



R410A

Commercial Air Conditioners

Engineering Data

Fresh Air Processing VRF IDU



MI2-140FADHN1-S

MI2-224FADHN1-S

MI2-280FADHN1-S

Fresh Air Processing Unit

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1 Specifications

MI2-140FADHN1-S / MI2-224FADHN1-S / MI2-280FADHN1-S

Table 1.1: MI2-140(224, 280)FADHN1 specifications

Model name			MI2-140FADHN1-S	MI2-224FADHN1-S	MI2-280FADHN1-S
Power supply			1-phase, 220-240V, 50/60Hz		
Cooling ¹	Capacity	kW	14.0	22.4	28.0
	Input	W	150	250	300
Heating ²	Capacity	kW	8.9	13.9	17.4
	Input	W	150	250	300
Fan motor	Type		DC		
	Quantity		1		
Indoor Coil	Number of rows		2	3	
	Tube pitch×row pitch	mm	21×13.37		
	Fin spacing	Mm	1.5		
	Fin type		Hydrophilic aluminum		
	Tube OD and type	Mm	Φ7 Inner groove		
	Dimensions (L×H×W)	Mm	850×441×26.7	935×504×40.1	
	Number of circuits		10	12	
Airflow rate ³		m ³ /h	1080/1035/990/945/ 900/855/810	1680/1583/1487/1390/ 1293/1197/1100	2100/2030/1960/1890/ 1820/1750/1680
External static pressure ⁴		Pa	180 (30~250)	220 (100~350)	200 (100~400)
Sound pressure level ⁵		dB(A)	42/41/40/39/38/37/36	47/46/45/44/43/42/40	47/46/45/45/44/43/42
Unit	Net dimensions (W×H×D)	mm	1150×457×970	1270×490×1100	
	Packed dimensions (W×H×D)	mm	1285×470×1095	1415×515×1235	
	Net/Gross weight	kg	67/80	81/97	
Refrigerant type			R410A		
Design pressure(H/L)		MPa	4.4/2.6		
Pipe connections	Liquid/Gas pipe	mm	Φ9.5/Φ15.9	Φ12.7/Φ22.2	
	Drain pipe	mm	OD Φ25	OD Φ33	
Operating temperature range		°C	Heating: -10 to 16; Cooling: 20 to 50; Fan only: 5 to 43		

Notes:

1. Outdoor air temperature 33°C DB, 28°C WB; equivalent refrigerant piping length 8m with zero level difference.
2. Outdoor air temperature 0°C DB, -2.9°C WB; equivalent refrigerant piping length 8m with zero level difference.
3. Fan motor speed and air flow rate are from the highest speed to the lowest speed, total 7 rates for each model.
4. Stable operation external static pressure range. (Note: setting external static pressure outside the unit's optimal static pressure range may lead to higher noise levels and lower airflow rate. For the optimal external static pressure range refer to the unit's installation manual.)
5. Sound pressure level is from highest level to lowest level, total 7 levels for each model. Sound pressure level is measured in a semi-anechoic chamber.

The 2nd Generation DC Series VRF Indoor Units

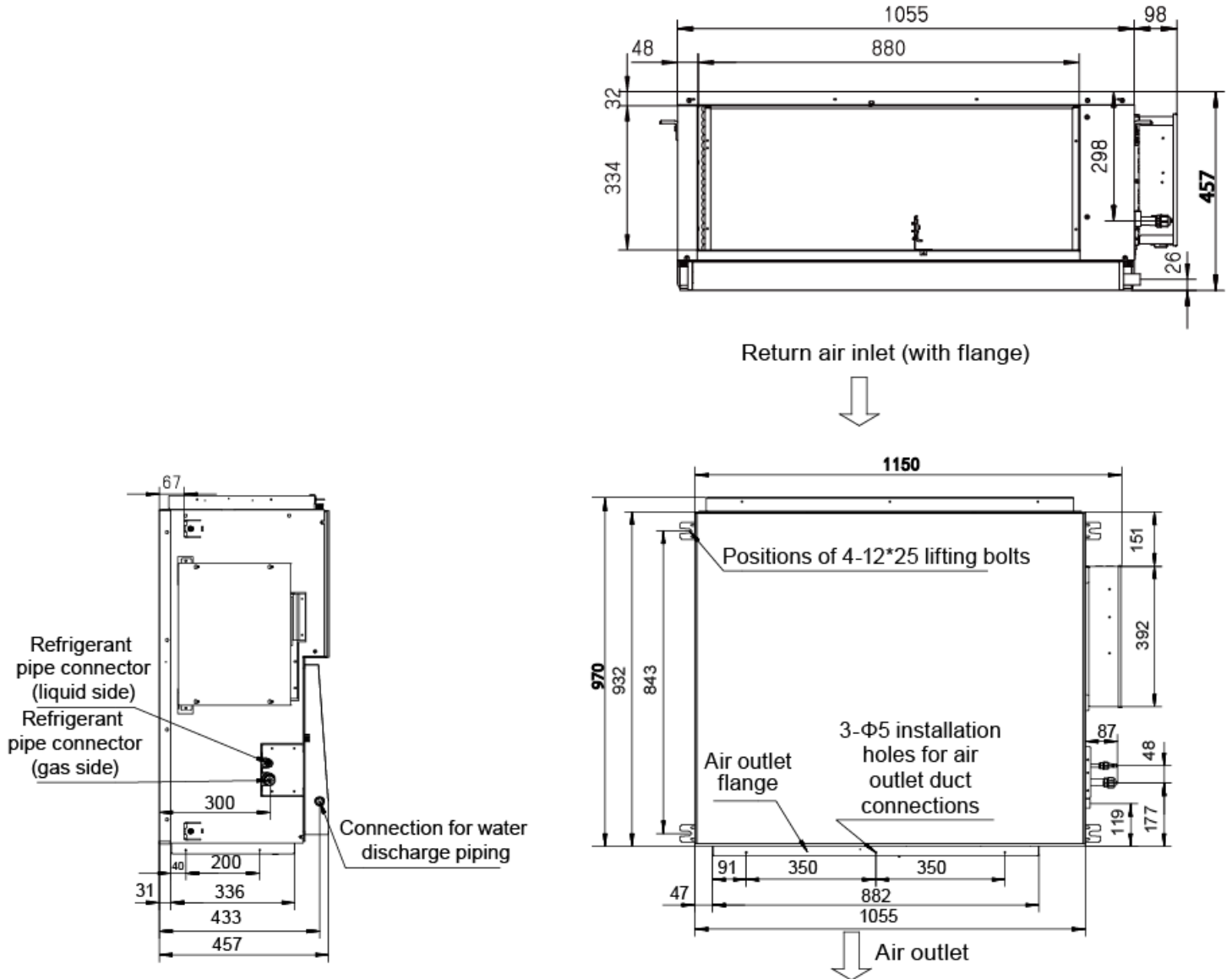


2 Dimensions

2.1 Unit Dimensions

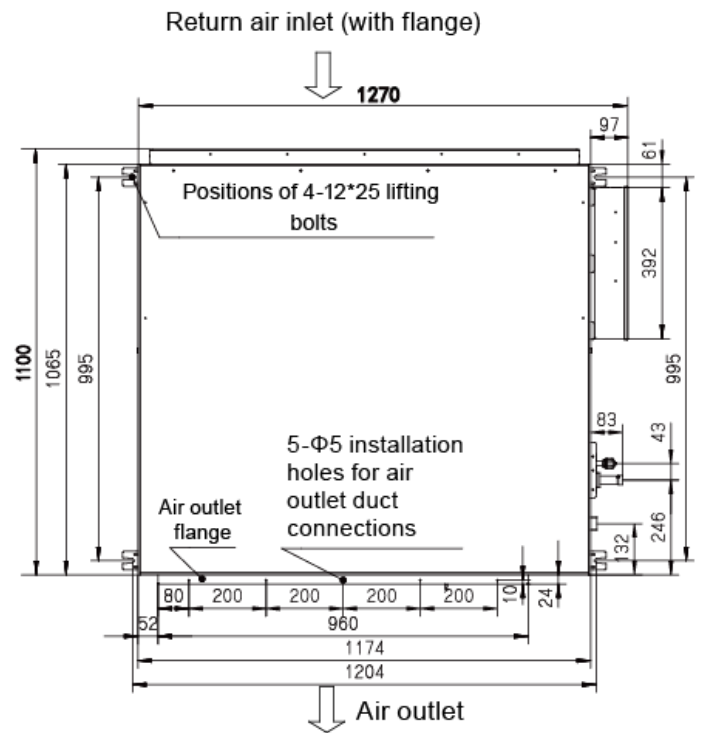
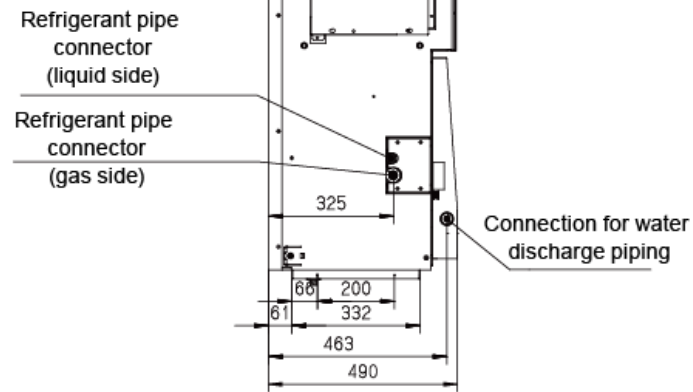
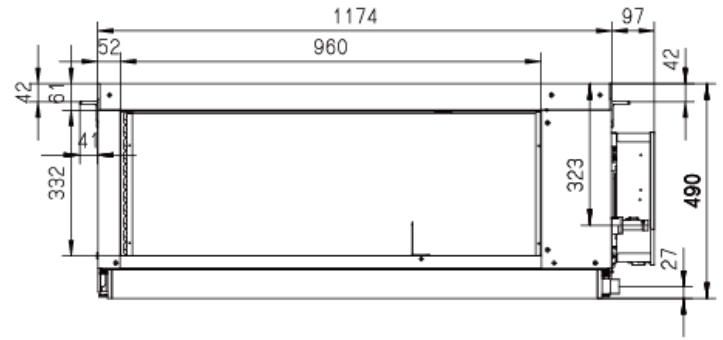
MI2-140FADHN1-S

Figure 2.1: MI2-140FADHN1-S dimensions (unit: mm)



MI2-224FADHN1-S / MI2-280FADHN1-S

Figure 2.2: MI2-224(280)FADHN1-S dimensions (unit: mm)



3 Unit Placement

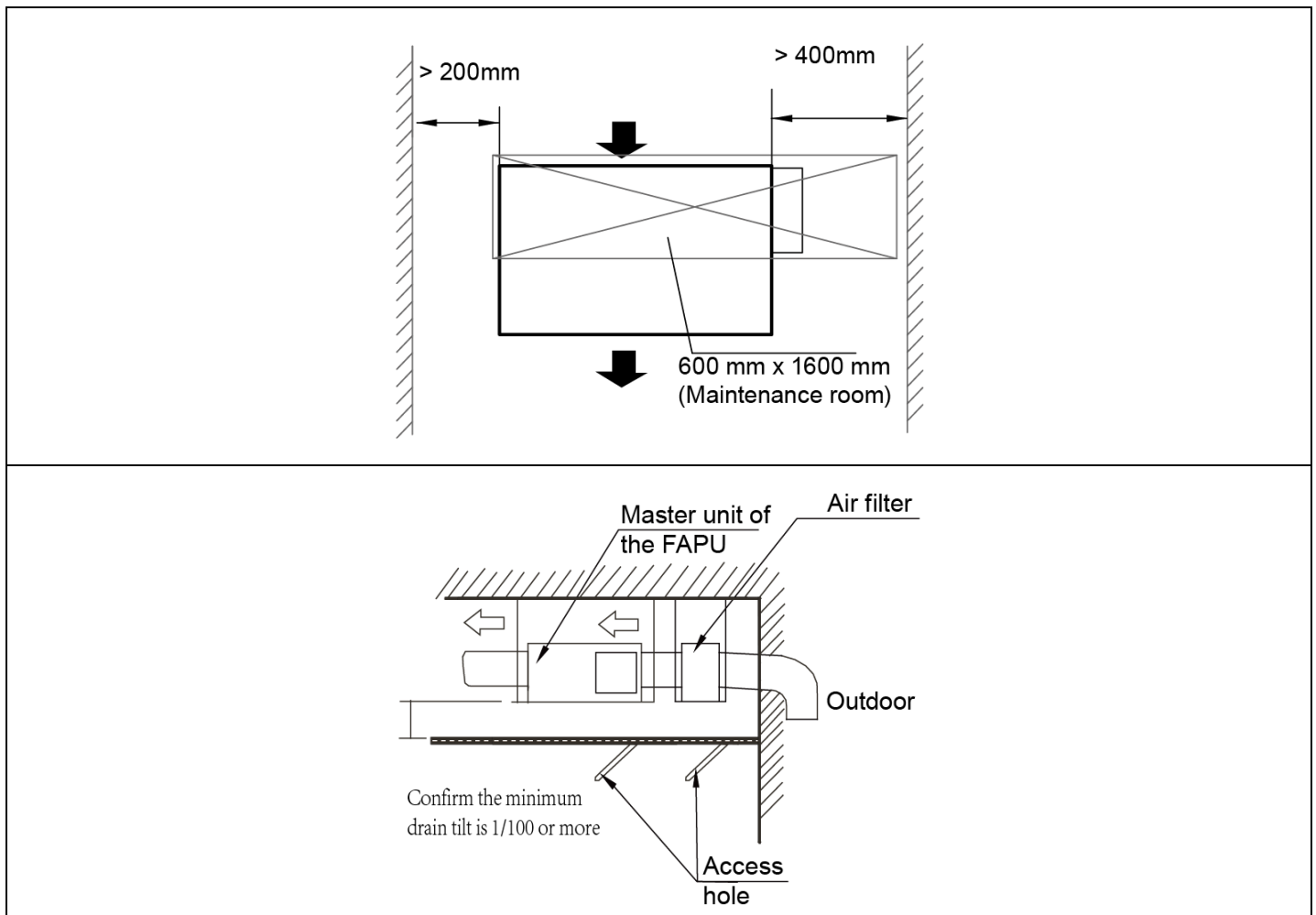
3.1 Placement Considerations

Unit placement should take account of the following considerations:

- Units should not be installed in the following locations:
 - Where exposure to direct radiation from a high-temperature heat source or to interference from a source of electromagnetic radiation may occur.
 - Where dust or dirt may affect heat exchangers.
 - Where exposure to oil or to corrosive or harmful gases, such as acidic or alkaline gases, may occur.
 - Where exposure to salinity may occur, such as seaside locations.
 - Where highly flammable materials are present.
 - Where exposure to oily air may occur, such as a kitchen.
 - Where exposure to very high humidity may occur, such as a laundry.
- Units should be installed in positions where:
 - The ceiling is horizontal and is able to bear the unit's weight.
 - There are no obstructions that could impede the airflow into and out of the unit.
 - The airflow out of the unit can reach throughout the room.
 - There is sufficient space for access during installation, servicing and maintenance.
 - The refrigerant piping and drain piping can be easily connected to the refrigerant piping and drain piping systems.
 - Short-circuit ventilation (where outlet air returns quickly to a unit's air inlet) will not occur.

3.2 Space Requirements

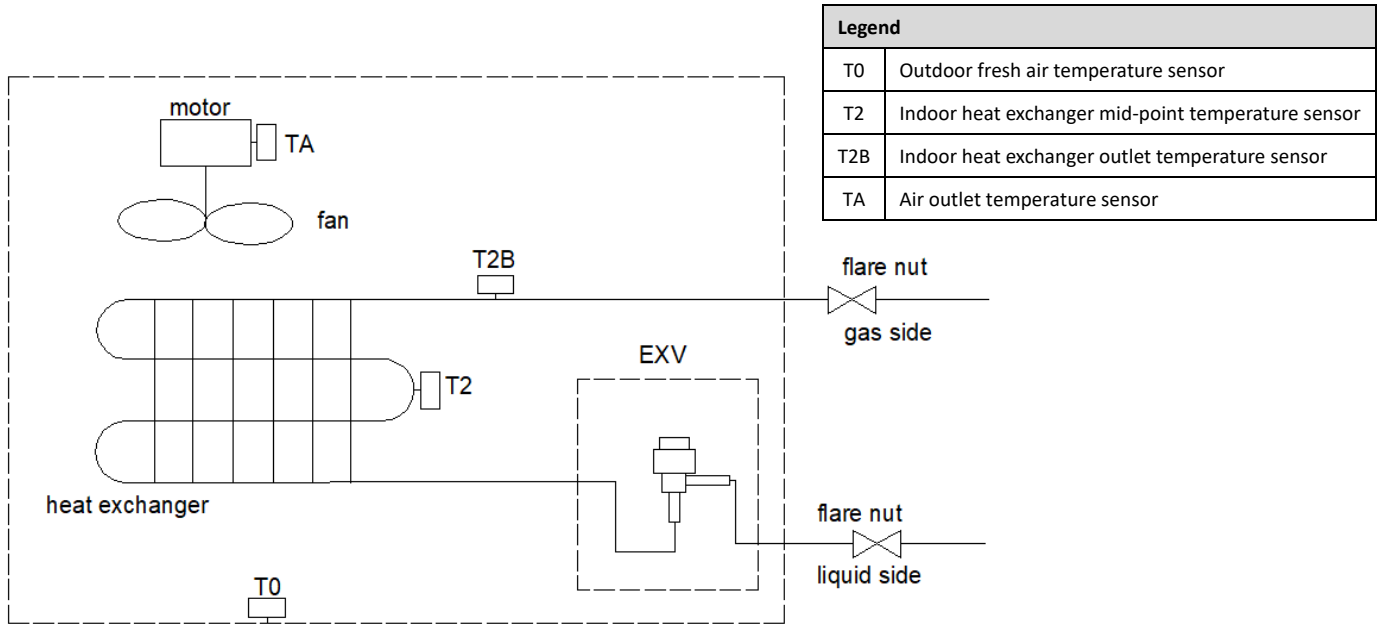
Figure 3.1: Fresh Air Processing Unit space requirements (unit: mm)



4 Piping Diagram

MI2-140FADHN1-S / MI2-224FADHN1-S / MI2-280FADHN1-S

Figure 4.1: MI2-140(224,280)FADHN1-S piping diagram



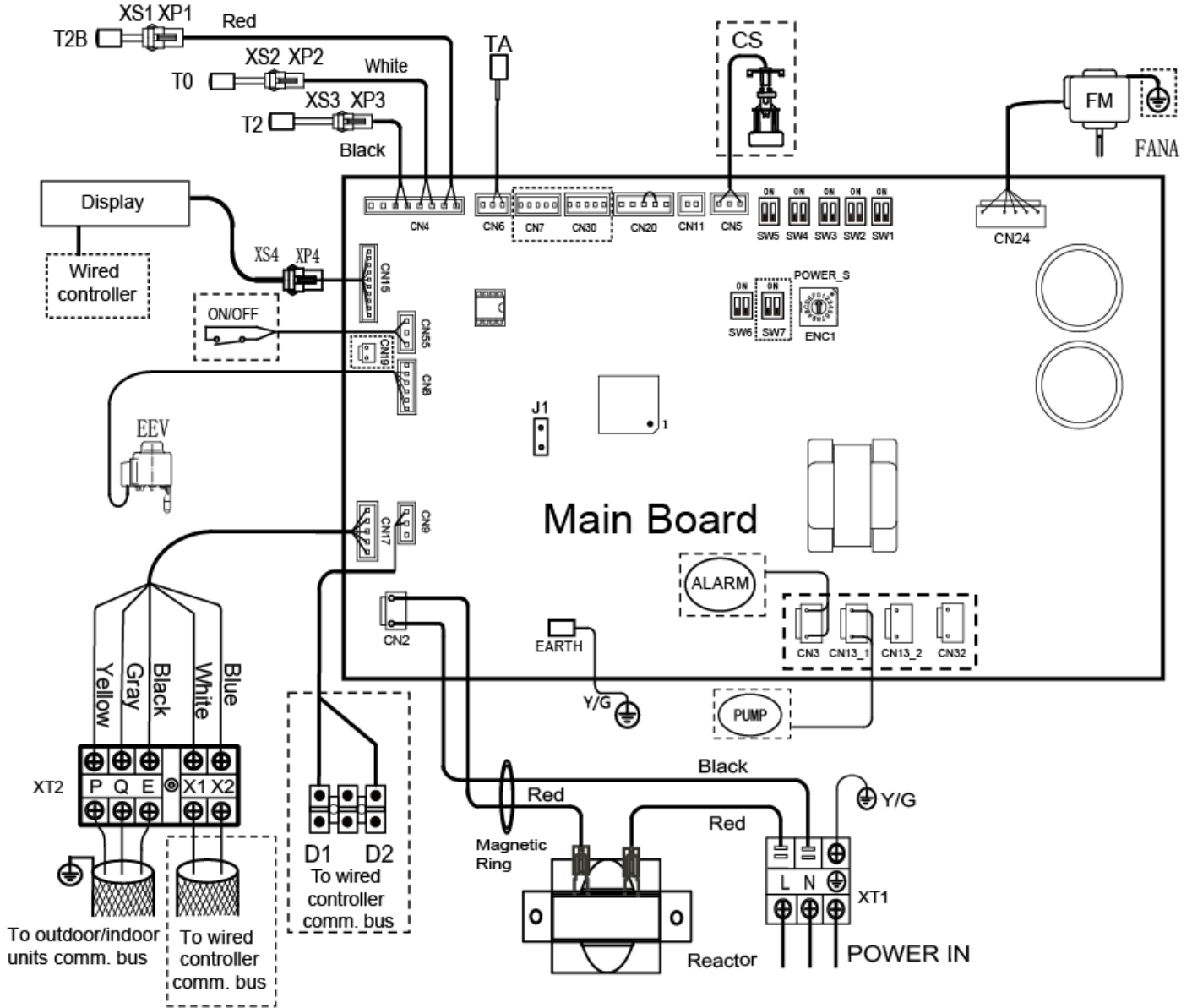
The 2nd Generation DC Series VRF Indoor Units



5 Wiring Diagrams

MI2-140FADHN1-S

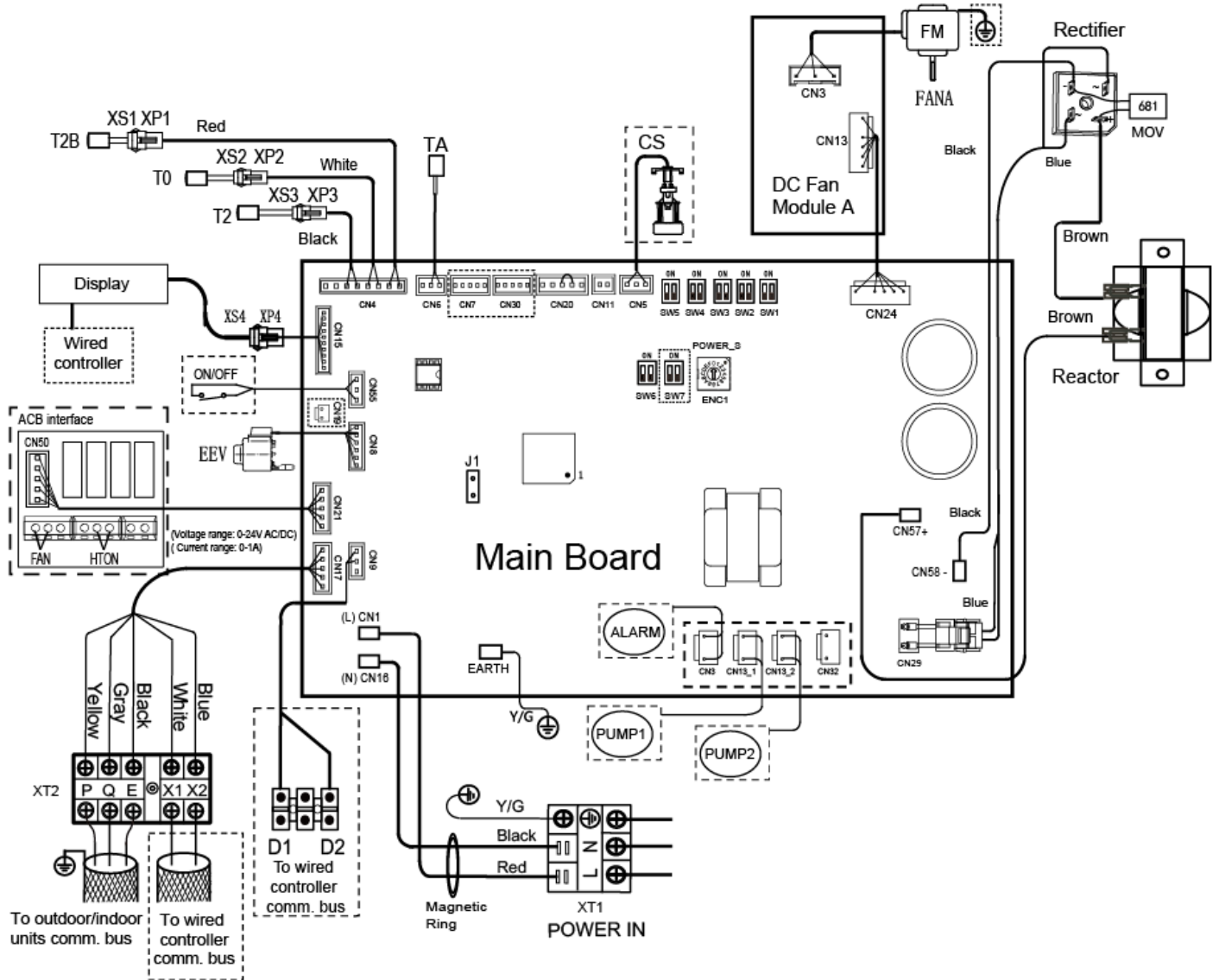
Figure 5.1: MI2-140FADHN1-S wiring diagram



Code	Title
FM	Indoor fan motor
XT1-2	Terminal
CS	Water level switch
EEV	Electronic expansion valve
XP1-5	Connectors
XS1-5	

MI2-224FADHN1-S / MI2-280FADHN1-S

Figure 5.2: MI2-224(280)FADHN1-S wiring diagram



Code	Title
FM	Indoor fan motor
XT1-2	Terminal
CS	Water level switch
EEV	Electronic expansion valve
XP1-5	Connectors
XS1-5	
FAN	Fresh air damper
HTON	Humidifier

6 Fan Performance

Figure 6.1: MI2-140FADHN1-S fan performance

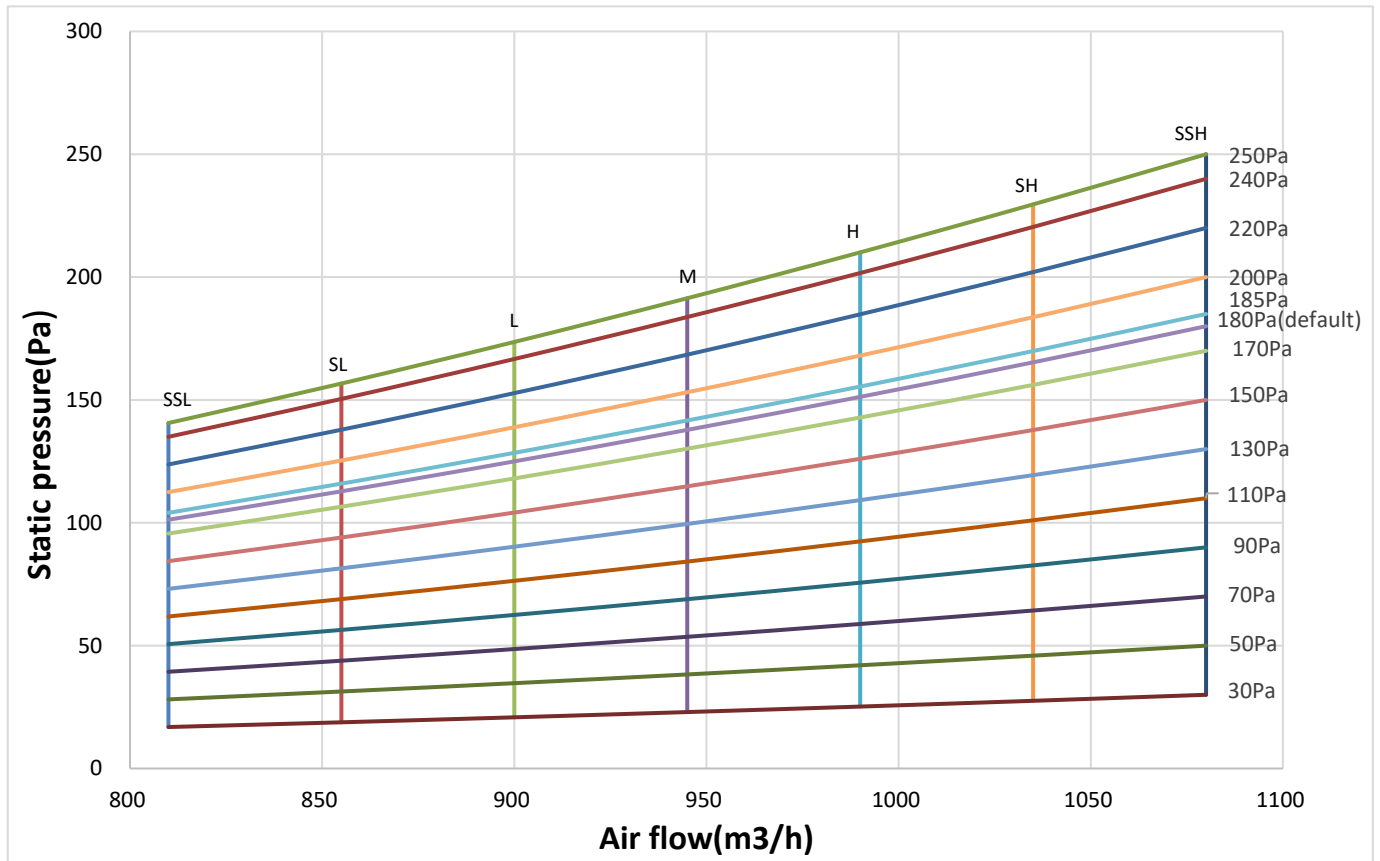


Figure 6.2: MI2-224FADHN1-S fan performance

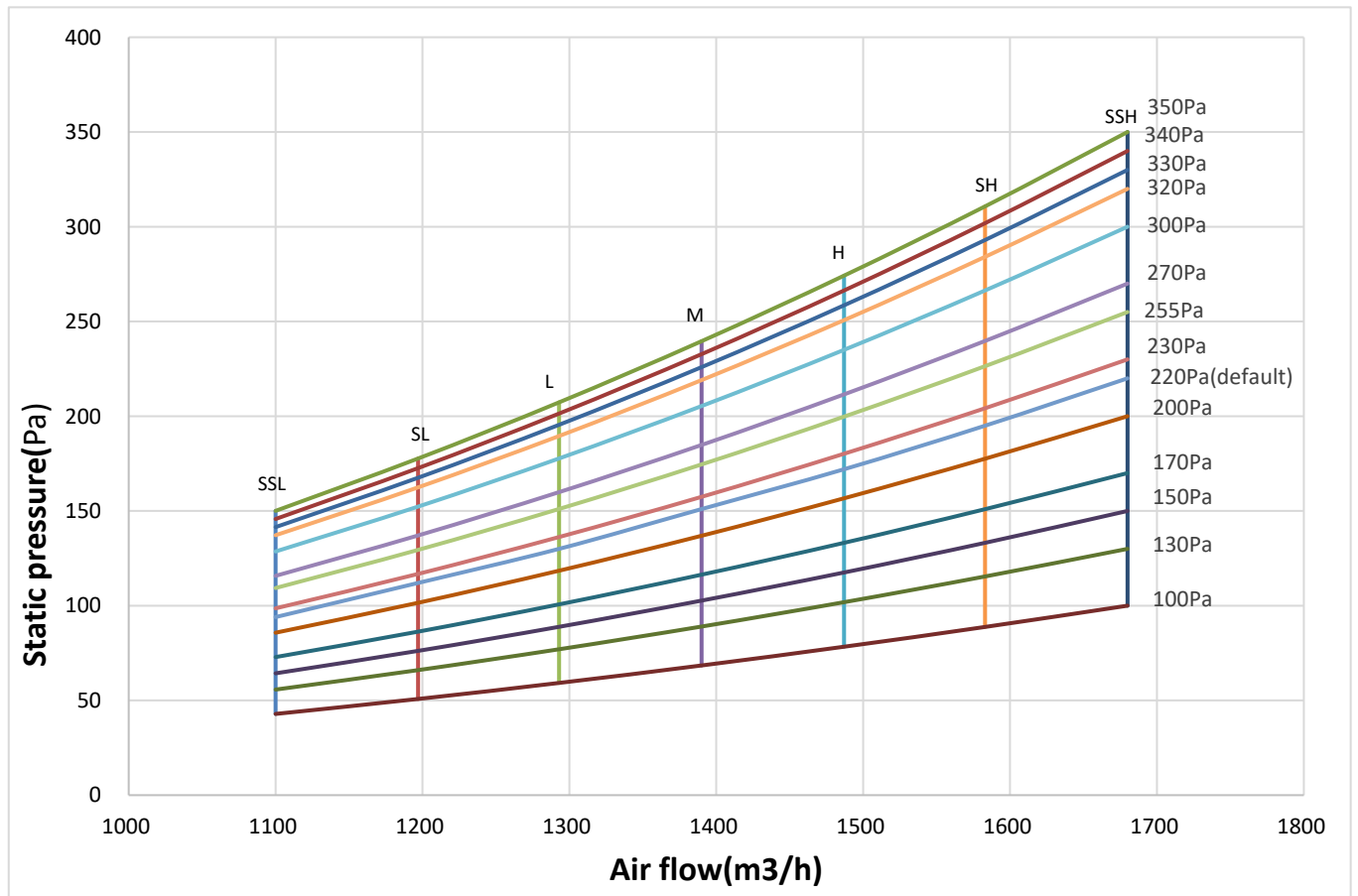


Figure 6.3: MI2-280FADHN1-S fan performance

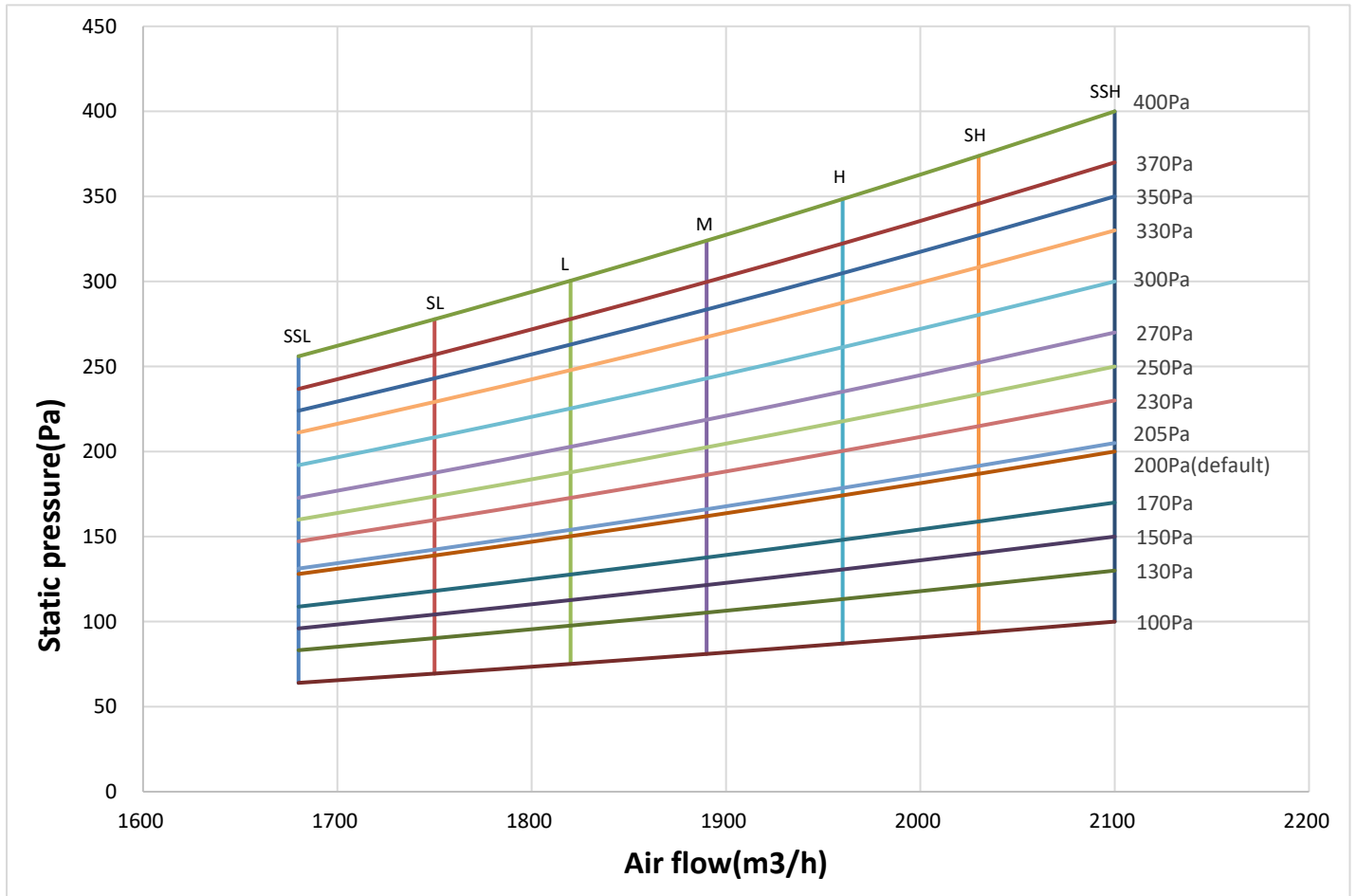


Table 6.1:ESP settings through DIP switch SW2

Capacity	ESP1	ESP2	ESP3	ESP4
14kW	180Pa	30Pa	100Pa	250Pa
22.4kW	220Pa	100Pa	300Pa	350Pa
280kW	200Pa	100Pa	300Pa	400Pa

Table 6.2:ESP settings through the new wired controller

Capacity	00	01	02	03	04	05	06	07	08	09
14kW	30Pa	50Pa	70Pa	80Pa	90Pa	100Pa	110Pa	120Pa	130Pa	150Pa
22.4kW	100Pa	130Pa	150Pa	170Pa	180Pa	190Pa	200Pa	210Pa	220Pa	230Pa
280kW	100Pa	130Pa	140Pa	150Pa	160Pa	170Pa	180Pa	190Pa	200Pa	210Pa
Capacity	10	11	12	13	14	15	16	17	18	19
14kW	160Pa	170Pa	180Pa	190Pa	200Pa	210Pa	220Pa	230Pa	240Pa	250Pa
22.4kW	240Pa	250Pa	260Pa	270Pa	280Pa	300Pa	320Pa	330Pa	340Pa	350Pa
280kW	220Pa	230Pa	240Pa	250Pa	270Pa	300Pa	330Pa	350Pa	370Pa	400Pa

7 Capacity Tables

7.1 Cooling Capacity Table

Table 7.1: Fresh Air Processing Unit cooling capacity

Capacity (kW)	Outdoor air temperature (°C DB)	Outdoor air temperature (°C WB)										
		15.0	17.0	20.0	23.0	26.0	28.0	30.0	32.0	35.0	38.0	
		TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
14.0	20.0	6.3	6.8									
	22.0	7.0	7.8	8.4								
	25.0	7.6	8.4	9.2	10.0							
	27.0		8.9	9.8	10.7							
	29.0			10.3	11.2	12.1						
	31.0			10.7	11.7	12.6	13.4					
	33.0			11.1	12.2	13.2	14.0	14.8				
	35.0				11.6	13.0	13.9	14.6	15.0			
	38.0				10.7	12.4	13.6	14.2	14.7	15.1		
	43.0					11.4	12.5	13.2	13.8	14.3	14.8	
50.0					10.5	11.3	12.0	12.6	13.1	13.5		
22.4	20.0	10.1	10.9									
	22.0	11.2	12.5	13.4								
	25.0	12.2	13.4	14.7	16.0							
	27.0		14.2	15.7	17.1							
	29.0			16.5	17.9	19.4						
	31.0			17.1	18.7	20.2	21.4					
	33.0			17.8	19.5	21.1	22.4	23.7				
	35.0				18.6	20.8	22.2	23.4	24.0			
	38.0				17.1	19.8	21.8	22.7	23.5	24.2		
	43.0					18.2	20.0	21.1	22.1	22.9	23.7	
50.0					16.8	18.1	19.2	20.2	21.0	21.6		
28.0	20.0	12.6	13.6									
	22.0	14.0	15.6	16.8								
	25.0	15.2	16.8	18.4	20.0							
	27.0		17.8	19.6	21.4							
	29.0			20.6	22.4	24.2						
	31.0			21.4	23.4	25.2	26.8					
	33.0			22.2	24.4	26.4	28.0	29.6				
	35.0				23.2	26.0	27.8	29.2	30.0			
	38.0				21.4	24.8	27.2	28.4	29.4	30.2		
	43.0					22.8	25.0	26.4	27.6	28.6	29.6	
50.0					21.0	22.6	24.0	25.2	26.2	27.0		

Abbreviations:
TC: Total capacity

Notes:
1. Shaded cells indicate rating condition.

7.2 Heating Capacity Table

Table 7.2: Fresh Air Processing Unit heating capacity

Capacity (kW)	Outdoor air temperature (°C DB)	Outdoor air temperature (°C WB)										
		-11.0	-7.0	-5.2	-2.9	0.0	2.0	4.0	6.0	10.0	14.0	
		TC	TC	TC	TC	TC	TC	TC	TC	TC	TC	
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
14.0	-10.0	10.5										
	-5.0		9.7	9.7								
	0.0				8.9							
	3.0				7.9	7.9	7.9					
	7.0						6.4	6.4	6.4			
	11.0							5.0	5.0	5.0		
	16.0								3.6	3.6	3.6	
22.4	-10.0	16.4										
	-5.0		15.1	15.1								
	0.0				13.9							
	3.0				12.3	12.3	12.3					
	7.0						10.0	10.0	10.0			
	11.0							7.8	7.8	7.8		
	16.0								5.6	5.6	5.6	
28.0	-10.0	20.5										
	-5.0		19.0	19.0								
	0.0				17.4							
	3.0				15.4	15.4	15.4					
	7.0						12.5	12.5	12.5			
	11.0							9.8	9.8	9.8		
	16.0								7.0	7.0	7.0	

Abbreviations:

TC: Total capacity

Notes:

1. Shaded cells indicate rating condition.

8 Electrical Characteristics

Table 8.1: Fresh Air Processing Unit electrical characteristics

Model name	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
MI2-140FADHN1-S	50	220-240	198	264	1.8	15	0.24	1.4
MI2-224FADHN1-S	50	220-240	198	264	3.3	15	0.75	2.6
MI2-280FADHN1-S	50	220-240	198	264	4.6	15	0.75	3.6

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

9 Sound Levels

9.1 Overall

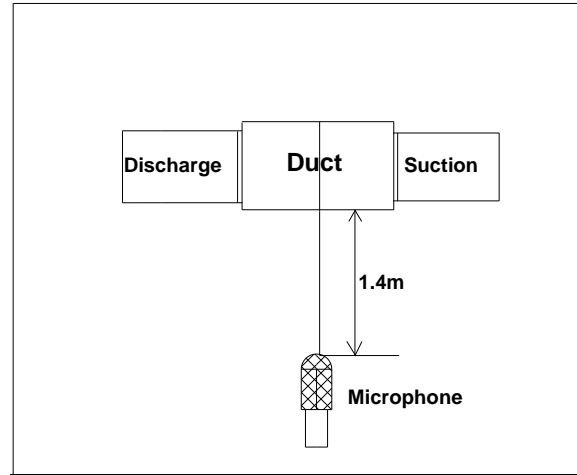
Table 9.1: Fresh Air Processing Unit sound pressure levels¹

Model name	Sound pressure levelsdB(A)						
	SSH	SH	H	M	L	SL	SSL
MI2-140FADHN1-S	42	41	40	39	38	37	36
MI2-224FADHN1-S	47	46	45	44	43	42	40
MI2-280FADHN1-S	47	46	45	45	44	43	42

Notes:

1. Sound pressure levels are measured 1.4m below the unit in a semi-anechoic chamber. During in-situ operation, sound pressure levels may be higher as a result of ambient noise.

Figure 9.1: Fresh Air Processing Unit sound pressure level measurement



9.2 Octave Band Levels

Figure 9.2: MI2-140FADHN1-S octave band levels

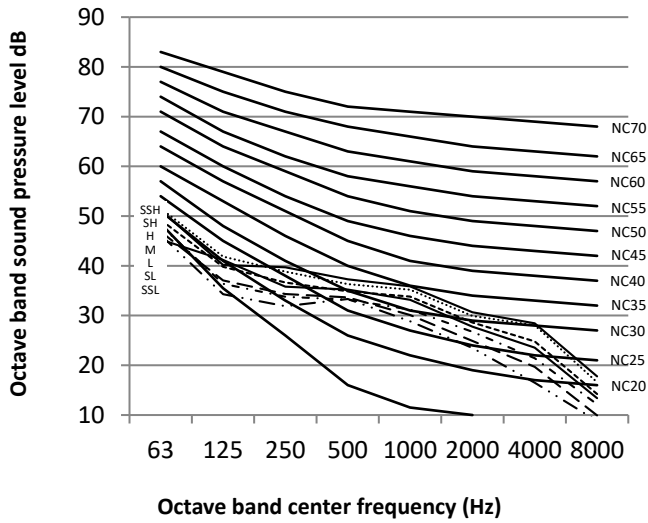


Figure 9.3: MI2-224FADHN1-S octave band levels

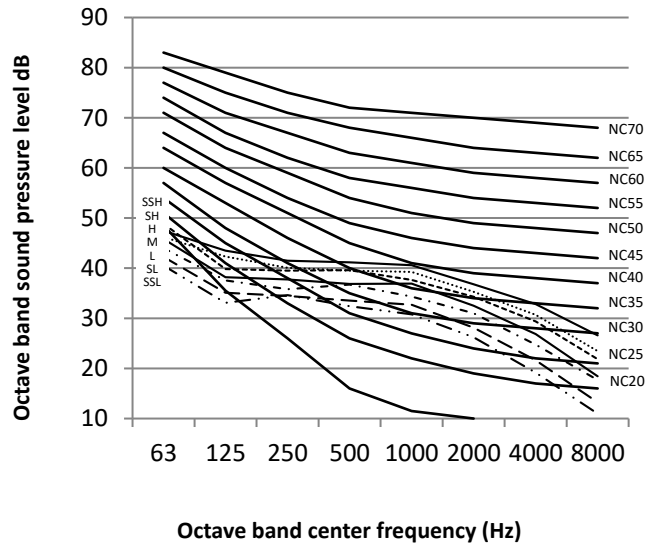


Figure 9.4: MI2-280FADHN1-S octave band levels

