

Calculation and Selection Result

A. Project Overview

Project Name	New Project
Country	Poland
City	Rzeszów
Address	
Client Name	
Client Address	
Reference	
Revision	
Project Date	1 / 24 / 2020
Altitude	m
Cooling Condition: Indoor Dry-bulb	27.0 °C
Cooling Condition: Indoor Wet-bulb	19.0 °C
Cooling Condition: Outdoor Dry-bulb	32.0 °C
Cooling condition: Outdoor wet bulb	28.8 °C
Heating Condition: Indoor Dry-bulb	20.0 °C
Heating Condition: Outdoor Dry-bulb	-20.0 °C
Heating Condition: Outdoor Wet-bulb	-20.0 °C

B. Material List

Model	Quantity	Description
JZ-200	1	DC Inverter Individual VRF (380V 20-45kW)
JW-022G	11	Wall_mounted (2nd DC IDU)
JW-028G	3	Wall_mounted (2nd DC IDU)
JZ-105	1	All DC Inverter Mini VRF (220V)
FQZHN-02D	1	Branch Joint
FQZHN-01D	11	Branch Joint
Ø22.2	7.0 m	Copper Pipe
Ø19.1	17.4 m	Copper Pipe
Ø15.9	20.6 m	Copper Pipe
Ø12.7	24.4 m	Copper Pipe
Ø9.53	45.0 m	Copper Pipe
Ø6.35	24.4 m	Copper Pipe

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Model	Quantity	Description
RM05B	14	2nd generation controller.

VRF I

1.1 Material List

Model	Quantity	Description
JZ-200	1	DC Inverter Individual VRF (380V 20-45kW)
JW-022G	8	Wall_mounted (2nd DC IDU)
JW-028G	2	Wall_mounted (2nd DC IDU)
FQZHN-02D	1	Branch Joint
FQZHN-01D	8	Branch Joint
RM05B	10	2nd generation controller.
Ø22.2	7.0 m	Copper Pipe
Ø19.1	17.4 m	Copper Pipe
Ø12.7	12.6 m	Copper Pipe
Ø9.53	24.4 m	Copper Pipe
Ø6.35	12.6 m	Copper Pipe

1.2 Indoor Unit Specifications

IDU Name	Model	Sound (dB(A))	Weight(kg)	Dimension(mm) W x H x D	Power Supply	Rated Power(W)
10	JW-022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
7	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
6	JW 022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
5	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
11	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
16	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
12	JW -028G/DN1	31(SSH)	9.50	835*280*203	220-240,50,1	28
15	JW -028G/DN1	31(SSH)	9.50	835*280*203	220-240,50,1	28
13	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
14	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28

IDU Name	Model	Cooling AT (°C)	Req.TC (kW)	TC (kW)	Req.SC (kW)	SC (kW)	Heating AT (°C)	Req.HC (kW)	HC (kW)	Air flow (m ³ /h)	ESP (Pa)
10	JW -022G/DN1	27.0/19.0	0.00	1.94	0.00	1.31	20.0	0.00	1.41	422(SSH)	N/A
7	JW -022G/DN1	27.0/19.0	0.00	1.93	0.00	1.31	20.0	0.00	1.41	422(SSH)	N/A
6	JW -022G/DN1	27.0/19.0	0.00	1.92	0.00	1.30	20.0	0.00	1.40	422(SSH)	N/A
5	JW -022G/DN1	27.0/19.0	0.00	1.92	0.00	1.30	20.0	0.00	1.40	422(SSH)	N/A
11	JW -022G/DN1	27.0/19.0	0.00	1.96	0.00	1.33	20.0	0.00	1.43	422(SSH)	N/A
16	JW -022G/DN1	27.0/19.0	0.00	1.96	0.00	1.33	20.0	0.00	1.43	422(SSH)	N/A
12	JW -028G/DN1	27.0/19.0	0.00	2.49	0.00	1.69	20.0	0.00	1.91	417(SSH)	N/A

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IDU Name	Model	Cooling AT (°C)	Req.TC (kW)	TC (kW)	Req.SC (kW)	SC (kW)	Heating AT (°C)	Req.HC (kW)	HC (kW)	Air flow (m ³ /h)	ESP (Pa)
15	JW -028G/DN1	27.0/19.0	0.00	2.49	0.00	1.69	20.0	0.00	1.91	417(SSH)	N/A
13	JW -022G/DN1	27.0/19.0	0.00	1.96	0.00	1.33	20.0	0.00	1.43	422(SSH)	N/A
14	JW -022G/DN1	27.0/19.0	0.00	1.96	0.00	1.33	20.0	0.00	1.43	422(SSH)	N/A

1.3 Outdoor Unit Specifications

Name	Model	Module	Dimension(mm)	Weight(kg)	Base refr(kg)	Add refr(kg)	Power Supply
ODU1	JZ-200	MDV-V200W/DRN1	1120*1558*528	137.00	4.80	1.92	380-415V-3ph-50Hz

Name	Model	CR%	Temp(°C)	CC(kW)	Req CC(kW)	Temp(H/RH)(°C)	HC(kW)	Req HC(kW)
ODU1	JZ-200	116.00	32.0	20.69	0.00	-20.0/100%	15.30	0.00

Name	Model	EER	COP	Cooling Power(kW)	Heating Power(kW)
ODU1	JZ-200	3.61	2.64	5.84	5.84

Req.TC: Required Total Cooling Capacity Req.SC: Required Sensible Cooling Capacity Req.HC: Required Total Heating Capacity

TC: Available Total Cooling Capacity SC: Available Sensible Cooling Capacity HC: Available Total Heating Capacity

AT: Ambient Temperature ESP: External Static Pressure

Req.CC: Required Cooling Capacity

CC: Available Cooling Capacity

1.4 Piping and Mode Selection Devices

IDU Quantity	10/10
Combination Ratio	116.00%
Additional refrigerant charge	1.92 kg = 12.60(6.35) * 0.022 + 28.90(9.53) * 0.057
Factory refrigerant charge	4.80 kg
Total refrigerant charge	6.72 kg
Total Pipe Length	41.5 m / 120 m
Furthest Actual	24.2 m / 60 m
Furthest Equivalent	28.2 m / 70 m
Furthest Equivalent from First Branch to IDU	22.2 m / 20(40) m
Drop Height between IDU and IDU	0 m / 8 m
Drop height between IDU and ODU(Below ODU)	3 m / 30 m
Available Capacity Cooling	20.69 kW
Available Capacity Heating	15.30 kW

Note:

1.The equivalent length of each branch joint is 0.5m.

Pipe

No.	Length	Gas Pipe	Liquid Pipe
(1)	5.5 m	Ø22.2	Ø9.53
(2)	1.1 m	Ø19.1	Ø9.53
(3)	1.5 m	Ø22.2	Ø9.53
(4)	1.5 m	Ø19.1	Ø9.53
(5)	1.1 m	Ø19.1	Ø9.53
(6)	0.9 m	Ø19.1	Ø9.53
(7)	6.0 m	Ø19.1	Ø9.53
(8)	3.5 m	Ø19.1	Ø9.53
(9)	3.3 m	Ø19.1	Ø9.53
(10)	3.5 m	Ø12.7	Ø6.35
(11)	0.4 m	Ø12.7	Ø6.35
(12)	0.9 m	Ø12.7	Ø6.35
(13)	0.5 m	Ø12.7	Ø6.35
(14)	1.8 m	Ø12.7	Ø6.35
(15)	0.4 m	Ø12.7	Ø6.35
(16)	1.6 m	Ø12.7	Ø6.35
(17)	0.4 m	Ø12.7	Ø6.35
(18)	1.8 m	Ø12.7	Ø6.35

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No.	Length	Gas Pipe	Liquid Pipe
(19)	1.3 m	Ø12.7	Ø6.35

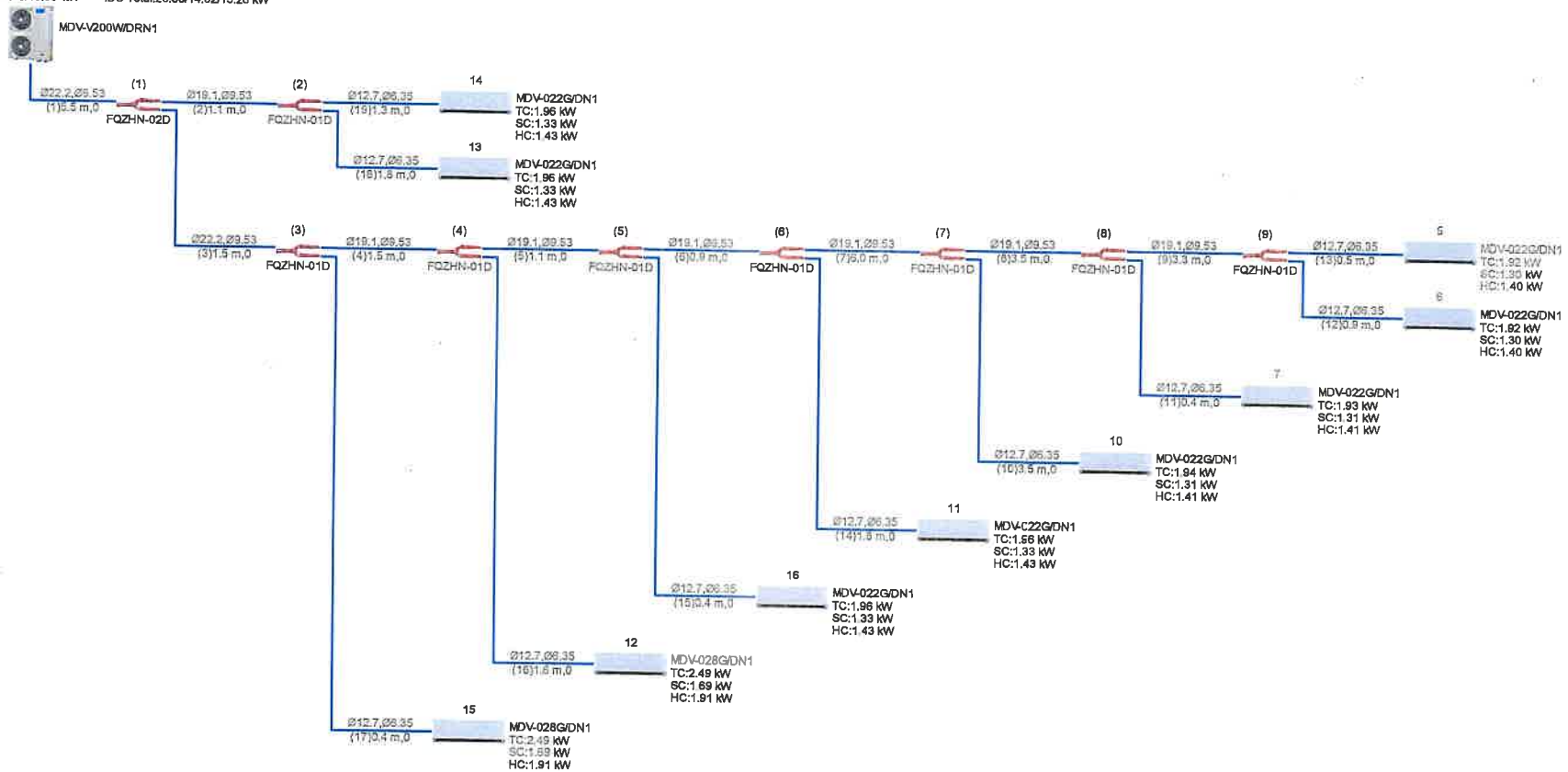
Branch Joint

No.	Load kW	Model
(1)	23.20	FQZHN-02D
(2)	4.40	FQZHN-01D
(3)	18.80	FQZHN-01D
(4)	16.00	FQZHN-01D
(5)	13.20	FQZHN-01D
(6)	11.00	FQZHN-01D
(7)	8.80	FQZHN-01D
(8)	6.60	FQZHN-01D
(9)	4.40	FQZHN-01D

1.5 Piping Diagram

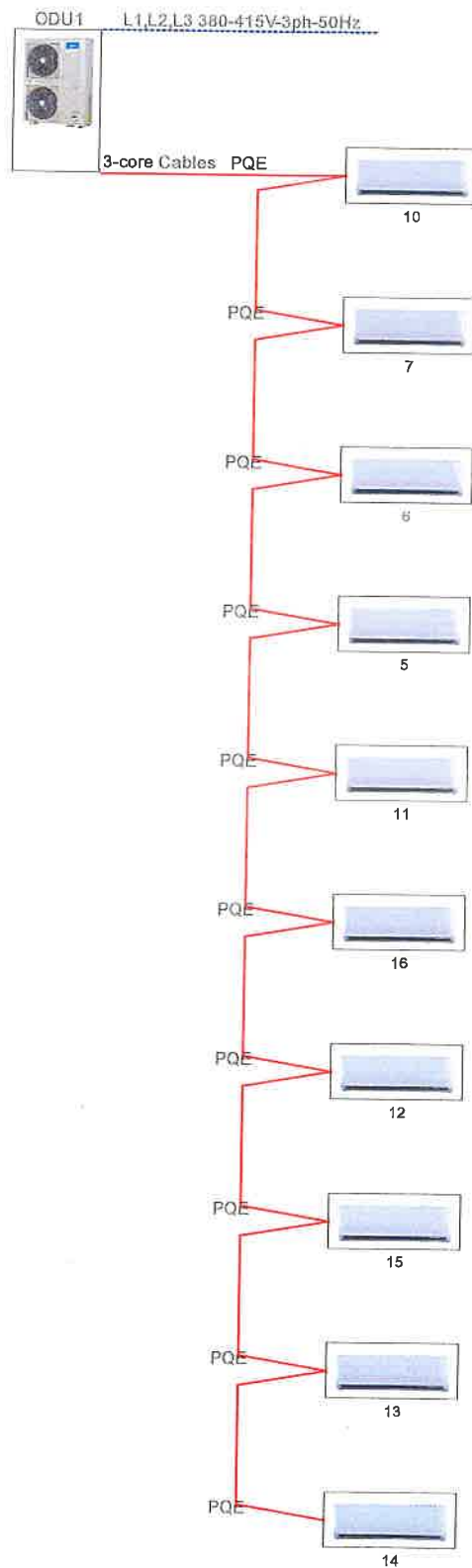
VRF 50Hz R410A

ODU:20.66/15.30 kW IDU Total:20.66/14.02/15.26 kW



The piping size may be different with the actual situation because of the software's illustration limitation, please confirm the piping size according to the installation manual before installation.

1.6 Wiring Diagram



The wiring diagram may be different with the actual situation because of software's illustration limitation, please confirm the wiring diagram according to the installation manual before installation.

VRF II

2.1 Material List

Model	Quantity	Description
JZ-105	1	All DC Inverter Mini VRF (220V)
JW -022G/DN1	3	Wall_mounted (2nd DC IDU)
JW -028G/DN1	1	Wall_mounted (2nd DC IDU)
FQZHN-01D	3	Branch Joint
RM05B	4	2nd generation controller.
Ø15.9	20.6 m	Copper Pipe
Ø12.7	11.8 m	Copper Pipe
Ø9.53	20.6 m	Copper Pipe
Ø6.35	11.8 m	Copper Pipe

2.2 Indoor Unit Specifications

IDU Name	Model	Sound (dB(A))	Weight(kg)	Dimension(mm) W x H x D	Power Supply	Rated Power(W)
8	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
6	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28
3	JW -028G/DN1	31(SSH)	9.50	835*280*203	220-240,50,1	28
11	JW -022G/DN1	31(SSH)	8.40	835*280*203	220-240,50,1	28

IDU Name	Model	Cooling AT (°C)	Req.TC (kW)	TC (kW)	Req.SC (kW)	SC (kW)	Heating AT (°C)	Req.HC (kW)	HC (kW)	Air flow (m ³ /h)	ESP (Pa)
8	JW -022G/DN1	27.0/19.0	0.00	2.11	0.00	1.43	20.0	0.00	1.75	422(SSH)	N/A
6	JW 022G/DN1	27.0/19.0	0.00	2.11	0.00	1.43	20.0	0.00	1.75	422(SSH)	N/A
3	JW -028G/DN1	27.0/19.0	0.00	2.68	0.00	1.82	20.0	0.00	2.33	417(SSH)	N/A
11	JW -022G/DN1	27.0/19.0	0.00	2.11	0.00	1.43	20.0	0.00	1.75	422(SSH)	N/A

2.3 Outdoor Unit Specifications

Name	Model	Module	Dimension(mm)	Weight(kg)	Base refr(kg)	Add refr(kg)	Power Supply
ODU3	JZ-105	MDV-V105W/DN1	1075*966*396	75.50	2.95	1.73	220V~50Hz~1ph

Name	Model	CR%	Temp(°C)	CC(kW)	Req CC(kW)	Temp(H/RH)(°C)	HC(kW)	Req HC(kW)
ODU3	JZ-105	104.44	32.0	9.02	0.00	-20.0/100%	7.58	0.00

Name	Model	EER	COP	Cooling Power(kW)	Heating Power(kW)
ODU3	JZ-105	3.89	2.70	2.36	2.83

Req.TC: Required Total Cooling Capacity Req.SC: Required Sensible Cooling Capacity Req.HC: Required Total Heating Capacity
 TC: Available Total Cooling Capacity SC: Available Sensible Cooling Capacity HC: Available Total Heating Capacity
 AT: Ambient Temperature ESP: External Static Pressure
 Req.CC: Required Cooling Capacity
 CC: Available Cooling Capacity

2.4 Piping and Mode Selection Devices

IDU Quantity	4/5
Combination Ratio	104.44%
Additional refrigerant charge	1.73 kg $= 11.80(6.35) * 0.022 + 20.60(9.53) * 0.057 + 3 * 0.1$
Factory refrigerant charge	2.95 kg
Total refrigerant charge	4.68 kg
Total Pipe Length	33.9 m / 100 m
Furthest Actual	25.1 m / 45 m
Furthest Equivalent	26.6 m / 50 m
Furthest Equivalent from First Branch to IDU	8.6 m / 20 m
Drop Height between IDU and IDU	0 m / 8 m
Drop height between IDU and ODU(Below ODU)	3 m / 30 m
Available Capacity Cooling	9.02 kW
Available Capacity Heating	7.58 kW

Note:

1.The equivalent length of each branch joint is 0.5m.

Pipe

No.	Length	Gas Pipe	Liquid Pipe
(1)	17.5 m	Ø15.9	Ø9.53
(2)	1.4 m	Ø15.9	Ø9.53
(3)	3.8 m	Ø12.7	Ø6.35
(4)	1.7 m	Ø15.9	Ø9.53
(5)	0.5 m	Ø12.7	Ø6.35
(6)	4.5 m	Ø12.7	Ø6.35
(7)	3.0 m	Ø12.7	Ø6.35

Branch Joint

No.	Load kW	Model
(1)	9.40	FQZHN-01D
(2)	7.20	FQZHN-01D
(3)	5.00	FQZHN-01D

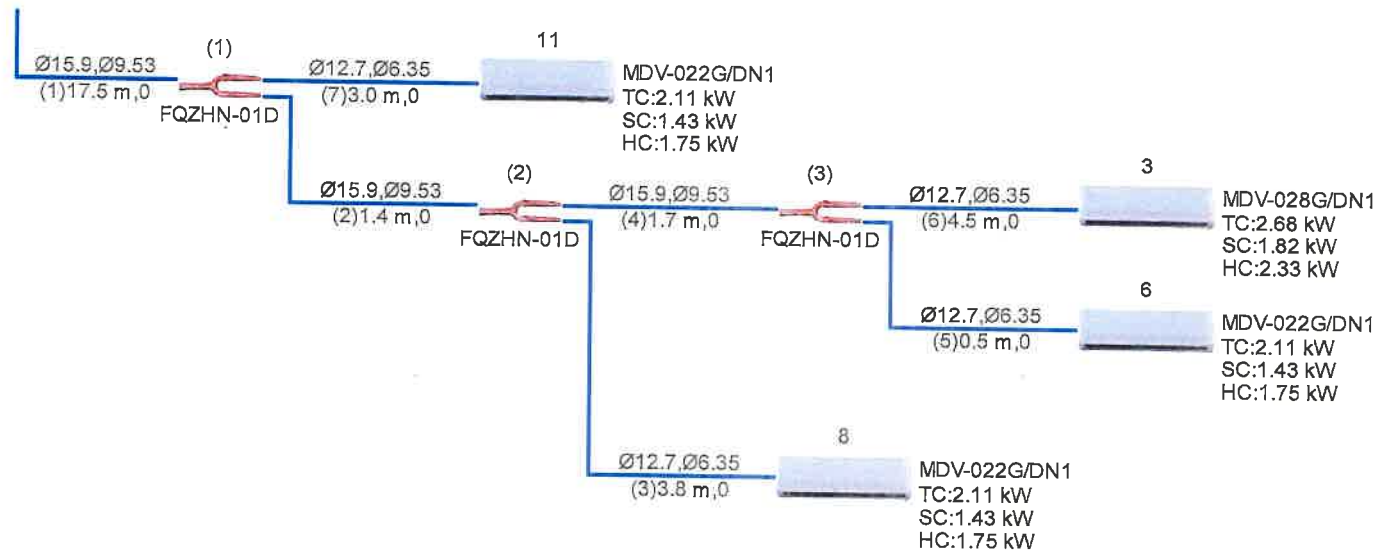
2.5 Piping Diagram

VRF 50Hz R410A

ODU:9.02/7.58 kW IDU Total:9.01/6.11/7.58 kW

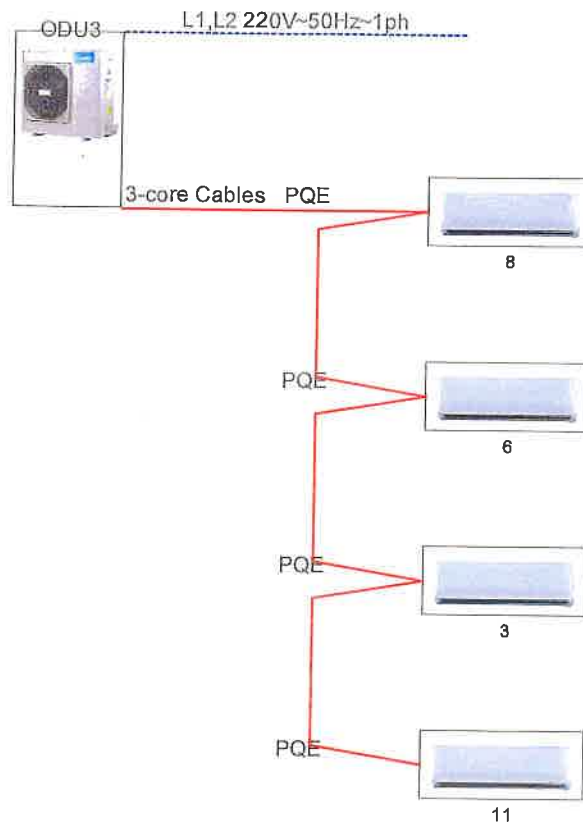


MDV-V105W/DN1



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2.6 Wiring Diagram



The wiring diagram may be different with the actual situation because of software's illustration limitation, please confirm the wiring diagram according to the installation manual before installation.