

Engineering Data

Four-way Cassette DFT IDU



DATA100ALCS1

DATA120ALCS1

DATA140ALCS1

DATA160ALCS1

Four-way Cassette

1 Specifications	3
2 Dimensions	5
3 Unit Placement	7
4 Piping Diagram	9
5 Wiring Diagram	10
6 Capacity Tables.....	13
7 Electrical Characteristics.....	14
8 Sound Levels	15

DATA100ALCS1

Table 1.3: DATA100ALCS1 specifications

Model			DATA100ALCS1
Power supply			1 phase, 220-240V, 50Hz
Cooling ¹	Capacity	kW/h	10.0
	Input	W	165
Indoor fan motor	Type		AC motor
	Number		1
Indoor coil	Number of rows		2
	Tube pitch × row pitch	mm	21×13.37
	Fin spacing	mm	1.5
	Fin type		Hydrophilic aluminum
	Diameter & type	mm	Φ7, inner-groove
	Dimensions (L×H×W)	mm	2051×252×26.74
	Number of circuits		8
Indoor air flow (H/M/L)		m ³ /h	1651/1304/1127
Sound pressure level (H/M/L) ³		dB(A)	45/42/40
Indoor unit	Dimensions ⁴ (W×H×D)	mm	840×300×840
	Packing (W×H×D)	mm	955×330×955
	Net/Gross weight	kg	28.7/34.1
Panel	Dimensions (W×H×D)	mm	950×70×950
	Packing (W×H×D)	mm	1035×89×1035
	Net/Gross weight	kg	5.8/7.9
Refrigerant type			R410A
Pipe connections	Liquid pipe	mm	Φ9.53
	Gas pipe	mm	Φ15.9
	Drain pipe	mm	OD Φ32

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.
4. Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

DATA120ALCS1, DATA140ALCS1, DATA160ALCS1

Table 1.4: DATA120 (140, 160)ALCS1 specifications

Model			DATA120ALCS1	DATA140ALCS1	DATA160ALCS1
Power supply			1 phase, 220-240V, 50Hz		1 phase, 220-240V, 50/60Hz
Cooling ¹	Capacity	kW/h	11.2	14.0	16.0
	Input	W	165	176	170
Indoor fan motor	Type		AC motor		DC motor
	Number		1		
Indoor coil	Number of rows		2	3	3
	Tube pitch × row pitch	mm	21×13.37		
	Fin spacing	mm	1.5		
	Fin type		Hydrophilic aluminum		
	Diameter & type	mm	Φ7, inner-groove		
	Dimensions (L×H×W)	mm	2051×252×26.74	2007×252×40.11	2200×252×40.11
	Number of circuits		8	12	12
Indoor air flow (H/M/L)		m ³ /h	1651/1304/1127	1658/1335/1130	2100/1950/1800/1750/1600/1450/1350
Sound pressure level (H/M/L) ³		dB(A)	45/42/40	46/41/39	46/44/42/41/39/38/37
Indoor unit	Dimensions ⁴ (W×H×D)	mm	840×300×840		950×300×950
	Packing (W×H×D)	mm	955×330×955		1050×335×1050
	Net/Gross weight	kg	28.7/34.1	30.9/36.3	35.3/41.2
Panel	Dimensions (W×H×D)	mm	950×70×950		1050×55×1050
	Packing (W×H×D)	mm	1035×89×1035		1115×100×1115
	Net/Gross weight	kg	5.8/7.9		7.4/9.7
Refrigerant type			R410A		
Pipe	Liquid pipe	mm	Φ9.53		
connection	Gas pipe	mm	Φ15.9		
s	Drain pipe	mm	OD Φ32		

Notes:

1. Indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB; equivalent refrigerant piping length 7.5m with zero level difference.
2. Indoor temperature 20°C DB; outdoor temperature 7°C DB, 6°C WB; equivalent refrigerant piping length 7.5m with zero level difference.
3. Sound pressure level is measured 1.4m below the unit in a semi-anechoic chamber.

Unit body dimensions given are the largest external dimensions of the unit, including hanger attachments.

2 Dimensions

2.1 Unit Dimensions

Figure 2.1: DATA100 (120, 140)ALCS1 Four-way Cassette dimensions (unit: mm)

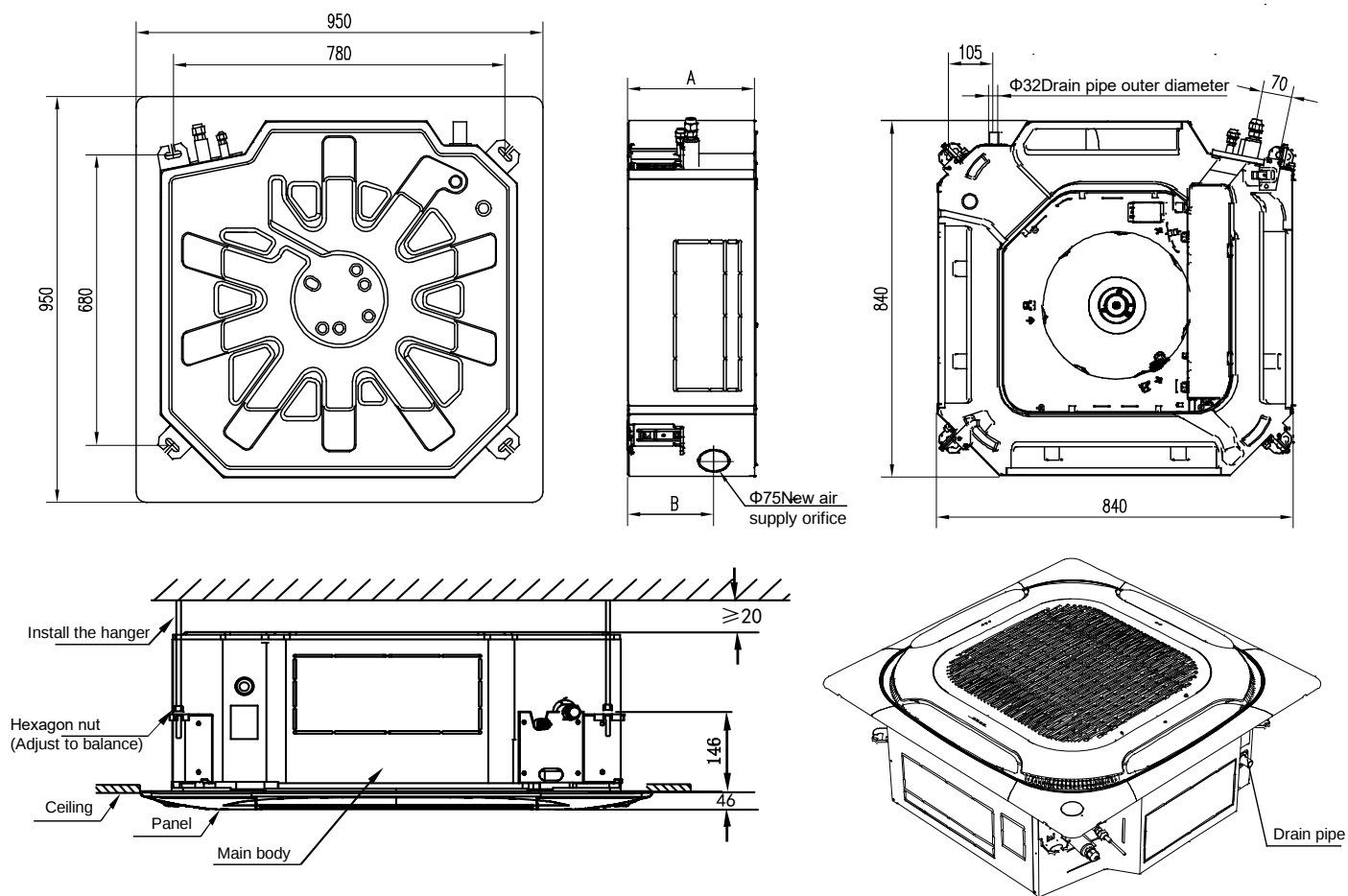


Figure 2.2: DATA160ALCS1 Four-way Cassette dimensions (unit: mm)

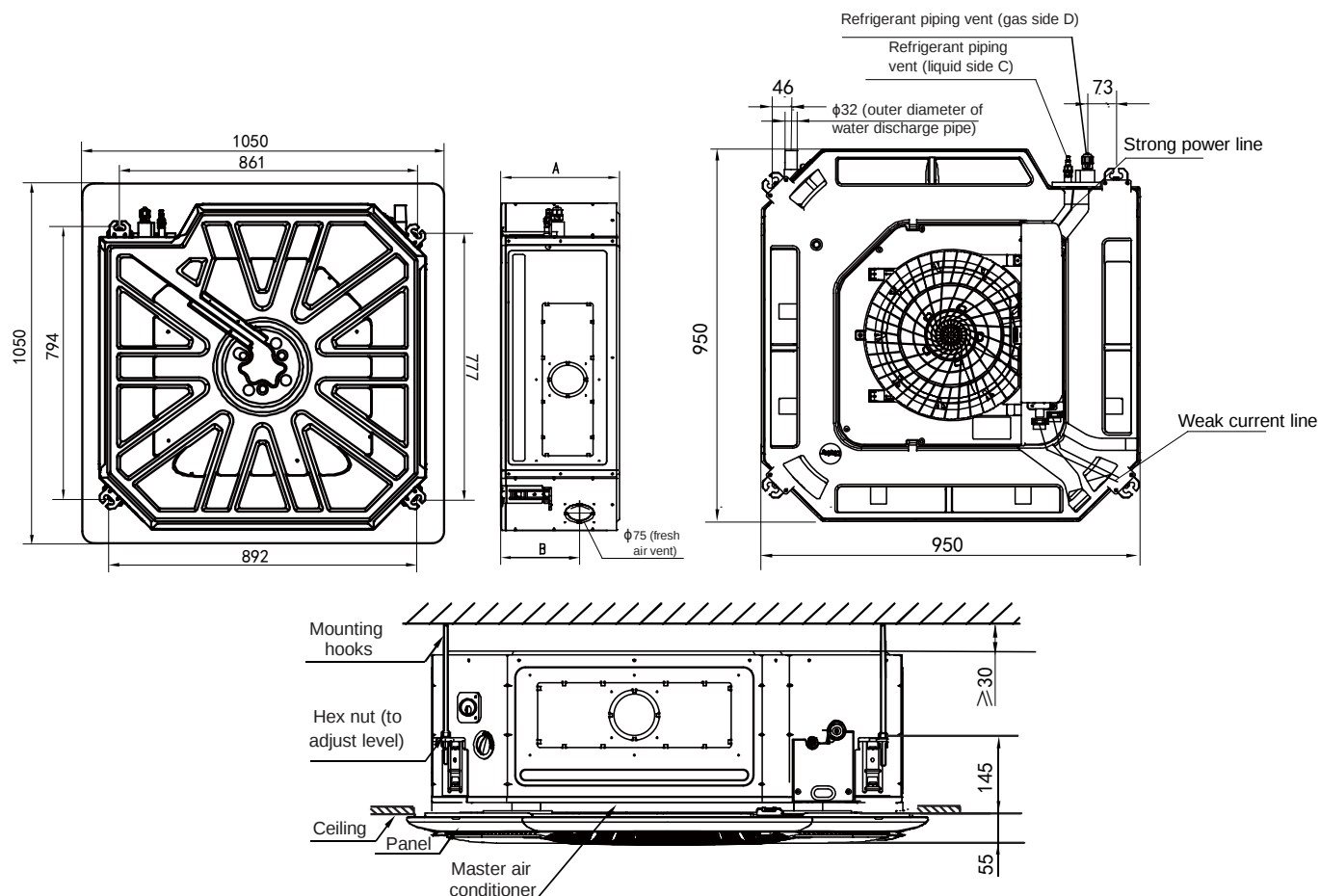


Table 2.1: Four-way Cassette dimensions

Model names	Dimensions (mm)	
	A	B
DATA100ALCS1	300	197
DATA120ALCS1		
DATA140ALCS1		
DATA160ALCS1	300	200

Table 2.2: Four-way Cassette piping connections

Model names	Gas pipe (mm)	Liquid pipe (mm)
DATA100ALCS1	$\phi 15.9$	$\phi 9.53$
DATA120ALCS1		
DATA140ALCS1		
DATA160ALCS1		

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: DATA100 (120, 140)ALCS1Four-way Cassette space requirements (unit: mm)

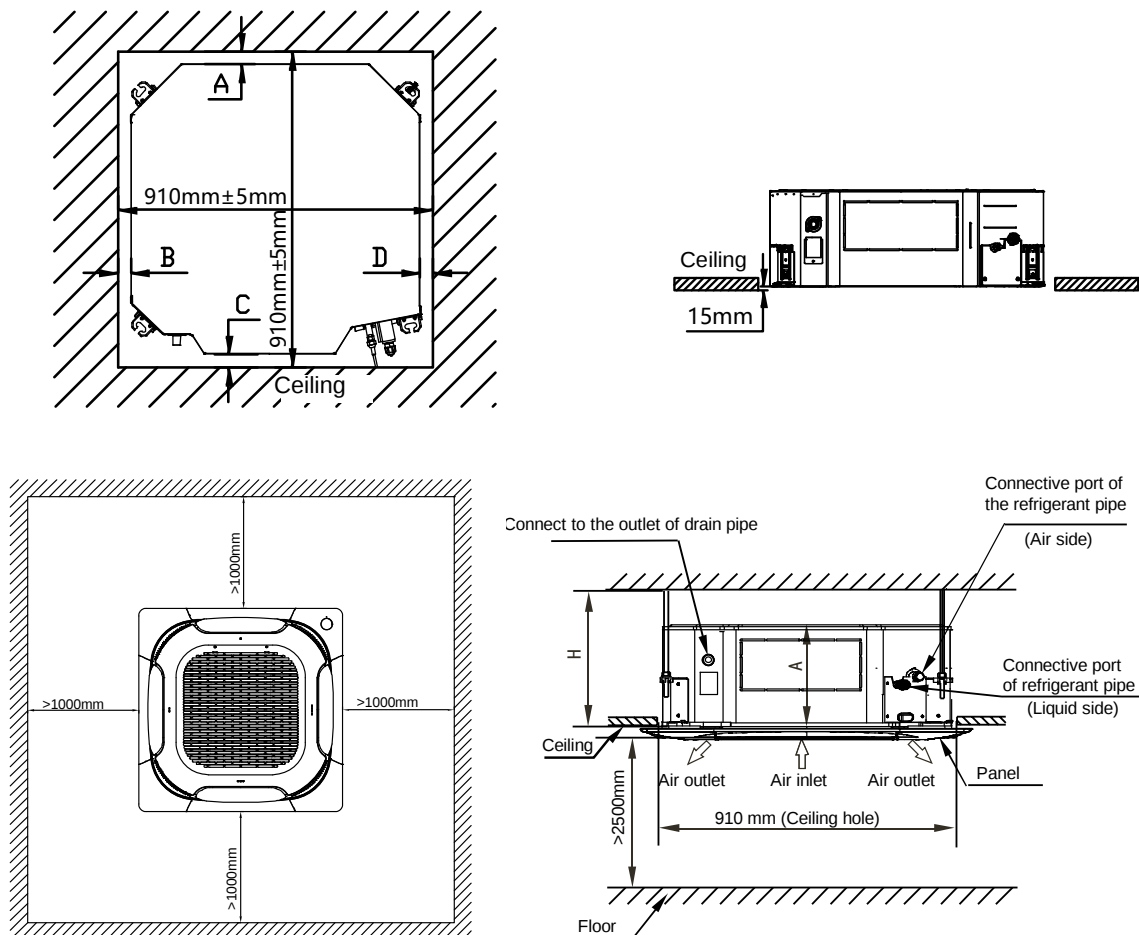


Figure 3.2: DATA160ALCS1 Four-way Cassette space requirements (unit: mm)

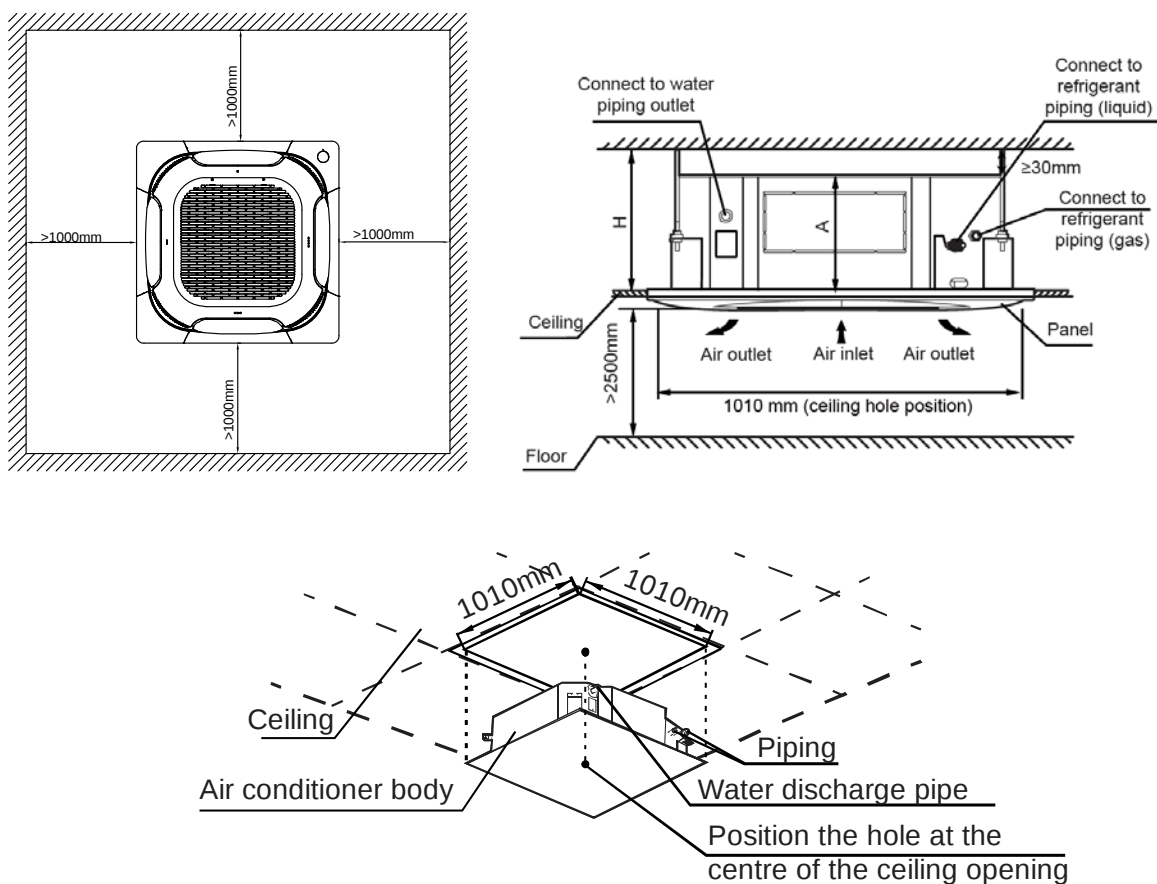
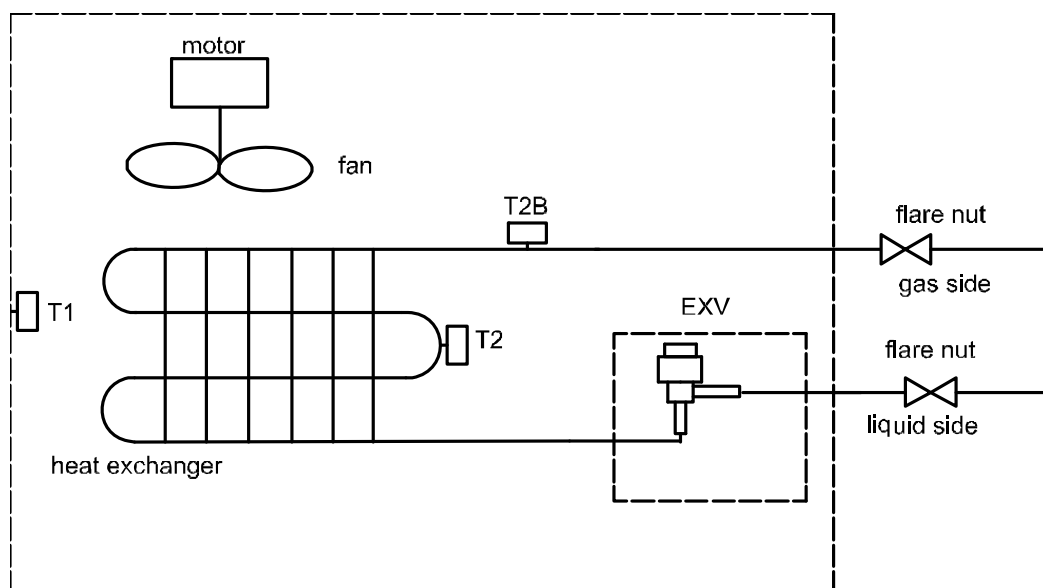


Table 3.1: Four-way Cassette dimensions and space requirements

Model name	Dimensions / Requirements (mm)	
	A	H
DATA100ALCS1	300	≥330
DATA120ALCS1		
DATA140ALCS1		
DATA160ALCS1		

4 Piping Diagram

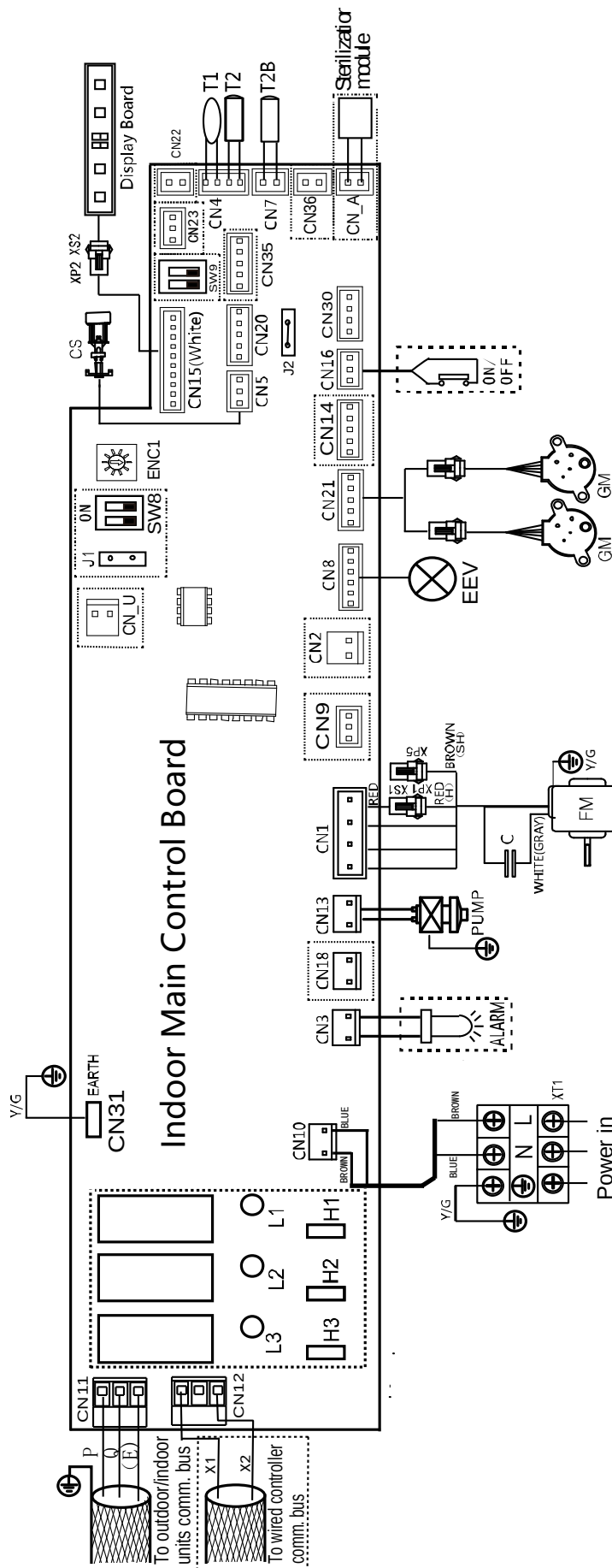
Figure 4.1: Four-way Cassette piping diagram



Legend	
T1	Indoor ambient temperature sensor
T2	Indoor heat exchanger mid-point temperature sensor
T2B	Indoor heat exchanger outlet temperature sensor

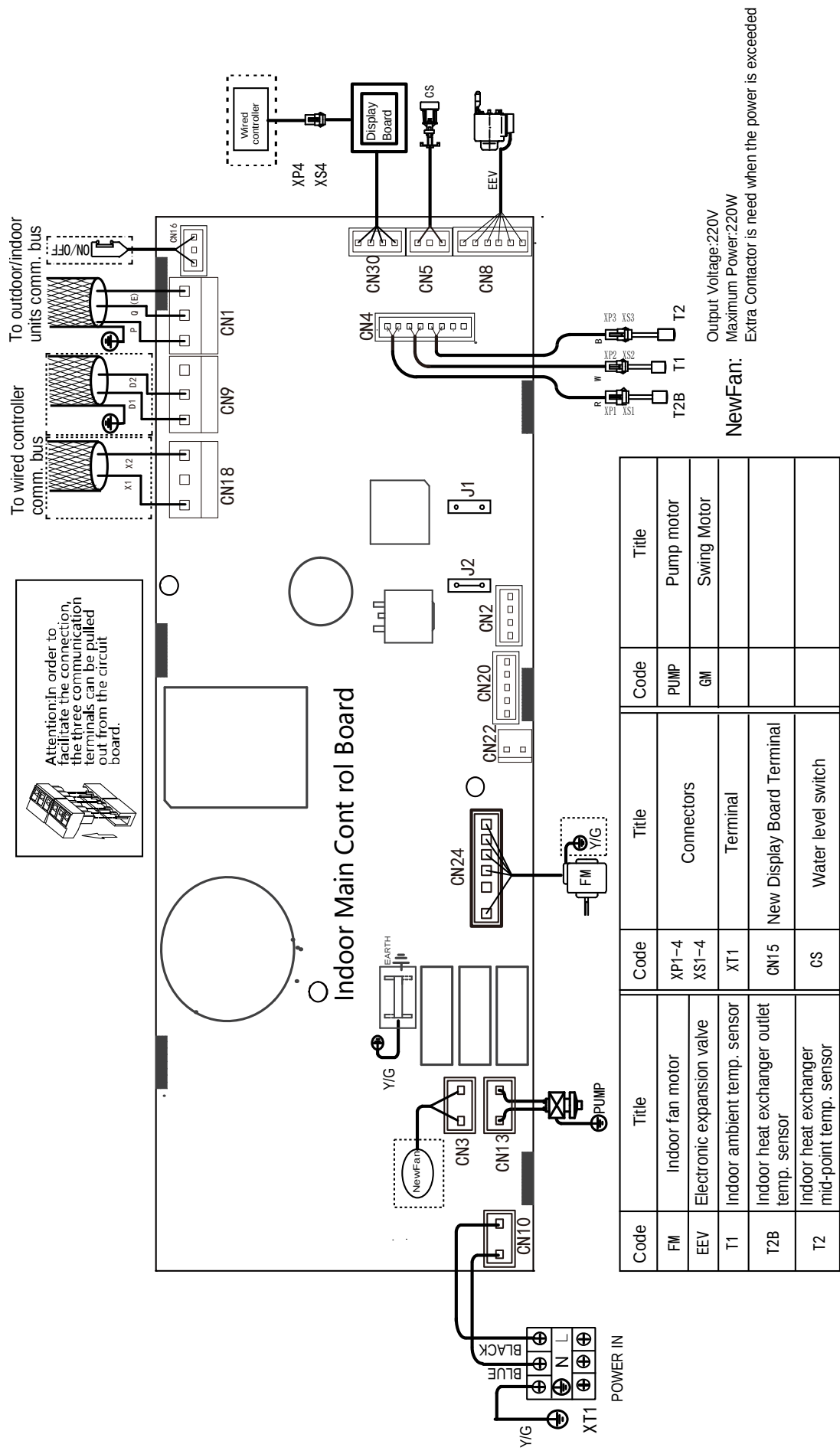
5 Wiring Diagram

Figure 5.1: DATA100 (120, 140)ALCS1 Four-way Cassette wiring diagram



Code	Title	Code	Title	Code	Title
FM	Indoor Fan Motor	XP1-8	Connectors	GM	Swing Motor
EEV	Electronic Expansion Valve	XS1-8	Terminal	C	Fan Motor capacitance
T1	Room Temp. Sensor	XT1	Pump Motor	ALARM	Warning Lamp(Optional)
T2B	Outer Pipe Temp. Sensor	PUMP	Water Level Switch	ON/OFF	Remote on/off switch
T2	Middle Pipe Temp. Sensor	CS			

Figure 5.2: DATA160ALCS1 Four-way Cassette wiring diagram



Notes for installers and service engineers **Caution**

- All installation, servicing and maintenance must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation.
- Units should be grounded in accordance with all applicable legislation. Metal and other conductive components should be insulated in accordance with all applicable legislation.
- Power supply wiring should be securely fastened at the power supply terminals – loose power supply wiring would represent a fire risk.
- After installation, servicing or maintenance, the electric control box cover should be closed. Failing to close the electric control box cover risks fire or electric shock.
- Switch ENC1 (indoor unit capacity setting) is factory-set and its setting should normally not be changed. The only circumstances in which a switch ENC1 might need to be set in the field is when replacing a main PCB. When replacing a main PCB, ensure that the capacity setting on switch ENC1 on the new PCB is consistent with the unit capacity given on the unit's nameplate.

6 Capacity Tables

6.1 Cooling Capacity Table

Table 6.1: Four-way Cassette cooling capacity

Model	Indoor air temperature (°C WB/DB)													
	14/20		16/23		18/26		19/27		20/28		22/30		24/32	
	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
DATA100ALCS1	8.9	8.6	9.5	8.6	9.9	8.5	10.0	8.2	10.1	7.9	10.4	7.6	10.6	7.2
DATA120ALCS1	9.9	9.5	10.6	9.6	11.1	9.5	11.2	9.2	11.3	8.9	11.6	8.4	11.9	8.1
DATA140ALCS1	12.4	11.6	13.2	11.7	13.8	11.6	14.0	11.3	14.2	11.0	14.5	10.5	14.9	10.1
DATA160ALCS1	14.2	13.5	15.1	13.5	15.8	13.4	16.0	13.0	16.2	12.6	16.6	12.0	17.0	11.5

Abbreviations:

TC: Total capacity (kW)

SC: Sensible capacity (kW)

Notes:

1. Shaded cells indicate rating condition

7 Electrical Characteristics

Table 7.1: Four-way Cassette electrical characteristics

Model	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
DATA100ALCS1	50	220-240	198	264	0.7	15	0.065	0.6
DATA120ALCS1	50	220-240	198	264	0.7	15	0.065	0.6
DATA140ALCS1	50	220-240	198	264	0.8	15	0.065	0.6
DATA160ALCS1	50	220-240	198	264	1.26	15	0.09	1.01

Abbreviations:

MCA: Minimum Circuit Amps

MFA: Maximum Fuse Amps

FLA: Full Load Amps

8 Sound Levels

8.1 Overall

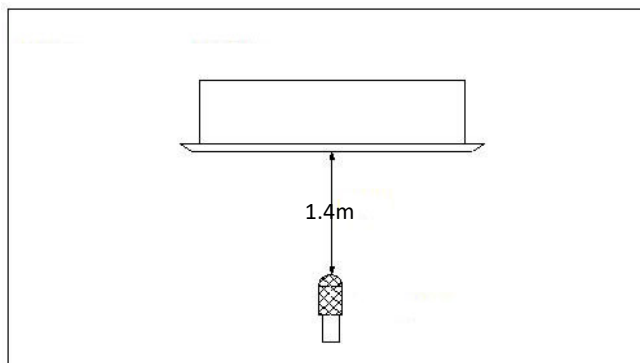
Table 8.1: Four-way Cassette sound pressure levels¹

Model	Sound pressure levels dB(A)		
	H	M	L
DATA100ALCS1	45	42	40
DATA120ALCS1	45	42	40
DATA140ALCS1	46	41	39

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 8.1: Four-way Cassette sound pressure level measurement



Model name	Sound pressure levels dB(A)						
	SSH	SH	H	M	L	SL	SSL
DATA160ALCS1	46	44	42	41	39	38	37

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.

8.2 Octave Band Levels

Figure 8.7: DATA100 (120)ALCS1 octave band levels

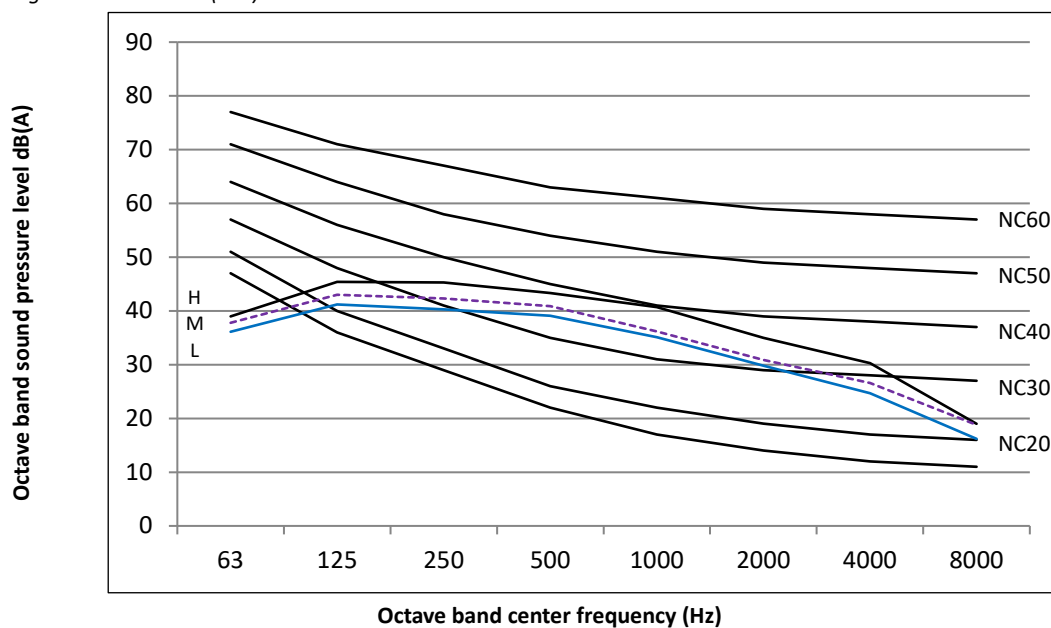


Figure 8.8: DATA140ALCS1 octave band levels

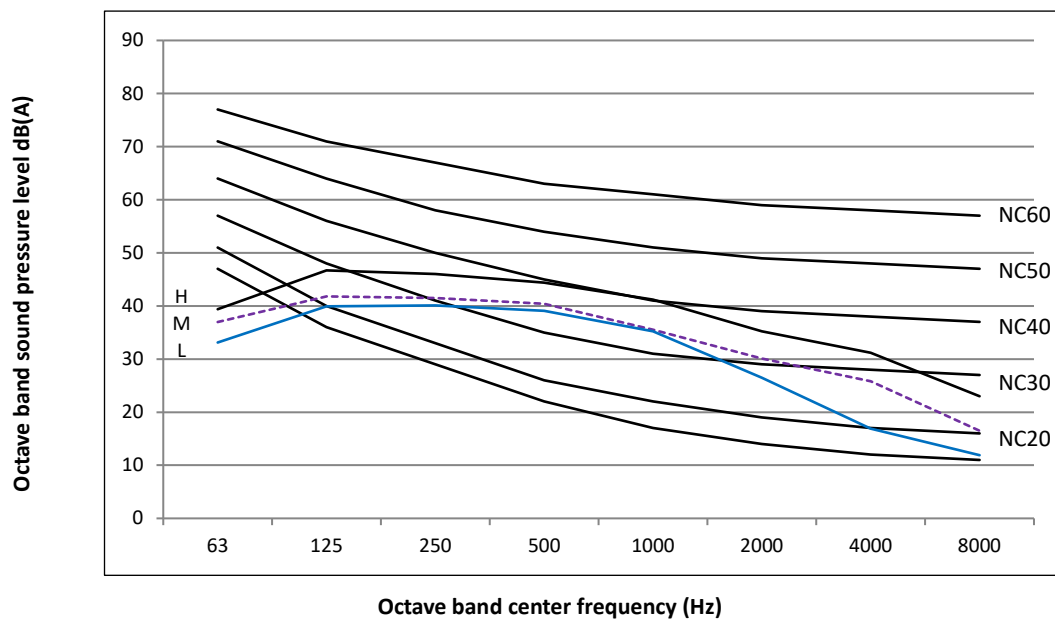


Figure 8.9: DATA160ALCS1 octave band levels

