



technical data

FCQ-B7



**4-way Blow Ceiling
Mounted Casette**



air conditioning systems

Split Sky Air

Split - Sky Air



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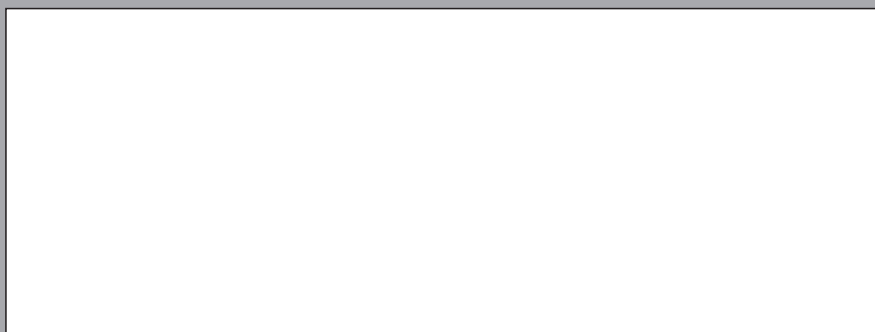




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* For capacity tables, please refer to part II: outdoor units





1 Features

1

- Leaves maximum floor and wall space for furniture, decoration and fittings
- Fits flush into each ceiling
- Extremely quiet in operation both indoors and outdoors
- Air can be discharged in any of four directions
- Possibility of using 1 or 2 branches for better air distribution
- Possibility to shut off 1 or 2 flaps for easy installation in corners
- Air flow distribution for ceiling heights up to 4.2m without loss of capacity
- Up to 4 indoor units can be connected to 1 Multi outdoor unit. All indoor units are individually controllable with remote control and do not need to be installed in the same room.
- The (wired) remote control has a programmable timer
- Centralised control of several units can be achieved via 3 wired remote controls
 - centralised remote control
 - unified ON/OFF control
 - schedule timer
- Set back time clock: connected to a wired remote controller. The timer can set two groups of on/off times in an increment of 30 minutes within a day. For each on/off setting a temperature setting is also possible.
 - *Set back time clock cannot be used in auto mode.



2 Specifications



NOMINAL CAPACITY and NOMINAL INPUT					
For indoor units only:					
INDOOR UNITS			FCQ35B7V1	FCQ50B7V1	FCQ60B7V1
NOMINAL INPUT	Cooling	kW	-	-	-
	Heating	kW	-	-	-

For combination indoor units + outdoor units:										
INDOOR UNITS				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1	FCQ50B7V1	FCQ60B7V1		
OUTDOOR UNITS				RKS35BVMB	RKS50BVMB	RKS60BVMB	RS50BVMB	RS60BVMB		
CAPACITY (3)	Cooling	min.-nom.-max.	kW	1.00~3.40~3.70	0.90~5.00~5.60	0.90~5.70~6.00	0.90~5.00~5.60	0.90~5.70~5.60		
NOMINAL INPUT	Cooling		kW	1.21	1.92	2.19	1.92	2.19		
EER				2.81	2.60	2.60	2.60	2.60		
ENERGY LABEL	Cooling			C	E	E	E	E		
ANNUAL ENERGY CONSUMPTION	Cooling		kWh	605	960	1,095	960	1,095		

For combination indoor units + outdoor units:										
INDOOR UNITS				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1				
OUTDOOR UNITS				RXS35BVMB	RXS50BVMB	RXS60BVMB				
CAPACITY (3)	Cooling	min.-nom.-max.	kW	1.00~3.40~3.70	0.90~5.00~5.60	0.90~5.70~6.00				
	Heating	min.-nom.-max.	kW	1.00~4.10~5.00	0.90~6.00~7.00	0.90~7.00~8.00				
NOMINAL INPUT	Cooling		kW	1.21	1.92	2.19				
	Heating		kW	1.28	1.87	2.19				
EER				2.81	2.60	2.60				
COP				3.20	3.21	3.20				
ENERGY LABEL	Cooling			C	E	E				
	Heating			D	C	D				
ANNUAL ENERGY CONSUMPTION	Cooling		kWh	605	960	1,095				

TECHNICAL SPECIFICATIONS										
For indoor units only:										
INDOOR UNITS				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1				
DIMENSIONS	Unit	H	mm	230						
		W	mm	840						
		D	mm	840						
	Decoration panel	H	mm	40						
		W	mm	950						
		D	mm	950						
WEIGHT	Unit		kg	23						
	Decoration panel		kg	5						
MATERIAL	Unit	Galvanised steel plate								
COLOUR	Decoration panel	White								
SOUND LEVEL	Sound pressure (cooling/heating) (1)	high	dB(A)	31/31		33/33				
		low	dB(A)	27/27		28/28				
	Sound power		dB(A)	48		50				
FAN	Air flow rate (cooling/heating)	high	m ³ /min	14/14	15/15	18/18				
		low	m ³ /min	10/10	11/11	14/14				
	Speed	steps	2 steps							
	Type	Turbo fan								
	Qty x motor output	W	1 x 45							
HEAT EXCHANGER	Type	Cross fin coil ϕ 7 HI-XA tubes								
	Rows x stages x fin pitch	mm	2 x 8 x 1.5							
	Face area	m ²	0.331							
AIR FILTER	Resin net (with mold resistant)									
PIPING CONNECTIONS	liquid	mm	ϕ 6.4 (flare)							
		mm	ϕ 9.5 (flare)	ϕ 12.7 (flare)						
	drain I.D.	mm	ϕ 25 (VP25)							
	drain O.D.	mm	ϕ 32 (VP25)							
INSULATION MATERIAL	Heat insulation	Foamed polystyrene								
	Sound absorbing insulation	Foamed polystyrene								

For outdoor units only:		Pair application	See chapters RS-B + RKS-B + RXS-B
		Multi model application	See chapters 4MKS-B + 3MXS-B/4MXS-B

2 Specifications



2

ELECTRICAL SPECIFICATIONS						
For indoor units only:				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1
CURRENT	Nominal running current	cooling/heating	A	See chapters RS-B + RKS-B + RXS-B		
	Max. running current	cooling/heating	A	See chapters RS-B + RKS-B + RXS-B		

For combination indoor units + outdoor units:				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1	FCQ50B7V1	FCQ60B7V1
				RKS35BVMB	RKS50BVMB	RKS60BVMB	RS50BVMB	RS60BVMB
CURRENT	Nominal running current	cooling	A	See chapter RKS-B			See chapter RS-B	
	Maximum running current	cooling	A	See chapter RKS-B			See chapter RS-B	
	Starting current	cooling	A	See chapter RKS-B			See chapter RS-B	

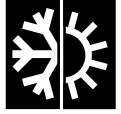
For combination indoor units + outdoor units:				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1
				RXS35BVMB	RXS50BVMB	RXS60BVMB
CURRENT	Nominal running current	cooling/heating	A	See chapter RXS-B		
	Maximum running current	cooling/heating	A	See chapter RXS-B		
	Starting current	cooling/heating	A	See chapter RXS-B		

For indoor units only:				FCQ35B7V1	FCQ50B7V1	FCQ60B7V1
POWER SUPPLY				V1	V1	V1
NOMINAL DISTRIBUTION SYSTEM VOLTAGE	Phase			1~	1~	1~
	Frequency		Hz	50	50	50
	Voltage		V	230	230	230

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NOTES

- 1 Nominal cooling capacities are based on: indoor temperature 27°CDB/19°CWB * outdoor temperature 35°CDB * refrigerant piping length: 7.5m * level difference: 0m.
- 2 Nominal heating capacities are based on: indoor temperature: 20°CDB * outdoor temperature: 7°CDB/6°CWB * refrigerant piping length: 7.5m * level difference 0m.
- 3 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- 4 The sound pressure level is measured at 1.5m distance from the unit. It is a relative value, depending on the distance and acoustic environment. For measuring conditions: please refer to item 6 of this chapter.
- 5 The sound power level is an absolute value indicating the "power" which a sound source generates.
- 6 Energy label: scale from A (most efficient) to G (less efficient).
- 7 Annual energy consumption: based on average use of 500 running hours per year at full load (= nominal capacity)

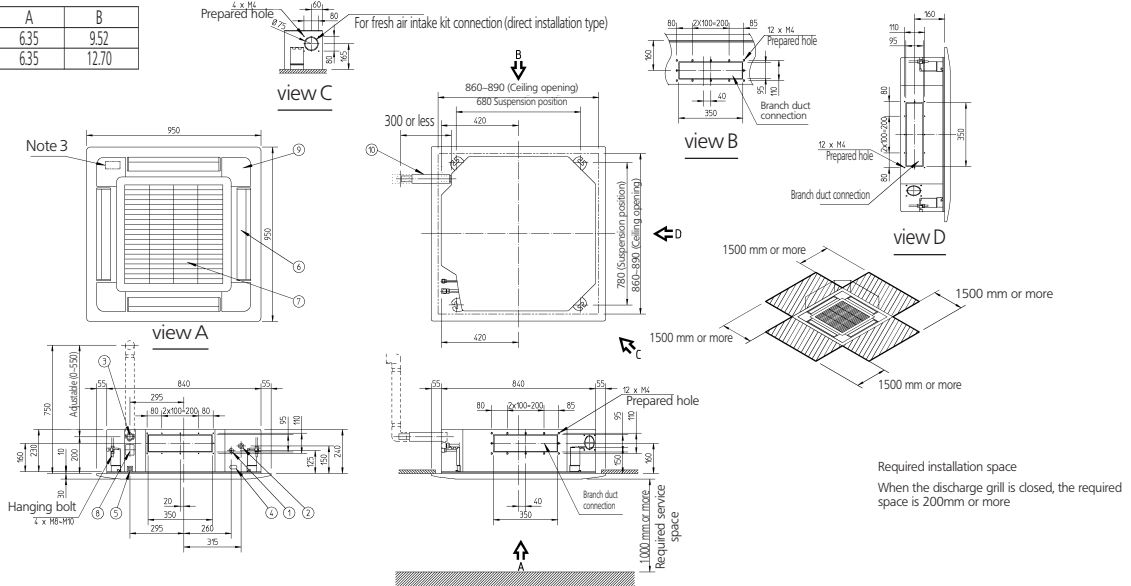


3 Dimensional drawings

3

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Model	A	B
FCQ35B	6.35	9.52
FCQ50B, FCQ60B	6.35	12.70



Note:

1. Location of unit's name plate
Main body: bell mouth inside the suction grille.
Decoration panel: panel inner frame inside the suction grille.
2. When installing an optional accessory, refer to the installation drawings.
 - For fresh air intake kit - inspection port is necessary
 - For high efficiency filter unit - inspection port is not necessary.
 - For branch duct chamber - inspection port is not necessary.
3. In case of using an infrared remote control, this position will be a signal receiver.
Refer to the drawing of infrared remote controller in detail.
4. When it may exceed 30°C and RH 80% in the ceiling or fresh air is inducted into the ceiling, an additional insulation (Thickness 10mm or more of glasswool or polyethylene form) is required.

- 1 Liquid pipe connection ϕ A Flare connection
- 2 Gas pipe connection ϕ B Flare connection
- 3 Drain pipe connection VP25 (O.D. ϕ 32, I.D. ϕ 25)
- 4 Power supply connection
- 5 Transmission wiring connection
- 6 Air discharge grille
- 7 Air suction grille
- 8 Water supply intake
- 9 Corner decoration cover
- 10 Drain hose O.D. ϕ 32

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4 Piping diagrams

4

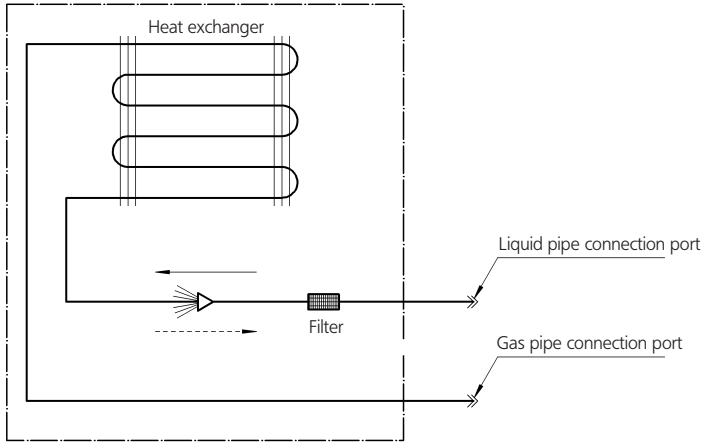
FCQ-B7

Refrigerant flow

Cooling
 Heating

Refrigerant pipe connection port diameters

Model	Gas	Liquid
FCQ35B	φ 9.52	φ 6.35
FCQ50B, FCQ60B	φ 12.70	φ 6.35



Check valve Flare connection Screw connection Flange connection Pinched pipe Spinned pipe

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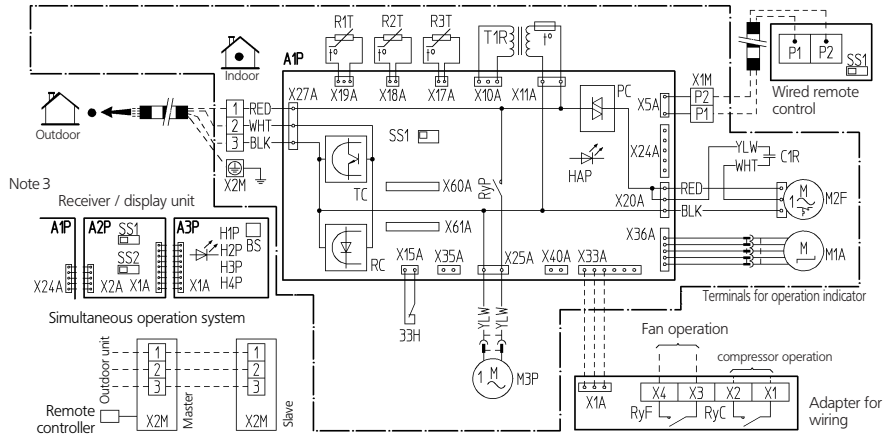
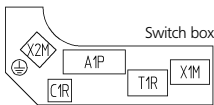
5 Wiring diagrams

FCQ-B7

Notes

1. Use copper conductors only.
2. When using the central remote control, see manual for connection to the unit.
3. X24A is connected when the remote control kit is used.
4. The infrared remote controller model varies according to the combination system. See technical data and catalogs before connecting.

- Field wiring
 - Terminal
 - ⊠ Connector
 - Wire clamp
 - ⊕ Protective earth (screw)
- Colours
BLK: Black / WHT: White / RED: Red / YLW: Yellow



- 33H Float switch
- A1P Printed circuit board
- C1R Capacitor (M2F)
- HAP Light emitting diode (service monitor green)
- M1A Motor (swing flap)
- M2F Motor (indoor fan)
- M3P Motor (drain pump)
- Q1F Thermo switch (M2F embedded)
- R1T Thermistor (air)
- R2T Thermistor (liquid)
- R3T Thermistor (coil)

- RyP Magnetic relay (M3P)
- SS1 Selector switch (emergency)
- T1R Transformer (220-240V/22V)
- X1M Terminal strip (power)
- X2M Terminal strip (control)
- PC Phase control circuit
- RC Signal receiver circuit
- TC Signal transmission circuit
- Wired remote control
- SS1 Selector switch (main/sub)

- Receiver / display unit (attached to infrared remote control)
- A2P/A3P Printed circuit board
- BS Push button (on/off)
- H1P Light emitting diode (on-red)
- H2P Light emitting diode (timer-green)
- H3P Light emitting diode (filter sign-red)
- H4P Light emitting diode (defrost-orange)
- SS1 Selector switch (main/sub)
- SS2 Selector switch (wireless address set)

- Adapter for wiring
- RyC/RyF Magnetic relay
- Connector for optional parts
- X60A/X61A Connector (interface adapter for sky air series)
- X33A Connector (adapter for wiring)
- X35A Connector (group control adapter)
- X40A Connector (remote ON/OFF forced OFF)

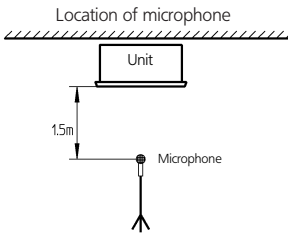
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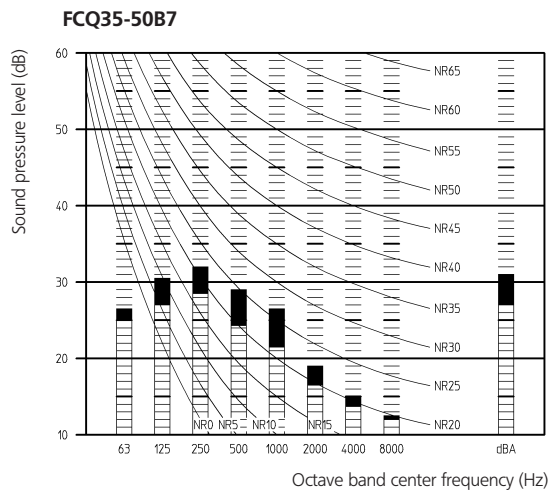
6 Sound level

6-1 Sound level data

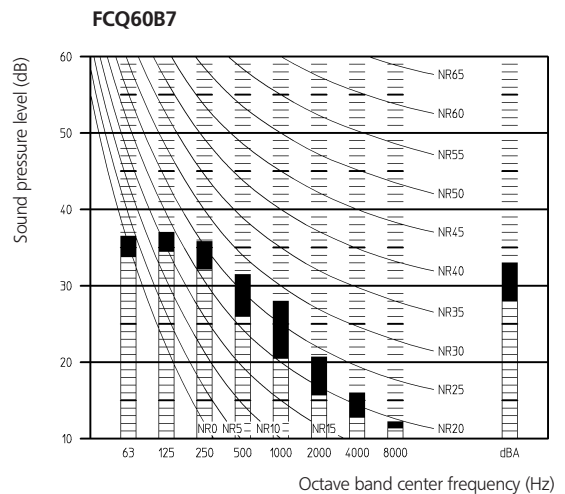
6
6-1

Model	Sound pressure level		Measuring location 	Sound power level (H)
	230V, 50Hz			
	H	L		
FCQ35B7V1	31	27		48
FCQ50B7V1	31	27		48
FCQ60B7V1	33	28		50

6-2 Sound pressure spectrum



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NOTES

- 1 Data is valid at free field condition and nominal operation condition (230V, air discharge in 4 directions).
- 2 The operation noise differs with the operation and ambient conditions.
- 3 dBA = A-weighted sound pressure level (A-scale according to IEC)
- 4 Reference acoustic pressure 0dB = 20μPa

Legend

-  High speed
-  Low speed

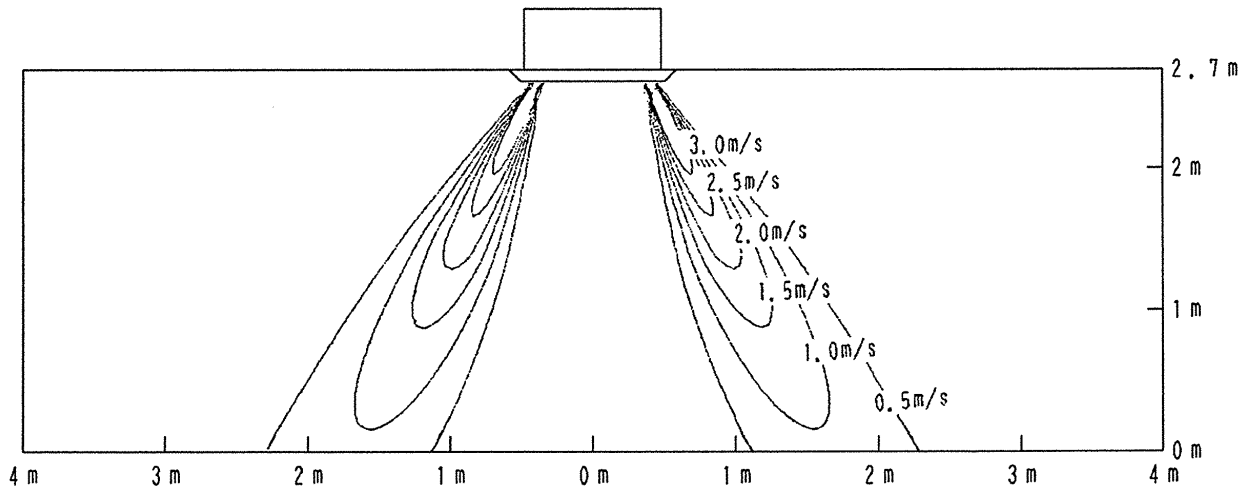


7 Air flow patterns

FCQ35B7

Heating - air velocity distribution

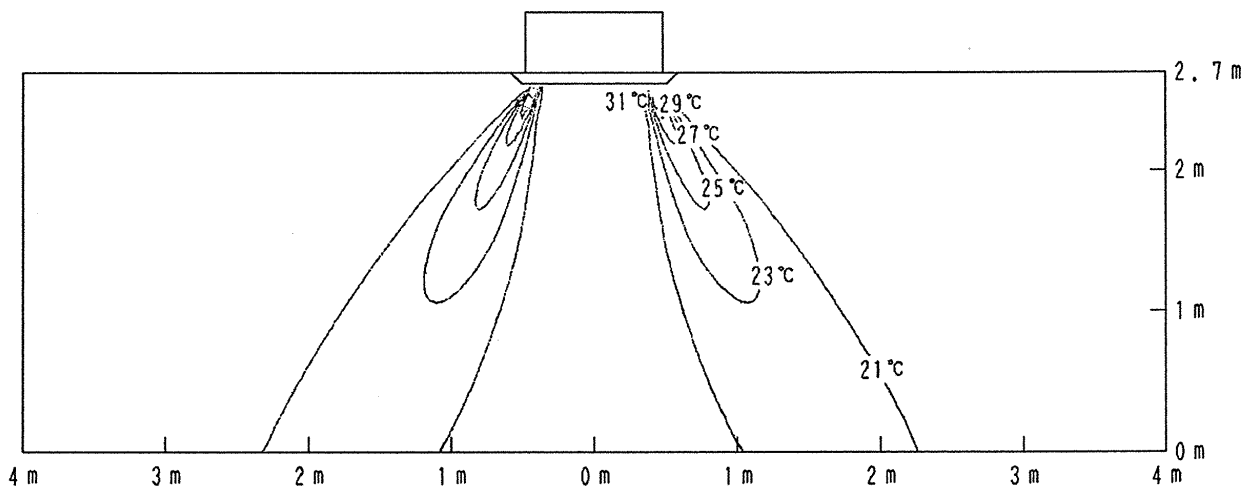
4-way discharge, air flow direction: down



FCQ35B7

Heating - air temperature distribution

4-way discharge, air flow direction: down



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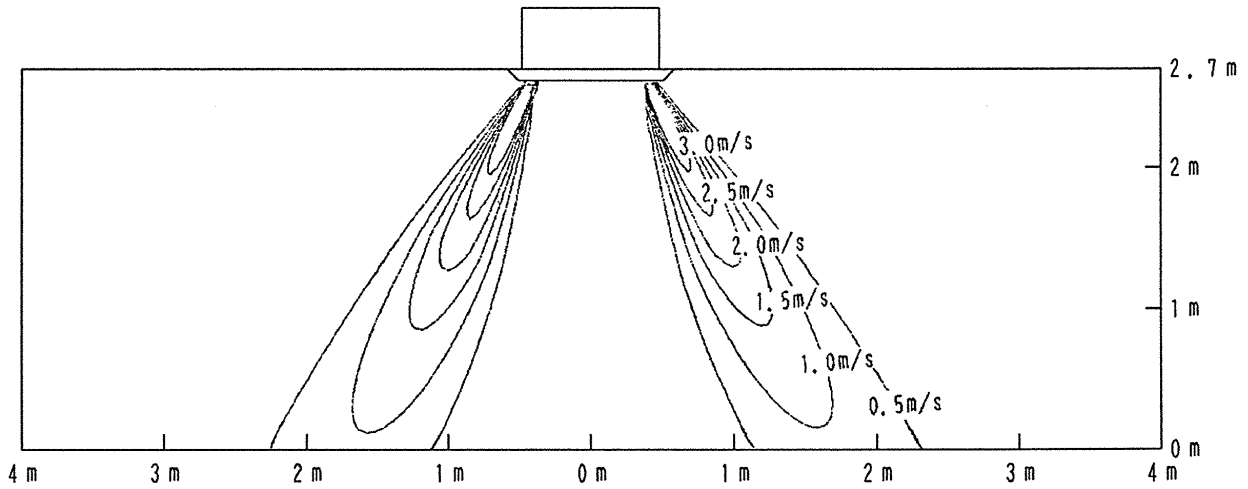


7 Air flow patterns

7 FCQ50B7

Heating - air velocity distribution

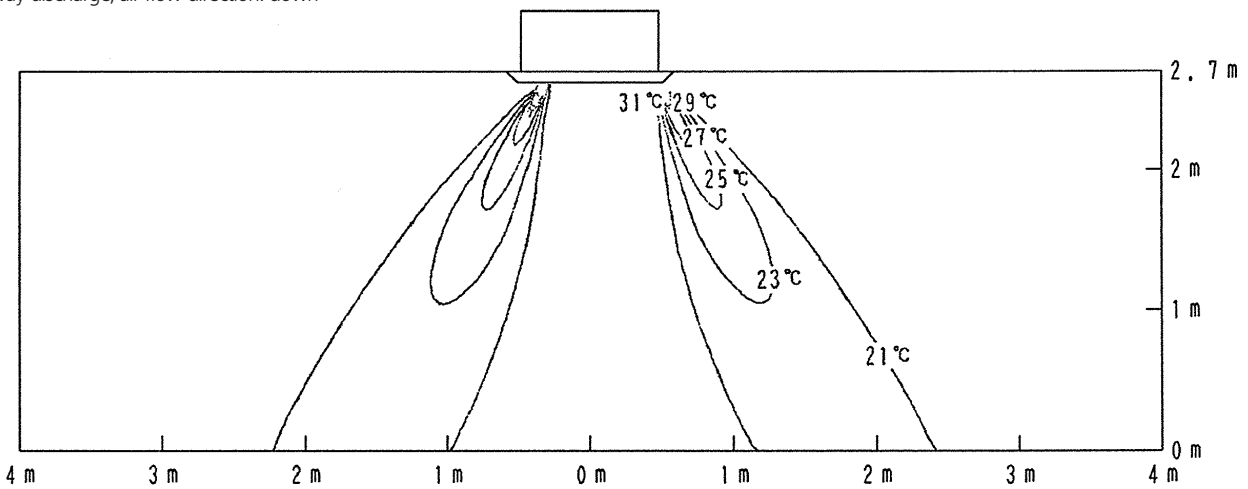
4-way discharge, air flow direction: down



FCQ50B7

Heating - air temperature distribution

4-way discharge, air flow direction: down



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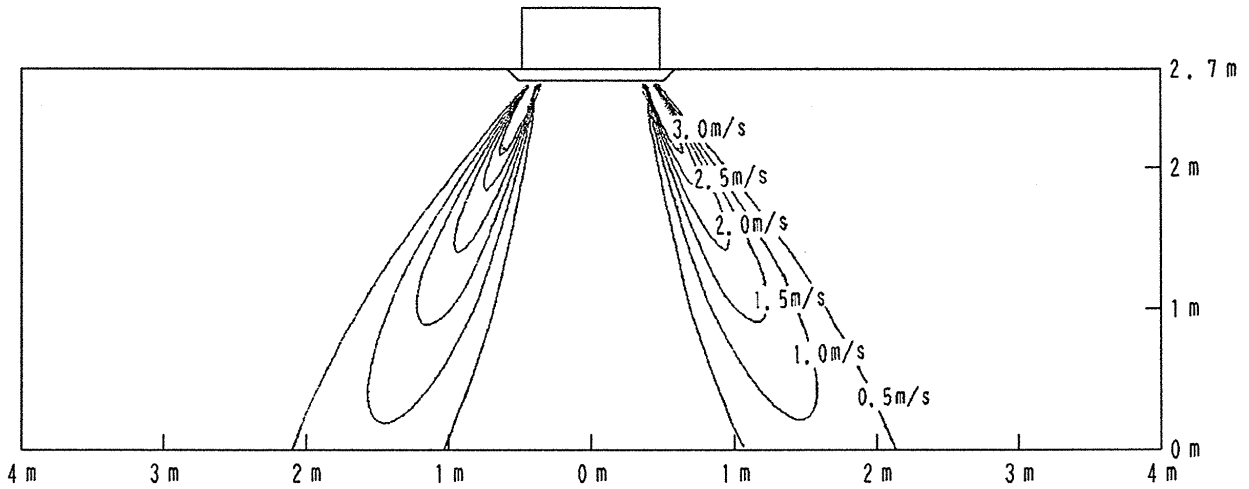


7 Air flow patterns

FCQ60B7

Heating - air velocity distribution

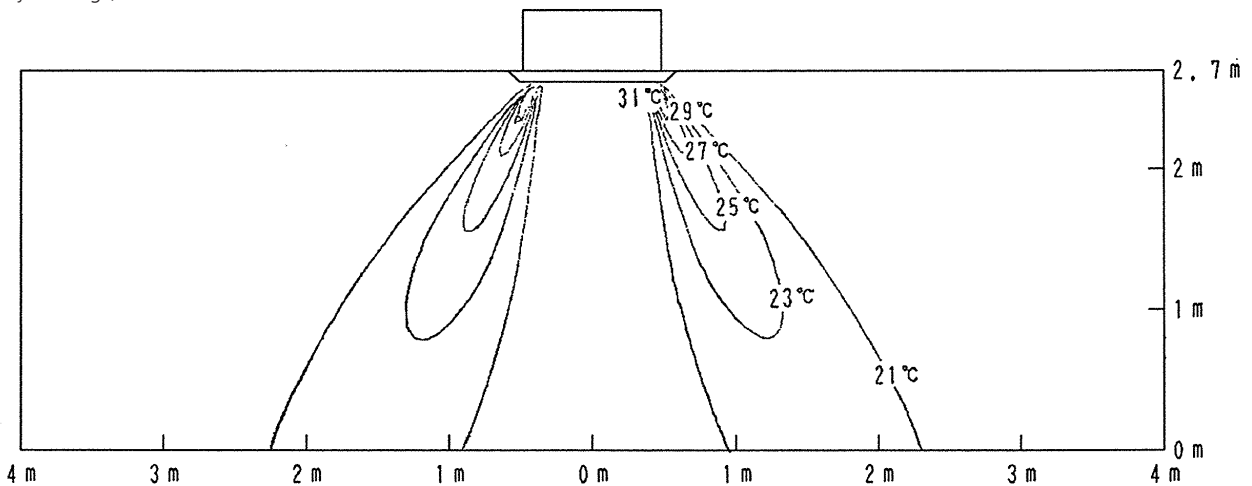
4-way discharge, air flow direction: down



FCQ60B7

Heating - air temperature distribution

4-way discharge, air flow direction: down



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








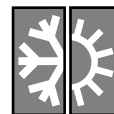
8 Accessories

8-1 Standard accessories

8 Check if the following accessories are included with your unit.

8-1

 <p>Clamp 1 pc.</p>	<p>Also used as packing material</p>  <p>Paper pattern for installation 1 pc.</p>	 <p>Drain hose 1 pc.</p>
 <p>Screws M5 For paper pattern for installation 4 pcs.</p>	 <p>Washer for hanging bracket 8 pcs.</p>	 <p>Sealing 2 pcs.</p>
<p>Insulation for fitting 1 of each</p>  <p>For gas pipe</p>  <p>For liquid pipe</p>		<p>Other: installation manual, operation manual</p>



8 Accessories

8-2 Optional accessories

Options

Item	Model		FCQ35	FCQ50	FCQ60
Decoration panel				BYC125KW1	
Filter related	High efficiency filter 65%	Colorimetric method		KAFJ556K80	
	High efficiency filter 90%	Colorimetric method		KAFJ557K80	
	Replacement high efficiency filter 65%	Colorimetric method		KAFJ552K80	
	Replacement high efficiency filter 90%	Colorimetric method		KAFJ553K80	
	Filter chamber			KDDFJ55K160	
	Replacement long-life filter	Non-woven type		KAFJ551K160	
	Ultra-long life filter			KAFJ55K160	
	Replacement ultra long-life filter			KAFJ55K160H	
Fresh air intake kit	Chamber type	Without T-shape and fan		KDDJ55B160	
		With T-shape, and fan		KDDJ55B160F	
		With T-shape, without fan		KDDJ55B160K	
	Direct installation type			KDDJ55X160	
Sealing member of air discharge outlet				KDBHJ55B160	
Panel spacer				KDBJ55K160W	
Branch duct chamber				KDJ55B80	
Chamber connection kit				KKSJ55K160	

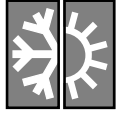
8

8-2

Control systems

Item	Model		FCQ35	FCQ50	FCQ60
Infrared remote controller	Infrared	H/P		BRC7C512W	
		C/O		BRC7C513W	
	Wired			BRC1C517	
Adapter for wiring				KRP1B2	
Wiring adaptor for electrical appendices (1)				KRP1B57	
Wiring adaptor for electrical appendices (2)				KRP4A53	
Remote sensor				KRCS01-1	
Installation box for adapter PCB				KRP1C98	
Central remote control				DCS302B51	
Electrical box with earth terminal (3 blocks)				KJB311A	
unified ON/OFF control				DCS301B51	
Electrical box with earth terminal (2 blocks)				KJB212A	
Noise filter (for electromagnetic interface use only)				KEK26-1	
Schedule timer				DST301B51	
Interface adaptor for Sky Air series				DTA102A52	
Remote ON/OFF, forced OFF				EKRORO	

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8 Accessories

8-2 Optional accessories

8 FCQ-B7

8-2

Fresh air intake kit

1. Option kits KDDJ55B160, KDDJ55B160K, KDDJ55B160F

Following restrictions must be kept:

1. Maximum 20% of the nominal indoor unit air volume can be sucked from the fresh air duct.
2. Put an air filter in the duct.
3. When a duct fan is used, use the option kit together with the duct fan. When only the duct fan is operating, dust can fall from the air filter into the room.

Adapter for wiring KRP1B57
Installation box for adaptor PCB (KRP1C98) is necessary

2. Option kit KDDJ55X160

This kit can be used when the duct length is less than 4 m.
Approximately 2 or 3% of the nominal indoor unit air volume can be sucked from the fresh air duct.

The use of a duct fan is not allowed because the sound of the duct can be heard at the indoor unit.

Option kit	Fresh air intake volume / static pressure
<p>KDDJ55B160 (without T-joint connection and without duct fan)</p>	
<p>KDDJ55B160K (with T-joint connection, without duct fan)</p>	
<p>KDDJ55B160F (with T-joint connection and with duct fan)</p>	
<p>KDDJ55X160 (direct installation)</p>	

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9 Control systems

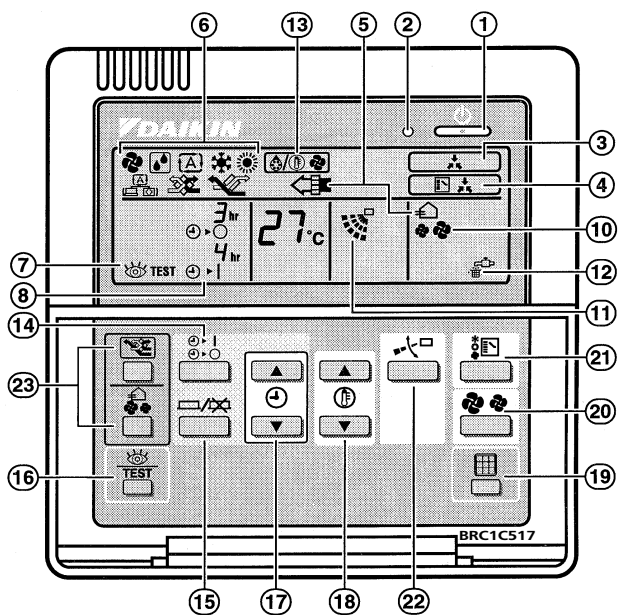
9-1 Wired remote control

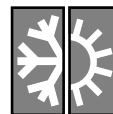
Fig. 1

BRC1C517

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9-1





9 Control systems

9-1 Wired remote control

9
9-1

Name and function of each switch and display on the remote control

1	ON/OFF BUTTON	13	DISPLAY " / " (DEFROST)
	Press the button and the system will start. Press the button again and the system will stop.	14	TIMER MODE START/STOP BUTTON
2	OPERATION LAMP (RED)	15	TIMER ON/OFF BUTTON
	The lamp lights up during operation.	16	INSPECTION/TEST OPERATION BUTTON This button is used only by qualified service persons for maintenance purposes.
3	DISPLAY " " (UNDER CENTRALISED CONTROL) When this display shows, the system is UNDER CENTRALISED CONTROL. (This is not a standard specification).		17
4	DISPLAY " " (CHANGEOVER UNDER CONTROL) It is impossible to changeover heat/cool with the remote controller when this icon is displayed.	18	
5	DISPLAY " , " , " , " , " " (VENTILATION / AIR CLEANING) This display shows that the total heat exchange unit and the air cleaning unit are in operation. These are optional accessories.		19
	6	DISPLAY " ' ' ' ' ' ' ' " (OPERATION MODE) This display shows the current OPERATION MODE. For cooling only type, ' ' (Auto) and ' ' (Heating) are not installed.	20
7		DISPLAY " " (INSPECTION/TEST OPERATION) When the INSPECTION/TEST OPERATION BUTTON is pressed, the display shows the mode in which the system actually is.	21
	8	DISPLAY " " (PROGRAMMED TIME) This display shows PROGRAMMED TIME of the system start or stop.	22
9		DISPLAY " " (SET TEMPERATURE) This display shows the set temperature.	23
	10	DISPLAY " " (FAN SPEED) The display shows the set fan speed.	
11	DISPLAY " " (AIR FLOW FLAP)		
12	DISPLAY " " (TIME TO CLEAN AIR FILTER)		

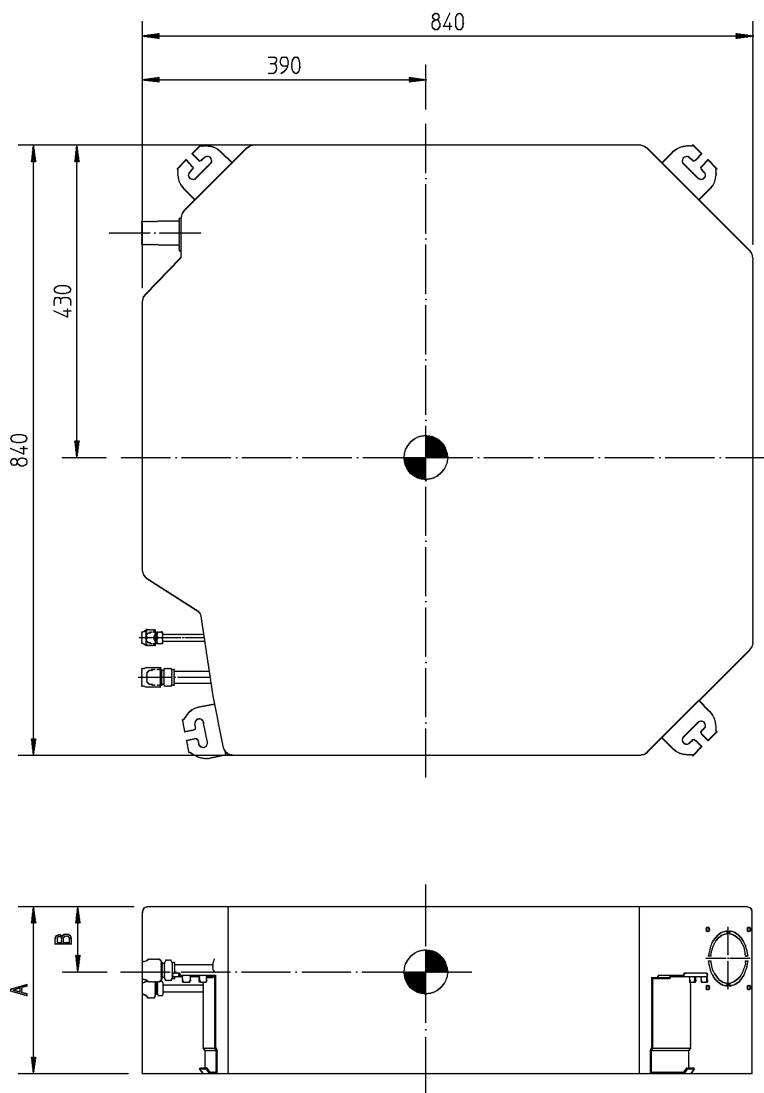
(NOTE)

- For the sake of explanation, all indications are shown on the display in the figure contrary to actual running situations.



10 Center of gravity

FCQ-B7



Model	A	B
FCQ35-60B	230	90

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11 Safety device settings

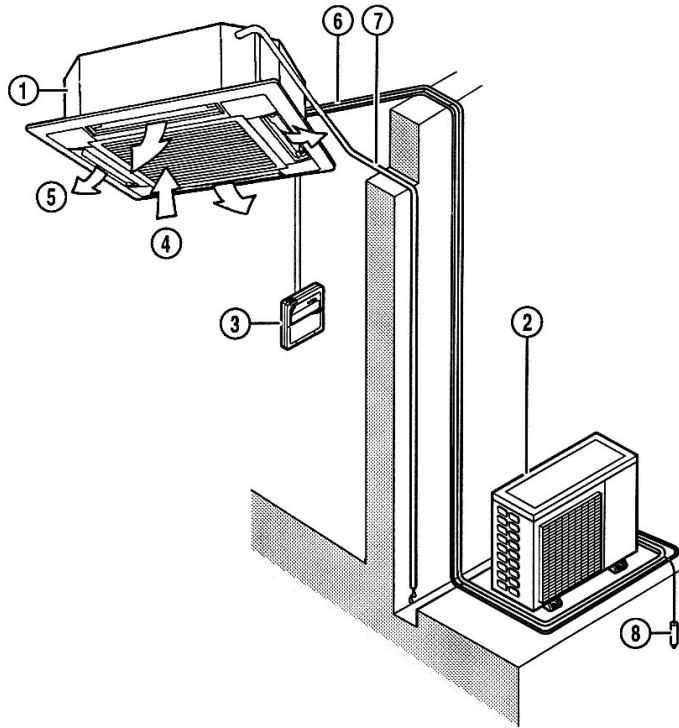
Model	Safety devices	35	45	60
FCQ-B	Fan motor thermal protector (°C)	OFF: 130±5 ON: 80±20	OFF: 130±5 ON: 80±20	OFF: 130±5 ON: 80±20
	Drain pump fuse (°C)	145	145	145

3TW22831-3A



12 Installation

FCQ-B7



Number	Description
1	Indoor unit
2	Outdoor unit
3	Remote controller
4	Inlet air
5	Discharged air
6	Refrigerant piping, connection electric wire
7	Drain pipe
8	Ground wire Wire to ground from the outdoor unit to prevent electrical shocks.