

Midea R410A 50Hz Compressor Condensing Unit Technical Manual

Applicable Model:

MCCU-03CN1

MCCU-05CN1

MCCU-07CN1

MCCU-10CN1

MCCU-14CN1

MCCU-16CN1

MCCU-22CN1

MCCU-28CN1

MCCU-35CN1

MCCU-45CN1

MCCU-53CN1

MCCU-61CN1

MCCU-70CN1

MCCU-105CN1

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Part. 1 Performance

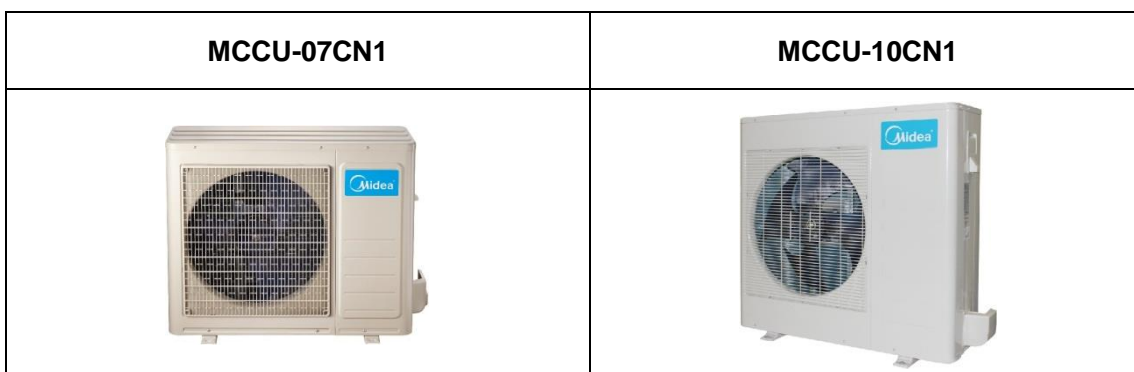
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1. Product lineup



Model names of units with cooling only:



Outdoor unit		Cooling capacity	
Model	Power supply	W	Btu/h
MCCU-03CN1	220-240V~, 1Ph, 50Hz	3,200	10,920
MCCU-05CN1		5,300	18,080
MCCU-07CN1		7,100	24,230
MCCU-10CN1	380-415V~, 3Ph, 50Hz	10,500	35,830
MCCU-14CN1		14,000	47,770
MCCU-16CN1		16,000	54,590
MCCU-22CN1		22,000	75,060
MCCU-28CN1	380-400V~, 3Ph, 50Hz	28,000	95,540
MCCU-35CN1		35,000	119,420
MCCU-45CN1	380-415V~, 3Ph, 50Hz	45,000	153,540
MCCU-53CN1	380-400V~, 3Ph, 50Hz	53,000	180,840
MCCU-61CN1		61,000	208,130
MCCU-70CN1		70,000	238,840
MCCU-105CN1		105,000	358,260

2. External Appearance

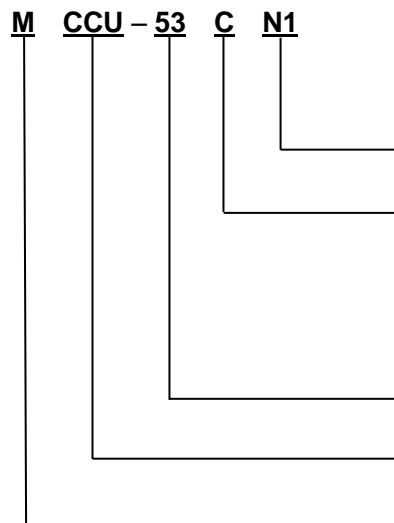


<p>MCCU-14CN1 MCCU-16CN1</p>	<p>MCCU-22CN1 MCCU-28CN1</p>
	

<p>MCCU-35CN1</p>	<p>MCCU-45CN1</p>
	

<p>MCCU-53CN1, MCCU-61CN1</p>	<p>MCCU-70CN1, MCCU-105CN1</p>
	

3. Nomenclature



Refrigerant type: R410A

Function code

C: Cooling only

H: Heat pump

Nominal cooling capacity (53×1,000W)

Compressor Condensing Unit

Midea

4. Specifications

Model			MCCU-03CN1	MCCU-05CN1
Power supply		\	220-240V~, 1Ph, 50Hz	220-240V~, 1Ph, 50Hz
Ambient temperature range		°C	17~46	17~46
Cooling	Capacity	kW	3.2	5.3
	Input	kW	1.3	2.05
Max. input		kW	1.60	2.85
Max. current		A	7.5	15.0
Noise level		dB(A)	49	55
Compressor	Type / Quantity	\	Rotary / 1	Rotary / 1
	Model	\	PA150X2C-4FT	PA225M2CS-4KU2
	Brand	\	GMCC	GMCC
	Capacity	W	3,660	5,500
	Input	W	1,260	1,835
	Capacitor	\	35μF/450V	50μF/450V
	Rated current (RLA)	A	5.8	8.5
	Oil charge	\	480 (Ester oil VG74)	750 (Ester oil VG74)
Refrigerant	Type / Charged	\	R410A / 800g	R410A / 860g
Fan	Type / Quantity	\	Axial fan / 1	Axial fan / 1
	Motor model	\	YDK24-6F(B)	YDK48-6H(A)
	Fan dimension	mm	Φ401	Φ424
	Drive type	\	Direct	Direct
	Capacitor	\	2.5μF/450V	3μF/450V
	Motor input	W	63	111
	Motor speed	rpm	800	890
Coil	Type	\	Copper tube and aluminum fin	Copper tube and aluminum fin
	Tube size	mm	Φ7.94	Φ7
	Qty. of rows	\	1	2
	Fin space	mm	1.6	1.4
	Length x Height	mm	762x484	658x546
	Number of circuits	\	2	8
Refrigerant pipe	Liquid side / Gas side	mm	Φ6.35/Φ12.7	Φ6.35/Φ12.7
	Max. pipe length	m	20	20
	Max. difference in level	m	10	10
Connection wire	Power wire	\	2x2.5mm ² +1x1.5mm ² (Ground)	2x4.0mm ² +1x2.5mm ² (Ground)
	Signal wire	\	1x1.0mm ²	1x1.0mm ²
Air volume		m ³ /h	1,800	2,300
Dimension (WxHxD)		mm	848x549x300	825x597x315
Packing (WxHxD)		mm	910x575x335	890x650x360
Net / Gross weight		kg	30.5/33	36.5/39.5

Notes:

Nominal cooling capacities are based on the following conditions: Indoor temperature: 27°CDB/19°CWB; outdoor temperature: 35°CDB/24°CWB. Equivalent refrigerant pipe: 7.5m.

Model			MCCU-07CN1	MCCU-10CN1
Power supply		\	220-240V~, 1Ph, 50Hz	380-415V~, 3Ph, 50Hz
Ambient temperature range		°C	17~46	17~46
Cooling	Capacity	kW	7.1	10.5
	Input	kW	2.7	4.0
Max. input		kW	3.50	5.30
Max. current		A	18.0	10
Noise level		dB(A)	55	56
Compressor	Type / Quantity	\	Rotary / 1	Scroll / 1
	Model	\	PA290G2CS-4MU1	C-SBN303H8D
	Brand	\	GMCC	Sanyo
	Capacity	W	7,260	9,800
	Input	W	2,430	3,650
	Capacitor	\	50μF/450V	/
	Rated current (RLA)	A	11.65	6.58
	Oil charge	\	850 (Ester oil VG74)	1,700 (FV68S)
Refrigerant	Type / Charged	\	R410A / 1,350g	R410A / 2,500g
Fan	Type / Quantity	\	Axial fan / 1	Axial fan / 1
	Motor model	\	YDK53-6C	YDK190-6D(B)
	Fan dimension	mm	Φ460	Φ560
	Drive type	\	Direct	Direct
	Capacitor	\	3μF/450V	10μF/450V
	Motor input	W	136	290
	Motor speed	rpm	800	830
Coil	Type	\	Copper tube and aluminum fin	Copper tube and aluminum fin
	Tube size	mm	Φ7	Φ7
	No. of rows	\	2	1.6
	Fin space	mm	1.5	1.5
	Length x Height	mm	766x630	898x882
	Number of circuits	\	4	7
Refrigerant pipe	Liquid side / Gas side	mm	Φ9.52/Φ12.7	Φ9.52/Φ19
	Max. pipe length	m	20	30
	Max. difference in level	m	10	20
Connection wire	Power wire	\	2x6.0mm ² +1x4.0mm ² (Ground)	4x4.0mm ² +1x2.5mm ² (Ground)
	Signal wire	\	1x1.0mm ²	1x1.0mm ²
Air volume		m ³ /h	2,700	3,800
Dimension (WxHxD)		mm	916x702x360	1,077x967x396
Packing (WxHxD)		mm	965x755x420	1,120x1,100x435
Net / Gross weight		kg	48.5/52	85.8/95.6

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-14CN1	MCCU-16CN1
Power supply		\	380-415V~, 3Ph, 50Hz	380-415V~, 3Ph, 50Hz
Ambient temperature range		°C	17~46	17~46
Cooling	Capacity	kW	14.0	16.0
	Input	kW	5.2	6.2
Max. input		kW	6.10	8.50
Max. current		A	12	13
Noise level		dB(A)	56	57
Compressor	Type / Quantity	\	Scroll / 1	Scroll / 1
	Model	\	C-SBN373H8D	C-SBN453H8D
	Brand	\	Sanyo	Sanyo
	Capacity	W	14,100	16,400
	Input	W	4,750	5,750
	Capacitor	\	/	/
	Rated current (RLA)	A	8.22	9.77
	Oil charge	\	1,700 (FV68S)	1,700 (FV68S)
Refrigerant	Type / Charged	\	R410A / 3,000g	R410A / 3,050g
Fan	Type / Quantity	\	Axial fan / 2	Axial fan / 2
	Motor model	\	YDK65-6F(B)	YDK65-6F(B)
	Fan dimension	mm	Φ455	Φ455
	Drive type	\	Direct	Direct
	Capacitor	\	4μF/450V	4μF/450V
	Motor input	W	174	174
	Motor speed	rpm	825	825
Coil	Type	\	Copper tube and aluminum fin	Copper tube and aluminum fin
	Tube size	mm	Φ7	Φ7.94
	No. of rows	\	2	2
	Fin space	mm	1.5	1.6
	Length x Height	mm	845x1,092	837x1,100
	Number of circuits	\	8	8
Refrigerant pipe	Liquid side / Gas side	mm	Φ9.52/Φ19	Φ9.52/Φ19
	Max. pipe length	m	30	30
	Max. difference in level	m	20	20
Connection wire	Power wire	\	4x4.0mm ² +1x2.5mm ² (Ground)	4x10.0mm ² +1x6.0mm ² (Ground)
	Signal wire	\	1x1.0mm ²	1x1.0mm ²
Air volume		m ³ /h	4,500	4,500
Dimension (WxHxD)		mm	987x1,167x400	987x1,167x400
Packing (WxHxD)		mm	1,032x1,307x443	1,032x1,307x443
Net / Gross weight		kg	91.6/102	96.6/107

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-22CN1
Power supply		\	380-415V~, 3Ph, 50Hz
Ambient temperature range		°C	17~52
Cooling	Capacity	kW	22.0
	Input	kW	7.6
Max. input		kW	11.70
Max. current		A	19.3
Noise level		dB(A)	65
Compressor	Type / Quantity	\	Scroll / 1
	Model	\	ZP90KCE-TFD-522
	Brand	\	Copeland
	Capacity	W	21,900
	Input	W	6,950
	Capacitor	\	/
	Rated current (RLA)	A	16.5
	Oil charge	\	2,513 (POE)
Refrigerant	Type / Charged	\	R410A / 5,400g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YDK210-6A
	Fan dimension	mm	Φ530
	Drive type	\	Direct
	Capacitor	\	10μF/450V
	Motor input	W	Hi: 284; Lo: 202
	Motor speed	rpm	Hi: 920/930; Lo: 650/710 (4 blades/3 blades)
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7.94
	No. of rows	\	2
	Fin space	mm	1.4
	Length x Height	mm	2,177x880
	Number of circuits	\	9
Refrigerant pipe	Liquid side / Gas side	mm	Φ9.52/Φ22
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	5x6.0mm ²
	Signal wire	\	2x1.0mm ²
Air volume		m ³ /h	9,000
Dimension (WxHxD)		mm	1,260x908x700
Packing (WxHxD)		mm	1,320x1,060x730
Net / Gross weight		kg	171/190

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-28CN1
Power supply		\	380-415V~, 3Ph, 50Hz
Ambient temperature range		°C	17~52
Cooling	Capacity	kW	28.0
	Input	kW	9.6
Max. input		kW	14.40
Max. current		A	23.7
Noise level		dB(A)	67
Compressor	Type / Quantity	\	Scroll / 1
	Model	\	ZP120KCE-TFD-522
	Brand	\	Copeland
	Capacity	W	29,200
	Input	W	9,200
	Capacitor	\	/
	Rated current (RLA)	A	20
	Oil charge	\	3,253 (POE)
Refrigerant	Type / Charged	\	R410A / 6,000g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YDK400-4C
	Fan dimension	mm	Φ530
	Drive type	\	Direct
	Capacitor	\	25μF/450V
	Motor input	W	Hi: 621/587; Lo: 388/388 (4 blades/3 blades)
	Motor speed	rpm	Hi: 1,180/1,230; Lo: 790/870 (4 blades/3 blades)
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7
	No. of rows	\	3
	Fin space	mm	1.3
	Length × Height	mm	2,179×882
	Number of circuits	\	20
Refrigerant pipe	Liquid side / Gas side	mm	Φ9.52/Φ25
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	5×6.0mm ²
	Signal wire	\	2×1.0mm ²
Air volume		m ³ /h	11,000
Dimension (W×H×D)		mm	1,260×908×700
Packing (W×H×D)		mm	1,320×1,060×730
Net / Gross weight		kg	185/202

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-35CN1
Power supply		\	380-400V~, 3Ph, 50Hz
Ambient temperature range		°C	17~52
Cooling	Capacity	kW	35.0
	Input	kW	12.6
Max. input		kW	17.30
Max. current		A	28.5
Noise level		dB(A)	69
Compressor	Type / Quantity	\	Scroll / 1
	Model	\	SH140A4ALC
	Brand	\	Danfoss
	Capacity	W	34,700
	Input	W	10,862
	Capacitor	\	/
	Rated current (RLA)	A	21.4
	Oil charge	\	3,300 (POE-160SZ)
Refrigerant	Type / Charged	\	R410A / 7,200g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YDK400-4C
	Fan dimension	mm	Φ530
	Drive type	\	Direct
	Capacitor	\	25μF/450V
	Motor input	W	Hi: 621/587; Lo: 388/388 (4 blades/3 blades)
	Motor speed	rpm	Hi: 1,180/1,230; Lo: 790/870 (4 blades/3 blades)
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7
	No. of rows	\	3
	Fin space	mm	1.3
	Length x Height	mm	(1,380×882)+(1,380×882)
	Number of circuits	\	20+20
Refrigerant pipe	Liquid side / Gas side	mm	Φ12.7/Φ28.6
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	5×6.0mm ²
	Signal wire	\	2×1.0mm ²
Air volume		m ³ /h	11,500
Dimension (W×H×D)		mm	1,260×908×700
Packing (W×H×D)		mm	1,320×1,060×730
Net / Gross weight		kg	199/215

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-45CN1
Power supply		\	380-415V~, 3Ph, 50Hz
Ambient temperature range		°C	17~46
Cooling	Capacity	kW	44.0
	Input	kW	17.6
Max. input		kW	26.90
Max. current		A	47.9
Noise level		dB(A)	70
Compressor	Type / Quantity	\	Scroll / 3
	Model	\	E605DH-59D2YG
	Brand	\	Hitachi
	Capacity	W	15,390
	Input	W	5,130
	Capacitor	\	/
	Rated current (RLA)	A	8.8
	Oil charge	\	500 (FVC68D)
Refrigerant	Type / Charged	\	R410A / 10,000g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YDK380-4D
	Fan dimension	mm	Φ560/Φ562
	Drive type	\	Direct
	Capacitor	\	20μF/450V
	Motor input	W	Hi: 615/580; Lo: 425/420 (4 blades/3 blades)
	Motor speed	rpm	Hi: 1,000/1,090; Lo: 780/870 (4 blades/3 blades)
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7.94
	No. of rows	\	2
	Fin space	mm	1.6
	Length x Height	mm	2,286x1,232
	Number of circuits	\	28
Refrigerant pipe	Liquid side / Gas side	mm	Φ16/Φ32
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	5x15.0mm ²
	Signal wire	\	2x1.0mm ²
Air volume		m ³ /h	12,500
Dimension (WxHxD)		mm	1,250x1,615x765
Packing (WxHxD)		mm	1,305x1,790x820
Net / Gross weight		kg	288/308

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-53CN1
Power supply		\	380-400V~, 3Ph, 50Hz
Ambient temperature range		°C	18~46
Cooling	Capacity	kW	53.0
	Input	kW	16.8
Max. input		kW	23.70
Max. current		A	45.2
Noise level		dB(A)	73
Compressor	Type / Quantity	\	Scroll / 2
	Model	\	SH105A4ALC
	Brand	\	Danfoss
	Capacity	W	26,816
	Input	W	8,472
	Capacitor	\	/
	Rated current (RLA)	A	16.4
	Oil charge	\	3,300ml (POE-160SZ)
Refrigerant	Type / Charged	\	R410A / 11,000g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YS600-6P
	Fan dimension	mm	Φ650
	Drive type	\	Direct
	Capacitor	\	\
	Motor input	W	750
	Motor speed	rpm	930
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7.94
	No. of rows	\	3
	Fin space	mm	1.6
	Length x Height	mm	2,209x1,100
	Number of circuits	\	12+12
Refrigerant pipe	Liquid side / Gas side	mm	(Φ12.7/Φ25) x2
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	4x16.0mm ² +1x10.0mm ² (Ground)
	Signal wire	\	2x1.0mm ²
Air volume		m ³ /h	13,500
Dimension (WxHxD)		mm	1,825x1,245x899
Packing (WxHxD)		mm	1,844x1,272x924
Net / Gross weight		kg	403/415

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-61CN1
Power supply		\	380-400V~, 3Ph, 50Hz
Ambient temp range		°C	17~46
Cooling	Capacity	kW	61.0
	Input	kW	19.0
Max. input		kW	28.20
Max. current		A	51.0
Noise level		dB(A)	76
Compressor	Type / Quantity	\	Scroll / 2
	Model	\	SH120A4ALC
	Brand	\	Danfoss
	Capacity	W	29,950
	Input	W	9,462
	Capacitor	\	/
	Rated current (RLA)	A	20.7
	Oil charge	\	3,300ml (POE-160SZ)
Refrigerant	Type / Charged	\	R410A / 12,400g
	Type / Quantity	\	Axial fan / 2
Fan	Motor model	\	YS1100-6
	Fan dimension	mm	Φ700
	Drive type	\	Direct
	Capacitor	\	\
	Motor input	W	1,300
	Motor speed	rpm	940
	Type	\	Copper tube and aluminum fin
Coil	Tube size	mm	Φ7.94
	No. of rows	\	3
	Fin space	mm	1.6
	Length x Height	mm	2,209x1,100
	Number of circuits	\	12+12
	Liquid side / Gas side	mm	(Φ12.7/Φ25) x2
Refrigerant pipe	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	4x25.0mm ² +1x16.0mm ² (Ground)
	Signal wire	\	2x1.0mm ²
Air volume		m ³ /h	24,000
Dimension (WxHxD)		mm	1,825x1,245x899
Packing (WxHxD)		mm	1,844x1,272x924
Net / Gross weight		kg	413/424

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-70CN1
Power supply		\	380-400V~, 3Ph, 50Hz
Ambient temperature range		°C	17~46
Cooling	Capacity	kW	70.0
	Input	kW	22.0
Max. input		kW	31.80
Max. current		A	56.5
Noise level		dB(A)	76
Compressor	Type / Quantity	\	Scroll / 2
	Model	\	SH140A4ALC
	Brand	\	Danfoss
	Capacity	W	34,700
	Input	W	10,862
	Capacitor	\	/
	Rated current (RLA)	A	21.4
	Oil charge	\	3,300ml (POE-160SZ)
Refrigerant	Type / Charged	\	R410A / 17,000
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YS1100-6
	Fan dimension	mm	Φ750
	Drive type	\	Direct
	Capacitor	\	\
	Motor input	W	1,300
	Motor speed	rpm	940
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7.94
	No. of rows	\	3.6
	Fin space	mm	1.6
	Length x Height	mm	(1,355×1,100)+(1,325×1,100)
	Number of circuits	\	25+25
Refrigerant pipe	Liquid side / Gas side	mm	(Φ12.7/Φ25) ×2
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	4×25.0mm ² +1×16.0mm ² (Ground)
	Signal wire	\	2×1.0mm ²
Dimension (W×H×D)		mm	2,158×1,258×1,082
Air volume		m ³ /h	31,500
Packing (W×H×D)		mm	2,168×1,275×1,105
Net / Gross weight		kg	508/523

Notes:

Nominal cooling capacities are based on the following conditions:

Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

Model			MCCU-105CN1
Power supply		\	380-400V~, 3Ph, 50Hz
Ambient temp range		°C	17~46
Cooling	Capacity	kW	105.0
	Input	kW	28.0
Max. input		kW	40.70
Max. current		A	71.8
Noise level		dB(A)	78
Compressor	Type / Quantity	\	Scroll / 2
	Model	\	SH184A4ALC
	Brand	\	Danfoss
	Capacity	W	44,661
	Input	W	13,732
	Capacitor	\	/
	Rated current (RLA)	A	27.6
	Oil charge	\	3,600ml (POE-160SZ)
Refrigerant	Type / Charged	\	R410A / 18,000g
Fan	Type / Quantity	\	Axial fan / 2
	Motor model	\	YS1500-6
	Fan dimension	mm	Φ802
	Drive type	\	Direct
	Capacitor	\	\
	Motor input	W	1,690
	Motor speed	rpm	910
Coil	Type	\	Copper tube and aluminum fin
	Tube size	mm	Φ7
	No. of rows	\	3.6
	Fin space	mm	1.5
	Length x Height	mm	(1,325x756)x2+(1367x756)x2
	Number of circuits	\	24+24
Refrigerant pipe	Liquid side / Gas side	mm	(Φ12.7/Φ25) x2
	Max. pipe length	m	50
	Max. difference in level	m	30
Connection wire	Power wire	\	4x35.0mm ² +1x16.0mm ² (Ground)
	Signal wire	\	2x1.0mm ²
Air volume		m ³ /h	35,000
Dimension (WxHxD)		mm	2,158x1,669x1,082
Packing (WxHxD)		mm	2,168x1,686x1,105
Net/ Gross weight		kg	570/582

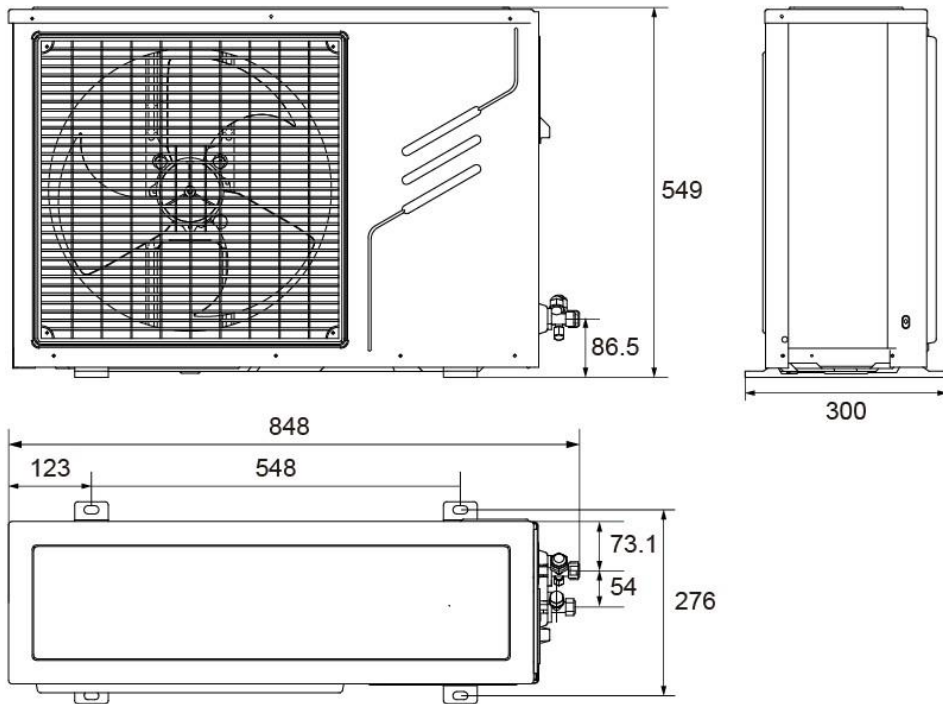
Notes:

Nominal cooling capacities are based on the following conditions:

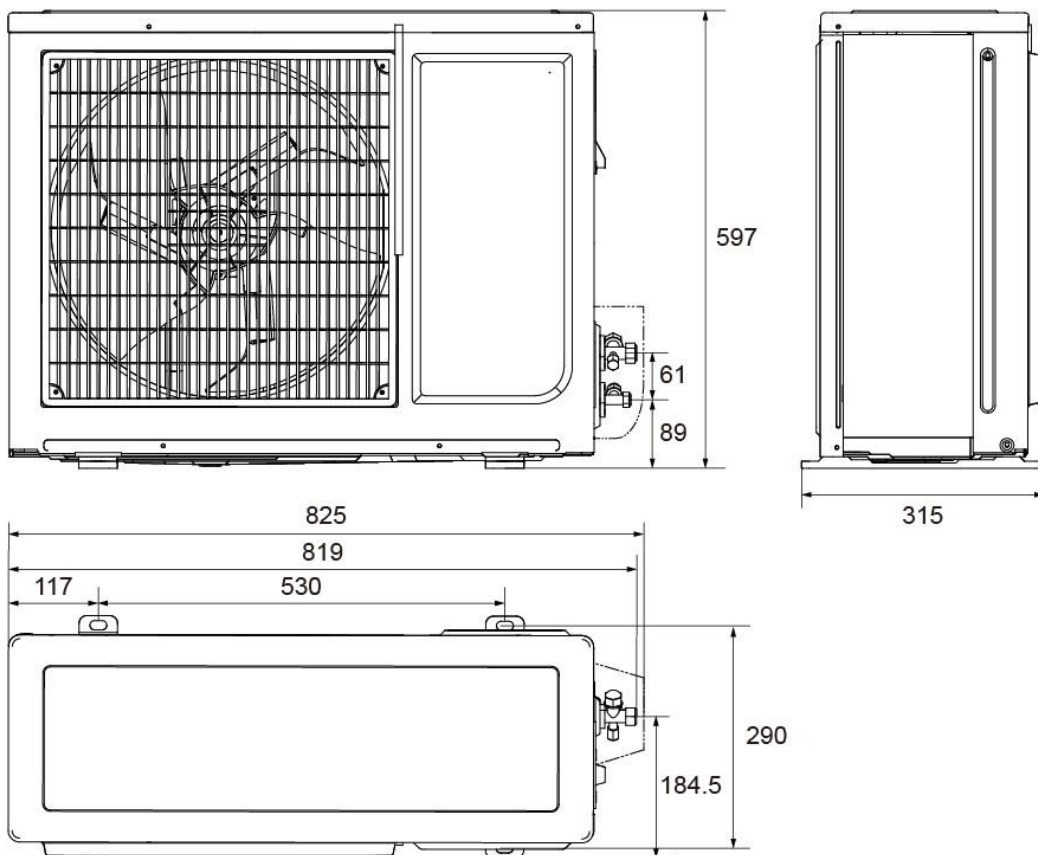
Indoor temperature: 27°CDB, 19°CWB; Outdoor temperature: 35°CDB, 24°CWB; Equivalent refrigerant pipe: 7.5m.

5. Dimensions (Unit: mm)

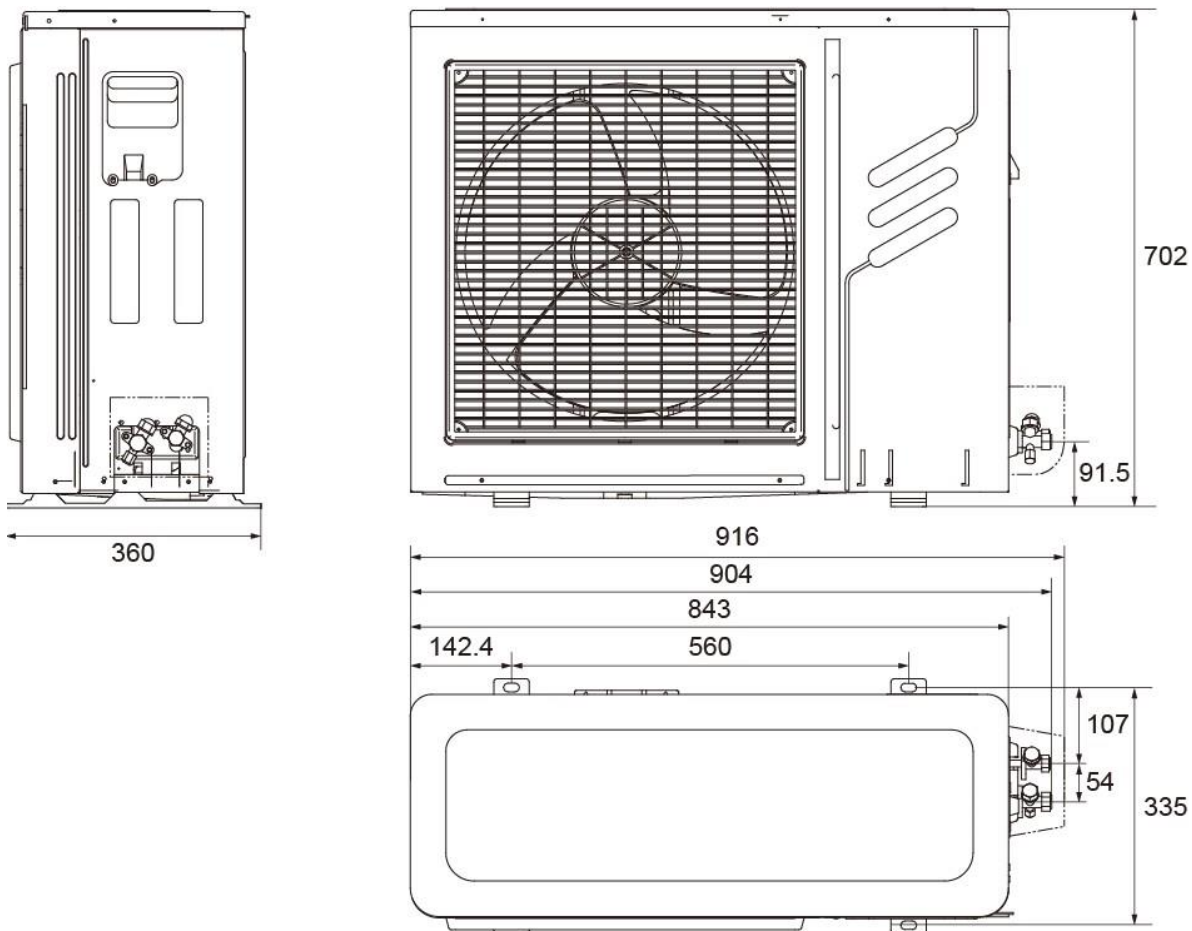
MCCU-03CN1



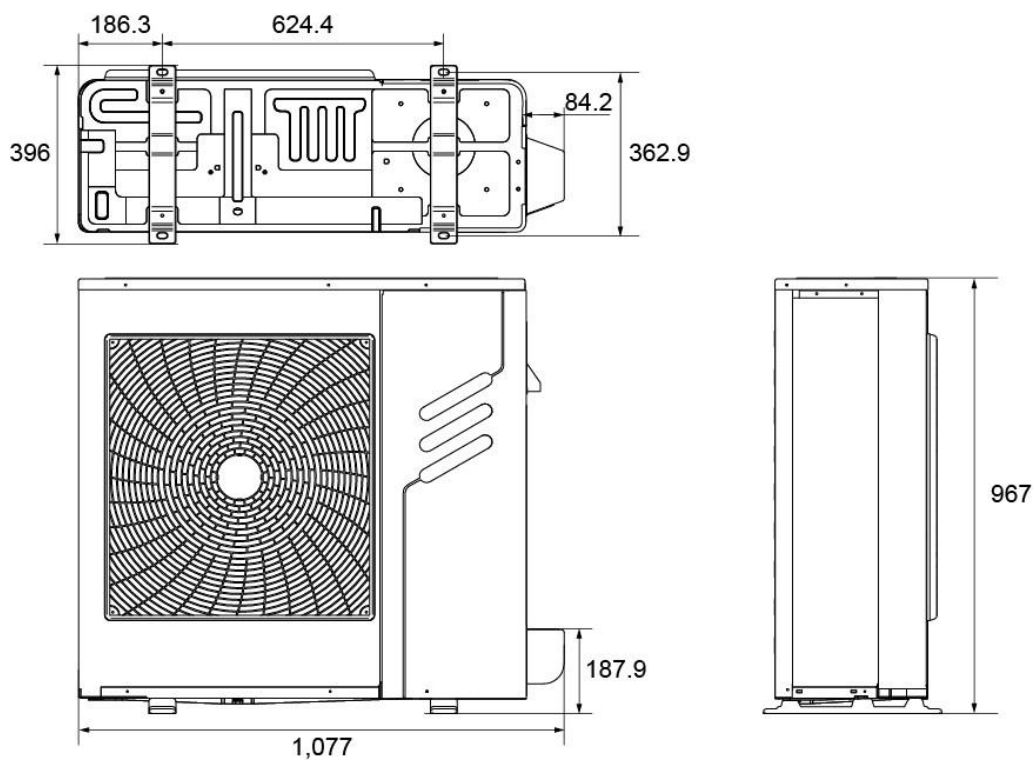
MCCU-05CN1



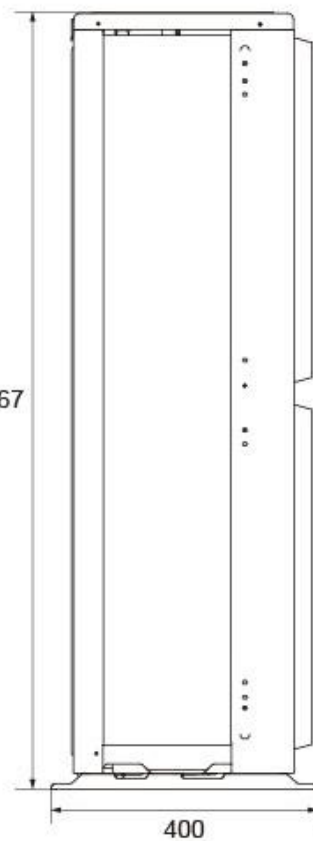
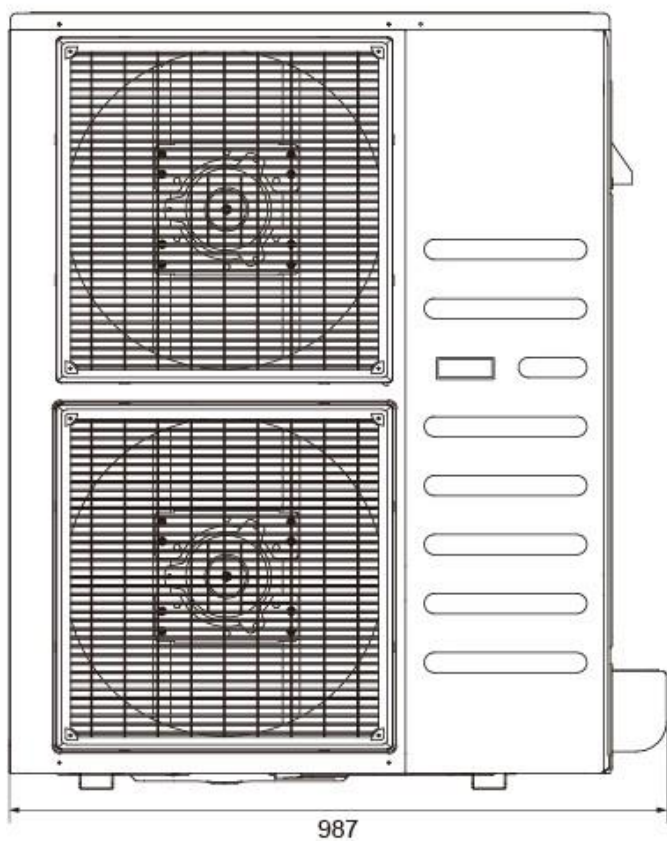
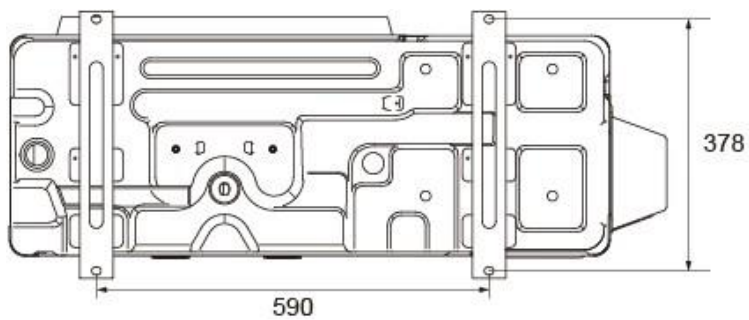
MCCU-07CN1



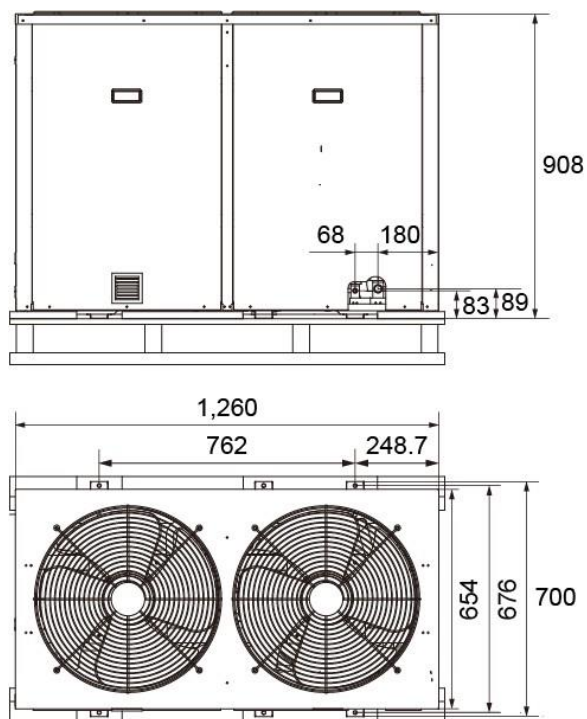
MCCU-10CN1



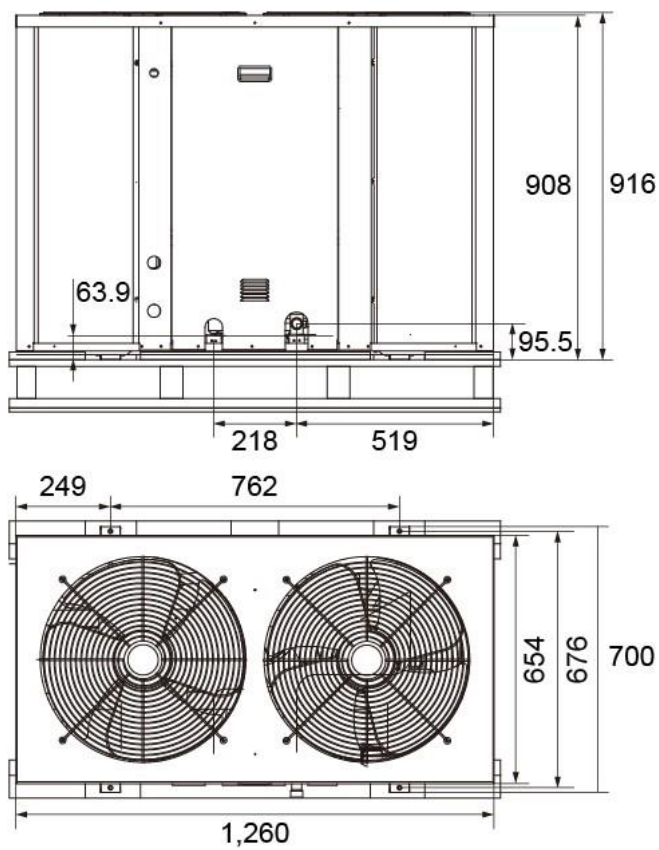
MCCU-14CN1, MCCU-16CN1



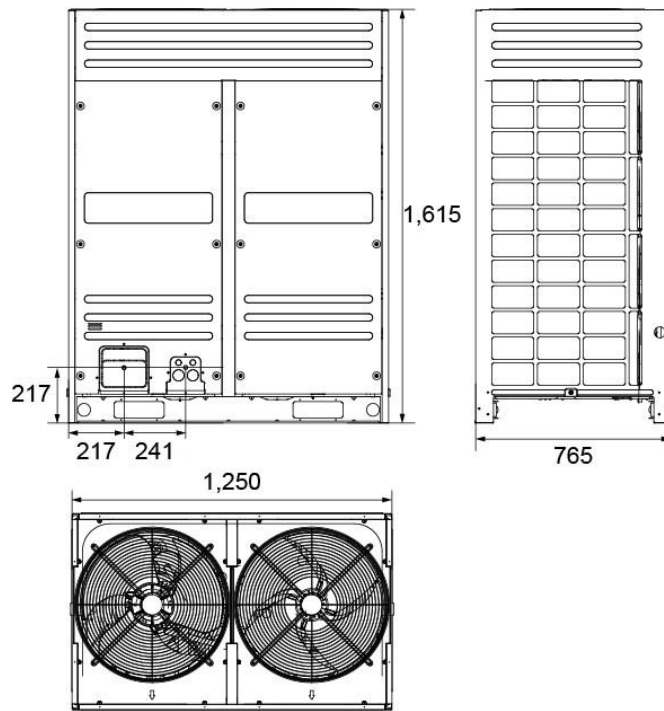
MCCU-22CN1, MCCU-28CN1



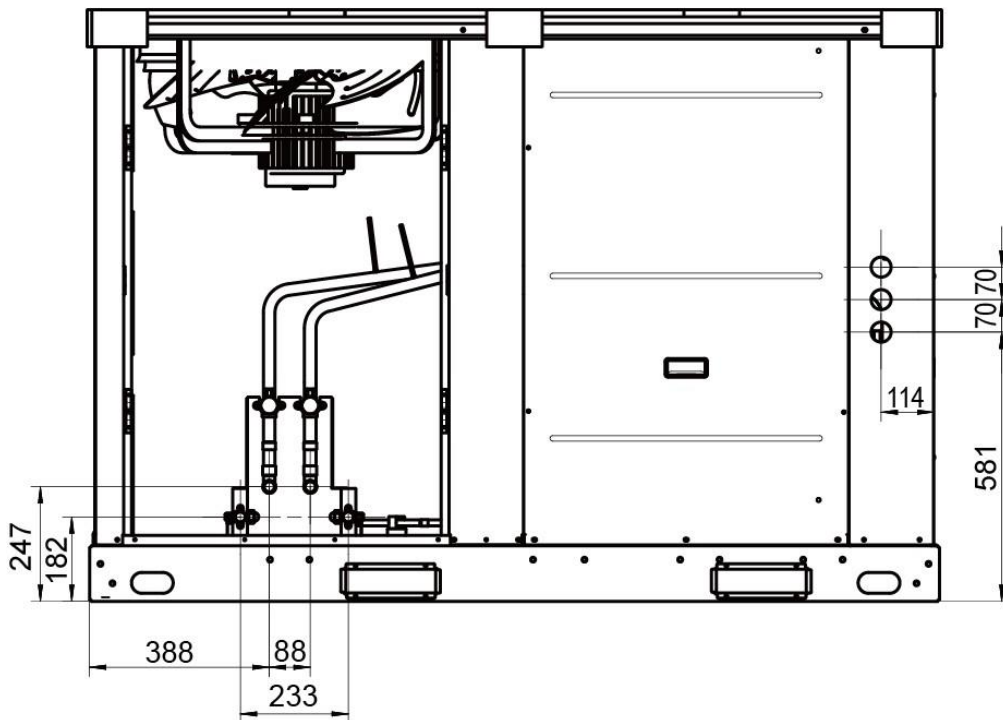
MCCU-35CN1



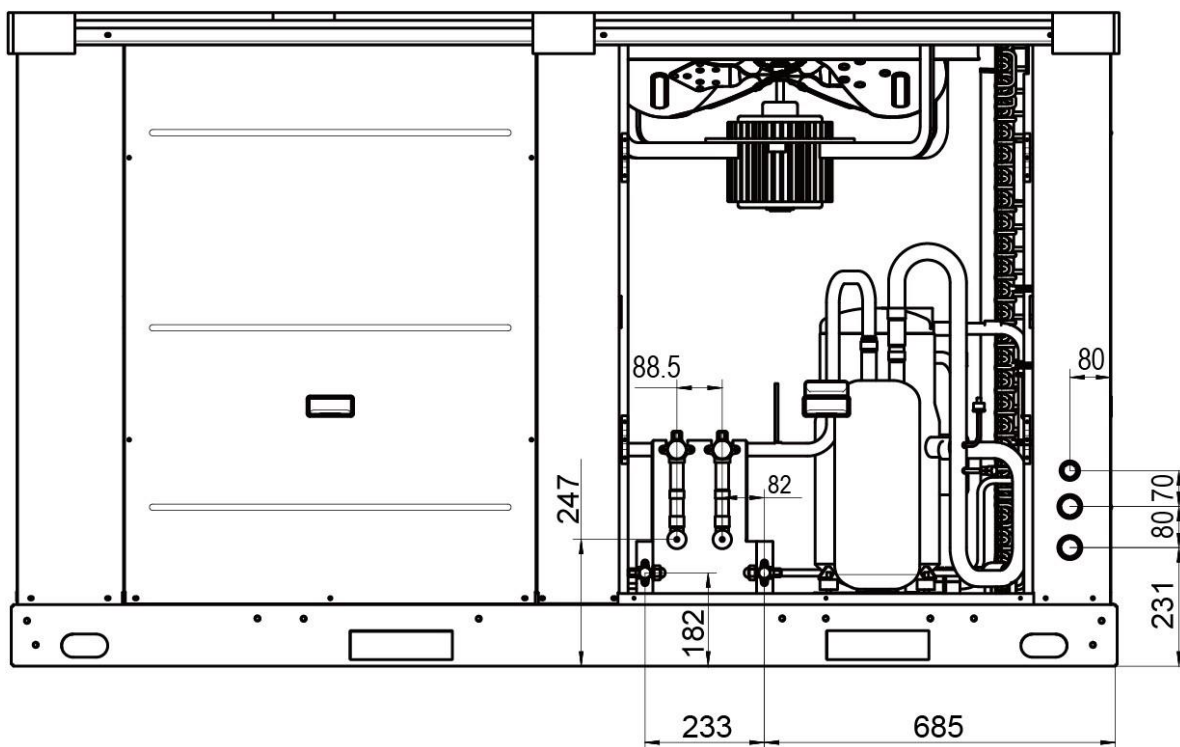
MCCU-45CN1



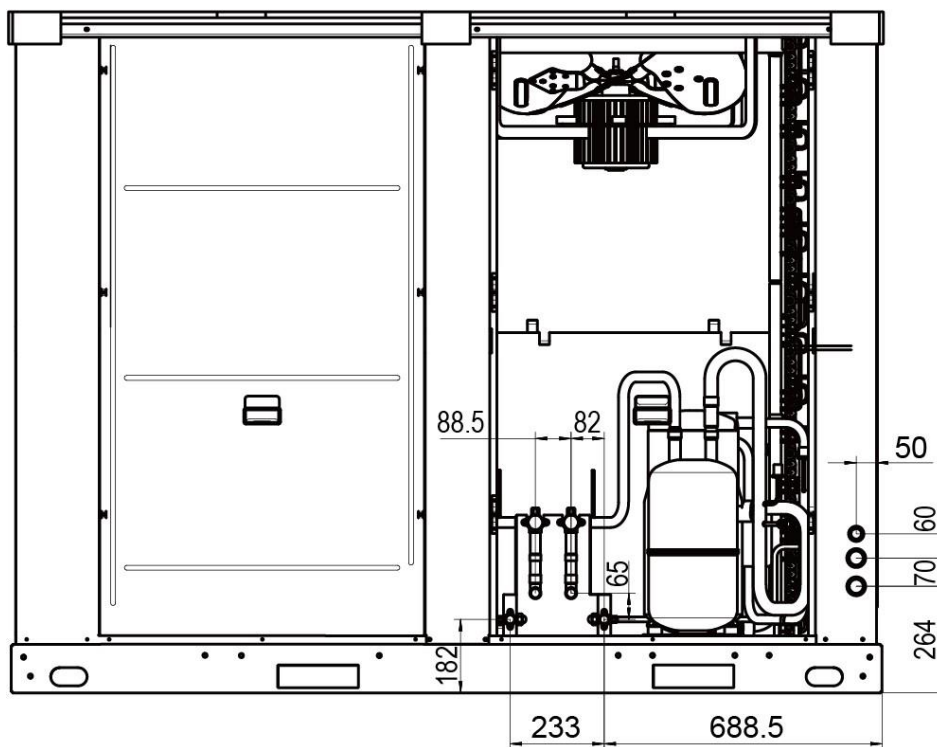
MCCU-53CN1, MCCU-61CN1



MCCU-70CN1

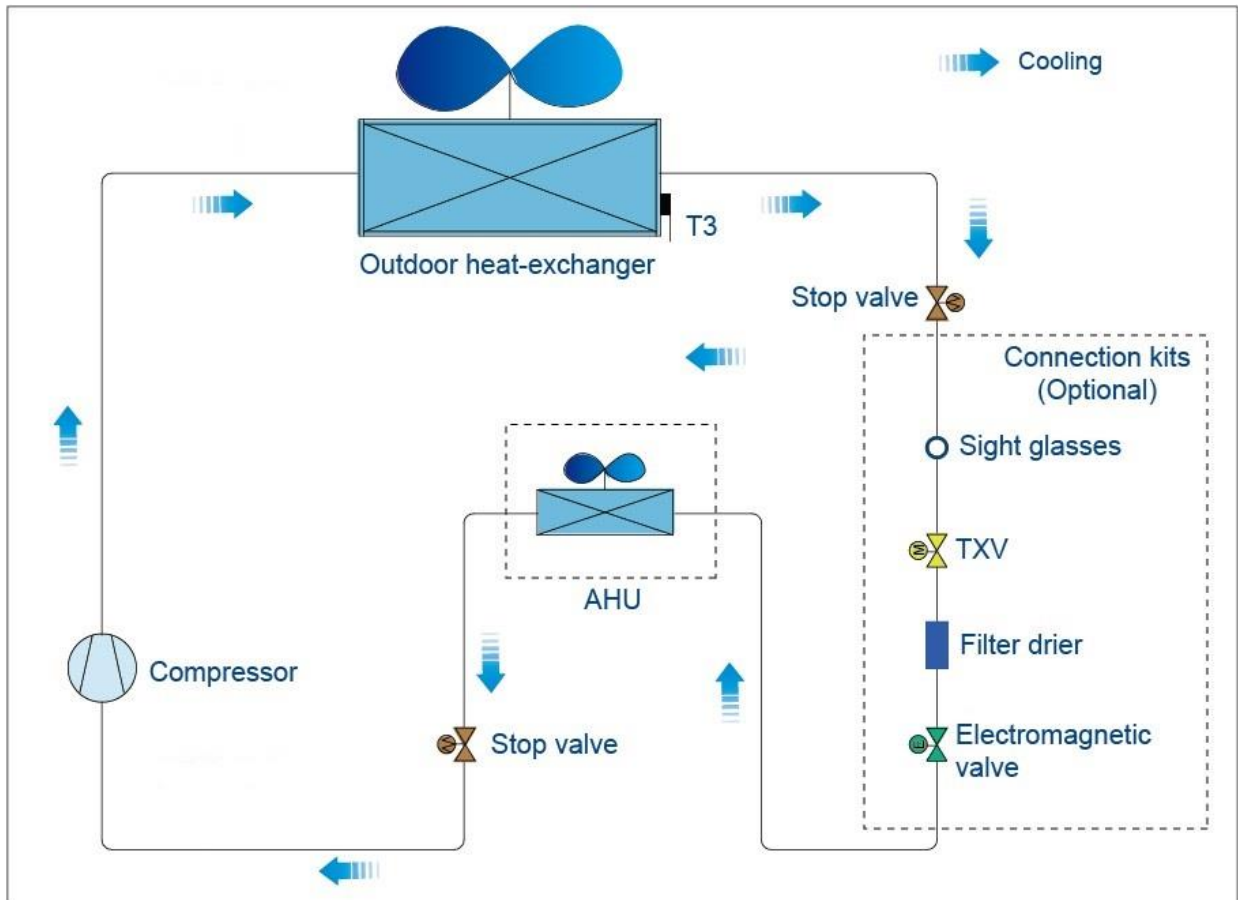


MCCU-105CN1

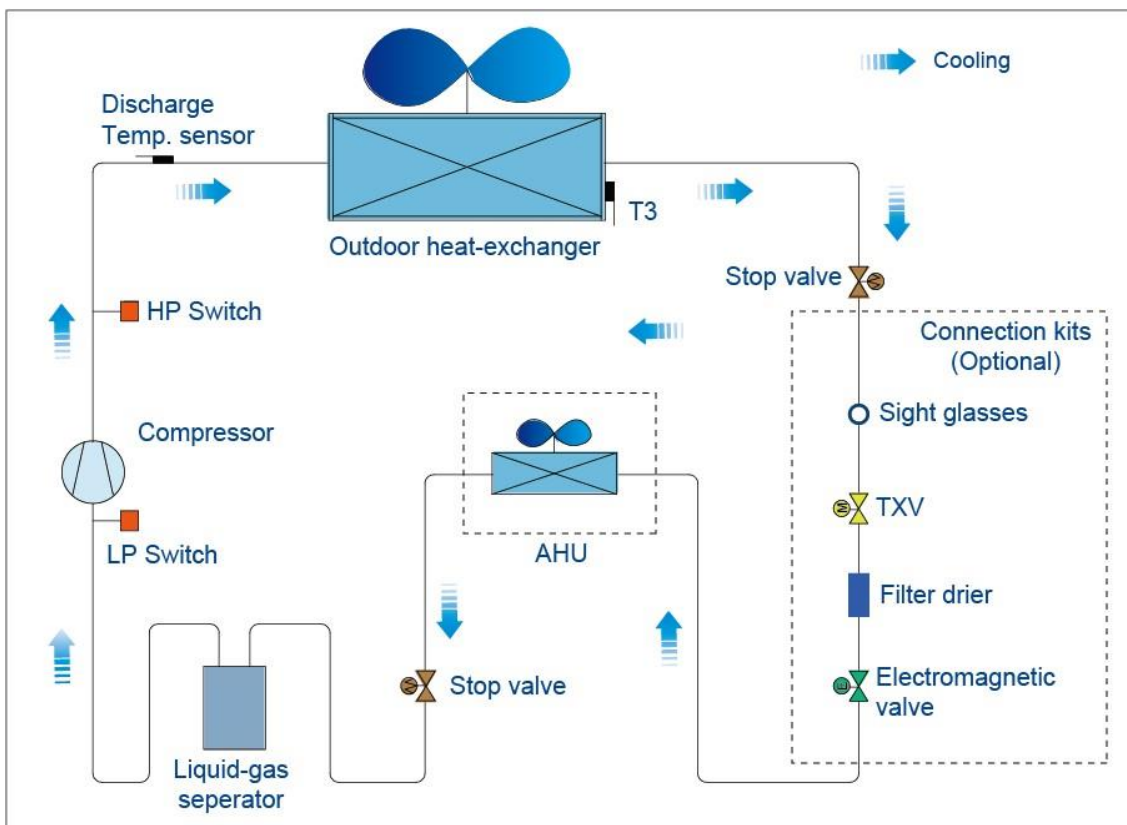


6. Refrigerant circuits

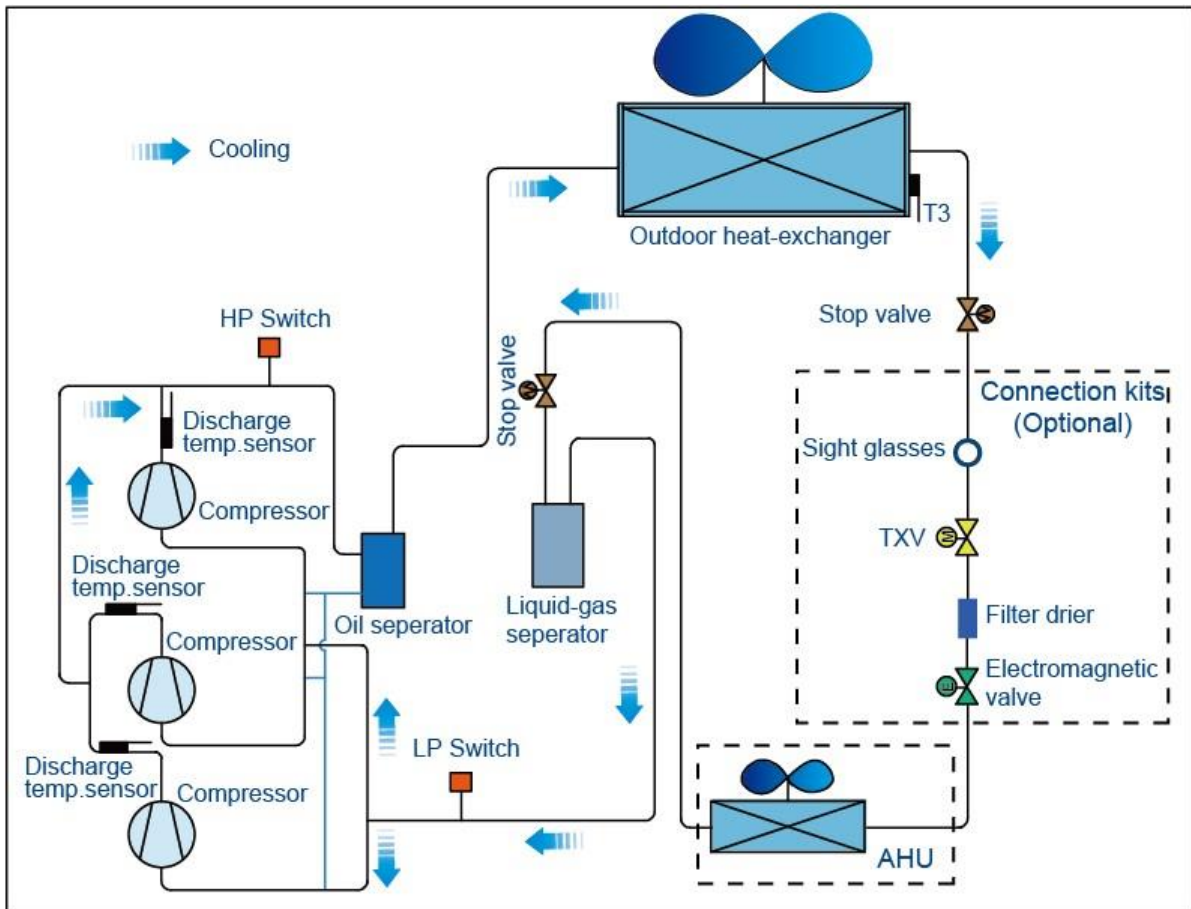
MCCU-03CN1, MCCU-05CN1, MCCU-07CN1



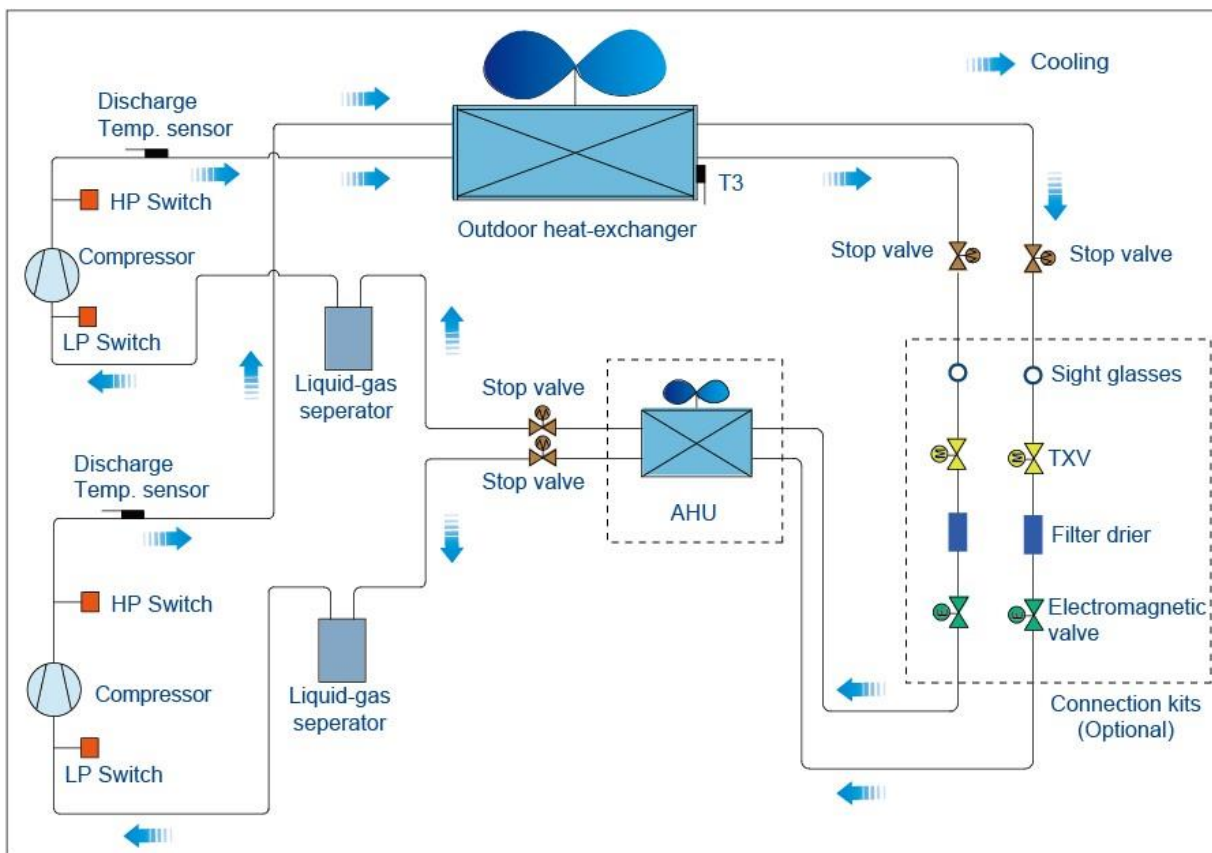
MCCU-10CN1, MCCU-14CN1, MCCU-16CN1, MCCU-22CN1, MCCU-28CN1, MCCU-35CN1



MCCU-45CN1

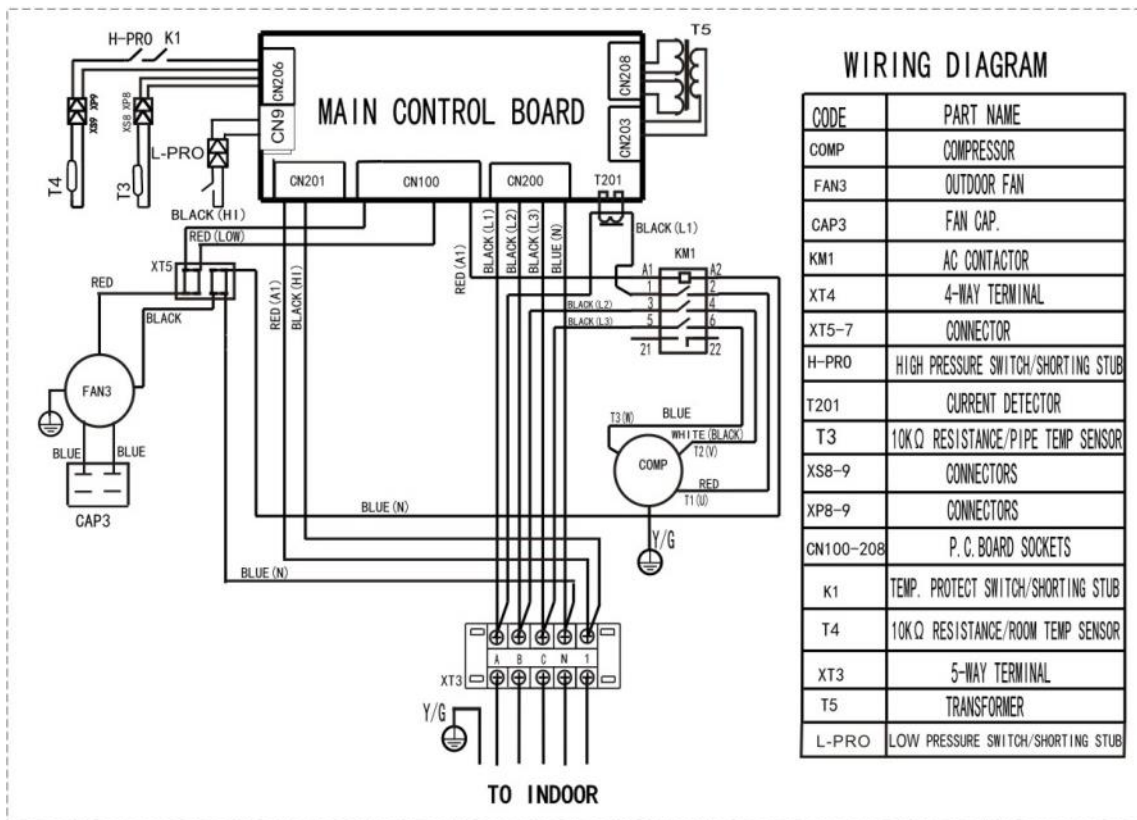


MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1

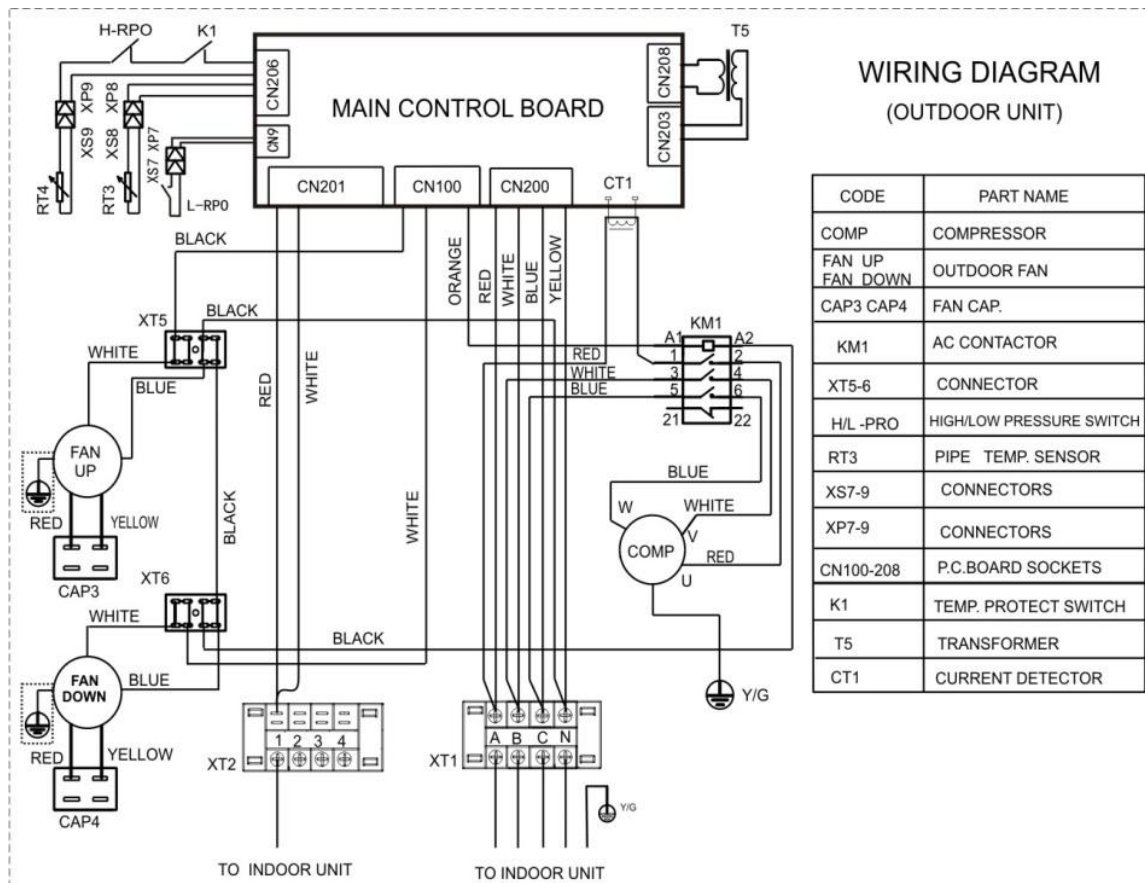


Notes: Two 4-way valves connected in refrigerant pipe systems are invalid.

MCCU-10CN1



MCCU-14CN1, MCCU-16CN1



MCCU-22CN1, MCCU-28CN1, MCCU-35CN1

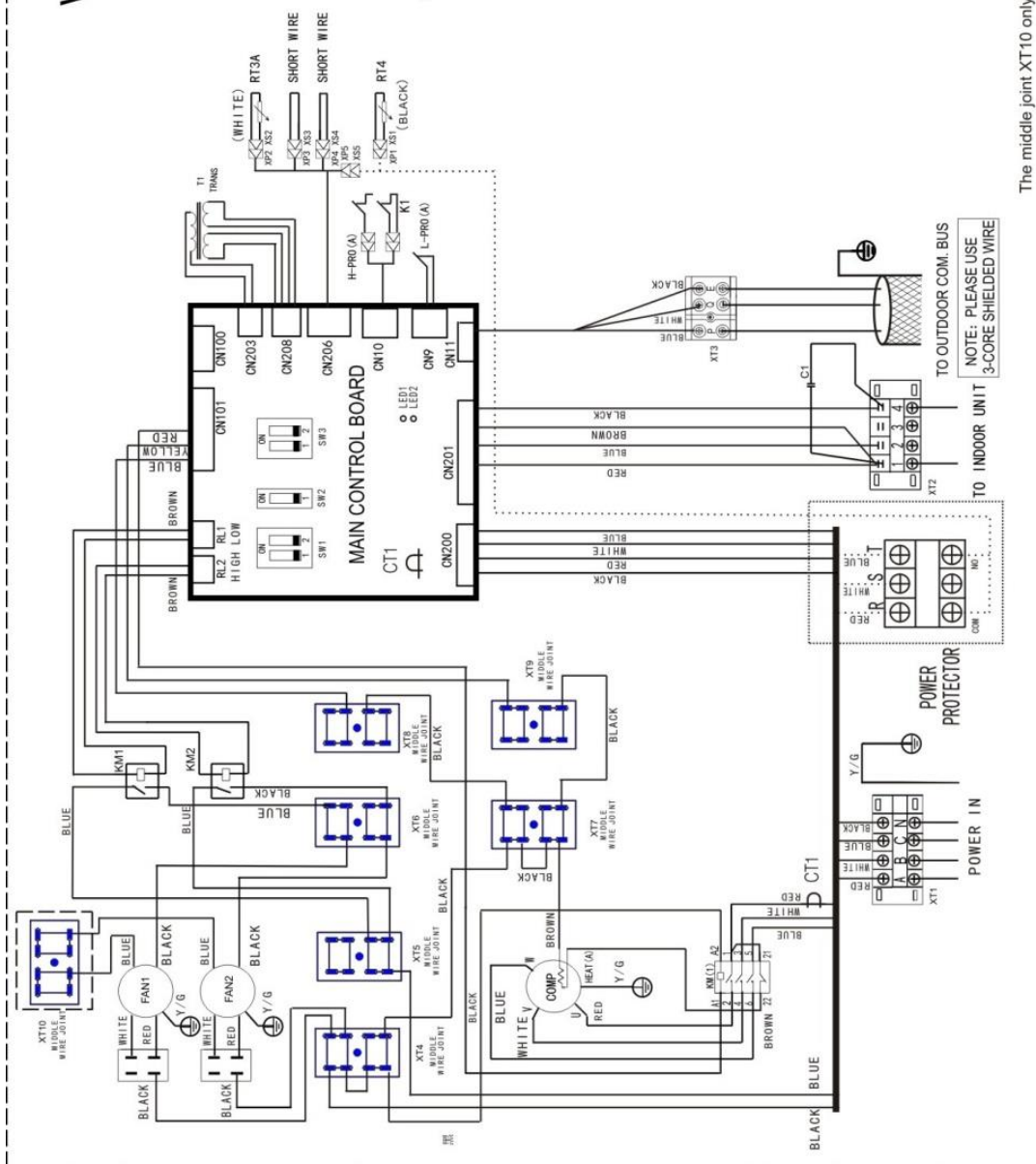
WIRING DIAGRAM
(OUTDOOR UNIT)

FUNCTION OF SWITCH

SW2	NET OFF	NET ON
SW1	No. 1 (Set, 0.0)	No. 2 (Set, 0.0)
	No. 3 (Set, 0.0)	No. 4 (Set, 0.0)
	No. 5 (Set, 0.0)	No. 6 (Set, 0.0)
SW3	24A	24A
	76000btu/h	96000btu/h
	120000btu/h	120000btu/h

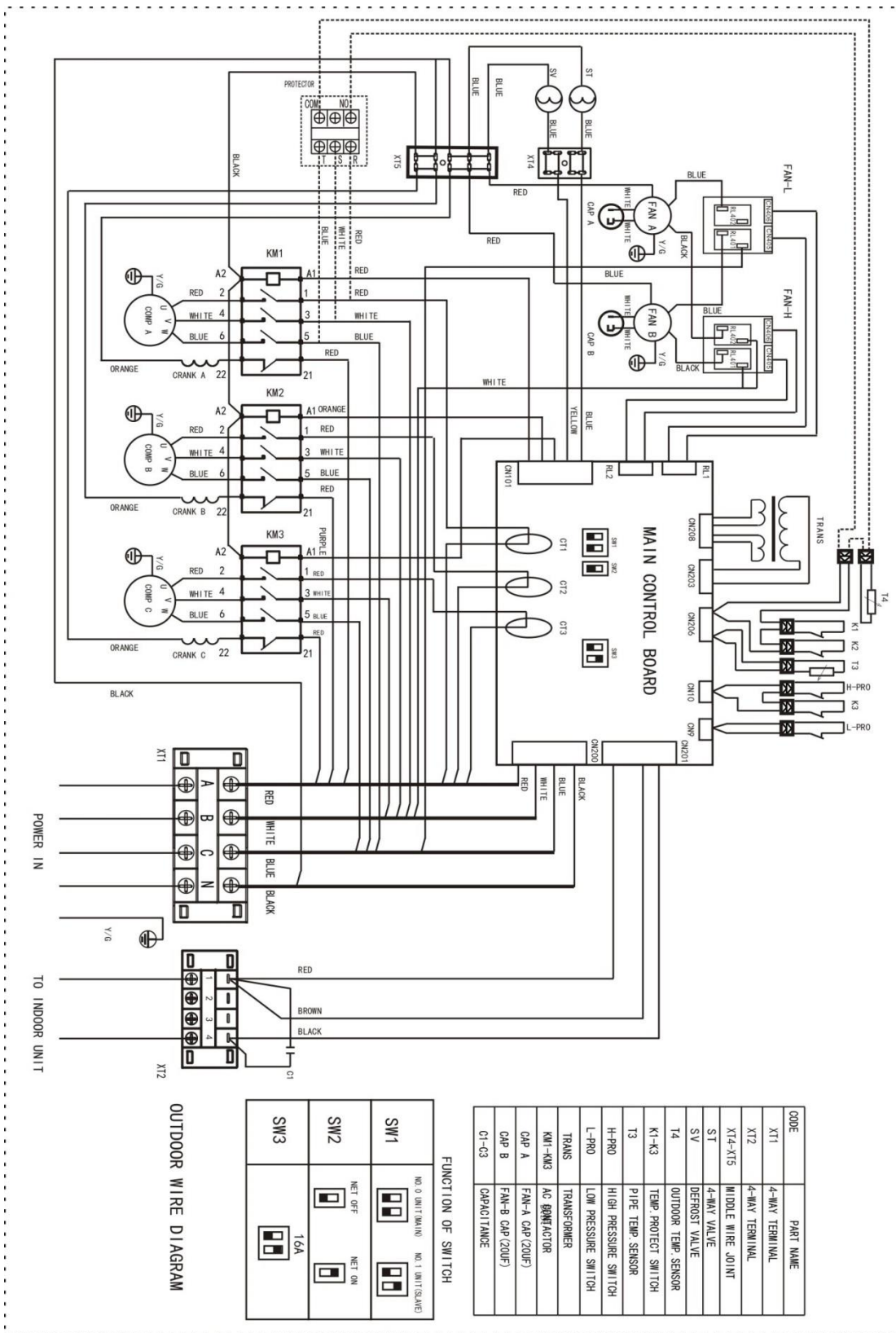
NOTE: SW2 default settings as NET OFF.
SW1 default settings as main unit (No. 0 Unit)

CODE	PART NAME
COMP	COMPRESSOR
FAN1 FAN2	OUTDOOR FAN
CAP1 CAP2	FAN CAP
S.V	4-WAY VALVE
KM(1)	AC CONTACTOR
HEAT(A)	CRANK
CT1	CURRENT DETECTOR
XT1	4-WAY TERMINAL
XT2	4-WAY TERMINAL
XT3	3-WAY TERMINAL
H-PRO(A)	HIGH PRESSURE SWITCH
RT3A	PIPE TEMP. SENSOR
RT4	ROOM TEMP. SENSOR
XS1-5, XP1-5	CONNECTORS
L-PRO(A)	LOW PRESSURE SWITCH
K1	TEMP. PROTECT SWITCH
T1	TRANSFORMER
SW1, SW2, SW3	SWITCH
C1	FILTER CAPACITOR
KM1, 2	RELAY
CN8-CN208	P. C. BOARD SOCKETS
XT4-XT10	MIDDLE WIRE JOINT

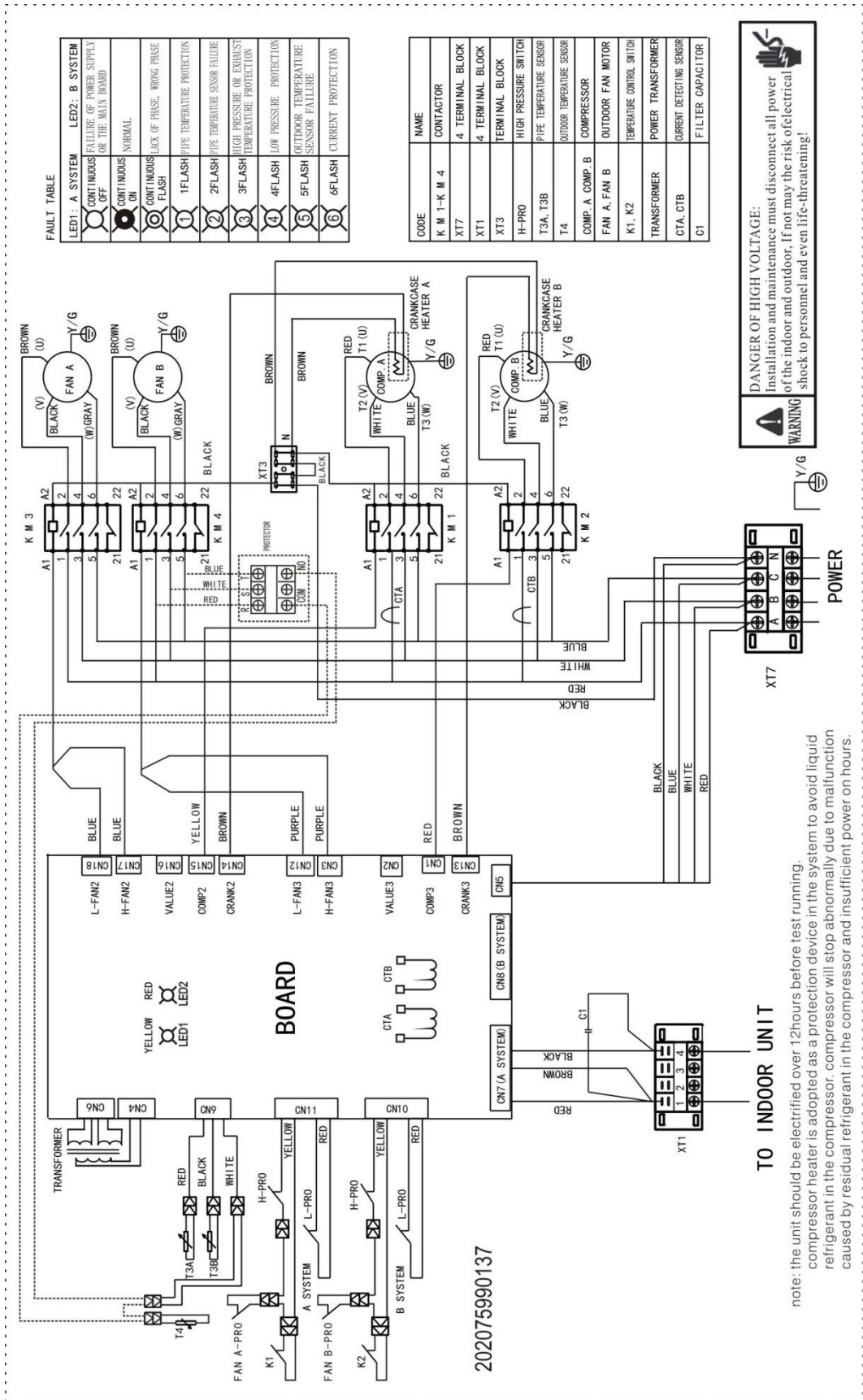


The middle joint XT10 only exists when the frequency of outdoor unit power is 50Hz.

MCCU-45CN1



MCCU-53CN1, MCCU-61CN1, MCCU-70CN1

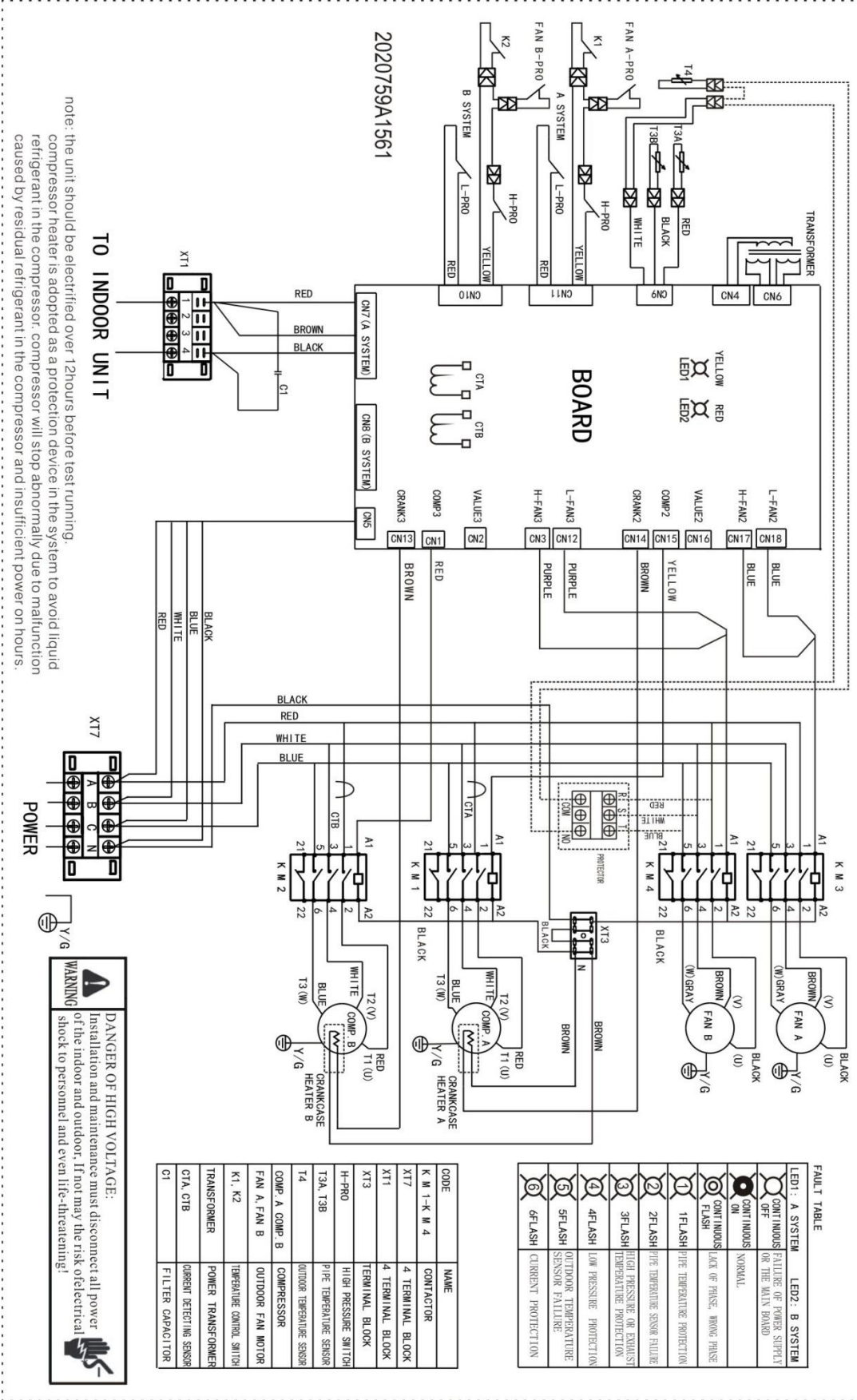


⚠ DANGER OF HIGH VOLTAGE:
Installation and maintenance must disconnect all power of the indoor and outdoor. If not may the risk of electrical shock to personnel and even life-threatening!

note: the unit should be electrified over 12hours before test running. compressor heater is adopted as a protection device in the system to avoid liquid refrigerant in the compressor. compressor will stop abnormally due to malfunction caused by residual refrigerant in the compressor and insufficient power on hours.

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MCCU-105CN1



note: the unit should be electrified over 12hours before test running.
 compressor heater is adopted as a protection device in the system to avoid liquid refrigerant in the compressor, compressor will stop abnormally due to malfunction caused by residual refrigerant in the compressor and insufficient power on hours.

8. Electrical datas

Model	Whole units				Power Supply			Compressor		OFM	
	Hz	Voltage	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	kW	FLA
MCCU-03CN1	50	220~240V	198V	254V	7.8	8.6	20.0	29.9	5.8	0.024	0.28
MCCU-05CN1	50	220~240V	198V	254V	11.5	15.2	40.0	40.0	8.5	0.048	0.49
MCCU-07CN1	50	220~240V	198V	254V	17.0	18.7	60.0	66.0	12.6	0.053	0.61
MCCU-10CN1	50	380~415V	342V	440V	9.2	9.4	20	52	6.58	0.19	1.31
MCCU-14CN1	50	380~415V	342V	440V	10.8	10.9	25	66	8.2	0.13	1.6
MCCU-16CN1	50	380~415V	342V	440V	12.6	15.2	35	67	9.7	0.13	1.6
MCCU-22CN1	50	380~415V	342V	440V	17.5	18	20.5	86	16.5	0.573	2.613
MCCU-28CN1	50	380~415V	342V	440V	20	21	23.8	110	20	1.373	6.26
MCCU-35CN1	50	380~400V	342V	440V	25	28.6	30	147	21.4	0.604	2.93
MCCU-45CN1	50	380~415V	342V	440V	37.1	47.9	52.7	62	8.8	0.76	5.48
MCCU-53CN1	50	380~400V	342V	440V	49.6	54.8	60.3	142	16.4	1.2	4
MCCU-61CN1	50	380~400V	342V	440V	67.5	66.8	73.5	142	20.7	2.2	5.4
MCCU-70CN1	50	380~400V	342V	440V	69.2	70.8	77.9	147	21.4	2.2	5.2
MCCU-105CN1	50	380~400V	342V	440V	90.5	87.2	95.9	197	27.6	3	6.6

Notes:

MCA: Min. Current Amps. (A)

MFA: Max. Fuse Amps. (A)

RLA: Rated Locked Amps. (A)

kW: Fan Motor Rated Output (kW)

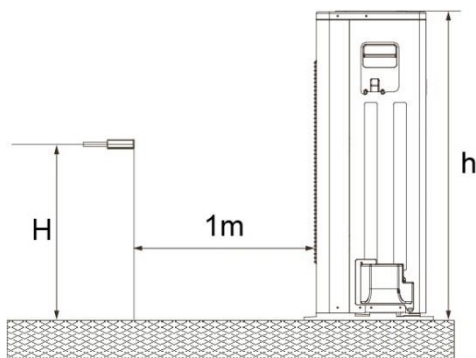
TOCA : Total Over-current Amps. (A)

MSC: Max. Starting Amps. (A)

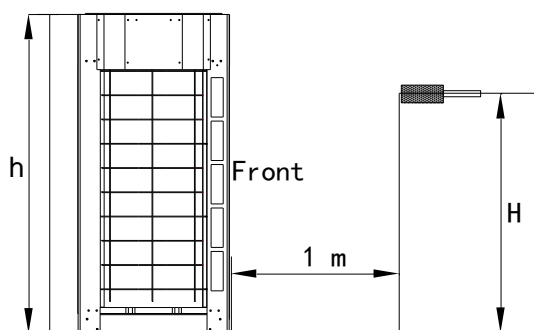
OFM: Outdoor Fan Motor

FLA: Full Load Amps. (A)

9. Sound Levels



Model	Noise level
MCCU-03CN1	49 dB(A)
MCCU-05CN1	55 dB(A)
MCCU-07CN1	55 dB(A)
MCCU-10CN1	56 dB(A)
MCCU-14CN1	56 dB(A)
MCCU-16CN1	57 dB(A)



Model	Noise level
MCCU-22CN1	65 dB(A)
MCCU-28CN1	67 dB(A)
MCCU-35CN1	69 dB(A)
MCCU-45CN1	70 dB(A)
MCCU-53CN1	73 dB(A)
MCCU-61CN1	76 dB(A)
MCCU-70CN1	76 dB(A)
MCCU-105CN1	78 dB(A)

Notes:

1. $H=(h+1)/2m$.
2. The sound pressure value is the weighted average of four sides which include front, rear, left and right side of the unit.

10. Capacity table

MCCU-03CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	4.02	3.77	3.66	3.44	3.32	3.14
		Input power	kW	0.98	0.92	0.89	0.85	0.82	0.78
	30°C	Cooling capacity	kW	3.83	3.59	3.48	3.28	3.16	2.99
		Input power	kW	1.04	0.98	0.95	0.91	0.87	0.83
	32°C	Cooling capacity	kW	3.70	3.47	3.37	3.17	3.05	2.88
		Input power	kW	1.09	1.02	0.99	0.95	0.91	0.87
	35°C	Cooling capacity	kW	3.58	3.38	3.28	3.08	2.98	2.81
		Input power	kW	1.12	1.06	1.03	0.98	0.94	0.90
	40°C	Cooling capacity	kW	3.37	3.18	3.08	2.90	2.80	2.64
		Input power	kW	1.20	1.13	1.09	1.04	1.00	0.96
	43°C	Cooling capacity	kW	3.20	3.02	2.93	2.75	2.66	2.51
		Input power	kW	1.25	1.18	1.14	1.08	1.04	0.99
	45°C	Cooling capacity	kW	3.02	2.85	2.77	2.60	2.51	2.37
		Input power	kW	1.30	1.23	1.19	1.13	1.09	1.04

MCCU-05CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	6.34	5.95	5.78	5.44	5.24	4.95
		Input power	kW	1.55	1.46	1.41	1.35	1.29	1.24
	30°C	Cooling capacity	kW	6.04	5.67	5.50	5.18	4.99	4.72
		Input power	kW	1.65	1.55	1.50	1.43	1.38	1.31
	32°C	Cooling capacity	kW	5.84	5.47	5.31	5.01	4.82	4.56
		Input power	kW	1.72	1.62	1.56	1.49	1.43	1.37
	35°C	Cooling capacity	kW	5.66	5.34	5.18	4.87	4.70	4.44
		Input power	kW	1.78	1.68	1.62	1.55	1.48	1.42
	40°C	Cooling capacity	kW	5.32	5.02	4.87	4.58	4.42	4.17
		Input power	kW	1.89	1.78	1.72	1.65	1.58	1.51
	43°C	Cooling capacity	kW	5.05	4.76	4.63	4.35	4.20	3.97
		Input power	kW	1.97	1.86	1.79	1.71	1.64	1.57
	45°C	Cooling capacity	kW	4.77	4.50	4.37	4.11	3.97	3.75
		Input power	kW	2.06	1.94	1.87	1.79	1.72	1.64

MCCU-07CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	8.89	8.34	8.09	7.62	7.34	6.94
		Input power	kW	2.17	2.05	1.98	1.89	1.81	1.73
	30°C	Cooling capacity	kW	8.47	7.94	7.71	7.26	6.99	6.61
		Input power	kW	2.31	2.18	2.10	2.01	1.93	1.84
	32°C	Cooling capacity	kW	8.18	7.67	7.45	7.02	6.76	6.39
		Input power	kW	2.40	2.27	2.19	2.09	2.01	1.92
	35°C	Cooling capacity	kW	7.93	7.48	7.26	6.82	6.59	6.22
		Input power	kW	2.49	2.35	2.27	2.17	2.08	1.99
	40°C	Cooling capacity	kW	7.45	7.03	6.82	6.41	6.19	5.85
		Input power	kW	2.65	2.50	2.42	2.31	2.22	2.12
	43°C	Cooling capacity	kW	7.08	6.68	6.48	6.09	5.88	5.56
		Input power	kW	2.76	2.60	2.51	2.40	2.30	2.20
	45°C	Cooling capacity	kW	6.69	6.31	6.13	5.76	5.56	5.25
		Input power	kW	2.88	2.72	2.63	2.51	2.41	2.30

MCCU-10CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	12.61	11.83	11.48	10.82	10.42	9.84
		Input power	kW	3.08	2.90	2.81	2.68	2.57	2.46
	30°C	Cooling capacity	kW	12.01	11.27	10.94	10.30	9.92	9.38
		Input power	kW	3.27	3.09	2.98	2.85	2.74	2.61
	32°C	Cooling capacity	kW	11.61	10.88	10.57	9.95	9.59	9.06
		Input power	kW	3.41	3.22	3.11	2.97	2.85	2.72
	35°C	Cooling capacity	kW	11.25	10.61	10.30	9.68	9.34	8.83
		Input power	kW	3.53	3.33	3.22	3.07	2.95	2.82
	40°C	Cooling capacity	kW	10.57	9.97	9.68	9.10	8.78	8.30
		Input power	kW	3.76	3.55	3.43	3.27	3.14	3.00
	43°C	Cooling capacity	kW	10.04	9.47	9.20	8.65	8.34	7.88
		Input power	kW	3.91	3.69	3.57	3.40	3.27	3.12
	45°C	Cooling capacity	kW	9.49	8.95	8.69	8.17	7.88	7.45
		Input power	kW	4.09	3.86	3.73	3.56	3.42	3.26

MCCU-14CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	17.57	16.48	16.00	15.07	14.51	13.72
		Input power	kW	4.29	4.05	3.91	3.73	3.58	3.42
	30°C	Cooling capacity	kW	16.73	15.70	15.24	14.35	13.82	13.06
		Input power	kW	4.56	4.30	4.16	3.97	3.81	3.64
	32°C	Cooling capacity	kW	16.17	15.16	14.72	13.87	13.36	12.62
		Input power	kW	4.75	4.48	4.33	4.14	3.97	3.79
	35°C	Cooling capacity	kW	15.67	14.78	14.35	13.49	13.02	12.30
		Input power	kW	4.92	4.64	4.48	4.28	4.11	3.93
	40°C	Cooling capacity	kW	14.73	13.89	13.49	12.68	12.24	11.56
		Input power	kW	5.24	4.94	4.78	4.56	4.38	4.18
	43°C	Cooling capacity	kW	13.99	13.20	12.81	12.05	11.62	10.98
		Input power	kW	5.45	5.14	4.97	4.74	4.55	4.35
	45°C	Cooling capacity	kW	13.22	12.47	12.11	11.38	10.98	10.38
		Input power	kW	5.69	5.37	5.19	4.96	4.76	4.54

MCCU-16CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	20.18	18.93	18.38	17.31	16.67	15.75
		Input power	kW	4.93	4.65	4.49	4.29	4.12	3.93
	30°C	Cooling capacity	kW	19.22	18.03	17.50	16.48	15.87	15.00
		Input power	kW	5.24	4.94	4.78	4.56	4.38	4.18
	32°C	Cooling capacity	kW	18.57	17.42	16.91	15.92	15.34	14.49
		Input power	kW	5.46	5.15	4.97	4.75	4.56	4.36
	35°C	Cooling capacity	kW	17.99	16.97	16.48	15.49	14.95	14.13
		Input power	kW	5.65	5.33	5.15	4.92	4.72	4.51
	40°C	Cooling capacity	kW	16.91	15.96	15.49	14.56	14.05	13.28
		Input power	kW	6.02	5.68	5.48	5.24	5.03	4.80
	43°C	Cooling capacity	kW	16.07	15.16	14.72	13.83	13.35	12.62
		Input power	kW	6.26	5.90	5.70	5.45	5.23	4.99
	45°C	Cooling capacity	kW	15.18	14.32	13.91	13.07	12.62	11.92
		Input power	kW	6.54	6.17	5.96	5.69	5.46	5.22

MCCU-22CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	27.86	26.13	25.37	23.89	23.01	21.74
		Input power	kW	6.80	6.41	6.20	5.92	5.68	5.43
	30°C	Cooling capacity	kW	26.53	24.88	24.16	22.75	21.91	20.71
		Input power	kW	7.23	6.82	6.59	6.30	6.04	5.77
	32°C	Cooling capacity	kW	25.63	24.04	23.34	21.98	21.17	20.01
		Input power	kW	7.53	7.11	6.87	6.56	6.30	6.01
	35°C	Cooling capacity	kW	24.84	23.43	22.75	21.39	20.64	19.50
		Input power	kW	7.80	7.36	7.11	6.79	6.52	6.22
	40°C	Cooling capacity	kW	23.35	22.03	21.39	20.10	19.40	18.33
		Input power	kW	8.31	7.84	7.57	7.23	6.94	6.63
	43°C	Cooling capacity	kW	22.18	20.93	20.32	19.10	18.43	17.41
		Input power	kW	8.64	8.15	7.87	7.52	7.22	6.89
	45°C	Cooling capacity	kW	20.96	19.77	19.20	18.05	17.41	16.46
		Input power	kW	9.03	8.52	8.23	7.86	7.54	7.20

MCCU-28CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	35.08	32.90	31.94	30.09	28.98	27.38
		Input power	kW	8.58	8.02	7.67	7.33	7.04	6.72
	30°C	Cooling capacity	kW	33.41	31.34	30.42	28.65	27.60	26.08
		Input power	kW	9.18	8.58	8.21	7.84	7.53	7.19
	32°C	Cooling capacity	kW	32.28	30.28	29.39	27.69	26.66	25.20
		Input power	kW	9.61	8.98	8.60	8.21	7.88	7.53
	35°C	Cooling capacity	kW	31.28	29.51	28.65	26.93	25.99	24.56
		Input power	kW	10.01	9.36	8.95	8.55	8.21	7.84
	40°C	Cooling capacity	kW	29.40	27.74	26.93	25.32	24.43	23.09
		Input power	kW	10.66	9.96	9.54	9.11	8.74	8.35
	43°C	Cooling capacity	kW	27.93	26.35	25.58	24.05	23.21	21.93
		Input power	kW	11.19	10.46	10.01	9.56	9.18	8.77
	45°C	Cooling capacity	kW	26.40	24.90	24.18	22.73	21.93	20.73
		Input power	kW	11.70	10.93	10.46	9.99	9.59	9.16

MCCU-35CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	43.44	40.75	39.56	37.26	35.89	33.91
		Input power	kW	10.48	9.93	9.50	9.08	8.71	8.32
	30°C	Cooling capacity	kW	41.38	38.81	37.68	35.49	34.18	32.30
		Input power	kW	11.21	10.62	10.17	9.71	9.32	8.90
	32°C	Cooling capacity	kW	39.98	37.49	36.40	34.29	33.02	31.20
		Input power	kW	11.73	11.12	10.64	10.17	9.76	9.32
	35°C	Cooling capacity	kW	38.74	36.54	35.48	33.35	32.18	30.41
		Input power	kW	12.22	11.59	11.09	10.59	10.17	9.71
	40°C	Cooling capacity	kW	36.41	34.35	33.35	31.35	30.25	28.59
		Input power	kW	13.02	12.34	11.81	11.28	10.83	10.34
	43°C	Cooling capacity	kW	34.59	32.63	31.68	29.78	28.74	27.16
		Input power	kW	13.67	12.96	12.40	11.84	11.37	10.86
	45°C	Cooling capacity	kW	32.69	30.84	29.94	28.14	27.16	25.67
		Input power	kW	14.15	13.41	12.83	12.26	11.76	11.24

MCCU-45CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	56.11	52.62	51.09	48.12	46.34	43.79
		Input power	kW	13.36	12.49	11.95	11.41	10.96	10.46
	30°C	Cooling capacity	kW	53.43	50.12	48.66	45.83	44.14	41.71
		Input power	kW	14.53	13.58	12.99	12.41	11.91	11.37
	32°C	Cooling capacity	kW	51.63	48.42	47.01	44.28	42.64	40.30
		Input power	kW	15.21	14.21	13.60	12.99	12.47	11.91
	35°C	Cooling capacity	kW	50.03	47.19	45.82	43.07	41.56	39.28
		Input power	kW	16.01	14.96	14.32	13.67	13.13	12.54
	40°C	Cooling capacity	kW	47.02	44.36	43.07	40.49	39.07	36.92
		Input power	kW	17.42	16.28	15.58	14.88	14.28	13.64
	43°C	Cooling capacity	kW	44.67	42.14	40.92	38.46	37.12	35.07
		Input power	kW	18.46	17.26	16.51	15.77	15.14	14.46
	45°C	Cooling capacity	kW	42.22	39.83	38.67	36.35	35.07	33.15
		Input power	kW	19.30	18.03	17.26	16.48	15.82	15.11

MCCU-53CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	65.73	61.65	59.85	56.37	54.29	51.31
		Input power	kW	15.49	14.48	13.85	13.23	12.70	12.13
	30°C	Cooling capacity	kW	62.60	58.71	57.00	53.69	51.71	48.86
		Input power	kW	16.84	15.74	15.06	14.38	13.81	13.19
	32°C	Cooling capacity	kW	60.48	56.73	55.08	51.87	49.96	47.21
		Input power	kW	17.82	16.65	15.94	15.22	14.61	13.95
	35°C	Cooling capacity	kW	58.61	55.29	53.68	50.46	48.69	46.02
		Input power	kW	18.76	17.53	16.78	16.02	15.38	14.69
	40°C	Cooling capacity	kW	55.09	51.97	50.46	47.43	45.77	43.25
		Input power	kW	20.41	19.07	18.25	17.43	16.73	15.98
	43°C	Cooling capacity	kW	52.34	49.37	47.94	45.06	43.48	41.09
		Input power	kW	21.63	20.22	19.35	18.48	17.74	16.94
	45°C	Cooling capacity	kW	49.46	46.66	45.30	42.58	41.09	38.83
		Input power	kW	22.61	21.13	20.22	19.31	18.53	17.70

MCCU-61CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	75.50	70.81	68.75	64.75	62.36	58.93
		Input power	kW	17.79	16.63	15.91	15.20	14.59	13.93
	30°C	Cooling capacity	kW	71.91	67.44	65.48	61.67	59.39	56.13
		Input power	kW	19.34	18.08	17.30	16.52	15.86	15.15
	32°C	Cooling capacity	kW	69.47	65.16	63.26	59.58	57.39	54.23
		Input power	kW	20.47	19.13	18.31	17.48	16.78	16.03
	35°C	Cooling capacity	kW	67.32	63.51	61.66	57.96	55.93	52.86
		Input power	kW	21.55	20.14	19.27	18.40	17.67	16.87
	40°C	Cooling capacity	kW	63.28	59.70	57.96	54.48	52.58	49.68
		Input power	kW	23.44	21.91	20.96	20.02	19.22	18.36
	43°C	Cooling capacity	kW	60.12	56.71	55.06	51.76	49.95	47.20
		Input power	kW	24.85	23.22	22.22	21.22	20.37	19.46
	45°C	Cooling capacity	kW	56.81	53.59	52.03	48.91	47.20	44.60
		Input power	kW	25.97	24.27	23.22	22.18	21.29	20.33

MCCU-70CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	86.68	81.30	78.93	74.34	71.60	67.66
		Input power	kW	20.43	19.09	18.27	17.45	16.75	16.00
	30°C	Cooling capacity	kW	82.55	77.43	75.17	70.80	68.19	64.44
		Input power	kW	22.21	20.75	19.86	18.97	18.21	17.39
	32°C	Cooling capacity	kW	79.76	74.81	72.63	68.41	65.88	62.26
		Input power	kW	23.50	21.96	21.02	20.07	19.27	18.40
	35°C	Cooling capacity	kW	77.29	72.91	70.79	66.54	64.21	60.68
		Input power	kW	24.74	23.12	22.12	21.13	20.28	19.37
	40°C	Cooling capacity	kW	72.65	68.54	66.54	62.55	60.36	57.04
		Input power	kW	26.91	25.15	24.07	22.99	22.07	21.07
	43°C	Cooling capacity	kW	69.02	65.11	63.22	59.42	57.34	54.19
		Input power	kW	28.53	26.66	25.51	24.36	23.39	22.34
	45°C	Cooling capacity	kW	65.22	61.53	59.74	56.15	54.19	51.21
		Input power	kW	29.81	27.86	26.66	25.46	24.44	23.34

MCCU-105CN1

		Refrigerant evaporating temperature		10°C	8°C	7°C	5°C	4°C	2°C
Outdoor ambient temperature	25°C	Cooling capacity	kW	129.73	121.68	118.13	111.26	107.16	101.27
		Input power	kW	30.58	28.58	27.35	26.12	25.07	23.94
	30°C	Cooling capacity	kW	123.56	115.88	112.51	105.96	102.06	96.44
		Input power	kW	33.24	31.06	29.72	28.39	27.25	26.02
	32°C	Cooling capacity	kW	119.38	111.97	108.70	102.38	98.61	93.18
		Input power	kW	35.17	32.87	31.45	30.04	28.84	27.54
	35°C	Cooling capacity	kW	115.68	109.13	105.95	99.59	96.11	90.82
		Input power	kW	37.02	34.60	33.11	31.62	30.35	28.99
	40°C	Cooling capacity	kW	108.74	102.58	99.59	93.62	90.34	85.37
		Input power	kW	40.28	37.64	36.02	34.40	33.03	31.54
	43°C	Cooling capacity	kW	103.30	97.45	94.61	88.94	85.82	81.10
		Input power	kW	42.70	39.90	38.18	36.47	35.01	33.43
	45°C	Cooling capacity	kW	97.62	92.09	89.41	84.05	81.10	76.64
		Input power	kW	44.62	41.70	39.90	38.11	36.58	34.94

11. Connection accessory list (Optional)

		CCU-10N1(C)	CCU-11N1(C)	CCU-01N1(C)
Available CCU model		MCCU-03CN1	MCCU-05CN1	MCCU-07CN1
Thermal expansion valve	Model	BAE 1 ZW195	BAE 1-1/2 ZW195	BAE 2 ZW195
	Quantity	1	1	1
Filter drier	Model	DML032S 023Z5048	DML032S 023Z5048	DML033S 023Z5050
	Quantity	1	1	1
Sight glasses	Model	SGP 6sN(014L0181)	SGP 6sN(014L0181)	SGP 10sN(014L0182)
	Quantity	1	1	1
Electromagnetic valve	Model	EVR3-1/4-032F1206	EVR3-1/4-032F1206	EVR3 (032F1204)
	Quantity	1	1	1
Electromagnetic valve solenoid	Model	DCFXQ-018F6905	DCFXQ-018F6905	DCFXQ-018F6905
	Quantity	1	1	1
Package size (mm)		400x215x290	400x215x290	400x215x290

		CCU-02N1(C)	CCU-03N1(C)	CCU-04N1(C)
Available CCU model		MCCU-10CN1	MCCU-14CN1	MCCU-16CN1
Thermal expansion valve	Model	BAE 3 ZW195	TGEL4.5 067N3172	TGEL4.5 067N3172
	Quantity	1	1	1
Filter drier	Model	DML033S 023Z5050	DML053S 023Z5054	DML053S 023Z5054
	Quantity	1	1	1
Sight glasses	Model	SGP 10sN(014L0182)	SGP 10sN(014L0182)	SGP 10sN(014L0182)
	Quantity	1	1	1
Electromagnetic valve	Model	EVR6 (032F1212)	EVR6 (032F1212)	EVR6 (032F1212)
	Quantity	1	1	1
Electromagnetic valve solenoid	Model	DCFXQ-018F6905	DCFXQ-018F6905	DCFXQ-018F6905
	Quantity	1	1	1
Package size (mm)		400x215x290	400x215x290	400x215x290

		CCU-05N1(C)	CCU-06N1(C)	CCU-07N1(C)
Available CCU model		MCCU-22CN1	MCCU-28CN1	MCCU-35CN1
Thermal expansion valve	Model	TGEL6.5 067N3174	TGEL9 067N3176	TGEL13 067N3177
	Quantity	1	1	1
Filter drier	Model	DML083S 023Z5058	GZGLQ-DML164S	GZGLQ-DML164S
	Quantity	1	1	1
Sight glasses	Model	SGP 10sN(014L0182)	SGP 12sN(014L0183)	SGP 12sN(014L0183)
	Quantity	1	1	1
Electromagnetic valve	Model	EVR6 (032F1212)	EVRH10 (032G1054)	EVRH10 (032G1054)
	Quantity	1	1	1
Electromagnetic valve solenoid	Model	DCFXQ-018F6905	DCFXQ-018F6905	DCFXQ-018F6905
	Quantity	1	1	1
Package size (mm)		400x215x290	400x215x290	400x215x290

		CCU-08N1(C)	CCU-13N1(C)	
Available CCU model		MCCU-45CN1	MCCU-53CN1	MCCU-61CN1
Thermal expansion valve	Model	TGEL13 067N3177	TGEL9 067N3176	TGEL9 067N3176
	Quantity	1	2	2
Filter drier	Model	GZGLQ-DML165S	DML 305 FS	DML 305 FS
	Quantity	1	2	2
Sight glasses	Model	SGP 16sl(014L0044)	SGP 12sN(014L0183)	SGP 12sN(014L0183)
	Quantity	1	2	2
Electromagnetic valve	Model	EVRH15(032G1056)	EVR10(032F1217)	EVR10(032F1217)
	Quantity	1	2	2
Electromagnetic valve solenoid	Model	DCFXQ-018F6905	018F6251	018F6251
	Quantity	1	2	2
Package size (mm)		400x215x290	290x265x226	290x265x226

		CCU-14N1(C)	CCU-15N1(C)
Available CCU model		MCCU-70CN1	MCCU-105CN1
Thermal expansion valve	Model	TGEL13 067N3177	TGEL15 067N3159
	Quantity	2	2
Filter drier	Model	DML 305 FS	DML 305 FS
	Quantity	2	2
Sight glasses	Model	SGP 12sN(014L0183)	SGP 16sN(014L0184)
	Quantity	2	2
Electromagnetic valve	Model	EVR10(032F1217)	EVR10(032F1217)
	Quantity	2	2
Electromagnetic valve solenoid	Model	018F6251	018F6251
	Quantity	2	2
Package size (mm)		290x265x226	290x265x226

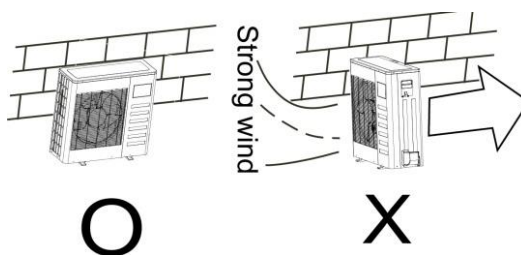
Part. 2 Installation

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1. Notes

CAUTION:

- ✧ Install the unit where enough space of installation and maintenance is available.
- ✧ Install the unit where the air inlet and outlet are not baffled and the least affected by external air.
- ✧ Install the unit where it is easy to lead out the connective pipe and the drain pipe.
- ✧ Install the unit where no heat is emitted from a heat source directly.
- ✧ Installing the equipment in any of the following places may lead to faults of the equipment (if that is inevitable, consult the supplier):
 - ✓ The site contains mineral oils such as cutting lubricant.
 - ✓ Seaside where the air contains much salt.
 - ✓ Hot ring area where corrosive gases exist, e.g., sulfide gas.
 - ✓ Factories where the supply voltage fluctuates seriously.
 - ✓ Inside a car or cabin.
 - ✓ Place like kitchen where oil permeates.
 - ✓ Place where strong electromagnetic waves exist.
 - ✓ Place where flammable gases or materials exist.
 - ✓ Place where acid or alkali gases evaporate, or other special environments.
- ✧ Install the unit where enough space of installation and maintenance is available.
- ✧ Install the unit where the air inlet and air outlet are free from obstacles and strong wind.
- ✧ Install the unit in a dry and well ventilated place.
- ✧ For side-discharge outdoor unit, the air outlet and inlet are not impeded, and cannot be reached by strong wind.



- ✧ Install the unit where the bearing surface is level and can bear weight of the unit, and is suitable

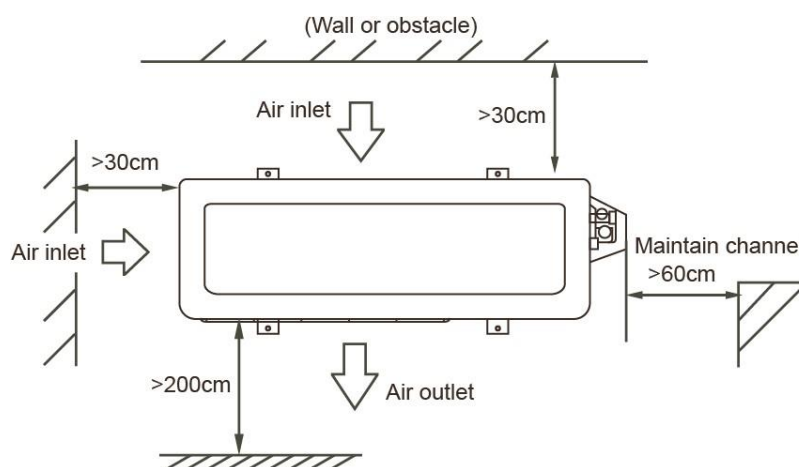
for installing the unit horizontally without increasing noise or vibration.

- ✧ Install the unit where the operation noise and the expelling of air do not affect neighbors.
- ✧ Install the unit where no flammable gas is leaked.
- ✧ Install the unit where it is convenient for pipe connection and electric connection.

2. Transport and Fixed units

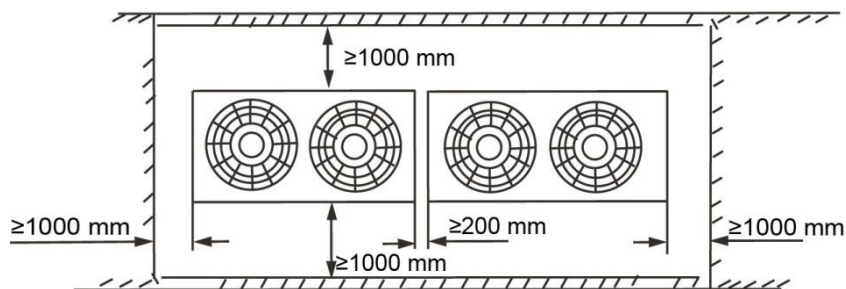
- ✧ When installing the unit, leave a space for maintenance shown in the following figure. Install the power supply at the side of the outdoor unit.

MCCU-03CN1, MCCU-05CN1, MCCU-07CN1, MCCU-10CN1, MCCU-14CN1, MCCU-16CN1:



In case any obstacles exist above the outdoor unit, such obstacles must be 600mm above the outdoor unit.

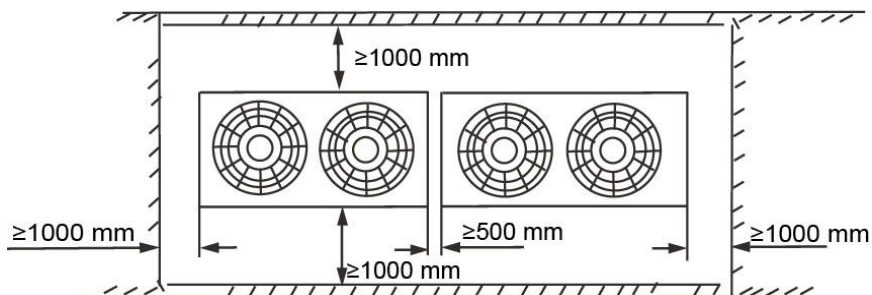
MCCU-22CN1, MCCU-28CN1, MCCU-35CN1:



Top view of the outdoor unit (Multiple units installed)

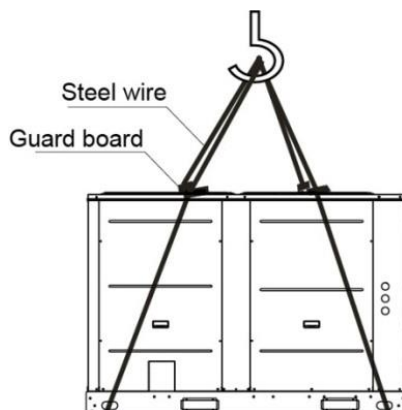
In case any obstacles exist above the outdoor unit, such obstacles must be 2000mm above the outdoor unit.

MCCU-45CN1, MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1:



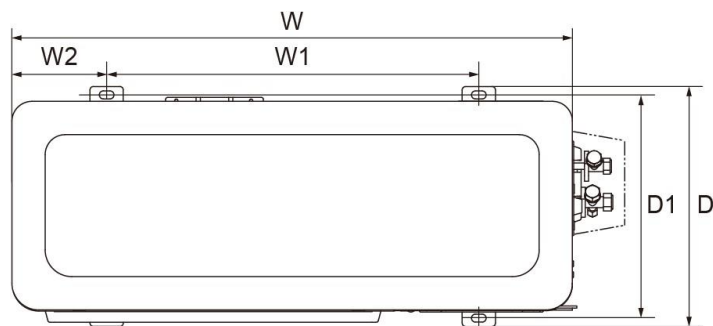
In case any obstacles exist above the outdoor unit, such obstacles must be 2000mm above the outdoor unit.

- ✧ Use 4 steel ropes of a diameter 6mm or bigger size to hoist the outdoor unit and move it into the site.
- ✧ In order to prevent scratch and deformity the unit, apply a guard board to the surface between the steel wire and the air conditioner.
- ✧ Remove the cushion for use in the transport after finishing the transport.

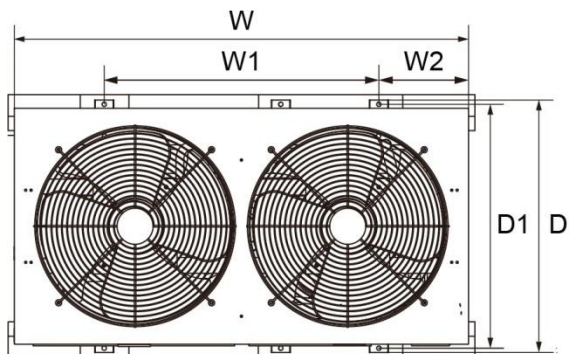


- ✧ The distance of the foundation bolt is shown in following picture.

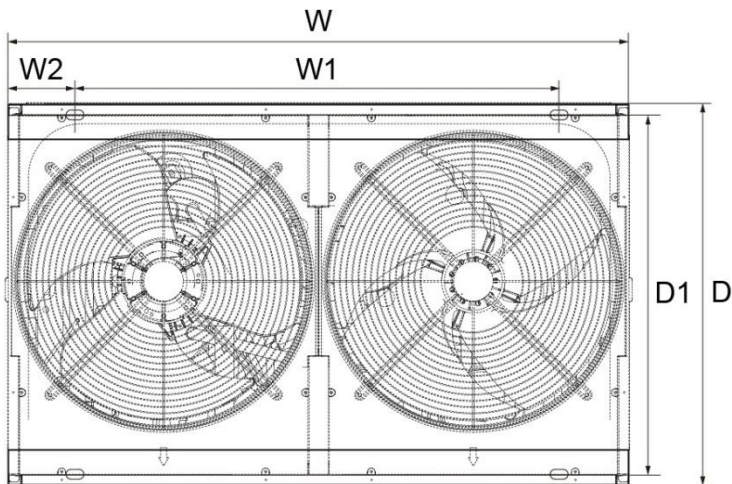
MCCU-03CN1, MCCU-05CN1, MCCU-07CN1, MCCU-10CN1, MCCU-14CN1, MCCU-16CN1:



MCCU-22CN1, MCCU-28CN1, MCCU-35CN1:



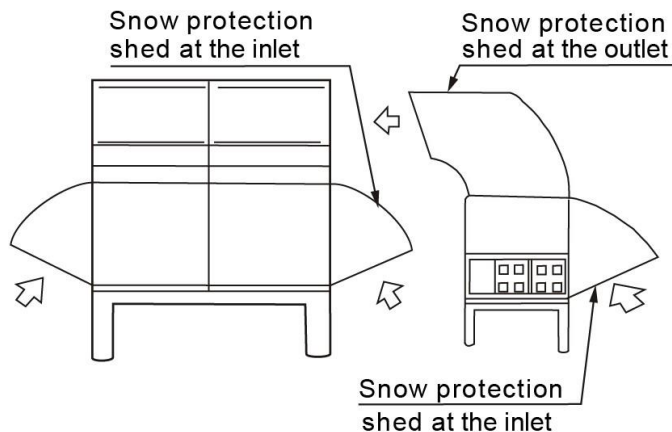
MCCU-45CN1, MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1:



(Unit: mm)

Model	W	W1	W2	D	D1
MCCU-03CN1	780	845	123	300	276
MCCU-05CN1	760	530	117	315	290
MCCU-07CN1	843	560	142.4	360	335
MCCU-10CN1	990	624.4	186.3	396	362.9
MCCU-14CN1	900	590	129	400	378
MCCU-16CN1	900	590	129	400	378
MCCU-22CN1	1,260	762	249.3	700	676
MCCU-28CN1	1,260	762	249.3	700	676
MCCU-35CN1	1,260	762	249	700	676
MCCU-45CN1	1,250	1,120	64	765	736
MCCU-53CN1	1,825	1,568	129.5	899	635
MCCU-61CN1	1,825	1,568	129.5	899	635
MCCU-70CN1	2,158	1,872	143	1,082	774
MCCU-105CN1	2,158	1,872	143	1,082	774

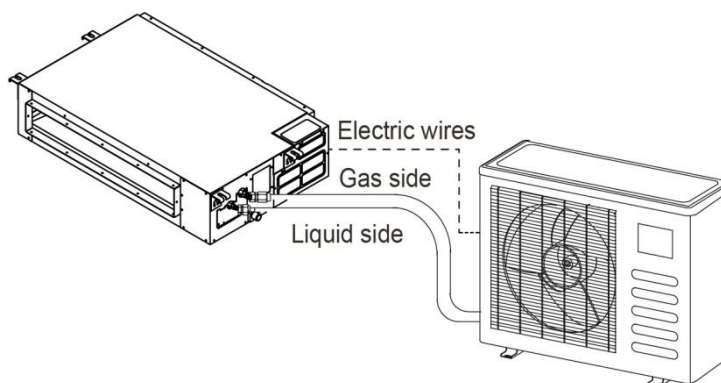
- ❖ Snow protection facilities must be installed in the snowfall areas. In order to prevent influence caused by snow, set up raised pavilion, and install snow protection sheds at the air inlet and air outlet. The snow protection facilities are provided in the site.



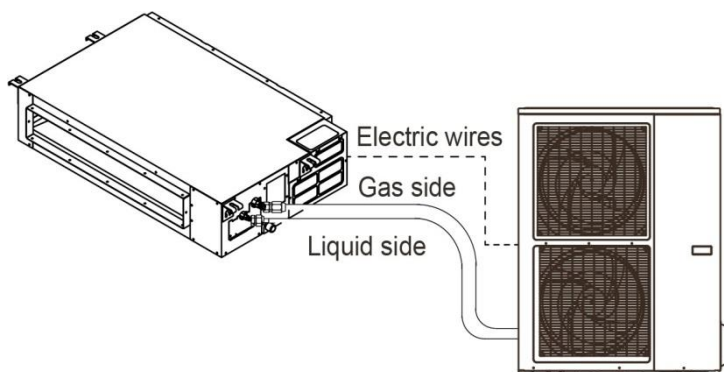
3. Connection of Refrigerant Pipe

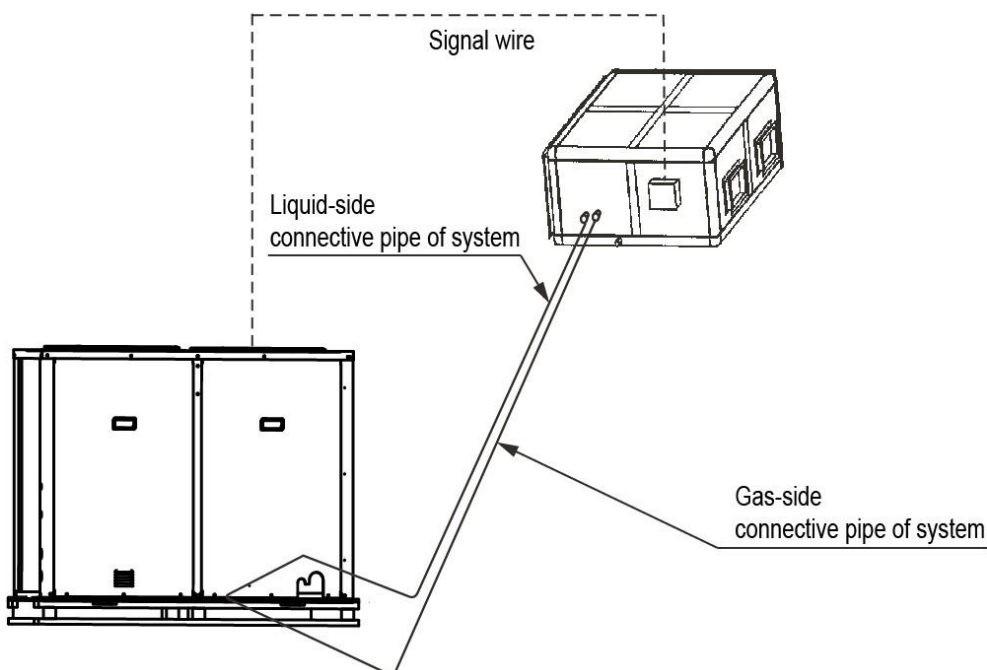
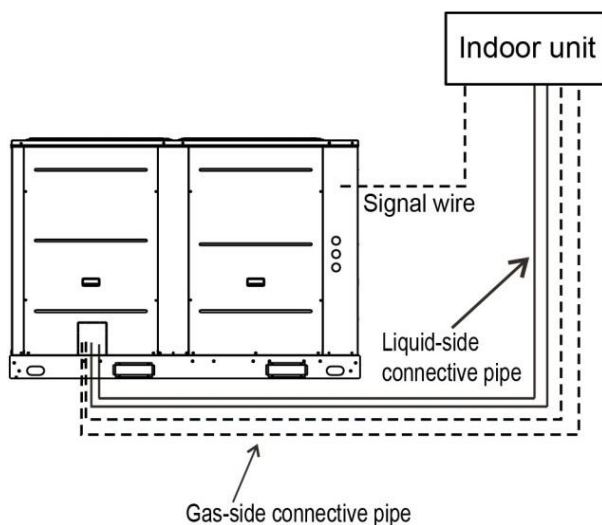
- ❖ Schematic diagram of connection between indoor unit and outdoor unit:

MCCU-03CN1, MCCU-05CN1, MCCU-07CN1, MCCU-10CN1:



MCCU-14CN1, MCCU-16CN1:



MCCU-22CN1, MCCU-28CN1, MCCU-35CN1, MCCU-45CN1:**MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1:**

- ✧ The refrigerant pipe adapter is located inside the outdoor unit. So remove the right front board first.
- ✧ When the pipe is connected from the front side, the pipe can be led out through the right front board.
- ✧ The units which capacities are 53kW, 61kW, 70kW and 105kw have two separate systems, so please mark the system codes, and correctly connect the pipes of each system.
- ✧ When welding the refrigerant pipe, in order to prevent internal oxidation of the pipe, nitrogen

must be filled in. Otherwise, the oxidized chips may block refrigerating circulatory system.

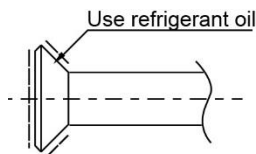
- ✧ Trash and foreign matters may come into the pipe in the process of installing the refrigerant pipe. Be sure to blow them off with nitrogen before connecting the pipe to the outdoor units.
- ✧ Use high-pressure nitrogen to clean the pipelines. Do not use the refrigerant of the outdoor unit for cleaning.
- ✧ Pipes size of the units.

	Liquid pipe	Gas pipe	
MCCU-03CN1	Φ6.35mm	Φ12.7mm	One group of pipes
MCCU-05CN1	Φ6.35mm	Φ12.7mm	One group of pipes
MCCU-07CN1	Φ9.52mm	Φ12.7mm	One group of pipes
MCCU-10CN1	Φ9.52mm	Φ19mm	One group of pipes
MCCU-14CN1	Φ9.52mm	Φ19mm	One group of pipes
MCCU-16CN1	Φ9.52mm	Φ19mm	One group of pipes
MCCU-22CN1	Φ9.52mm	Φ22mm	One group of pipes
MCCU-28CN1	Φ9.52mm	Φ25mm	One group of pipes
MCCU-35CN1	Φ12.7mm	Φ28.6mm	One group of pipes
MCCU-45CN1	Φ16mm	Φ32mm	One group of pipes
MCCU-53CN1	Φ12.7mm	Φ25mm	Two groups of pipes
MCCU-61CN1	Φ12.7mm	Φ25mm	Two groups of pipes
MCCU-70CN1	Φ12.7mm	Φ25mm	Two groups of pipes
MCCU-105CN1	Φ12.7mm	Φ25mm	Two groups of pipes

- ✧ All connections between indoor unit and outdoor unit are copper-to copper and should be brazed with a phosphorous-copper alloy material such as Silfos-5 or equivalent. **Do not** use soft solder. The outdoor units have reusable valves on both the liquid and vapor connections. The total system refrigerant charge is retained within the outdoor unit during shipping and installation. The reusable valves are provided to evacuate and charge per the instruction.
- ✧ Dry nitrogen should always be supplied through the tubing while it is being brazed, because the temperature required is high enough to cause oxidation of the copper unless an inert atmosphere is provided. The flow of dry nitrogen should continue until the joint has cooled. Always use a pressure regulator and safety valve to insure that only low pressure dry nitrogen is introduced into the tubing. Only a small flow is necessary to displace air and prevent oxidation.
- ✧ Install the connective pipe only after fixing the indoor unit and outdoor unit. Keep dry when installing the connective pipe. Do not let moist intrude into the pipeline system.
- ✧ The bending angle of refrigerant should not exceed 90°. Bending position is preferably in the

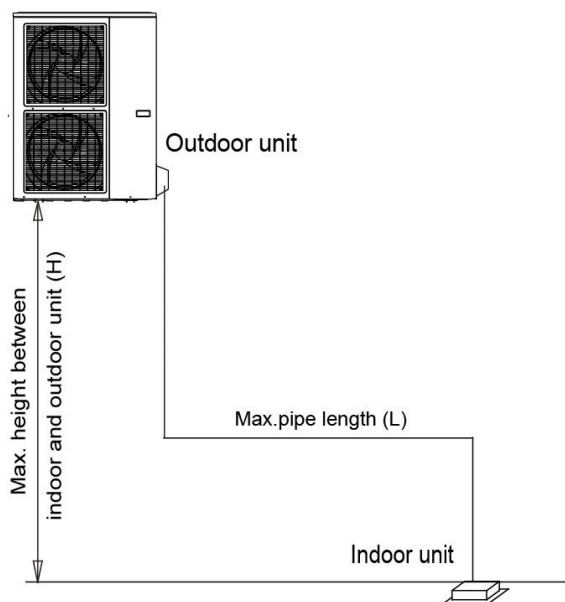
middle of the bendable pipe. Do not bend the pipe more than three times.

- ✧ Be sure to use the same insulation materials when you buy the brass pipe.
- ✧ Bend the tubing in proper way. Do not twist the pipe.
- ✧ Put some refrigerant oil on the surfaces of the flare pipe and the joint nuts when wrench it for 3~4 rounds with hands before fasten the flare nuts.



- ✧ Drill a hole in the wall (suitable just for the size of the wall sleeve), then set on the fittings such as the wall sleeve and its cover.
- ✧ Bind the connecting pipe and cables together tightly with binding tapes. Pass the bound connecting pipe through the wall sleeve from outside. Make sure of the pipe allocation not to damage the copper tubes.
- ✧ Allowed length of refrigerant pipe and height difference.

**MCCU-03CN1, MCCU-05CN1, MCCU-07CN1,
MCCU-10CN1, MCCU-14CN1, MCCU-16CN1:**



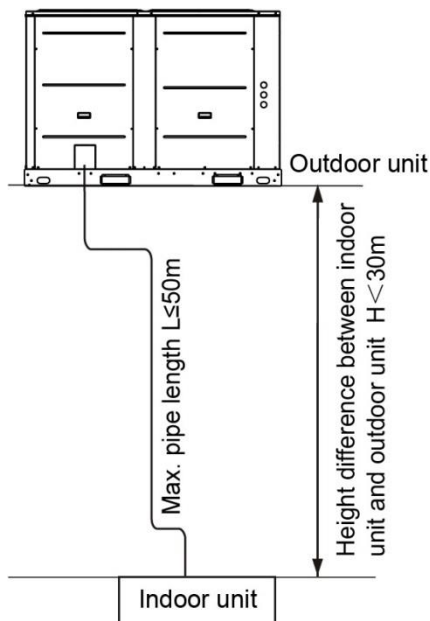
MCCU-03CN1, MCCU-05CN1, MCCU-07CN1:		Allowed value
Max. actual length of pipe (L)		20m
Max. height difference between indoor and outdoor unit	Outdoor unit (upper)	10m
	Outdoor unit lower (lower)	10m

MCCU-10CN1, MCCU-14CN1, MCCU-16CN1:		Allowed value
Max. actual length of pipe (L)		30m
Max. height difference between indoor and outdoor unit	Outdoor unit (upper)	20m
	Outdoor unit lower (lower)	20m

Notes: The number of bends is up to the length of the Max. height drop. Usually for each 10m need a bend. (It is only available for the units below 16kW.)

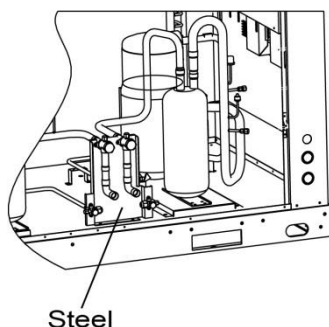
MCCU-22CN1, MCCU-28CN1, MCCU-35CN1, MCCU-45CN1,

MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1:



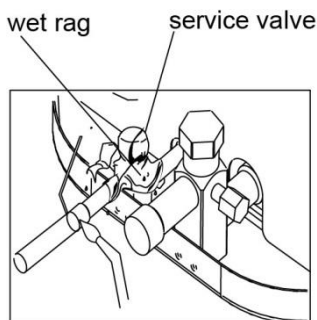
		Allowed value
Max. actual length of pipe (L)		50m
Max. height difference between indoor and outdoor unit	Outdoor unit (upper)	30m
	Outdoor unit lower (lower)	25m
Max. number of bends		15

- ✧ Do not increase or decrease piping sizes.
- ✧ As shown in following picture, when brazing the indoor and outdoor connective lines, pad a sheet metal under the valve avoids the flame burning the chassis.



- ✧ Precaution should be taken to prevent heat damage to the valve by wrapping a wet rag around it. Remove the cap and Schrader core from both the liquid and vapor service valve service ports at

the outdoor unit. Connect low pressure nitrogen to the liquid line service port.



- ✧ Braze the liquid line to the high pressure valve (liquid valve) at the outdoor unit. Be sure to wrap the valve body with a wet rag. Allow the nitrogen to continue flowing.
- ✧ Carefully remove the rubber plugs from the evaporator liquid and vapor connections at the indoor unit.
- ✧ Braze the liquid line to the indoor liquid connection. Nitrogen should be flowing through the evaporator coil.
- ✧ Slide the plastic cap away from the vapor connection at the indoor coil. Braze the vapor line to the evaporator vapor connection.
- ✧ Too large torque will harm the bell mousing and too small will cause leakage. Please determine the torque according to the following table:

Pipe gauge	Tightening torque		Flare dimension A		Flare shape
	N.m	Kgf.cm	Min.	Max.	
Φ6.35mm	14.2~17.2	144~176	8.3mm	8.7mm	<p>The diagram shows a cross-section of a flare. The top angle is labeled $90^\circ \pm 4$. The side angle is labeled $45^\circ \pm 2$. The width of the flare is labeled 'A'. The radius of the bottom edge is labeled $R0.4 \sim 0.8$.</p>
Φ9.52mm	32.7~39.9	333~407	12.0mm	12.4mm	
Φ12.7mm	49.5~60.3	504~616	15.4mm	15.8mm	
Φ16mm	61.8~75.4	630~770	18.6mm	19.0mm	
Φ19mm	97.2~118.6	990~1,210	22.9mm	23.3mm	

- ✧ Protect the vapor valve with a wet rag and braze the vapor line connection to the outdoor unit. The nitrogen flow should be exiting the system from the vapor service port connection. After this connection has cooled, remove the nitrogen source from the liquid fitting service port.
- ✧ Replace the Schrader core in the liquid and vapor valves.
- ✧ Leak test all refrigerant piping connections including the service port flare caps to be sure they are leak tight.

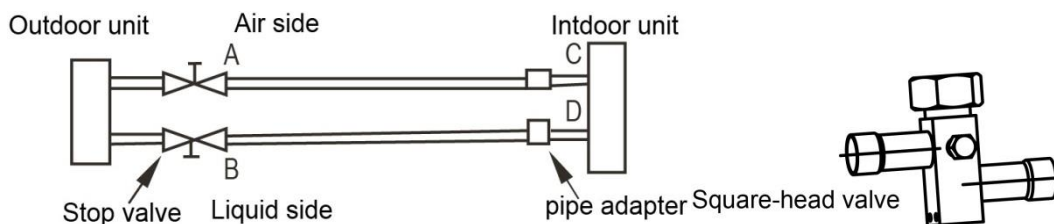
- ✧ Do not over tighten. (between 40 and 60 inch-lbs. maximum)
- ✧ Evacuate the vapor line, evaporator and the liquid line, to 500 microns or less.
- ✧ Replace cap on service ports. Do not remove the flare caps from the service ports except when necessary for servicing the system.
- ✧ Do not connect manifold gauges unless trouble is suspected. Approximately 3/4 ounce of refrigerant will be lost each time a standard manifold gauge is connected.
- ✧ Release the refrigerant charge into the system. Open both the liquid and vapor valves by removing the plunger cap and with a hex wrench back out counter-clockwise until valve stem just touches the chamfered retaining wall.
- ✧ Replace plunger cap finger tight, then tighten an additional 1/12 turn (1/ hex flat). Cap must be replaced to prevent leaks.
- ✧ Never attempt to repair any brazed connections while the system is under pressure. Personal injury could result.
- ✧ After the pipes between the indoor unit and the outdoor unit are connected, replenish compressed nitrogen to perform airtight test.
 - ✓ The airtight test is performed by using the compressed nitrogen, 2.94MPa (30kg/cm²G). Leak test with a bubble type leak detector. Do not use the system refrigerant in the outdoor unit to purge or leak test.
 - ✓ Tighten the spool of the low pressure valve and high pressure valve before compressing the nitrogen.
 - ✓ Compress the nitrogen at the air vent of the gas valve.
 - ✓ The low pressure valve and high pressure valve are closed in the process of compressing the nitrogen.
 - ✓ **Do not** use oxygen, flammable gas or toxic gas in the airtight test.

- ✧ Vacuum

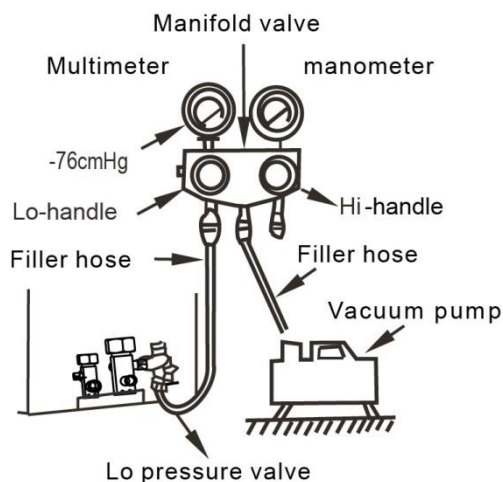
Length of connective pipe (Single pass)	Procedure of expelling air
Less than 5m	Use refrigerant in the outdoor unit.
5~15m	Use vacuum pump or refrigerant tank.

Note: If the air conditioner is relocated, be sure to use a vacuum pump or refrigerant tank to expel air.

- ✓ Use the refrigerant in the outdoor unit to expel air.

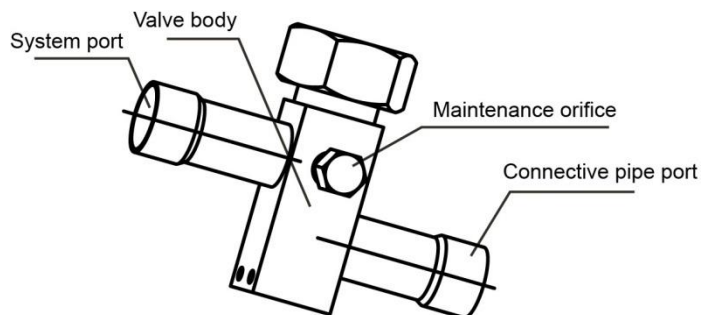


- Screw up the pipe nuts at A, B, C and D completely.
 - Loosen and remove the square-head cover of valves A and B, rotate the square-head spool of valve B counter-clockwise for 45 degrees and stay for about 10 seconds, and then close the spool of valve B tightly.
 - Detect leak for all adapters at A, B, C and D. After making sure that no leak exists, open the maintenance orifice nut of valve A. After all air is expelled, tighten the maintenance orifice nut of valve A.
 - Open the spools of valves A and B completely.
 - Tighten the square-head cover of valves A and B completely.
- ✓ Use refrigerant tank to expel air.
 - Screw up the pipe nuts at A, B, C and D completely.
 - Loosen and remove the square-head cover and maintenance orifice nut of valves A and B.
 - Connect the filler hose of refrigerant tank with the maintenance orifice of valve A.
 - Loosen the valve of the refrigerant tank, continue filling refrigerant for 6 seconds to expel the air, and tighten the nut of valve B quickly.
 - Loosen the valve of the refrigerant tank again, and fill the refrigerant for 6 seconds. Detect leak for all adapters at A, B, C and D. After making sure that no leak exists, screw off the filler hose. After all the filled refrigerant is expelled, screw up the maintenance orifice nut of valve A quickly.
 - Open the square-head spools of valves A and B completely.
 - Tighten the square-head cover of valves A and B.
 - ✓ Use a vacuum pump



- Loosen and remove the maintenance orifice nut of valve A, and connect the filler hose of the manifold valve to the maintenance orifice of valve A (Tighten both valve A and valve B).
 - Connect the filler hose adapter to the vacuum pump.
 - Open the low (Lo) pressure handle of the manifold valve completely.
 - Start the vacuum pump to extract air. At the beginning of extracting air, slightly loosen the maintenance orifice nut of valve B, check whether any air enters it (The vacuum pump noise changes, and the multi-meter indicates from negative to 0.). Then tighten this maintenance orifice nut.
 - Upon completion of vacuuming, tighten the low pressure handle of the manifold valve completely and stop the vacuum pump. Keep extracting air for over 15 minutes. Check whether the multi-meter points at $-1.0 \times 10 \text{ Pa}$ (-76 cmHg).
 - Loosen the remove the square-head cover of valves A and B. After opening valves A and B completely, tighten the square-head cover of valves A and B.
 - Remove the filler hose of the maintenance orifice of valve A, and then tighten the nut.
- ◇ Procedure of using stop valve
- ✓ Open the spool until it touches the stop block. Do not attempt to open further.
 - ✓ Use a spanner or a similar tool to tighten the bonnet.
 - ✓ Upon completion of installation, open all valves before trial run. Each unit has two valves of different sizes located at the outdoor unit side. Of the two valves, one is gas valve and the other is liquid valve. The procedure of opening / closing the valve is shown in following picture.

- ✓ Procedure of opening the valve: Open the square-head cover, use a spanner to capture the square head and open it thoroughly. Then tighten the square-head cover.
- ✓ Procedure of closing the valve: Same as the procedure of opening the valve, but rotate the spanner clockwise thoroughly.



- ✧ After vacuum, according to the diameter and length of the connective pipe of liquid side between the indoor unit and outdoor unit, calculate the refrigerant replenishment quantity. The refrigerant for replenishment is R410A.

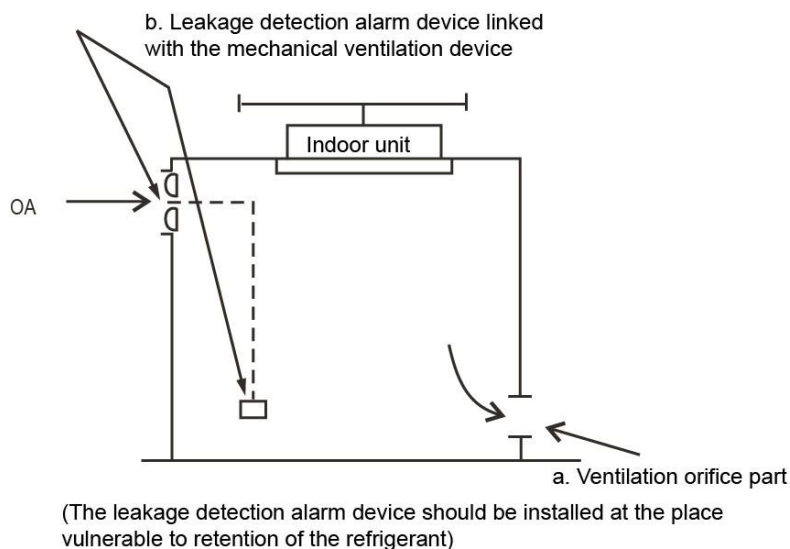
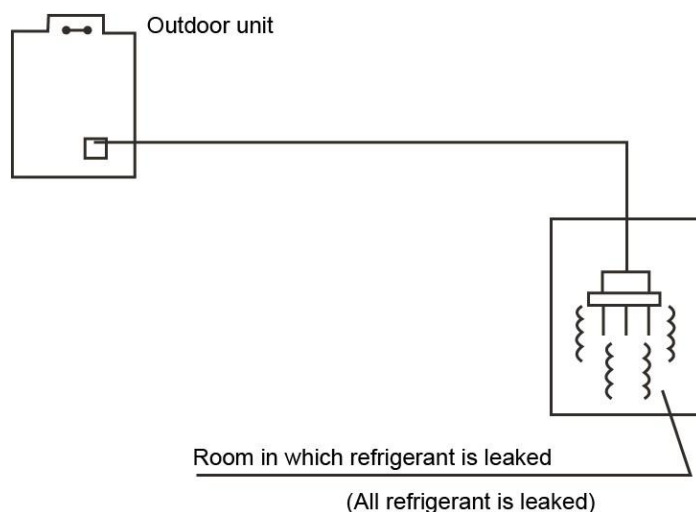
Diameter of liquid-side pipe	Quantity of refrigerant replenished for 1m pipe length
Φ6.35mm	0.022kg
Φ9.52mm	0.06kg
Φ12.7mm	0.12kg
Φ16mm	0.18kg

Notes:

Please check and record the replenished quantity of the air conditioner.

- ✧ Refrigerant leak precautions. This air conditioner uses refrigerant R410A. R410A is safe refrigerant which is harmless and non-flammable. The room for placing the air conditioner should have a proper space. Even if refrigerant leakage occurs, the density threshold will not be crossed. Additional measures may also be taken.
 - ✓ Density threshold: Density of the Freon gas that does not harm the human body. Density threshold of R410A: 0.3kg/m^3 .
 - ✓ Calculate the total quantity of refrigerant to be replenished [A (kg)].
Total refrigerant quantity = refrigerant replenishment quantity upon shipment + additional refrigerant replenishment corresponding to the pipe length.

- ✓ Calculate out the indoor volume [B (m³)] (according to the minimum volume)
- ✓ Calculate out the refrigerant density:
 $[A \text{ (kg)}] / [B \text{ (m}^3)] \leq \text{Density threshold: } 0.3\text{kg/m}^3$
- ✓ Measures against crossing of the refrigerant density threshold.
- ✓ In order to keep the refrigerant density below the threshold value, please install a mechanic ventilation device. (Perform ventilation often.)
- ✓ In case frequent ventilation is impossible, please install the leakage detection alarm device linked with the mechanical ventilation device.

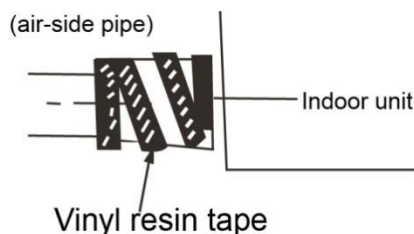


4. Heat Insulation of Refrigerant Pipe

In order to prevent faults caused by condensate of the refrigerant pipe and drain pipe, perform condensate prevention and heat insulation properly. If it is forecast that high humidity and temperature environment (Condensate temperature is over 23°C) may exist in the ceiling, e.g., inside the ceiling with slab, ceiling which is in the same environment as the outdoor air. It is necessary to apply 10mm or thicker adiabatic wool (16~20kg/m²) to the refrigerant pipe and the drain pipe in addition to applying the general heat insulation materials. Enough heat insulation materials should also be applied to the refrigerant joint and the pipe joint.

Note: the heat insulation of drain pipe refer to the installation of indoor unit.

- ✧ Please use heat-resistant materials as heat insulation material of the air-side pipe. (e.g., EPT)
- ✧ Cover heat insulation materials separately at the liquid side and the air side. Moreover, perform heat insulation thoroughly for the air-side pipes of the indoor unit, and prevent water from dripping outside the unit.
- ✧ After applying the auxiliary heat insulation materials, use vinyl resin tape to seal refrigerant pipe and drainage pipe to prevent water leak.



5. Electric Connection

5.1 Caution

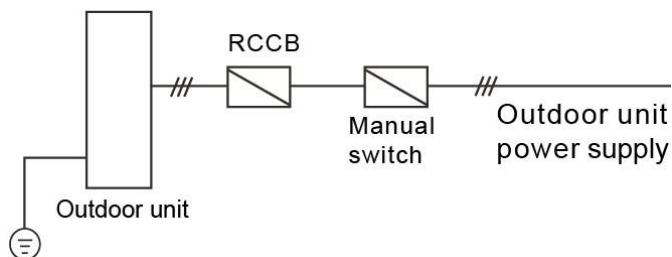
- ✧ Use special power supply for the air conditioner. Design power supplies specific to the indoor unit and outdoor unit. The supply voltage must comply with the nominal voltage.
- ✧ The external supply circuit of the air conditioner must have a ground wire, and the power supply ground wire of the indoor unit must be connected with the external ground wire firmly.
- ✧ The wiring must be performed by professional technicians according to the circuit diagram labels.
- ✧ Distribute the wires according to the relevant electric technical standards promulgated by the State, and set the Residual Current-operated Circuit Breaker (RCCB) properly.

- ✧ The power wire and the signal wire shall be laid out neatly and properly, without mutual interference or contacting the connection pipe or valve.
- ✧ No power cable is attached to this equipment. The user can select the power cable by reference to the stipulated power supply specifications. No joint of wires is allowed.
- ✧ Upon completion of wire connection, double check it and then connect the power supply.
- ✧ An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
- ✧ The appliance shall be installed in accordance with national wiring regulations.
- ✧ In order to prevent disoperation of the air conditioner, do not interleave or entwine the power cable with the connection wires (Low-voltage wires) of the indoor and outdoor unit.

5.2 Specifications of power supply

Model	Power	Switch capacity of the main power supply / Fuse	Power cable	Connective wire of indoor & outdoor unit
MCCU-03CN1	220-240V~, 1Ph, 50Hz	20A/16A	2×2.5mm ² +1×1.5mm ²	\
MCCU-05CN1		30A/20A	2×4.0mm ² +1×2.5mm ²	
MCCU-07CN1		40A/30A	2×6.0mm ² +1×4.0mm ²	
MCCU-10CN1	380-415V~, 3Ph, 50Hz	25A/20A	4×4.0mm ² +1×2.5mm ²	1×1.0mm ²
MCCU-14CN1		25A/20A	4×4.0mm ² +1×2.5mm ²	
MCCU-16CN1		45A/35A	4×10.0mm ² +1×6.0mm ²	
MCCU-22CN1	380-415V~, 3Ph, 50Hz	60A/40A	5×6.0mm ²	2×1.0mm ²
MCCU-28CN1		60A/40A	5×6.0mm ²	
MCCU-35CN1	380-400V~, 3Ph, 50Hz	60A/40A	5×6.0mm ²	
MCCU-45CN1	380-415V~, 3Ph, 50Hz	70A/50A	5×15.0mm ²	
MCCU-53CN1	380-400V~, 3Ph, 50Hz	80A/60A	4×16mm ² +1×10mm ²	2×1.0mm ²
MCCU-61CN1		90A/70A	4×25mm ² +1×16mm ²	
MCCU-70CN1		100A/80A	4×25mm ² +1×16mm ²	
MCCU-105CN1		120A/100A	4×35mm ² +1×16mm ²	

5.3 Schematic diagram



5.4 Electric wire diagram

When connect the wire, pay attention to the phase sequence of the power supply. If the phase sequence is reversed, the compressor will not start. Meanwhile, the fault indicator of the outdoor electric control board will light up. After shifting the phase sequence, power on the unit until the fault indicator goes out and the compressor starts up normally.

6. Trial Run

- ✧ Please conduct in accordance with the nameplate of Trial Run Tenor on the electric control box.
- ✧ Perform the trial run only after the outdoor unit has been powered on for over 12 hours.
- ✧ Check whether all valves are opened before trial run.
- ✧ Check the electric safety before trial run.
- ✧ Do not perform compulsory operation in any way, because it is very dangerous if the protection device is not active.
- ✧ Perform trial run only after all installations are finished.
- ✧ Confirm the following issues before trial operation:
 - ✓ Whether the indoor and outdoor units are installed properly.
 - ✓ Whether the refrigerant pipeline system is inspected for leakage.
 - ✓ Whether the drain is smooth of CCU.
 - ✓ Whether the heat insulation of pipeline system is perfect.
 - ✓ Whether the ground cable is connected correctly.
 - ✓ Whether the pipe length and the refrigerant amount are recorded.
 - ✓ Whether the supply voltage is equal to the voltage of unit.
 - ✓ Whether the liquid and gas valves are opened.

7. Trouble shooting

7.1 Phenomena not attributable to faults of air conditioner

- ✧ The system does not run.
 - It does not run immediately because the safety device in the system is active to prevent overload.
 - Three minutes later, the air conditioner compressor will run automatically.

7.2 Faults of air conditioner and cause

- ✧ If any of the following exceptions occur, operation of the air conditioner will be immediately stopped. Turn off the power switch, and check it.
 - The fuse blows out frequently, or the circuit breaker protection occurs frequently.
 - Foreign substance or moist enters the air conditioner or other exceptions occur.
- ✧ If the air conditioner fails but does not meet the foregoing phenomena obviously, check the system in the following procedure:

Symptom	Possible causes	Way of handing
The cooling effect is poor.	The condenser or evaporator is too dirty, or block.	Clean the heat-exchanger. Remove foreign matters to keep well ventilated.
	The door or window is opened.	Close all the windows and doors.
	Directly exposed to sunlight.	Obstruct sunlight by curtains or jalousie.
	Too many heat sources.	Reduce heat sources.
	Too high outdoor environment temperature.	It is normal, and the cooling effect of the air conditioner is deteriorated.
	The refrigerant is leaked or the replenishment is deficient.	Detect leak, and fill the refrigerant of a correct quantity.

Symptom	Possible causes	Way of handing
The system does not run.	Power supply fails.	Operate it after power supply resumes and connect the power supply properly.
	Power switch is disconnected.	
	The fuse blows out or the circuit breaker acts.	Replace the fuse or check whether electric leakage occurs.
The Indoor unit sends air out without cool air.	3-minutes protection of the compressor.	Waiting for 3 minutes.

7.3 Outdoor unit malfunction and protection codes

MCCU-10CN1, MCCU-14CN1, MCCU-16CN1:

Type	LED1	LED2	LED3
Phase sequence protection	★	◇	◇
Lack of phase (Phase A or B)	★	◇	◇
Lack of phase (Phase C)	◇	◇	◇
Protection of low pressure	★	★	◇
Protection of over-current	◇	◇	★
Communication failure	★	◇	★
Outdoor condenser Temp. sensor error	◇	★	★
Outdoor ambient Temp. sensor error	◇	★	◇
Protection of condenser hi-temp.	★	★	★

Notes:

★: Flash

◇: Extinguish;

MCCU-22CN1, MCCU-28CN1, MCCU-35CN1:

Type	LED1	LED2
Phase sequence protection	◆	●★
Communication failure	◆	●●★
Outdoor condenser Temp. sensor error	◆	●●●★
Outdoor ambient Temp. sensor error	◆	●●●●★
Protection of low pressure	◇	●★
Protection of high pressure	◇	●●★
Protection of over-current	◇	●●●★
Protection of condenser hi-temp.	◇	●●●●★

Notes:

☆: Light for 1 second, extinguish for 1 second;

◆: Light;

◇: Extinguish;

●: Light for 0.4 second, extinguish for 0.4 second;

★: Light for 2 second, extinguish for 2 second.

MCCU-45CN1:

Type	LED1	LED2
Phase sequence or lack of phase.	●	☆★
Communication error.	●	☆☆★
Condenser temperature sensor error.	●	☆☆☆★
Ambient temperature sensor error	●	☆☆☆☆★
System low pressure protection.	○	☆★
Three times low pressure protections within 1 hour.	☆	☆★
System hi-pressure protection, hi-temperature protection of compressor discharger.	○	☆☆★
Current overload protection.	○	☆☆☆★
High temperature protection of condenser.	○	☆☆☆☆★

Notes:

●: Light ○: Extinguishing ☆: Rapidly flash ★: Slowly flash

When the outdoor unit protections of temperature or system pressure are triggered three times within 1 hour, the unit will resume after power on again.

MCCU-53CN1, MCCU-61CN1, MCCU-70CN1, MCCU-105CN1:

Type	LED1	LED2
Phase sequence or lack of phase.	☆	☆
Condenser temperature sensor error.	☆5/3S	
Low temperature protection of suction, system A.	☆1/3S	○
Fault of suction temperature sensor, system A.	☆2/3S	○
Discharge temperature or hi-pressure protection, system A.	☆3/3S	○
Low pressure protection, system A.	☆4/3S	○
Current over-load protection, system A.	☆6/3S	○
Low temperature protection of suction, system B.	○	☆1/3S
Fault of suction temperature sensor, system B.	○	☆2/3S
Discharge temperature or hi-pressure protection, system B.	○	☆3/3S
Low pressure protection, system B.	○	☆4/3S
Current over-load protection, system B.	○	☆6/3S

Notes:

○: Extinguishing ☆: Rapidly flash

☆1/3S: Rapidly flash 1 times, and then stop for 3 seconds.

☆2/3S: Rapidly flash 2 times, and then stop for 3 seconds.

☆3/3S: Rapidly flash 3 times, and then stop for 3 seconds.

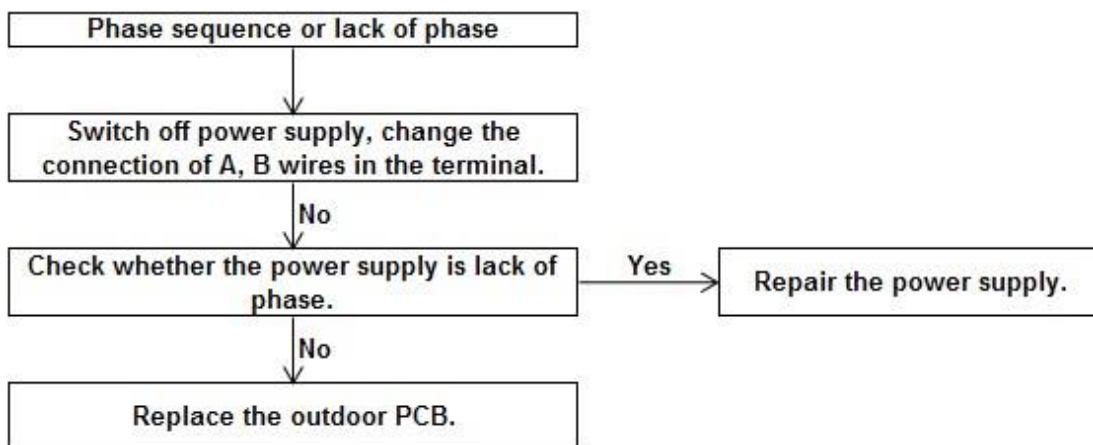
☆4/3S: Rapidly flash 4 times, and then stop for 3 seconds.

☆5/3S: Rapidly flash 5 times, and then stop for 3 seconds.

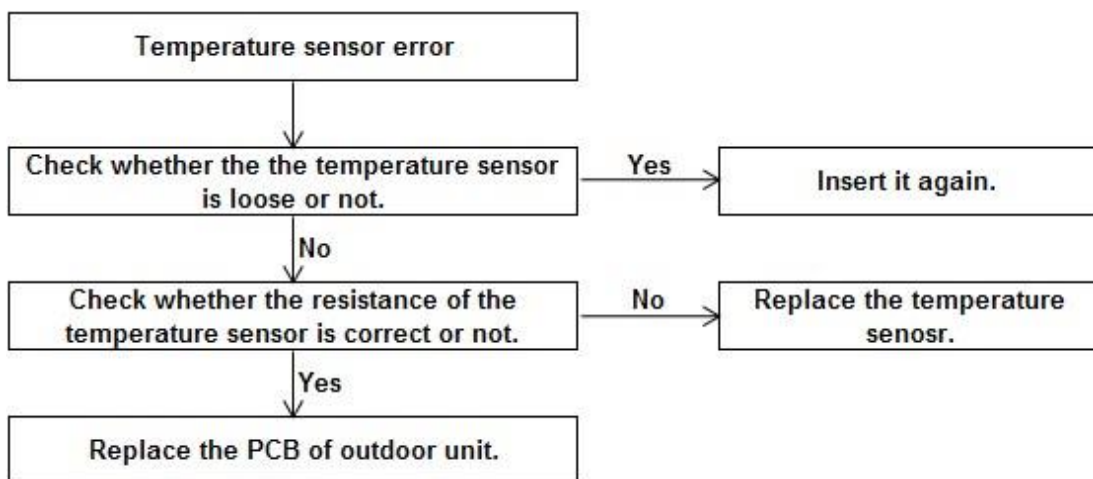
☆6/3S: Rapidly flash 6 times, and then stop for 3 seconds.

If a system has error or protection, another one will be stopped operation after 1 hour. If two systems have error or protection at the same time, then only system A will be display the codes.

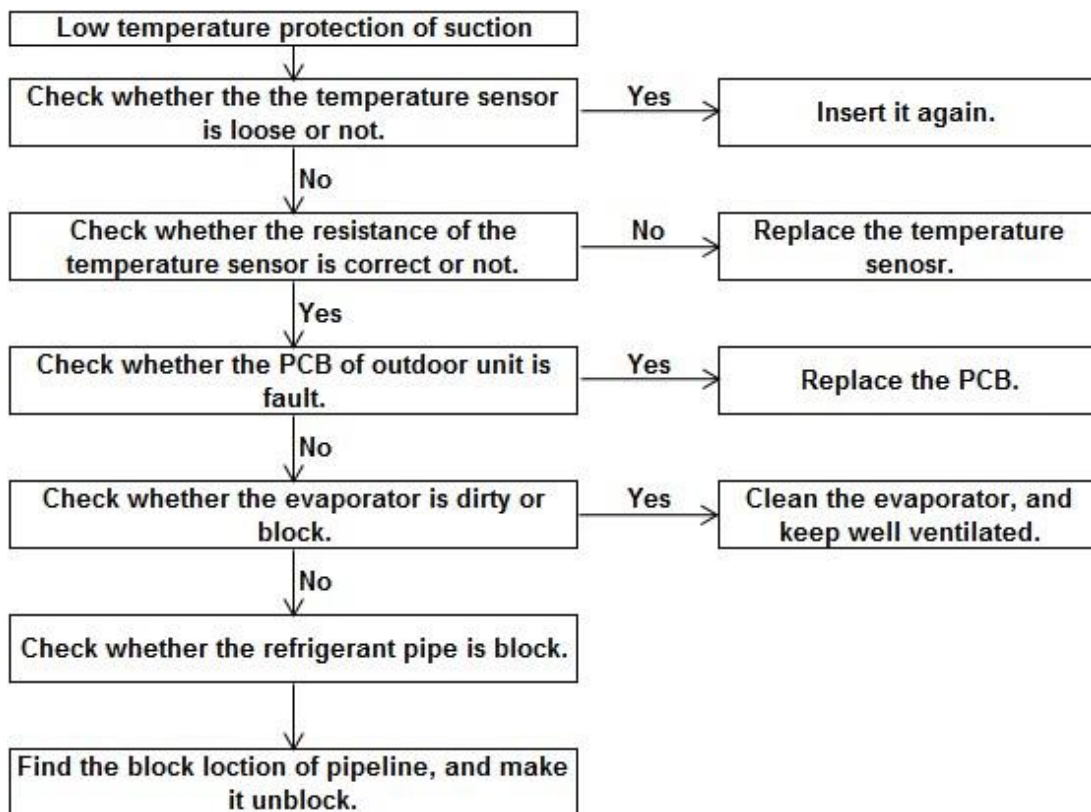
Phase sequence or lack of phase



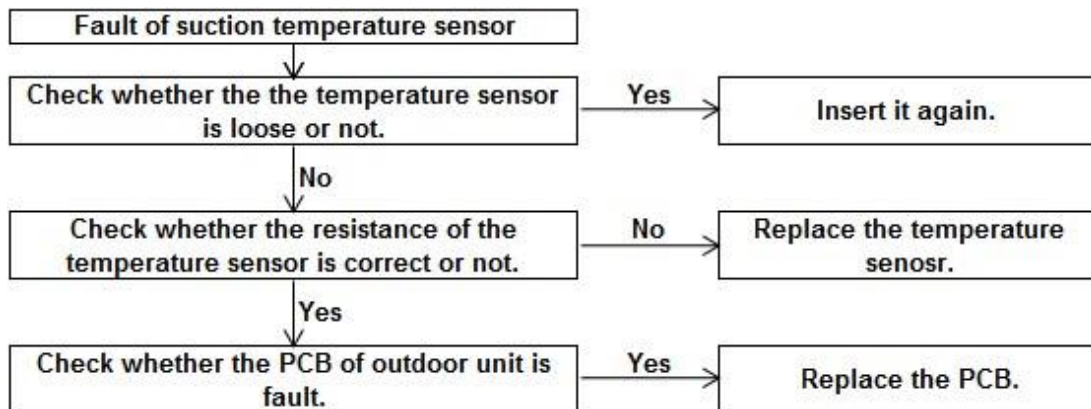
Condenser temperature sensor error



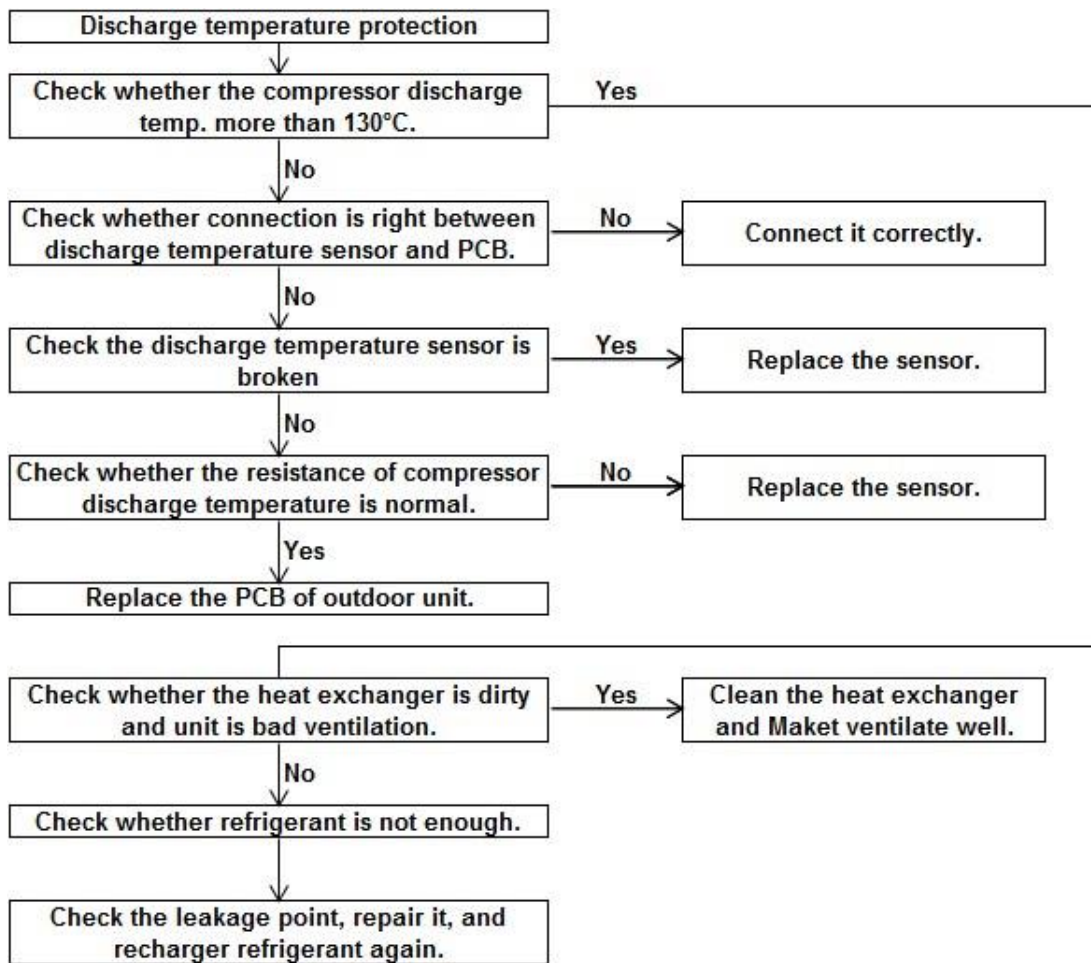
Low temperature protection of suction



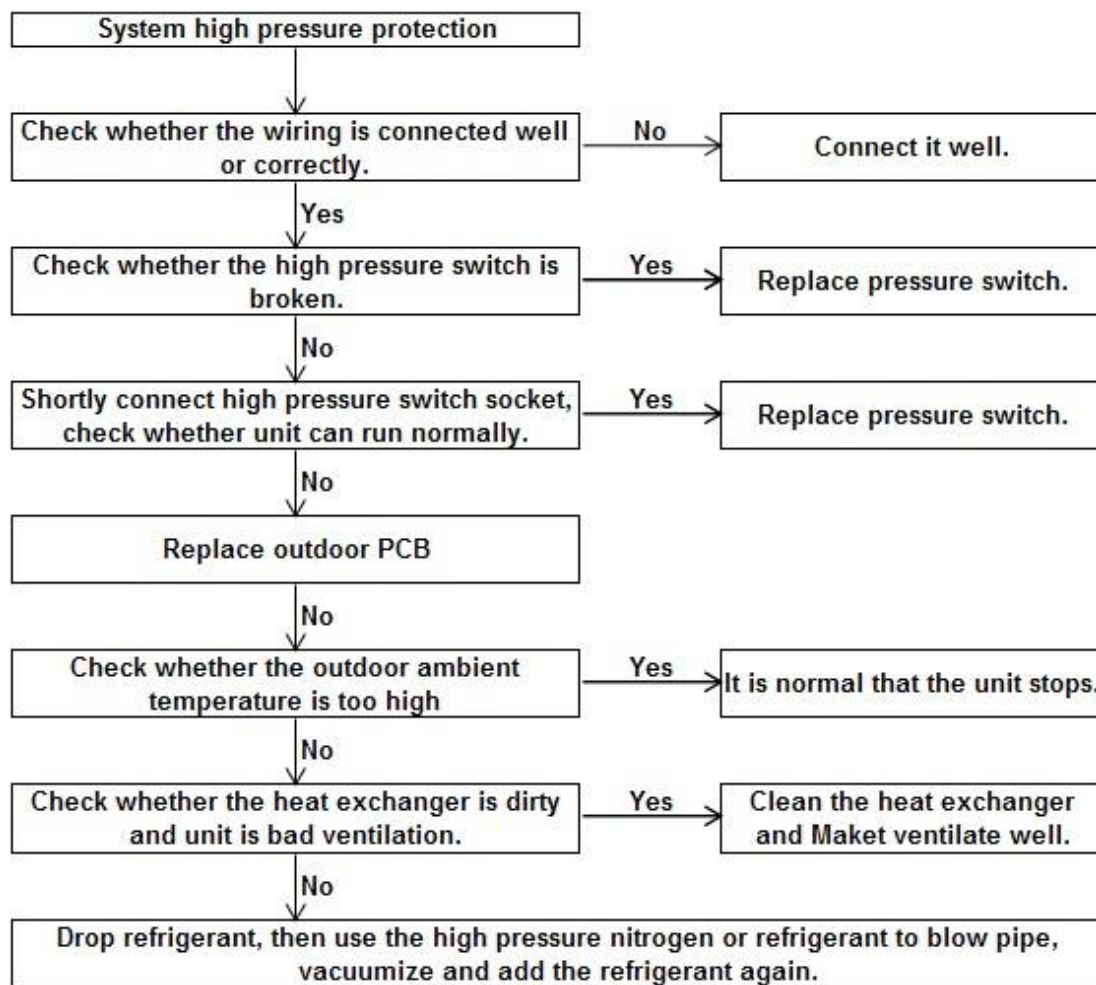
Fault of suction temperature sensor



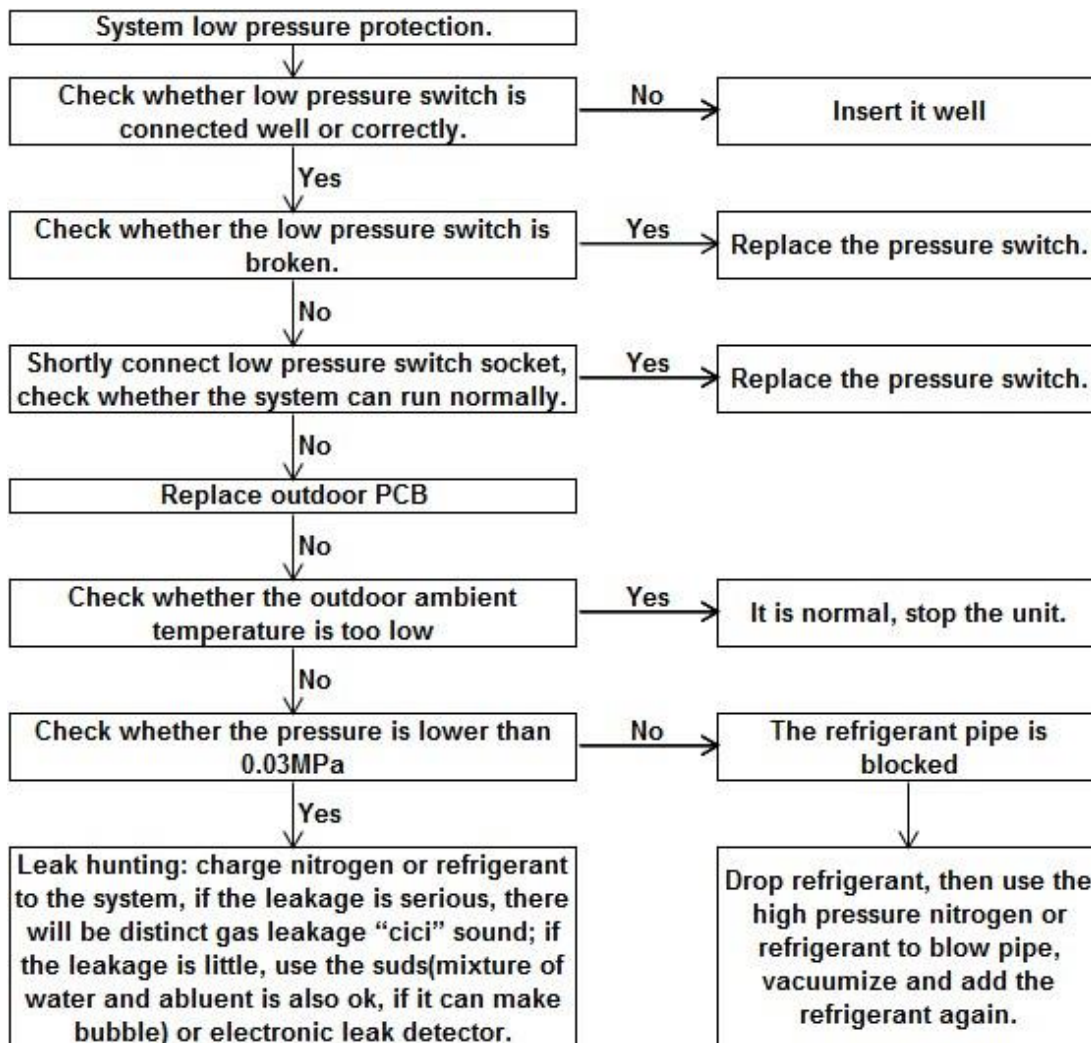
Discharge temperature protection

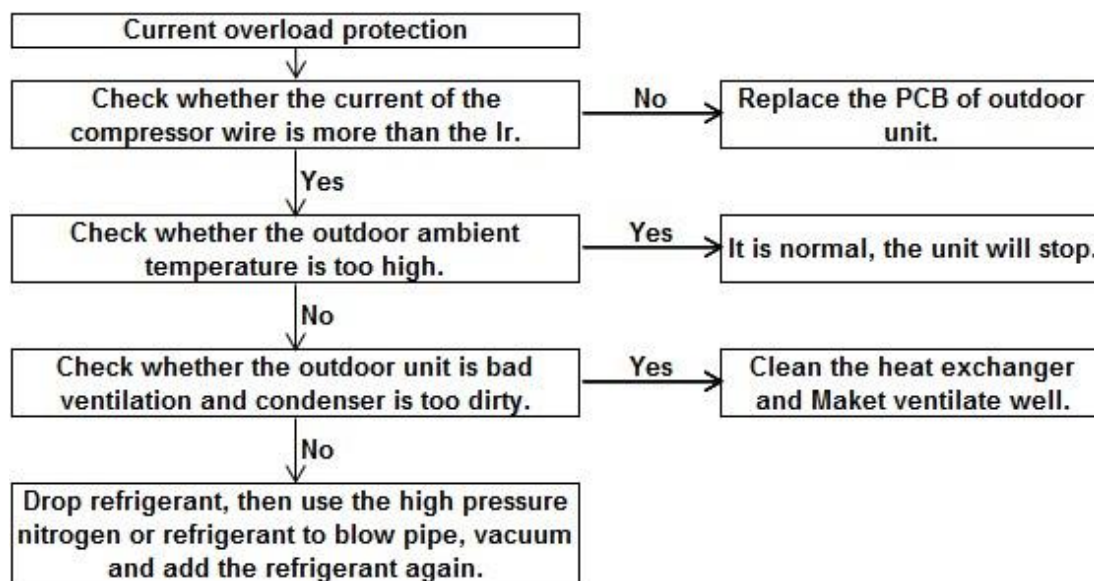


Hi-pressure protection



Low pressure protection



Current overload protection**Notes:**

Model	MCCU-10CN1	MCCU-14CN1	MCCU-16CN1
Ir	8.7A×2	8.7A×2	10A×2

Model	MCCU-22CN1	MCCU-28CN1	MCCU-35CN1	MCCU-45CN1
Ir	26A	28A	30A	26A

Model	MCCU-53CN1	MCCU-61CN1	MCCU-70CN1	MCCU-105CN1
Ir	23A	28A	30A	37A

8. Maintenance

- ✧ Operation required before leaving the unit idle for a long period.
 - When the main power switch is turned on, a certain extent of electric power is consumed even if the air conditioner does not run. Turning off the main power switch can save energy.
 - After the air conditioner has been in service for several seasons, foreign substance accumulates inside the unit to an extent dependent on the working conditions. Therefore, shut down the air conditioner and cut off the power supply.
- ✧ Startup after a long period out of service.
 - Check the following issues:
 - Check whether the air inlet or outlet of the unit is blocked. Remove foreign substance if

any.

Check whether the ground wire is connected properly.

Check whether the insulation work of refrigerant circuit and ventilating duct is on sound status.

Check whether the installing seat is corroded or rusted.

✧ Startup

- Connect the indoor unit 12 hours after connect the outdoor unit to power supply.

✧ Maintenance and upkeep of outdoor unit

- The edge of some sheet metal assemblies and the fin of the condenser are very sharp. Incorrect operation may cause harm. Be cautious when cleaning them up.
- Check the air inlet and outlet of the outdoor unit periodically to see whether they are blocked by stain or lampblack.

Appendix: VRF Solution

Midea VRF units also have another solution of DX AHU applications, through the AHU connection kit. The AHU connection kit is consisted of controller, EXV (electronic expansion valve), distributor and sensor, the external appearance as the following picture:



Midea VRF units totally have 6 standard models: 25.2kW, 28kW, 33.5kW, 40kW, 45kW and 50kW. They can be freely combined to achieve larger capacities, and the largest capacity could reach 180kW. VRF units adopt DC inverter compressor or digital scroll compressor, adjustable output to fit the change of cooling and heating load. The VRF solution is shown as following picture:

