Compressor Serial Num 1 & 2		

Outdoor 4	Heating	Cooling
Model Number		
Serial Number		
Compressor Discharge Temp		
Compressor Frequency		
High Pressure Reading		
Low Pressure Reading		
Compressor Serial Num 1 & 2		

Sbox Model Number	Serial Number	Power V	Comms V	Address

Acces To Sbox	

Model	Product Description	N.Cooling Capacity	N.Heating Capacity	Refrigerant	GWP	CO2 equivalent for pre-charged refrigerant	Pre-charged Refrigerant Amount	Additionally Charged Refrigerant	Overall amount of refrigerant after charging	Overall CO2 equivalent after charging
		[kW]	[kW]	-	-	[tonnes]	[kg]	[kg]	[kg]	[kg]
MDCI8-1	Outdoor Unit, 2-pipe, 1ph	7,2 [1,5-8]	7,2 [1,6-8,4]	R-410A	2088	6,2	2,95			
MDCI10-1	Outdoor Unit, 2-pipe, 1ph	9 [2-10]	9 [2,1-10,5]	R-410A	2088	6,2	2,95			
MDCI12-1	Outdoor Unit, 2-pipe, 1ph	12,5	14	R-410A	2088	5,8	2,8			
MDCI14-1	Outdoor Unit, 2-pipe, 1ph	14	16	R-410A	2088	6,7	3,2			
MDCI16-1	Outdoor Unit, 2-pipe, 1ph	16	17,5	R-410A	2088	7,9	3,8			
MDCI12-3	Outdoor Unit, 2-pipe, 3ph	12	14	R-410A	2088	5,8	2,8			
MDCI14-3	Outdoor Unit, 2-pipe, 3ph	14	16	R-410A	2088	6,7	3,2			
MDCI16-3	Outdoor Unit, 2-pipe, 3ph	16	17,5	R-410A	2088	7,9	3,8			
MDCI18-3	Outdoor Unit, 2-pipe, 3ph	17,5	19	R-410A	2088	9,4	4,5			

Frequency of Refrigerant Leak Checks

- If the amount of tons CO_2 equivelant/circuit is from 5 to 50 tons, then frequency to check is 12 months in case system is without a leakage dedection system or 24 months in case system is with a leakage dedection system.
- If the amount of tons CO_2 equivelant/circuit is from 50 to 500 tons, then frequency to check is 6 months in case system is without a leakage dedection system or 12 months in case system is with a leakage dedection system.
- If the amount of tons CO_2 equivelant/circuit is over 500 tons, then frequency to check is 3 months in case system is without a leakage dedection system or 6 months in case system is with a leakage dedection system.

[bg] Важни указания във връзка с инсталацията/монтажа

Инсталацията/монтажът трябва да се извършва от лицензиран за работите специалист в съответствие с приложимите разпоредби.

- Съблюдавайте съответните ръководства на компоненти на уредбата, принадлежности и резервни части.
- Преди всички работи: На всички полюси уредбата не трябва да бъде под напрежение.

[de] Wichtige Hinweise zur Installation/Montage

Die Installation/Montage muss durch eine für die Arbeiten zugelassene Fachkraft unter Beachtung der geltenden Vorschriften erfolgen.

- Mitgeltende Anleitungen von Anlagenkomponenten, Zubehören und Ersatzteilen beachten.
- Vor allen Arbeiten: Anlage allpolig spannungsfrei machen.

[el] Σημαντικές υποδείξεις για την εγκατάσταση/συναρμολόγηση

Η εγκατάσταση/συναρμολόγηση πρέπει να πραγματοποιείται από εξουσιοδοτημένο για τις εργασίες αυτές τεχνικό προσωπικό, το οποίο θα πρέπει να φροντίζει ώστε να τηρούνται οι ισχύουσες διατάξεις.

- Λάβετε υπόψη τις συνοδευτικές οδηγίες που αφορούν τα εξαρτήματα της εγκατάστασης, τους πρόσθετους εξοπλισμούς και τα ανταλλακτικά.
- Πριν από οποιαδήποτε εργασία: Αποσυνδέστε όλους τους πόλους της εγκατάστασης από το ρεύμα.

[en] Important notes on installation/assembly

The installation/assembly must be carried out by a professional who is authorised to do the work, and with due regard to the relevant regulations.

- Observe all the relevant instructions for other system components, accessories and spare parts.
- Before starting any work: disconnect the system from the power supply across all phases.

[es] Indicaciones importantes para instalación/montaje

La instalación/el montaje lo debe realizar personal especializado autorizado para los trabajos, respetando las prescripciones vigentes.

- Respetar las instrucciones de referencia de los componentes de la instalación, los accesorios y las piezas de repuesto.
- Antes de todos los trabajos: eliminar la tensión en todos los polos de la instalación.

[fr] Instructions importantes pour l'installation/le montage

L'installation/le montage doit être effectué(e) par un spécialiste qualifié pour les opérations concernées et dans le respect des prescriptions applicables.

- Respecter également les notices des composants de l'installation, des accessoires et des pièces de rechange.
- Avant tous les travaux : couper la tension sur tous les pôles de l'installation.

[it] Avvertenze importanti per l'installazione/il montaggio

L'installazione/il montaggio deve aver luogo ad opera di una ditta specializzata ed autorizzata in osservanza delle disposizioni vigenti.

- Osservare le istruzioni allegate dei componenti dell'impianto, degli accessori e delle parti di ricambio.
- Prima di tutti i lavori: staccare completamente l'alimentazione elettrica dell'impianto.

[nl] Belangrijke aanwijzingen betreffende de installatie/montage

De installatie/montage moet worden uitgevoerd door een voor de werkzaamheden geautoriseerde installateur rekening houdend met de geldende voorschriften.

- Houd u aan de geldende handleidingen van installatiecomponenten, accessoires en reserveonderdelen.
- Voor alle werkzaamheden: schakel de installatie over alle polen spanningsloos.

[pl] Ważne wskazówki dotyczące instalacji/montażu

Zainstalowanie/montaż muszą być wykonane przez uprawnionego do tego rodzaju prac specjalistę przy zachowaniu obowiązujących przepisów.

- Przestrzegać dodatkowych instrukcji dołączonych do komponentów instalacji, osprzętu i oraz części zamiennych.
- Przed przystąpieniem do wykonywania wszelkich prac: odłączyć instalację od zasilania sieciowego (wszystkie bieguny).

[pt] Indicações importantes relativas à instalação/montagem

A instalação/montagem deve ser efectuada por um técnico especializado com qualificações para estes trabalhos, tendo em atenção os regulamentos em vigor.

- Ter em consideração as instruções aplicáveis de componentes da instalação, acessórios e peças de substituição.
- Antes de todos os trabalhos: desligar a instalação da corrente em todos os pólos.

[ro] Indicații importante privind instalarea/montajul

Instalarea/montajul trebuie realizate de către un specialist autorizat pentru lucrările respective, respectându-se prescripțiile valabile.

- Respectați instrucțiunile conexe referitoare la componentele instalației, accesorii și piese de schimb.
- Anterior tuturor lucrărilor: decuplați instalația de la alimentarea cu tensiune la toți polii.

[tr] Kurulum/Montaj ile ilgili önemli uyarılar

Kurulum/Montaj çalışmaları sadece yetkili bayiler tarafından aşağıda belirtilen talimatlar dikkate alınarak yapılmalıdır.

- Tesisat parçalarına, aksesuarlara ve yedek parçalara ait talimatları dikkate alın.
- Çalışmaya başlamadan önce: Enerji beslemesinin tüm kutuplarını ayırarak tesisatın enerji beslemesini kesin.

BOSCH
Bosch Thermotechnik GmbH
Junkersstrasse 20-24
D-73249 Wernau/Germany

Bosch Thermotechnology Ltd.
Cotswold Way, Warndon, Worcester WR4 9SW

All Enquiries: 0330 123 3004
www.bosch-industrial.co.uk