

ΕΝΕΡΓΕΙΑΚΗ ΑΝΑΒΑΘΜΙΣΗ 9ΟΥ ΔΗΜΟΤΙΚΟΥ ΣΧΟΛΕΙΟΥ ΜΥΤΙΛΗΝΗΣ

ΘΕΡΜΑΝΣΗ - ΨΥΞΗ

ΣΥΝΤΑΚΤΗΣ
ΓΕΩΡΓΙΟΣ ΤΑΚΤΙΚΟΣ
ΜΗΧΑΝΟΛΟΓΟΣ ΜΗΧΑΝΙΚΟΣ ΤΕ

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Project Information









Project Information	
Project Name	ΣΧΟΛΕΙΟ ΣΤΗ ΜΥΤΙΛΗΝΗ
Project Location	ΑΘΗΝΑΙ ΗΕΛΛΙΝΙΚΟΝ
Construction Area (m²)	0
Project Consultant	
Project Designer	
时间	2024-07-12

Air-conditioning design parameters

Air-conditioning design parameters			
Summer	Summer atmospheric pressure	101060.19	Pa
	Summer outdoor DB	34.2	°C
	Summer indoor DB	27	°C
	Summer indoor WB	19	°C
Winter	Winter atmospheric pressure	101060.19	Pa
	Winter outdoor DB	3.3	°C
	Winter Outdoor WB	2.78	°C
	Winter indoor DB	20	°C
Altitude		0	m

Quotation list

Equipment Quotation

Model	图片	Type	Quantity	Unit
ODU				
38VT022173HQEE		Top discharge outdoor unit-heat pump	4	pc
IDU				
40VC009F-7S-QEE		Flex ceiling floor(DC)	2	pc
40VC012F-7S-QEE		Flex ceiling floor(DC)	5	pc
40VC016F-7S-QEE		Flex ceiling floor(DC)	4	pc
40VC018F-7S-QEE		Flex ceiling floor(DC)	29	pc
40VC024F-7S-QEE		Flex ceiling floor(DC)	6	pc
40VC054F-7S-QEE		Flex ceiling floor(DC)	2	pc
Gather pipe				
40VJ052G7-HQEE			2	pc
Branch joint				
40VJ012M7-HQEE			24	pc
40VJ018M7-HQEE			8	pc
40VJ026M7-HQEE			7	pc
40VJ048M7-HQEE			7	pc
Wired controller				
40VCW217FQEE			48	pc

Installation Material Quotation

Model	Quantity	Unit
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Copper pipe		
Φ1/4	154	m
Φ3/8	156	m
Φ1/2	187	m
Φ5/8	135	m
Φ3/4	111	m
Φ7/8	49	m
Φ1"1/8	22	m
Φ1"3/8	64	m
Φ1"5/8	50	m
Refrigerant		
R410A	47.36	kg

Air-conditioning system

ΟΡΟΦΟΣ

System Information

System Information			
Total room numbers	4	Air conditioning area (m ²)	0
ODU model	38VT044S73HQEE	IDU quantity	24
Rated cooling capacity (W)	123000	Rated heating capacity (W)	123000
Corrected cooling capacity (W)	127036	Corrected heating capacity (W)	120561
Actual cooling capacity (W)	119820	Actual heating capacity (W)	117993
Rated cooling power input (W)	36607.14	Rated heating power input (W)	33243.24
Actual cooling power (W)	41772	Actual heating power (W)	47291
Combination ratio	110%	Actual combination ratio (%)	114%
System cooling EER(W/W)	2.87	System heating COP(W/W)	2.5
*Additional refrigerant charge (kg)	38.36	Factory pre charged refrigerant (kg)	20

*The above data is for reference only, the actual additional refrigeration weight depends on the actual pipe length.

*Total refrigerant charge in system(kg)/ AC area for each indoor unit(m³)≤Critical concentration

Indoor Unit List

Floor	Room	Room area (m ²)	IDU Model	Quantity
	Room 1	0	40VC009F-7S-QEE	1
	Room 2	0	40VC012F-7S-QEE	1
	Room 3	0	40VC018F-7S-QEE	6
	Room 2	0	40VC018F-7S-QEE	4
	Room 1	0	40VC018F-7S-QEE	8
	Room 4	0	40VC024F-7S-QEE	4

Floor	Room	IDU Model	Cooling capacity (rated / corrected / actual) (W)	Sensible cooling capacity (rated / corrected / actual) (W)	Heating capacity (rated / corrected / actual) (W)	Control	Panel
	Room 1	40VC009F-7S-QEE	2800/2800/2461	2100/2100/1846	3200/3657/2547	40VCW217FQEE	
	Room 2	40VC012F-7S-QEE	3600/3600/3165	2600/2600/2286	4000/4444/3095	40VCW217FQEE	
	Room 3	40VC018F-7S-QEE	5600/5632/4951	3800/3832/3369	6300/6984/4863	40VCW217FQEE	
	Room 2	40VC018F-7S-QEE	5600/5632/4951	3800/3832/3369	6300/6984/4863	40VCW217FQEE	
	Room 1	40VC018F-7S-QEE	5600/5632/4951	3800/3832/3369	6300/6984/4863	40VCW217FQEE	

	Room 4	40VC024 F-7S-QEE	7100/7132/62 69	4700/4700/413 2	8000/8910/62 04	40VCW 217FQ EE	
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Outdoor Unit Parameters

38VT044S73HQEE

ODU model	Cooling/heating capacity (W)	Cooling/heating power (W)	Quantity	EER/COP	Pipe size (in)	Factory pre charged refrigerant (kg)
38VT022173HQEE	61500/61500	18304/16622	2	3.36/3.7	1"1/8,5/8	10

ODU model	Power	MCA(A)	MFA(A)	Weight (kg)	Noise (dB(A))	Outer dimension(HxWxD) (mm)
38VT022173HQEE	380-415V / 3 phase +N +E,50/60Hz	48.1	63	370	61	1690x1410x750

Indoor Unit Parameters

IDU Model	Type	Cooling/heating capacity (W)	Rated power input (W)	Air volume (m ³ /h)	Static pressure (Pa)
40VC009F-7S-QEE		2800/3200	35	0/0	0/0
40VC012F-7S-QEE		3600/4000	35	0/0	0/0
40VC018F-7S-QEE		5600/6300	45	0/0	0/0
40VC024F-7S-QEE		7100/8000	80	0/0	0/0

IDU Model	Power	MCA(A)	MFA(A)	Weight (kg)	Noise (dB(A))	Outer dimension(HxWxD) (mm)
40VC009F-7S-QEE	220-230V / 1 phase +N +E	0.18	0.4	27.9	34	230x1000x680
40VC012F-7S-QEE	220-230V / 1 phase +N +E	0.18	0.4	27.9	34	230x1000x680
40VC018F-7S-QEE	220-230V / 1 phase +N +E	0.2	0.5	27.9	35	230x1000x680
40VC024F-7S-QEE	220-230V / 1 phase +N +E	0.26	0.6	35.8	41	230x1325x680

Dip Switch

Outdoor dip switch

The BM1-1 & BM1-2 of Master unit should be set 0 (off position) before power on, after locking the quantity of indoor and outdoor units the

DIP setting should be as below list.

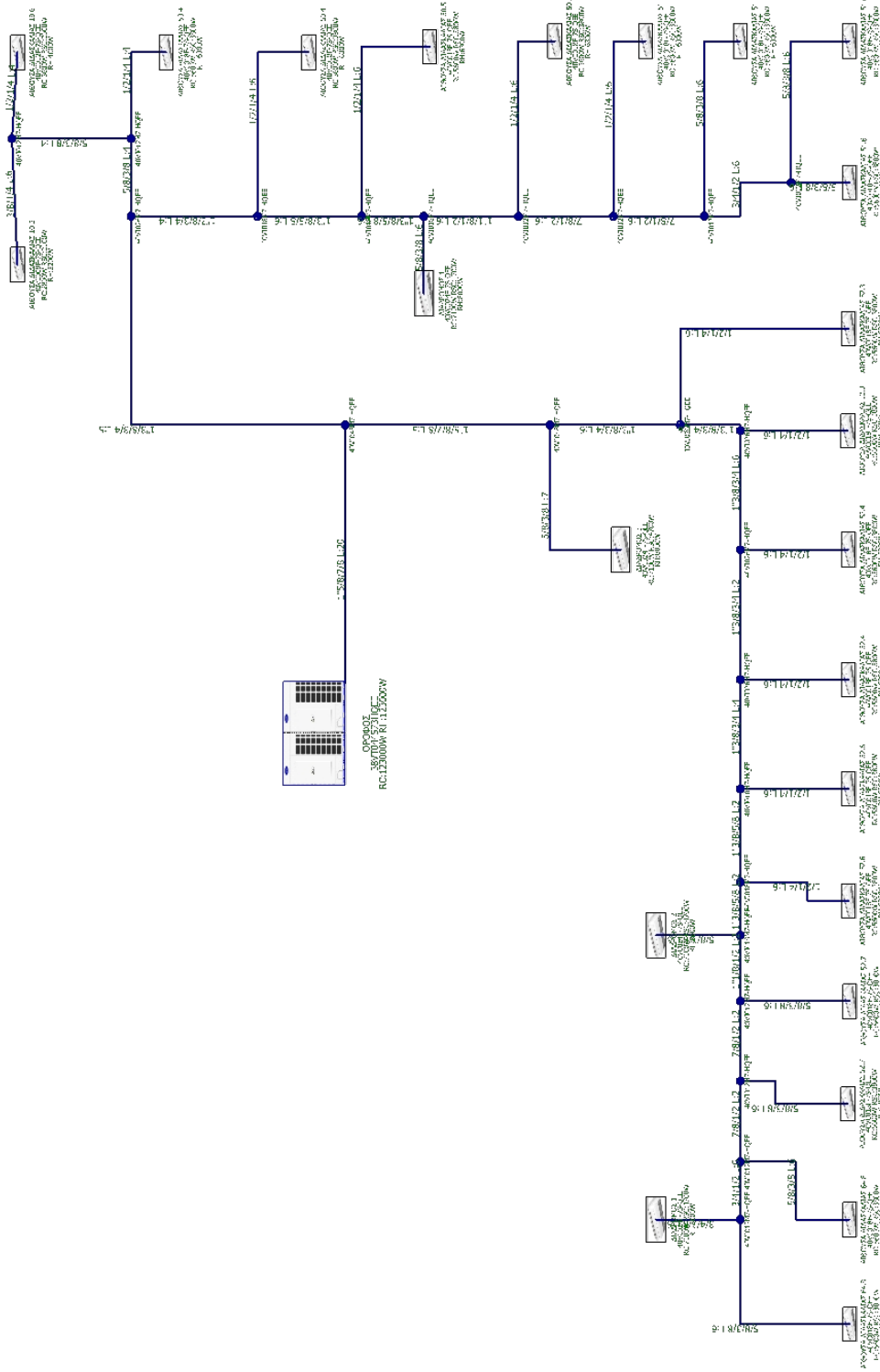
ODU module parameter	Name	BM1	BM2	BM3	BM4	BM5
38VT022173HQEE	ODU1-1	00000000	00000000	00001000	00000000	/
38VT022173HQEE	ODU1-2	00000001	00000000	00001000	00000000	/

IDU dip switch

Model	Name	SW01/BM1	SW02/CN41-44/BM2	SW03	SW07	SW08
40VC009F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 10.5	00000010	/	10000000	/	/
40VC012F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 19.6	00000011	/	10000001	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 50.4	00000110	/	10000010	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 50.4	00000110	/	10000011	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 50.5	00000110	/	10000100	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 50.5	00000110	/	10000101	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 51.1	00000110	/	10000110	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 51.1	00000110	/	10000111	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 51.6	00000110	/	10001000	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 51.6	00000110	/	10001001	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.3	00000110	/	10001010	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.3	00000110	/	10001011	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.4	00000110	/	10001100	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.4	00000110	/	10001101	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.6	00000110	/	10001110	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.6	00000110	/	10001111	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.7	00000110	/	10010000	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 52.7	00000110	/	10010001	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 64.8	00000110	/	10010010	/	/
40VC018F-7S-QEE	ΑΙΘΟΥΣΑ ΔΙΔΑΣΚΑΛΙΑΣ 64.8	00000110	/	10010011	/	/

40VC024F-7S-QEE	ΔΙΑΔΡΟΜΟΣ 1	00000111	/	10010100	/	/
40VC024F-7S-QEE	ΔΙΑΔΡΟΜΟΣ 2	00000111	/	10010101	/	/
40VC024F-7S-QEE	ΔΙΑΔΡΟΜΟΣ 3	00000111	/	10010110	/	/
40VC024F-7S-	ΔΙΑΔΡΟΜΟΣ 4	00000111	/	10010111	/	/

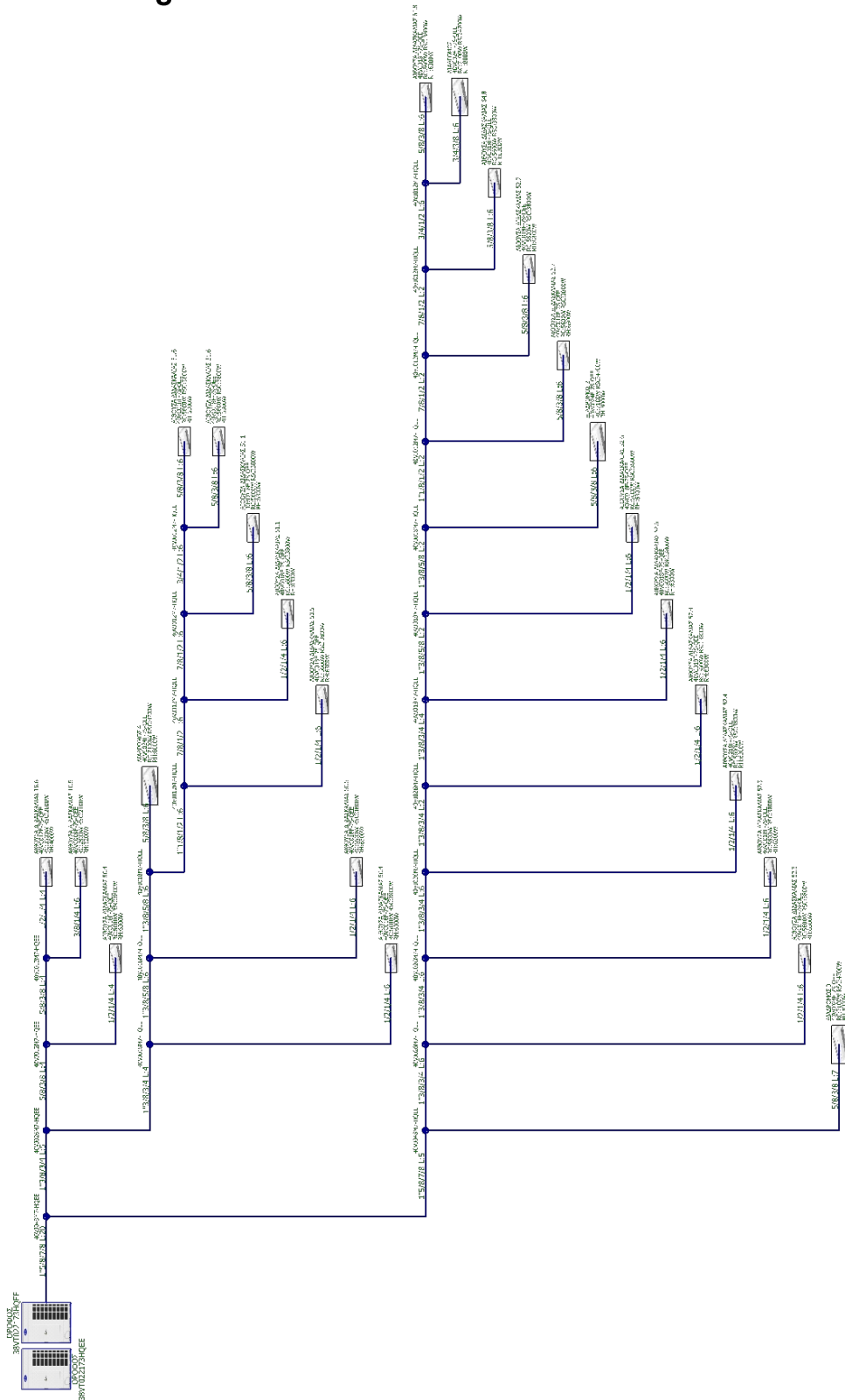
Refrigerant drawing



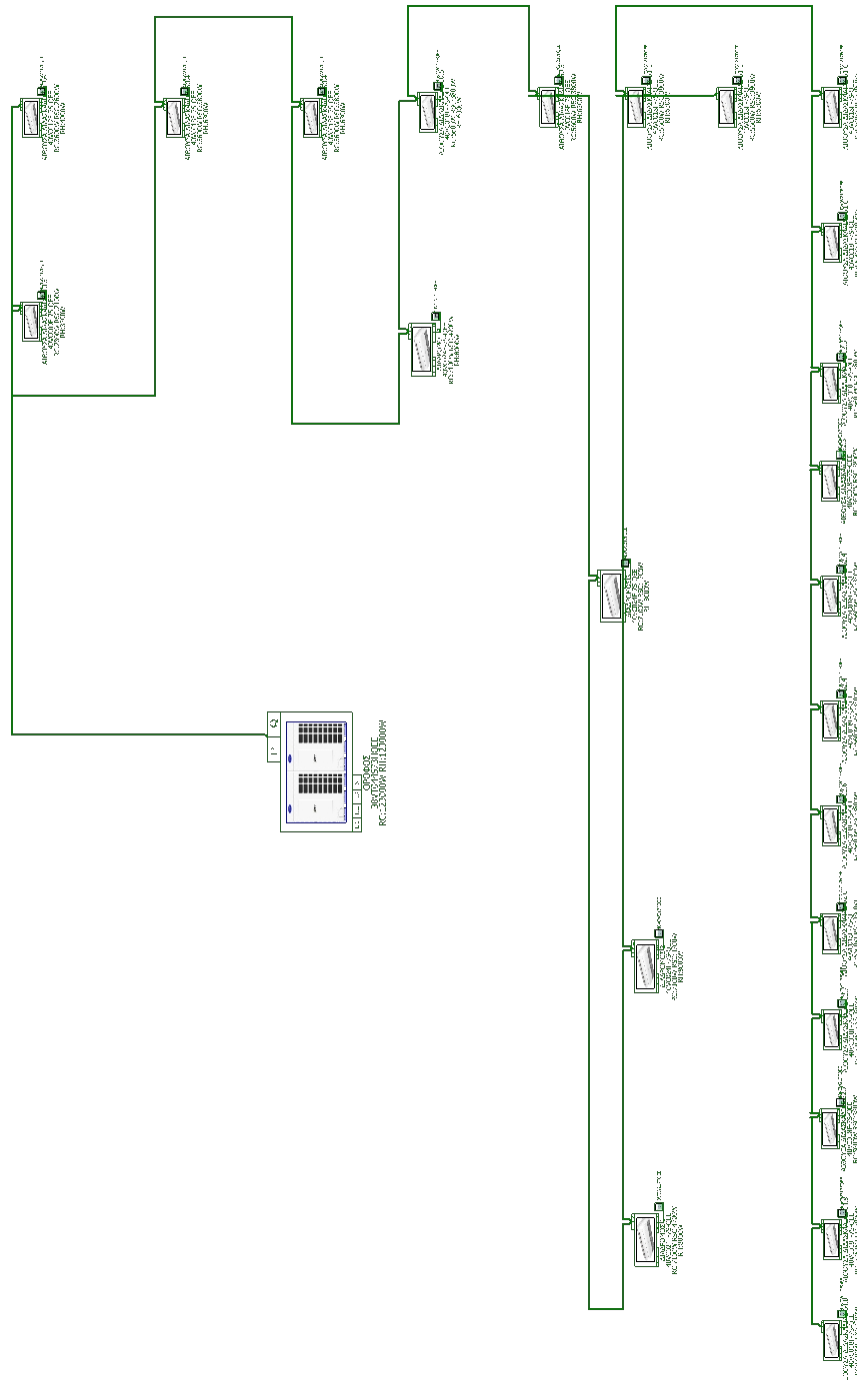
Tips:

All piping diameters and schematic diagrams are for reference only. Accurate piping diagrams, piping diameters, verification of rule requirements on piping lengths, and additional refrigerant charges can only be determined if the user manually enters the exact piping lengths one by one, or automatically through the layout scale reference setting.

Piping schema drawing



Communication system wiring diagram



Signal line between outdoor unit and indoor unit: $(0.75-2) \text{ mm}^2 \times 2$
 signal line between indoor unit and wire controller: $0.75 \text{ mm}^2 \times 3$

Wiring connection method for wired controller group control :

1. Ac fan motor , the slave unit only connects BC terminal.
2. Dc fan motor , the slave unit connects ABC terminal.

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System Information

System Information			
Total room numbers	2	Air conditioning area (m ²)	0
ODU model	38VT044S73HQEE	IDU quantity	24
Rated cooling capacity (W)	123000	Rated heating capacity (W)	123000
Corrected cooling capacity (W)	128164	Corrected heating capacity (W)	121809
Actual cooling capacity (W)	128164	Actual heating capacity (W)	121809
Rated cooling power input (W)	36607.14	Rated heating power input (W)	33243.24
Actual cooling power (W)	40657	Actual heating power (W)	46696
Combination ratio	116%	Actual combination ratio (%)	112%
System cooling EER(W/W)	3.15	System heating COP(W/W)	2.61
*Additional refrigerant charge (kg)	9	Factory pre charged refrigerant (kg)	20

*The above data is for reference only, the actual additional refrigeration weight depends on the actual pipe length.

*Total refrigerant charge in system(kg)/ AC area for each indoor unit(m²3)≤Critical concentration

Indoor Unit List

Floor	Room	Room area (m ²)	IDU Model	Quantity
	Room 5	0	40VC024F-7S-QEE	2
	Room 5	0	40VC012F-7S-QEE	4
	Room 5	0	40VC018F-7S-QEE	11
	Room 6	0	40VC016F-7S-QEE	4
	Room 6	0	40VC009F-7S-QEE	1
	Room 6	0	40VC054F-7S-QEE	2

Floor	Room	IDU Model	Cooling capacity (rated / corrected / actual) (W)	Sensible cooling capacity (rated / corrected / actual) (W)	Heating capacity (rated / corrected / actual) (W)	Control	Panel
	Room 5	40VC024F-7S-QEE	7100/7132/6371	4700/4700/4198	8000/8910/6084	40VCW217FQEE	
	Room 5	40VC012F-7S-QEE	3600/3600/3216	2600/2600/2322	4000/4444/3035	40VCW217FQEE	
	Room 5	40VC018F-7S-QEE	5600/5632/5031	3800/3832/3423	6300/6984/4769	40VCW217FQEE	
	Room 6	40VC016F-7S-QEE	4500/4500/4020	3200/3232/2887	5000/5556/3794	40VCW217FQEE	
	Room 6	40VC009F-7S-QEE	2800/2800/2501	2100/2100/1876	3200/3657/2497	40VCW217FQEE	

	Room 6	40VC054 F-7S-QEE	16000/16032/ 14321	10500/10532/9 408	18000/20043/ 13686	40VCW 217FQ EE	
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Outdoor Unit Parameters

38VT044S73HQEE

ODU model	Cooling/heating capacity (W)	Cooling/heating power (W)	Quantity	EER/COP	Pipe size (in)	Factory pre charged refrigerant (kg)
38VT022173HQEE	61500/61500	18304/16622	2	3.36/3.7	1"1/8,5/8	10

ODU model	Power	MCA(A)	MFA(A)	Weight (kg)	Noise (dB(A))	Outer dimension(HxWxD) (mm)
38VT022173HQEE	380-415V / 3 phase +N +E,50/60Hz	48.1	63	370	61	1690x1410x750

Indoor Unit Parameters

IDU Model	Type	Cooling/heating capacity (W)	Rated power input (W)	Air volume (m ³ /h)	Static pressure (Pa)
40VC009F-7S-QEE		2800/3200	35	0/0	0/0
40VC012F-7S-QEE		3600/4000	35	0/0	0/0
40VC016F-7S-QEE		4500/5000	45	0/0	0/0
40VC018F-7S-QEE		5600/6300	45	0/0	0/0
40VC024F-7S-QEE		7100/8000	80	0/0	0/0
40VC054F-7S-QEE		16000/18000	126	0/0	0/0

IDU Model	Power	MCA(A)	MFA(A)	Weight (kg)	Noise (dB(A))	Outer dimension(HxWxD) (mm)
40VC009F-7S-QEE	220-230V / 1 phase +N +E	0.18	0.4	27.9	34	230x1000x680

40VC012F-7S-QEE	220-230V / 1 phase +N +E	0.18	0.4	27.9	34	230x1000x680
40VC016F-7S-QEE	220-230V / 1 phase +N +E	0.2	0.5	27.9	35	230x1000x680
40VC018F-7S-QEE	220-230V / 1 phase +N +E	0.2	0.5	27.9	35	230x1000x680
40VC024F-7S-QEE	220-230V / 1 phase +N +E	0.26	0.6	35.8	41	230x1325x680
40VC054F-7S-QEE	220-230V / 1 phase +N +E	0.64	1.5	43.5	43	680x1650x230

Dip Switch

Outdoor dip switch

The BM1-1 & BM1-2 of Master unit should be set 0 (off position) before power on, after locking the quantity of indoor and outdoor units the

DIP setting should be as below list.

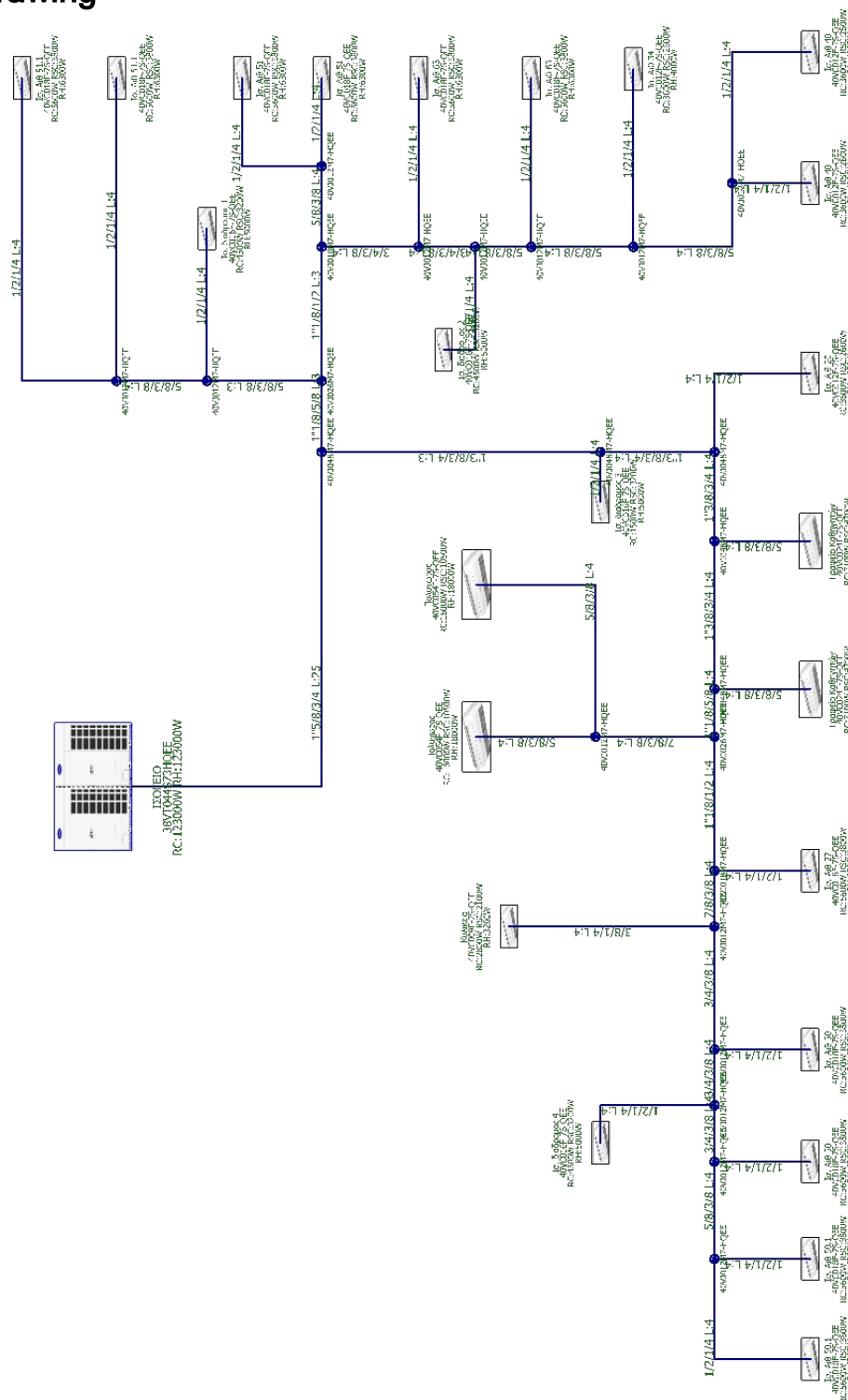
ODU module parameter	Name	BM1	BM2	BM3	BM4	BM5
38VT022173HQEE	ODU1-1	00000000	00000000	00001000	00000000	/
38VT022173HQEE	ODU1-2	00000001	00000000	00001000	00000000	/

IDU dip switch

Model	Name	SW01/BM1	SW02/CN41-44/BM2	SW03	SW07	SW08
40VC024F-7S-QEE	Γραφείο Καθηγητών	00000111	/	10000000	/	/
40VC024F-7S-QEE	Γραφείο Καθηγητών	00000111	/	10000001	/	/
40VC012F-7S-QEE	Ισ. Αιθ 20	00000011	/	10000010	/	/
40VC018F-7S-QEE	Ισ. Αιθ 27	00000110	/	10000011	/	/
40VC012F-7S-QEE	Ισ. Αιθ 34	00000011	/	10000100	/	/
40VC012F-7S-QEE	Ισ. Αιθ 40	00000011	/	10000101	/	/
40VC012F-7S-QEE	Ισ. Αιθ 40	00000011	/	10000110	/	/
40VC018F-7S-QEE	Ισ. Αιθ 50	00000110	/	10000111	/	/
40VC018F-7S-QEE	Ισ. Αιθ 50	00000110	/	10001000	/	/
40VC018F-7S-QEE	Ισ. Αιθ 50.1	00000110	/	10001001	/	/
40VC018F-7S-QEE	Ισ. Αιθ 50.1	00000110	/	10001010	/	/
40VC018F-7S-QEE	Ισ. Αιθ 51	00000110	/	10001011	/	/
40VC018F-7S-QEE	Ισ. Αιθ 51	00000110	/	10001100	/	/
40VC018F-7S-QEE	Ισ. Αιθ 51.1	00000110	/	10001101	/	/

40VC018F-7S-QEE	Ισ. Αιθ 51.1	00000110	/	10001110	/	/
40VC018F-7S-QEE	Ισ. Αιθ 63	00000110	/	10001111	/	/
40VC018F-7S-QEE	Ισ. Αιθ 63	00000110	/	10010000	/	/
40VC016F-7S-QEE	Ισ. διαδρομος 1	00000101	/	10010001	/	/
40VC016F-7S-QEE	Ισ. διαδρομος 2	00000101	/	10010010	/	/
40VC016F-7S-QEE	Ισ. διαδρομος 3	00000101	/	10010011	/	/
40VC016F-7S-QEE	Ισ. διαδρομος 4	00000101	/	10010100	/	/
40VC009F-7S-QEE	Κυλίκειο	00000010	/	10010101	/	/
40VC054F-7S-QEE	Πολυχωρος	00001100	/	10010110	/	1111
40VC054F-7S-	Πολυχώρος	00001100	/	10010111	/	1111

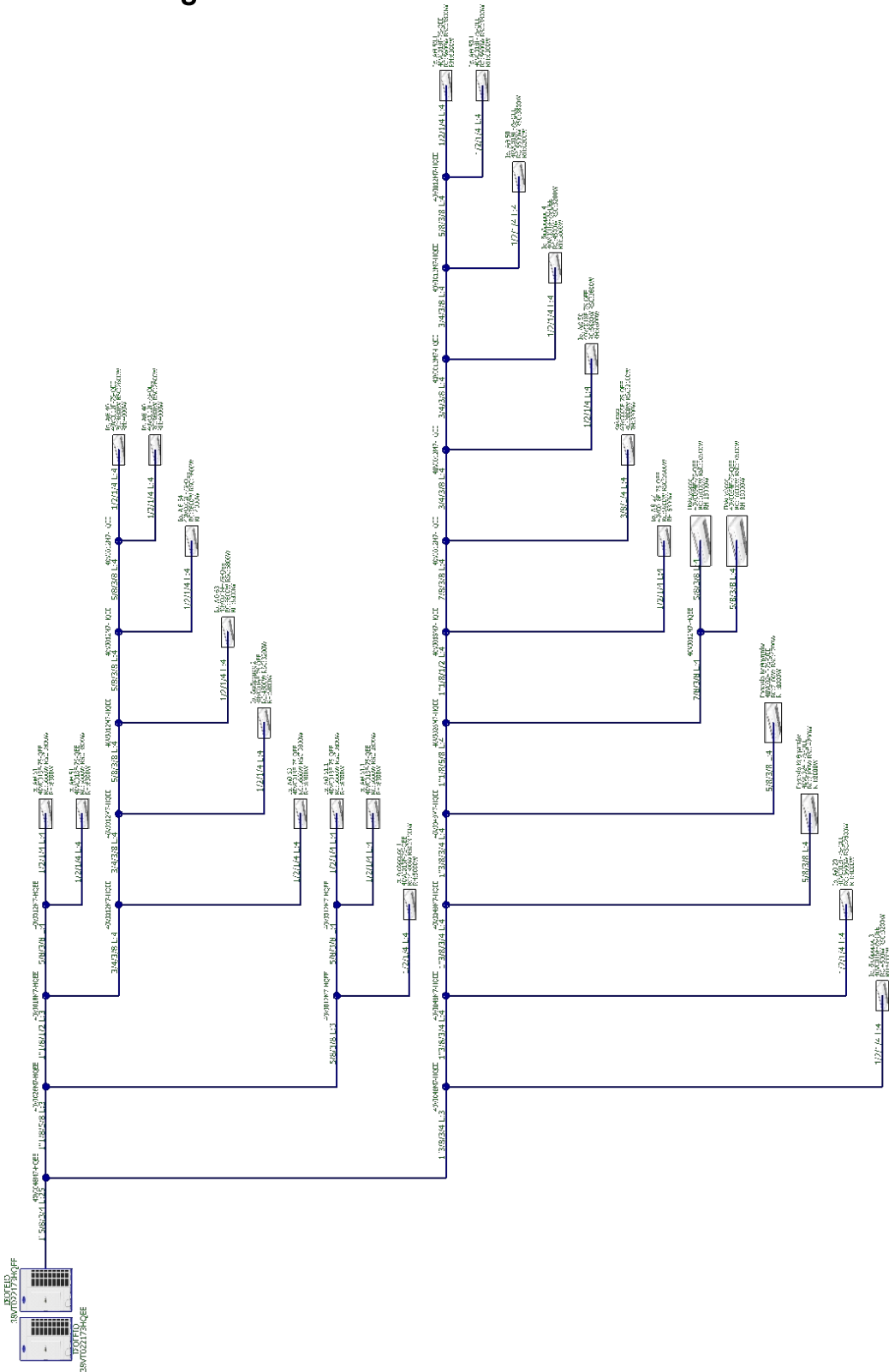
Refrigerant drawing



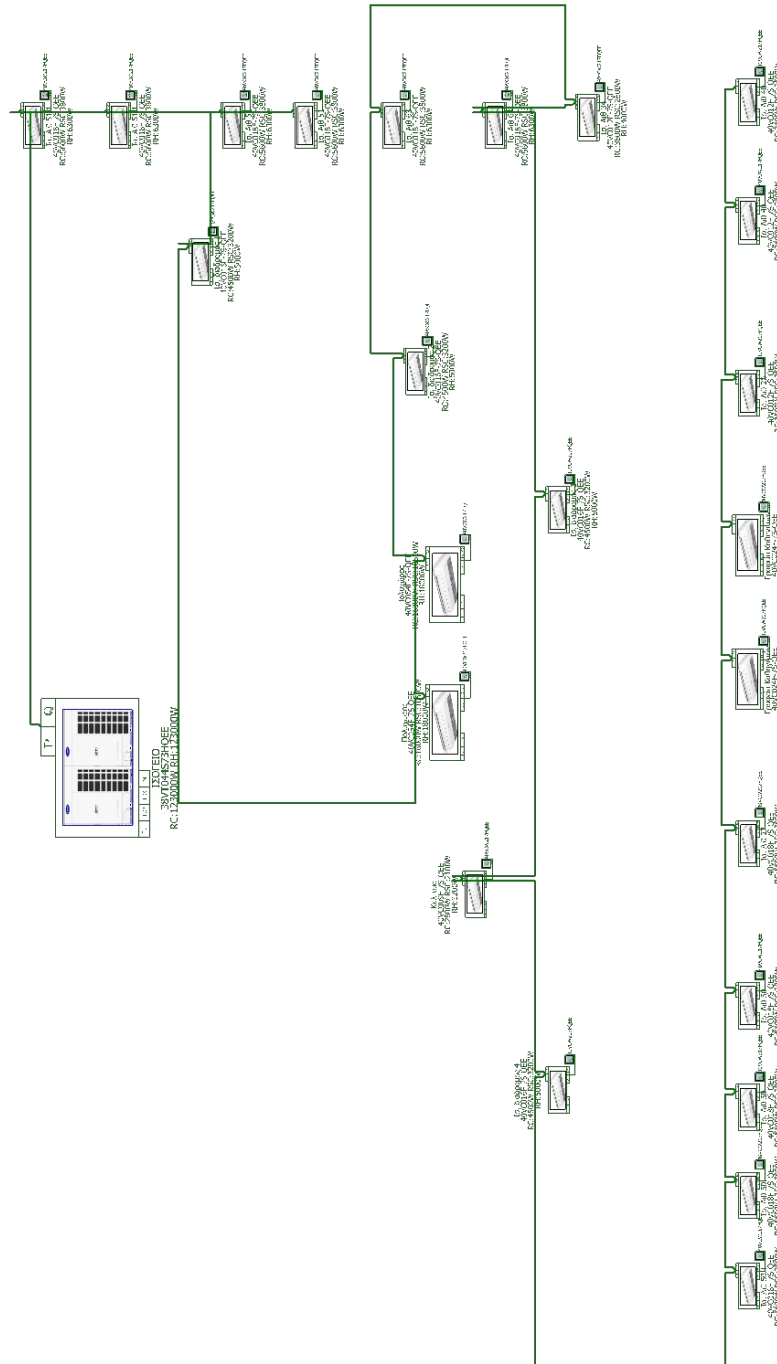
Tips:

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Piping schema drawing



Communication system wiring diagram



Signal line between outdoor unit and indoor unit: $(0.75-2) \text{ mm}^2 \times 2$

signal line between indoor unit and wire controller: $0.75\text{mm}^2 \times 3$

Wiring connection method for wired controller group control :

1. Ac fan motor , the slave unit only connects BC terminal.
2. Dc fan motor , the slave unit connects ABC terminal.