HITACHI

INDOOR UNITS SYSTEM FREE SERIES & COMPLEMENTARY SYSTEMS





Service Manual

RCI - FSN4
RCIM - FSN4E
RCD - FSN3
RPC - FSN3
RPI - FSN(3/5)(P)E(-f)
RPIM - FSN4E(-DU)
RPK - FSN(H)4M
RPF - FSN2E
RPFI - FSN2E
KPI - (E/X)4E
DX - Interface - EXV-E2
Econofresh - EF-456N1E

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1.1 General information

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1.1.1 Introduction

HITACHI offers the SYSTEM FREE range of indoor units, the main advantage of which is that they can be combined with UTOPIA and SET FREE series outdoor units.

This eliminates the need to duplicate models of indoor units and reduces stock.

SYSTEM FREE Line up of Indoor Units	Complementary systems
RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)4M RPF-FSN2E RPFI-FSN2E	KPI-(E/X)4E DX-Interface EXV-E2 Econofresh EF-456N1E

1.2 Applied symbols

During normal heat pump system design work or unit installation, greater attention must be paid in certain situations requiring particular care in order to avoid damage to the unit, the installation or the building or property.

Situations that pose a risk to the safety of those in the surrounding area or to the unit itself are clearly indicated in this manual.

A series of special symbols are used to clearly identify these situations.

Pay close attention to these symbols and to the messages following them, as your safety and that of others depends on it.

DANGER

- ***The text following this symbol contains information and instructions relating directly to your safety.***
- ***Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others.***

In the texts following the danger symbol you can also find information on safe procedures during unit installation.

CAUTION

- *The text following this symbol contains information and instructions relating directly to your safety.*
- *Not taking these instructions into account could lead to minor injuries to you and others.*
- *Not taking these instructions into account could lead to unit damage.*

In the texts following the caution symbol you can also find information on safe procedures during unit installation.

NOTE

- *The text following this symbol contains information or instructions that may be of use or that require a more thorough explanation.*
- *Instructions regarding inspections to be made on unit parts or systems may also be included.*

1.3 Norms and Regulations

Following Regulation EU Nº 517/2014 on Certain Fluorinated Greenhouse gases, it is mandatory to fill in the label attached to the unit with the total amount of refrigerant charged on the installation.

Do not vent R410A into the atmosphere: R410A are fluorinated greenhouse gases covered by the Kyoto protocol global warming potential (GWP) R410A = 2088.

Tn of CO_2 equivalent of fluorinated greenhouse gases contained is calculated by indicated GWP * Total Charge (in kg) indicated in the product label and divided by 1000.

Appropriate refrigerant

The refrigerant used in each unit is identified on the specification label and manuals of the unit. HITACHI shall not be held liable for any failure, trouble, malfunction or accident caused by units illegally charged with refrigerants other than the specified one.

Consequences of charging non-specified refrigerant

It may cause mechanical failure, malfunction and other accidents.

It may cause operational failure of protection and safety devices of air conditioners.

It may also cause lubrication failure of the sliding part of the compressor due to deterioration of refrigerant oil.

In particular, hydrocarbon refrigerants (such as propane, R441A, R443A, GF-08, etc.) are not allowed, since these are combustible and may cause major accidents such as fire and explosion in case of improper handling.

Once a non-specified refrigerant has been charged, no further servicing (including draining of refrigerant) shall be performed, even in case of malfunction. Improper handling of refrigerant may be a cause of fire and explosion, and servicing in such cases may be considered an illegal act.

End clients and costumers shall be informed that servicing is not approved, and the installer who charged the nonspecified refrigerant shall be asked to fix the unit.

HITACHI will accept no responsibility for units that have been charged with non-specified refrigerant once.

1.4 Product classification and line-up

1.4.1 Classification of indoor unit models

Unit type (indoor unit): RCI, RCIM, RCD, RPC, RPI, RPIM, RPK, RPF, RPFI									
	Position-separating hyphen (fixed)								
		Capacity (HP): 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0, 16.0, 20.0							
			FS = SYSTEM FREE						
				N = R410A refrigerant					
					H = Hotel (RPK-(0.4-1.5) only)				
						2/3/4/5 = series			
							P= Pair		
								E = Made in Europe M = Made in Malaysia – = Made in Japan or China	
									(-DU) = Drain Up (RPIM only) (-f) = Non-flammable insulation (RPI-(8.0-20.0)FSN3E-f only)
XXX	–	X.X	FS	N	(H)	X	(P)	(X)	(-xx)

1.4.2 Classification of KPI models

KPI- Ventilation system							
	Position-separating hyphen (fixed)						
		Capacity (m^3/h): 250, 500, 800, 1000, 1500, 2000					
			2 = 1~ 230V 50Hz				
				E = Energy recovery X = Active (Energy recovery + DX section)			
					4 = series		
						E = Made in Europe	
KPI	–	(Y)YY	2	Y	4	E	

1.4.3 Classification of DX-Interface models

DX-Interface type					
	Position-separating hyphen (fixed)				
		Capacity (HP): 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0			
			E = Made in Europe		
				2 = series	
EXV	–	X.X	E	2	

1.4.4 Classification of Econofresh models

Econofresh unit type						
	Position-separating hyphen (fixed)					
		Capacity (HP): 4.0, 5.0, 6.0				
			N: R410A refrigerant			
				1 = series		
					E = Made in Europe	
EF	-	456	N	1	E	

1.4.5 Product line-up: indoor units

NOTE

- *The indoor unit models and codes are the last updated at time of publication; other previous models and coming developments could be available for combination with the outdoor unit series.*
- *Check the exact classification for each unit (model, type, power and series) in "1.4.1 Classification of indoor unit models".*

◆ RCI and RCIM indoor units

RCI		RCIM	
❄ ☀			
			
4-way cassette		4-way cassette (compact)	
Unit	Code	Unit	Code
		RCIM-0.4FSN4E (*1)	7E411148
		RCIM-0.6FSN4E (*2)	7E411137
		RCIM-0.8FSN4E (*3)	7E411100
RCI-1.0FSN4	70405001	RCIM-1.0FSN4E	7E411101
RCI-1.5FSN4	70405002	RCIM-1.5FSN4E	7E411102
RCI-2.0FSN4	70405003	RCIM-2.0FSN4E	7E411103
RCI-2.5FSN4	70405004	RCIM-2.5FSN4E	7E411104
RCI-3.0FSN4	70405005		
RCI-4.0FSN4	70405007		
RCI-5.0FSN4	70405008		
RCI-6.0FSN4	70405009		
Panel		Panel	
P-N23NA2 (without Motion Sensor)	70532000	P-AP56NAM (without Motion Sensor)	70533000

NOTE

- *The RCI and RCIM models must be used in combination with the indicated panels.*
- *(*1): Follow the detailed information about the combinability and restrictions for 0.4 HP Indoor Units, which can only be used in combination with current SET FREE RAS-FSXNSE and RAS-FSXNPE.*
- *(*2): 0.6 HP Indoor Units can only be used in combination with SET FREE RAS-FSXNSE and RAS-FSXNPE series.*
- *(*3): 0.8 HP Indoor Units set to a lower capacity (0.6 HP) can only be used in combination with SET FREE Mini series 3 (RAS-(4-6)FS(V)N(Y)3E) series.*

◆ RCD and RPC indoor units

RCD				RPC	
❄ ☀					
					
2-way cassette				Ceiling type	
Unit	Code	Unit	Code	Unit	Code
RCD-0.8FSN3 (*)	60278242				
RCD-1.0FSN3 (*)	60278243				
RCD-1.5FSN3 (*)	60278244			RPC-1.5FSN3	60278164
RCD-2.0FSN3 (*)	60278245			RPC-2.0FSN3	60278165
RCD-2.5FSN3 (*)	60278246			RPC-2.5FSN3	60278166
RCD-3.0FSN3 (*)	60278247			RPC-3.0FSN3	60278167
		RCD-4.0FSN3 (*)	60278248	RPC-4.0FSN3	60278168
		RCD-5.0FSN3 (*)	60278249	RPC-5.0FSN3	60278169
		RCD-6.0FSN3 (*)	60278250	RPC-6.0FSN3	60278170
Panel		Panel			
P-AP90DNA	60297319	P-AP160DNA	60297320		

NOTE

- *The RCD models must be used in combination with the indicated panels.*
- *(*): 1 indoor unit combinations with IVX Premium / Standard series not allowed.*

◆ RPI indoor units

RPI					
❄ ☀					
					
Indoor ducted unit					
Unit	Code	Unit	Code	Unit	Code
RPI-0.4FSN5E(*1)	7E422048				
RPI-0.6FSN5E (*2)	7E422037				
RPI-0.8FSN5E (*3)	7E422013				
RPI-1.0FSN5E	7E422014				
RPI-1.5FSN5E	7E422015				
RPI-2.0FSN5E	7E422016				
RPI-2.5FSN5E	7E422017				
RPI-3.0FSN5E	7E422018				
RPI-4.0FSN5E	7E422020				
RPI-5.0FSN5E	7E422021				
RPI-6.0FSN5E	7E422022				
		RPI-8.0FSN3E (*4) RPI-8.0FSN3E-f (*4)	7E424010 7E424410		
		RPI-10.0FSN3E (*4) RPI-10.0FSN3E-f (*4)	7E424011 7E424411		
				RPI-16.0FSN3PE (*5) RPI-16.0FSN3PE-f (*5)	7E425038 7E425438
				RPI-20.0FSN3PE (*5) RPI-20.0FSN3PE-f (*5)	7E425039 7E425439

NOTE

- *(*1): Follow the detailed information about the combinability and restrictions for 0.4 HP Indoor Units, which can only be used in combination with current SET FREE RAS-FSXNSE and RAS-FSXNPE.*
- *(*2) 0.6 HP Indoor Units can only be used in combination with SET FREE RAS-FSXNSE and RAS-FSXNPE series.*
- *(*3): 0.8 HP Indoor Units set to a lower capacity (0.6 HP) can only be used in combination with SET FREE Mini series 3 (RAS-(4-6)FS(V)N(Y)3E) series.*
- *(*4): In combination with UTOPIA IVX Premium/Standard series: 1 indoor unit system only.*
- *(*5): RPI-FSN3PE(-f) can only be used in combination with SET FREE FSXNSE, FSXNPE series.*

◆ RPIM indoor units

RPIM	
	
Indoor ducted unit (compact)	
Unit	Code
RPIM-0.6FSN4E (*1)	7E430037
RPIM-0.6FSN4E-DU (*1)	7E431037
RPIM-0.8FSN4E (*2)	7E430013
RPIM-0.8FSN4E -DU (*2)	7E431013
RPIM-1.0FSN4E	7E430014
RPIM-1.0FSN4E -DU	7E431014
RPIM-1.5FSN4E	7E430015
RPIM-1.5FSN4E -DU	7E431015

NOTE

- *(*1) 0.6 HP Indoor Units can only be used in combination with SET FREE RAS-FSXNSE and RAS-FSXNPE series.*
- *(*2) 0.8 HP Indoor Units set to a lower capacity (0.6 HP) can only be used in combination with SET FREE Mini series 3 (RAS-(4-6)FS(V)N(Y)3E) series.*

◆ RPK, RPF and RPFI indoor units

RPK		RPF		RPFI	
❄ ☀					
					
Wall type		Floor type		Floor concealed type	
Unit	Code	Unit	Code	Unit	Code
RPK-0.4FSN4M (*1)	60279066				
RPK-0.4FSNH4M (*1)	60279075				
RPK-0.6FSN4M (*2)	60279067				
RPK-0.6FSNH4M (*2)	60279076				
RPK-0.8FSN4M (*3)	60279068				
RPK-0.8FSNH4M (*3)	60279077				
RPK-1.0FSN4M	60279069				
RPK-1.0FSNH4M	60279078	RPF-1.0FSN2E	7E450001	RPFI-1.0FSN2E	7E460001
RPK-1.5FSN4M	60279070				
RPK-1.5FSNH4M	60279079	RPF-1.5FSN2E	7E450002	RPFI-1.5FSN2E	7E460002
RPK-2.0FSN4M	60279071	RPF-2.0FSN2E (*4)	7E450003	RPFI-2.0FSN2E (*4)	7E460003
RPK-2.5FSN4M	60279072	RPF-2.5FSN2E (*4)	7E450004	RPFI-2.5FSN2E (*4)	7E460004
RPK-3.0FSN4M	60279073				
RPK-4.0FSN4M	60279074				
Expansion valve kit (*5)					
EV-1.5N1 (*5)	60921791				

NOTE

- *(*1) Follow the detailed information about the combinability and restrictions for 0.4 HP Indoor Units, which can only be used in combination with current SET FREE RAS-FSXNSE and RAS-FSXNPE.*
- *(*2) 0.6 HP Indoor Units can only be used in combination with SET FREE RAS-FSXNSE and RAS-FSXNPE series.*
- *(*3) 0.8 HP Indoor Units set to a lower capacity (0.6 HP) can only be used in combination with SET FREE Mini series 3 (RAS-(4-6)FS(V)N(Y)3E) series.*
- *(*4) 1 indoor unit combinations with IVX Premium / Standard series not allowed.*
- *(*5) For RPK-(0.4-1.5)FSNH4M models only.*

1.4.6 Product line-up: KPI energy recovery unit

KPI			
			
Energy recovery		Active (Energy Recovery+DX section)	
Unit	Code	Unit	Code
KPI-252E4E	70603000		
KPI-502E4E	70603001	KPI-502X4E	70603201
KPI-802E4E	70603002	KPI-802X4E	70603202
KPI-1002E4E	70603003	KPI-1002X4E	70603203
KPI-1502E4E	70603004		
KPI-2002E4E	70603005		

1.4.7 Product line-up: DX-Interface

DX-Interface		
 Control box  Expansion valve box	Unit	Code
	EXV-2.0E2	7E611000
	EXV-2.5E2	7E611001
	EXV-3.0E2	7E611002
	EXV-4.0E2	7E611003
	EXV-5.0E2	7E611004
	EXV-6.0E2	7E611005
	EXV-8.0E2	7E611006
	EXV-10.0E2	7E611007

1.4.8 Product line-up: Econofresh

Econofresh	
	
Unit	Code
EF-456N1E	7E560001

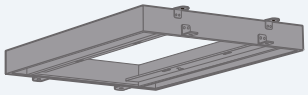
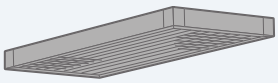
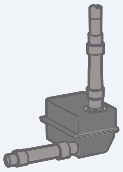
NOTE

The EF-456N1E unit can only be installed in combination with the following units:

- *RPI-4.0FSN5E (7E422020)*
- *RPI-5.0FSN5E (7E422021)*
- *RPI-6.0FSN5E (7E422022)*

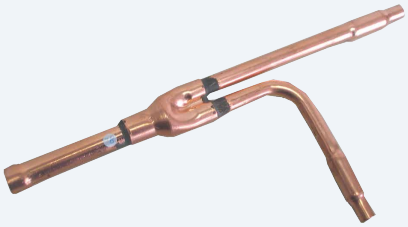
1.4.9 Accessory code list

HITACHI has a wide range of accessories and remote control systems that can be used with the SET FREE and UTOPIA outdoor units. Consult the Technical Catalogue for controls and for the corresponding outdoor units.

Name	Unit reference	Description	Code	Figure
PD-75A	RCI-FSN4	Duct adapter for fresh outdoor air intake kit	60291763	
PD-75C	RCIM-FSN4E		60292014	
PD-150D	RCD-FSN3		60292064	
OACI-160K2	RCI-FSN4	Fresh outdoor air intake kit	60291761	
TKCI-160K	RCI-FSN4	T-shaped duct connection kit for fresh outdoor air intake kit	60291762	
PDF-71C1	RCI-(1.0-2.5)FSN4	Duct connecting flange for indoor air outlet	60299436	
PDF-160C1	RCI-(3.0-6.0)FSN4		60299437	
PI-160LS1	RCI-FSN4	3-way outlet parts set	60291756	
B-160H2	RCI-FSN4	Filter Box (Adapter for deodorising filter)	60291759	
F-71L-D1	RCI-(1.0-2.5)FSN4	Deodorant air filter (installation on the Filter Box B-160H2)	60291757	
F-160L-D1	RCI-(3.0-6.0)FSN4		60291758	
B-90HD	RCD-(0.8-3.0)FSN3	Filter Box (Adapter for antibacterial long life air filter)	60292061	
B-160HD	RCD-(4.0-6.0)FSN3		60292062	
F-90MD-K1	RCD-(0.8-3.0)FSN3	Antibacterial long life air filter high performance filter (installation on the filter box F-90MD-K1→B-90HD F-160MD-K1→B-160HD)	60292058	
F-160MD-K1	RCD-(4.0-6.0)FSN3		60292059	
F-56LPC1	RPC-(1.5-2.0)FSN3	Long life filter (Installation on the indoor unit)	60299279	
F-90LPC1	RPC-(2.5-3.0)FSN3		60299280	
F-160LPC1	RPC-(4.0-6.0)FSN3		60299281	
DUPC-63K1	RPC-1.5FSN3	Drain-up Mechanism	60291935	
DUPC-71K1	RPC-2.0FSN3		60291936	
DUPC-160K1	RPC-(2.5-6.0)FSN3		60291937	
DU-M1E	RPIM	Drain-up kit	7E897304	

Name	Unit reference	Description	Code	Figure
SOR-MSK	RPI-(0.4-3.0)FSN5E	Motion sensor kit	70590912	
PS-MSK2	RCI-FSN4		70590903	
SOR-NEP	RPC-FSN3		60291825	
SOR-NEC	RCIM-FSN4E		70590904	
SOR-NED	RCD-FSN3		60292055	
SLT-30-200-L600	KPI-502(X/E)4E	Noise damper	70550200	
SLT-30-250-L600	KPI-802(X/E)4E		70550201	
SLT-30-300-L600	KPI-1002(X/E)4E		70550202	
SLT-30-355-L600	KPI-(1502-2002)E4E		70550203	
HEF-252	KPI	High efficiency filter	70552201	
HEF-502			70552202	
HEF-802			70552203	
HEF-1002			70552204	
HEF-1502			70552205	
HEF-2002			70552206	
D-ICA04	RPI-0.4FSN5E	Inlet change accessory	7E590908	-
D-ICA15	RPI-(0.6-1.5)FSN5E		7E590909	-

1.4.10 Multi-Kits

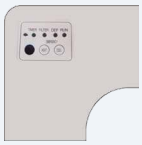
Name	Description	Code	Figure
E-102SN4	Line Branch	70524201	
E-162SN4		70524202	
E-242SN3		70524104	
E-302SN3		70524105	
MW-NP2682A3		60292295	
E-52XN3		70525100	
E-102XN3		70525101	
E-162XN3		70525102	
E-202XN3		70525103	
E-242XN3		70525104	
E-322XN3		70525106	
MH-84AN1	Header Branch	70522009	
MH-108AN		70522008	
MH-108XN		70523108	

1.4.11 Individual remote controls

Name	Description	Code	Figure
PC-ARFP1E	Remote control with timer	70510003	
PC-ARH1E	Simplified remote control	70510004	
PC-AWR	Wireless remote control	60291969	

(*) available date will be confirmed

1.4.12 Receiver kit for combination with wireless remote control switch

Receiver kit name	Indoor unit application	Compatible wireless remote control	Code	Figure
on the panel				
PC-ALH3	RCI-FSN4	PC-AWR	60291767	
PC-ALHC1	RCIM-FSN4E	PC-AWR	70590906	
PC-ALHD1	RCD-FSN3	PC-AWR	60292053	
PC-ALHP1	RPC-FSN3	PC-AWR	60291823	
on the wall				
PC-ALHZ1	RPI-FSN(3/5)(P)E RPIM-FSN4E(-DU) RPF(I)-FSN2E RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPK-FSN(H)4M RPC-FSN3	PC-AWR	60292245	

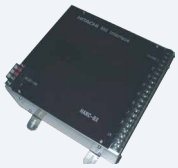
1.4.13 Centralised remote controls

Name	Description	Code	Figure
PSC-A64GT	Touch screen central station	60291730	
PSC-A32MN	Touch screen central station mini	60291966	
PSC-A64S	Centralised remote control	60291479	
PSC-A16RS	Centralised ON/OFF control	60291484	

1.4.14 Building air conditioning controls

Name	Description	Code	Figure
CSNET Manager 2 T10	Centralised control with a touch interface of 10 inches which runs CSNET Manager 2 software to control the indoor units.	7E512203	
CSNET Manager 2 T15	Centralised control with a touch interface of 15 inches which runs CSNET Manager 2 software to control the indoor units.	7E512206	
CSNET Manager 2 SL	Centralised control interface screen-less which runs CSNET Manager 2 software to control the indoor units.	7E512204	
CSNET Lite	Centralised control which runs CSNET Lite software to control the indoor units in a small installations.	7E512205	
HC-A64NET	H-LINK gateway used by CSNET Manager Screens to communicate with indoor units (Max. 64 indoor units)	7E512200	

1.4.15 Gateways for building management systems (BMS)

Name	Description	Code	Figure
HC-A8MB	Integration with installation with intelligent control (Building Management System) Gateway Interface to MODBUS systems (Max. 8 indoor units).	7E513204	
HC-A64MB	Integration with installation with intelligent control (Building Management System) Gateway Interface to MODBUS systems (Max. 64 indoor units).	7E513205	
HC-A16KNX	Integration with installations with intelligent control (BMS). Gateway Interface to KNX systems.	7E513300	
KNX001	Integration with installations with intelligent control (BMS) through CSNET WEB. Gateway Interface to KNX systems.	7E5121000	
HARC-BX E (A)	Integration with installation with intelligent control (Building Management System) Gateway Interface to LONWORKS systems. (H-LINK I communication) (Max. 64 units with 8 parameters)	60290874	
HARC-BX E (B)	Integration with installation with intelligent control (Building Management System) Gateway Interface to LONWORKS systems. (H-LINK I communication) (Max. 32 units with 16 parameters)	60290875	
BAC001	BACnet gateway connectable to HC-A8MB	7E512103	
BAC002	BACnet gateway connectable to HC-A16MB	7E512104	

1.4.16 Control support devices

Name	Description	Code	Figure
PSC-A1T	Programmable timer	60291482	
PSC-6RAD	H-LINK RAC Adapter	60063017	
PC-A1IO	Integration of external equipment into H-LINK	7E519000	
PSC-5HR	H-LINK Relay	60291105	
THM-R2AE	Remote temperature sensor (THM4)	7E299907	

1.4.17 Control accessories

Name	Description	Code	Figure
Wall support 2	Wall mounted support (for both CSNET Manager 2 T10 / T15)	7E512302	
Stand support	Stand mounted support (for both CSNET Manager 2 T10 / T15)	7E512301	
Din rail	Standard din rail for CSNET Lite	7E512303	
PCC-1A	Optional function connector	70590901	
PRC-10E1	2P-Extension cord (10 metres)	7E790211	
PRC-15E1	2P-Extension cord (15 metres)	7E790212	
PRC-20E1	2P-Extension cord (20 metres)	7E790213	
PRC-30E1	2P-Extension cord (30 metres)	7E790214	
Net Configuration Kit	Net configuration kit for HC-A(8/64)MB and HC-A64NET	7E512306	

1.4.18 Other devices compatible with HITACHI Air Conditioning systems

In addition to all the aforementioned HITACHI controls, there are some non-HITACHI devices for combination with HITACHI Air Conditioning systems. These are the following:

- HITACHI-AIRZONE gateway (HTI11001): Applicable to HITACHI RPI(M) units providing compatibility with the AIRZONE systems, zone-based climate-control systems.
- Power meter: Siemens and Sonomec Courtis power meter for CSNET Manager 2 / CSNET Lite.
- FIDELIO gateway: Solution offered by Intesis Software company which transfers HITACHI data into FIDELIO data.

2. Optional accessories

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2.7 Deodorising filter 30

2.7.1 For RCI-FSN4 indoor units: F-71L-D1 and F-160L-D1 30

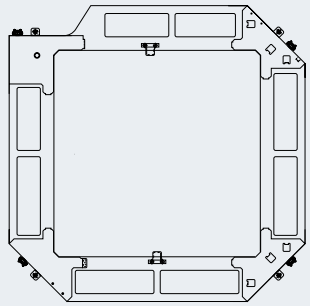
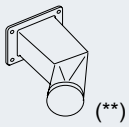
2.8 Air Inlet Direction Change 32

2.8.1 RPI-(0.4-1.5)FSN5E 32

2.1 Duct adapter - Outdoor air inlet

2.1.1 For RCI-FSN4 indoor units: OACI-160K2 and PD-75A

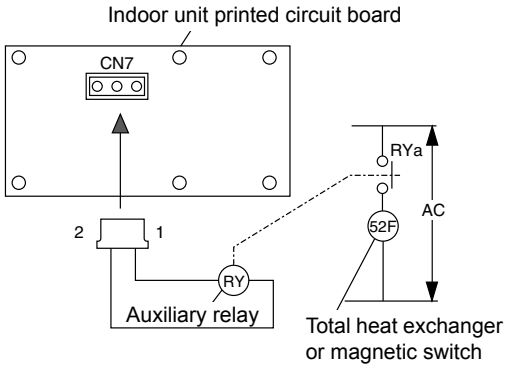
The inlet of outdoor air is possible through the PD-75A or the OACI-160K2 duct connection in the position shown in the figure. (Sold separately).

OACI-160K2	PD-75A
 (*)	 (**)
(*) 1 or 2 duct adapter can be installed	*(**) Only 1 duct adapter can be installed*

◆ Outdoor air inlet duct connection position

This kit can not supply the fresh air by itself. Therefore, connect the duct and supply the fresh air from the total heat exchanger or the duct fan.

When connecting this kit to the total heat exchanger or the duct fan, make an interlock to the fan of the indoor unit. The example is shown below.
Use a cable with a three-terminal connector (PCC-1A) for the CN7 connector on the indoor PCB.



Remarks for OACI-160K2

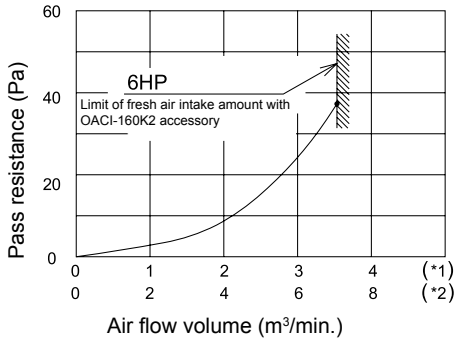
The standard maximum air volume of fresh air intake when using the outdoor air inlet duct reference OACI-160K2 combined with a total heat exchanger or the duct fan, is within 20% of the rated air volume of the indoor unit (at “HIGH” mode). If the amount of incoming outdoor air exceeds this value, condensation may be produced on the inner surface of the drain pan (air inlet hole) and, in some cases, dew may form.

In the case without total heat exchanger, use the fresh air intake kit within the range which dewing does not occur at this kit, duct and inside the indoor unit.

With or without the total heat exchanger, follow the countermeasure according to the temperature difference between the supply air from the room air and the outside air as shown in the table below.

Temperature difference between supply air from room air and outside air	Countermeasure
Below 10 degree	No countermeasure required
Below 15 degree	Perform insulation
Over 15 degree	Use with total heat exchanger or Operation is not permissible.

The outdoor air inlet duct reference OACI-160K2 resistance data, is indicated in the following figure. Use as a guide for fan selection.



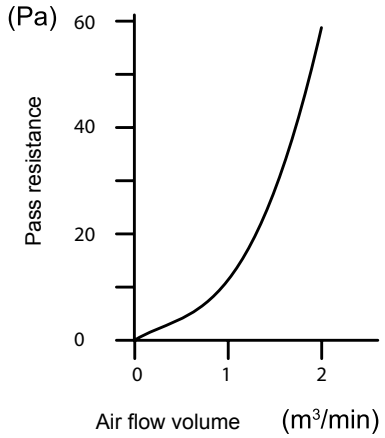
NOTE

- *This chart shows the value when the kit OACI-160K2 is used by itself. In the case that the kit is installed with the T-tube connecting kit, refer the value to its chart .*
- *(*1) When connecting OACI-160K2 with1 duct adapter.*
- *(*2) When connecting OACI-160K2 with 2 duct adapter.*

Remarks for PD-75A

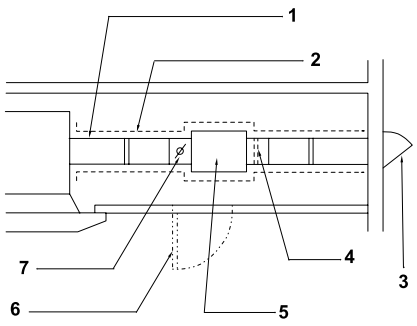
Indoor unit HP	Maximum capacity of fresh air intake (m³/min)
(1.0-2.5) HP	1.0
(3.0-6.0) HP	2.0

The outdoor air inlet duct reference PD-75A resistance data, is indicated in the following figure. Use as a guide for fan selection.



◆ Example of the duct fan installation

Nº	Part
1	Duct (made of non-combustible materials only)
2	Thermal insulation (non-combustible materials)
3	Outdoor air inlet hood with gallery (attached drip-proof hood type)
4	Air filter
5	Duct fan
6	Service panel
7	Damper



The air through the duct does not pass through the air filter of the indoor units. Fit an air filter (Field supplied) to the suction side of the outdoor air inlet duct in a position that allows for easy maintenance operations.

Insulate the duct and its connection using fireproof insulating materials only.

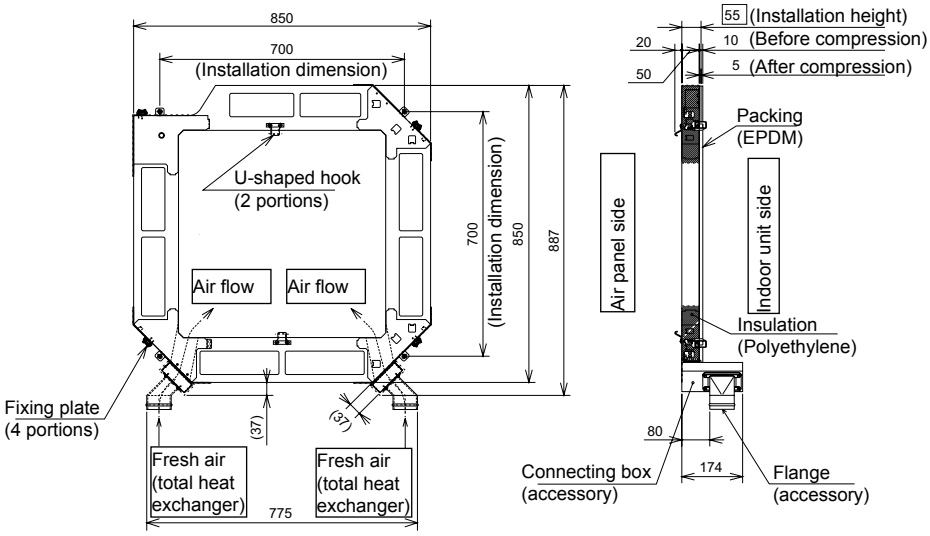
NOTE

The parts shown in the above figure will be field-supplied.

Install an inspection panel -6- below the duct fan so that maintenance operations can be carried out on the air filter and the damper.

Always use a damper and adjust the amount of air where a fan with a supply volume higher than the outdoor air inlet volume limit is used.

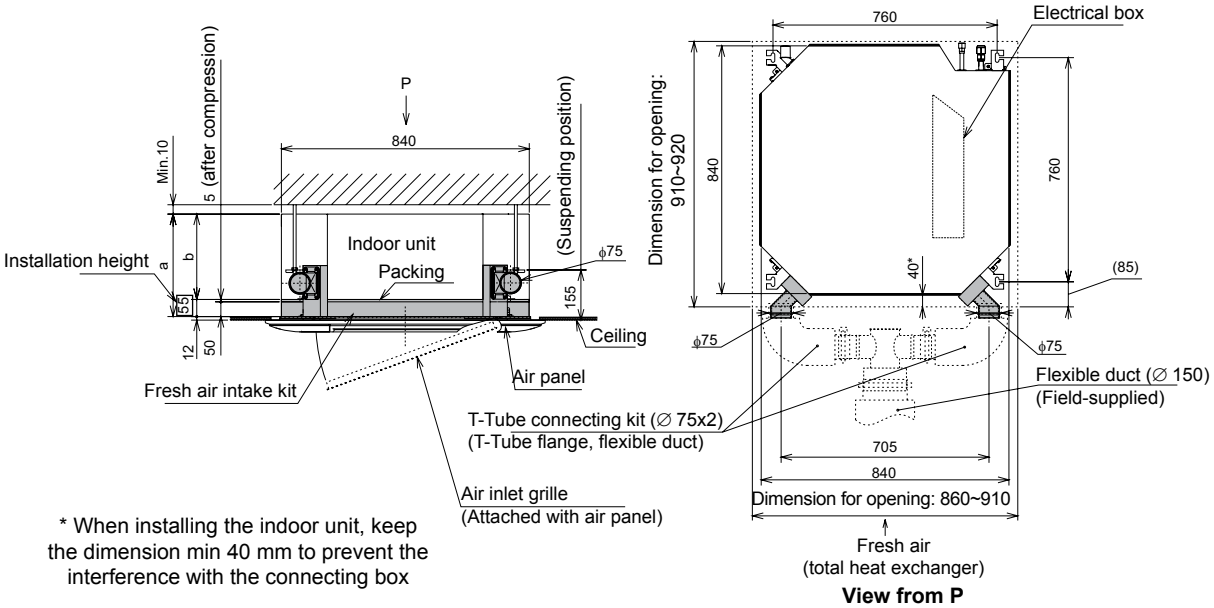
◆ Duct connection OACI-160K2



NOTE

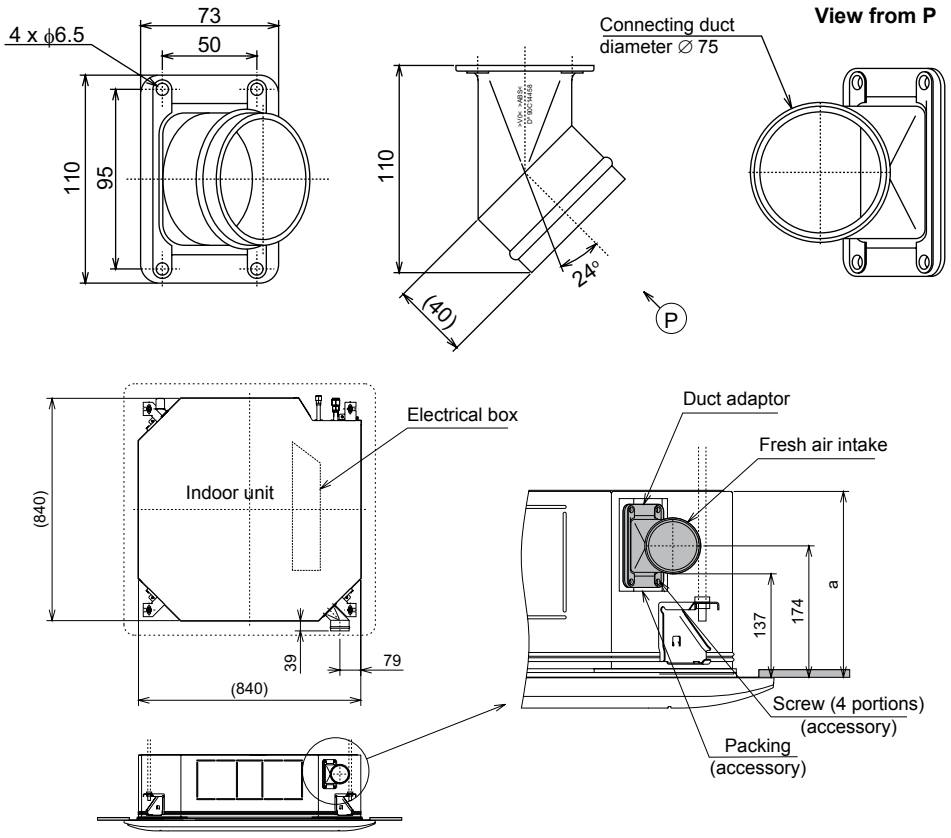
The total height of the unit is increased by around 55 mm when the outdoor air inlet duct (OACI-160K2) is installed. Take this measurement into account when installing the unit.

Dimensions



HP	a	b
(1.0-3.0)	328	241
(4.0-6.0)	378	291

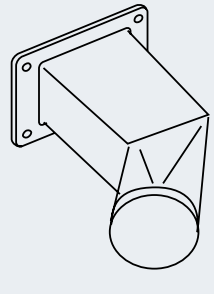
◆ Duct adapter PD-75A

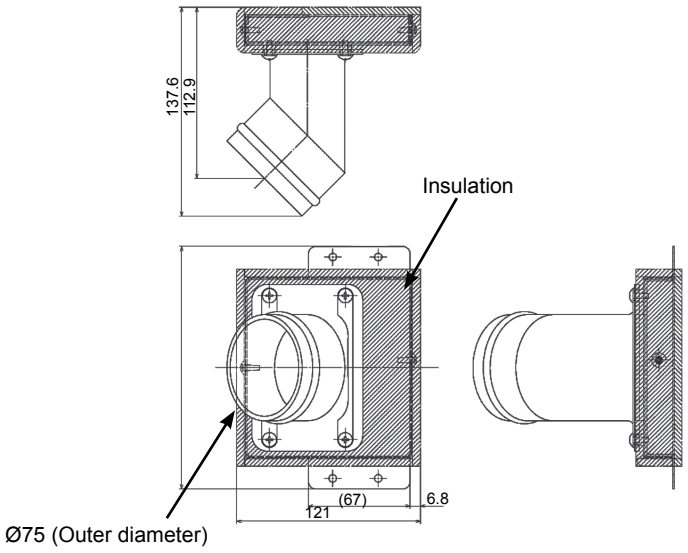


HP	a
(1.0-2.5)	248
(3.0-6.0)	298

2.1.2 For RCIM-FSN4E indoor units: PD-75C

The inlet of outdoor air is possible through the PD-75C duct adapter for RCIM-FSN4E indoor units.

PD-75C (RCIM-FSN4E)
 (**)

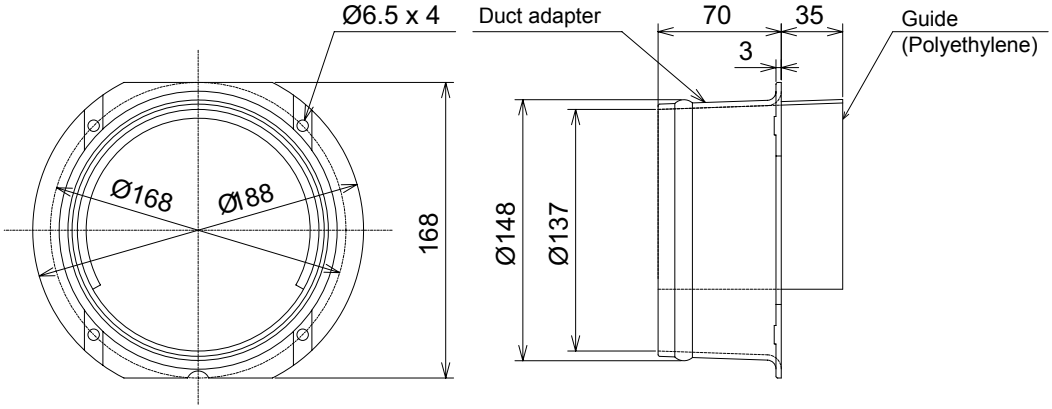


(**) Only 1 duct adapter can be installed

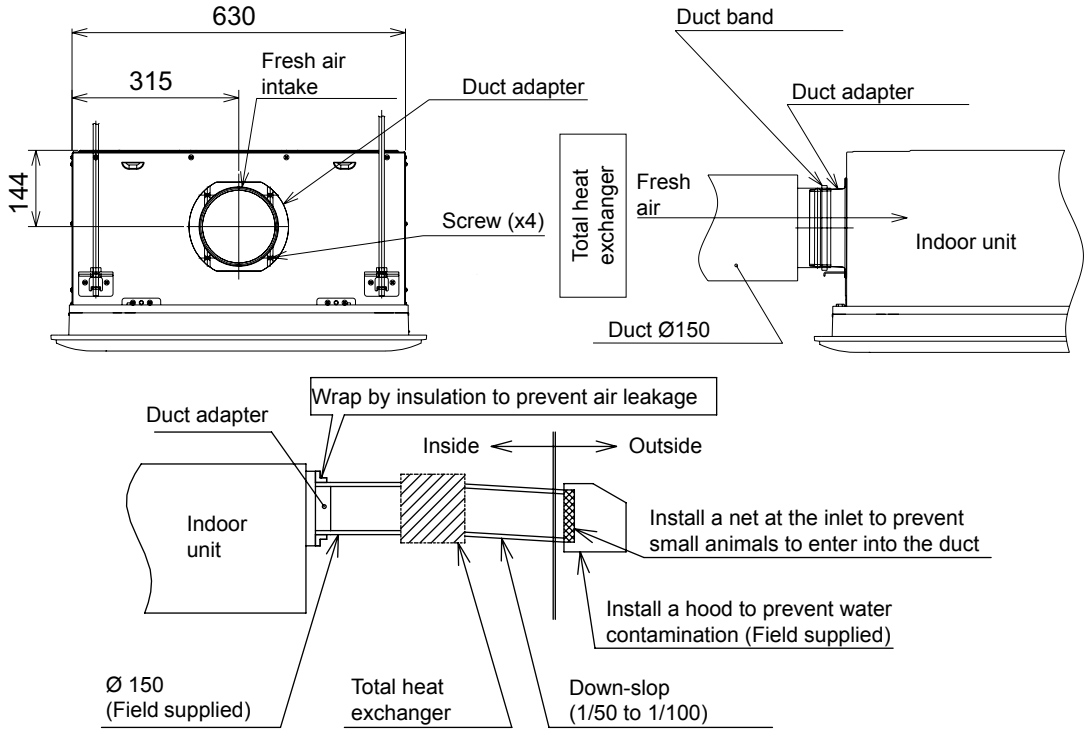
HP	a
(0.4-2.5)	248
(3.0-6.0)	298

2.1.3 For RCD-FSN3 indoor units: PD-150D

The PD-150D duct adapter for RCD-FSN3 is used as a connection flange to attach the fresh air intake outlet (for connecting the flexible duct (Ø150)).



An example of installation of the duct adapter PD-150D is shown below. Refer to “Installation & Maintenance Manual” of duct adapter for more detailed information of the installation of fresh air intake duct.



Specifications

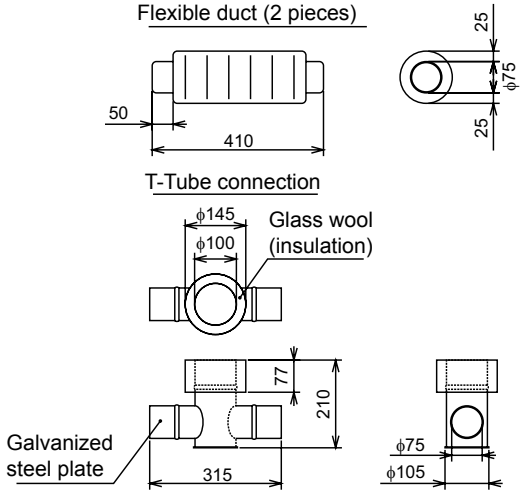
Item		RCD-(0.8-6.0)FSN3
Maximun Capacity of Fresh Air Intake	m^3/min	Within 10% of indoor unit airflow volum at “High2” fan speed
Usage		Fresh air intake outlet
Connecting Duct Diameter	mm	Ø 150
Material		ABS resin (Flame resistance: UL94V-0)
Accessories		Packing, Fixing screws (x4), Installation manual

2.2 T-duct connection position

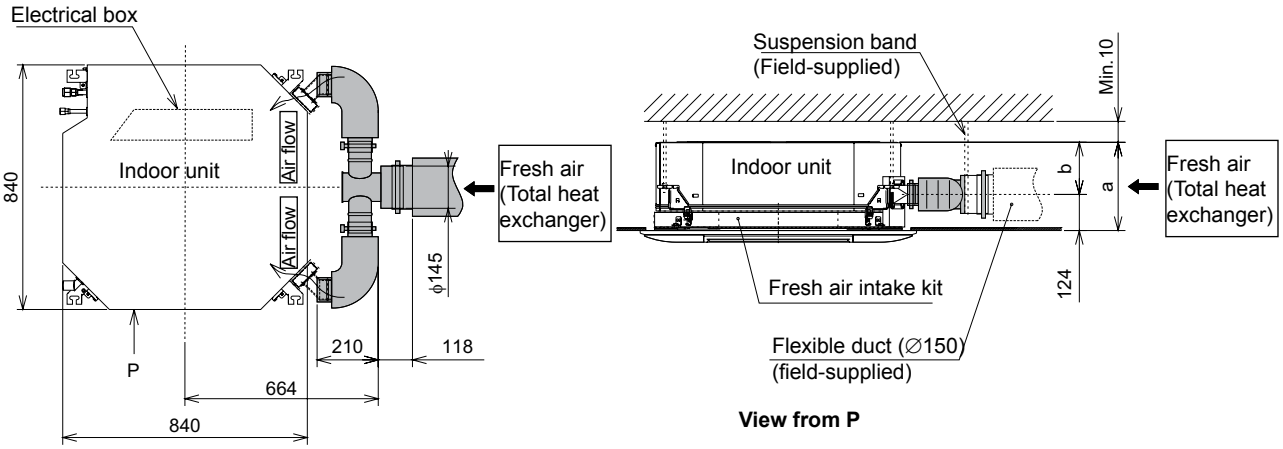
2.2.1 For RCI-FSN4 indoor units: TKCI-160k

The T-duct connection is designed for easier connections between the outdoor air inlet and the connection duct.

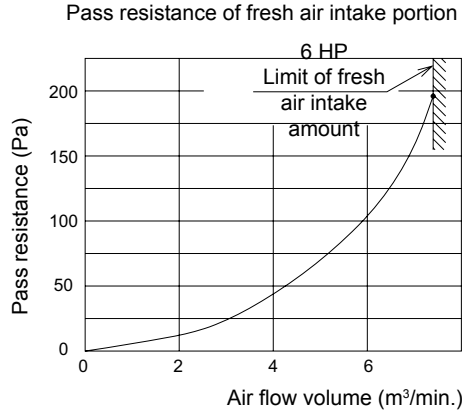
The T-duct connection can only be installed when using the outdoor air inlet kit (optional) or the filter box (optional).



	Dimension	
Model	a	b
1.0 - 2.5	303	179
3.0 - 6.0	353	229



The outdoor air inlet duct resistance increases as indicated in the following figure when using the T-duct connection. Use it as a guide for fan selection.



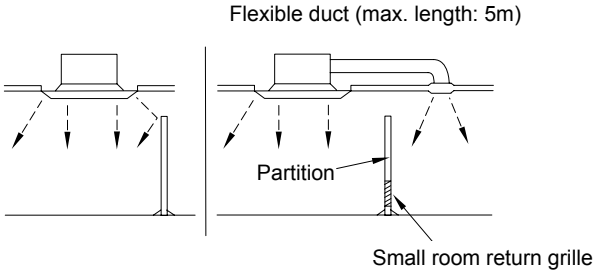
NOTE

This chart shows the relationship between the air flow volume and the pass resistance when the T-tube connecting kit is used with the fresh air intake kit.

2.3 Branch pipe (PDF-71C, PDF-160CI)

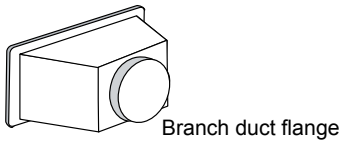
If there are obstacles such as partitions inside the room that prevent the air from circulating correctly, branches can be installed to provide an even air temperature.

Suitable return air grilles must be installed in line with the volume of return air. If air conditioning is provided in an adjoining room, always install a return grille.



Example of a branch pipe.

Example of branched duct

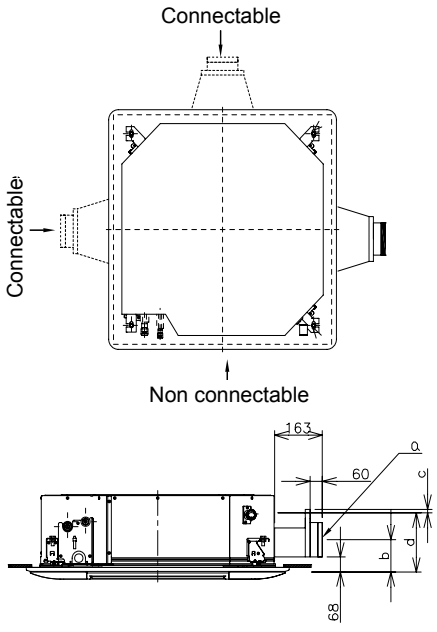


Branch pipe installation

The connections for the branch pipe are indicated in the following figure.

There are six knock-out holes. Cut the insulation material on the outer surface in a circle and line up the notches at the four corners. Use a screwdriver or similar and remove.

Prepare the square connection duct (field-supplied) or use a flexible duct with a diameter of 150 or 200 mm (according to the indoor unit model)



Duct connection dimensions

Model	Units	a	b	c	d
PDF-71C1	RCI-(1.0-2.5)FSN4	150	180	36	246
PDF-160C1	RCI-(3.0-6.0)FSN4	200	205	33	296

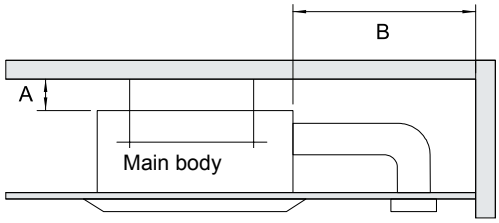
Fit enough insulation to the connection between the pipe and the main body of the indoor unit and to the connection between the duct and the pipe.

Use a set of three-way outlet parts (optional parts) and completely block the air outlet on the branched duct side of the panel (to avoid condensation and direct the air towards the branched duct).

Model	Units	Remarks
PI-160LS1	RCI-(1.0-6.0)FSN4	To connect to the panel outlet

The quantity of air from the branched duct side is shown in the table below as the air quantity index of the unit. If two branched ducts are connected to the unit, the amount of air from the branched duct side will be greater and the speed of the air on the 3-way outlet side will decrease. Therefore, the hot air projection distance will be reduced.

1 Where the branch duct is installed from this viewpoint, apply the dimensions indicated in the figure below to avoid accidents.
2 Use ducts with non-combustible insulating materials.
3 Fit enough heat insulation to the duct to avoid condensation.
4 Follow the regulations in force regarding this matter in the place of installation or use the dimensions indicated in the figure below if there are no applicable regulations.



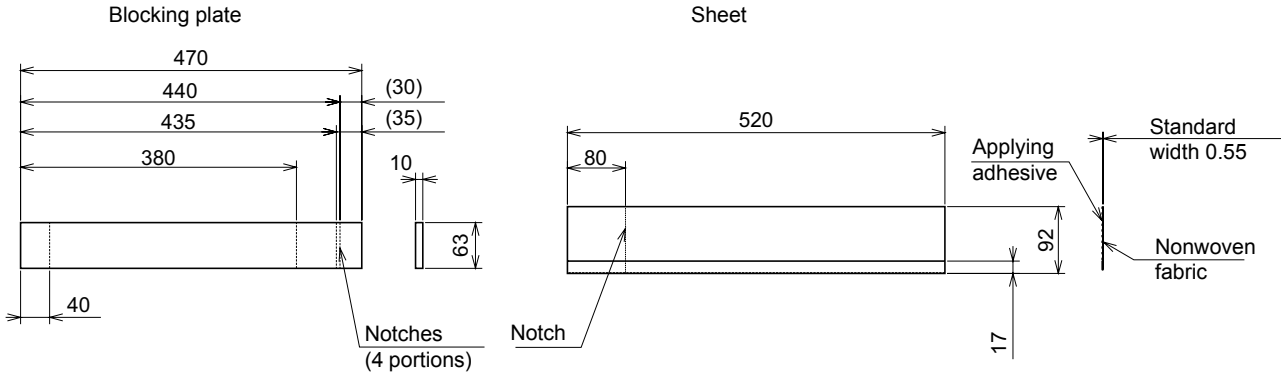
Measurement	Wall and pillar material	
	Combustible materials	Non-combustible materials
A	≥ 100 mm	≥ 50 mm
B	≥ 100 mm	≥ 60 mm

2.4 Outlet air flow interlock

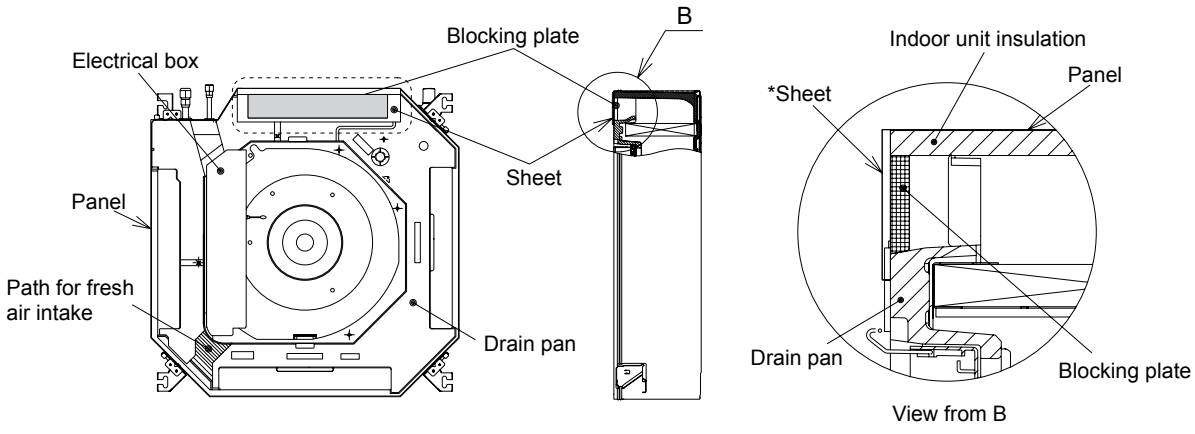
2.4.1 For RCI-FSN4 indoor units: PI-160SL1

If only three outlets are necessary, use the PI-160SL1 3-way outlet part set.

The dimensions of the blocking plate and the sheet are:

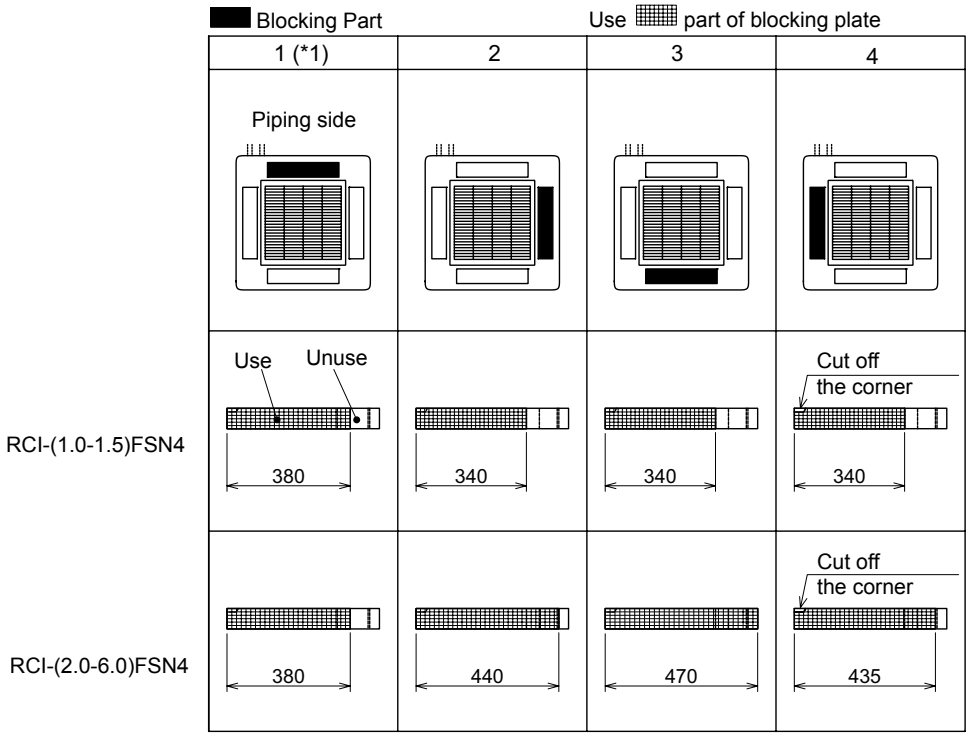


Install the interlock plates as indicated in the figure.



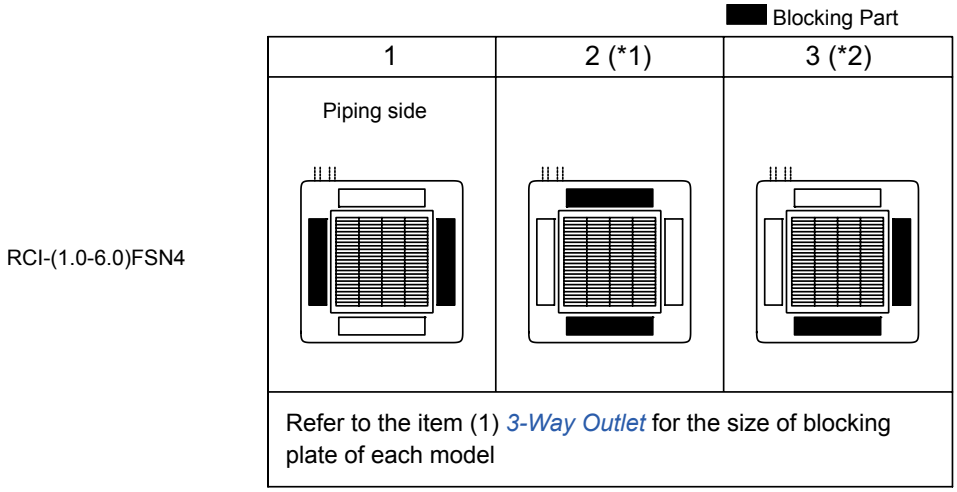
* Do not attach the sheet to the indoor unit insulation and the panel. If adhered, the drain pan can not remove.

Example of 3-Way Outlet



Example of 2-Way Outlet

The air outlet directions can not be selected other than the figure below. (If other air outlet directions are selected, dew condensation may occur.)

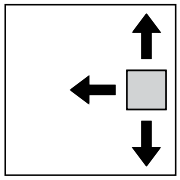


*1 Change the position of the outlet temperature thermistor. If not, the room temperature adjustment may not be available.

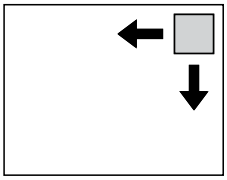
*2 In the case of Example 3, the air flow volume will decrease compared with other cases. Set the high speed setting.

Example for 3-Way and 2 Way Outlet

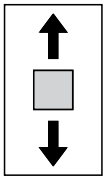
Near the wall: 3-way outlet



In a corner: 2-way outlet



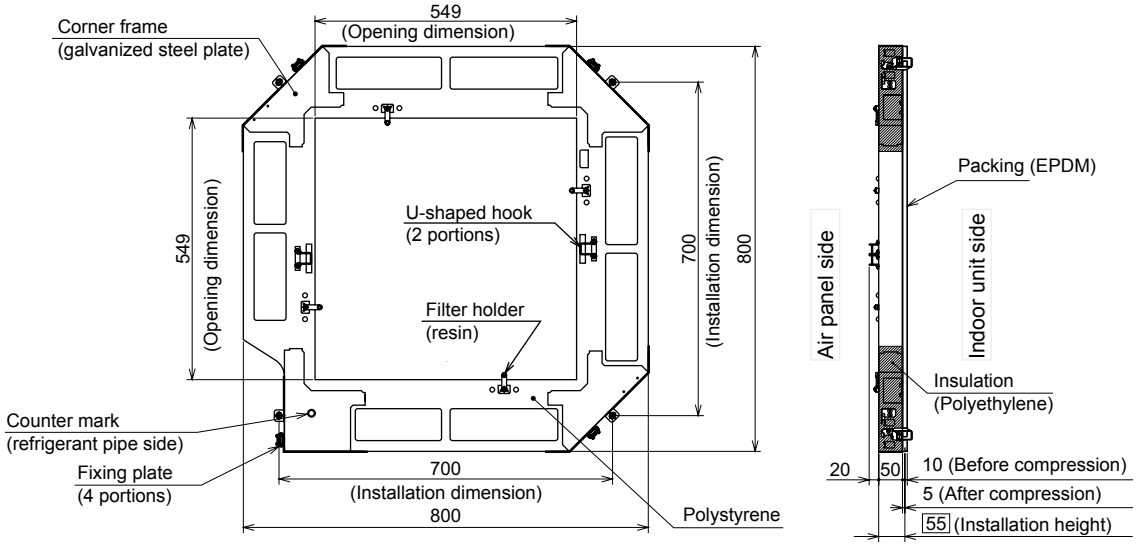
In rectangular room: 2-way outlet



2.5 Filter box

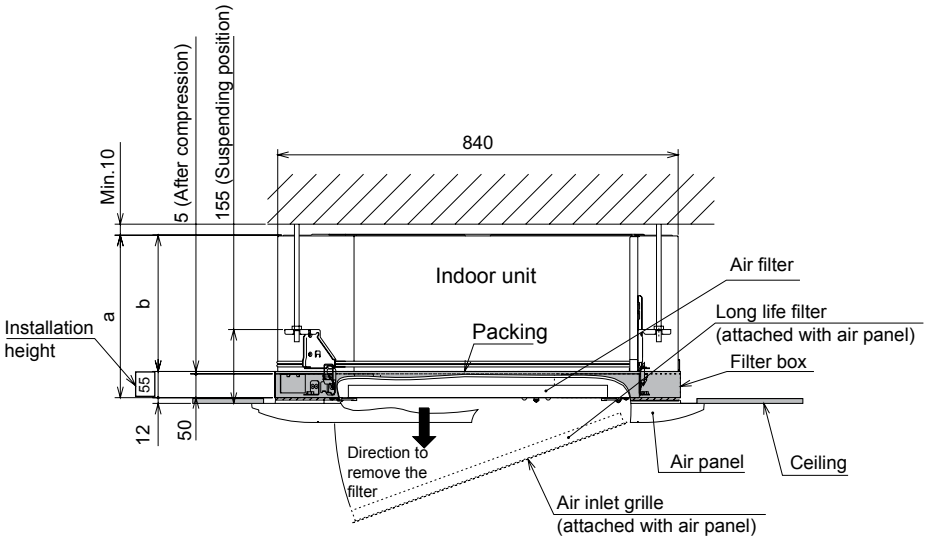
2.5.1 For RCI-FSN4 indoor units: B-160H2

The dimensions of the filter box are shown in the following figure.



When the filter box is installed, the total height of the unit increases by approximately 55 mm. Therefore, pay attention to the installation space.

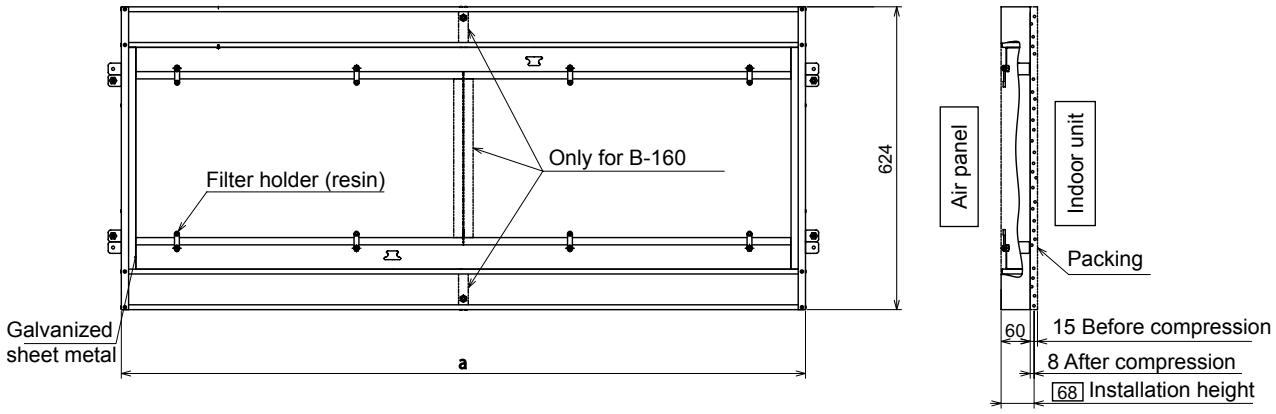
Bear in mind that the size before compression is 10 mm, but the size is reduced after compression to 5mm.



	Dimensions	
Model	a	b
1.0 - 2.5	291	236
3.0 - 6.0	341	286

2.5.2 For RCD-FSN3E indoor units: BD-90H and BD-160HD

When the filter box is installed, the total height of the unit increases by approximately 68 mm. Therefore, pay attention to the installation space.

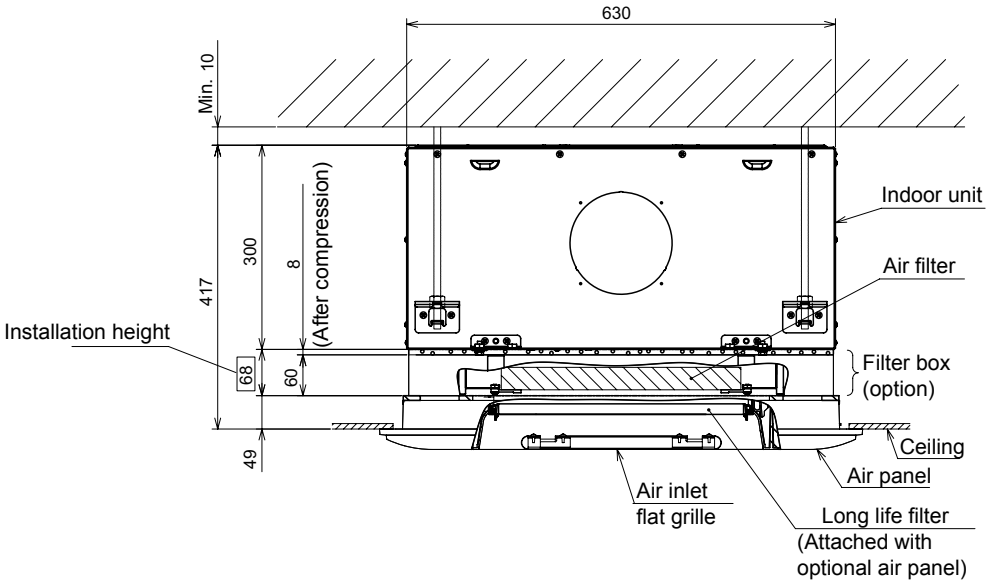


NOTE

The filters are sold separately.

	Dimensions (mm)
Model	a
BD-90HD	850
BD-160HD	1410

Service space



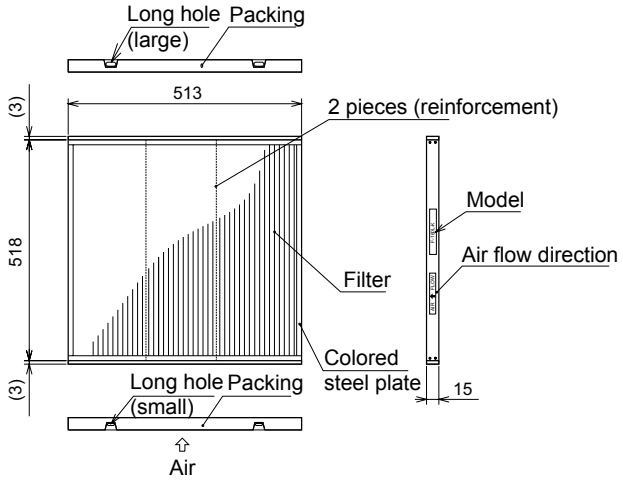
Specifications

Item		B-90HD	B-160HD
		RCD-(0.8-3.0)FSN3	RCD-(4.0-6.0)FSN3
Quantity		1	
Installation height	mm	68	
Material		Polyethylenes. Galvanized steel plate	
Accessories		Screw, Hook packing and Installation manual	
Weight	kg	5.0	7.5
Applicable air filter (Option)	Antibacterial long life filter (Gravimetric method: 65%)	F-90MD-K1	F-160MD-K1

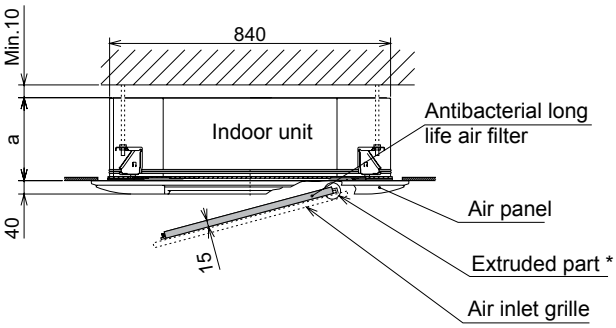
2.6 Anti-bacteria filter

2.6.1 For RCI-FSN4: F-160L-K

The dimensions of the long-lasting anti-bacteria filter are shown in the following figure.



To fit the filter, insert the tab on the suction grille into the large hole in the filter, as shown in the figure below.



* Put the square holes into the extruded parts of air inlet grille

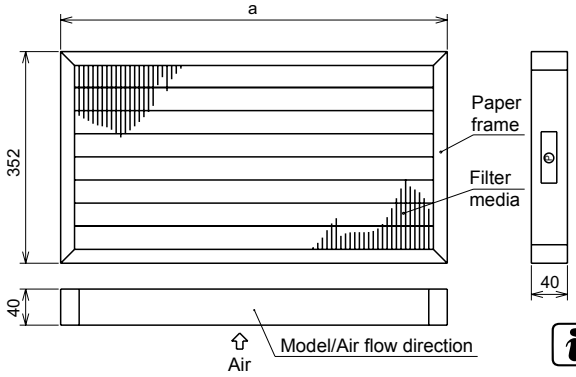
Model	a (mm)
RCI-(1.0-2.5)FSN4	238
RCI-(3.0-6.0)FSN4	288

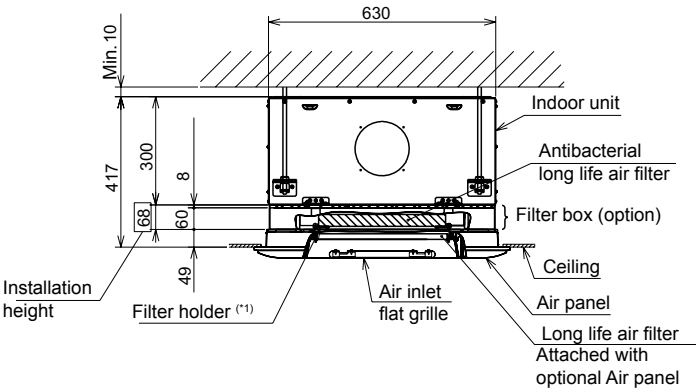
Specifications

Part		RCI-(1.0-6.0)FSN4
Dust collection efficiency (%)		50 (gravimetric method)
Air flow rate (m^3/min)		35.0
Initial pressure loss Pa		28.0
Final pressure loss Pa		62.0
Filter/Frame colour		White/Brown
Working life		4 years (with maintenance every 1250 hours)
Cleaning		Available (*)
Weight (kg)		0.6
Performance		Avoids the multiplication of bacteria and mould
Filter material	Antibacterial fibre	Modified acrylic fibre 1 (containing inorganic anti-bacterial substance) Modified acrylic fibre 2 (containing organic anti-bacterial substance)
	Reinforce net	PP

(*) This is the standard working life of the filter and its duration may vary depending on the conditions of use. Clean the filter with water or neutral detergent.

2.6.2 For RCD-FSN3E indoor units: F-90MD-K1 and F-160MD-K1 (Antibacterial long life air filter)

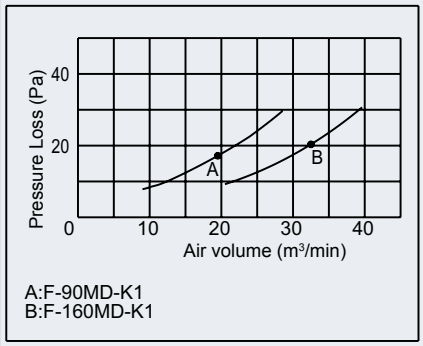




NOTE

*(*1) Insert the antibacterial long life air filter into the filter box, the fix it with the filter holder*

				Air flow chart
Applicable Indoor unit		RCD-(0.8-3.0)FSN3	RCD-(4.0-6.0)FSN3	
Dust collection efficiency	%	65 (Gravimetric method (*1))		
Air flow	m^3/min.	19.5	32.5	
Initial pressure Loss	Pa (mmAq)	17.0	20.5	
End pressure Loss	Pa (mmAq)	55.9	62.8	
Colour (Filter/frame)		White / Brown		
Life period		8 years (with 2500 hours maintenance)		
Cleaning		Not available		
Accessory		Installation manual		
Weight	kg	0.9	0.8 x 2	
Performance		Avoids the multiplication of bacteria and mould		
Filter material	Antibacterial fibre	Synthetic fibre Non-woven fabric		

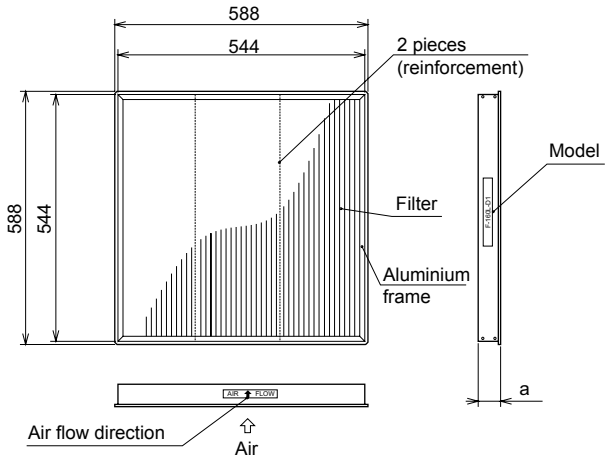


2.7 Deodorising filter

2.7.1 For RCI-FSN4 indoor units: F-71L-D1 and F-160L-D1

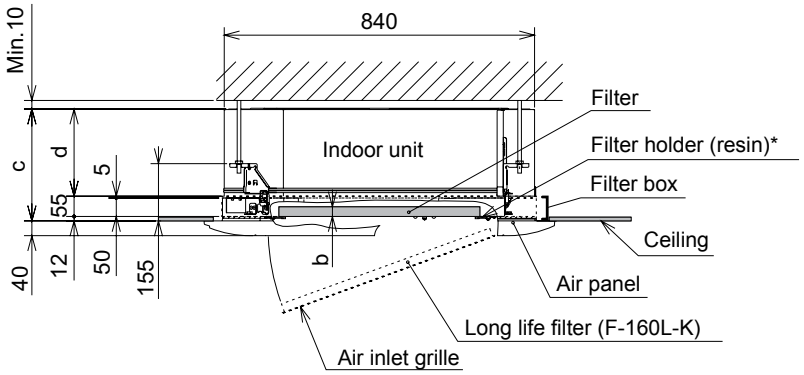
The dimensions of the deodorising filter are indicated in the following figure.

Remember that the filter thickness depends on the model.



	Model	
Dimension	F-71L-D1	F-160L-D1
a	25	45

The position of the deodorising filter is shown below:



* Insert the air filter into the filter box and fix the air filter by filter holder.

	Dimension		
Model	b	c	d
1.0 - 2.5	25	303	236
3.0 - 6.0	45	353	286

Specifications

Part		F-71L-D1	F-160L-D1
Applicable indoor unit model		1.0 to 2.5	3.0 to 6.0
Dust collection efficiency (%)		50 (gravimetric method)	
Air flow rate (m^3/min)		22.0	35.0
Initial pressure loss Pa		19.0	36.0
Final pressure loss Pa		48.0	78.0
Filter/frame colour		Pink/Silver	
Working life		3 years (with maintenance every 3-6 months)	
Reuse		Available (dried by sunlight) (*1)	
Cleaning		Available (washed with water) (*2)	
Weight (kg)		0.8	1.2
Performance		Absorbs smoke, body odour, etc.	
Filter material	Antibacterial fiber	Acrylate Fiber 1 (Absorbed fiber for basic gas) Acrylate Fiber 2 (Absorbed fiber for acidic gas)	
	Reinforce net	PP/PE	
	Reinforce sheet	PP	
Applicable filter box (option)		B-160H2	
Restrictions of use		Washing with detergents is forbidden	

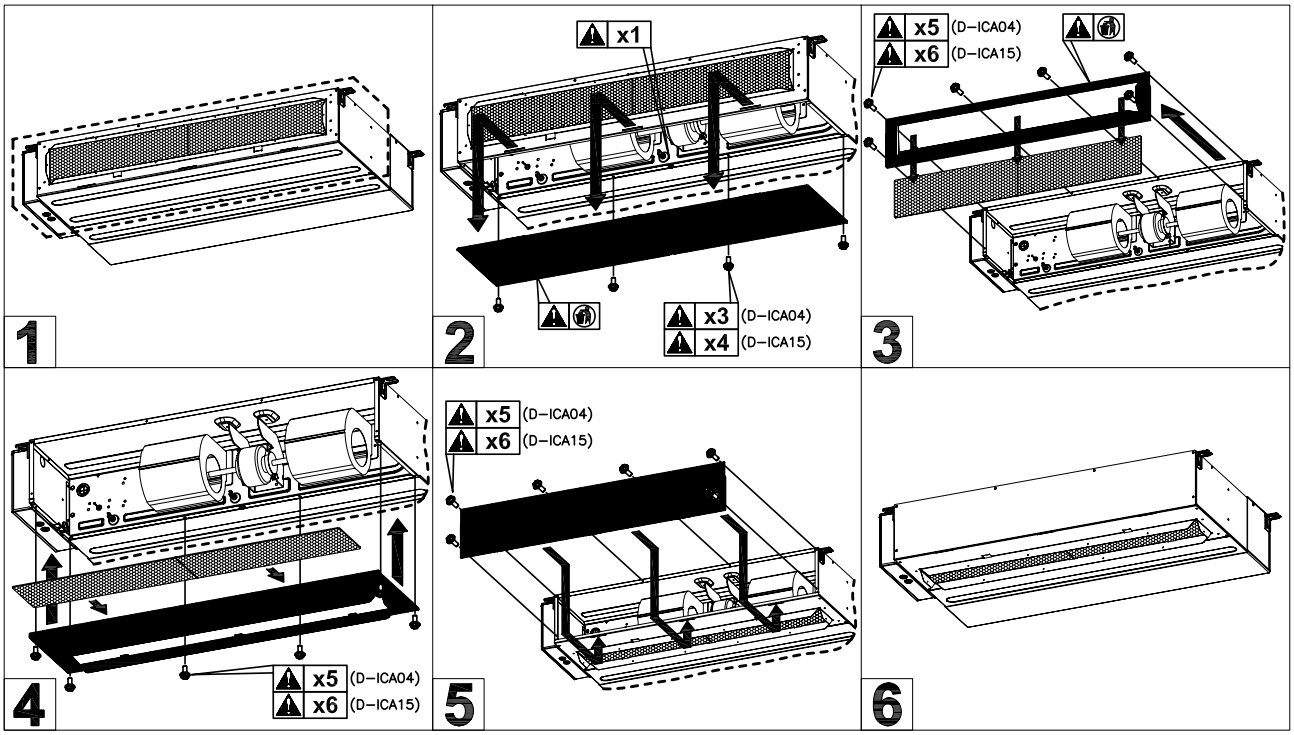
(*1) This is the standard working life of the filter and its duration may vary depending on the conditions of use. Clean the filter with water or neutral detergent.

(*2) Wash the filter with water or neutral detergent to avoid reducing the absorption capacity.

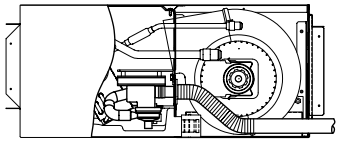
2.8 Air Inlet Direction Change

2.8.1 RPI-(0.4-1.5)FSN5E

For RPI-(0.4-1.5)FSN5E units the air inlet direction can be modified by adding and optional accessory (D-ICA04 / D-ICA15) specifically designed for this purpose.



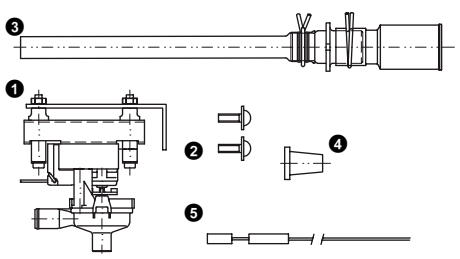
Drainage installation for (-DU) units



Optional drainage kit (for units without drain pump)

For special cases those installation design finally requires draining up (and was not desgined from the beginning of the installation project), it is available the optional drain kit.

Optional drain up mechanism kit



❶ Drain pump
❷ Screw (2 units)
❸ Drain hose
❹ Rubber plug
❺ Drain pump wire

3. Electrical and control settings

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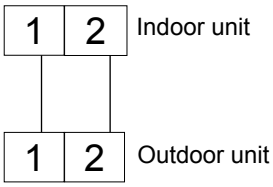
3.3.15 KPI-(252-2002)E4E energy recovery unit and KPI-(502-1002)X4E active unit 75

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3.1 Unit electrical wiring and connection

3.1.1 Transmission wiring between outdoor and indoor unit

- The transmission is wired to terminals 1-2.
- The H-LINK II wiring system requires only two transmission cables that connect the indoor unit and the outdoor unit.



- Use twist pair wires (0.75 mm²) for operation wiring between outdoor unit and indoor unit. The wiring must consist of 2-core wires (Do not use wire with more than 3 cores).
- Use shielded wires for intermediate wiring to protect the units from noise interference, with a length of less than 300m and a size in compliance with local codes.
- In the event that a conduit tube for field-wiring is not used, fix rubber bushes to the panel with adhesive.

⚠ CAUTION

Ensure that the transmission wiring is not wrongly connected to any live part that could be damaged the PCB.

3.1.2 Electrical connection of RCI units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.

2 Wait 5 minutes after turning off the power supply switches.

3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

⚠ CAUTION

- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RCI indoor unit is 230 V. If not, replace the CN connectors on the TF transformers in the electrical box.

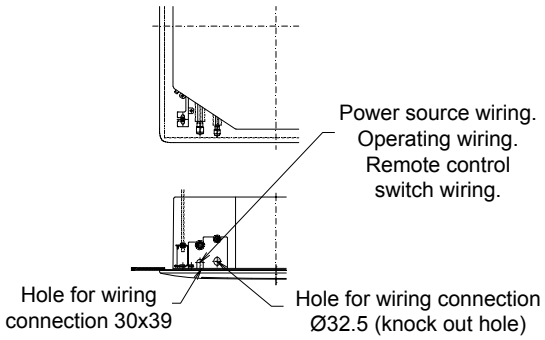
Make the connection between the indoor unit and the air panel.

NOTE

- *To prevent the screws from falling from the terminal strip, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole.*
- *Use the following screws for the terminal strip:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the communication line.*

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B of the terminal strip (TB1).
3 Tighten the screw on terminals A and B.
4 Check that the cables are correctly secured.



Follow the steps below to connect the power cables to the terminal strip (TB1):

NOTE

- *To connect a power supply to neutral, connect the cables to terminals L1 and N on the terminal strip (TB1).*
- *To connect a power supply without neutral: make the connection to terminals L1 and L2 on the terminal strip (TB1).*

1 Where necessary, loosen the screws on terminals L1 and N or L1 and L2, as applicable, on the terminal strip (TB1).
2 Connect the power cables to terminals L1 and N or L1 and L2, as applicable.
3 Tighten the screws on terminals L1 and N or L1 and L2, as applicable.
4 Check that the cables are correctly secured.

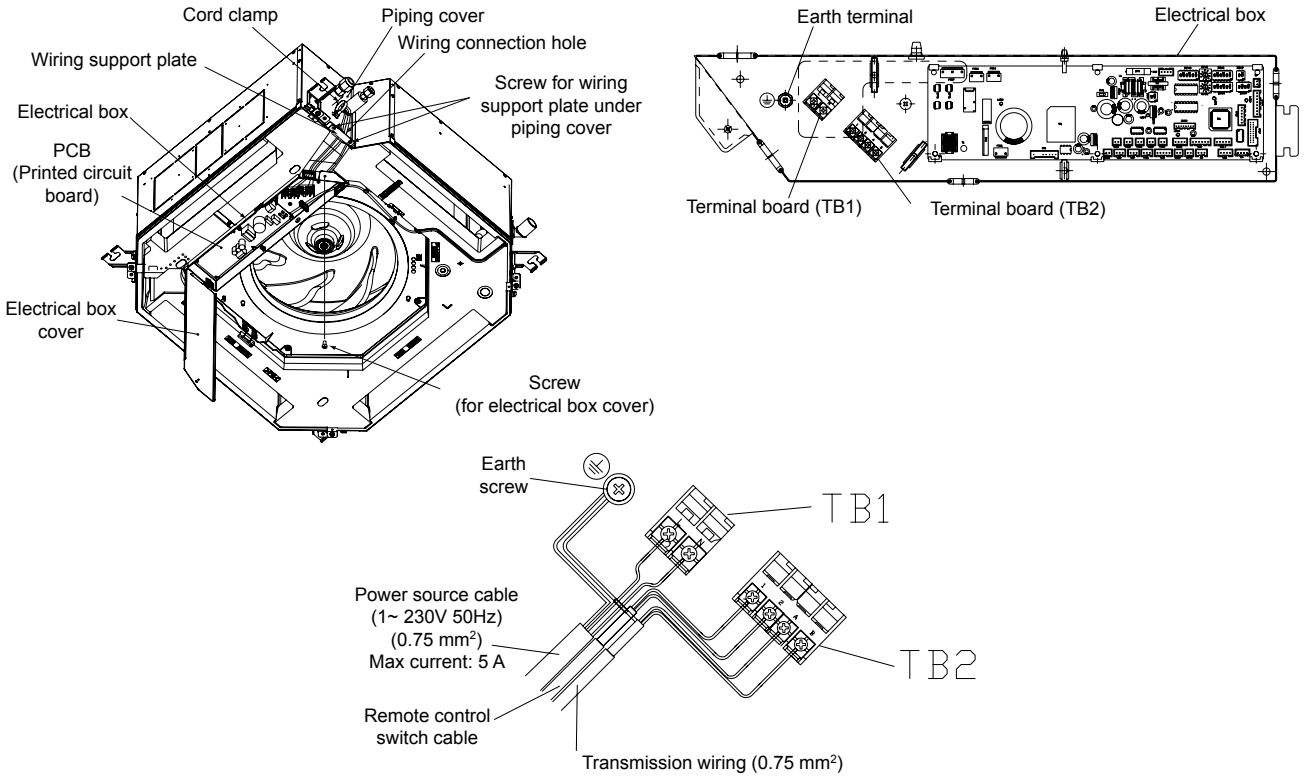
Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB1):

1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB1).
2 Connect the communication cables to terminals 1 and 2.
3 Tighten the screw on terminals 1 and 2.
4 Check that the cables are correctly secured.

Follow the steps below to connect the earthing cables to the earthing connection in the electrical box:

1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire to the earth connection.
3 Connect the shielded part of the signal earth wire to the earth connection.
4 Tighten the screw on the earthing connection in the electrical box.
5 Check that the cables are correctly secured.

◆ For RCI-FSN4



Firmly secure the cables using a tie inside the electrical box.

Cover the cables and the hole using a sealant to protect them from condensation and insects.

Test runs

⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.3 Electrical connection of RCIM units

Before proceeding to any electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.

2 Wait 5 minutes after turning off the power supply switches.

3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

⚠ CAUTION

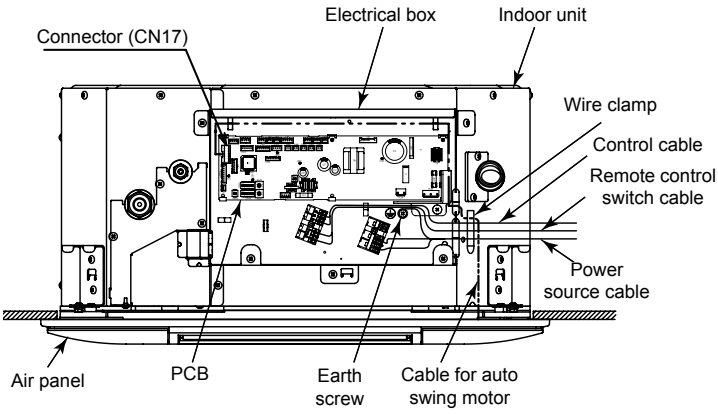
- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

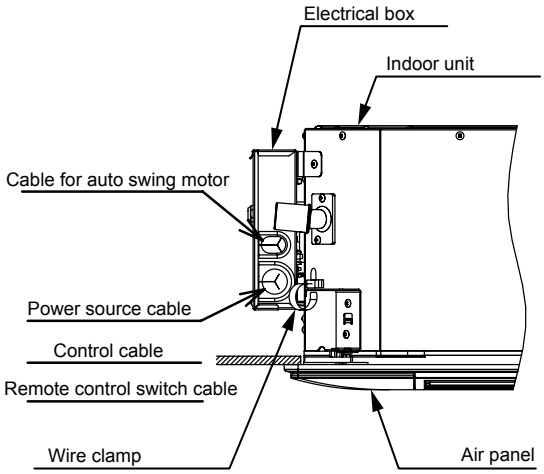
Electrical connection

Make the connection between the indoor unit and the air panel.

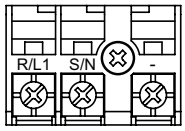
NOTE

- *To prevent the screws from falling from the terminal box, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole in the terminal.*
- *Use the following screws for the terminal box:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the operating line.*



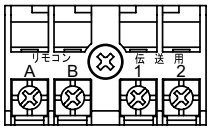


Terminal Board 1



Terminal board for Power source cable

Terminal Board 2



Terminal board for Control source cable

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B of the terminal strip (TB2).
3 Tighten the screw on terminals A and B.
4 Check that the cables are correctly secured.

Follow the steps below to connect the power cables to the terminal strip (TB1):

CAUTION

- *To connect a power supply with neutral, connect the cables to terminals L1 and N on the terminal strip (TB1).*
- *To connect a power supply without neutral: make the connection to terminals L1 and L2 on the terminal strip (TB1).*

1 Where necessary, loosen the screws on terminals L1 and N or L1 and L2, as applicable, on the terminal strip (TB1).
2 Connect the power cables to terminals L1 and N or L1 and L2, as applicable.
3 Tighten the screws on terminals L1 and N or L1 and L2, as applicable.
4 Check that the cables are correctly secured.

Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB2):

1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB2).
2 Connect the communication cables to terminals 1 and 2.
3 Tighten the screw on terminals 1 and 2.
4 Check that the cables are correctly secured.

Follow the steps below to connect the earth wire to the earth connection in the electrical box:

1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire and the signal wiring earth wire to the earth connection.
3 Tighten the screw on the earthing connection in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Firmly secure the cables using a tie inside the electrical box.

Cover the cables and the hole using a sealant to protect them from condensation and insects.

Test runs

⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.4 Electrical connection of RCD units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.
2 Wait 5 minutes after turning off the power supply switches.
3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

⚠ CAUTION

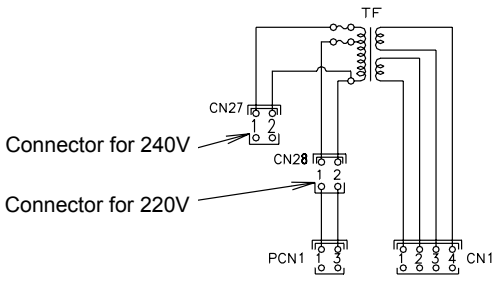
- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RCD indoor unit is 220 - 240 V. If not, replace connectors CN27 and CN28 on the TF transformers in the electrical box.

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B of the terminal strip (TB2).
3 Tighten the screw on terminals A and B.
4 Check that the cables are correctly secured.



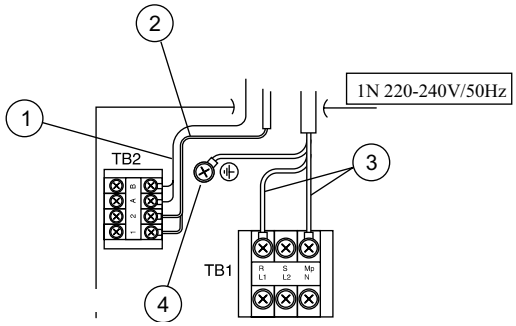
Follow the steps below to connect the power cables to the terminal strip (TB1):

1 Where necessary, loosen the screws on terminals L1 and N on the terminal strip (TB1)
2 Connect the power cables to terminals L1 and N.
3 Tighten the screws on terminals L1 and N.
4 Check that the cables are correctly secured.

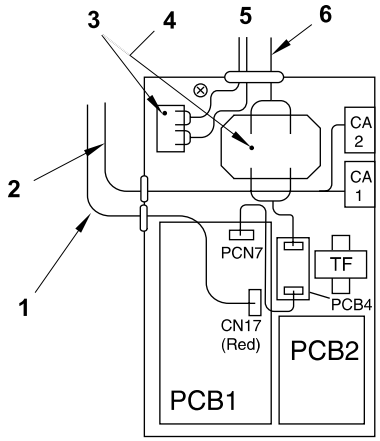
Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB2):

1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB2).
2 Connect the communication cables to terminals 1 and 2.
3 Tighten the screw on terminals 1 and 2.
4 Check that the cables are correctly secured.

Nº	Part
1	Control Cable
2	Remote Control Cable
3	Power Source Cable
4	Earth Screw

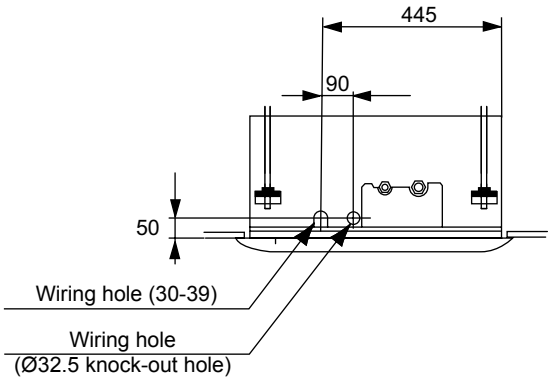


Nº	Part
1	Connector for the swing louver motor
2	Fan motor connector
3	Terminal strip (TB2)
4	Terminal strip (TB1)
5	Wiring
6	Power wiring

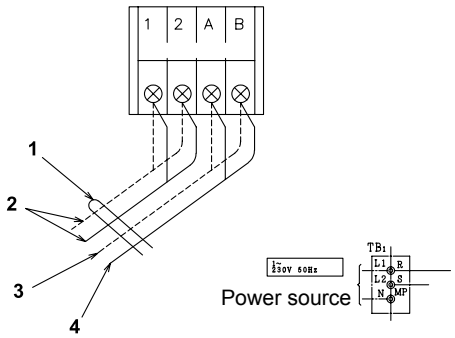


Follow the steps below to connect the earth wire to the earth connection in the electrical box:

1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire and the signal wiring earth wire to the earth connection.
3 Tighten the screw on the earthing connection in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.



Nº	Part
1	Tie
2	Communication wiring between the indoor and outdoor units and between indoor units
3	Operating control wiring. In the case of group operations using a remote control
4	Remote control wiring



Test runs

CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.5 Electrical connection of RPC units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.

2 Wait 5 minutes after turning off the power supply switches.

3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RPC indoor unit is 230 V. If not, replace connectors CN on the TF transformers in the electrical box.

NOTE

- *To prevent the screws from falling from the terminal box, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole in the terminal.*
- *Use the following screws for the terminal box:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the operating line.*

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.

2 Connect the cable to terminals A and B of the terminal strip (TB).

3 Tighten the screw on terminals A and B.

4 Check that the cables are correctly secured.

Follow the steps below to connect the power cables to the terminal strip (TB):

1 Where necessary, loosen the screws on terminals L1 and N on the terminal strip (TB).

2 Connect the power cables to terminals L1 and N.

3 Tighten the screws on terminals L1 and N.

4 Check that the cables are correctly secured.

Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB):

1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB).

2 Connect the communication cables to terminals 1 and 2.

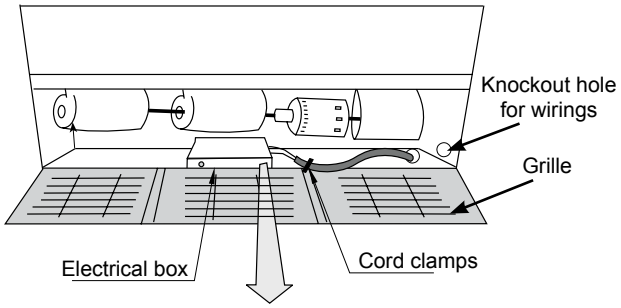
3 Tighten the screw on terminals 1 and 2.

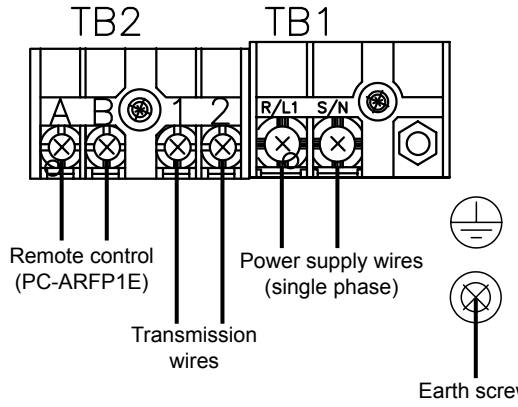
4 Check that the cables are correctly secured.

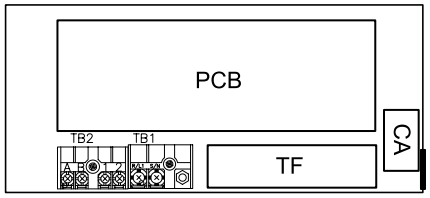
Follow the steps below to connect the earth wire to the earth connection in the electrical box:

1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire and the signal wiring earth wire to the earth connection.
3 Tighten the screw on the earthing connection in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Nº	Part
1	Electrical box
2	Tie
3	Die-cut wiring hole
4	Grille
5	Remote control wiring (optional)
6	Communication wiring
7	Power wiring







Test runs

CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.6 Electrical connection of RPI units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.
2 Wait 5 minutes after turning off the power supply switches.
3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RPI indoor unit is 230 V. If not, replace connectors CN on the TF transformers in the electrical box.

NOTE

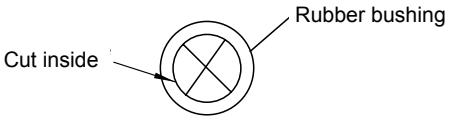
The service panel for the indoor unit fan motor is at the bottom of the unit and the electrical box service panel is on the right-hand side.

Open the service panel.

Cut the centre of the rubber bushing in the wiring connection hole.

NOTE

- *To prevent the screws from falling from the terminal box, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole in the terminal.*
- *Use the following screws for the terminal box:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the operating line.*



Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B of the terminal strip (TB).
3 Tighten the screw on terminals A and B.
4 Check that the cables are correctly secured.

Follow the steps below to connect the power cables to the terminal strip (TB):

1 Where necessary, loosen the screws on terminals L1 and N on the terminal strip (TB).
2 Connect the power cables to terminals L1 and N.
3 Tighten the screws on terminals L1 and N.
4 Check that the cables are correctly secured.

Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB):

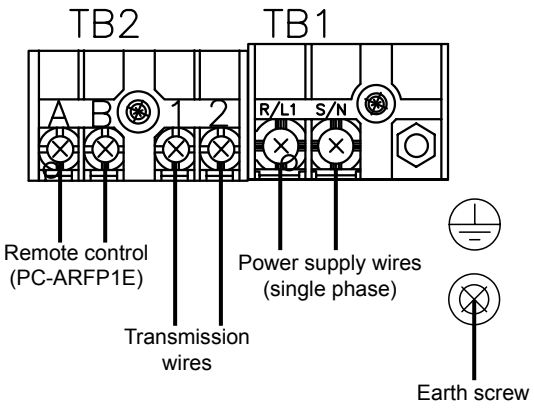
1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB).
2 Connect the communication cables to terminals 1 and 2.
3 Tighten the screw on terminals 1 and 2.
4 Check that the cables are correctly secured.

Follow the steps below to connect the earth wire to the earth connection in the electrical box:

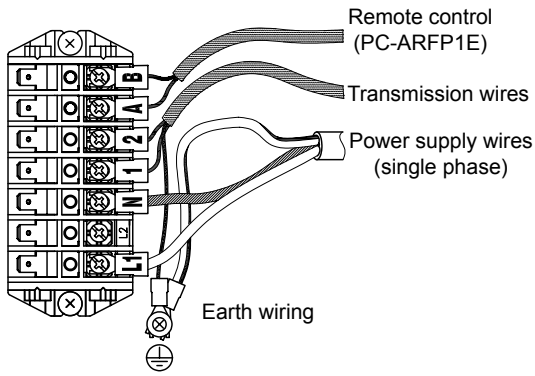
1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire and the signal wiring earth wire to the earth connection.
3 Tighten the screw on the earthing connection in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Firmly secure the cables using a tie inside the electrical box.

From 0.4 to 6.0 hp



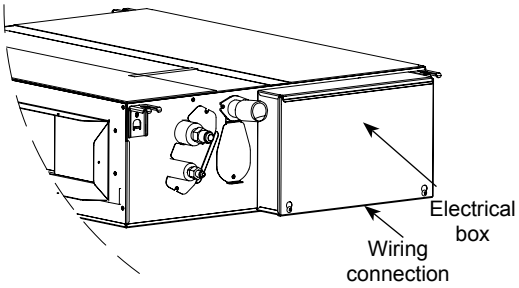
From 8.0 to 20.0 hp

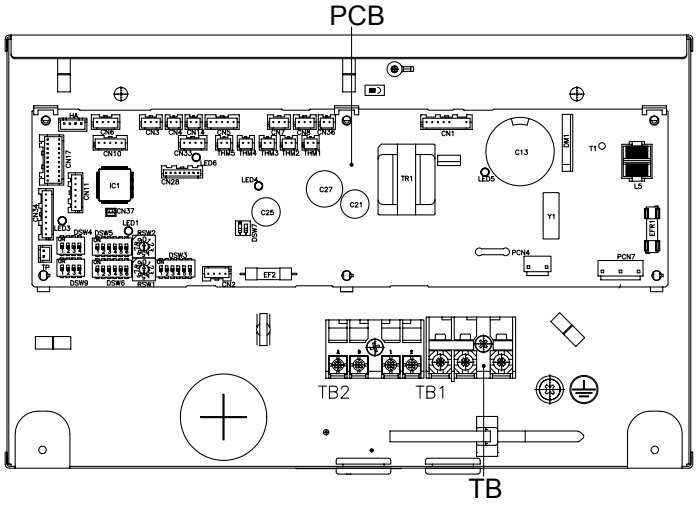


RPI-(0.4-1.5)FSN5E Terminal board location

Cover the cables and the hole using a sealant to protect them from condensation and insects.

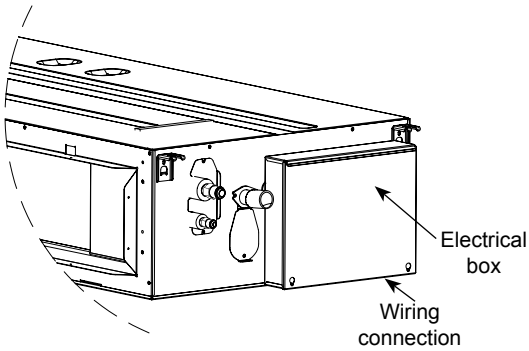
Nº	Part
PCB	Printed circuit board
TB	Terminal strip

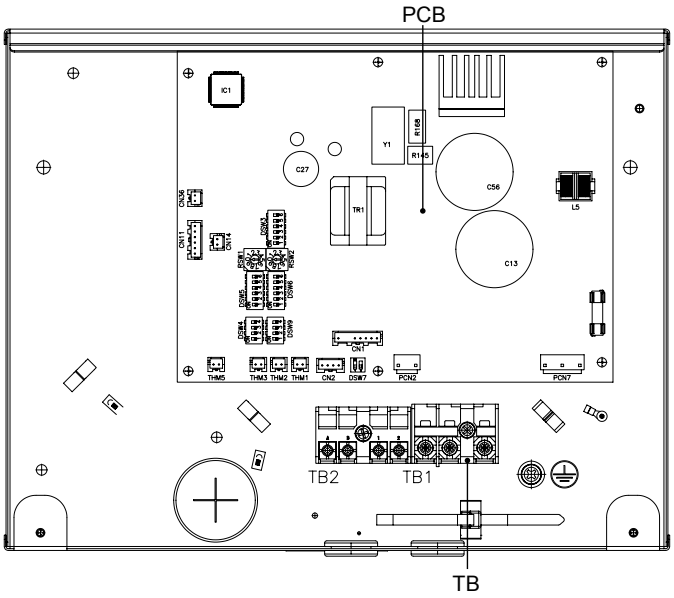




RPI-(2.0-3.0)FSN5E Terminal board connections

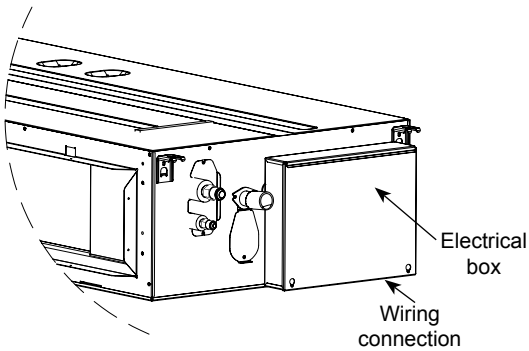
Nº	Part
PCB	Printed circuit board
TB	Terminal strip

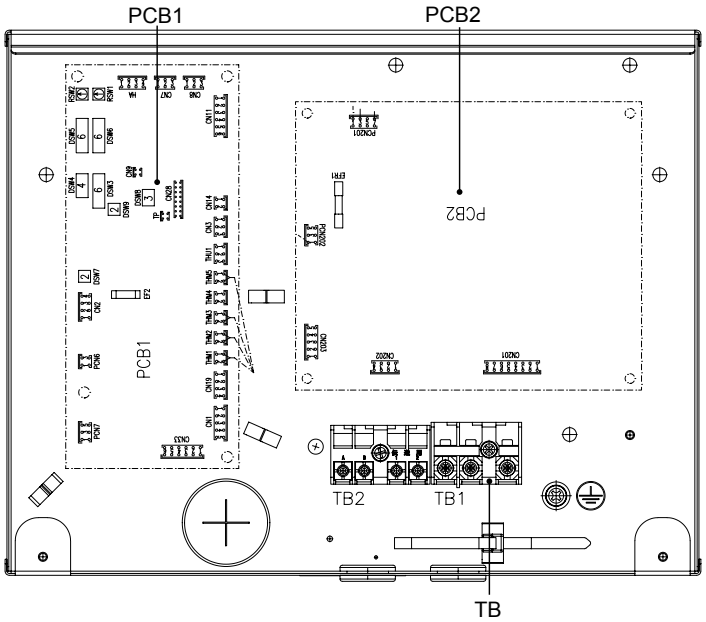




RPI-(4.0-6.0)FSN5E Terminal board connections

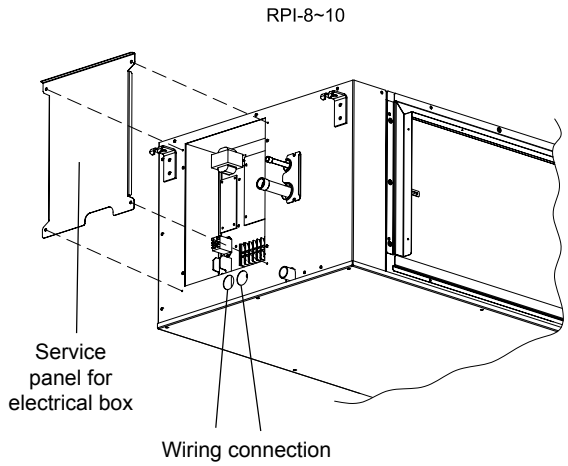
Nº	Part
PCB1	Printed circuit board
PCB2	Printed circuit board
TB	Terminal strip

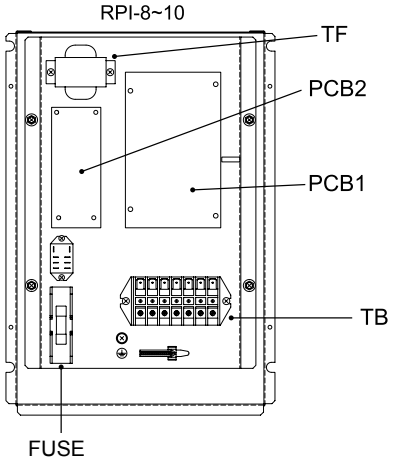




RPI-(8.0/10.0)FSN3E(-f) Terminal board connections

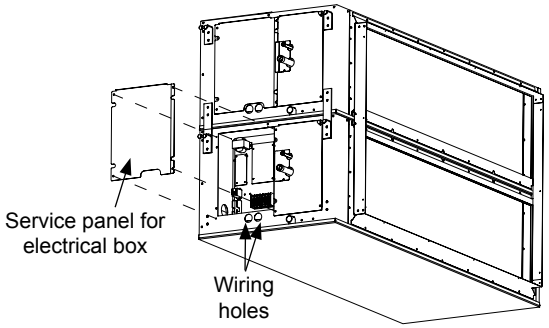
Nº	Part
PCB1	Printed circuit board
PCB2	Printed circuit board
TF	Transformer
TB	Terminal strip
FUSE	Fuse

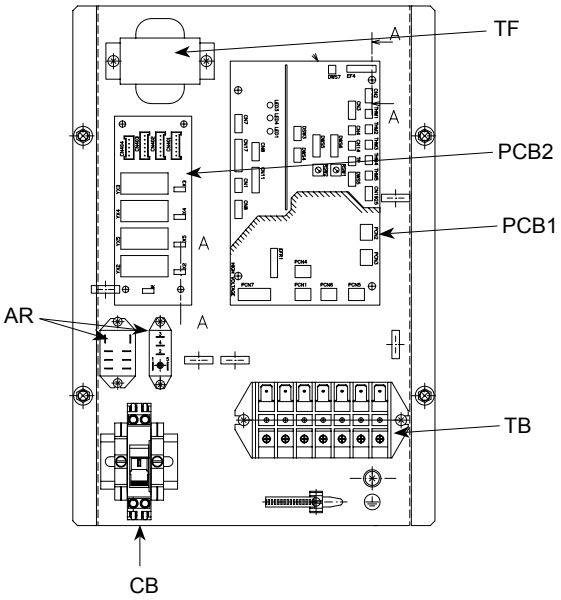




RPI-(16.0/20.0)FSN3PE(-f) Terminal board connections

Nº	Part
PCB1	Printed circuit board 1
PCB2	Printed circuit board 2
TF	Transformer
TB	Terminal board
CB	Circuit breaker
AR	Auxiliary relay

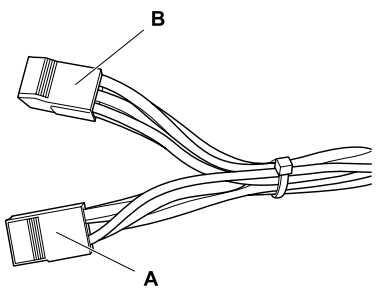




Test run

The fan motor in RPI-(8.0/10.0)FSN3E(-f) and RPI-(16.0/20.0)FSN3(-f)PE units can be configured in two different ways:

- A: connector CN24 LSP (Low Static Pressure) (factory supplied setting);
- B: connector CN25 HSP (High Static Pressure).

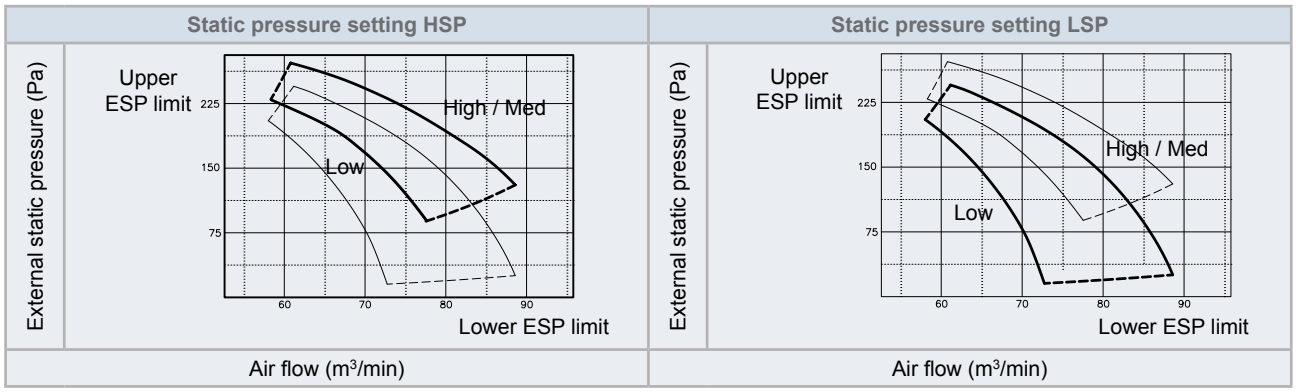


⚠ CAUTION

Perform the connection with the same settings in both units that make up models RPI-(16.0/20.0)FSN3E; otherwise malfunction may occur, causing damage to the units.

According to the Static Pressure setting (connector CN24 LSP (Low Static Pressure) or CN25 HSP (High Static Pressure)) the fan speed available in the Remote Control Switch are the ones show as example in the following pictures.

- Example for RPI-(8.0/10.0)FSN3E(-f):



3

⚠ CAUTION

- *Make sure SP-02 is selected on the remote control for RPI-(0.8-6.0)FSN4E units in the case of short duct installations. To configure SP-02, refer the optional functions C5->"02", low static pressure option. Make sure the low static pressure option (LSP) is selected for RPI-(8.0/10.0)FSN3E(-f) units.*
- *Ensure a minimal resistance is maintained in the duct, as shown in the fan performance graphs. Starting the unit with a duct that is too short causes it to operate outside its accepted operating range.*

3.1.7 Electrical connection of RPIM units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.
2 Wait 5 minutes after turning off the power supply switches.
3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RPIM indoor unit is 230 V. If not, replace connectors CN on the TF transformers in the electrical box.

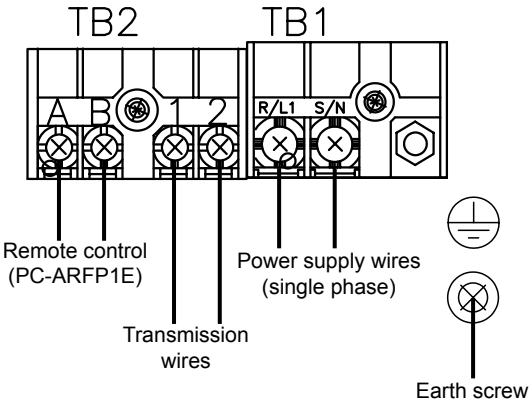
- The service access panel for the indoor unit fan motor is at the bottom of the unit.
- Remove the service access panel.
- Cut the centre of the rubber bushing in the wiring connection hole.

NOTE

- *To prevent the screws from falling from the terminal box, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole in the terminal.*
- *Use the following screws for the terminal box:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the operating line.*

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B of the terminal strip (TB1).
3 Tighten the screw on terminals A and B.
4 Check that the cables are correctly secured.



Follow the steps below to connect the power cables to the terminal strip (TB):

1 Where necessary, loosen the screws on terminals L1 and N on the terminal strip (TB).
2 Connect the power cables to terminals L1 and N.
3 Tighten the screws on terminals L1 and N.
4 Check that the cables are correctly secured.

Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminal strip (TB):

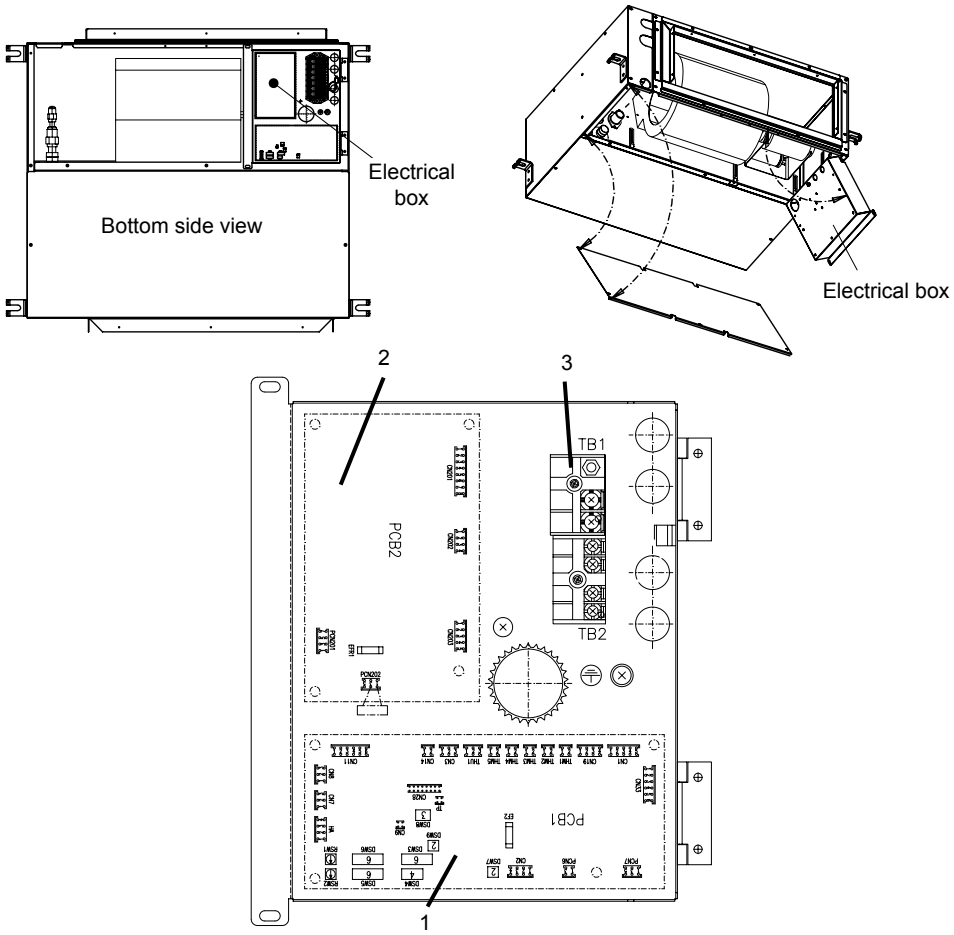
1 Where necessary, loosen the screws on terminals 1 and 2 on the terminal strip (TB).
2 Connect the communication cables to terminals 1 and 2.
3 Tighten the screw on terminals 1 and 2.
4 Check that the cables are correctly secured.

Follow the steps below to connect the earth wire to the earth connection in the electrical box:

1 Where necessary, loosen the screw on the earthing connection in the electrical box.
2 Connect the shielded part of the power supply earth wire and the signal wiring earth wire to the earth connection.
3 Tighten the screw on the earthing connection in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Firmly secure the cables using a tie inside the electrical box.

Cover the cables and the hole using a sealant to protect them from condensation and insects.



Nº	Part
1	Printed circuit board 1 (PCB1)
2	Printed circuit board 2 (PCB2)
3	Terminal board (TB)

Test runs

⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.8 Electrical connection of RPK units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.

2 Wait 5 minutes after turning off the power supply switches.

3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

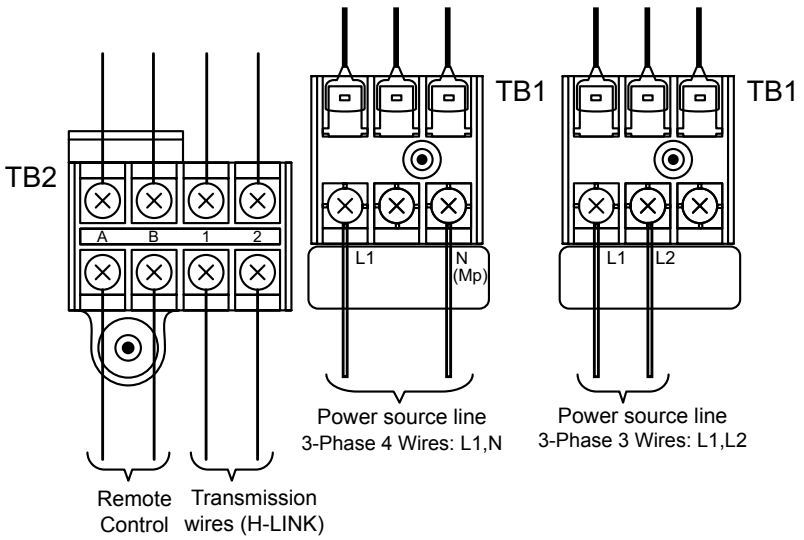
Electrical connection

CAUTION

- *Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to the electrical data given in "Technical Catalogue". Make sure that the components comply with National Electrical Code (NEC).*
- *Use the shielded twist pair cable for the control cable between the outdoor unit and the indoor unit, the control cable between indoor units and the remote control switch cable of PC-ARFP1E.*
- *Check to ensure that the power supply voltage is 230V.*
- *Check the capacity of the electrical wires. If the power source capacity is too low, the system cannot be started due to the voltage drop.*
- *Check to ensure that the earth wire is connected.*

The electrical wiring capacity of the outdoor unit should be referred according to "Installation & Operation Manual" of the outdoor unit. Setting DIP switch may be required depending on the combination with the outdoor unit.

1 Connect the power source cables (L1 and N (L2) phases (1~ 220-240V 50/60Hz)) to the terminal board correctly.



2 Connect the control cables between the indoor unit and the outdoor unit correctly. Check to ensure that the terminal for power source cable (Terminals "L1" to "L1" and "N(L2)" to "N(L2)" of each terminal board (1~ 220-240V 50/60Hz)) between the indoor unit and the outdoor unit coincide correctly. If not, some component will be damaged.

3 Use the shielded twist pair cable for control between the outdoor unit and the indoor units. They are connected to the terminals 1 and 2 of the terminal boards. The remote control switch cable is connected to the terminals A and B of each indoor unit terminal board.

NOTE

- *When the total wiring length for control cable between the outdoor unit and the indoor unit and between indoor units is less than 100m, the normal wiring (more than 0.75mm^2) except the twist pair cable is available.*
- *The total wiring length for the remote control switch can be extended up to 500m. If the total wiring length less than 30m, the normal wiring (0.3mm^2) except the twist pair cable is available.*

DANGER

- ***Tightly secure wirings to the terminal board according to the specified torque. If tightening the terminals is not completed, heat generation, an electric shock or a fire will occur at the terminal connection.***
- ***Make sure that the wires are securely fixed in order not to apply an external force to the terminal connections of the wirings. If fixing is not completed, heat generation or a fire will occur.***
- ***Fix the terminals that do not touch to the electrical box surface. If the terminals are closed to the surface, it may cause activation of ELB, heat generation at terminal connection, a fire or an electric shock.***

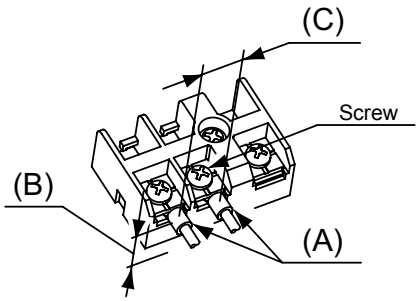
CAUTION

- *Separate the power supply wiring from the terminal block for controller and communication cables (TB2).*
- *Do not connect the main power source cables to the control line (Terminals A, B, 1 and 2 of TB2). If connected, the printed circuit board (PCB) will be broken.*
- *Pay attention to followings when wires are connected to terminal board.*

  (A) Attach an insulation tape or a sleeve to each terminal.

  (B) Maintain the distance between the electrical box and the terminals to prevent a short circuit.

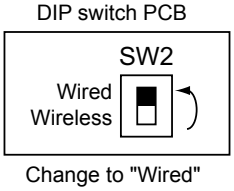
  (C) Maintain the distance between the terminals.



NOTE

In case of using a wired remote control switch (PC-ARFP1E) or optional receiver Kit (PC-ALHZ1), the following setting is required:

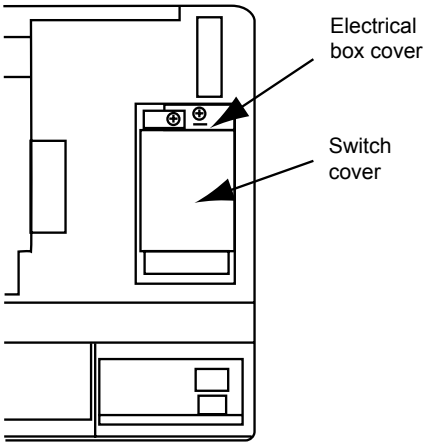
- *The setting before shipment is “Wireless”. Set the SW2 to “Wired”. If not, the operation is not available.*
- *Connect the remote control switch cables to the terminals A and B at the terminal board TB2.*

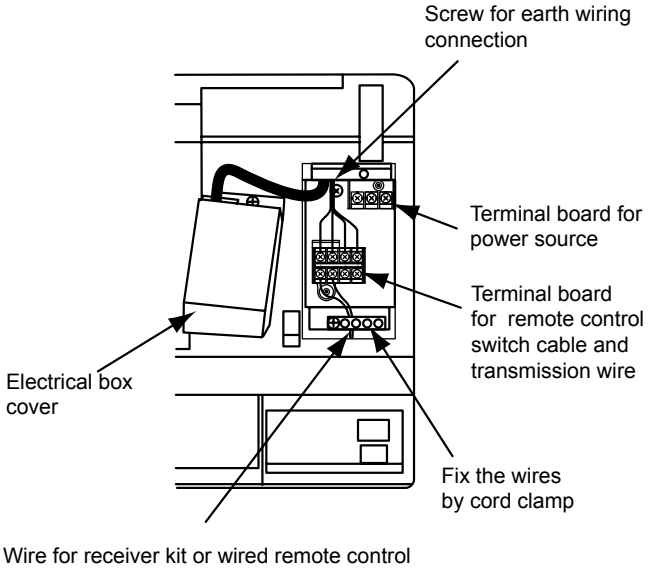


In case of using a wireless remote control switch (PC-AWR):

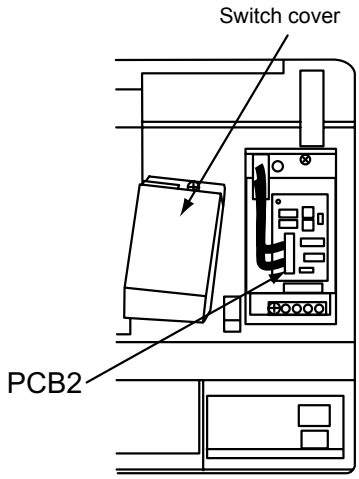
- *The SW2 switch setting is NOT required when the wireless remote control switch (PC-AWR) is used with the receiver built in the indoor unit. However, the simultaneous indoor units operation is not available when this wireless remote control switch is used with the receiver built in the indoor unit. If the simultaneous indoor units operation is required with this wireless remote control switch, use the optional receiver kit (PC-ALHZ1).*
- *For the identifying of indoor units installed side by side operation, the wireless remote control switch should be set at “b,c or d mode”. (Refer to Installation and Operation Manual for the wireless remote control switch about “mode” setting).*

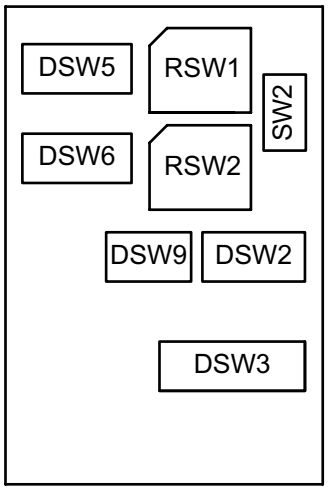
Terminal board connections





DIP switch location





Test runs

⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.9 Electrical connection of RPF(I) units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.

2 Wait 5 minutes after turning off the power supply switches.

3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

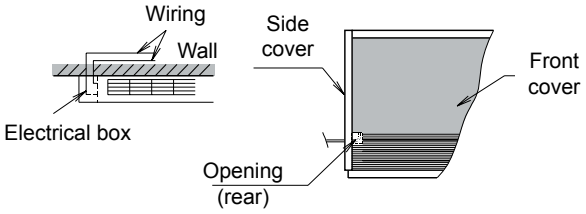
- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

Check that the power supply for the RPF/RPFI indoor unit is 230 V. If not, replace connectors CN on the TF transformers in the electrical box.

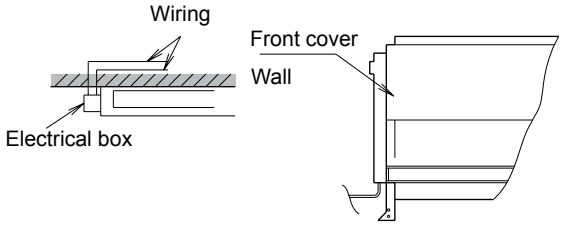
NOTE

For RPF units, the correct wiring is connected from the rear left side.



NOTE

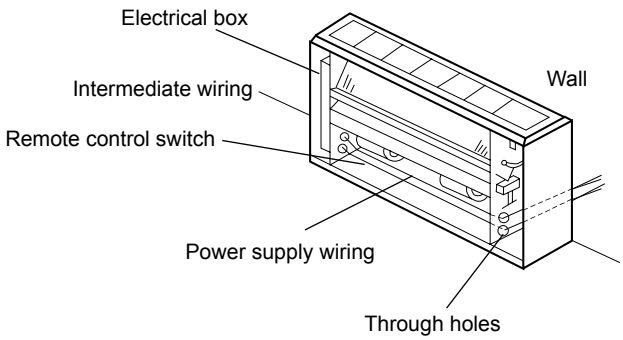
For RPFI units, the correct wiring is connected from the rear right side.

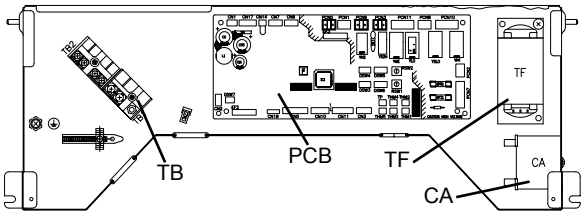


Open the front and side panels.

NOTE

- *To prevent the screws from falling from the terminal box, do not remove them completely, hold onto the terminal and check that the screw is secure through the hole in the terminal.*
- *Use the following screws for the terminal box:*
  - *M4 screw for the power supply.*
  - *M3.5 screw for the communication line.*





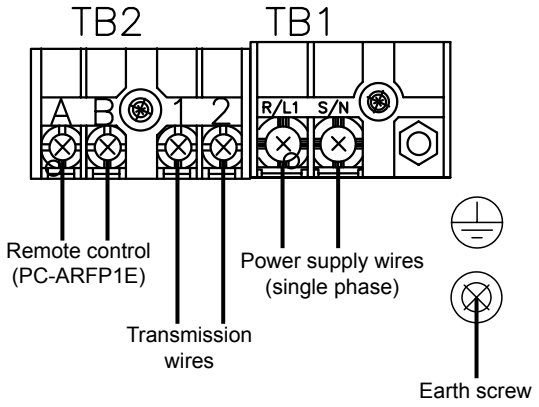
Nº	Part
PCB	Printed circuit board.
TF	Transformer.
TB	Terminal box.
CA	Capacitor.

Follow the steps below to connect the cable of the remote control (PC-ARFP1E) or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to terminals A and B in the electrical box.
3 Tighten the screw on terminals A and B in the electrical box.
4 Check that the cables are correctly secured.

Follow the steps below to connect the power cables to the power terminals in the electrical box:

1 Where necessary, loosen the screws on the power terminals in the electrical box.
2 Connect power cables L1 and N to the power terminals in the electrical box.
3 Tighten the screws on the power terminals in the electrical box.
4 Check that the power cables are correctly secured.



Follow the steps below to connect the communication cables between the outdoor and indoor unit to the terminals in the electrical box:

1 Where necessary, loosen the screws on the communication terminals in the electrical box.
2 Connect the communication cables to communication terminals 1 and 2 in the electrical box.
3 Tighten the screws on the communication terminals in the electrical box.
4 Check that the communication cables are correctly secured.

Follow the steps below to connect the earth wire to the earth terminal in the electrical box:

1 Where necessary, loosen the screw on the earthing terminal in the electrical box.
2 Connect the shielded part of the power supply and signal wiring earthing cables to the earthing terminal.
3 Tighten the screw on the earth terminal in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Test runs

⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.10 Electrical connection of KPI units

Work prior to the electrical connection

1 Turn off the power supply switches before starting work and fit the appropriate locks and safety warnings.
2 Wait 5 minutes after turning off the power supply switches.
3 Check that the fans on the indoor and outdoor units are at a standstill before starting work.

NOTE

- *The electrical power for the unit must involve a specific power line, with an exclusive power control switch and residual current breaker, installed in line with local or national safety regulations.*
- *Check that the electrical power line has enough capacity to supply the unit. Its length, the cable diameter and their protection (sleeve or jacket) must be appropriate for the unit.*
- *For further information, always consider the current regulations in the country where the unit is to be installed.*

CAUTION

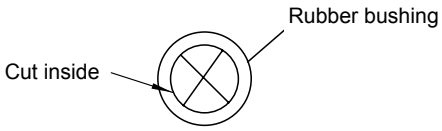
- *Risk of fire: cables must never touch the refrigerant pipes, printed circuit boards (PCB), sharp edges or electrical components inside the unit to avoid damaging them.*
- *Loose connection terminals may lead to cable and terminal overheating. The unit may operate incorrectly, leading to a risk of fire. Check that the cables are firmly secured to the connection terminals.*

Electrical connection

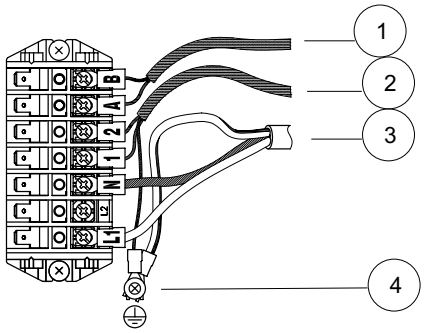
Cut the centre of the rubber bushing in the wiring connection knock-out hole.

Follow the steps below to connect the remote control cable or the optional extension wire:

1 Pass the cable through the knock-out hole in the cabinet.
2 Connect the cable to the terminals on the printed circuit board (PCB) located inside the electrical box.
3 Tighten the screw on terminals A and B in the electrical box.
4 Check that the cables are correctly secured.



Nº	Part
1	Remote Control
2	Transmission Wires
3	Power supply wires (Single phase)
4	Earth Screw



CAUTION

If the power cables are to be connected in series, check that the current is below 50 A.

Follow the steps below to connect the power cables to the power terminals in the electrical box:

1 Where necessary, loosen the screws on the power terminals in the electrical box.
2 Connect the power cables to the power terminals in the electrical box.
3 Tighten the screws on the power terminals in the electrical box.
4 Check that the power cables are correctly secured.

Follow the steps below to connect the earth wire to the earth terminal in the electrical box:

1 Where necessary, loosen the screw on the earthing terminal in the electrical box.
2 Connect the shielded part of the earth wire to the earth terminal.
3 Tighten the screw on the earth terminal in the electrical box.
4 Check that the shielded part of the earthing cables are correctly secured.

Firmly secure the cables using a tie inside the electrical box.

Cover the cables and the hole using a sealant to protect them from condensation and insects.

Test runs

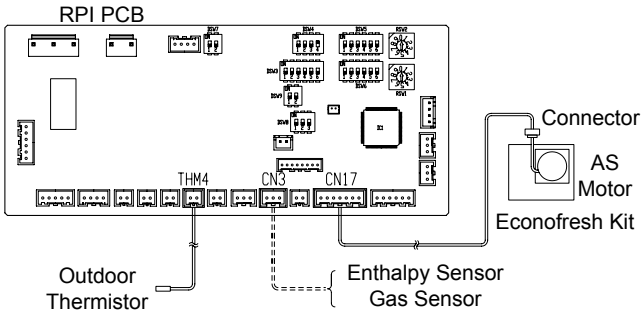
⚠ CAUTION

- *Be careful during the test runs, as some of the safety functions remain disabled: the units operate for two hours without switching off via the thermostat. The three-minute compressor protection is not enabled during the test.*
- *Secure the rubber bushes to the panel using adhesive when the outdoor unit ducts are not used.*
- *The compressor remains at a standstill during forced stoppage.*

3.1.11 Econofresh electrical wiring connection

The electrical wiring connection for the unit is shown below. Mount the outdoor thermistor at a position near the outdoor air inlet.

Pay attention to the position of the thermistor where the direct sunshine is not radiated or rain water is not touched.



⚠ DANGER

- ***Turn OFF the main power switch to the unit and wait for more than 3 minutes before electrical wiring work or a periodical check is performed.***
- ***Check to ensure that the indoor unit's fan has stopped before electrical wiring work or a periodical check is performed.***
- ***Protect the wires, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.***

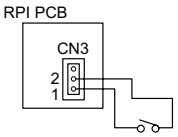
⚠ CAUTION

Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the products from any condensate water or insects.

Optional sensor connection

When installing the field-supplied sensors, select and connect the sensors as follows.

- The type of the sensor should be of ON/OFF switching type.
- The switch rating should be DC12V.
- Connect the wires to #1 and #2 of CN3 on the RPI PCB. (In this case, the enthalpy sensor cannot be applied).
- Lead the wires through the connecting hole for the control circuit.



Optional Sensor (DC12V, 1 to 2mA)

1 Enthalpy Sensor (Field-Supplied)
- The switching arrangement should be as follows.
  - OFF: for Calling Free Cooling (Compressor OFF)
  - ON: for Calling Mechanical Cooling (Compressor ON)
- Set the enthalpy sensor mode by using remote control switch.

2 CO_2 Gas Sensor (Field-Supplied)
- The switch arrangement should be as follows.
  - ON: for Increasing Outdoor Air Introduction
  - OFF: for Decreasing Outdoor Air Introduction
- Set the CO_2 Gas sensor mode by using remote control switch.

3.1.12 DX-Interface electrical wiring

- Connect the electrical wires between the indoor unit and the outdoor unit, as shown in the next diagram.
- Follow the local codes and regulations when performing the electrical wiring.
- Use shielded wires for intermediate wiring to protect the units from noise obstacle at length of less than 300 m and size in compliance with local codes.
- In the event that a conduit tube for field-wiring is not used, fix rubber bushes to the panel with adhesive.
- All the field wiring and equipment must comply with local and international codes.
- When a cable gland is not used, it must be sealed properly in order to ensure the correct control box sealing.

⚠ CAUTION

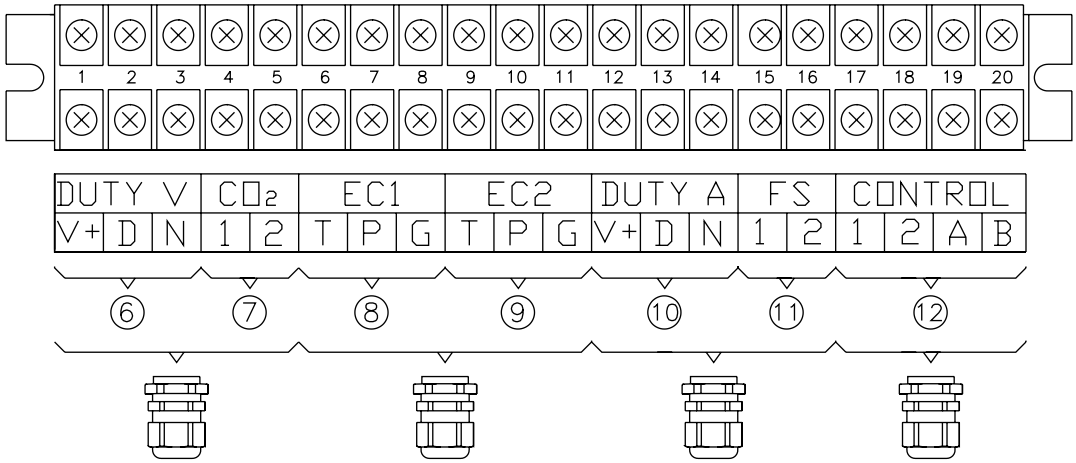
Pay attention to the connection of the operating line. Incorrect connection may cause PCB failure.

NOTE

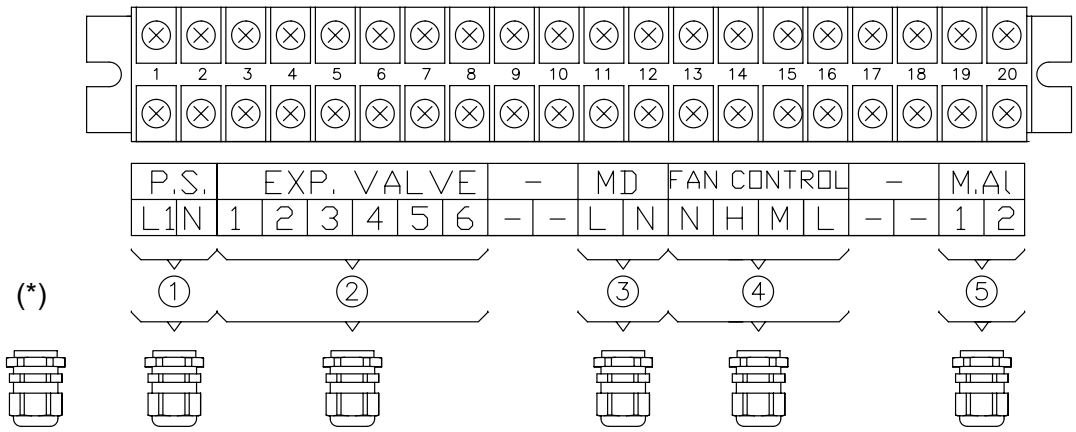
Packing gland diameter specification: 6.0 mm (min) to 12.0 mm (max). If needed, install additional tube insulation or wind with insulation tape around the wire to make the wire thicker.

◆ Control box terminal board

Terminal board 1



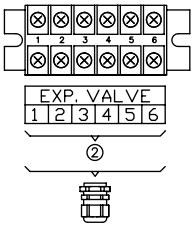
Terminal board 2

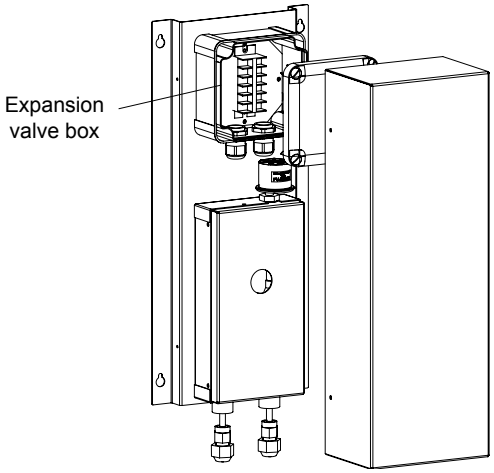


NOTE

(*) Packing gland for thermistor installation.

◆ Expansion valve box terminal board





◆ Terminal board connections and remarks

Terminal board 1

Mark	Item	Name	Description	Wire and maximum current specification (EN60335-1)
⑥	1	V+	**DUTY V: Duty control by voltage (0~10V) (0~5V) (optional):** V+: Output power to device (+24Vdc)	Wire section: 3x0,5mm² **NOTE** *Maximum power by 24VDC output: 3 W*
	2	D	D: Voltage input (0~10V) (0~5V)	
	3	N	N: GND	
⑦	4	1	**CO_2 signal (optional):** Free contact: By closing the signal, the fan speed is set to High mode.	Wire section: 2x0,5mm²
	5	2		
⑧	6	T	**EC1: PWM Output control for EC FAN 1 (optional):** T: Tach input signal (Hz)	Wire section: 3x0,5mm² (*1)
	7	P	P: PWM output signal (0-100%)	
	8	G	G: GND	
⑨	9	T	**EC2: PWM Output control for EC FAN 2 (optional):** T: Tach input signal (Hz)	Wire section: 3x0,5mm² (*1)
	10	P	P: PWM output signal (0-100%)	
	11	G	G: GND	
⑩	12	V+	**DUTY A: Duty control by current (4~20mA) (optional):** V+: Output power to device (+24Vdc)	Wire section: 3x0,5mm² **NOTE** *Maximum power by 24Vdc output: 3 W*
	13	D	D: Current input (4~20mA)	
	14	N	N: GND	
⑪	15	1	**FS: Float switch (optional):** Free contact between terminals 1(15) and 2(16)	Wire section: 2x0,5mm²
	16	2		
⑫	17	1	**CONTROL: H-LINK and remote controller communication (Necessary):** The H-LINK transmission between outdoor unit and indoor unit is 2 wired to terminals 1-2.	Wire section: 2x0,5mm²
	18	2		
	19	A	The Remote controller must be connected between pins A and B (non polarity)	Wire section: 2x0,5mm²
	20	B		

NOTE

*(*1): If fan wiring length is higher than 3m, use shielded wires in compliance with local codes.*

Terminal board 2

Mark	Item	Name	Description	Wire and maximum current specification (EN60335-1)
①	1	L1	**P.S.: Power supply (necessary):** The main power supply connection (230 Vac) is wired to terminals L1 and N.	1~ 230V 50Hz, Max current. 5A Wire section: 3x0,75mm²
	2	N		
②	3	1	**EXP. VALVE: Expansion valve connection (necessary):** Link to expansion valve assembly. Number links from 1 to 6 must match in e-box terminal board and expansion valve terminal board	Wire section: 6x0,5mm²
	4	2		
	5	3		
	6	4		
	7	5		
	8	6		
-	9	-	Not used	-
	10	-		
③	11	L	**MD: Motor Drain discharge (optional):** A drain water pump (field supplied) can be connected to DX-kit interface.	1~ 230V 50Hz Max current: 1A (output) Wire section: 2x0,75mm²
	12	N		
④	13	N	**FAN CONTROL: Fan tap speed control by HITACHI remote controller (optional):** N-Neutral phase connection (common)	Maximum current allowed: 3,5A Wire section: 4x0,75mm² (*1)
	14	H	H: High fan speed signal	
	15	M	M: Medium fan speed signal	
	16	L	L: Low fan speed signal	
-	17	-	Not used	-
	18	-		
⑤	19	1	**M. AL: Motor alarm signal:** Alarm input signal can be used for alarm link between the DX-Kit interface and the unit connected. If the jumper between terminal 1 (19) and 2 (20) is open, unit will be switched to alarm condition. Connect again to restart the system	Wire section: 2x0,75mm² (*2)
	20	2		

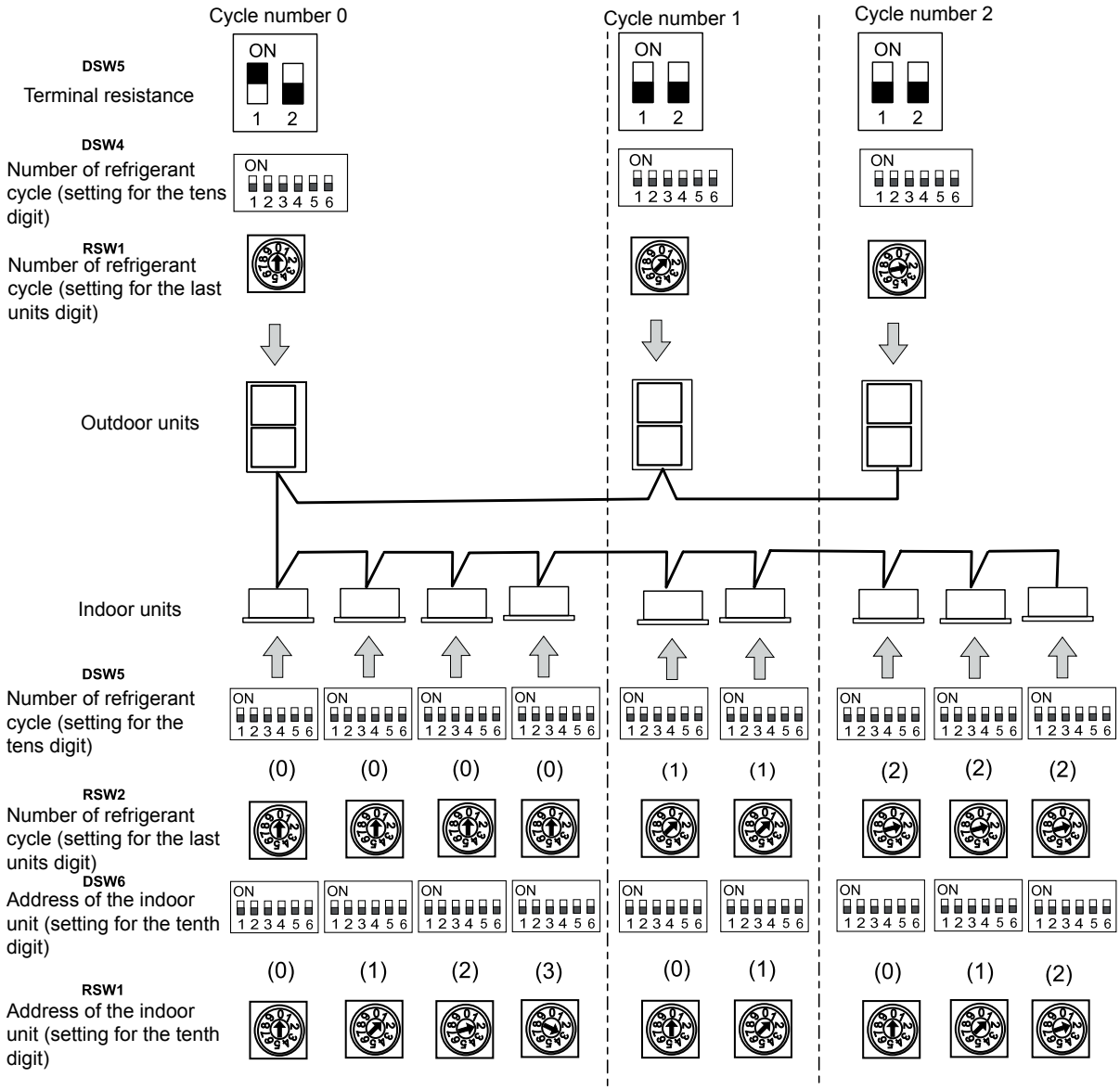
NOTE

- *(*1): Locked rotor amperage (LRA) must be lower than 8A.*
- *(*2): Alarm signal with high power (1~ 230V 50Hz): In case of M. AI, connection is not necessary. The harness jumper provided inside the DX-Interface must be used.*

Expansion valve box

Mark	Item	Name	Description	Wire and maximum current specification (EN60335-1)
②	1	1	**Control connection (necessary):** Link to control assembly. Number links from 1 to 6 must match in expansion valve terminal board and control terminal board.	Wire section: 6x0,5mm²
	2	2		
	3	3		
	4	4		
	5	5		
	6	6		

3.2 Setting of DIP switches and RSW switches



1 Turn off the power supply before setting the DIP switches. Otherwise, the switch settings are invalid.

2 To set the position of the RSW rotary switches, insert a screwdriver into the groove of the RSW.

NOTE

- *The DIP and RSW switches of each indoor and outdoor unit must be set.*
- *DSW5 and RSW(1/2): refrigerant cycle number setting / DSW6 and RSW(1/2): Unit number setting*

When considering the par DSW(5/6) / RSW(1/2) pay attention that the RSW numbers are different depending on the indoor unit series. Please follow the following tables:

Indoor unit model	Refrigerant cycle number setting (*2)	Unit number setting (*3)
RPI-(0.4-1.5)FSN5E	DSW5 RSW1	DSW6 RSW2
RPI-(2.0-3.0)FSN5E		
RPK-(0.4-4.0)FSN(H)4M		
RCD-(0.8-6.0)FSN3	DSW5 RSW2	DSW6 RSW1
RCI-(1.0-6.0)FSN4		
RCIM-(0.4-2.5)FSN4E		
RPC-(1.5-6.0)FSN3		
RPF(I)-(1.0-2.5)FSN2E		
RPI-(4.0-6.0)FSN5E		
RPI-(8.0-10.0)FSN3E(-f)		
RPI-(16.0/20.0)FSN3PE(-f) (*1)		
RPIM-(0.6-1.5)FSN4E(-DU)		

*(*1) RPI-(16.0/20.0)FSN3PE(-f): Set both modules to same cycle number.*

*(*2) It is required to change factory default setting, with a value of up to 63. In the same refrigerant cycle, set the same refrigerant cycle number for the outdoor unit and the indoor unit.*

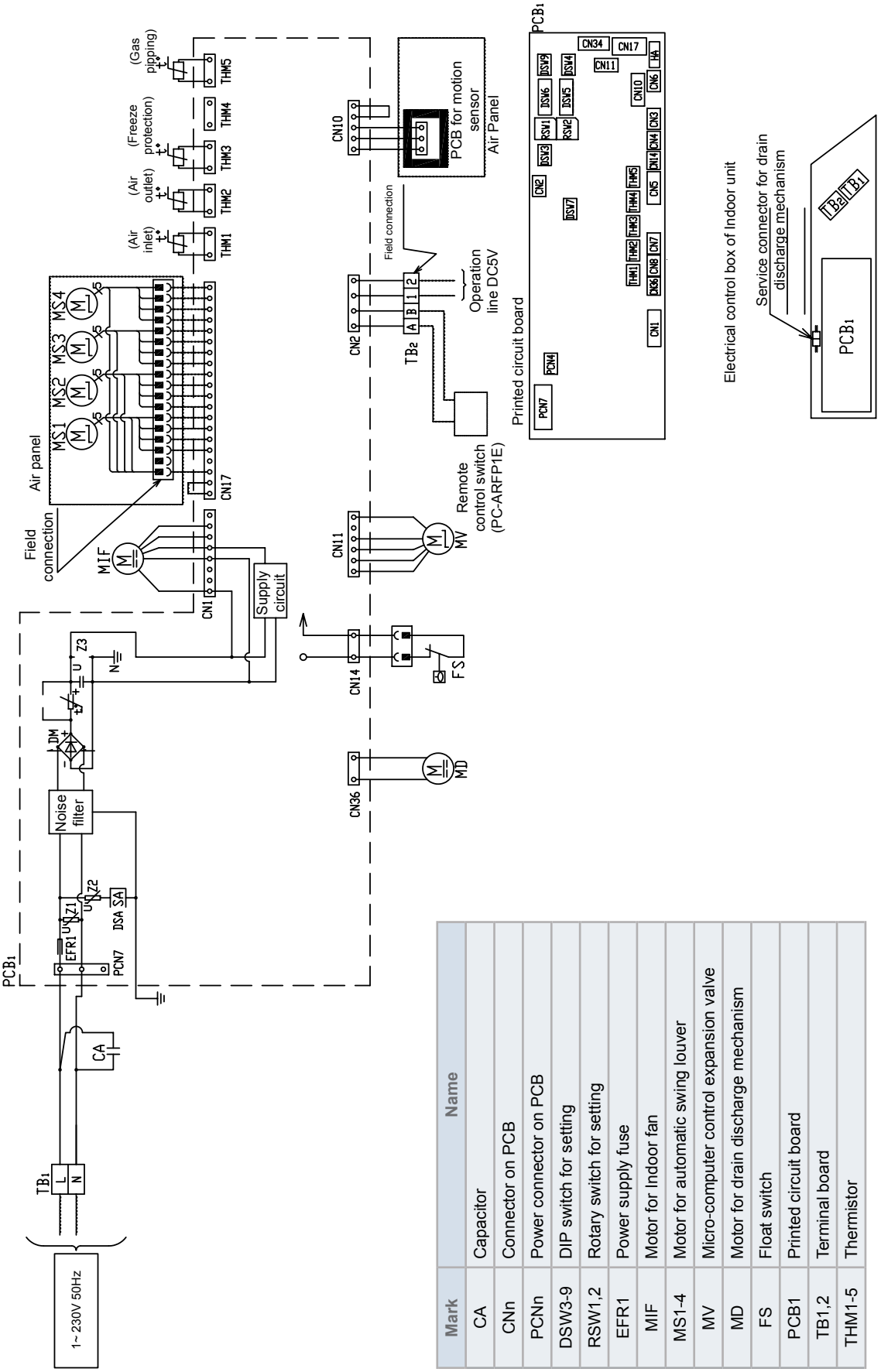
*(*3) It is strongly recommended to change factory default setting, with any value from 0 up to 63. The address number must be unique for each unit (in the same refrigerant cycle). It is recommended to assign a number from "1".*

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3.3 Wiring diagrams

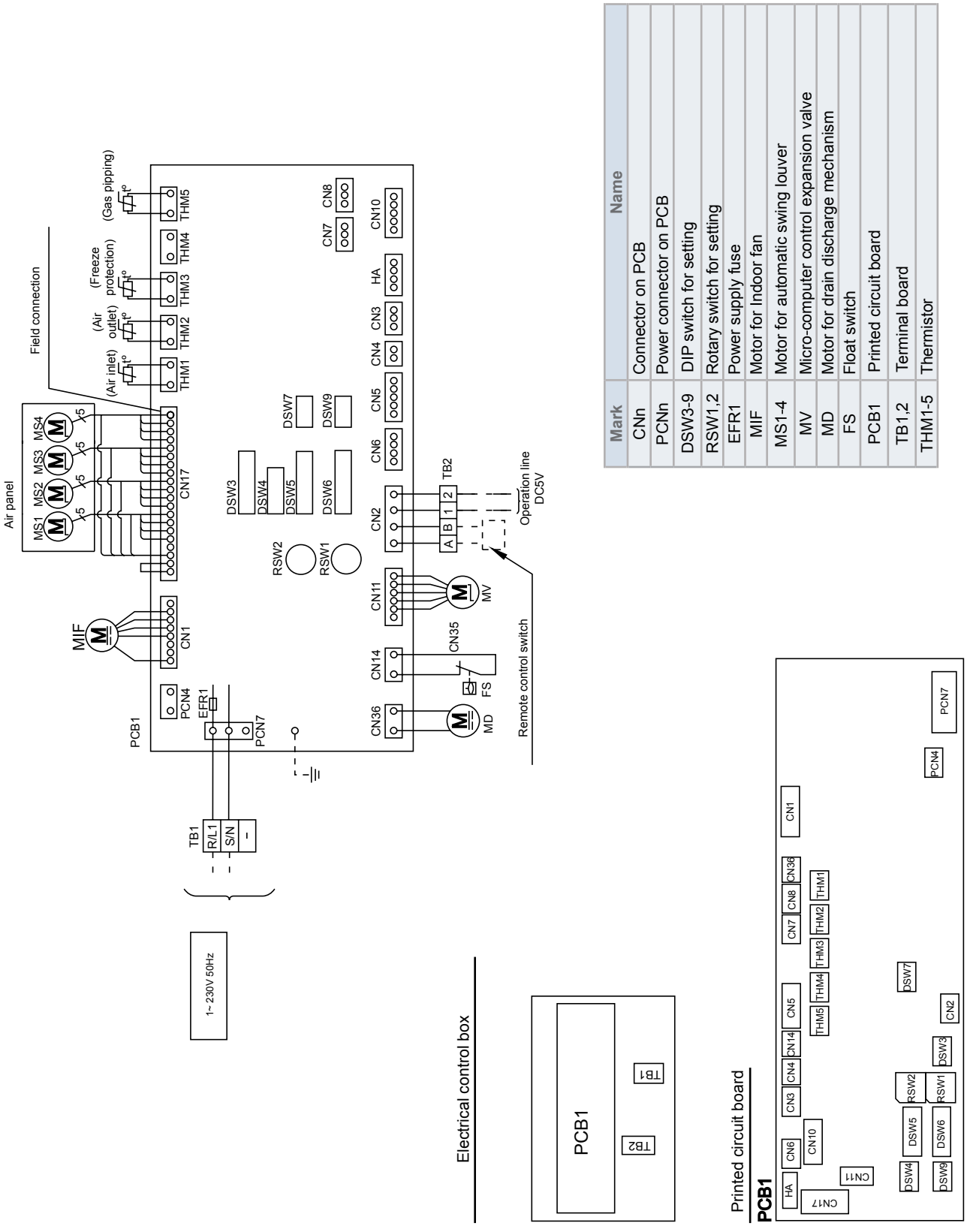
All the field wiring and equipment must comply with national and local regulations.

3.3.1 RCI-(1.0-6.0)FSN4



Mark	Name
CA	Capacitor
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MIF	Motor for Indoor fan
MS1-4	Motor for automatic swing louver
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

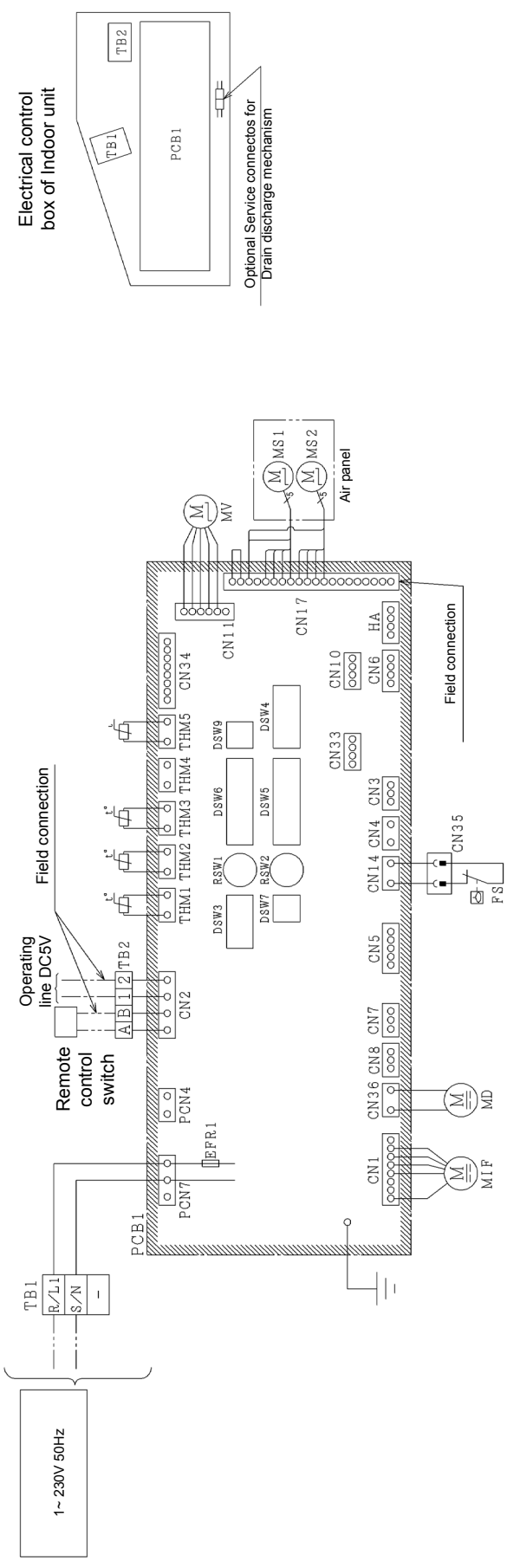
3.3.2 RCIM-(0.4-2.5)FSN4E



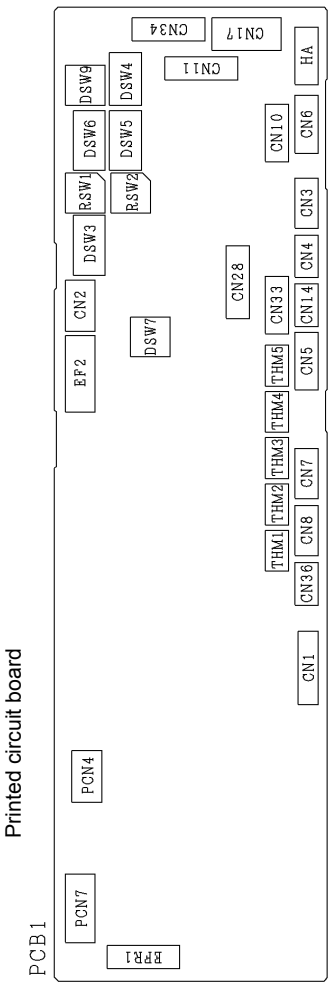
Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MIF	Motor for Indoor fan
MS1-4	Motor for automatic swing louver
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

3.3.3 RCD-(0.8-3.0)FSN3

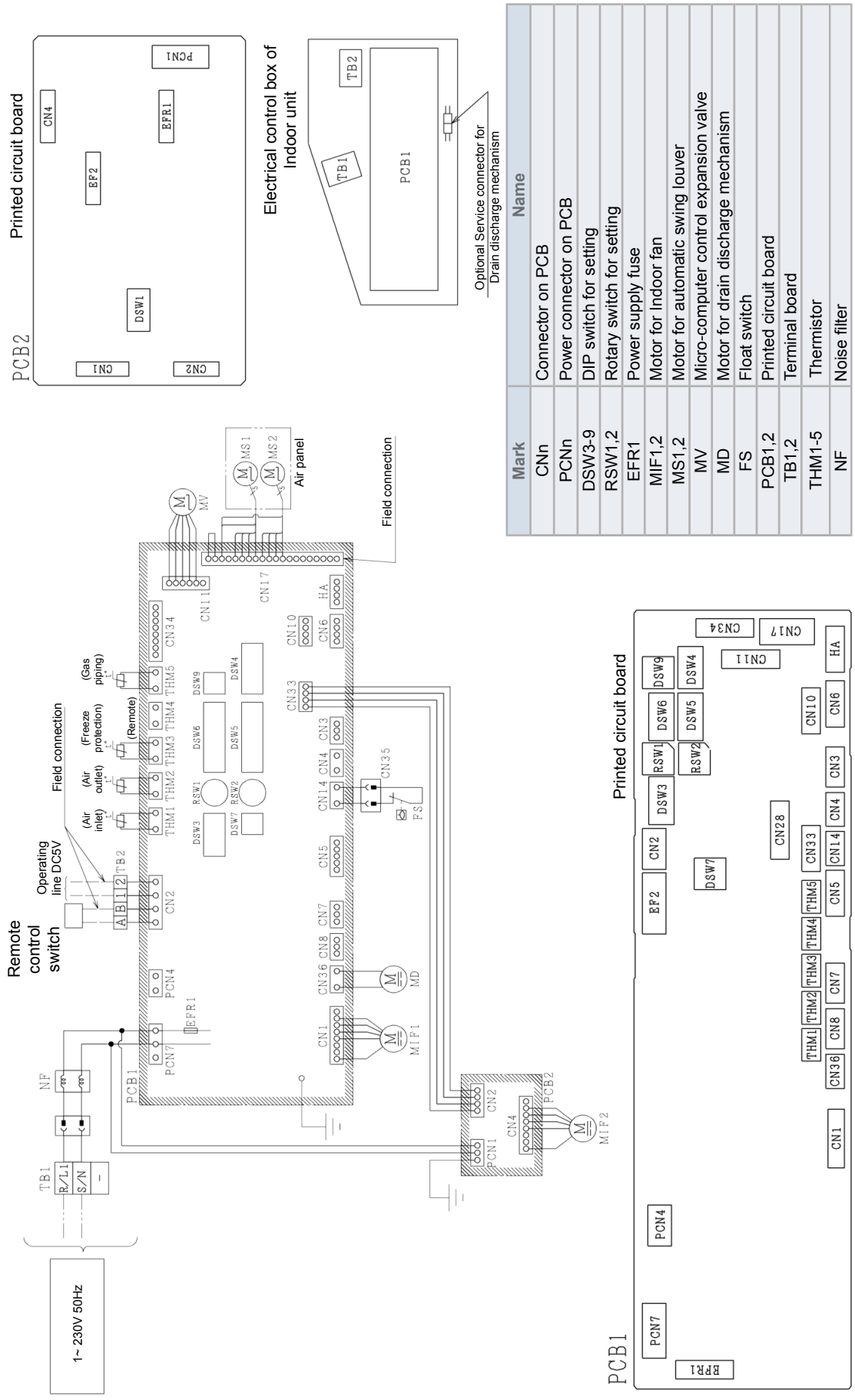
3.3.3.1 RCD-(0.8-3.0)FSN3



Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MIF	Motor for Indoor fan
MS1,2	Motor for automatic swing louver
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

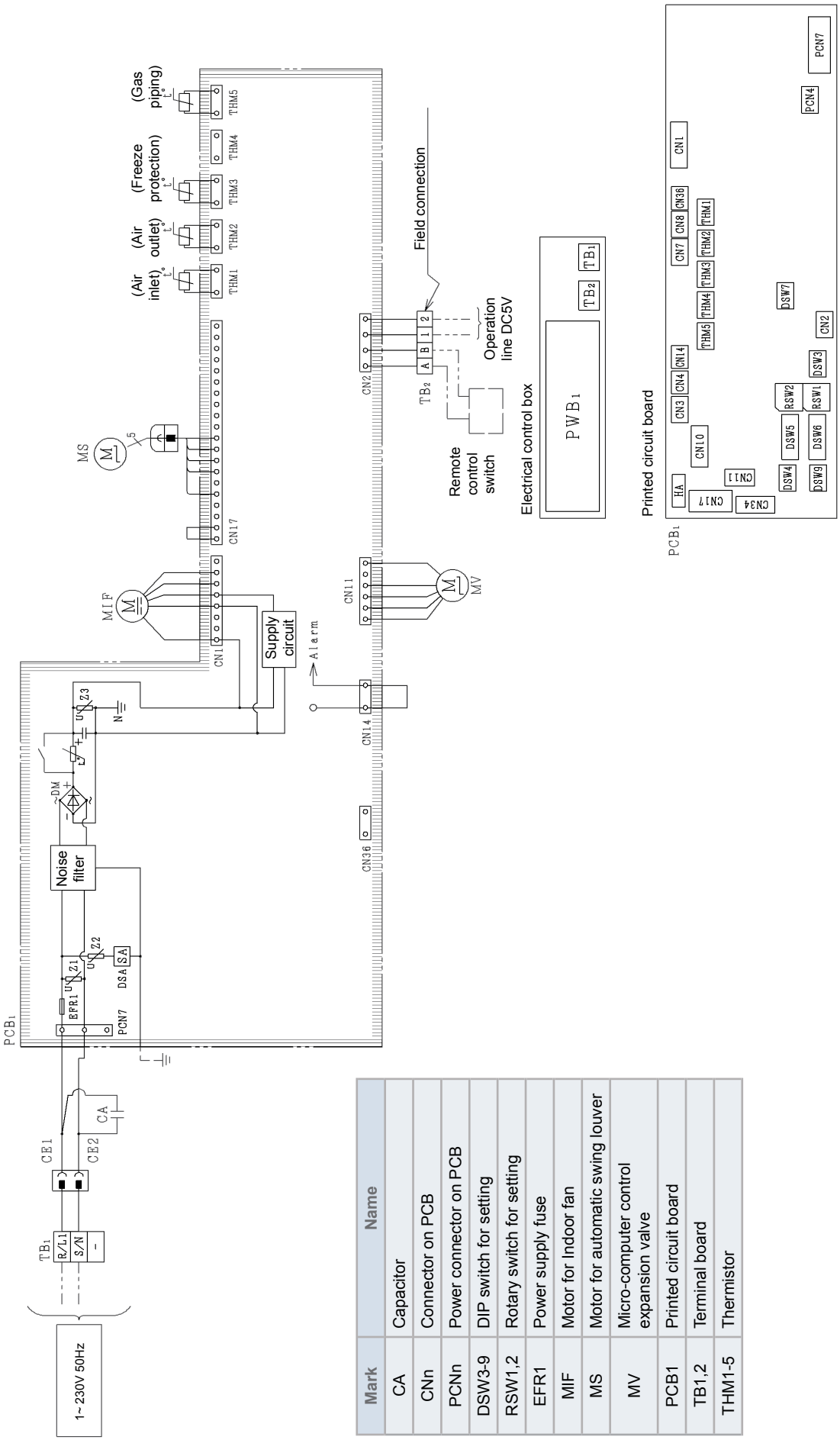


3.3.3.2 RCD-(4.0-6.0)FSN3



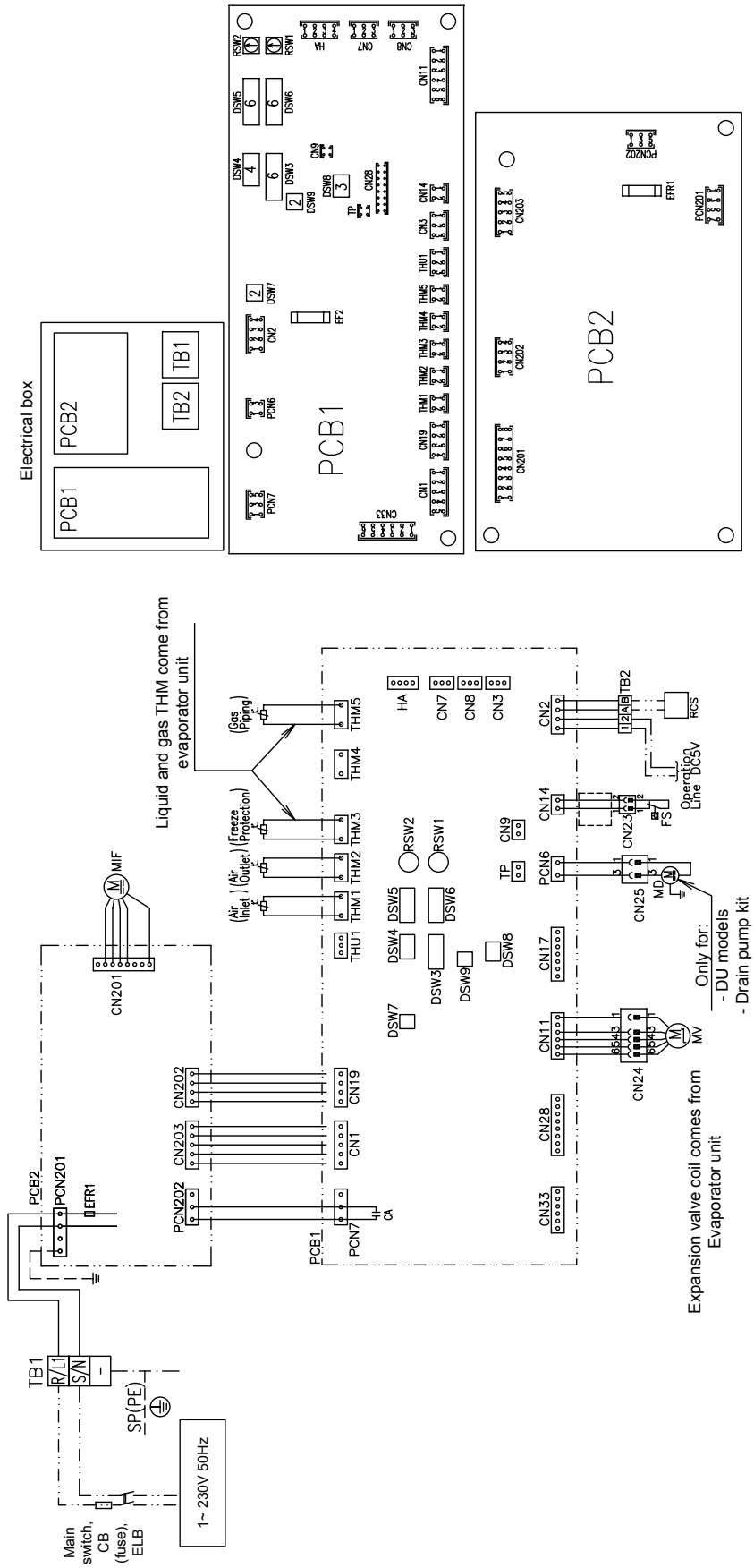
Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MIF1,2	Motor for Indoor fan
MS1,2	Motor for automatic swing louver
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1,2	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
NF	Noise filter

3.3.4 RPC-(1.5-6.0)FSN3



Mark	Name
CA	Capacitor
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MIF	Motor for Indoor fan
MS	Motor for automatic swing louver
MV	Micro-computer control expansion valve
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

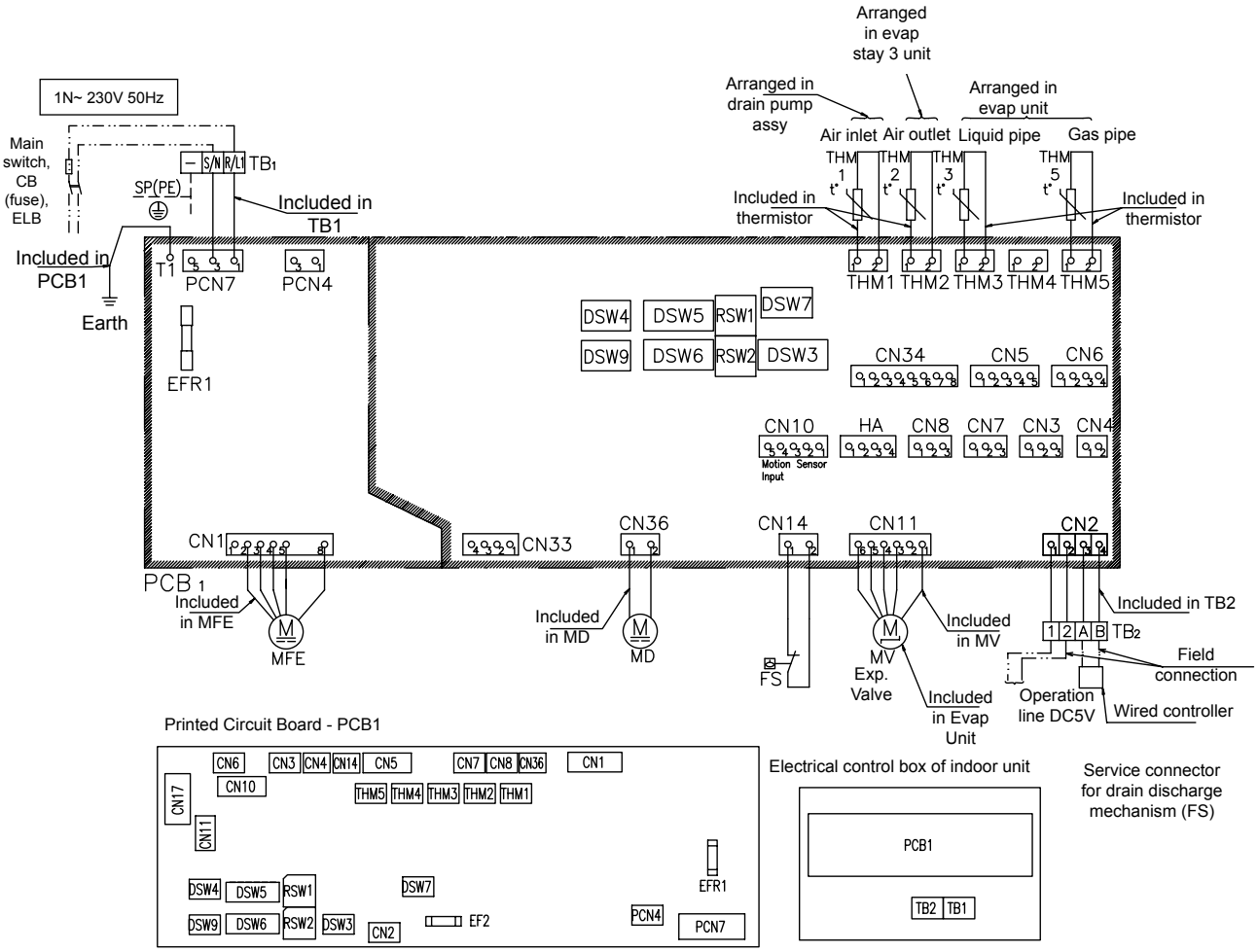
3.3.5 RPIM-(0.6-1.5)FSN4E(-DU)



Mark	Name
CA	Capacitor
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
MIF	Motor for Indoor fan
MV	Micro-computer control expansion valve

Mark	Name
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1,2	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
CN23,24, 25	Aerial connector
RCS	Remote control switch

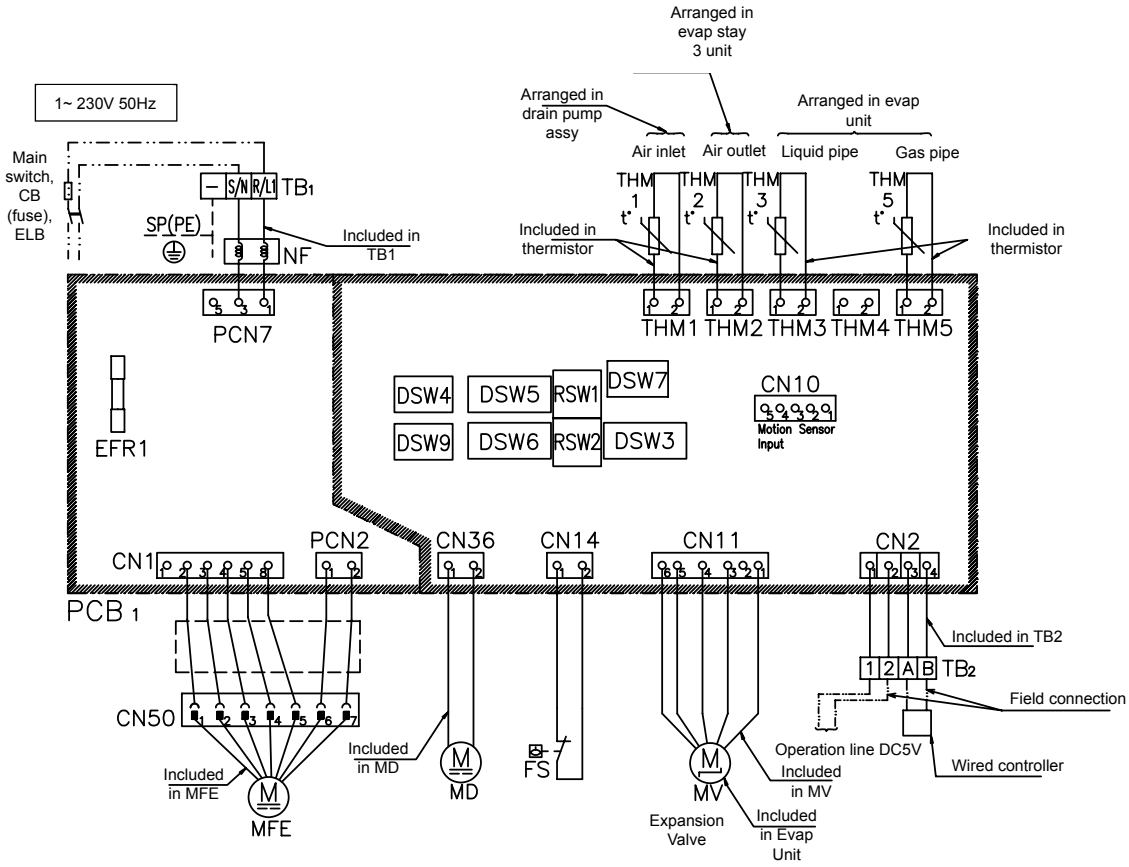
3.3.6 RPI-(0.4-1.5)FSN5E



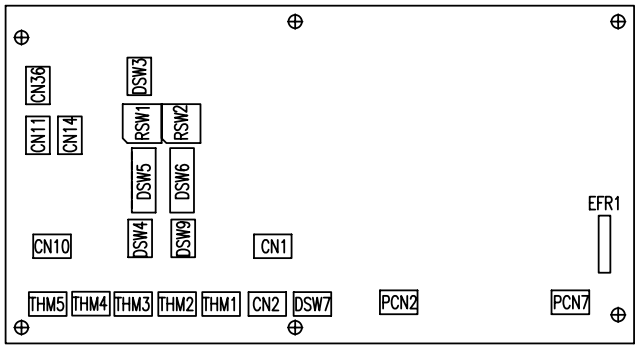
Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
MFE	Motor for Indoor fan

Mark	Name
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

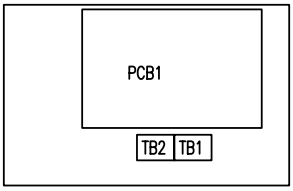
3.3.7 RPI-(2.0-3.0)FSN5E



Printed Circuit Board - PCB1



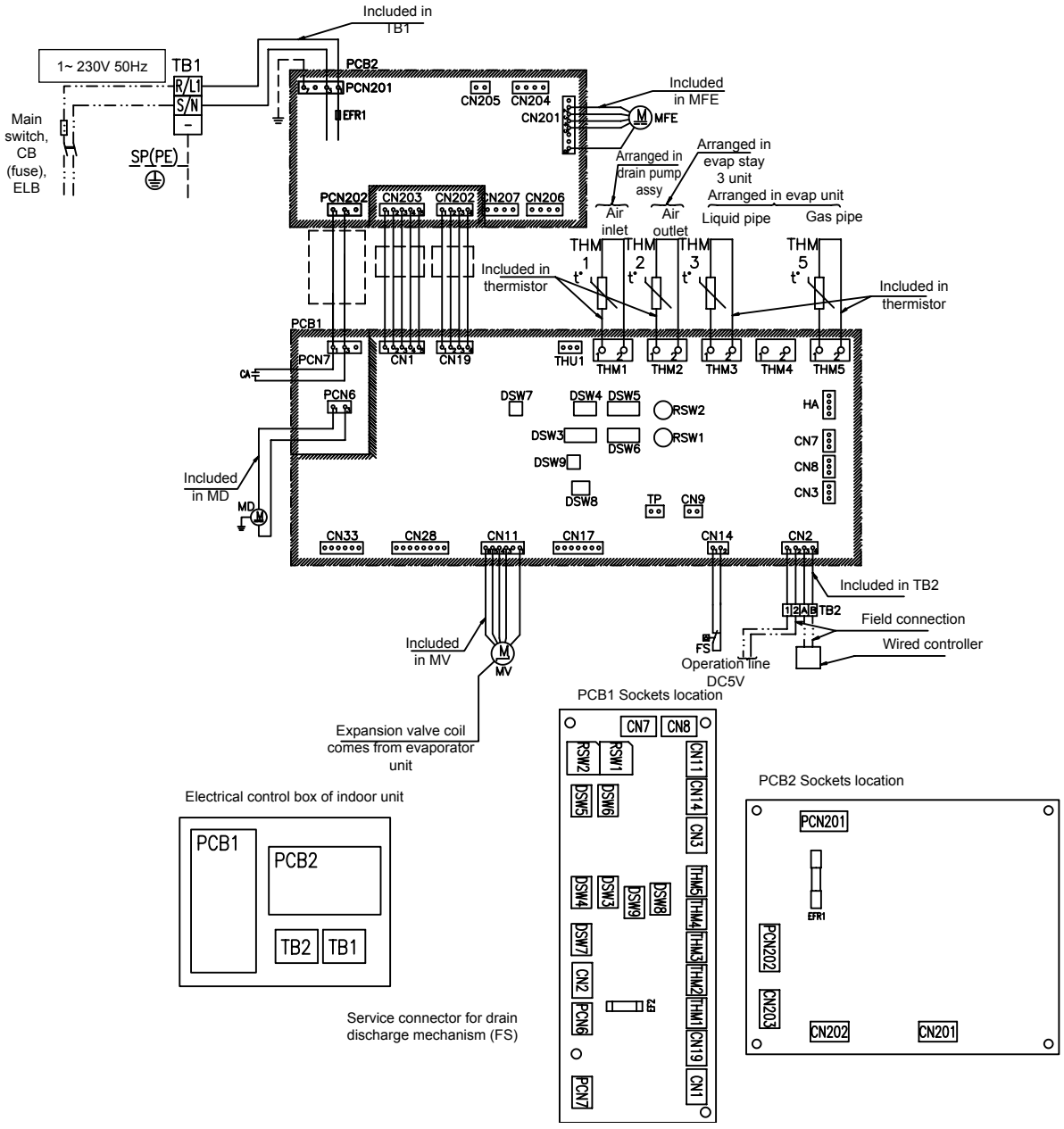
Electrical control box of indoor unit



Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
MFE	Motor for Indoor fan
MV	Micro-computer control expansion valve

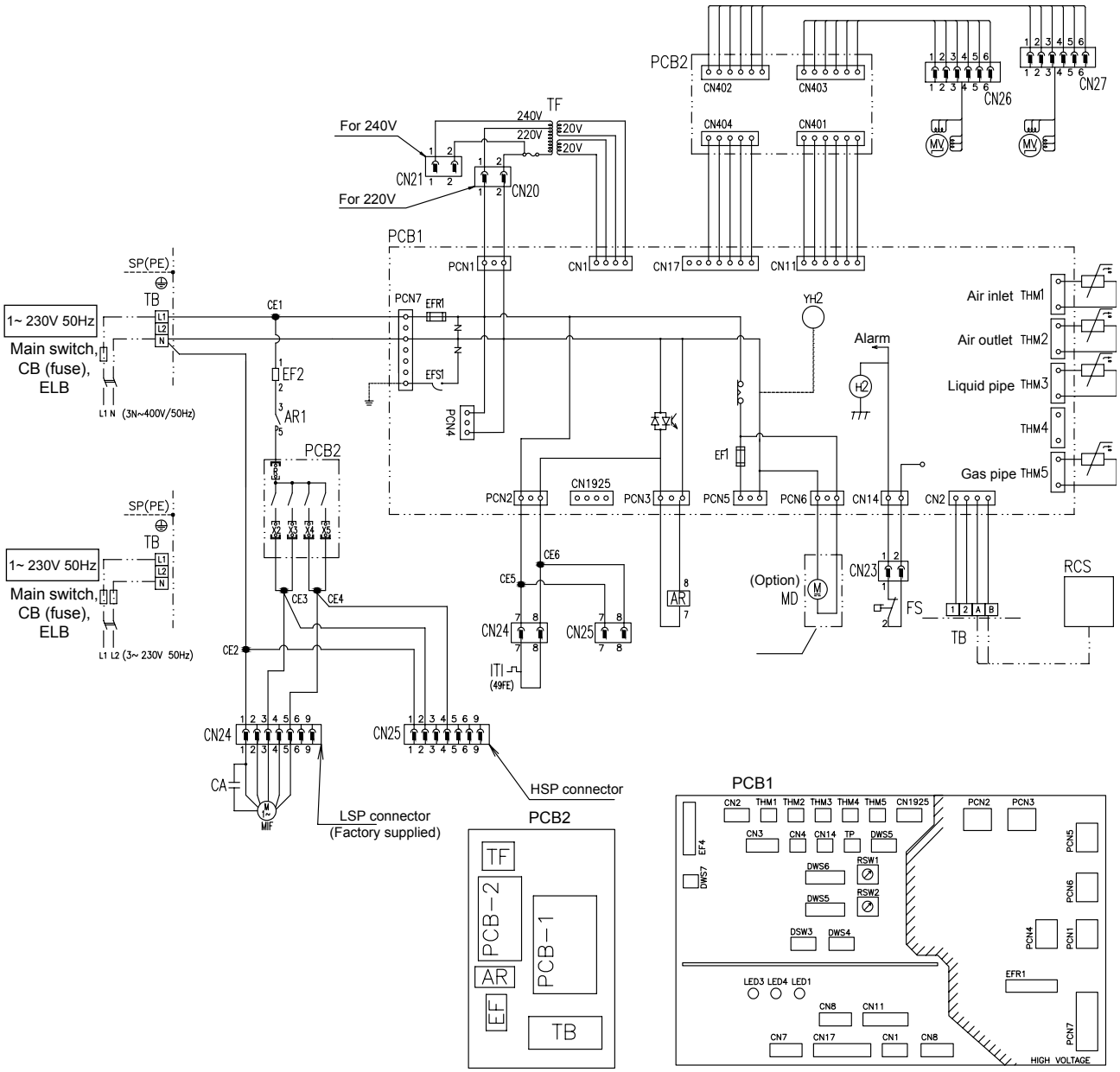
Mark	Name
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
NF	Noise filter

3.3.8 RPI-(4.0-6.0)FSN5E



Mark	Name
CA	Capacitor
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-9	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
MFE	Motor for Indoor fan
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1,2	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

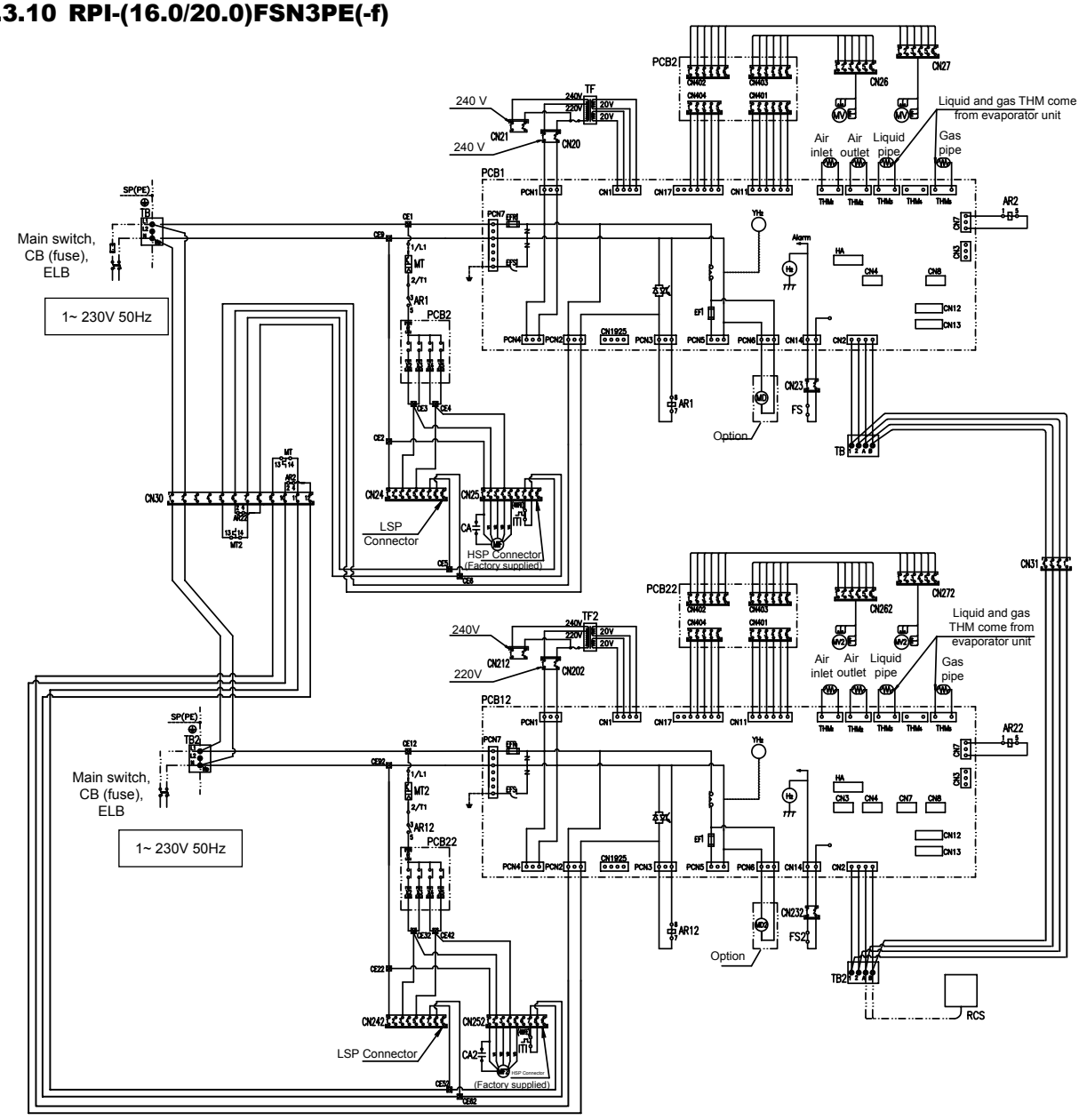
3.3.9 RPI-(8.0/10.0)FSN3E(-f)

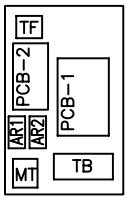


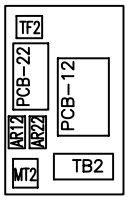
Mark	Name
AR	Auxiliary relay
CA	Capacitor for Indoor fan
CNn	Connector on PCB
DSW3-7	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF1	Fuse for PCN5 connector
EF2	Fuse for fans (located in the terminal box)
EF4	PCB fuse
MIF	Motor for Indoor fan
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1,2	Printed circuit board
TB	Terminal board
THM1-5	Thermistor

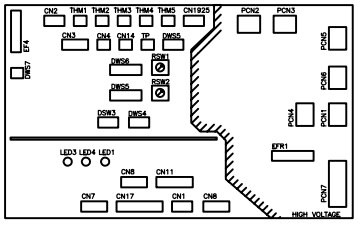
Mark	Name
TF	Transformer
ITI	Internal thermostat for indoor fan motor
CN20-27	Aerial connector
RCS	Remote control switch
TB	Terminal board
TF	Transformer
X2	High speed terminal
X3	Medium speed terminal
X4	Low speed terminal
X5	S-Low speed terminal

3.3.10 RPI-(16.0/20.0)FSN3PE(-f)





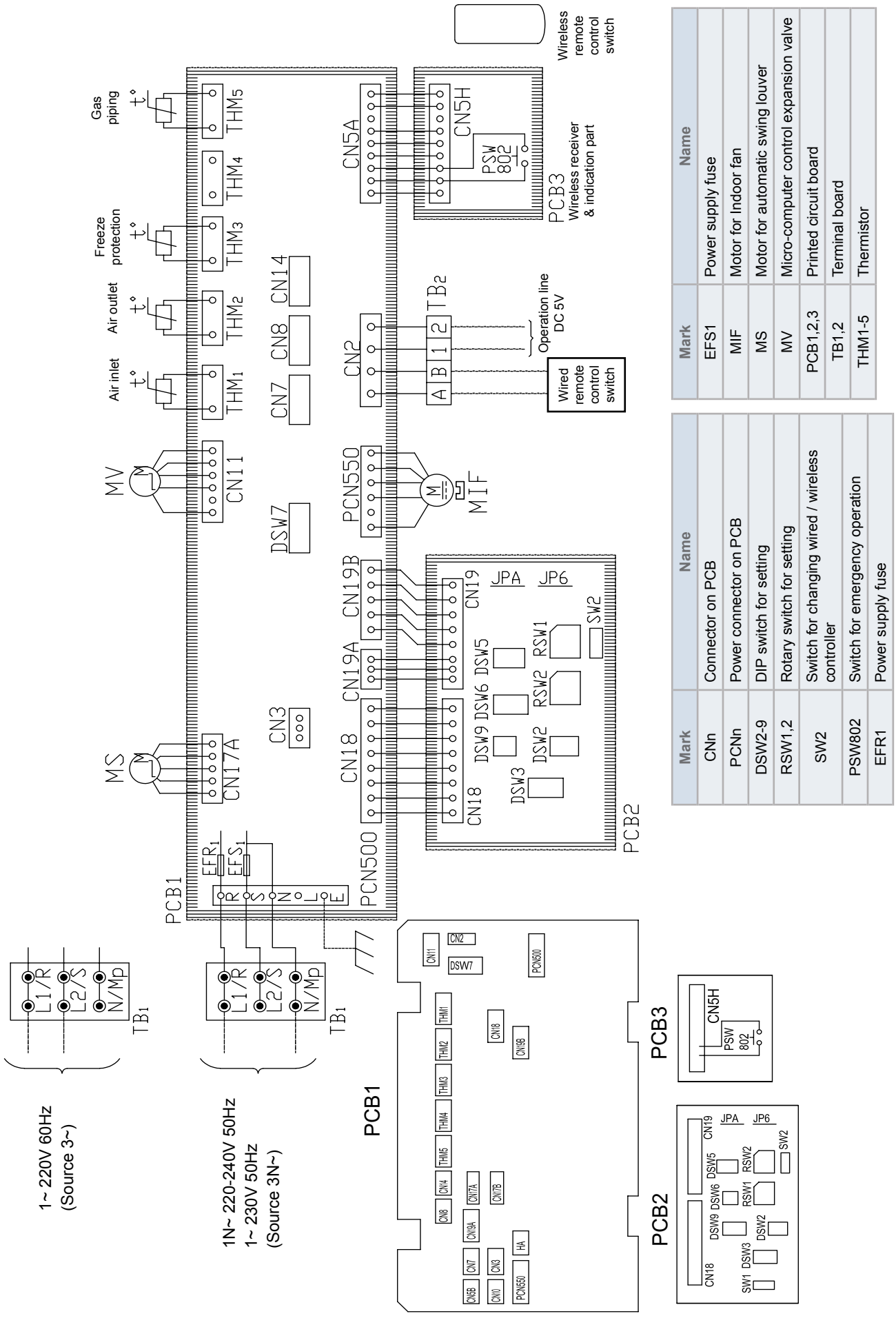




Mark	Name
AR1,2,12,22	Auxiliary relay
CA, CA2	Capacitor for Indoor fan
CNn	Connector on PCB
DSW3-7	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF1	Fuse for PCN5 connector
EF2	Fuse for fans (located in the terminal box)
EF4	PCB fuse
MIF, MIF2	Motor for Indoor fan
MV, MV2	Micro-computer control expansion valve
MD, MD2	Motor for drain discharge mechanism
FS, FS2	Float switch
MT, MT2	Magnetic and thermal circuit breaker
TB1,TB2	Terminal board

Mark	Name
THM1-5	Thermistor
TF, TF2	Transformer
ITI	Internal thermostat for indoor fan motor
CN20-31	Aerial connector indoor unit 1
CN202-312	Aerial connector indoor unit 2
RCS	Remote control switch
TB, TB2	Terminal board
TF, TF2	Transformer
X2	High speed terminal
X3	Medium speed terminal
X4	Low speed terminal
X5	S-Low speed terminal
PCB1,12	Printed circuit board indoor unit 1
PCB2,22	Printed circuit board indoor unit 2

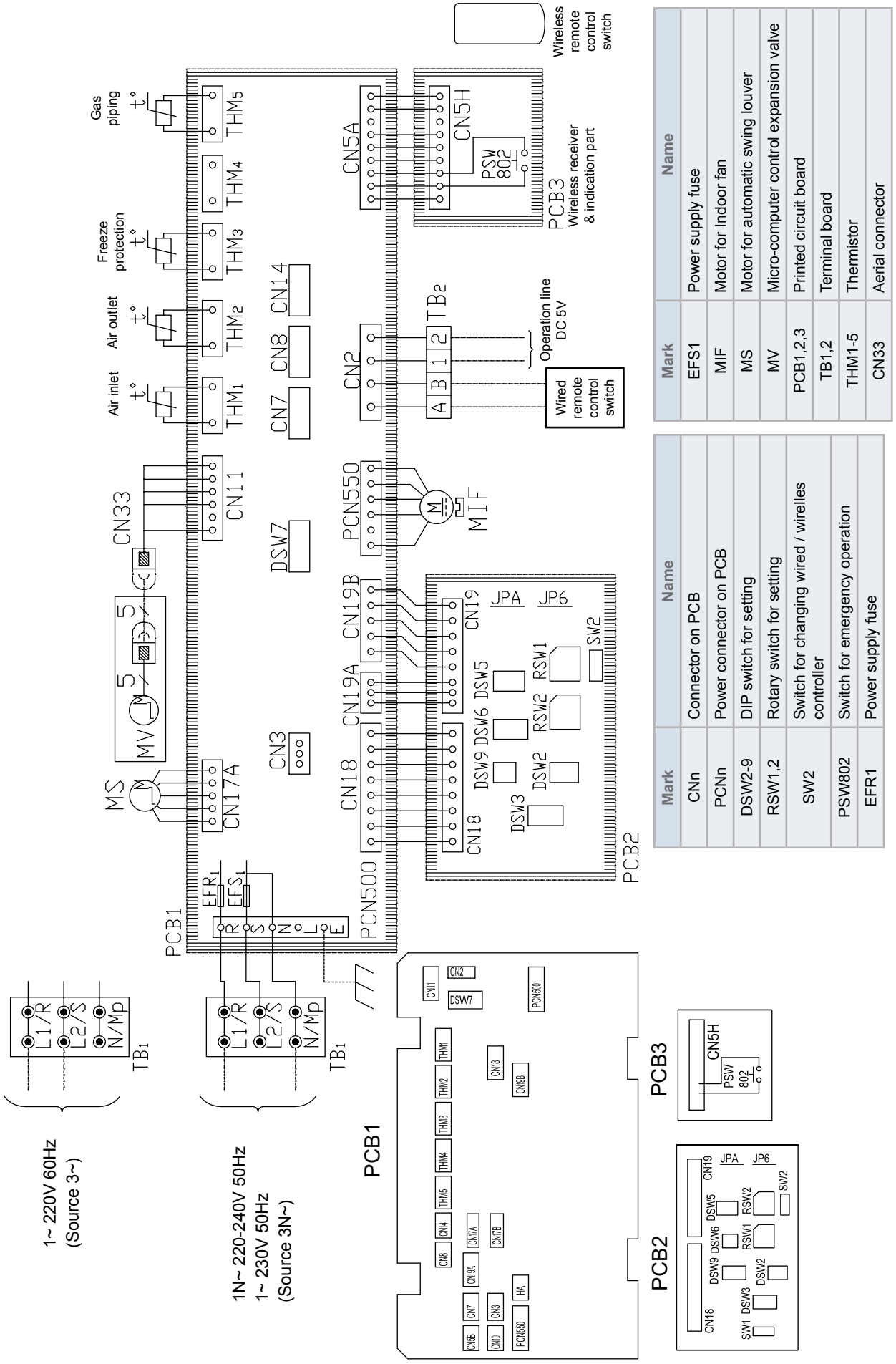
3.3.11 RPK-(0.4-1.5)FSN4M



Mark	Name
EFS1	Power supply fuse
MIF	Motor for Indoor fan
MS	Motor for automatic swing louver
MV	Micro-computer control expansion valve
PCB1,2,3	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW2-9	DIP switch for setting
RSW1,2	Rotary switch for setting
SW2	Switch for changing wired / wireless controller
PSW802	Switch for emergency operation
EFR1	Power supply fuse

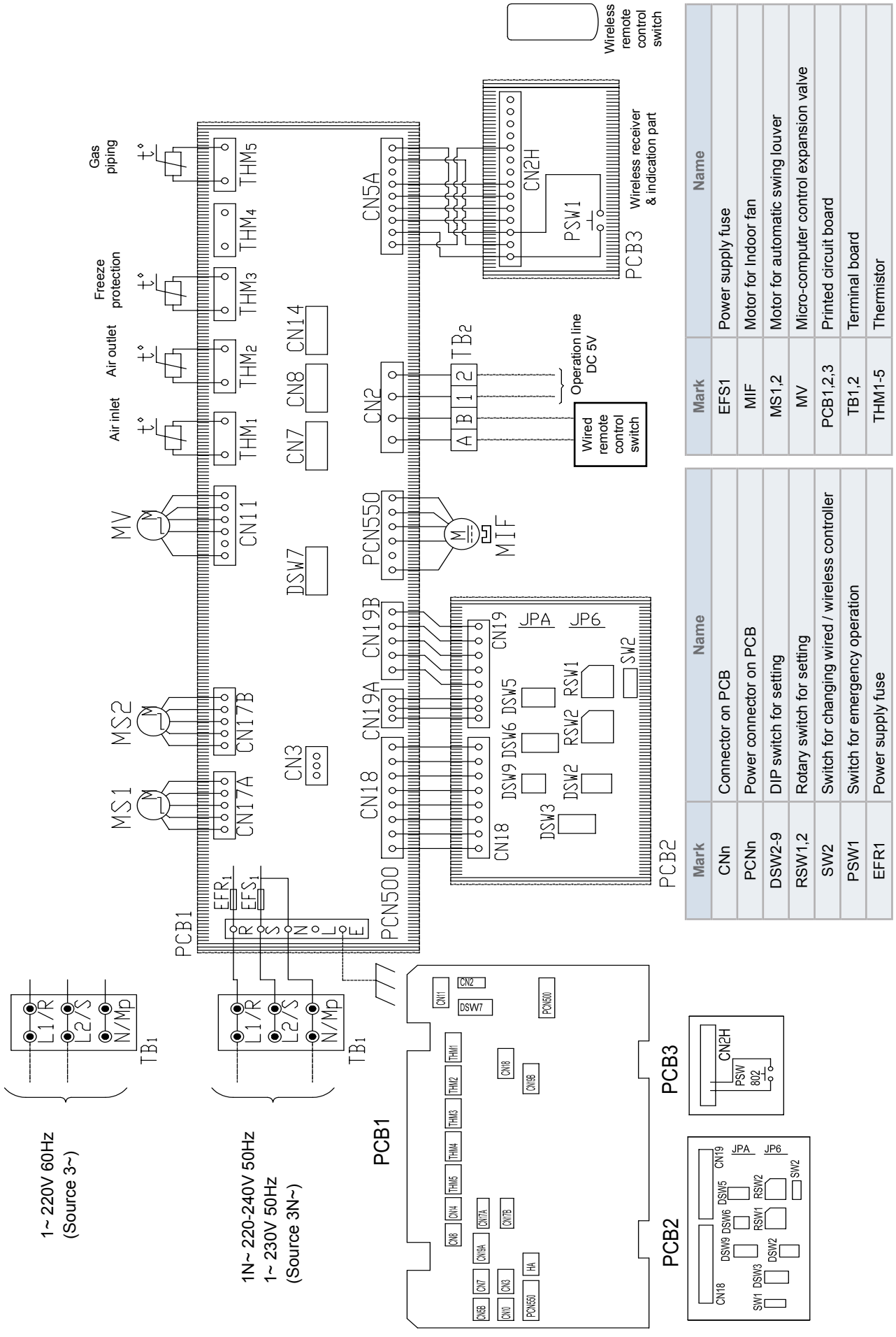
3.3.12 RPK-(0.4-1.5)FSNH4M



Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW2-9	DIP switch for setting
RSW1,2	Rotary switch for setting
SW2	Switch for changing wired / wirelles controller
PSW802	Switch for emergency operation
EFR1	Power supply fuse

Mark	Name
EFS1	Power supply fuse
MIF	Motor for Indoor fan
MS	Motor for automatic swing louver
MV	Micro-computer control expansion valve
PCB1,2,3	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
CN33	Aerial connector

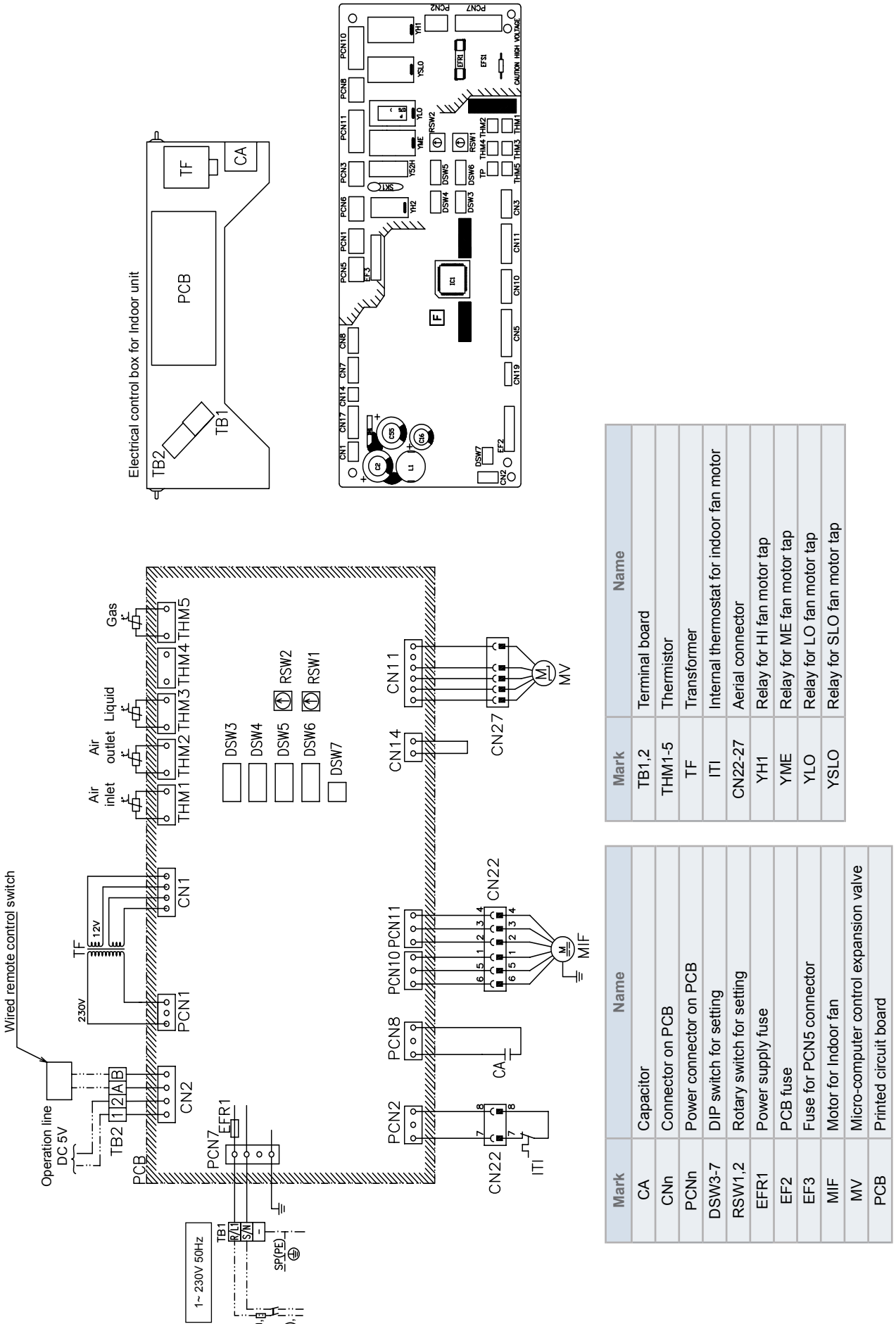
3.3.13 RPK-(2.0-4.0)FSN4M



Mark	Name
EFS1	Power supply fuse
MIF	Motor for Indoor fan
MS1,2	Motor for automatic swing louver
MV	Micro-computer control expansion valve
PCB1,2,3	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor

Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW2-9	DIP switch for setting
RSW1,2	Rotary switch for setting
SW2	Switch for changing wired / wireless controller
PSW1	Switch for emergency operation
EFR1	Power supply fuse

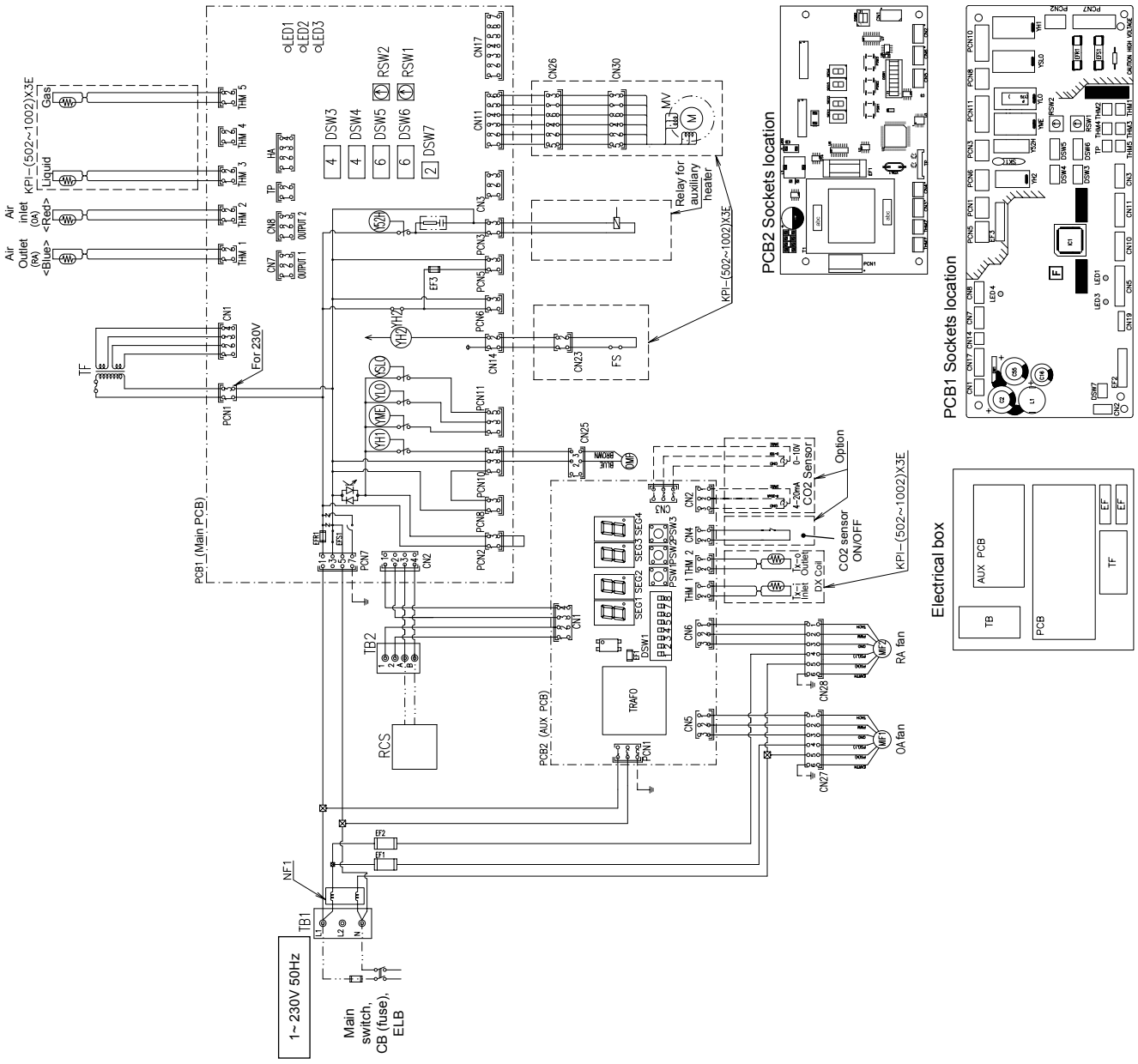
3.3.14 RPF(I)-(1.0-2.5)FSN2E



Mark	Name
CA	Capacitor
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-7	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector
MIF	Motor for Indoor fan
MV	Micro-computer control expansion valve
PCB	Printed circuit board

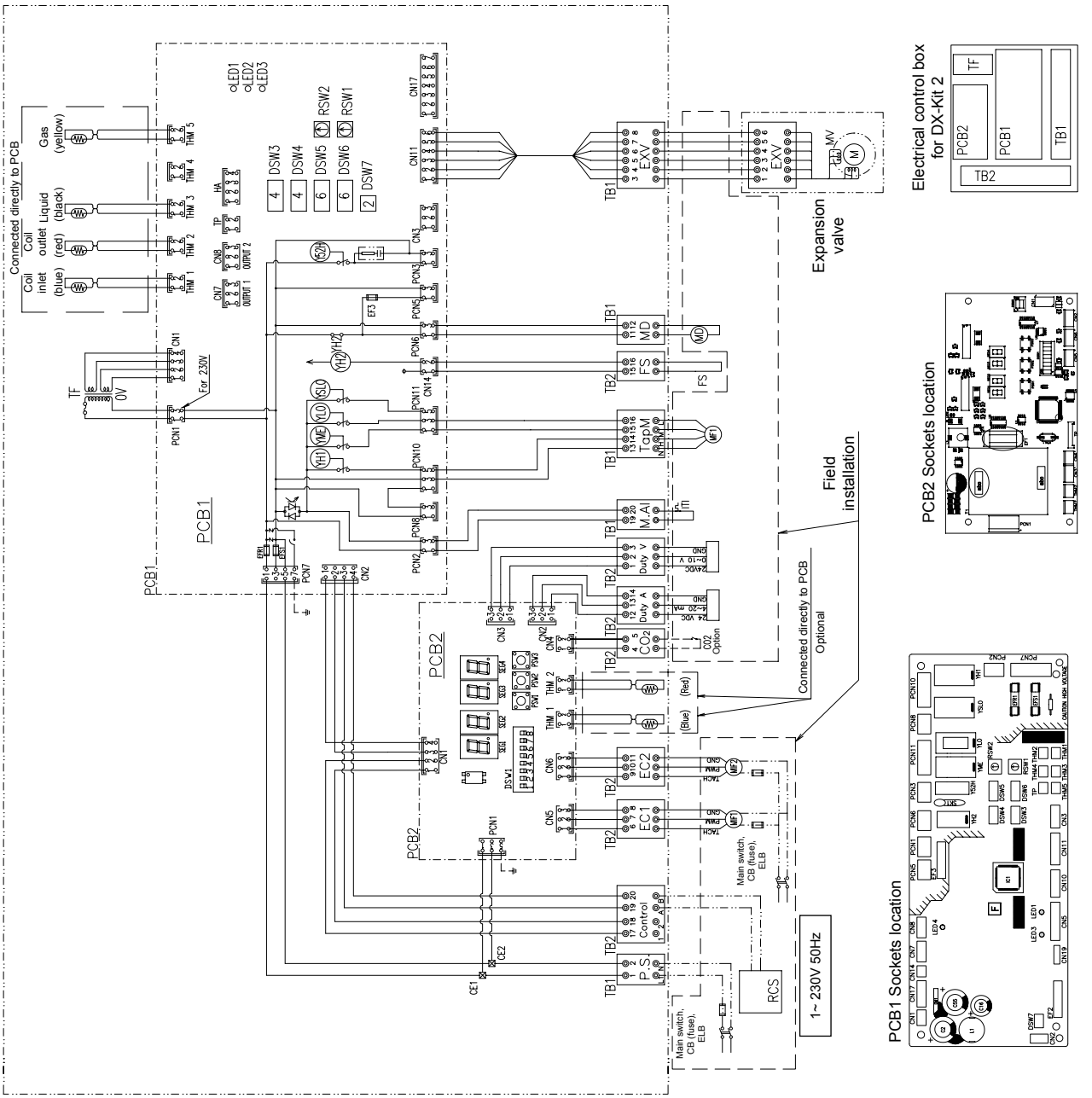
Mark	Name
TB1,2	Terminal board
THM1-5	Thermistor
TF	Transformer
ITI	Internal thermostat for indoor fan motor
CN22-27	Aerial connector
YH1	Relay for HI fan motor tap
YME	Relay for ME fan motor tap
YLO	Relay for LO fan motor tap
YSLO	Relay for SLO fan motor tap

3.3.15 KPI-(252-2002)E4E energy recovery unit and KPI-(502-1002)X4E active unit



Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-7	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector
EF1-2	Fuse for fans (located in the terminal box)
MS1,2	Motor for automatic swing louver
MV	Micro-computer control expansion valve
FS	Float switch
PCB1,2	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
NF1	Noise filter
TF	Transformer
CN23-30	Aerial connector
RCS	Remote control switch
DMP	Damper
SEGn	7-segments display
PSW1-3	Push button
OA	Outdoor air
RA	Return air

3.3.16 DX-Interface EXV-(2.0-10.0)E2



Mark	Name
CNn	Connector on PCB
PCNn	Power connector on PCB
DSW3-7	DIP switch for setting
RSW1,2	Rotary switch for setting
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector
MIF1,2	Motor for Indoor fan
MV	Micro-computer control expansion valve
MD	Motor for drain discharge mechanism
FS	Float switch
PCB1,2	Printed circuit board
TB1,2	Terminal board
THM1-5	Thermistor
TF	Transformer
ITI	Internal thermostat for indoor fan motor
RCS	Remote control switch
YH1	Relay for HI fan motor tap
YME	Relay for ME fan motor tap
YLO	Relay for LO fan motor tap
YSLO	Relay for SLO fan motor tap
YH2	Relay for drain motor
Y52H	Relay for Electric heater
SEGn	7-segments display
PSW1-3	Push button

4. Control system

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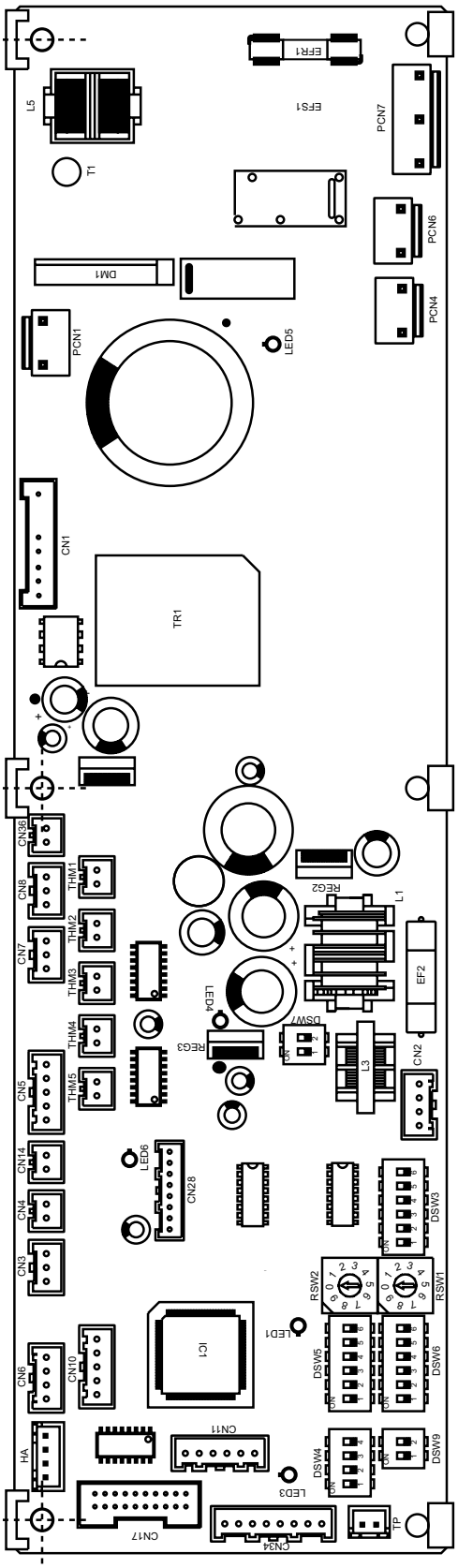
⚠ CAUTION

Turn off the power supply before setting the DIP switches. If not, the settings will not be valid.

NOTE

- *The symbol "■" indicates the position of the DIP switches. The figures show the setting before transmission or after selection.*
- *If the "■" mark is not displayed, this indicates that the position of the pin is not affected.*

4.1 Printed circuit boards for RCI-FSN4 indoor units (PI103)

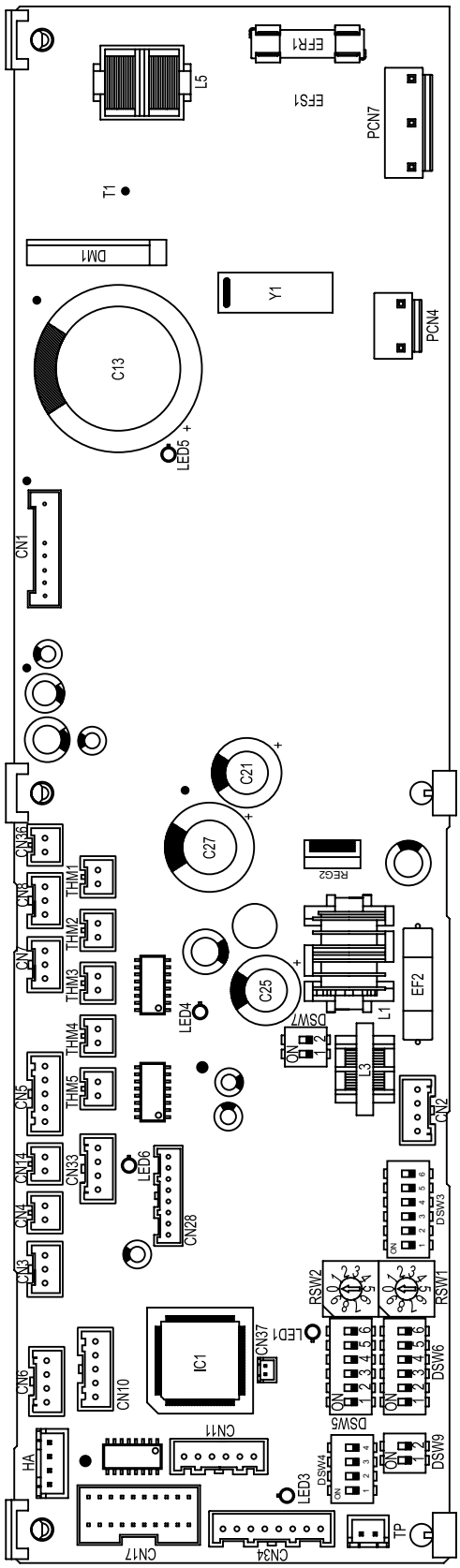


LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje

Connector indication	
PCN7	Terminal board 1 (TB1)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Motor for indoor fan
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN10	Air panel PCB
CN11	Expansion valve
CN14	Float switch
CN17	Air panel motor for automatic swing louver
CN36	Motor for drain discharge mechanism
EFS1	not used
EFR1	Power supply fuse
EF2	PCB1 fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.2 Printed circuit boards for RCIM-FSN4E indoor units (PI143)

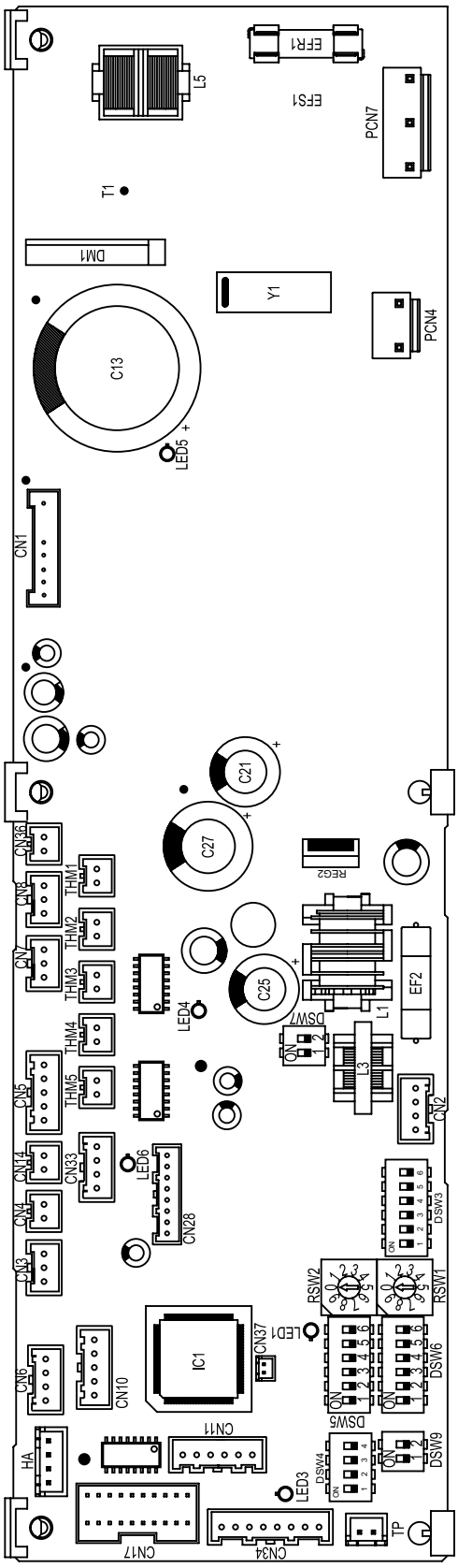


LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje

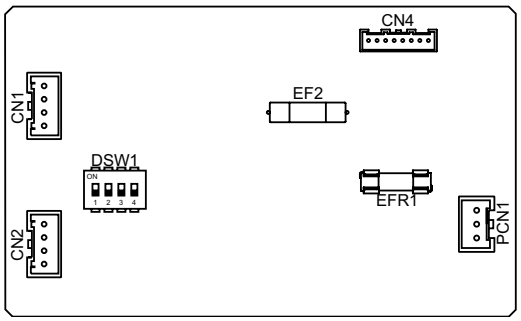
Connector indication	
PCN7	Terminal board 1 (TB1)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Motor for indoor fan
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN10	Air panel PCB
CN11	Expansion valve
CN14	Float switch
CN17	Air panel motor for automatic swing louver
CN36	Motor for drain discharge mechanism
EFS1	not used
EFR1	Power supply fuse
EF2	PCB1 fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.3 Printed circuit boards for RCD-FSN3 (PI143 - PI141) indoor units



PCB PI141 for RCD-(4.0-6.0)FSN3 only



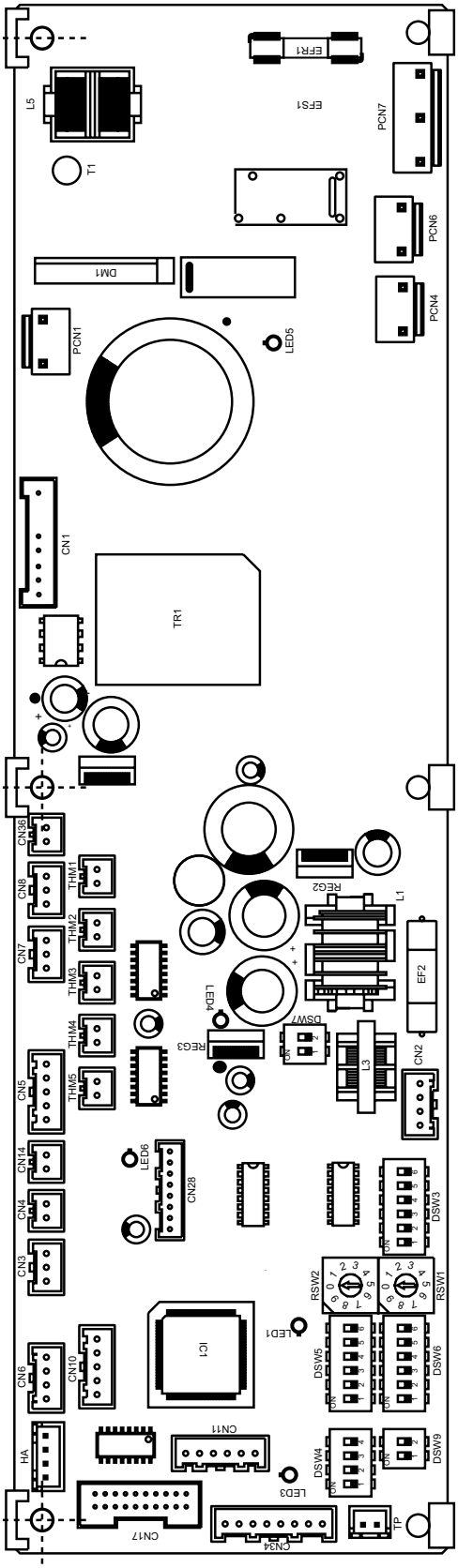
LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje

PCB1 Connector indication	
PCN7	Terminal board 1 (TB1)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Remote thermistor
THM5	Gas pipe thermistor
CN1	Motor for indoor fan 1
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN10	Motion Sensor Kit connection
CN33	Printed circuit board 2 (CN2)
CN17	Swing louver motor 4
EFR1	Power supply fuse
EF2	PCB2 fuse

PCB2 Connector indication	
PCN1	220 V transformer
CN2	Printed circuit board 1 (CN33)
CN4	Motor for indoor fan 2

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.4 Printed circuit board for RPC-FSN3 (PI103)

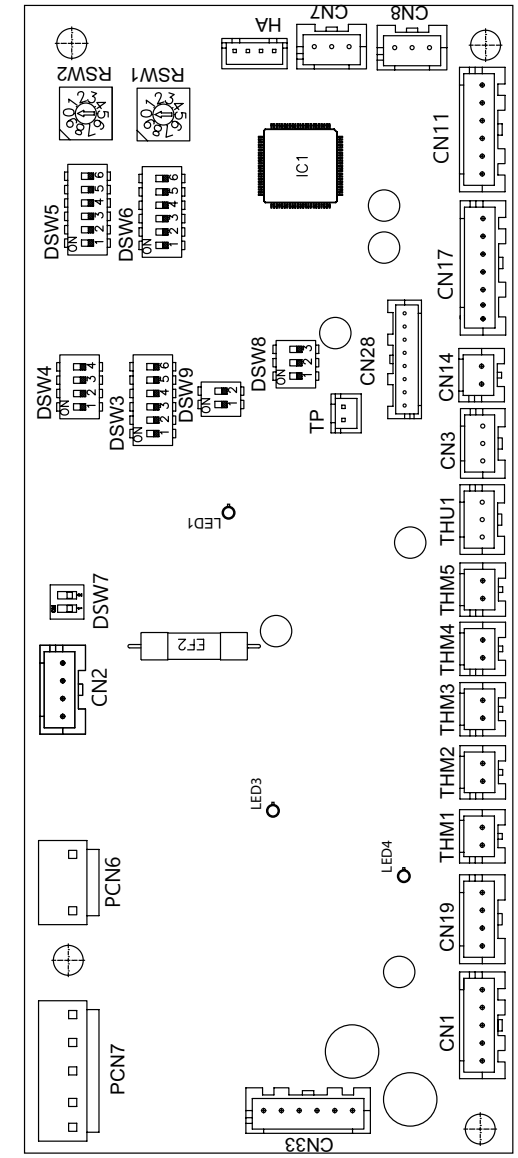


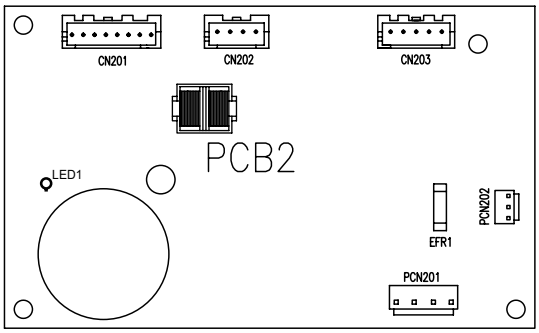
LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje

Connector indication	
PCN7	Terminal board 1 (TB1)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Motor for indoor fan
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN10	Motion Sensor Kit connection
CN11	Expansion valve
CN14	Float switch
CN17	Air panel motor for automatic swing louver
CN36	Motor for drain discharge mechanism
EFR1	Power supply fuse
EF2	PCB1 fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.5 Printed circuit board for RPIM-(0.6-1.5)FSN4E(-DU) (PI114-PI116)



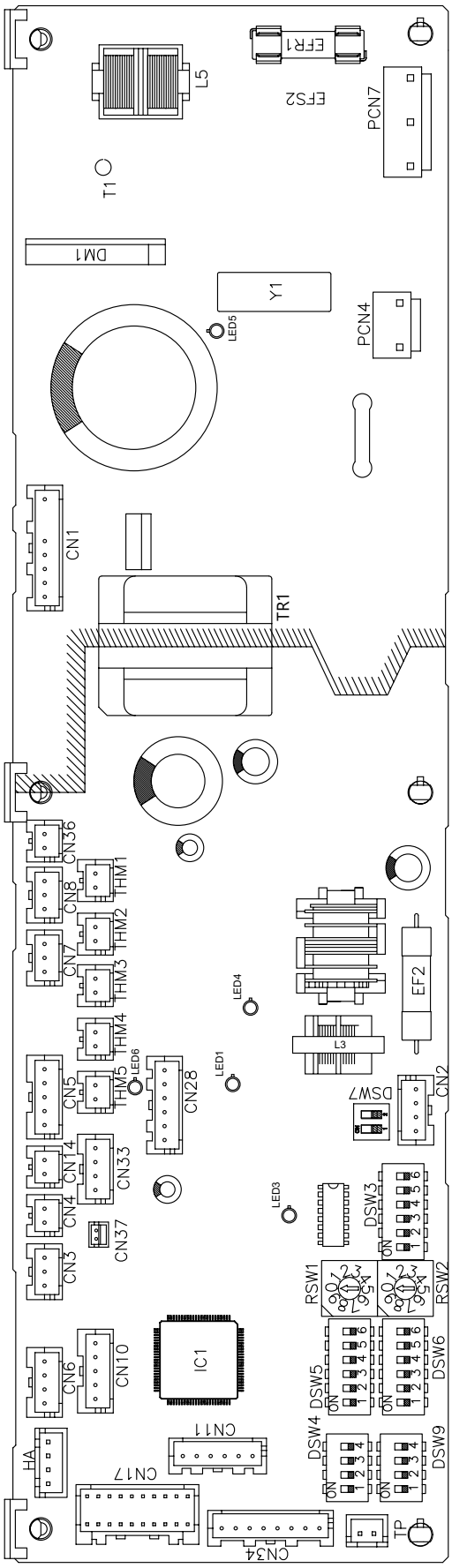


PCB1 LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
PCB2 LED indicator		
LED1	Red	PCB power supply high voltaje

PCB1 Connector indication	
PCN6	Drain pump motor
PCN7	Printed circuit board 2 (PCB2 - PCN202)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Printed circuit board 2 (PCB2 - CN203)
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Expansion valve
CN14	Float switch
CN19	Printed circuit board 2 (PCB2 - CN202)
EF2	PCB1 fuse
PCB2 Connector indication	
PCN201	Terminal board 1 (TB1) (PCB1 - PCN7)
PCN202	Printed circuit board 1 (PCB1 - PCN7)
CN201	Motor for indoor fan
CN202	Printed circuit board 1 (PCB1 - CN19)
CN203	Printed circuit board 1 (PCB1 - CN1)
EFR1	Power supply fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery
DSW8	Additional functions
DSW9	0.6HP capacity setting

4.6 Printed circuit board for RPI-(0.4-1.5)FSN5E (PI153)

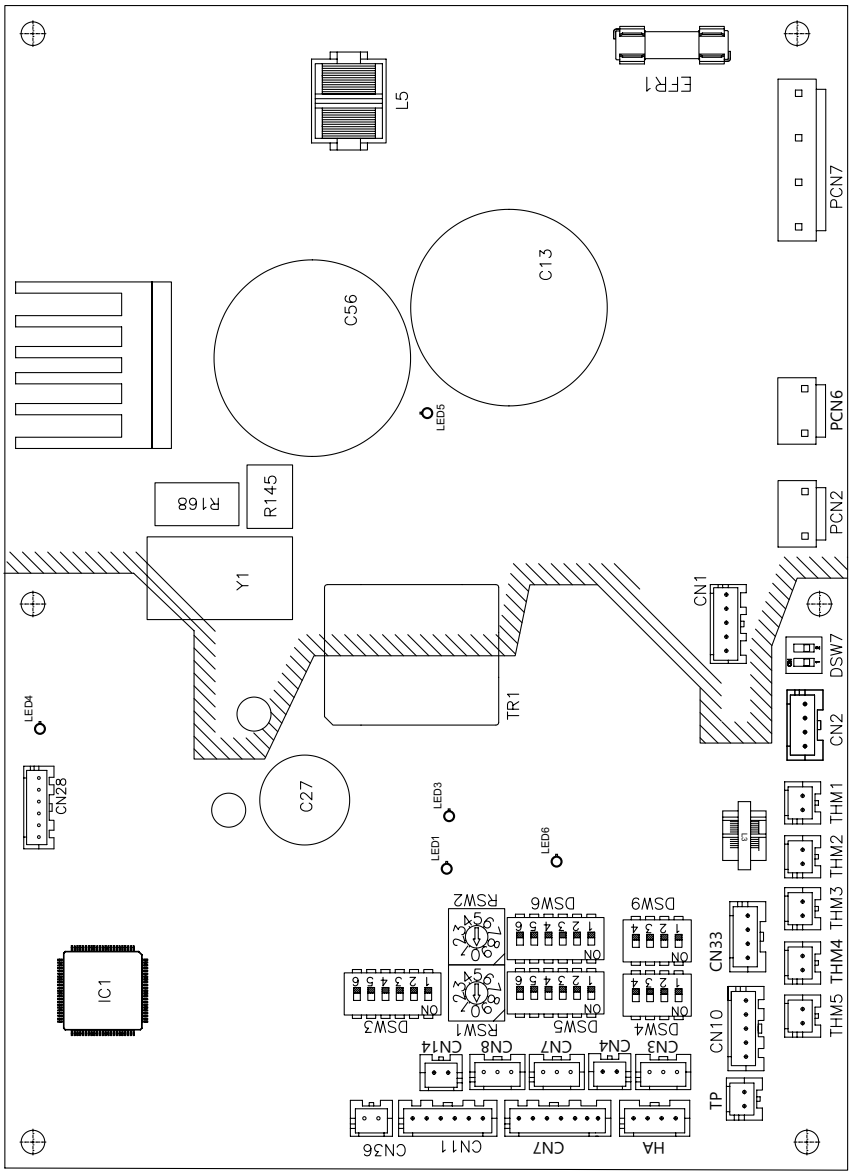


LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje
LED6	Green	Not used

Connector indication	
PCN7	Terminal board 1 (TB1)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Printed circuit board 2
CN2	Terminal board
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Expansion valve
CN14	Float switch
CN17	Econofresh kit connection
EFR1	Power supply fuse
EF2	PCB1 fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW1	Refrigerant cycle number setting
DSW6, RSW2	Indoor unit number setting
DSW7	Fuse recovery
DSW8	Additional functions
DSW9	0.6HP capacity setting

4.7 Printed circuit board for RPI-(2.0-3.0)FSN5E (PI161)

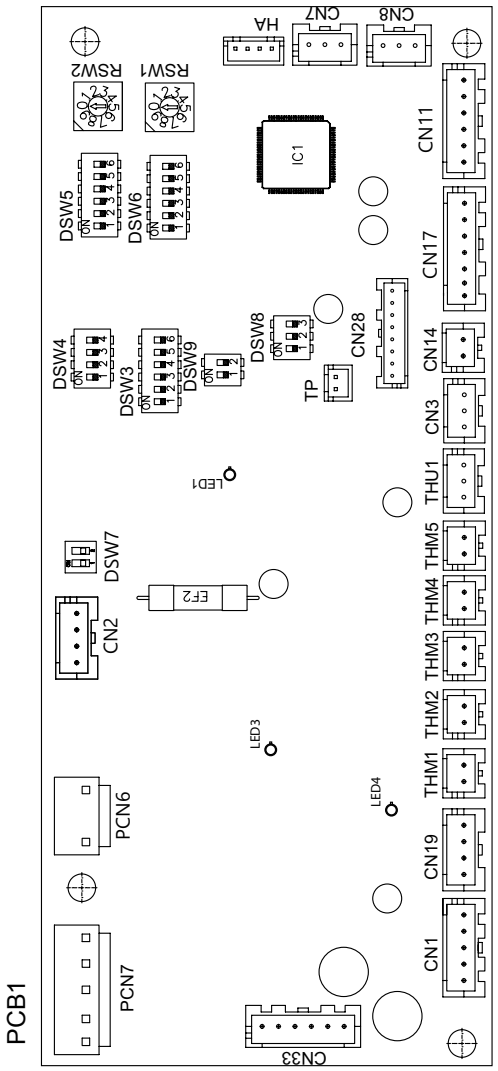


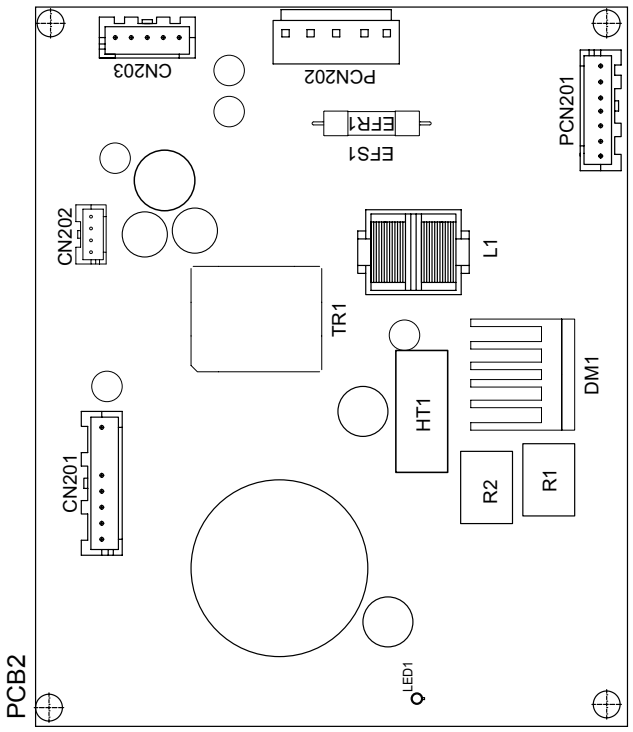
LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED5	Red	PCB power supply high voltaje
LED6	Green	Not used

Connector indication	
CN36	Drain pump
PCN7	Printed circuit board 2
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN2	Terminal board
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Expansion valve
CN14	Float switch
CN36	Drain pump
EFR1	Power supply fuse
EF2	PCB1 fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery
DSW8	Additional functions
DSW9	0.6HP capacity setting

4.8 Printed circuit board for RPI-(4.0-6.0)FSN5E (PI114-PI117)



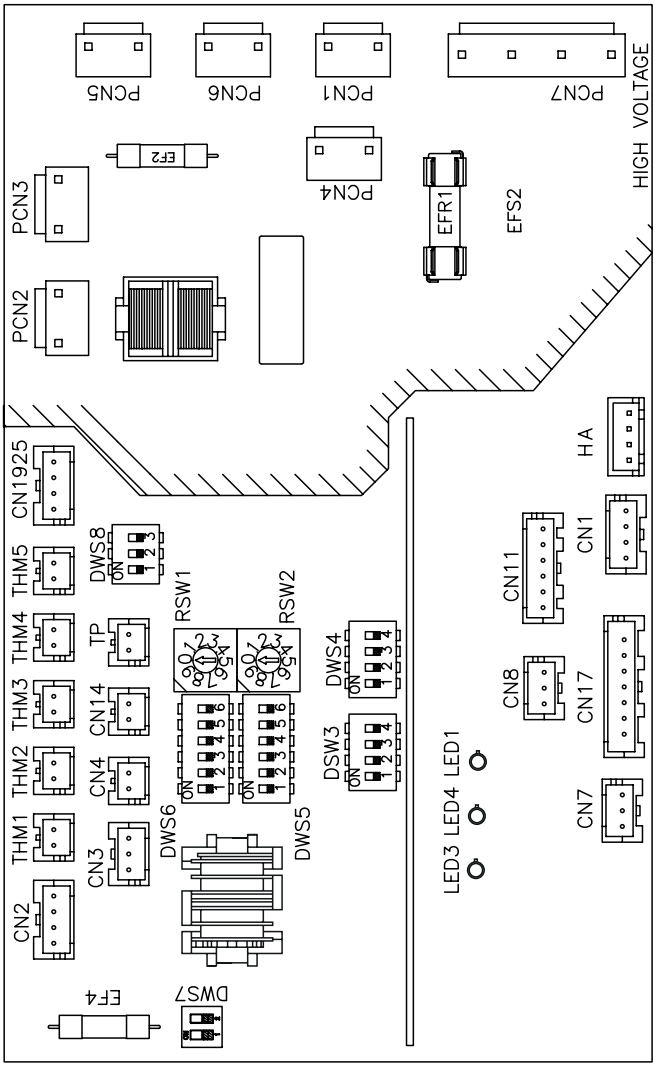


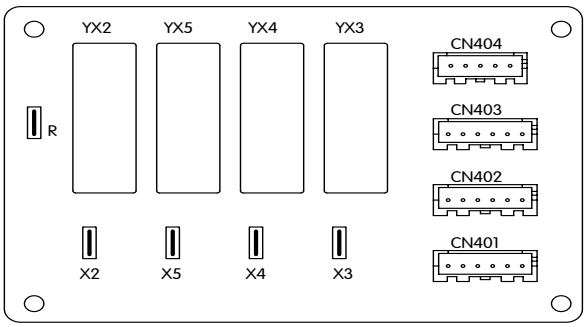
PCB1 LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
PCB2 LED indicator		
LED1	Red	Power supply

PCB1 Connector indication	
PCN6	Drain pump
PCN7	Printed circuit board 2 (PCN202)
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Printed circuit board 2 (CN203)
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Expansion valve
CN14	Float switch
CN17	Econofresh kit connection
CN19	Printed circuit board 2 (CN202)
EF2	PCB1 fuse
PCB1 Connector indication	
PCN201	Terminal board 1 (TB1)
PCN202	Printed circuit board 1 (PCN7)
CN201	Motor for indoor fan
CN202	Printed circuit board 1 (CN19)
CN203	Printed circuit board 1 (CN1)
EFR1	Power supply fuse

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery
DSW8	Additional functions
DSW9	0.6HP capacity setting

4.9 Printed circuit board for RPI-(8.0-20.0)FSN3(P)E(-f) units (PI065-PI005)





LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply

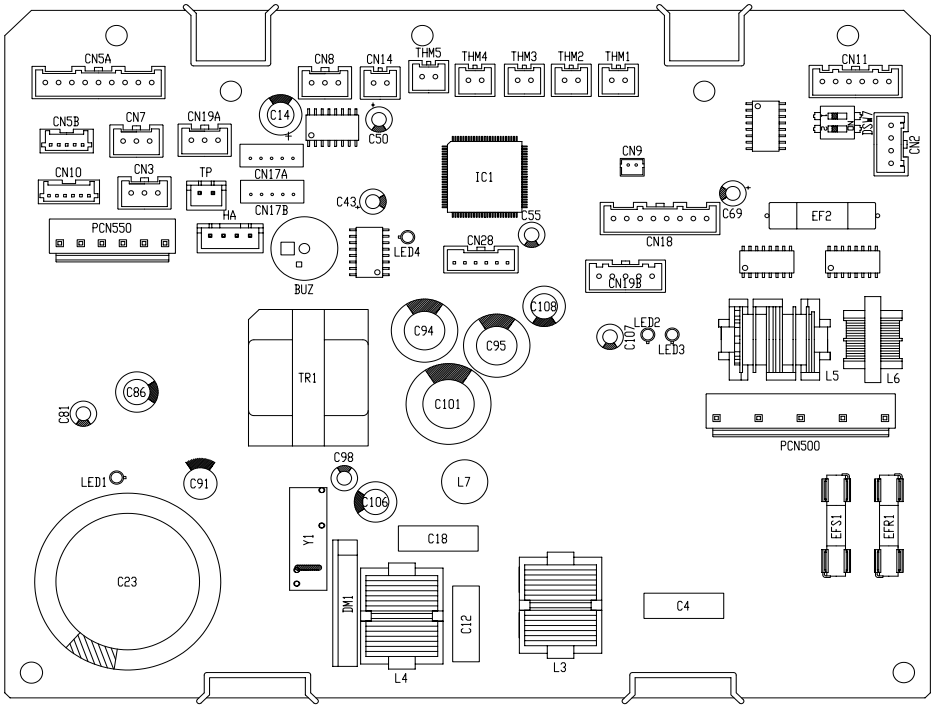
PCB1 Connector indication	
PCN1	220 V transformer
PCN2	Internal thermostat for indoor fan motor
PCN3	Fan stoppage alarm signal
PCN6	Drain pump motor (RPI)
PCN7	Terminal board - Power supply
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
EFR1	Power supply fuse
EF1	Fuse for PCN5 connector
EF4	PCB fuse
CN1	Transformer (20 V)
CN2	Terminal board - H-LINK control circuit and remote control switch
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Printed circuit board 2 (CN401)
CN17	Printed circuit board 2 (CN404)
CN14	Float switch (RPI)
PCB2 Connector indication	
CN401	Printed circuit board 1 (CN11)
CN404	Printed circuit board 1 (CN17)
CN402	Expansion valve control
CN403	Expansion valve control
YX2	Relay for High speed (Terminal X2)
YX5	Relay for S-Low speed (Terminal X5)
YX4	Relay for Low speed (Terminal X4)
YX3	Relay for Medium speed (Terminal X5)
R	Terminal board - Fan motor power supply

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery and remote control selector

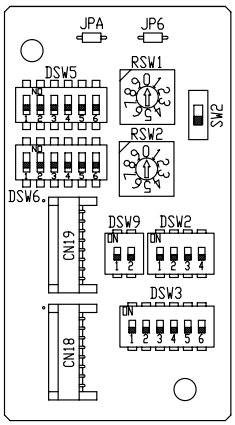
4.10 Printed circuit board for RPK-FSN(H)4M units

4.10.1 For RPK-(0.4-1.5)FSN(H)4M (PI151-PI154)

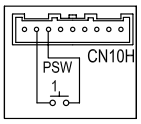
PCB1



PCB2



PCB3



LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED2	Red	Not used

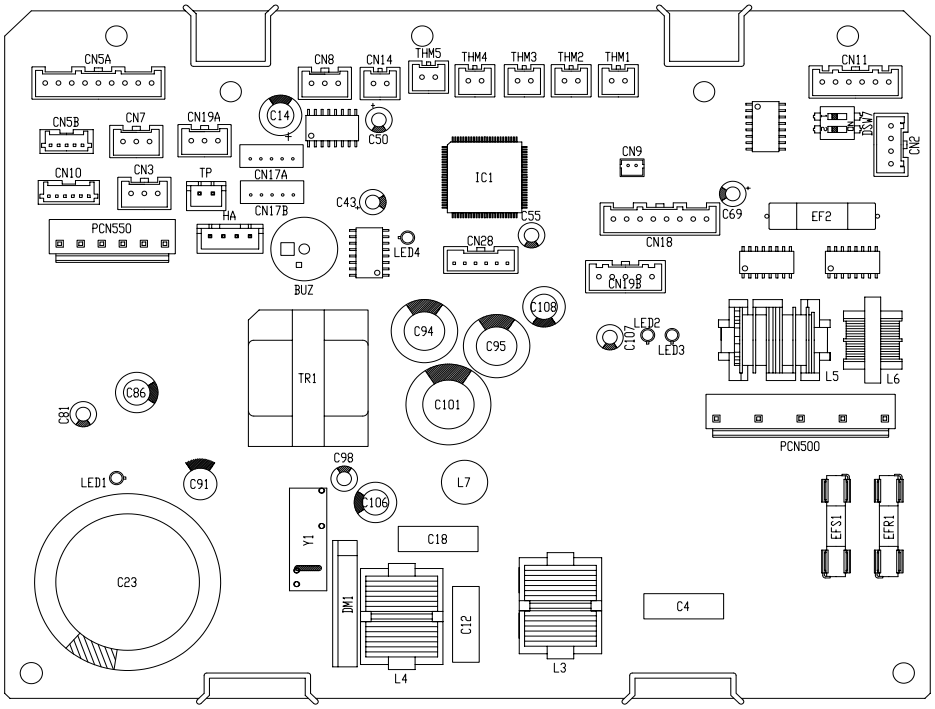
PCB1 Connector indication	
PCN500	Terminal board 1 (TB1)
PCN550	Motor for indoor fan
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN5A	Printed circuit board 3 (CN10H)
CN11	Expansion valve
CN17A	Motor for automatic swing louver
CN18	Printed circuit board 2 (CN18)
CN19A	Printed circuit board 2 (CN19)
CN19B	Printed circuit board 2 (CN19)

PCB2 Connector indication	
CN18	Printed circuit board 1 (CN18)
CN19	Printed circuit board 1 (CN19A - CN19B)
PCB3 Connector indication	
CN10H	Printed circuit board 1 (CN5A)

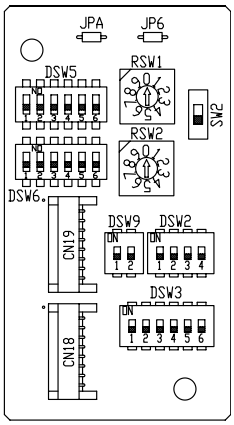
Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW1	Refrigerant cycle number setting
DSW6, RSW2	Indoor unit number setting
DSW7	Fuse recovery
DSW2, DSW9	Identifying indoor units installed side by side
SW2	Switch for changing wired / wireless controller

4.10.2 For RPK-(2.0-4.0)FSN4M (PI151-PI154)

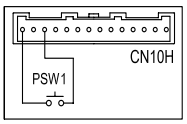
PCB1



PCB2



PCB3



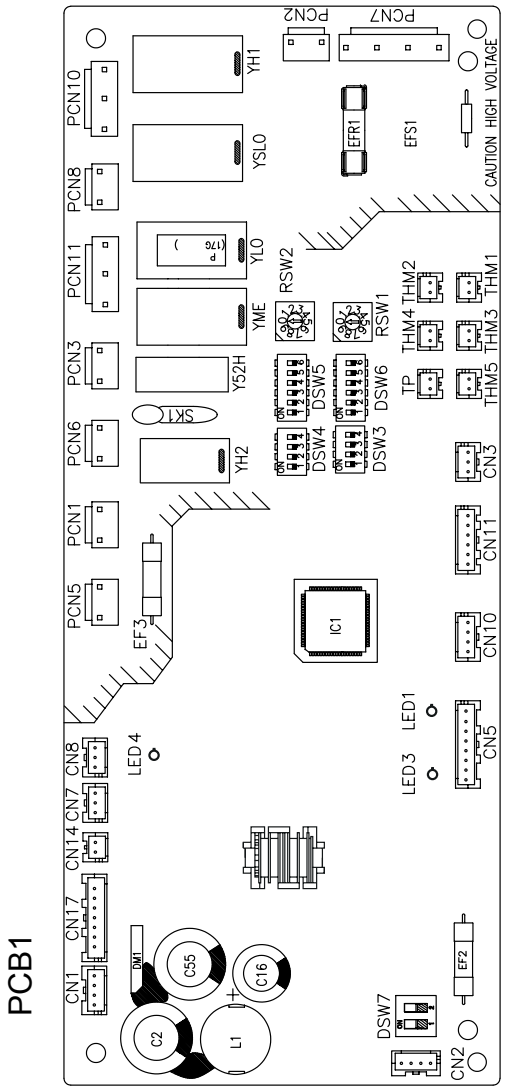
LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Red	PCB power supply
LED2	Red	Not used

PCB1 Connector indication	
PCN500	Terminal board 1 (TB1)
PCN550	Motor for indoor fan
THM1	Air inlet thermistor
THM2	Air outlet thermistor
THM3	Freeze protection thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN2	Terminal board 2 (TB2)
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN5A	Printed circuit board 3 (CN10H)
CN11	Expansion valve
CN17A	Motor for automatic swing louver
CN18	Printed circuit board 2 (CN18)
CN19A	Printed circuit board 2 (CN19)
CN19B	Printed circuit board 2 (CN19)

PCB2 Connector indication	
CN18	Printed circuit board 1 (CN18)
CN19	Printed circuit board 1 (CN19A - CN19B)
PCB3 Connector indication	
CN10H	Printed circuit board 1 (CN5A)

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW1	Refrigerant cycle number setting
DSW6, RSW2	Indoor unit number setting
DSW7	Fuse recovery
DSW2, DSW9	Identifying indoor units installed side by side
SW2	Switch for changing wired / wireless controller

4.11 Printed circuit board for RPF(I)-FSN2E units (PI073)



PCB1

PCB1 LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Green	PCB power supply

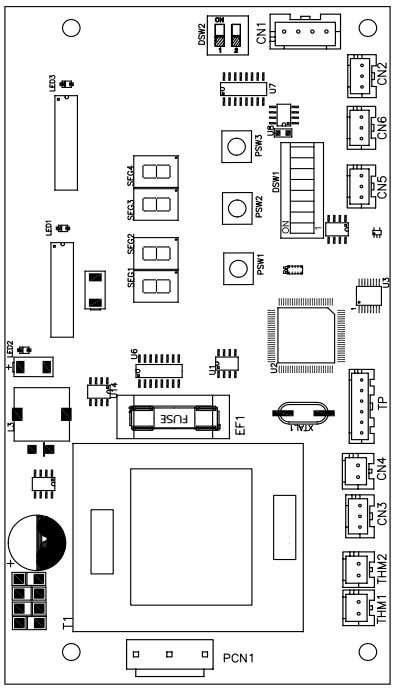
PCB1 Connector indication	
PCN1	230V transformer
PCN2	Internal thermostat for indoor fan motor
PCN7	Terminal board 1 (TB1)
PCN8	Capacitor for indoor fan
PCN10	Motor for indoor fan
PCN11	Motor for indoor fan
THM1	Air inlet thermistor
THM2	Outlet air thermistor
THM3	Liquid pipe thermistor
THM4	Optional connector (for remote temperature sensor)
THM5	Gas pipe thermistor
CN1	Transformer 12V
CN2	TB2
CN3	Optional input functions
CN7	Optional output functions
CN8	Optional output functions
CN11	Expansion valve
CN14	Bridge
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector

Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

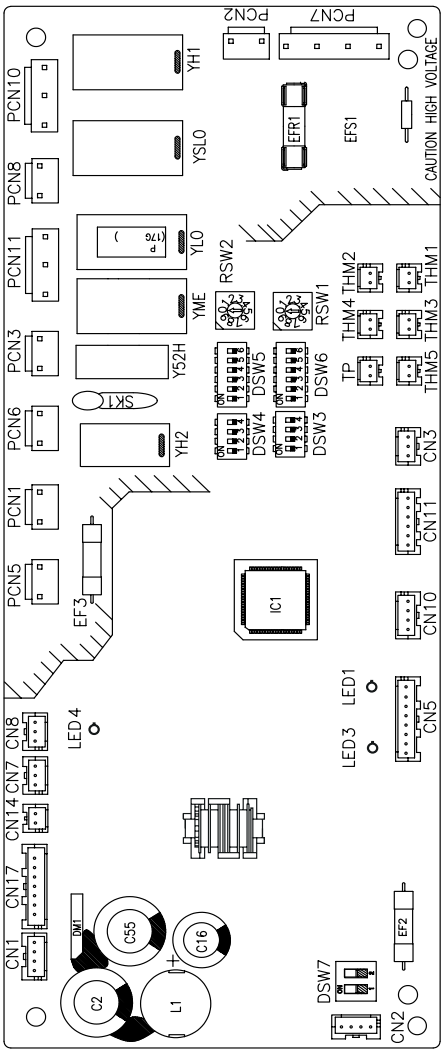
4.12 Printed circuit board for complementary systems

4.12.1 Printed circuit board for KPI (PI073)

PCB2



PCB1



PCB1 LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Green	PCB power supply

PCB2 LED indicator		
LED1	Yellow	H-LINK transmission external
LED2	Green	PCB power supply
LED3	Yellow	H-LINK transmission internal (between PCBs)

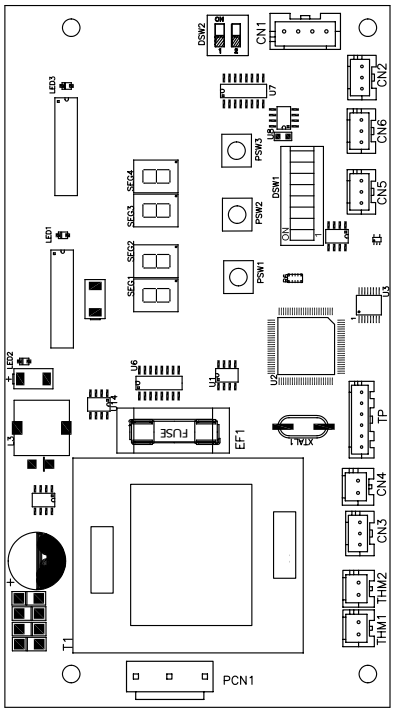
PCB1 Connector indication	
PCN1	230V transformer
PCN2	Bridge
PCN3	Auxiliary heater
PCN7	Terminal board 1 (TB1)
PCN10	Motor for Damper
THM1	Air inlet thermistor
THM2	Outlet air thermistor
THM3	Liquid pipe thermistor (KPI-X3E only)
THM4	Optional connector (for remote temperature sensor to control an auxiliary heater)
THM5	Gas pipe thermistor (KPI-X3E only)
CN1	Transformer 12V
CN2	TB1 and PCB2
CN11	Expansion valve (KPI-X3E only)
CN14	Flow switch (KPI-X3E only)
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector

PCB2 Connector indication	
PCN1	TB1 and PCB1
THM1	Coil inlet thermistor (KPI-X3E only)
THM2	Coil outlet thermistor (KPI-X3E only)
CN1	TB2 and PCB1
CN2	CO_2 sensor 4-20 mA
CN3	CO_2 sensor 0-10 V
CN4	CO_2 sensor ON/OFF
CN5	Motor for fan 1
CN6	Motor for fan 2
EF1	PCB2 fuse

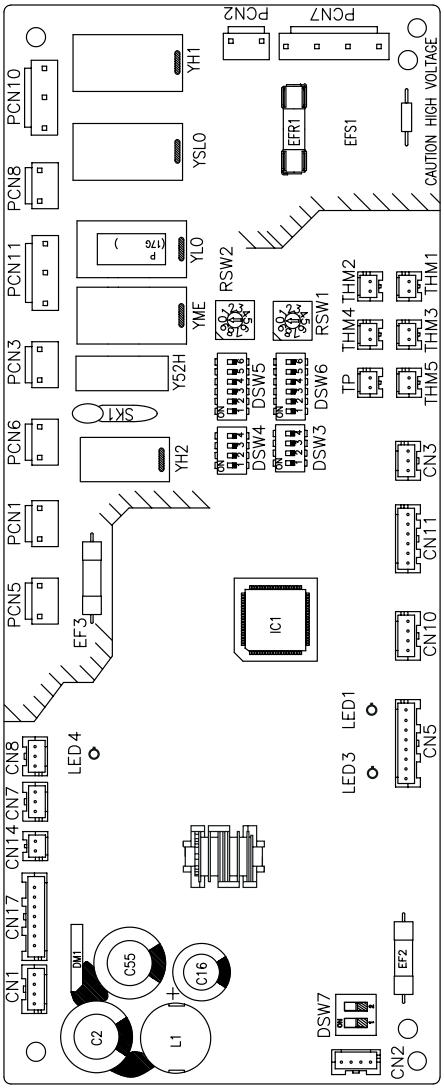
Switch indication	
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.12.2 Printed circuit board for DX-Interface (PI073)

PCB2



PCB1



PCB1 LED indicator		
LED1	Red	This LED indicates the transmission status between the indoor unit and the remote control.
LED3	Yellow	This LED indicates the transmission status between the indoor unit and the outdoor unit.
LED4	Green	PCB power supply

PCB2 LED indicator		
LED1	Yellow	H-LINK transmission external
LED2	Green	PCB power supply
LED3	Yellow	H-LINK transmission internal (between PCBs)

PCB1 Connector indication	
PCN1	230V transformer
PCN2	Terminal board 1 (TB1) (19-20) Internal thermostat for indoor unit fan motor
PCN6	Terminal board 1 (TB1) (11-12) Motor for drain discharge mechanism
PCN7	Terminal board 1 (TB1) (1-2) and PCB2 power supply
PCN10	Terminal board 1 (TB1) (13-14)
PCN11	Terminal board 1 (TB1) (15-16)
THM1	Coil inlet thermistor
THM2	Coil outlet thermistor
THM3	Liquid pipe thermistor
THM5	Gas pipe thermistor
CN1	Transformer 12V
CN2	TB2 (19-20) and PCB2
CN11	TB1 (3-8) Expansion valve
CN14	TB2 (15-16) Flow switch
EFR1	Power supply fuse
EF2	PCB fuse
EF3	Fuse for PCN5 connector

PCB2 Connector indication	
PCN1	TB1 (1-2) and PCB1
THM1	Optional air temperature sensing
THM2	Optional air temperature sensing
CN1	TB2 (17-18) and PCB1
CN2	TB2 (12-14) Duty V (0~10 V)
CN3	TB2 (1-3) Duty A (1~20 mA)
CN4	TB2 (4-5) CO_2 option ON/OFF
CN5	TB2 (6-8) EC fan motor (Top)
CN6	TB2 (9-11) EC fan motor
EF1	PCB2 fuse

Switch indication	
DSW1	Optional functions
DSW2	End resistance
DSW3	Capacity code
DSW4	Unit model code
DSW5, RSW2	Refrigerant cycle number setting
DSW6, RSW1	Indoor unit number setting
DSW7	Fuse recovery

4.13 Safety protection and control

Setting control and safety devices for indoor units

Model			RCI-FSN4	RCIM-FSN4E	RPK
For the evaporator fan motor: internal thermostat	Switch off	ºC	80 ±4 (*)	100±4 (*)	100±4 (*)
	Switch on	ºC			
For the control circuit: fuse capacity	-	A	5	5	5
Freeze Protection	Cut-Out	ºC		0	0
	Cut-in	ºC		14	14
Thermostat differential		ºC		2	2

Model			RCD	RPC-FSN3E	RPC-FSN3	RPI(M)	RPI-(8.0/10.0)FSN3E(-f) RPI-(16.0/20.0)FSN3PE(-f)	RPF(I)
For the evaporator fan motor: internal thermostat	Switch off	ºC	130±5	100 (*)	100_{-10}^{+15}	110±10 (**)	140±10	130±5
	Switch on	ºC	83±15	90±15	95_{-10}^{+15}	90±10(**)	90±15	93±15
For the control circuit: fuse capacity	-	A	5	5	5	5	5	5

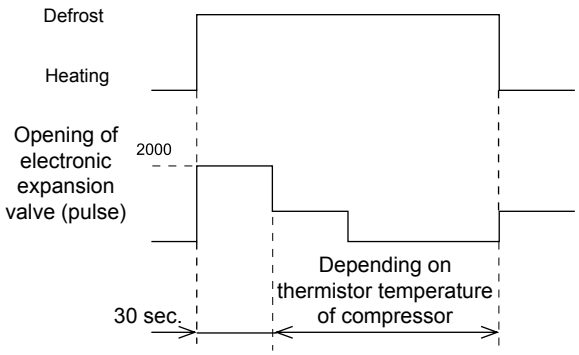
NOTE

(*) Chip Ceramic PTC (Autoreset, non-adjustable)

4.14 Indoor electronic expansion valve control

1 After supplying power, the electronic expansion valve closes fully before starting to open.
2 When the compressor stops, the electronic expansion valve closes fully to set its opening.
3 When it starts (the compressor is activated), the electronic expansion valve opens to a specific degree during cooling operation, 1 minute.
4 During heating operation, the electronic expansion valve opens to a specific degree.
5 During defrost, the electronic expansion valve opens to a specific degree, as indicated in the graph.
6 Normal opening of the electronic expansion valve.

Time chart



Cooling operation

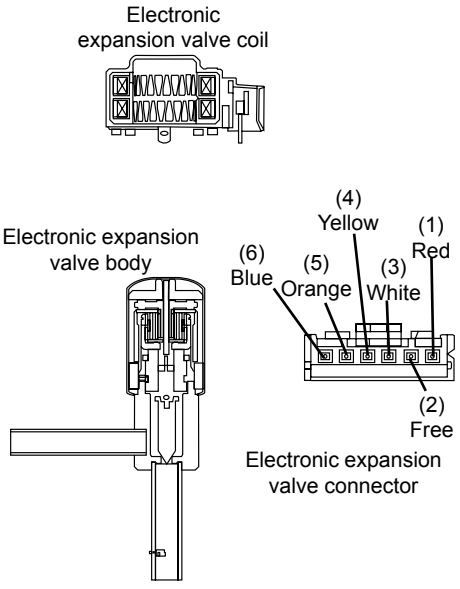
1 The required setting of the superheat (SH) temperature is determined by the system based on the detected Indoor gas pipe temperature (Tg) and Indoor liquid pipe temperature (TL).
2 Simulated PI control for the electronic expansion valve.
The opening of this valve is controlled so that the SH temperature of the heat exchanger can reach the set temperature.

Heating operation

1 The required setting of the superheat (SH) temperature is determined by the system based on the detected Indoor air inlet temperature (Ti), Indoor liquid pipe temperature (TL) and Outdoor temperature (Ta).
2 Simulated PI control for the electronic expansion valve.
The opening of the electronic expansion valve is controlled so that the temperature of the indoor liquid pipe can reach the set temperature.

◆ Checking method of electronic expansion valve

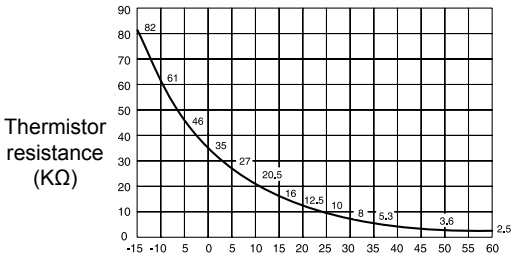
1 Check that the voltage of the valve ranges between 12Vdc±1.2V.
2 Use a multimeter to check the coil resistance (per phase). This ranges between 100 Ω±10% at an ambient temperature of 20°.
3 Check the number of pulses per second. This ranges between 100Ω ± 250 pulses per second (the width between pulses is greater than 3 mm) on activating phase 2.
4 Check that the valve flow is reversible.
5 When the valve is fully open and in heating process, check that the temperature of the liquid in the piping increases. If not, this indicates a fault.
6 When the valve is slightly open or fully open, check that the temperature of the freeze protection thermistor is higher than the suction temperature. If not, this indicates a fault.



4.15 Thermistor

Check that the thermistors are connected to the PCB inlet and, if not, connect them.

Use a multimeter to check that the thermistor resistances are between 240 Ω and 840 kΩ. Otherwise, replace any defective thermistors.



Thermistor characteristics

NOTE

This figure is applicable to the following thermistors:

1. Inlet Air Thermistor (THM1),
2. Liquid Pipe Thermistor (Freeze Protection) (THM3),
3. Gas Pipe Thermistor (THM5),
4. Outlet Air Thermistor (THM2)

- Thermistor for Indoor Inlet Air Temperature (For Room Temperature Control). The room temperature is controlled by the thermistor for indoor inlet air temperature detecting the temperature at the suction air inlet of the indoor unit. The setting temperature is indicated on the LCD of the wired controller by number. Adjust the setting temperature for prevention from excessive cooling and heating.

NOTE

The thermo-off temperature of the indoor unit inlet air thermistor is set higher than the temperature indicated on the wired controller by 4ºC and the maximum is 30ºC, because the suction air temperature during the heating operation has a tendency to become higher than that of the occupied zone, intending comfortable heating operation.

- Thermistor for Indoor Outlet Air Temperature (For Discharge Air Temperature Control). The thermistor for indoor outlet air temperature is utilized for the prevention from of air discharge in heating operation, etc.
- Thermistor for Liquid Pipe Temperature of Indoor Heat Exchanger. To Prevent freezing of the heat exchanger in COOL and DRY operation. When the temperature of the heat exchanger is below 0ºC, the thermostat is turned OFF automatically and when it is over 14ºC, the thermostat is turned ON again.
- Thermistor for Gas Pipe Temperature of Indoor Heat Exchanger. To Prevent freezing of the heat exchanger in COOL and DRY operation. When the temperature of the heat exchanger is below 0ºC, the thermostat is turned OFF automatically and when it is over 14ºC, the thermostat is turned ON again. The evaporating temperature in heating operation is detected.

5. Optional functions

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5.1 Indoor units input and output signals

5.1.1 Available ports

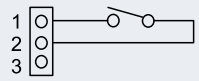
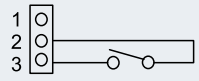
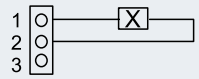
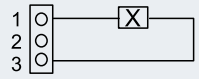
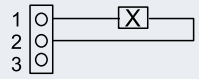
The system has 9 optional input signals and six output signals. Both types of signal are programmed into the indoor unit PCB: connector CN3 for input signals and connectors CN7 and CN8 for output signals.

Output connector CN7 has two ports and output connector CN8 has one port, which are used to configure three output options of the eight available in the system.

NOTE

The output signal connection is a mere example.

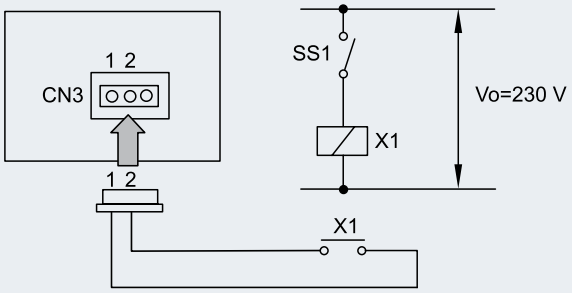
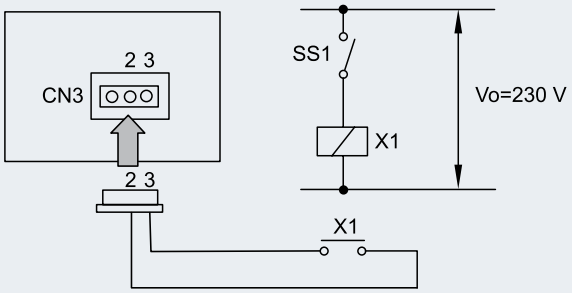
The system has the following input and output ports:

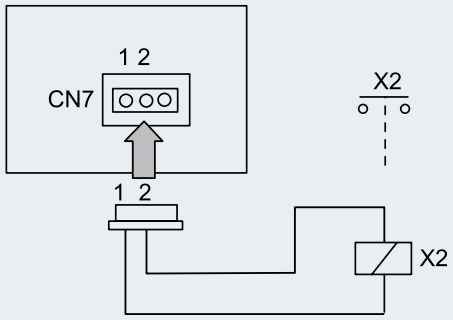
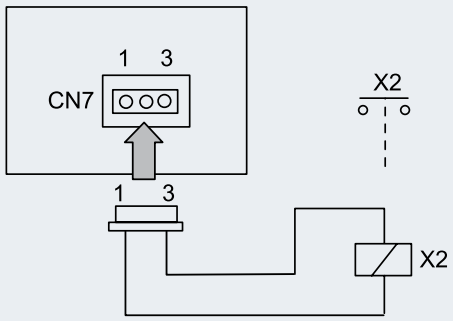
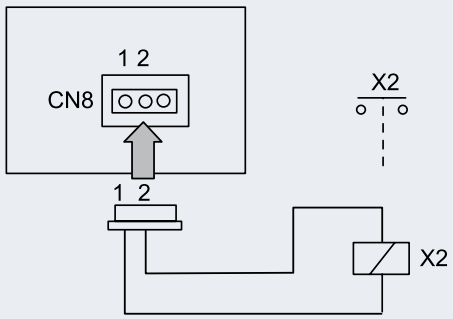
Indication	Port setting on the indoor unit PCB	Remarks	Outlet
Input 1	CN3 1-2		Contact
Input 2	CN3 2-3		Contact
Output 1	CN7 1-2		12 Vdc
Output 2	CN7 1-3		12 Vdc
Output 3	CN8 1-2		12 Vdc

NOTE

Output 2 c*onfiguration not available for RPI-(16.0/20.0)FSN3PE(-f) units.*

The system has the following input connections:

Indication	Connections
Input 1	
Input 2	

Indication	Connections
Output 1	
Output 2	
Output 3	

Component		Manufacturer or specifications	Remarks
Auxiliary relay (X2)		Reduced power relay model OMRON: MY1F or equivalent	Voltage between the relay terminals 12 V DC, 75 mA
Contact (SS1) (x1) (example)		Manual type	Voltage between the contactor terminals 230 V, 5 mA
3-pin connector cable		Optional part PCC-1A (capable of connecting the connector (JST XHP-3))	Five cables with connectors in one group
Cable (control)	Voltage: 12 VDC	0.5 mm^2	
Cable (power)	Voltage: 230 V	2.0 mm^2	

Recommendations for wiring installation

- Keep the CN3 connector cables as short as possible.
- Try not to pull on the cable along the power line. The cables should be laid separately at a distance of over 30 cm. Cable crossing is feasible.
- Where the cable along the power line is pulled, insert the cables through a metal pipe, earth one end of the pipe and install a safety device such as an earth leakage breaker or smoke detector.
- It is recommended to install safety devices such as an electric leakage breaker, etc, (because this is unattended function).

Indoor unit inputs/outputs factory settings

Connectors CN3, CN7 and CN8 are factory-set with the following optional functions.

	Connector number	Connector terminal	Function	Factory settings
Input	CN3	1–2	03	Function 1. Remote unit On/Off
		2–3	06	Cancellation of commands from the remote control after a forced stoppage
Output	CN7	1–2	01	Operation signal
		1–3	02	Alarm signal
	CN8	1–2	06	Thermostat enabled signal during heating

(*) If the Econofresh kit is connected, CN3 terminals 1 and 2 are locked for the enthalpy sensor or the CO_2 sensor.

5.1.2 Optional signal configuration

The following tables describe the optional signals available on indoor units.

Optional input signals

NOTE

If an input signal is set, the on-screen display on the remote control automatically changes to the following.

Indication	Input signal	Application	Port
00	Not set	Not set	CN3
01	Control by field-supplied room thermostat (for cooling)	This signal controls the unit through an external thermostat. **NOTE** *It can reduce summer cooling problems in certain applications*	CN3
02	Control by field-supplied room thermostat (for heating)	This signal controls the unit through an external thermostat. **NOTE** *It can reduce problems caused by indoor air stratification.*	CN3
03	Remote ON/OFF 1 (Level) Function 1: remote on/off of the unit (by contact)	This signal controls the starting and stopping of the system from a remote location. **NOTE** *It is extremely practical in hotels and offices to control the indoor units from the building management system.*	CN3
04	Remote ON/OFF 2 (Operation) Function 2: unit ON (by pulse)	This signal controls the starting of the system from a remote location. **NOTE** *It is extremely practical in hotels and offices to control the indoor units from the building management system.*	CN3
05	Remote ON/OFF 2 (Stoppage) Function 2: unit stoppage (by pulse)	This signal controls the stoppage of the system from a remote location. **NOTE** *It is extremely practical in hotels and offices to control the indoor units from the building management system.*	CN3
06	Forbidding remote control after manual stoppage	This signal stops the indoor unit and cancels the commands from the remote control while it is enabled.	CN3
07	Remote Cooling / Heating Change	This function controls operating mode changes from a remote location.	CN3
08	Up/down input signal for grille (not available)	Not available	CN3
09	Setback operation	Setback Temperature Control becomes activated when the card key is taken out from the card holder	CN3

Optional output signals

NOTE

If an input signal is set, the on-screen display on the remote controller automatically changes to the following.

Indication	Output signal	Application	Port
00	Not set	Not set	• CN7 or CN8 • Only CN7 for RPK units
01	Operation signal	This signal permanently controls the status of the unit. **NOTE** *It is extremely useful for centralised applications.*	• CN7 or CN8 • Only CN7 for RPK units
02	Alarm signal	This signal enables devices that protect and indicate any faults in the unit. **NOTE** *It is extremely useful for rooms in which air conditioning must remain on at all times.*	• CN7 or CN8 • Only CN7 for RPK units
03	Cooling signal	This signal controls the status of the compressor. **NOTE** *It is extremely useful for controlling the thermostat switched off on indoor units.*	• CN7 or CN8 • Only CN7 for RPK units
04	Thermo-ON signal during cooling	It is extremely useful for controlling requests by the indoor unit to enable the compressor.	• CN7 or CN8 • Only CN7 for RPK units
05	Heating signal	This signal controls the status of the compressor. It is extremely useful for controlling the thermostat switched off on indoor units.	• CN7 or CN8 • Only CN7 for RPK units
06	Thermo-ON signal during heating	It is extremely useful for controlling requests by the indoor unit to enable the compressor.	• CN7 or CN8 • Only CN7 for RPK units
07	Total Heat Exchanger		• CN7 or CN8 • Only CN7 for RPK units
08	Not used		• CN7 or CN8 • Only CN7 for RPK units

5.1.3 Programming with remote controller

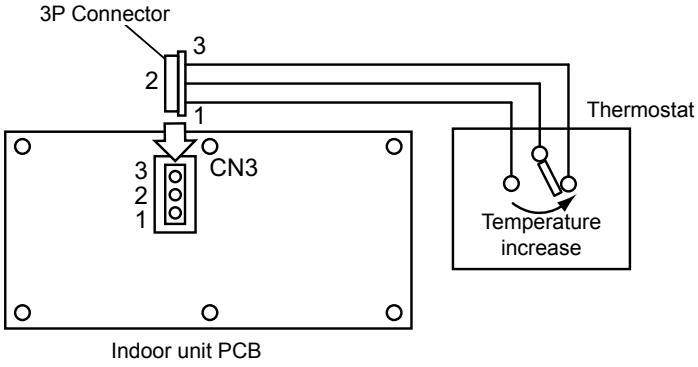
For a complete and detailed explanation regarding the programming with the remote controller, refer to the Remote controller Installation and Operation Manual.

5.1.4 Description of optional input signals

Control by field-supplied room thermostat

On-screen display: 01 or 02.

When a field-supplied room thermostat is used instead of the inlet thermistor on the indoor unit, connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*.



NOTE

- *The contact capacity of a thermostat shall be DC12V and several ma. Select a thermostat which makes and breaks the contact with this capacity.*
- *Make the wires CN3 as short as possible. Do not install the wires along the 220-240V power line. Install them more than 30cm away from each other. (Intersecting them is acceptable.) If the wires are installed along the power line, comply with the following points to prevent noise.*
  - *Pass either of the low voltage wire and 220-240V power line through a metal tube and ground one end.*
  - *Use a shielded wire for a low voltage wire and ground one end. The maximum wiring length is 70m.*
- *When using this function, it is recommended to use safety devices such as an electric leakage breaker or smoke detector, etc. as this is unattended function.*
- *For a thermostat, do not use a thermostat which contains mercury for switch, because chattering is likely to occur at ON/OFF.*
- *Use a thermostat with a differential of 1.5deg. or more.*
- *Comply with the following points. If not, a high-voltage circuit breaker will be activated or the unit will repeat ON/OFF operations.*
  - *Install a thermostat where the air inlet temperature can be measured accurately.*
  - *Install a thermostat where the suction air from the unit does not blow directly against it.*
- *When using room thermostats, set each room thermostat (for cooling and heating) correctly. If one of them is set incorrectly, other room thermostats do not operate.*

Example:

- Room thermostat Input (for Cooling) is set to terminals 2 and 3 of CN3
- Room thermostat Input (for Heating) is set to terminals 1 and 2 of CN3

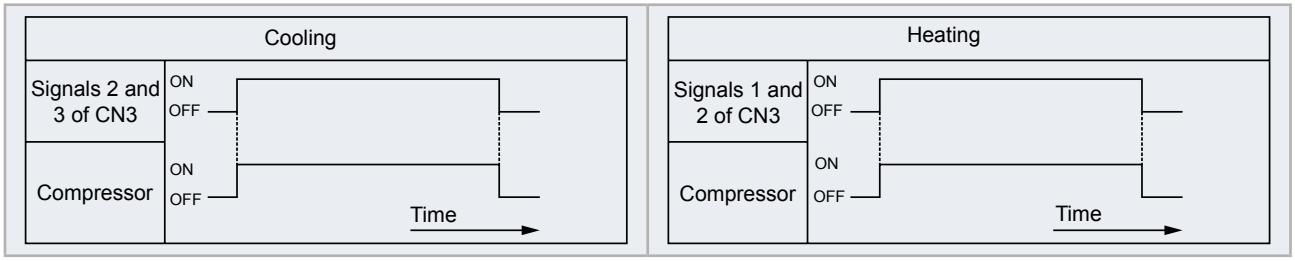
Operation

- Cooling operation: Compressor is ON by closing terminals 2 and 3 of CN3

Compressor is OFF by opening terminals 2 and 3 of CN3

- Heating operation: Compressor is ON by closing terminals 1 and 2 of CN3

Compressor is OFF by opening terminals 1 and 2 of CN3



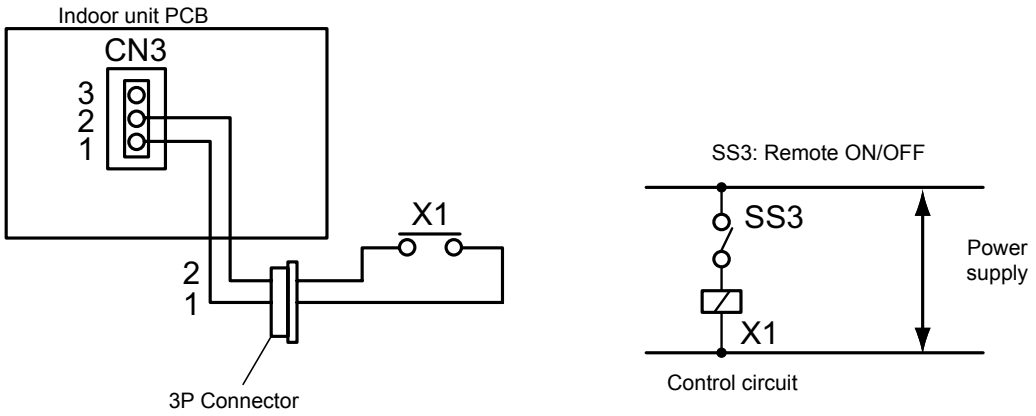
Specifications for field-supplied room thermostat:

- Manufacturer or type: equivalent to YAMAKATE R7031P005, R7031Q005.
- Contactor charge: 12 Vdc
- Difference of over 1.5 degrees.
- Do not use a mercury thermostat.
- The remote control must remain connected to the unit. When the power supply is reconnected, start the unit by pressing the on button. The compressor will then run under the control of the field-supplied thermostat. All other functions are controlled in the normal manner via the remote control.

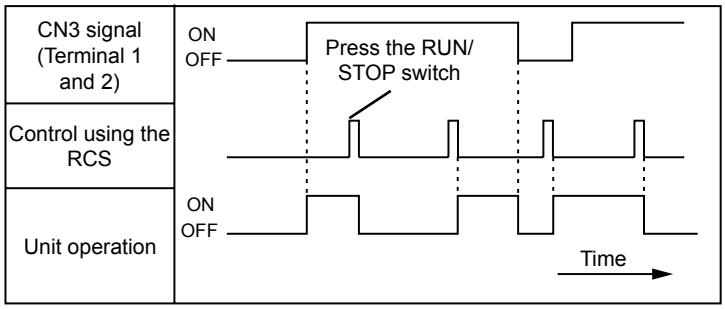
Remote ON/OFF 1 (Level signal input)

On-screen display: 03.

This is an optional on/off signal that uses the signal levels ON and OFF. Connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*. (Example: terminals 1 and 3 of CN3)



Remote ON/OFF is set to terminals 1 and 2 of CN3



NOTE

- *When the unit is started using the remote ON/OFF switch, the fan speed depends on the mode stored in the remote control.*
- *The collection of signals during the first 10 seconds after connecting the power supply is not available due to component initialization. Do not change the signal in this period.*
- *Operation priority is given to the remote on/off signal or to the remote control, whichever is transmitted last.*
- *If multiple indoor units are connected to the same transmission wiring for remote control switch, input the signal to any of these indoor units. When the transmission wiring is not used in a multiple indoor unit system for simultaneous operation, input the signal to the main indoor unit.*

Remote ON/OFF 2 (pulse signal input)

Function 2: remote switching ON of the unit (pulse signal input)

On-screen display: 04.

This is an optional remote on/off signal that uses the pulse signal.

Connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*. (Example: terminal 2 and 3 of CN3).

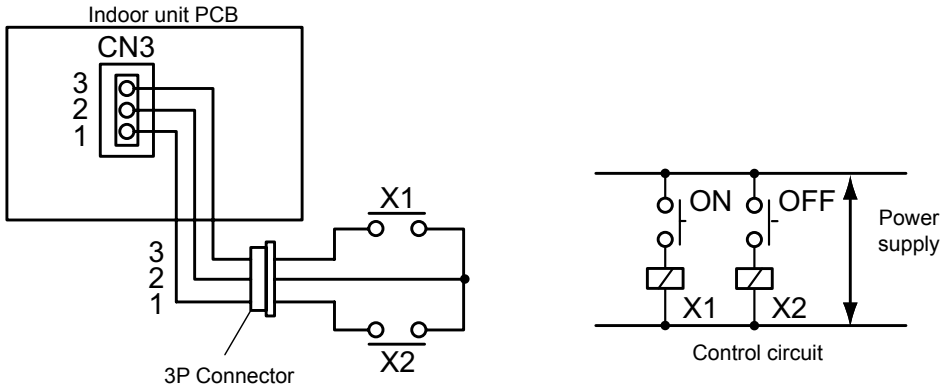
Function 2: remote switching OFF of the unit (pulse signal input)

On-screen display: 05.

This is an optional remote off signal that uses the pulse signal.

If a signal is input during the stoppage of the system, it remains unchanged.

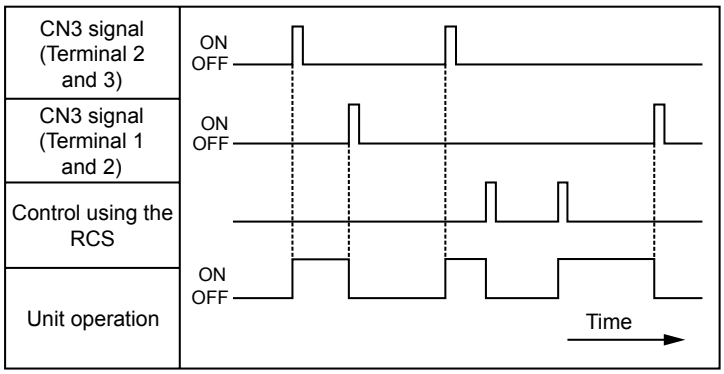
Connect the wiring and use the materials as indicated in *"5.1.1 Available ports".* (Example: terminal 1 and 2 of CN3)



NOTE

The pulse range shall be 200 ms or more.

A time chart with the uses of functions 2 is shown below.



NOTE

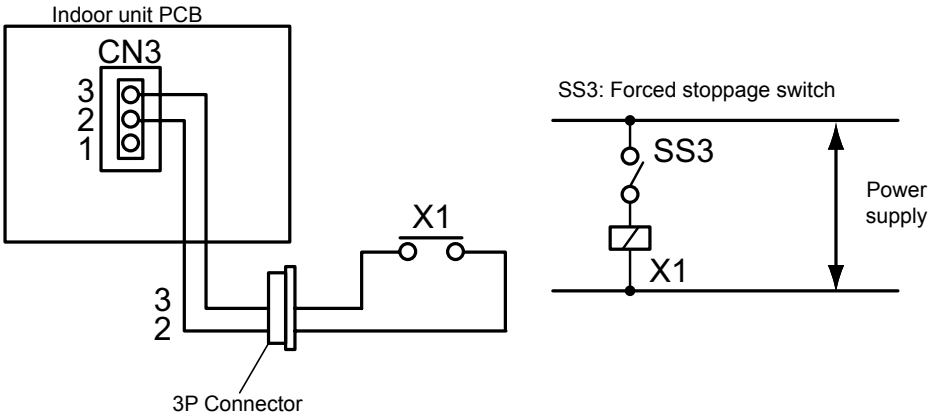
- *The collection of signals during the first 10 seconds after connecting the power supply is not available due to component initialization. Do not change the signal in this period.*
- *Wired controller or receiver kit is required for this function.*
- *If multiple indoor units are connected to the same transition wiring of the controller, input the signal to any of these indoor units.*
- *When the transition wiring is not used in the twin, triple and quad combinations for simultaneous operation, input the signal to the main indoor unit.*

Forbidding remote control after manual stoppage

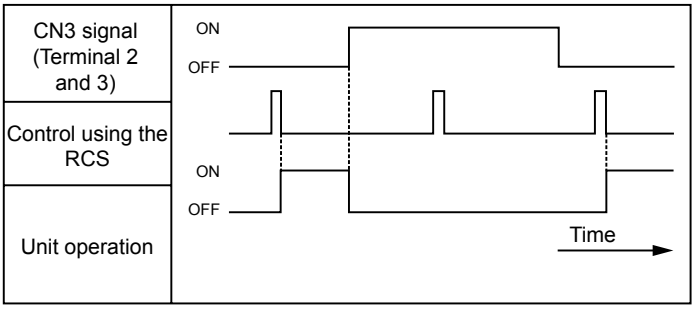
On-screen display: 06.

It is possible to stop the air conditioning systems using the signal from a building management system. In this case, the individual commands transmitted from the remote control are cancelled.

Connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*. (Example: terminal 2 and 3 of CN3).



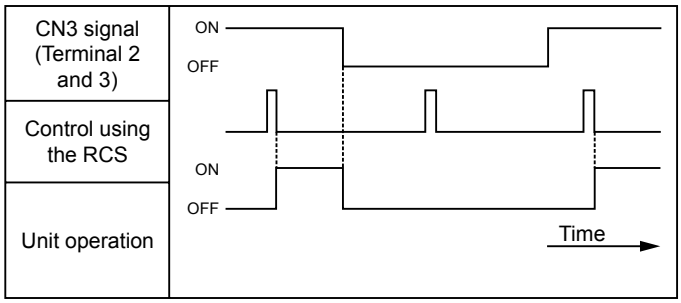
A time chart with the uses of the function is shown below.



NOTE

The collection of signals during the first 10 seconds after connecting the power supply is not available due to component initialization.

With this optional function, contact B can be used through the optional setting of the remote control. The time chart is shown below, which provides information on when contact B can be used. See *"5.2.1 List of optional remote control functions (PC-ARFP1E)"* for further details on contacts A and B.



NOTE

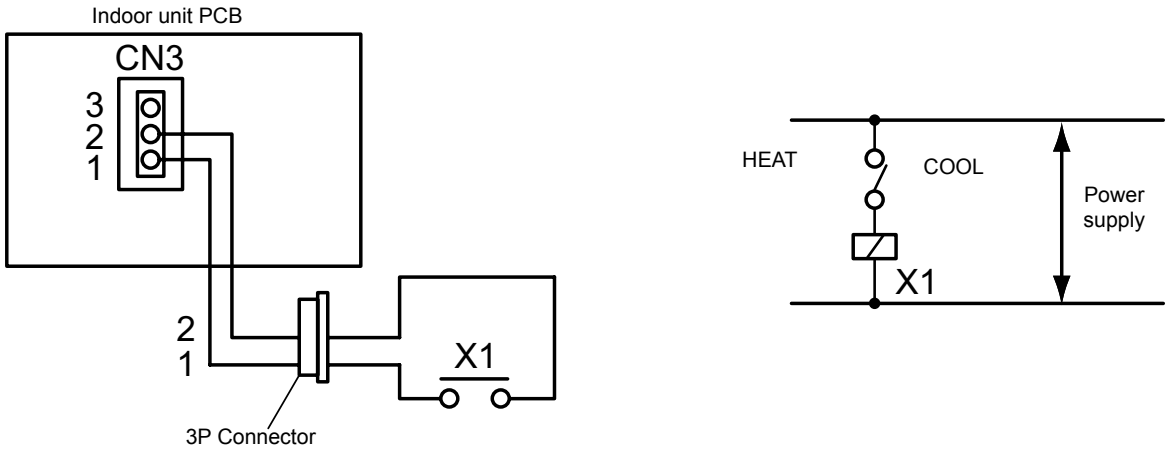
- *This function is not available after the manual (forced) stoppage because commands from remote control switch are cancelled. (Remote control switch is required).*
- *It is not available to pick up a signal within 10 seconds after power supply is turned ON due to the initialization of the components. Do not change the signal (RUN/STOP) in this period.*
- *Wired controller or receiver kit is required for this function.*
- *The following ON/OFF functions are not available after the manual (forced) stoppage because commands from the controller is cancelled.*
  - *ON/OFF function from a remote place*
  - *ON/OFF function by the centralized controller while the wireless controller switch is used.*

Remote cooling / heating change

On-screen display: 07.

This optional signal can be used to change the heating or cooling operating mode by sending a contact signal from outside the unit. The operating mode is controlled by the field-supplied switch or by the remote control, whichever is used last.

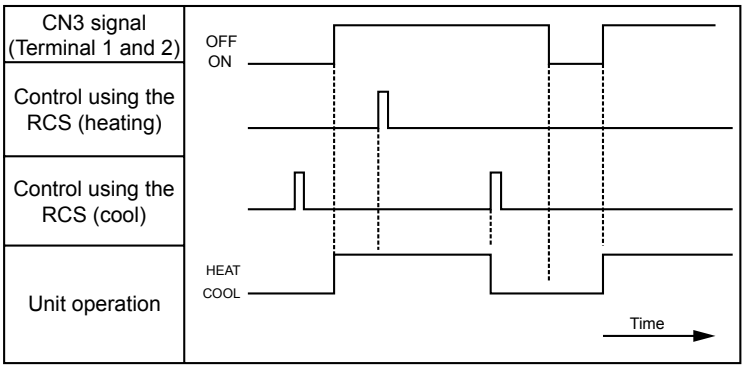
Connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*.



A time chart with the uses of the functions is shown below.

NOTE

- *The collection of signals during the first 10 seconds after connecting the power supply is not available due to component initialization.*
- *This function is not available after the manual (forced) stoppage because commands from remote control switch are cancelled. (Remote control switch is required).*



NOTE

- *Wired controller or receiver kit is required for this function.*
- *Refer to the table 4.1 for details of the required components.*
- *If multiple indoor units are connected to the same transition wiring of the controller, input the signal to any of these indoor units.*
- *When the transition wiring is not used in the twin, triple and quad combinations for simultaneous operation, set this function only to the main indoor unit.*

Setback operation

On-screen display: 09.

The function is to identify occupied/unoccupied by means of card key in/out. It keeps the unoccupied room (the card key is out) being as comfortable as when it is occupied (the card key is in).

To enable the function, the function selection and input on the wired controller are required.

Input in setback mode

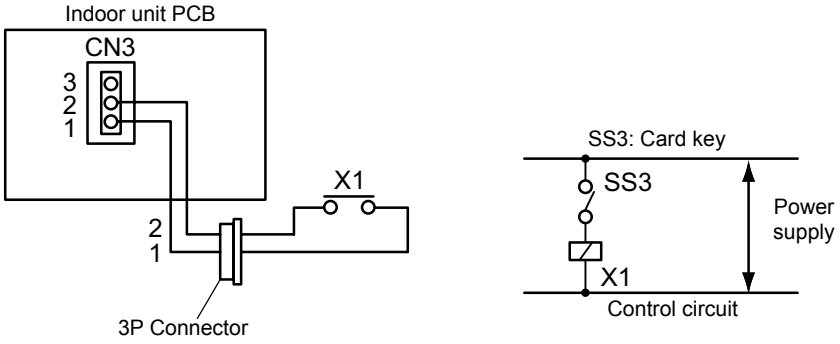
1 Press and hold “Menu” and “Back/Help” on the wired controller simultaneously for at least 3 seconds during the normal mode (unit stoppage). The “Test Run” menu is displayed. Select “Input/Output” from the “Test Run” menu and press “OK”.

2 Select either “Input 1” or “Input 2” and change the setting to “09”.

3 Build a circuit as shown below. On the indoor unit PCB, use the input terminal (CN3) to receive external signals.

NOTE

When a card key is removed, the switch SS3 is turned OFF. It gives no voltage on a coil of the auxiliary relay “X1” and turns OFF the contact “X1”. This starts the setback operation.



Wiring diagram example of Setback operation by external input (Card key input is set to terminals 1 and 2 of CN3)

NOTE

- *After a power supply is turned ON, picking up a signal is not available for 10 seconds due to the initialization of the component. Wired controller is required for this function.*
- *When using a wireless controller, or not using a wired controller, the function does not work.*
- *To simultaneously apply constraints of the setback operation to multiple Indoor units, connect transition wiring to the wired controller and enter a signal to the representative unit in the setback.*
- *In case that a transition wiring connection is not applied to the simultaneous twin/triple/quad operations, send out a signal to the main unit.*

Specifications on required components for Setback operation

Component		Manufacture or Specification	Remarks
Changeover Switch (SS2, SS3)		Manual Type, Card Key	Voltage 220-240V
Auxiliary Relay (*)		OMRON Mini Power Relay Model: MY1F/2F or Equivalent	
3P Connector Cord (*)		Optional Part PCC-1A (Connectable to JST Connector XARP-3), 12V	Five Cords with Connectors as One Set
Cord (Indoor)	Low Voltage	0.3 mm^2	Less than 12V
	220-240V Class	0.5 to 0.75 mm^2	-
Cord (Outdoor)	Low Voltage	0.5 to 0.75 mm^2	Less than 12V
	220-240V Class	2 mm^2	-

NOTE

- *(*) These parts are compatible with optional remote control adopter PSC-5RA.*
- *Make the wires CN3 as short as possible. Do not install the wires along the 220V power line. Install them more than 30cm away from each other. (Intersecting them is acceptable.)*
- *If the wires are installed along the power line, comply with the following points to prevent noise.*
  - *Pass either the low voltage wire or 220-240V power line through a metal conduit tube, then earth one end.*
  - *Use a shielded wire for a low voltage wire and ground one end.*
- *The maximum wiring length is 70m.*
- *Since automatic operation by remote control switch is unattended operation, explain necessity of electric leakage breaker or smoke detector near indoor unit besides monitoring by “4.5.6 (2) Picking Up Alarm Signal” as safety matters.*

5.1.5 Description of optional output signals

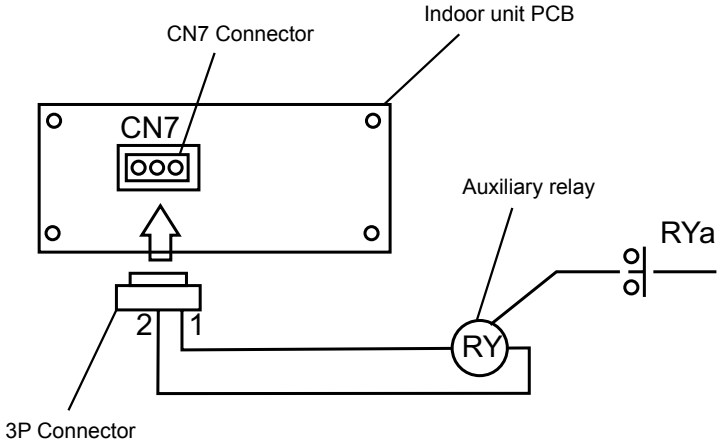
Picking up of the operation signal

On-screen display: 01.

This optional signal is used to pick up the operation signal. Thanks to this function, the operation signal can be checked from a remote location and, for example, the outdoor air intake fan operation can be stopped.

Connect the wiring and use the materials as indicated in *"5.1.1 Available ports"*. (Example: terminal 1 and 2 of CN7).

An example of basic wiring is shown below. The contact of the auxiliary relay "RYa" is closed when this operation signal is given. This function enables the signal check during the remote control operation and an interlock of the fan for air inlet, etc. The contact of the auxiliary relay "RYa" is opened while the protection devices are activated.



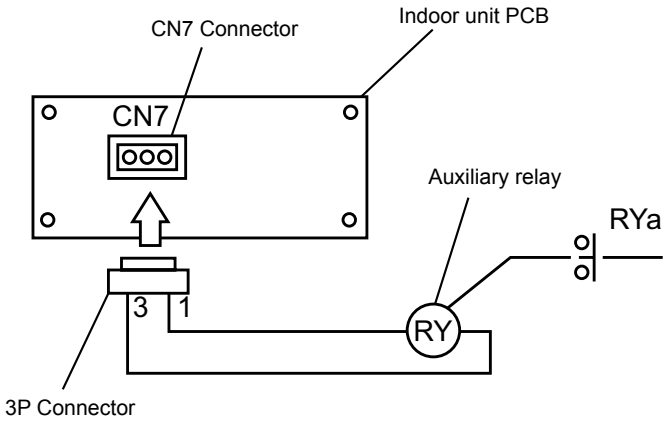
Operation output is set to terminals 1 and 2 of CN7

Alarm signal

On-screen display: 02.

This optional signal is used to pick up the activation of safety devices. The signal is normally displayed on the remote control. This function is not available under abnormal transmission conditions.

An example of basic wiring is shown below. The contact of the auxiliary relay "RYa" is closed while the protection devices are activated.



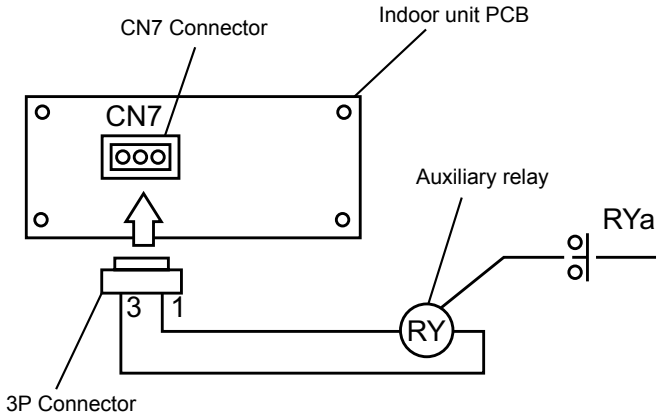
Alarm output is set to terminals 1 and 3 of CN7

Cooling operation signal

On-screen display: 03.

This optional signal is used to pick up the cooling operation signal. An example of basic wiring is shown below. The contact of the auxiliary relay “RYa” is closed when this operation signal is given.

Connect the wiring and use the materials as indicated in *“5.1.1 Available ports”*. (Example: terminal 1 and 3 of CN7).



Cooling operation output is set to terminals 1 and 3 of CN7

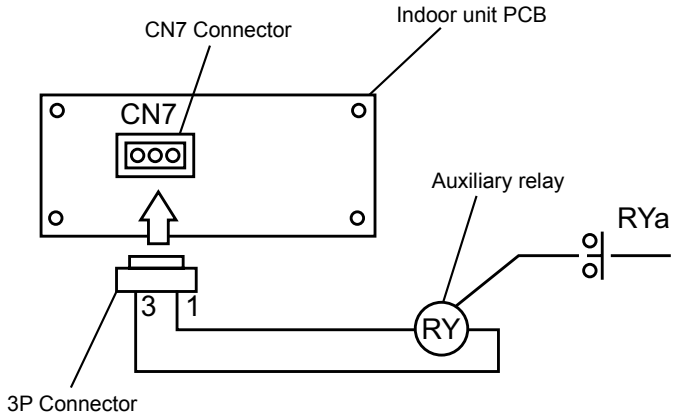
Thermostat enabled signal during the cooling process

On-screen display: 04.

This optional signal is used to pick up the thermostat enabled signal for the compressor operating during the cooling process (Thermo-ON).

Connect the wiring and use the materials as indicated in *“5.1.1 Available ports”*. (Example: terminal 1 and 3 of CN7).

An example of basic wiring is shown below. The contact of the auxiliary relay “RYa” is closed during Thermo-ON in cooling operation.



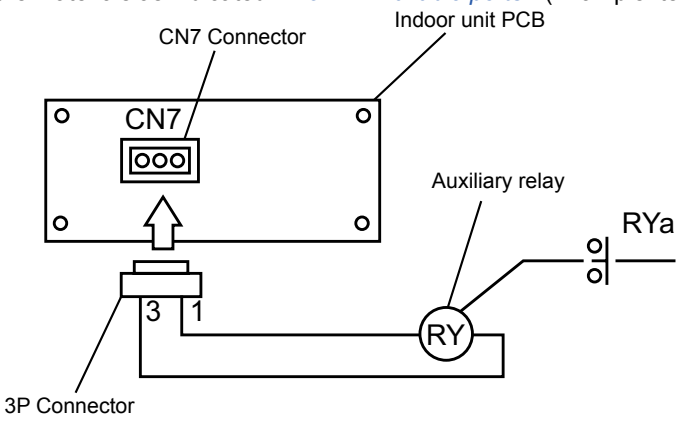
Cooling Thermo-ON output is set to terminals 1 and 3 of CN7

Heating operation signal

On-screen display: 05.

This optional signal is used to pick up the heating operation signal. An example of basic wiring is shown below.
The contact of the auxiliary relay “RYa” is closed when this operation signal is given.

Connect the wiring and use the materials as indicated in *“5.1.1 Available ports”*. (Example: terminal 1 and 3 of CN7).



Heating operation output is set to terminals 1 and 3 of CN7

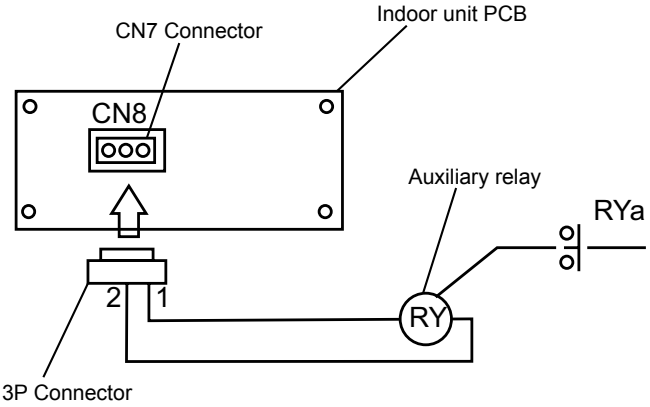
Thermostat enabled signal during the heating process

On-screen display: 06.

This optional signal is used to pick up the thermostat enabled signal for the compressor operating (Thermo-ON) during the heating process and to control, for example, a circulation pump or humidifier.

Connect the wiring and use the materials as indicated in *“5.1.1 Available ports”*. (Example: terminals 1 and 2 of CN8).

The contact of the auxiliary relay “RYa” is closed during Thermo-ON in the heating operation.

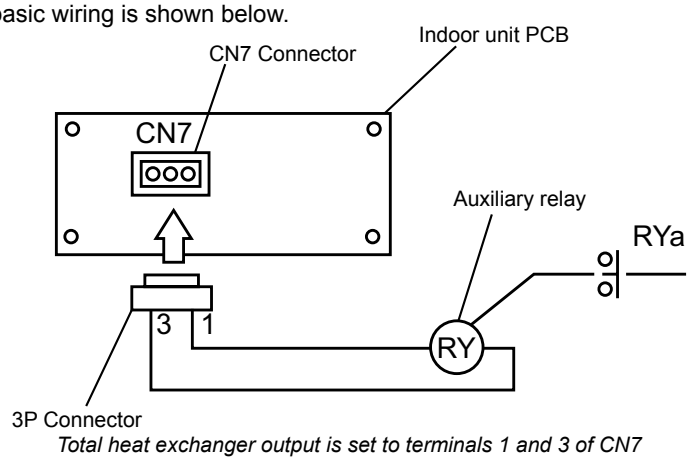


Heating Thermo-ON output is set to terminals 1 and 2 of CN8

Total heat exchanger signal

On-screen display: 07.

This function is utilized to pick up the total heat exchanger signal during the ventilation mode selected with a wired controller. An example of basic wiring is shown below.



Total heat exchanger output is set to terminals 1 and 3 of CN7

5.2 Optional functions through Remote control

The next list refers to the optional functions available to indoor units from the remote control switch. Note that not all remote control switch have access to all the optional functions. Check the remote control switch technical documentation for detailed information.

5.2.1 List of optional remote control functions (PC-ARFP1E)

Element	Optional function	Individual setting	Settings	Setting conditions	Description
b1	Heating temperature compensation Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M	O	00	Normal (factory setting) (Setting Temperature + 4 ºC)	This function is used to adjust the temperature difference between the temperature read by the inlet sensor and the real room temperature. This is useful when the inlet air thermistor is not placed inside the indoor unit or due to uneven heat load. **NOTE** • *The "02", "03", "04" settings may not be available depending on the type of indoor unit.* • *This setting shall be performed separately for each indoor unit, even in case that multiple indoor units are connected to one remote controller.*
			01	No compensation (Setting Temperature)	
			02	Setting Temperature + 2 ºC	
			03	Setting Temperature + 3 ºC	
			04	Setting Temperature + 1 ºC	
	Heating temperature compensation Models: RPF(I)-FSN2E	O	00	RPF(I)-FSN2E: Normal (factory setting) (Setting Temperature + 2 ºC)	
			01	No compensation (Setting Temperature)	
			02	Setting Temperature + 2 ºC	
b2	Circulation function at heating Thermo-OFF	O	00	Function disabled (factory setting)	This function keeps the fan running during the Thermo-OFF sequence, at the fan speed set on the remote control switch, to prevent the stratification of air in the room.
			01	Function enabled	
b3	Forced compressor operation for at least three minutes (Not available for models KPI-E4)	O	00	Function disabled (factory setting): Forced compressor operation for at least three minutes can be enabled or disabled through C7 setting	This function is used to allow the setting of C7, to protect the compressor by preventing it from being started or stopped for periods of less than 3 minutes.
			01	Function enabled: Forced compressor operation for at least three minutes always occurs independently of C7 setting	
b4	Change of filter cleaning period	O	00	Standard (1200 hours)	This function is used to modify the period of operation after which the air filter cleaning indication is shown in the remote control. For RPK-FSN(H)3M models, the factory setting is b4=00: Standard setting 200 hours.
			01	100 hours	
			02	1200 hours (factory setting)	
			03	2500 hours	
			04	No indication	
b5	Locking of operation mode (Not available for models KPI-E4)	X	00	Function disabled (factory setting)	This function prevents the modification of the operation mode of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	
b6	Locking of setting temperature	X	00	Function disabled (factory setting)	This function prevents the modification of the setting temperature of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
b7	Setting operation mode as cooling only (Not available for models KPI-E4)	X	00	Function disabled (factory setting)	This function is used to limit the operation mode to cooling only and to prevent heating mode from being enabled.
			01	Function enabled	
b8	Automatic COOL/HEAT operation (Not available for models KPI-E4)	X	00	Function disabled (factory setting)	This function enables the selection of Auto cool/heat operation mode. If the function is not activated, Auto cool/heat mode cannot be selected on the remote control switch.
			01	Function enabled	
b9	Locking of fan speed setting (Not available for models KPI-E4)	X	00	Function disabled (factory setting)	This function prevents the modification of the fan speed of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	
bA	Not available	X	"- -" permanent	Not available	–
bb	Cooling setting temperature correction	O	00	No compensation (factory setting)	This function decreases the setting temperature and is used to produce longer cooling periods.
			01	Setting temperature decreased by 1 ºC	
			02	Setting temperature decreased by 2 ºC	
bC	Not used	–	00	-	Use at 00 conditions
			01		
bd	Not used	–	00	-	Use at 00 conditions
			01		
bE	Not used	–	00	-	Use at 00 conditions
			01		
C1	Not used	–	00	-	Use at 00 conditions
			01		
C2	Not available	–	"- -" permanent	-	–
C3	Not used	–	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E: Fan stoppage delay		00	Function disabled (factory setting)	This function keeps the fan in operation for 60 minutes after stop of the KPI unit or DX-Interface.
			01	60 minutes	
C4	Drain pump operation in heating mode	O	00	Function disabled (factory setting)	This function is used to activate the drain pump in heating mode. Only for models with drain pump.
			01	Function enabled	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
C5	Static pressure selection Models RPI-FSN5E RPIM-FSN4E(-DU) RPI-FSN3(P)E(-f)	O	00	Standard static pressure (factory setting)	This function is used to change the static pressure of the RPI units from the remote control.
			01	High static pressure	
			02	Low static pressure	
	Increase of fan speed during normal operation (not during heating Thermo-OFF) Models RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPK-FSN(H)3M RPF(I)-FSN2E	O	00	Standard (factory setting)	This function is used to change the fan speed of indoor units installed in high ceilings.
			01	Hi Speed 1	
			02	Hi Speed 2	

	Fan speed setting on the remote controller			
C5	High H	High	Medium	Low
0	Hi2	Hi	Me	Lo
1	Hi2	Hi1	Hi	Me
2	Hi2	Hi2	Hi1	Hi

(This function C5 is not available for DX-Interface models)

C6	Increase of fan speed at heating Thermo-OFF (Not available for models KPI-E4 and KPI-X4E)	O	00	Function disabled (factory setting)	This function is used to increase the fan speed when the thermostat reaches the set temperature in heating according to the setting of function C5.
			01	Function enabled	
C7	Cancellation of forced compressor operation for at least 3 minutes	O	00	Function disabled (factory setting)	This function is available depending on the setting of function b3.
			01	Function enabled (Compressor operation during 3 minutes is no longer forced)	
	Only for KPI-E4E and KPI-X4E CO_2 sensor enabled		00	Sensor non enabled (factory setting)	Via 7-segments display set the option CE (00: ON/OFF Sensor (Default); 01: 4-20mA 02: 0-10V)
			01	Sensor enabled/activated	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
C8	Control by the temperature sensor of the remote control switch **NOTE** *The remote control switch shall be installed in a proper place for the correct detection of room temperature by its temperature sensor.*	O	00	Control by the air inlet sensor of indoor units (factory setting)	This function specifies the temperature sensor to be used as control sensor by the indoor unit.
			01	Control by the temperature sensor of the remote control switch	
			02	Control by the average value of the air inlet sensor of indoor units and the temperature sensor of the remote control switch. (Air inlet + Remote control switch)/2	
	Control sensor when a remote sensor is connected to the THM4 connector in the indoor unit PCB **NOTE** *The remote sensor shall be installed in a proper place for the correct detection of room temperature.* Model RPF(I)-FSN2E	O	00, 01, 02	When a remote sensor is connected to THM4, this remote sensor is used as control sensor, whichever the setting for C8 (factory setting C8=00)	
	Control sensor when a remote sensor is connected to the THM4 connector in the indoor unit PCB **NOTE** *The remote sensor shall be installed in a proper place for the correct detection of room temperature.* Models RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M		00, 02	Air temperature control using the average value of the air inlet thermistor and the remote sensor (factory setting C8=00) (Air inlet + Remote sensor)/2	
			01	Air temperature control using the remote sensor	
C9	Not available	–	"- -" permanent	–	–
CA	Not available	–	"- -" permanent	–	–
Cb	Selection of forced stoppage logic	X	00	Forced stoppage input: A contact, normally open contact (factory setting)	This function determines the logic operation for the forced stoppage contacts.
			01	Forced stoppage input: B contact, normally closed contact	
CC	Not used	–	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E: High ventilation speed		00	Function disabled (factory setting)	This function sets the unit to run in high fan speed regardless the setting from remote control switch.
			01	Function enabled	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
Cd	Stop of indoor unit fan during cooling Thermo-OFF conditions **NOTE** *For model RPI-FSN3E(P)E and RCD-FSN3, this function is NOT available.*	O	00	Fan speed during cooling Thermo-OFF: Low (factory setting)	The operation of the indoor unit fan is stopped in cooling Thermo-OFF conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or the PC-ARFP1E temperature sensor. C8 must be set to 01 to use the Cd=01 setting.
			01	Indoor unit fan is stopped during cooling Thermo-OFF	
CE	Stop of indoor unit fan during heating Thermo-OFF conditions Stop of indoor unit fan during heating Thermo-OFF conditions (with remote control switch temperature sensor)	O	00	Fan speed setting during heating Thermo-OFF: Low (factory setting)	The indoor unit uses the PC-ARFP1E temperature sensor to monitor the room temperature when the fan is stopped (heating Thermo-OFF fan stop sequence). C8 must be set to 01 to use the CE=01 setting. Control by remote temperature sensor connected to THM4 is not permitted (use E8 function in that case).
			01	Indoor unit fan is stopped during heating Thermo-OFF. *(In case that automatic louvre is set, the louvres will keep operating in both Thermo-ON and Thermo-OFF conditions)*	
CF	Modification of louvre swing range Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3	O	00	Standard (7 steps) (factory setting)	This function adjusts the angle of the air outlet louvre. *(Changes to the setting of this function are applied after turning the power supply off and on again, or after the automatic louvre has made a full cycle in automatic mode)*
			01	Cold draft prevention (5 steps) *(Cannot be set to the lower two steps; lower 2 steps cut off)*	
			02	High ceilings (5 steps) *(Cannot be set the upper two steps; upper 2 steps cut off)*	
	Models: RPK-FSN(H)3M		00	Standard (7 steps) (5 steps for cooling / dry mode)	
			01	Cold draft prevention (5 steps for heating and fan only) *(Cannot be set to the lower two steps, lower 2 steps cut off)*	
			02	Not used	
d1	Management of indoor unit operation after a power supply cut off - option 1	O	00	Function disabled (factory setting)	When power supply is restored, the indoor units controlled by the wired remote control switch are turned on regardless of their ON/OFF status at the time of the last power cut off.
			01	Function enabled	
d2	Not available	–	"- -" permanent	–	–
d3	Management of indoor unit operation after a power supply cut off - option 2	O	00	Function disabled (factory setting)	When power supply is restored, the indoor units controlled by the wired remote control switch are turned on automatically ONLY if they were already ON at the time of the last power cut off. If indoor units were OFF when power was turned OFF, they remain in OFF status when power is restored.
			01	Function enabled	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
d4	Prevention of low air outlet temperature in cooling mode Models: RPI-(4.0-6.0)FSN5E RPIM-(0.6-1.5)FSN4E(-DU)	O	00	Function disabled (factory setting)	This function is used to prevent the decrease of discharge air temperature in cooling operation, by controlling Thermo-ON/OFF according to the discharge air temperature. When ambient temperature > setting temperature: If air outlet temperature ≤ 11 ºC for 3 minutes, the system is switched to Thermo-OFF. In this status, if air outlet temperature ≥ 13 ºC, the system is switched back to Thermo-ON.
			01	Function enabled	
	Not used Models: RCD-FSN3 RPI-(0.4-3.0)FSN5E RPI-FSN3E(P)E(-f) RCI-FSN4 RPC-FSN3 RCIM-FSN4E RPF(I)-FSN2E RPI-(8~20)FSN3(P)E	O	00	-	Use at 00 conditions
			01		
d5	Prevention of low air outlet temperature in heating mode	O	00	Function disabled (factory setting)	This function prevents the occurrence of an excessively cold air flow in heating mode by decreasing the fan speed during heating operation, also taking into account the setting of function C5.
			01	Function enabled	
d6	Room temperature control for energy saving	O	00	Function disabled (factory setting)	This function saves energy when the outdoor temperature is lower than the air conditioning load. The indoor unit is set to cooling Thermo-OFF when: Tout (outside ambient temperature - out of the building) < Tin
			01	Function activated	
d7	Econofresh: Minimum opening angle of the outdoor air (OA) damper	O	00	6º (factory setting)	This function is used to set the minimum opening angle of the damper for fresh outdoor air.
			01	12º	
			02	18º	
			03	24º	
			04	30º	
			05	36º	
			06	42º	
			07	48º	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
E1	KPI: Ventilation mode	O	00	Automatic ventilation (factory setting)	This function allows the outdoor air damper to be opened in All Fresh operation mode. This mode allows the full opening of the outdoor air damper (according to the control system).
			01	Ventilation with total heat exchanger	
			02	Ventilation with bypass (no total heat exchange)	
	DX-Interface: "A" Offset for Thermo-OFF in control by outlet for DX-Interface		00	Disabled (factory setting)	
			01	2 ºC	
			02	4 ºC	
	Econofresh: cooling mode		00	Standard process (factory setting)	This function allows the outdoor air damper to be opened in All Fresh operation mode. This mode allows to fully open the outdoor air damper (according to the control system).
			01/02	All Fresh	
E2	KPI: Increase of air supply volume	O	00	Disabled function (factory setting)	This function is used to make the room pressure higher or lower than the surrounded room. One of the fans increases its speed while the other runs according the remote controller. Hi/Me/Lo change to Hi/Hi/Me
			01	Enabled function	
	Econofresh enthalpy sensor		00	Disabled function (factory setting)	This function selects the enthalpy sensor input for Econofresh.
			01	Enabled function	
E3	Not used	–	00	-	Use at 00 conditions
			01		
	Only for KPI-E4E and KPI-X4E: Selection of the fan for function E2	–	00	Activated for supply fan	This function selects which fan will increase the speed (when E2 enables this function).
			01	Activated for exhaust fan	
E4	KPI: Pre-cooling / pre-heating period	O	00	Disabled (factory setting)	This function delays unit startup with energy recovery.
			01	30 minutes	
			02	60 minutes	
	Econofresh: CO_2 sensor		00	Disabled (factory setting)	This function selects the CO_2 gas sensor input for Econofresh.
			01/02	CO_2 sensor (required setting E1=00)	
E5	Not used	–	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E: High ventilation after switch ON	–	00	Disabled (factory setting)	This function forces that the unit will operate in high speed during 60 minutes after fan start. After this time the fan will be changed to setting value.
			01	60 minutes	
E6	Period of indoor fan operation after cooling operation stoppage	O	00	Disabled function (factory setting)	This function prevents the condensation in the unit by keeping the fan running after the unit operation has been turned OFF.
			01	60 minutes	
			02	120 minutes	
E7	Not used	–	00	-	Use at 00 conditions
			01		

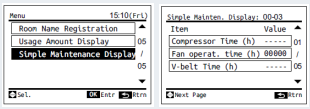
Element	Optional function	Individual setting	Settings	Setting conditions	Description
E8	Control for stop of the indoor unit fan during heating Thermo-OFF conditions (with remote sensor THM-R2AE connected to the THM4 connector in the indoor unit PCB)	O	00	Fan operation in Low speed	This function stops the fan to prevent cold draughts or overheating. C8 must be set to 01 to use the E8=01 setting. The connection of a THM-R2AE remote temperature sensor to the THM4 port in the indoor unit PCB is required. The remote sensor shall be installed in a proper place for the correct detection of room temperature. (In case that automatic louvre is set, the louvre will keep operating in both Thermo-ON and Thermo-OFF condition.)
			01	Fan stop in Thermo-OFF conditions	
E9	Intermittent fan operation in heating stop Not available for models: RPF(I)-FSN2E	O	00	Function disabled (factory setting)	In case that indoor unit operation is set OFF by the remote control switch, under certain conditions the fan is operated in cycles consisting of 3 minutes of operation at SLow speed and 30 minutes of stoppage.
			01	Function enabled	
EA	Not used	–	00	-	Use at 00 conditions
			01		
			02		
Eb	Indoor unit fan control during cooling Thermo-OFF conditions	O	00	Function disabled (factory setting)	This function decreases speed of the indoor unit fan during cooling Thermo-OFF, to reduce the spread of smells and humidity.
			01	Low	
			02	Slow	
EC	Forced Thermo-ON when stopping in cooling operation	O	00	Function disabled (factory setting)	This function is used to force Thermo-ON during 6 minutes when stopping in cooling operation.
			01	Enabled	
Ed	Not used	O	00	-	Use at 00 conditions
			01		
EE	Control in “Automatic” indoor fan speed mode	O	00	Function disabled (factory setting)	This function limits the speed of the indoor fan when room temperature is close to the setting temperature.
			01	Enabled	
EF	Control in “Automatic” indoor fan speed mode (supporting High H) Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M	O	00	Function disabled	This function limits the speed of the indoor fan when room temperature is close to the setting temperature, allowing to reach High H speed.
			01	Function enabled	
F0	Not available	–	“- -” permanent	–	–

Element	Optional function	Individual setting	Settings	Setting conditions		Description
F1	Automatic OFF timer setting Models: RCI-FSN4 RPC-FSN3 RPK-FSN3M RPI-FSN5E RPIM-FSN4E(-DU) RCD-FSN3 RCIM-FSN4E RPI-FSN3(P)E	X	00	Function disabled (Factory setting)		This function sets an automatic OFF timer to switch OFF the indoor units controlled by the remote control switch (when the units have been started by remote control). *(Do not set the values "0C"-"0F" when two remote control switches are used in the same remote control group)*
			01	1 hour		
			02	2 hours		
			03	3 hours		
			04-24	(04-24) hours		
			0A	30 minutes		
			0B	90 minutes		
			0C	40 minutes	Do not set these when two wired controllers are used.	
			0D	45 minutes		
			0E	50 minutes		
			0F	55 minutes		
	Automatic OFF timer setting Models: RPF(I)-FSN2E	X	00	Function disabled (Factory setting)		This function is used to set the automatic timer to switch off when the unit has been started by remote control.
			01	1 hour		
			02	2 hours		
			03	3 hours		
			04-24	(04-24) hours		
			0A	30 minutes		
			0B	90 minutes		
F2	Remote control main-sub setting	X	00	Main (Master remote control) (Factory setting)		This function is used to define which remote control switch is used as master or slave, when two remote controllers are connected to one indoor unit.
			01	Sub (Slave remote control)		
F3	Automatic reset of setting temperature	X	00	Function disabled (Factory setting)		This function is used to limit unit operation and save energy. The setting temperature is automatically set to the value defined with functions "F5" or "F6", according to the current operation mode, after the time set with function "F4" has passed since the last manual change of setting temperature. In case that the values of "F5" or "F6" are out of the limits set with functions "FC" and "Fd", limitations set by "FC" and "Fd" have priority.
			01	Function enabled		
F4	Automatic reset time	X	00	30 minutes (factory setting)		This function sets the automatic reset time delay for function F3.
			01	15 minutes		
			02	60 minutes		
			03	90 minutes		

Element	Optional function	Individual setting	Settings	Setting conditions	Description
F5	Automatic reset temperature for cooling	X	19	19 °C	This function defines the default temperature set point for the automatic reset function F3 in FAN/COOL/DRY modes.
			20	20 °C	
			21	21 °C	
			. . .	. . .	
			24	24 °C	
			25	25 °C (factory setting)	
			26	26 ºC	
			. . .	. . .	
			28	28 ºC	
			29	29 ºC	
			30	30 ºC	
F6	Automatic reset temperature for heating	X	17	17 ºC	This function defines the default temperature set point for the automatic reset function F3 in HEAT mode.
			18	18 ºC	
			. . .	. . .	
			20	20 ºC	
			21	21 ºC (factory setting)	
			25	25 ºC	
			. . .	. . .	
			28	28 ºC	
			29	29 ºC	
			30	30 ºC	
F7	Prevention of operation stoppage due to wrong operation of the remote controller	X	00	Function disabled (factory setting)	Operation is stopped by pressing the run/stop switch for 3 seconds.
			01	Function enabled	
F8	Lock function for operation mode selection	X	00	Function disabled	This function is used to prevent changes to the operation mode.
			01	Function enabled (factory setting)	
F9	Lock function for temperature setting	X	00	Function disabled	This function is used to prevent changes to the temperature setting.
			01	Function enabled (factory setting)	
FA	Lock function for fan speed selection	X	00	Function disabled	This function is used to prevent changes to the fan speed.
			01	Function enabled (factory setting)	
Fb	Lock function for swing louvre operation	X	00	Function disabled	This function is used to prevent changes to the automatic louvre operation.
			01	Function enabled (factory setting)	
FC	Lower limit of setting temperature for cooling (Minimum value of setting temperature allowed in cooling)	X	00	Function disabled 19 °C is the standard minimum set point. (factory setting)	This function defines the lowest temperature setting value for FAN/COOL/DRY modes.
			01	+1 ºC (Lower limit 20 ºC)	
			02	+2 ºC (Lower limit 21 ºC)	
			03	+3 ºC (Lower limit 22 ºC)	
			. . .	. . .	
			08	+8 ºC (Lower limit 27ºC)	
			09	+9 ºC (Lower limit 28 ºC)	
			10	+10 ºC (Lower limit 29 ºC)	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
Fd	Upper limit of setting temperature for heating (Maximum value of setting temperature allowed in heating)	X	00	Function disabled 30 ºC is the standard maximum set point. (factory setting)	This function defines the highest temperature setting value for HEATING mode. Models: RPF(I)-FSN2E up to 20ºC (FC=10)
			01	-1 ºC (Upper limit 29 ºC)	
			02	-2 ºC (Upper limit 28 ºC)	
			03	-3 ºC (Upper limit 27 ºC)	
			. . .	. . .	
			10	-10 ºC (Upper limit 20 ºC)	
			11	-11 ºC (Upper limit 19 ºC)	
			12	-12 ºC (Upper limit 18 ºC)	
FE	Not used	-	00	-	Use at 00 conditions
			01		
			02		
FF	Not Used	O	00	-	Use at 00 conditions
			01		
H1	No indication of maintenance alarm	–	00	Displayed	This function is used to display or hide the maintenance alarm indication.
			01	Hidden	
H2	Indication of hot start (No Indication of operation limitation)	X	00	Displayed	This function is used to display or hide the automatic control indication. Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Hidden	
H3	Not used	–	00	-	Use at 00 conditions
			01 / 02		
H4	Not Used	–	00	-	Use at 00 conditions
			01	-	
	KPI: Operation modes for the ventilation unit with energy recovery	O	00	Air conditioning only (factory setting)	This function is only available for ventilation units with energy recovery.
			01	Ventilation only	
			02	Air conditioning + ventilation	
J1	Not used	-	00	-	Use at 00 conditions
			01		
J2	Not used	-	00	-	Use at 00 conditions
			01		
J3	Colour of the Run indicator	X	00	Green (factory setting)	–
			01	Red	
J4	Override of Start/Stop prohibition at the remote controller	X	00	Start/Stop allowed (Factory setting)	When there is a remote control prohibition from a central control device, this function overrides this prohibition allowing the operation of the Run/Stop button of the remote control switch. Models: RPF(I)-FSN2E Not used. Use at 00 conditions
			01	Start/Stop not allowed ⚠ **DANGER** ***Blocking of Start/Stop shall never be set due to safety concerns.***	
			02	Only Stop allowed	

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Element	Optional function	Individual setting	Settings	Setting conditions	Description
J5	Not used	-	00	-	Use at 00 conditions
			01		
J6	Not used	-	00	-	Use at 00 conditions
			01		
J7	Enabling steps 6 and 7 for the air louvre in COOLING or DRY mode	O	00	Function disabled (factory setting)	When a RPK unit is stopped in louvre positions 6 or 7, the louvre is set to position 5.
			01	Function enabled	
J8	Eco-operation	X	00	Function disabled (factory setting)	When the unit is restarted by the remote control switch, the temperature automatically changes to the setting temperature of “F5” or “F6”. Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Function enabled	
J9	Not used	-	00	-	Use at 00 conditions
			01		
JA	Display of "Simple maintenance display" menu	O	00	Function disabled (factory setting)	Enables the “Simple maintenance display” menu.  Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Function enabled	
Jb	Enable automatic fan speed setting	O	00	Function disabled (factory setting)	Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Function enabled	
K1	Not used	-	00	-	Use at 00 conditions
			01		
K2	Not used	-	00	-	Use at 00 conditions
			01		
K3	Not used	-	00	-	Use at 00 conditions
			01		
K4	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
K5	Detection level of the motion sensor kit	O	00	Standard (factory setting)	Models: RPF(I)-FSN2E Not available, use at 00 conditions. This parameter defines the sensitiveness of the motion sensor. The amount of activity in the room is assessed according to a different scale based on this setting. Detailed information about the operation of the motion sensor can be found in the technical documentation of the indoor units.
			01	High	
			02	Low	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
K6	Selection of allowed operation modes when the control sensor of the indoor unit is set by C8 function	O	00	All modes allowed	This function is used to select the operation modes in which the setting of C8 (use of remote control switch sensor or remote sensor on THM4 to control the indoor unit) is enabled.
			01	Only cooling/dry allowed	
			02	Only heating allowed	
			03	All modes allowed	
K7	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
K8	Control for the prevention of condensation on the louvres.	O	00	Function disabled (factory setting)	Condensation may occur around air outlet during COOL/DRY operation with horizontal air flow or downward air flow for long periods. This function is used to prevent condensation by moving the louvre swing angle to the third step automatically for 30 minutes every 1 hour. (In RPK units, this function is activated by means of DSW2-4 instead of the K8 optional function)
			01	Function enabled	
K9	Not used	-	00	-	Use at 00 conditions
			01		
KA	Not used	-	00	-	Use at 00 conditions
			01		
L1	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
L2	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
L3	Operation of the louvres in energy-saving Thermo-OFF (Cooling / Dry mode)	O	00	Direct air blow Low (factory setting)	Power save must be ON in order to use this function (L5 must be set to 01). This function is used to establish louvre swinging operation ranging from continuous swing to static operation. Low: Continuous louvre swing Medium: Louvre swing with intermittent stops for 20/40 seconds High: Louvre stopped at full opening position, according to the setting of CF.
			01	Direct air blow Medium	
			02	Direct air blow High	
			03	Disabled	
L4	Fan acceleration in energy-saving Thermo-OFF (Cooling mode)	O	00	Function disabled (factory setting)	This function increases fan speed by one step to prevent the loss of comfort due to the forced Thermo-OFF for energy saving during cooling operation.
			01	Function enabled	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
L5	Louvre swing operation during energy-saving forced Thermo-OFF	O	00	Function disabled (factory setting)	This function is used to enabled the setting of function L3.
			01	Function enabled	
L6	Not used	-	00	-	Use at 00 conditions
			01		
L7	Not available	–	"- -" permanent	–	–
L8	Not used	-	00	-	Use at 00 conditions
			01		
L9	Not used	-	00	-	Use at 00 conditions
			01		
LA	Not used	-	00	-	Use at 00 conditions
			01		
Lb	Not used	-	00	-	Use at 00 conditions
			01		
P1	Setting temperature in 0.5 ºC steps	X	00	Enabled (0.5 °C steps) (factory setting)	This function is used to define whether setting temperature is adjusted in 0.5 ºC steps (when set to "00") or in 1 ºC steps (when set to "01"). This setting also determines whether the resolution of temperature differential of the thermistor is 0.5 ºC (when set to "00") or 1 ºC (when set to "01").
			01	Disabled (1 °C steps)	
P2	Not used	-	00	-	Use at 00 conditions
			01		
P3	Temperature sensor displayed	X	00	Inlet air thermistor (Tin)	This function is used to select the thermistor whose temperature is shown when function P4 is set to 01.
			01	Outdoor air thermistor (Tout)	
			02	Remote controller thermistor (RCS)	
			03	Remote sensor (THM4)	
P4	Display of sensor temperature	X	00	Hidden	This function is used to display the temperature of the sensor selected with function P3.
			01	Shown	
P5	Display of setting temperature when operation mode is Fan	X	00	Shown	This function is used to hide the display of setting temperature during operation in fan mode.
			01	Hidden	
P6	Operation of the ECO button	X	00	ECO button enabled (factory setting)	The operation of ECO button is disabled when P6 is set to 01
			01	ECO button disabled	
P7	Prohibition of menu screen transition	X	00	Function disabled (factory setting)	This function is used to prohibit the access to the menu screens. The text "Display disabled" appears on screen instead.
			01	Function enabled	
P8	Not used	-	00	-	Use at 00 conditions
			01		
P9	Not used	-	00	-	Use at 00 conditions
			01		
PA	Daylight saving time	X	00	1 hour	This function is used to set the amount of adjustment when daylight saving time is applied.
			01	2 hours	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
Pb	Not used	-	00	-	Use at 00 conditions
			01		
PC	Not used	-	00	-	Use at 00 conditions
			01		
q1	Not used	-	00	-	Use at 00 conditions
			01		
q2	Not used	-	-	-	Not used
q3	Not used	-	-	-	Not used
q4	Not used	-	-	-	Not used
q5	Not used	-	-	-	Not used
q6	Not used	-	00	-	Use at 00 conditions
			01		
q7	Not used	-	00	-	Use at 00 conditions
			01		
q8	Not used	-	00	-	Use at 00 conditions
			01		
q9	Not used	-	00	-	Use at 00 conditions
			01		
qA	Not used	-	00	-	Use at 00 conditions
			01		
qb	Operation mode with setback	X	00	Disabled	Operation modes in which setback operation is activated to keep a minimum comfort in the room while it is not occupied.
			01	Cooling	
			02	Heating	
			03	Cooling/Heating	
qC	Temperature differential for the setback function	X	00	2.0 ºC	Target temperatures for both cooling and heating operation are determined versus a temperature to start setback operation (rE, rF) Target temperature calculation: Target temperature in cooling mode: rF - qC (°C) Target temperature in heating mode: rE + qC (°C)
			01	3.0 ºC	
			02	4.0 ºC	
			03	5.0 ºC	
			04	1.0 ºC	
qd	Minimum stop time of setback	X	00	10 minutes	To avoid the frequent activation of setback operation, a minimum off-time shall pass from the end of setback operation until the beginning of the following setback operation. Even if room temperature reaches the setpoint to start setback operation, setback operation does not start until the minimum off-time has expired.
			01	20 minutes	
			02	30 minutes	
			03	40 minutes	
			04	50 minutes	
			05	60 minutes	
			06	70 minutes	
			07	80 minutes	
			08	90 minutes	
			09	100 minutes	
			10	110 minutes	
			11	120 minutes	
qE	Setback mode	X	00	Always	When selecting “01: Input”, it is necessary to set up one input contact (i1 or i2) with the setback function “09”. This operation has to be done in the input/output setting menu of the remote controller. When selecting “02: Schedule” or “03: Manual”, additional settings are required.
			01	Input	
			02	Schedule	
			03	Manual	
qF	Operation state after the end of setback operation	X	00	Stop	Operation state to switch to upon the end of setback duration.
			01	Run	
			02	Operation state before the beginning of setback	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
r1	Dual setpoint	X	00	Function disabled (factory setting)	This function allows the setting of independent setpoints for cooling and heating in the automatic cooling/heating mode.
			01	Function enabled	
r2	Setting of temperature differential for switching cooling and heating	X	0.5	0.5 °C	This function can only be set when function r1 is set to 01.
			1.0	1.0 °C	
			1.5	1.5 °C	
			2.0	2.0 °C	
			2.5	2.5 °C	
			3.0	3.0 °C	
r3	Not used	-	0.5	-	Not used
			1.0		
			1.5		
			2.0		
			2.5		
			3.0		
			3.5		
			4.0		
			4.5		
			5.0		
			5.5		
r4	Not used	-	00	-	Use at 00 conditions
			01		
r5	Not used	-	00	-	Use at 00 conditions
			01		
r6	Not used	-	00	-	Use at 00 conditions
			01		
r7	Not used	-	00	-	Use at 00 conditions
			01		
r8	Not used	-	00	-	Use at 00 conditions
			01		
r9	Remote control prohibition during setback operation	X	00	Start/Stop allowed (Factory setting)	Manual run/stop from the remote controller can be disabled during setback operation. This function is fixed to 00 (Disabled) when function qE is set to 00 (Always).
			01	Start/Stop not allowed ⚠ **DANGER** ***Blocking of Start/Stop shall never be set due to safety concerns.***	
			02	Only Stop allowed	
rA	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
			04		
			05		
			06		
			07		

Element	Optional function	Individual setting	Settings	Setting conditions	Description
rb	Minimum operation time to allow the change of operation mode in auto cooling/heating mode with dual set point	X	00	Disabled	This function is used to define a minimum time of operation in a given mode, in order to avoid too frequent changes of operation mode. Operation mode does not change until the minimum transition time passes, even if the room temperature reaches the setpoint to shift to the other operation mode.
			01	10 minutes	
			02	20 minutes	
			03	30 minutes	
			04	40 minutes	
			05	50 minutes	
			06	60 minutes	
			07	70 minutes	
			08	80 minutes	
			09	90 minutes	
			10	100 minutes	
			11	110 minutes	
			12	120 minutes	
rC	Maximum outdoor temperature to allow operation mode switch to heating in auto cooling/ heating with dual set point	X	00	Disabled	If outdoor ambient temperature is higher than rC, there is no mode transition to heating in automatic cooling/heating operation mode, even if room temperature reaches the setpoint to switch operation mode from cooling to heating.
			01	20.0 ºC	
			02	21.0 ºC	
			03	22.0 ºC	
			. . .	. . .	
			21	40.0 ºC	
			22	0.0 ºC	
			23	1.0 ºC	
			24	2.0 ºC	
			. . .	. . .	
			41	19.0 ºC	
rd	Minimum outdoor temperature to allow operation mode switch to cooling in auto cooling/ heating with dual set point	X	00	Disabled	If outdoor ambient temperature is lower than rd, there is no mode transition to cooling in automatic cooling/heating operation mode, even if room temperature reaches the setpoint to switch operation mode from heating to cooling.
			01	10.0 ºC	
			02	11.0 ºC	
			03	12.0 ºC	
			. . .	. . .	
			31	40.0 ºC	
			32	-20.0 ºC	
			33	-19.0 ºC	
			34	-18.0 ºC	
			. . .	. . .	
			61	9.0 ºC	

Element	Optional function	Individual setting	Settings	Setting conditions	Description
rE	Temperature for the beginning of heating in setback	X	00	15.0 ºC	If room temperature becomes lower than this setting, indoor unit operation is resumed in heating mode by the setback function.
			01	16.0 ºC	
			02	17.0 ºC	
			03	18.0 ºC	
			04	19.0 ºC	
			05	10.0 ºC	
			06	11.0 ºC	
			07	12.0 ºC	
			08	13.0 ºC	
			09	14.0 ºC	
rF	Temperature for the beginning of cooling in setback	X	00	26.0 ºC	If room temperature becomes higher than this setting, indoor unit operation is resumed in cooling mode by the setback function.
			01	27.0 ºC	
			02	28.0 ºC	
			03	29.0 ºC	
			04	30.0 ºC	
			05	31.0 ºC	
			06	32.0 ºC	
			07	33.0 ºC	
			08	34.0 ºC	
			09	35.0 ºC	
			10	25.0 ºC	
S1	Not used	-	00	-	Use at 00 conditions
			01		
S2	Not used	-	00	-	Use at 00 conditions
			01		
S3	Not used	-	00	-	Use at 00 conditions
			01		
S4	Not used	-	00	-	Use at 00 conditions
			01		
S5	Not used	-	00	-	Use at 00 conditions
			01		
S6	Not used	-	00	-	Use at 00 conditions
			01		
			02		
S7	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
			04		
			05		
			06		
			07		

Element	Optional function	Individual setting	Settings	Setting conditions	Description
S8	Not used	-	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	-	Use at 00 conditions

NOTE

O: allows for individual setting.

X: the setting is made for all outdoor units.

–: not used.

NOTE

- *The changes to the optional function settings must be done after 3 minutes have passed since start-up.*
- *It is recommended to keep track of the changes made to optional function settings, for further reference.*
- *The available optional settings are different depending on the indoor and outdoor unit models. Check the technical documentation of the indoor and outdoor units to ensure whether the optional settings are available for these units.*
- *The optional functions with "X" mark at the individual setting column can change the condition only when "All Rooms" is set.*
- *The following optional functions are disabled when RPI units with Econofresh are installed: b7, Cd, CF, d6, E9, H1, H4, J4, J7, J8, JA, JB, K5.*
- *The listed optional functions are valid for the following models:*

Indoor Unit series	With software number
RCI-(1.0~6.0)FSN4	P-4736
RCIM-(0.4~2.5)FSN4E	P-4729
RCD-(0.8~6.0)FSN3	P-4729
RPK-(0.4~4.0)FSN(H)4M	P-4725
RPI-(0.4~1.5)FSN5E	P-4725
RPI-(2.0~3.0)FSN5E	P-4725
RPI-(4.0~6.0)FSN5E	P-4735
RPIM-(0.6~1.5)FSN4E	P-4735
RPC-(1.5~6.0)FSN3	P-4736

5.2.2 Description of the optional remote control functions (PC-ARFP1E)

b1 – Removal of heating temperature compensation

This function is used to adjust the difference of temperature between the setting temperature of the remote control switch and the inlet air temperature of the indoor unit.

This is useful when the inlet air thermistor is not placed inside the indoor unit or due to uneven Heat Load or for example in standard heating mode, the suction air temperature is greater than that of the room, therefore the setting temperature used according to the factory setting is calibrated to the indicated temperature +4 °C, but depending on the room conditions can be necessary to compensate a smaller value.

b2 – Circulator function at heating Thermo-OFF

This function means that the fan unit remains running after the air conditioning system has stopped in heating mode to prevent the air in the room from stratifying.

This function is useful when the air in the room is stratified (hot air accumulates at the ceiling). Air stratification may occur if has been selected fan speed changes to LOW when the thermostat of the unit is stopped. This function prevents air stratification in the room after stopping the air conditioning system.

This function maintains the fan speed, whether the thermostat is on or off. Hence, the air movement in the room is kept at the same level to ensure even air distribution.

NOTE

- *If the indoor unit has an automatic louver, this function also remains active when the heating thermostat is switched off.*
- *Everyone has a different perception of coolness, heat and air flow and, therefore, this issue should be discussed with the client and the unit set according to the results of the conversation.*

b3 – Forced compressor operation for at least three minutes

This function is used to allow the setting of C7 (Cancellation of the forced compressor operation for at least 3 minutes) preventing it from being started or stopped the compressor for periods of less than 3 minutes.

NOTE

- *In the case of SET FREE units, forced compressor operation for at least 3 minutes is standard, even when the setting is not available.*
- *The compressor stops immediately when the safety device is activated or ON/OFF is pressed.*
- *To cancel this function, see C7 – Cancellation of the forced compressor operation for at least three minutes.*
- *When this function is cancelled, the mode enabling operations for a minimum of 3 minutes remains available.*

b4 – Change the filter cleaning period

This function is used to modify the period during which the remote control indicates the air filter replacement. The filter cleaning period can be changed depending on the condition of the filter.

NOTE

- *The remaining number of hours before cleaning the filter is factory-set for all indoor unit models b2=02 (1200 hours).*
- *For RPK-FSN(H)3M models Factory-Setting is b4=00: Standard setting 200 hrs.*

b5 – Locking of operation mode

This function is used when the operating mode does not have to be changed. Once the unit operating mode has been selected, this function prevents it from being modified from the remote control.

b6 – Locking of setting temperature

This function is used when the temperature setting does not have to be changed. Once the unit temperature has been selected, this function prevents it from being modified from the remote control.

b7 – Setting operation mode as cooling only

This function is available to use refrigeration mode only and to prevent heating mode from being enabled. When this function is selected, heating operation and the automatic COOL/HEAT operation are cancelled.

b8 – Automatic COOL/HEAT operation

This function allows the automatic change from the cooling to the heating mode for the units with the same refrigerant cycle.

NOTE

This function is not valid when the outdoor unit is an exclusive cooling model or when the function to set operations as an exclusive cooling unit is enabled.

b9 – Locking of fan speed

Once the unit fan speed has been selected, this function prevents it from being modified from the remote control.

NOTE

When this function is enabled, the fan speed cannot be changed using the remote control.

bA – Not available

bb – Cooling setting temperature correction

This function decrease the temperature and it is used to obtain longer cooling periods. When this function is enabled, the air conditioning system is switched on/off with the temperature condition below the temperature indicated on the remote control.

NOTE

The lower set temperature limit after offset is 19°C.

bC – Not used

bd – Not used

bE – Not used

C1 – Not used

C2 – Not available

C3 – Not used

C4 – Drain pump operation in heating mode

This function is used to activate the drain pump in heating mode.

C5 – Increasing fan speed / Static pressure selection

This function is used to change the indoor units fan speed installed in high ceilings.

For RPI units this function is used to change the static pressure from the remote control.

C6 – Increasing speed at heating Thermo-OFF

This function is used to increase the fan speed when the thermostat reaches the set temperature in heating using function C5.

NOTE

The fan speed does not increase when the thermostat is switched off with the function setting (C5).

C7 – Cancellation of the forced compressor operation for at least 3 minutes

This function is available when b3 (Forced compressor operation for at least three minutes through C7 setting) is set 00 (C7 setting possible).

This function allows that the compressor are not forced 3 minutes operation.

NOTE

In the case of SET FREE units, the forced compressor operation for at least 3 minutes fixed as a standard function.

C8 – Thermistor of Remote Control Switch and Remote sensor

This function is useful when the unit is to be controlled by the thermistor included in the Remote Control or by Remote Sensor instead of by the suction air thermistor. It determines the thermistor to control the air temperature.

NOTE

When the function is set to "01" or "02", if the temperature detected by the remote control thermistor is abnormal due to a fault in the remote control thermistor or another fault, the Air Inlet Thermistor on the indoor unit is used automatically.

C9 – Not available

CA – Not available

Cb – Selection of forced stoppage logic

This function determines the operating logic for the forced stoppage contacts.

The setting conditions and contact logic are shown in the following table:

Setting condition				
Setting	Contact	Contact logic	Activation contact	
			Open	Closed
00	Contact A	Normally open	Normal	Forced stoppage
01	Contact B	Normally closed	Forced stoppage	Normal

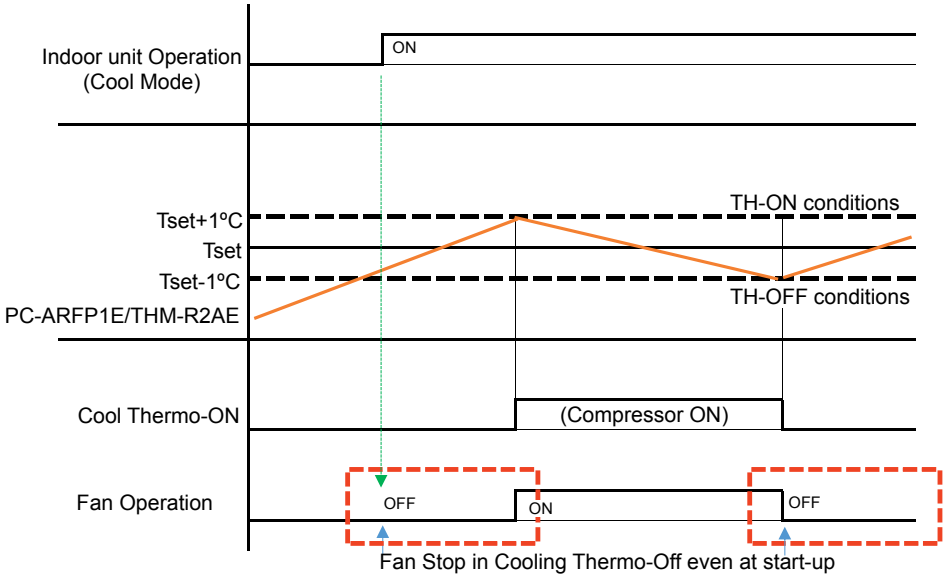
CC – Not used

Cd – Stop of indoor unit fan during cooling Thermo-OFF conditions

Fan stop operation in thermo-off conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or PC-ARFP1E temperature sensor.

This optional function keeps the fan stopped when the indoor unit is in Thermo-OFF conditions, even upon start-up.

"Cd=01": Fan stop operation in thermo-off conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or PC-ARFP1E temperature sensor ("C8=01" must be set in this case).



NOTE

It is advised to pay attention to the following points:

- *Do not set this function if no remote control sensor (in PC-ARFP1E) or remote sensor (THM-R2AE) are installed; otherwise, comfort conditions may never be reached.*
- *Do not set "Cd" function when indoor unit temperature control is based on:*
  - *"C8=00": Temperature control with the air inlet sensor of the indoor unit*
  - *"C8=02": Temperature control with the average value of the remote control sensor and the air inlet sensor of the indoor unit. In these cases, comfort conditions may never be reached*
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions.*

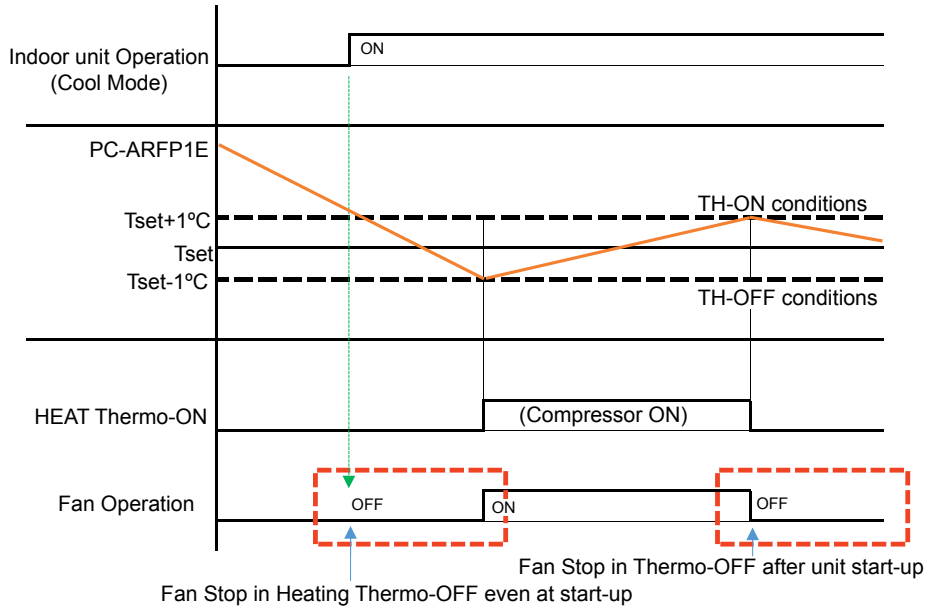
CE – Stop of indoor unit fan during heating Thermo-OFF conditions

This function is useful to avoid the perception of cold draughts.

When “CE=01”: Fan stop operation in thermo-off conditions when using the PC-ARFP1E sensor, “C8=01” must be set in this case. The fan will not be turned on when the indoor unit is switched on in Thermo-OFF conditions.

Indoor unit will use the PC-ARFP1E Remote Control temperature sensor to monitor the room temperature when fan is stopped (heating Thermo-OFF fan stop sequence). The Remote Control Switch shall be installed in a proper place for the correct detection of room temperature by its temperature sensor.

Control by Remote Temperature Sensor not permitted.

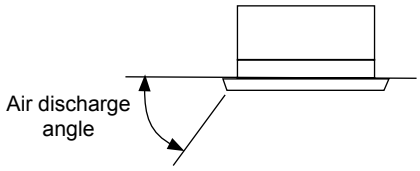


NOTE

- *These functions are only available when using the Remote Control Sensor (in PC-ARFP1E)*
- *When using CE function:*
  - “C8=00”: this setting is not permitted
  - “C8=02”: this setting is not recommended since it may cause that comfort conditions are never reached (C8 set at 02 means that unit control is carried out with the average value of the Remote Control Sensor and the air inlet sensor of the indoor unit)
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions*

CF – Change of louver swing angle

This function is useful when the louver swing angle (air discharge angle) must be changed.



Setting condition	Louver swing angle (Air discharge angle)	Purpose
00	7 steps	Standard Operation
01	5 steps	Cold draft Prevention
02	5 steps (*)	For High Ceiling

NOTE

(*) Not used for RPK-FSN(H)3M

d1 – Power supply ON/OFF 1 (Automatic Operation when Power Supply is ON)

This function stores the unit settings in the event of a power cut. The unit is restarted when the power is re-established.

CAUTION

When this function is used without anyone controlling the unit, set the system monitoring mode to avoid risks.

NOTE

In the event of an electrical fault, the unit starts and stops according to the on/off setting of the power supply. If the fault occurs during a stoppage enabled through the remote control, the unit will restart automatically once the power supply is reconnected.

d2 – Not available

d3 – Power supply ON/OFF 2 (Restarting Function After Power Failure)

This function is used to restart the unit after a power cut taking more than 2 seconds. The standard unit starts automatically under the same operating conditions, such as the operating mode, etc. in the case of an electrical fault lasting for a maximum of 2 seconds.

The compressor unit restarts after 3 minutes plus the maximum 2 seconds of the fault.

CAUTION

When this function is used without anyone controlling the unit, set the system monitoring mode to avoid risks.

d4 – Prevention of drop of discharge temperature in cooling

This function is avoiding getting a too low air outlet temperature from indoor units in cooling operation. Remote Control Switch is controlling the air outlet temperature and adjusting the Thermo-ON/OFF status accordingly.

When ambient temperature > setting temperature:

- If air outlet temperature ≤ 11 ºC for 3 minutes, the system is switched to Thermo-OFF.
- In this status, if air outlet temperature ≥ 13 ºC, the system is switched back to Thermo-ON.

This optional function is only available for the following indoor units models: RPIM-(0.6-1.5)FSN4E, RPI-(4.0-6.0)FSN5E

For the following indoor units: RCD, RPK, RCI, RCIM, RPF(I), RPI-(0.4-3.0)FNS5E, RPI-(8~20)FSN3(P)E, this function is not used.

d5 – Prevention of decrease of heating discharge air temperature

This function prevents a drop in the air temperature by decreasing the fan speed, apart from the settings on the remote control.

d6 – Room temperature control for energy saving

This function saves energy when the outdoor temperature is lower than the air conditioning load.

The indoor unit is set to cooling Thermo-OFF when: T_{out} (outside ambient temperature - out of the building) < T_{in}

d7 – Only for Econofresh: OA Damper minimum opening

This function is setting the minimum opening angle of the damper for fresh-air intake.

E1 – KPI ventilation mode

This function is used to set the unit ventilation mode with energy / heat recovery

This function is useful to set the heat exchanger ventilation mode. The setting condition and ventilation mode are shown below:

Setting condition	
Setting	**Contents**
00	Effective ventilation mode selection (ventilation with total heat exchanger or ventilation bypass) to save energy by detecting the difference in temperature between indoors and outdoors.
01	Heat is exchanged continuously when the heat exchanger is started.
02	Heat is not continuously exchanged when the heat exchanger is started.

E1 – Econofresh cooling mode (100 % fresh air operation for cooling mode)

This function allows the outdoor air damper to be open in All Fresh operation mode. This mode allows the full opening of the outdoor air damper (according to the control system).

E2 – KPI Increasing air supply volume

This function is useful when the air supply volume must be increased using the high-speed, one-way valve on the fan motor during total heat exchanger operations. This increases the pressure in the room with greatest air volume in relation to adjoining rooms and prevents the entry of contaminated air or unpleasant smells.

E2 – Econofresh enthalpy sensor

This function allows the outdoor air damper to be open in All Fresh operation mode. This mode allows the full opening of the outdoor air damper (according to the control system).

E3 – Not used

E4 – KPI: Pre-cooling / pre-heating period

This function is useful to delay start-up of the total heat exchanger.

E4 – Econofresh: CO_2 sensor

This function selects the CO_2 gas sensor input (required setting E1=00).

E5 – Not used

E6 – Indoor fan operation time after cooling operation stoppage

This functions prevents the condensation accumulation in the unit by keeping the fan running after it is switched off.

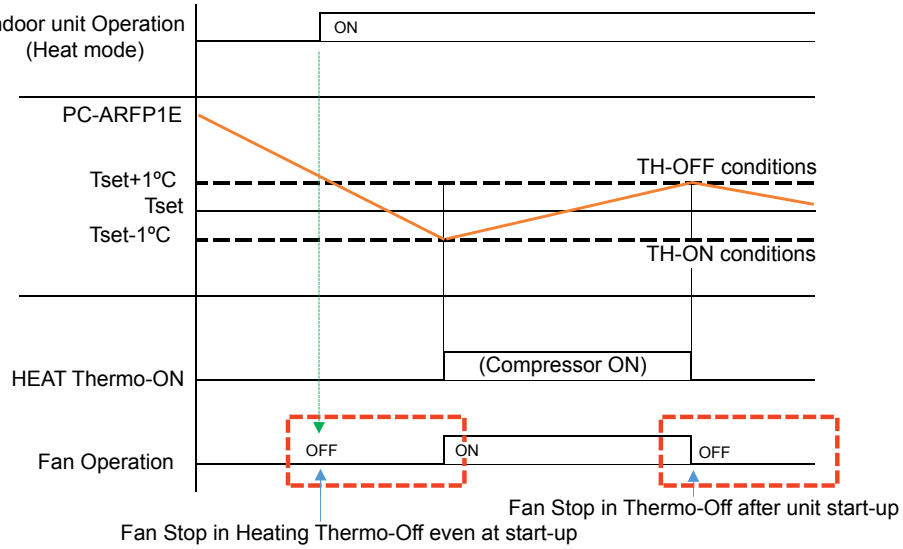
E7 – Not used

E8 – Fan operation control at heating Thermo-OFF

This function is useful to avoid the perception of cold draughts by stopping the indoor fan speed with the heating Thermo-OFF. These functions are only available when using the remote sensor (THM-R2AE).

THM-R2AE Remote temperature sensor (connected to the THM4 port on the IU PCB) is required.
This function stops the fan to prevent cold draughts.

The Remote Sensor shall be installed in a proper place for the correct detection of room temperature.



NOTE

- *These functions are only available when using the Remote Sensor (THM-R2AE)*
- *When using E8 function:*
  - "C8=00" : this setting is not permitted
  - "C8=02" : this setting is not recommended since it may cause that comfort conditions are never reached (C8 set at 02 means that unit control is carried out with the average value of the Remote Sensor and the air inlet sensor of the indoor unit)
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions*

E9 – Intermittent fan operation in heating stop

In case that the indoor unit is stopped (in SW OFF), under certain conditions the fan operation at Slo speed is performed for 3 minutes after 30 minutes of stoppage. Not available for models RPF(I)FSN2E.

EA – Not used

Eb – Fan operation control at cooling Thermo-OFF

This function reduces the unit fan speed to reduce the spreading of smells and humidity.

EC – Forced Thermo-ON stoppage at cooling operation

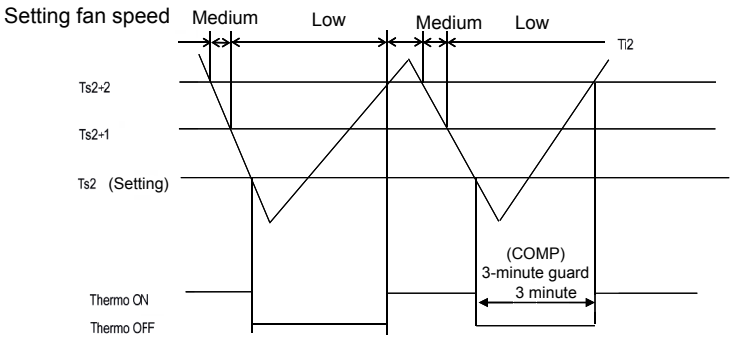
This function is used to force Thermo-ON during 6 minutes when stopping in cooling operation. It is effective for avoiding unpleasant smells, as the heat exchanger remains clean, e.g. it is rinsed with drainage water.

Ed – Not used

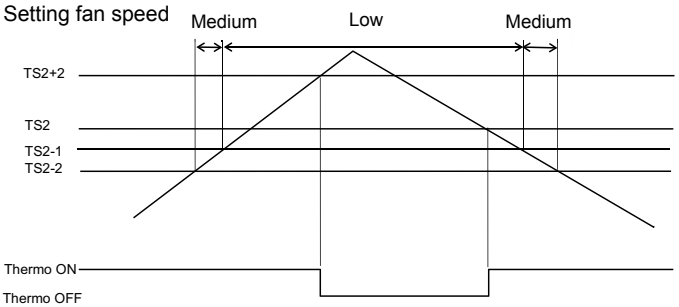
EE – Automatic fan speed control

This function limits indoor fan speed when room temperature is close to setting temperature.

- When EE: Automatic indoor fan speed mode is set to “01: Enabled” in the function selection of the remote control, operation is carried out in automatic indoor fan speed mode.
- When setting fan speed is set as to “Auto” with the remote control, operation is carried out in automatic indoor fan speed mode with “High wind” as setting fan speed.
- Cooling
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 2ºC: Setting fan speed
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 1ºC: Medium (Low when setting fan speed is Low)
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) < 1ºC: Low



- Heating
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 2ºC: Setting fan speed
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 1ºC: Medium (Low when setting fan speed is Low)
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) < 1ºC: Low



- Maintenance of fan speed for 3 minutes
  - In switch ON with the remote control, fan speed is set to the setting fan speed, and then it enters in automatic mode after 3 minutes have passed. The switching of fan speed depending on temperature differential is performed when entering in the automatic mode, regardless of being in Thermo-ON or Thermo-OFF.
  - Once that fan speed is switched after Thermo-ON, the fan speed after the change is maintained for 3 minutes. (*) The aforementioned switching of fan speed depending on temperature differential is performed after 3 minutes have passed. Setting Temperature is the Temperature used for Thermo-OFF.
  - When switching fan speed due to a function of the motion sensor, it is switched immediately even during the 3 minutes of maintenance of fan speed.

- When switching fan speed due to the control of the sensor for heating radiation temperature, it is switched immediately even during the 3 minutes of maintenance of fan speed.
- When switching fan speed due to the beginning of the heating draft control, it is switched immediately even during the 3 minutes of maintenance of fan speed.

NOTE

**: However, when EE=01:Enabled is set, in case of switching setting fan speed from the remote control, it is directly switched to the automatic fan speed corresponding to the setting fan speed. When EE=00:Disabled is set, in case of switching setting fan speed from "Automatic" to "Other than automatic" from the remote control, it is directly switched to the setting fan speed. Also, in case of switching setting fan speed from "Other than automatic" to "Automatic" from the remote control, the switching of fan speed depending on temperature differential is carried out if being in Thermo-ON, while the switching of fan speed depending on temperature differential is not carried out if being in Thermo-OFF, and fan speed becomes the fan speed of the last automatic mode.*

- Common items
  - In case of changing from Thermo-ON to Thermo-OFF at the beginning of the automatic mode, the fan speed during Thermo-OFF is that of right after Thermo-OFF. Also, the switching of fan speed is not performed during Thermo-OFF. (When switching from Thermo-ON to Thermo-OFF, the maintenance of fan speed for 3 minutes is released, and the switching of fan speed depending on temperature differential is carried out)
  - The target of the automatic switching is the part of the control which operates at the normal setting fan speed.
  - When using a room thermostat and in test run, it is set to setting fan speed.
  - Even in case that the heating circulator is enabled (Function selection b2=01), it is set to the fan speed of the automatic indoor fan speed mode.

NOTE

- *The maximum fan speed in "Auto" mode is "High", unless EF function is also activated.*
- *Econofresh present, E1=01 and Fan speed setting is "Auto" mode, fan speed is fixed to "High"*

EF – Automatic indoor fan speed mode (supporting High H)

This function allows to increase the maximum fan speed to "High H" in "Auto" mode.

- Cooling

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 2ºC: Setting fan speed

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 1ºC: Medium

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) < 1ºC: Low

- Heating

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 2ºC: Setting fan speed

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 1ºC: Medium

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) < 1ºC: Low

- Relation with the automatic indoor fan speed mode (EE)

Setting of function selection EF	Setting of function selection EE	Remote control setting				
		Auto	High H	High	Medium	Low
00	00	High~Low	High2	High	High	Low
00	01	High~Low	High2~Low	High~Low	Medium~Low	Low
01	00	High2~Low	High2	High	High	Low
01	01	High2~Low	High2~Low	High~Low	Medium~Low	Low

F0 – Not available

F1 – Automatic OFF timer setting

This function is used to switch off the timer automatically when the unit is started using the remote control.

It is not possible to cancel or change the timer off setting during automatic timer off setting. However, it can be cancelled when the unit is stopped. When the unit is restarted, the off timer setting period is established according to the optional setting. Do not set the functions “0C”-”0F” when two remote control switches are used in the same remote control group.

NOTE

This function is not available for control using CSNET Manager 2 or 7-day timer.

F2 – Remote control main-sub setting

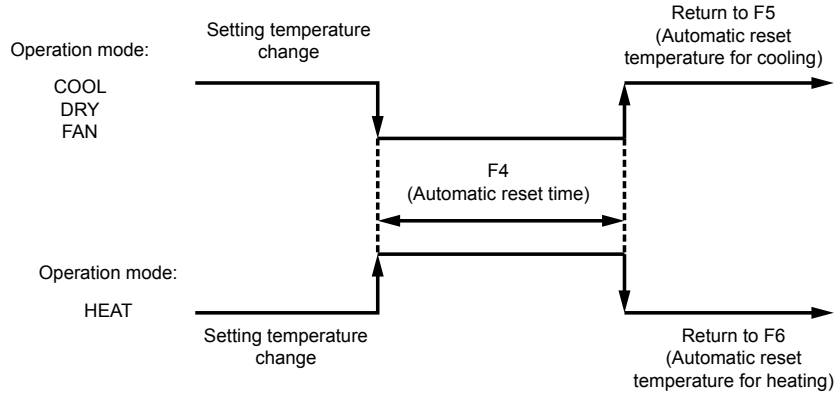
This function is useful when configuring two remote controls for the same installation: one in main mode and the other in secondary mode.

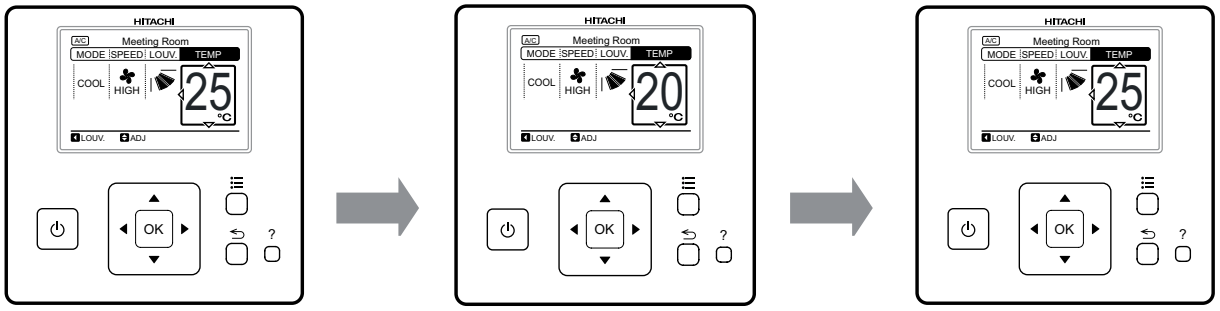
F3 – Automatic reset of setting temperature

This function releases the fixed temperature setting after a certain time to limit unit operations and save energy.

In case that the set temperature is changed and kept within the set time at “F4”, the temperature is automatically changed to “F5” and “F6”. In case that the set temperature is out of range at “F5” and “F6”, it is applied within upper and lower limit for the set temperature.

However, the temperature configuration does not perform the automatic Reset when operating in Automatic COOL/HEAT mode or operations using the remote control for the central unit are forbidden.





The setting temperature is changed from 25ºC to 20ºC by remote control switch.

Cooling operation at 20ºC is performed temporally.

If no operation is done for a defined period, the setting temperature returns to 25ºC automatically.

F4 – Automatic reset time

This function is used to set the automatic reset time with the temperature setting.

F5 – Automatic reset temperature for cooling

This function is used to set automatic temperature reset in FAN/COOL/DRY modes.

F6 – Automatic reset temperature for heating

This function is used to set automatic temperature reset in HEAT mode.

F7 – Prevention of operation stoppage due to Remote Control operating error

This function prevents the stoppage when pressing the start/stop button in the remote controller by error.

NOTE

Operation is stopped by pressing the run/stop switch for 3 seconds.

F8 – Lock function for operation mode selection

This function is used to prevent changes to the operating mode.

F9 – Lock function for temperature setting

This function is used to prevent changes to the temperature setting.

FA – Lock function for fan speed selection

This function is used to prevent changes to the fan speed.

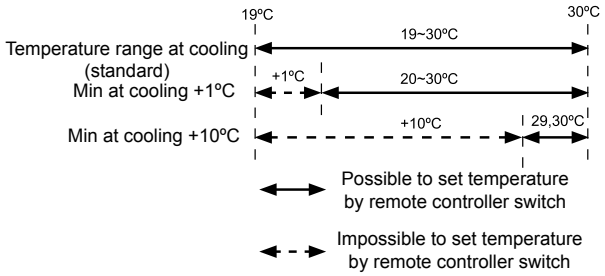
Fb – Lock function for swing louver operation

This function is used to prevent changes to automatic louver operations.

FC – Cooling lower limit for setting temperature

This function is used to define a lower temperature setting limit for FAN/COOL/DRY modes. It enables the cooling range to be reduced for configuration using the remote control.

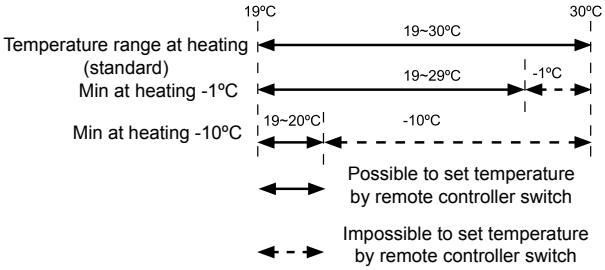
An example is shown in the following figure:



Fd – Heating upper limit for setting temperature

This function is used to define an upper temperature setting limit for the HEAT function. This function enables the heating range to be reduced for configuration using the remote control.

An example is shown in the following figure:



FE – Not used

FF – Not used

H1 – No indication of maintenance alarm

This function is used to display or hide the maintenance alarm indication.

H2 – Indication of hot start (No Indication of Operation Limitation)

This function is used to display or hide the automatic control indication.

H3 – Not used

H4 – Only for KPI : Operation modes for the ventilation unit with energy recovery

This function is only available for the ventilation unit with energy / heat recovery.

J1 – Not used

J2 – Not used

J3 – Colour of the run indicator

This function is used to set the run indicator colour.

J4 – Override of start / stop prohibition at the remote controller

This function allows to define the possibility to stop and/or restart an indoor unit when there is remote control prohibition from a central control device and that indoor unit is in operation.

It is suitable when for any reason or emergency (like a fire) it is necessary to stop de indoor units from de Remote controller.

J5 – Not used

J6 – Not used

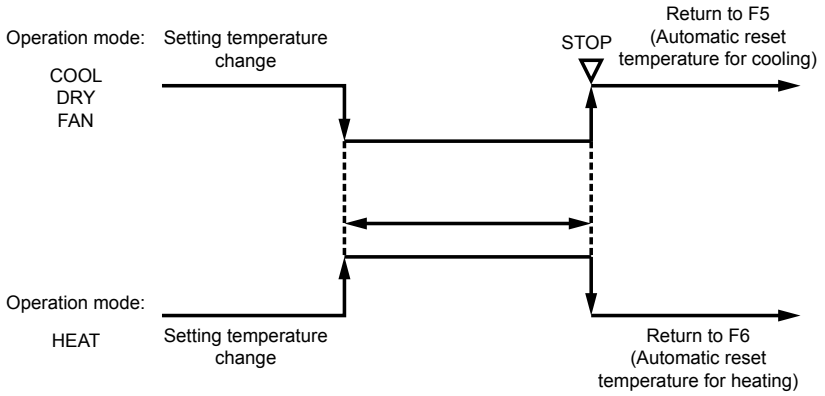
J7 – Enabling of louvre steps 6 and 7 in cooling or dry mode

J8 – Eco-operation

This function is used to optimise the setting of temperature and provide energy saving.

When the setting temperature is changed during the air conditioning operation and while the operation is started/stopped by RUN/STOP on the remote control switch, the set temperature automatically returns to “Automatic Reset Temperature for Cooling/Heating (F5/F6)” (as shown in the next illustration).

However, the setting temperature is not automatically reset in the case that “Automatic COOL/HEAT Operation” mode, or “Prohibiting Operation by Remote Control Switch” is set by the centralized controller.



J9 – Not used

JA – Display of “Simple maintenance display” menu

When this function is enabled, in the “Simple maintenance display” menu is shown.

Jb – Display automatic fan speed

This function enables the automatic fan speed setting.

K1 – Not used

K2 – Not used

K3 – Not used

K4 – Not used

K5 – Detection level of the motion sensor kit

This function is used to determine the amount of human activity depending on the reaction rate.

When “High” is set, the detection level becomes more sensitive. When “Low” is set the sensor becomes lower.

	Setting conditions		
	00 (factory setting)	01	02
Human activity	**Standard**	**High sensitive**	**Low sensitive**
Large	30% ≤ Reaction rate	20% ≤ Reaction rate	40% ≤ Reaction rate
Small	3% < Reaction rate < 30%	3% < Reaction rate < 20%	3% < Reaction rate < 40%
Not available	Reaction rate ≤ 3%	Reaction rate ≤ 3%	Reaction rate ≤ 3%

K6 – Selection of allowed operation modes

This function is used to select the operation modes in which the setting of C8 (use of remote control switch sensor or remote sensor on THM4 to control the indoor unit) is enabled.

K7 – Not used

K8 – Control for the prevention of condensation in the louvers

In that units that are equipped with louvers, condensation may occur around the air outlet during operation in cooling or dry modes, when horizontal air flow or downward air flow are sustained for long periods.

This function is used to prevent condensation by setting the louver swing angle to the third step automatically for 30 minutes every 1 hour.

(In RPK units, this function is activated by means of DSW2-4 instead of the K8 optional function)

K9 – Not used

KA – Not used

L1 – Not used

L2 – Not used

L3 – Operation of the louvers in energy-saving Thermo-OFF (Cooling / Dry mode)

Power save must be ON in order to use this function (L5 must be set to 01). This function is used to establish louvre swinging operation ranging from continuous swing to static operation.

- Low: Continuous louvre swing
- Medium: Louvre swing with intermittent stops for 20/40 seconds
- High: Louvre stopped at full opening position, according to the setting of CF.

L4 – Fan acceleration in energy-saving Thermo-OFF (Cooling mode)

This function increases fan speed by one step to prevent the loss of comfort due to the forced Thermo-OFF for energy saving during cooling operation.

L5 – Louver swing operation during energy-saving forced Thermo-OFF

This function is used to enabled the setting of function L3.

L6 – Not used

L7 – Not available

L8 – Not used

L9 – Not used

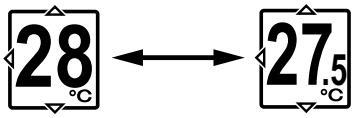
LA – Not used

Lb – Not used

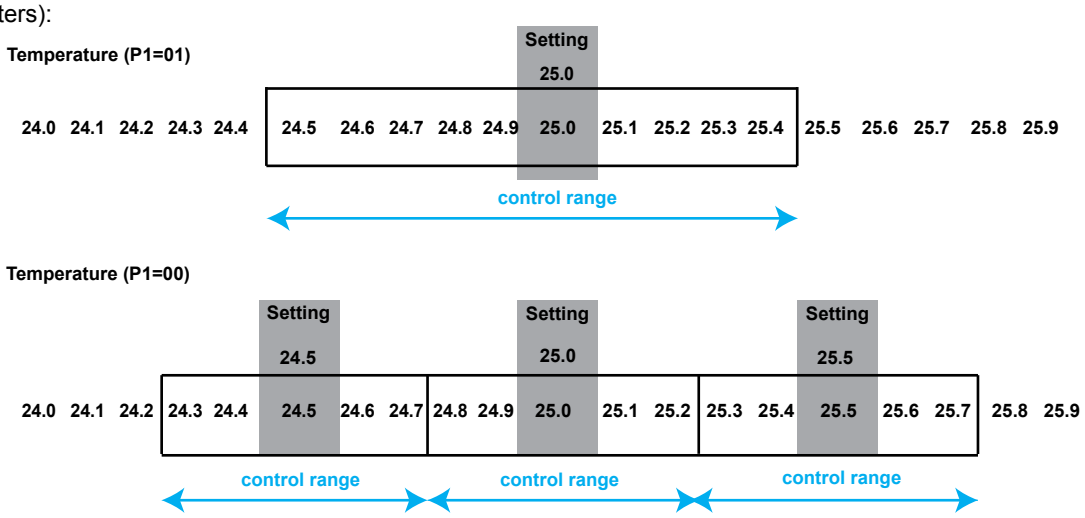
P1 – Setting temperature in 0.5 ºC steps

This function is used to define whether setting temperature is adjusted in 0.5 ºC steps (when set to “00”) or in 1 ºC steps (when set to “01”).

This setting also determines whether the resolution of temperature differential of the thermistor is 0.5 ºC (when set to “00”) or 1 ºC (when set to “01”) enabling more precise setting control.



Simplified scheme of the control system (for illustrative purposes only, as the control system also manages other parameters):



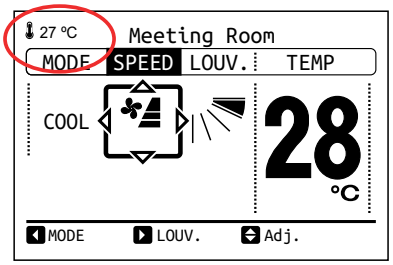
P2 – Not used

P3 – Temperature sensor displayed

This function is used to select the thermistor whose temperature is shown.

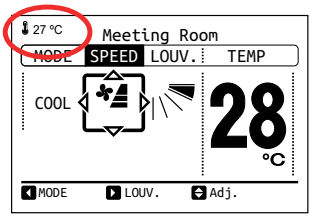
P4 – Display of sensor temperature

This function is used to display the temperature of the sensor selected with P3.

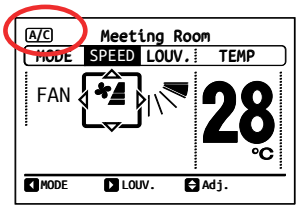


P5 – Display of setting temperature when operation mode is Fan

This function is used to hide the display of setting temperature during operation in fan mode.



P5=00: Show



P5=01: Hide

P6 – Operation of the ECO button

The Operation of ECO button is disabled when P6 is set to 01.

P7 – Prohibition of menu screen transition

This function is used to prohibit the access to the menu screens. The text “Display disabled” appears on screen instead.

PA – Daylight saving time

This function is used to set the amount of adjustment when daylight saving time is applied.

Pb – Not used

PC – Not used

q1 – Not used

q2 – Not used

q3 – Not used

q4 – Not used

q5 – Not used

q6 – Not used

q7 – Not used

q8 – Not used

q9 – Not used

qA – Not used

qb – Operation mode with setback

This function is used to select the operation modes in which setback operation is activated to keep a minimum comfort in the room while it is not occupied.

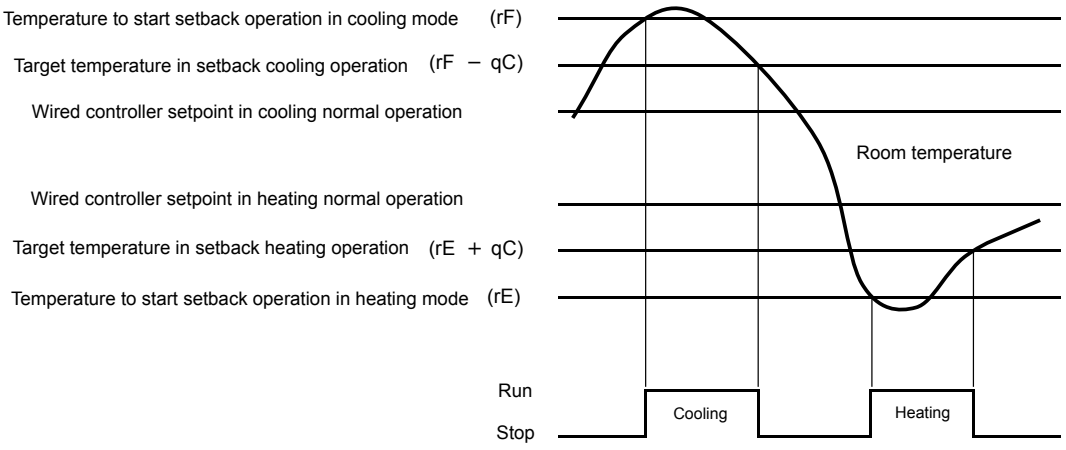
qC – Temperature differential for the setback function

This function is used to select the temperature differential for the setback function.

Target temperatures for cooling and heating operation are determined versus a temperature to start setback operation (rE, rF).

Target temperature calculation:

Target temperature in cooling mode: rF - qC (°C)
Target temperature in heating mode: rE + qC (°C)



Setback operation runs as room temperature reaches the specified temperature to start, and stops when the target temperature is reached.

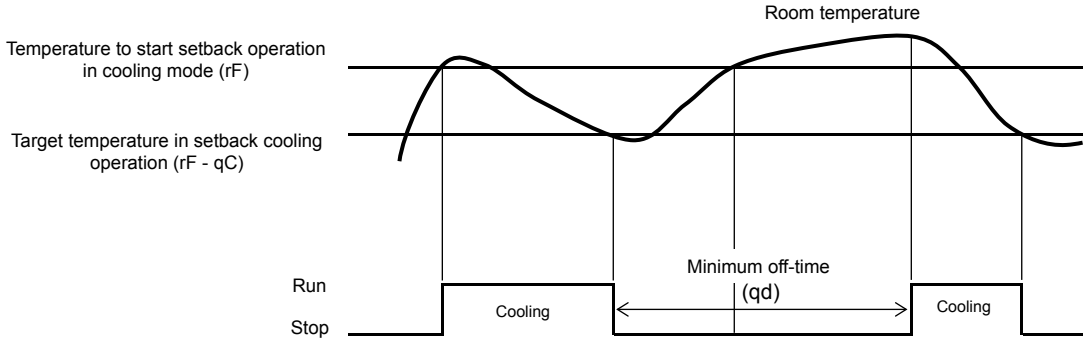
A target temperature higher than the normal operation temperature shall be selected for cooling mode.
A target temperature lower than the normal operation temperature shall be selected for heating mode.

qd – Minimum stop time of setback

This function is used to select the minimum stop time of setback.

To avoid the frequent activation of setback operation, a minimum off-time shall pass from the end of setback operation until the beginning of the following setback operation.

Even if room temperature reaches the setpoint to start setback operation, setback operation does not start until the minimum off-time has expired.



qE – Setback mode

This function is used to select the Setback mode.

- When “01: Input” is selected, it requires the setup of “Input: 09” as well.
- When “02: Schedule” and “03: Manual” are selected, they need to be setup from the wired controller.

qF – Operation state after the end of setback operation

This function is used to select the operation state after the end of setback operation.

Select the operation mode that shall be set to the unit once the set back operation is disabled.

In case that “02: Operation state before the beginning of setback” is set, the state returns to the last operating condition before the beginning of setback.

r1 – Dual set point

Function in the automatic cooling/heating mode allowing the preset of respective setpoint for cooling and heating.

r2 – Setting of temperature differential for switching cooling and heating

Function in the automatic cooling/heating mode allowing the preset of respective setpoint for cooling and heating.

r3 – Not used

r4 – Not used

r5 – Not used

r6 – Not used

r7 – Not used

r8 – Not used

r9 – Remote control prohibition during setback operation

This function is used to disable the manual run/stop from the remote controller during setback operation.

This function is fixed as 00 (Disabled) when the qE is set as 00 (Always).

rb – Minimum operation time to allow the change of operation mode in automatic cooling/heating mode with dual set point

This function is used to define a minimum time of operation in a given mode, in order to avoid too frequent changes of operation mode.

Operation mode does not change until the minimum transition time passes, even if the room temperature reaches the setpoint to shift to the other operation mode.

rC – Maximum outdoor temperature to allow operation mode switch to heating in auto cooling/ heating with dual set point

If outdoor ambient temperature is higher than rC, there is no mode transition to heating in automatic cooling/heating operation mode, even if room temperature reaches the setpoint to switch operation mode from cooling to heating.

rd – Minimum outdoor temperature to allow cooling operation in automatic cooling/heating mode with dual set point

If outdoor ambient temperature is lower than rd, there is no mode transition to cooling in automatic cooling/heating operation mode, even though room temperature has reached the setpoint to switch operation mode from heating to cooling.

rE – Temperature for the beginning of heating in setback

This function is used to select the room temperature used to determine the start of heating operation during setback.

rF – Temperature for the beginning of cooling in setback

This function is used to select the room temperature used to determine the start of cooling operation during setback.

s1 – Not used

s2 – Not used

s3 – Not used

s4 – Not used

s5 – Not used

s6 – Not used

s7 – Not used

s8 – Not used

5.2.3 Optional functions for PC-ARH1E remote controls

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
b1	Heating temperature compensation Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M	○	00	Normal (factory setting) (Setting Temperature + 4 ºC)	This function is used to adjust the temperature difference between the temperature read by the inlet sensor and the real room temperature. This is useful when the inlet air thermistor is not placed inside the indoor unit or due to uneven heat load. **NOTE** • *The "02", "03", "04" settings may not be available depending on the type of indoor unit.* • *This setting shall be performed separately for each indoor unit, even in case that multiple indoor units are connected to one remote controller.*
			01	No compensation (Setting Temperature)	
			02	Setting Temperature + 2 ºC	
			03	Setting Temperature + 3 ºC	
			04	Setting Temperature + 1 ºC	
	Heating temperature compensation Models: RPF(I)-FSN2E	○	00	RPF(I)-FSN2E: Normal (factory setting) (Setting Temperature + 2 ºC)	
			01	No compensation (Setting Temperature)	
			02	Setting Temperature + 2 ºC	
b2	Circulation function at heating Thermo-OFF	○	00	Function disabled (factory setting)	This function keeps the fan running during the Thermo-OFF sequence, at the fan speed set on the remote control switch, to prevent the stratification of air in the room.
			01	Function enabled	
b3	Not Used	-	00	-	Use at 00 conditions
			01		
b4	Change of filter cleaning period	○	00	Standard (1200 hours)	This function is used to modify the period of operation after which the air filter cleaning indication is shown in the remote control. For RPK-FSN(H)3M models, the factory setting is b4=00: Standard setting 200 hours.
			01	100 hours	
			02	1200 hours (factory setting)	
			03	2500 hours	
			04	No indication	
b5	Locking of operation mode (Not available for models KPI-E4)	×	00	Function disabled (factory setting)	This function prevents the modification of the operation mode of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	
b6	Locking of setting temperature	×	00	Function disabled (factory setting)	This function prevents the modification of the setting temperature of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	
b7	Setting operation mode as cooling only. (Not available for models KPI-E4)	×	00	Function disabled (factory setting)	This function is used to limit the operation mode to cooling only and to prevent heating mode from being enabled.
			01	Function enabled	
b8	Automatic COOL/ HEAT operation. (Not available for models KPI-E4)	×	00	Function disabled (factory setting)	This function enables the selection of Auto cool/heat operation mode. If the function is not activated, Auto cool/heat mode cannot be selected on the remote control switch.
			01	Function enabled	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
b9	Locking of fan speed setting (Not available for models KPI-E4)	×	00	Function disabled (factory setting)	This function prevents the modification of the fan speed of the unit from the remote controller and from central controls, once it has been selected.
			01	Function enabled	
bA	Not available	-	"- -" permanent	Not available	–
bb	Cooling setting temperature correction	×	00	No compensation (factory setting)	This function decreases the setting temperature and is used to produce longer cooling periods.
			01	Setting temperature decreased by 1 ºC	
			02	Setting temperature decreased by 2 ºC	
bC	Not used	-	00	-	Use at 00 conditions
			01		
bd	Not used	-	00	-	Use at 00 conditions
			01		
bE	Not used	-	00	-	Use at 00 conditions
			01		
C1	Not used	-	00	-	Use at 00 conditions
			01		
C2	Not available	-	"- -" permanent	-	–
C3	Not used	-	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E: Fan stoppage delay		00	Function disabled (factory setting)	This function keeps the fan in operation for 60 minutes after stop of the KPI unit or DX-Interface.
			01	60 minutes	
C4	Not used	-	00	-	Use at 00 conditions
			01		
C5	Static pressure selection Models RPI-FSN5E RPIM-FSN4E(-DU) RPI-FSN3(P)E(-f)	○	00	Standard static pressure (factory setting)	This function is used to change the static pressure of the RPI units from the remote control.
			01	High static pressure	
			02	Low static pressure	
	Increase of fan speed during normal operation (not during heating Thermo-OFF) Models RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPK-FSN(H)3M RPF(I)-FSN2E	○	00	Standard (factory setting)	This function is used to change the fan speed of indoor units installed in high ceilings.
			01	Hi Speed 1	
			02	Hi Speed 2	

	Fan speed setting on the remote controller			
C5	High H	High	Medium	Low
0	Hi2	Hi	Me	Lo
1	Hi2	Hi1	Hi	Me
2	Hi2	Hi2	Hi1	Hi

(This function C5 is not available for DX-Interface models)

5

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
C6	Increase of fan speed at heating Thermo-OFF (Not available for models KPI-E4 and KPI-X4E)	○	00	Function disabled (factory setting)	This function is used to increase the fan speed when the thermostat reaches the set temperature in heating according to the setting of function C5.
			01	Function enabled	
C7	Cancellation of forced compressor operation for at least 3 minutes	○	00	Function disabled (factory setting)	This function is available depending on the setting of function b3.
			01	Function enabled (Compressor operation during 3 minutes is no longer forced)	
	Only for KPI-E4E and KPI-X4E CO_2 sensor enabled		00	Sensor non enabled (factory setting)	Via 7-segments display set the option C2 (00: ON/OFF Sensor (Default); 01: 4-20mA 02: 0-10V).
			01	Sensor enabled/activated	
C8	Control by the temperature sensor of the remote control switch **NOTE** *The remote control switch shall be installed in a proper place for the correct detection of room temperature by its temperature sensor.*	○	00	Control by the air inlet sensor of indoor units (factory setting)	This function specifies the temperature sensor to be used as control sensor by the indoor unit.
			01	Control by the temperature sensor of the remote control switch	
			02	Control by the average value of the air inlet sensor of indoor units and the temperature sensor of the remote control switch (Air inlet + Remote control switch)/2	
	Control sensor when a remote sensor is connected to the THM4 connector in the indoor unit PCB **NOTE** *The remote sensor shall be installed in a proper place for the correct detection of room temperature.* Model RPF(I)-FSN2E	○	00, 01, 02	When a remote sensor is connected to THM4, this remote sensor is used as control sensor, whichever the setting for C8 (factory setting C8=00)	
	Control sensor when a remote sensor is connected to the THM4 connector in the indoor unit PCB **NOTE** *The remote sensor shall be installed in a proper place for the correct detection of room temperature.* Models RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M	○	00, 02	Air temperature control using the average value of the air inlet thermistor and the remote sensor (factory setting C8=00) (Air inlet + Remote sensor)/2	
			01	Air temperature control using the remote sensor	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
C9	Not available	-	"- -" permanent	–	–
CA	Not available	-	"- -" permanent	–	–
Cb	Selection of forced stoppage logic	○	00	Forced stoppage input: A contact, normally open contact (factory setting)	This function determines the logic operation for the forced stoppage contacts.
			01	Forced stoppage input: B contact, normally closed contact	
CC	Not used	–	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E:		00	Function disabled (factory setting)	This function sets the unit to run in high fan speed regardless the setting from remote control switch.
			01	Function enabled	
Cd	Stop of indoor unit fan during cooling Thermo-OFF conditions High ventilation speed **NOTE** *For model RPI-FSN3E(P)E and RCD-FSN3, this function is NOT available.*	-	00	Fan speed during cooling Thermo-OFF: Low (factory setting)	The operation of the indoor unit fan is stopped in cooling Thermo-OFF conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or the PC-ARFP1E temperature sensor. C8 must be set to 01 to use the Cd=01 setting.
			01	Indoor unit fan is stopped during cooling Thermo-OFF	
CE	Stop of indoor unit fan during heating Thermo-OFF conditions Stop of indoor unit fan during heating Thermo-OFF conditions (with remote control switch temperature sensor)	-	00	Fan speed setting during heating Thermo-OFF: Low (factory setting)	The indoor unit uses the PC-ARFP1E temperature sensor to monitor the room temperature when the fan is stopped (heating Thermo-OFF fan stop sequence) C8 must be set to 01 to use the CE=01 setting. Control by remote temperature sensor connected to THM4 is not permitted (use E8 function in that case).
			01	Indoor unit fan is stopped during heating Thermo-OFF. *(In case that automatic louvre is set, the louvres will keep operating in both Thermo-ON and Thermo-OFF conditions)*	
CF	Modification of louvre swing range Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3	○	00	Standard (7 steps) (factory setting)	This function adjusts the angle of the air outlet louvre. *(Changes to the setting of this function are applied after turning the power supply off and on again, or after the automatic louvre has made a full cycle in automatic mode)*
			01	Cold draft prevention (5 steps) *(Cannot be set to the lower two steps; lower 2 steps cut off)*	
			02	High ceilings (5 steps) *(Cannot be set the upper two steps; upper 2 steps cut off)*	
	Models: RPK-FSN(H)3M	○	00	Standard (7 steps) (5 steps for cooling / dry mode)	
			01	Cold draft prevention (5 steps for heating and fan only) *(Cannot be set to the lower two steps, lower 2 steps cut off)*	
			02	Not used	
d1	Management of indoor unit operation after a power supply cut off - option 1	○	00	Function disabled (factory setting)	When power supply is restored, the indoor units controlled by the wired remote control switch are turned on regardless of their ON/OFF status at the time of the last power cut off.
			01	Function enabled	
d2	Not available	-	"- -" permanent	–	–

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
d3	Management of indoor unit operation after a power supply cut off - option 2	○	00	Function disabled (factory setting)	When power supply is restored, the indoor units controlled by the wired remote control switch are turned on automatically ONLY if they were already ON at the time of the last power cut off. If indoor units were OFF when power was turned OFF, they remain in OFF status when power is restored.
			01	Function enabled	
d4	Not used	-	00	-	Use at 00 conditions
			01		
d5	Prevention of low air outlet temperature in heating mode	○	00	Function disabled (factory setting)	This function prevents the occurrence of an excessively cold air flow in heating mode by decreasing the fan speed during heating operation, also taking into account the setting of function C5..
			01	Function enabled	
d6	Not Used	-	00	-	Use at 00 conditions
			01		
d7	Not available	-	"- -" permanent	–	–
E1	Not Used	-	00	-	Use at 00 conditions
			01/02		
	KPI: Ventilation mode	O	00	Automatic ventilation (factory setting)	This function allows the outdoor air damper to be opened in All Fresh operation mode. This mode allows the full opening of the outdoor air damper (according to the control system).
			01	Ventilation with total heat exchanger	
			02	Ventilation with bypass (no total heat exchange)	
	DX-Interface: "A" Offset for Thermo-OFF in control by outlet for DX-Interface		00	Disabled (factory setting)	
			01	2 ºC	
			02	4 ºC	
	Econofresh: cooling mode		00	Standard process (factory setting)	This function allows the outdoor air damper to be opened in All Fresh operation mode. This mode allows to fully open the outdoor air damper (according to the control system).
			01/02	All Fresh	
E2	Not Used	-	00	-	Use at 00 conditions
			01		
	KPI: Increase of air supply volume	O	00	Disabled function (factory setting)	This function is used to make the room pressure higher or lower than the surrounded room. One of the fans increases its speed while the other runs according the remote controller Hi/Me/Lo changes to Hi/Hi/Me
			01	Enabled function	
	Econofresh enthalpy sensor		00	Disabled function (factory setting)	This function selects the enthalpy sensor input for Econofresh.
			01	Enabled function	
E3	Not used	-	00	-	Use at 00 conditions
			01		
	Only for KPI-E4E and KPI-X4E: Selection of the fan for function E2	–	00	Activated for supply fan	This function selects which fan will increase the speed (when E2 enables this function).
			01	Activated for exhaust fan	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
E4	Not Used	-	00	-	Use at 00 conditions
			01/02		
	KPI: Pre-cooling / pre-heating period	O	00	Disabled (factory setting)	This function delays unit startup with energy recovery.
			01	30 minutes	
			02	60 minutes	
	Econofresh: CO_2 sensor		00	Disabled (factory setting)	This function selects the CO_2 gas sensor input for Econofresh.
			01/02	CO_2 sensor (required setting E1=00)	
E5	Not used	-	00	-	Use at 00 conditions
			01		
	Only for DX-Interface, KPI-E4E and KPI-X4E: High ventilation after switch ON	–	00	Disabled (factory setting)	This function forces that the unit will operate in high speed during 60 minutes after fan start. After this time the fan will be changed to setting value.
			01	60 minutes	
E6	Period of indoor fan operation after cooling operation stoppage	○	00	Disabled function (factory setting)	This function prevents the condensation in the unit by keeping the fan running after the unit operation has been turned OFF.
			01	60 minutes	
			02	120 minutes	
E7	Not used	-	00	-	Use at 00 conditions
			01		
E8	Control for stop of the indoor unit fan during heating Thermo-OFF conditions (with remote sensor THM-R2AE connected to the THM4 connector in the indoor unit PCB)	○	00	Fan operation in Low speed	This function stops the fan to prevent cold draughts or overheating. C8 must be set to 01 to use the E8=01 setting. The connection of a THM-R2AE remote temperature sensor to the THM4 port in the indoor unit PCB is required. The remote sensor shall be installed in a proper place for the correct detection of room temperature. (In case that automatic louvre is set, the louvre will keep operating in both Thermo-ON and Thermo-OFF condition.)
			01	Fan stop in Thermo-OFF conditions.	
E9	Not Used	-	00	-	Use at 00 conditions
			01		
EA	Not used	-	00	-	Use at 00 conditions
			01		
			02		
Eb	Indoor unit fan control during cooling Thermo-OFF conditions	○	00	Function disabled (factory setting)	This function decreases speed of the indoor unit fan during cooling Thermo-OFF, to reduce the spread of smells and humidity.
			01	Low	
			02	Slow	
EC	Forced Thermo-ON when stopping in cooling operation	○	00	Function disabled (factory setting)	This function is used to force Thermo-ON during 6 minutes when stopping in cooling operation.
			01	Enabled	
Ed	Not used	-	00	-	Use at 00 conditions
			01		
EE	Control in “Automatic” indoor fan speed mode	○	00	Function disabled (factory setting)	This function limits the speed of the indoor fan when room temperature is close to the setting temperature.
			01	Enabled	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
EF	Control in “Automatic” indoor fan speed mode (supporting High H) Models: RCI-FSN4 RCIM-FSN4E RCD-FSN3 RPC-FSN3 RPI-FSN5E RPI-FSN3E(P)E(-f) RPIM-FSN4E(-DU) RPK-FSN(H)3M	○	00	Function disabled	This function limits the speed of the indoor fan when room temperature is close to the setting temperature, allowing to reach High H speed.
			01	Function enabled	
F0	Not available	-	“- -” permanent	–	–
F1	Automatic OFF timer setting Models: RCI-FSN4 RPC-FSN3 RPK-FSN3M RPI-FSN5E RPIM-FSN4E(-DU) RCD-FSN3 RCIM-FSN4E RPI-FSN3(P)E	×	00	Function disabled (Factory setting)	This function sets an automatic OFF timer to switch OFF the indoor units controlled by the remote control switch (when the units have been started by remote control). *(Do not set the values "0C"-"0F" when two remote control switches are used in the same remote control group)*
			01	1 hour	
			02	2 hours	
			03	3 hours	
			04-24	(04-24) hours	
			0A	30 minutes	
			0B	90 minutes	
			0C	40 minutes } Do not set these when two wired controllers are used.	
			0D	45 minutes	
			0E	50 minutes	
			0F	55 minutes	
	Automatic OFF timer setting Models: RPF(I)-FSN2E	×	00	Function disabled (Factory setting)	This function is used to set the automatic timer to switch off when the unit has been started by remote control.
			01	1 hour	
			02	2 hours	
			03	3 hours	
			04-24	(04-24) hours	
			0A	30 minutes	
			0B	90 minutes	
F2	Remote control main-sub setting	×	00	Main (Master remote control) (Factory setting)	This function is used to define which remote control switch is used as master or slave, when two remote controllers are connected to one indoor unit.
			01	Sub (Slave remote control)	
F3	Automatic reset of setting temperature	×	00	Function disabled (Factory setting)	This function is used to limit unit operation and save energy. The setting temperature is automatically set to the value defined with functions "F5" or "F6", according to the current operation mode, after the time set with function "F4" has passed since the last manual change of setting temperature. In case that the values of "F5" or "F6" are out of the limits set with functions "FC" and "Fd", limitations set by "FC" and "Fd" have priority.
			01	Function enabled	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
F4	Automatic reset time	×	00	30 minutes (factory setting)	This function sets the automatic reset time delay for function F3.
			01	15 minutes	
			02	60 minutes	
			03	90 minutes	
F5	Automatic reset temperature for cooling	×	19	19 °C	This function defines the default temperature set point for the automatic reset function F3 in FAN/ COOL/DRY modes.
			20	20 °C	
			21	21 °C	
			. . .	. . .	
			24	24 °C	
			25	25 °C (factory setting)	
			26	26 °C	
			. . .	. . .	
			28	28 °C	
			29	29 °C	
			30	30 °C	
F6	Automatic reset temperature for heating	×	17	17 °C	This function defines the default temperature set point for the automatic reset function F3 in HEAT mode.
			18	18 °C	
			. . .	. . .	
			20	20 °C	
			21	21 °C (factory setting)	
			25	25 °C	
			. . .	. . .	
			28	28 °C	
			29	29 °C	
			30	30 °C	
F7	Prevention of operation stoppage due to wrong operation of the remote controller	×	00	Function disabled (factory setting)	Operation is stopped by pressing the run/stop switch for 3 seconds.
			01	Function enabled	
F8	Lock function for operation mode selection	×	00	Function disabled	This function is used to prevent changes to the operation mode.
			01	Function enabled (factory setting)	
F9	Lock function for temperature setting	×	00	Function disabled	This function is used to prevent changes to the temperature setting.
			01	Function enabled (factory setting)	
FA	Lock function for fan speed selection	×	00	Function disabled	This function is used to prevent changes to the fan speed.
			01	Function enabled (factory setting)	
Fb	Lock function for swing louvre operation	×	00	Function disabled	This function is used to prevent changes to the automatic louvre operation.
			01	Function enabled (factory setting)	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
FC	Lower limit of setting temperature for cooling (Minimum value of setting temperature allowed in cooling)	×	00	Function disabled 19 °C is the standard minimum set point. (factory setting)	This function defines the lowest temperature setting value for FAN/ COOL/DRY modes.
			01	+1 ºC (Lower limit 20 ºC)	
			02	+2 ºC (Lower limit 21 ºC)	
			03	+3 ºC (Lower limit 22 ºC)	
			· · ·	· · ·	
			08	+8 ºC (Lower limit 27ºC)	
			09	+9 ºC (Lower limit 28 ºC)	
			10	+10 ºC (Lower limit 29 ºC)	
Fd	Upper limit of setting temperature for heating (Maximum value of setting temperature allowed in heating)	×	00	Function disabled 30 ºC is the standard maximum set point. (factory setting)	This function defines the highest temperature setting value for HEATING mode. Models: RPF(I)-FSN2E up to 20ºC (FC=10)
			01	-1 ºC (Upper limit 29 ºC)	
			02	-2 ºC (Upper limit 28 ºC)	
			03	-3 ºC (Upper limit 27 ºC)	
			· · ·	· · ·	
			10	-10 ºC (Upper limit 20 ºC)	
			11	-11 ºC (Upper limit 19 ºC)	
			12	-12 ºC (Upper limit 18 ºC)	
FE	Not used	-	00	-	Use at 00 conditions
			01		
			02		
FF	Not Used	-	00	-	Use at 00 conditions
			01		
H1	No indication of maintenance alarm	×	00	Displayed	This function is used to display or hide the maintenance alarm indication.
			01	Hidden	
H2	Indication of hot start (No Indication of operation limitation)	×	00	Displayed	This function is used to display or hide the automatic control indication. Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Hidden	
H3	Operation mode change restriction	×	00	Unlimited operation	**NOTE** *"01" is available only when one controller is used. Do not use this setting when two controllers are used.*
			01	Operation mode set by central control equipment + "Fan" mode	
			02	Operation mode change not available (Hide operation mode) (Factory setting)	
H4	Not Used	-	00	-	Use at 00 conditions
			01		
	KPI: Operation modes for the ventilation unit with energy recovery	o	00	Air conditioning only (factory setting)	This function is only available for ventilation units with energy recovery.
			01	Ventilation only	
			02	Air conditioning + ventilation	
H5	Not Used	-	00/01	-	Use at 00 conditions
H6	Not Used	-	00/01	-	Use at 00 conditions

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
J1	Not used	-	00	-	Use at 00 conditions
			01		
J2	Not used	-	00	-	Use at 00 conditions
			01		
J3	Colour of the Run indicator	×	00	Green (factory setting)	–
			01	Red	
J4	Not used	-	00/01	Not used (Use at 00 conditions)	
J5	Not used	-	00	-	Use at 00 conditions
			01		
J6	Not used	-	00	-	Use at 00 conditions
			01		
J7	Not used	-	00/01	-	Use at 00 conditions
J8	Eco-operation	×	00	Function disabled (factory setting)	When the unit is restarted by the remote control switch, the temperature automatically changes to the setting temperature of “F5” or “F6”. Models: RPF(I)-FSN2E Not available, use at 00 conditions
			01	Function enabled	
J9	Not used	-	00	-	Use at 00 conditions
			01		
JA	Not Used	-	00/01	-	Use at 00 conditions
Jb	Not Used	-	00/01	-	Use at 00 conditions
F1	Not used	-	00	-	Use at 00 conditions
			01		
F2	Not used	-	00	-	Use at 00 conditions
			01		
F3	Not used	-	00	-	Use at 00 conditions
			01		
F4	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
F5	Detection level of the motion sensor kit	○	00	Standard (factory setting)	Models: RPF(I)-FSN2E Not available, use at 00 conditions. This parameter defines the sensitiveness of the motion sensor. The amount of activity in the room is assessed according to a different scale based on this setting. Detailed information about the operation of the motion sensor can be found in the technical documentation of the indoor units.
			01	High	
			02	Low	
F6	Selection of allowed operation modes when the control sensor of the indoor unit is set by C8 function	○	00	All modes allowed	This function is used to select the operation modes in which the setting of C8 (use of remote control switch sensor or remote sensor on THM4 to control the indoor unit) is enabled.
			01	Only cooling/dry allowed	
			02	Only heating allowed	
			03	All modes allowed	

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
A7	Not used	○	00	-	Use at 00 conditions
			01		
			02		
			03		
A8	Control for the prevention of condensation on the louvres	○	00	Function disabled (factory setting)	Condensation may occur around air outlet during COOL/DRY operation with horizontal air flow or downward air flow for long periods. This function is used to prevent condensation by moving the louvre swing angle to the third step automatically for 30 minutes every 1 hour. (In RPK units, this function is activated by means of DSW2-4 instead of the K8 optional function)
			01	Function enabled	
A9	Not used	-	00	-	Use at 00 conditions
			01		
AA	Not used	-	00	-	Use at 00 conditions
			01		
L1	Not used	○	00	-	Use at 00 conditions
			01		
			02		
			03		
L2	Not used	-	00	-	Use at 00 conditions
			01		
			02		
			03		
L3	Operation of the louvres in energy-saving Thermo-OFF (Cooling / Dry mode)	○	00	Direct air blow Low (factory setting)	Power save must be ON in order to use this function (L5 must be set to 01). This function is used to establish louvre swinging operation ranging from continuous swing to static operation. Low: Continuous louvre swing Medium: Louvre swing with intermittent stops for 20/40 seconds High: Louvre stopped at full opening position, according to the setting of CF.
			01	Direct air blow Medium	
			02	Direct air blow High	
			03	Disabled	
L4	Fan acceleration in energy-saving Thermo-OFF (Cooling mode)	○	00	Function disabled (factory setting)	This function increases fan speed by one step to prevent the loss of comfort due to the forced Thermo-OFF for energy saving during cooling operation.
			01	Function enabled	
L5	Louvre swing operation during energy-saving forced Thermo-OFF	○	00	Function disabled (factory setting)	This function is used to enabled the setting of function L3.
			01	Function enabled	
L6	Not used	-	00	-	Use at 00 conditions
			01		
L7	Not available	-	"- -" permanent	–	–
L8	Not used	-	00	-	Use at 00 conditions
			01		

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
L9	Not used	○	00	-	Use at 00 conditions
			01		
LA	Not used	-	00	-	Use at 00 conditions
			01		
Lb	Not used	-	00	-	Use at 00 conditions
			01		
P1	Setting temperature in 0.5 ºC steps	×	00	Enabled (0.5 °C steps) (factory setting)	This function is used to define whether setting temperature is adjusted in 0.5 ºC steps (when set to “00”) or in 1 ºC steps (when set to “01”). This setting also determines whether the resolution of temperature differential of the thermistor is 0.5 ºC (when set to “00”) or 1 ºC (when set to “01”).
			01	Disabled (1 °C steps)	
P2	Not used	-	00	-	Use at 00 conditions
			01		
P3	Temperature sensor displayed	×	00	Inlet air thermistor (Tin)	This function is used to select the thermistor whose temperature is shown when function P4 is set to 01.
			01	Outdoor air thermistor (Tout)	
			02	Remote controller thermistor (RCS)	
			03	Remote sensor (THM4)	
P4	Display of sensor temperature	×	00	Hidden	This function is used to display the temperature of the sensor selected with function P3.
			01	Shown	
P5	Display of setting temperature when operation mode is Fan	×	00	Shown	This function is used to hide the display of setting temperature during operation in fan mode.
			01	Hidden	
P6	Operation of the ECO button	×	00	ECO button enabled (factory setting)	The operation of ECO button is disabled when P6 is set to 01
			01	ECO button disabled	
P7	Prohibition of menu screen transition	×	00	Function disabled (factory setting)	This function is used to prohibit the access to the menu screens. The text "Display disabled" appears on screen instead.
			01	Function enabled	
P8	Not used	-	00	-	Use at 00 conditions
			01		
P9	Not used	-	00	-	Use at 00 conditions
			01		
PA	Daylight saving time	×	00	1 hour	This function is used to set the amount of adjustment when daylight saving time is applied.
			01	2 hours	
Pb	Not used	-	00	-	Use at 00 conditions
			01		
PC	Not used	-	00	-	Use at 00 conditions
			01		
91	Not used	×	00	-	Use at 00 conditions
			01		
92	Not used	×	-	-	Not used
93	Not used	×	-	-	Not used
94	Not used	×	-	-	Not used
95	Not used	×	-	-	Not used

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
96	Not used	-	00	-	Use at 00 conditions
			01		
97	Not used	-	00	-	Use at 00 conditions
			01		
98	Not used	-	00	-	Use at 00 conditions
			01		
99	Not used	-	00	-	Use at 00 conditions
			01		
9A	Not used	-	00	-	Use at 00 conditions
			01		
9b	Not used	-	00/01	-	Use at 00 conditions
9C	Not used	-	00/01/ 02/03/04	-	Use at 00 conditions
9d	Not used	-	00-11	-	Use at 00 conditions
r1	Dual setpoint	×	00	Function disabled (factory setting)	This function allows the setting of independent setpoints for cooling and heating in the automatic cooling/ heating mode.
			01	Function enabled	
r2	Setting of temperature differential for switching cooling and heating	×	0.5	0.5 ºC	This function can only be set when function r1 is set to 01.
			1.0	1.0 ºC	
			1.5	1.5 ºC	
			2.0	2.0 ºC	
			2.5	2.5 ºC	
			3.0	3.0 ºC	
r3	Setback temperature compensation	×	0.5	0.5 ºC	This setting is the temperature differential value to adjust the setting temperature during Setback operation.
			1.0	1.0 ºC	
			1.5	1.5 ºC	
			2.0	2.0 ºC	
			2.5	2.5 ºC	
			3.0	3.0 ºC	
			3.5	3.5 ºC	
			4.0	4.0 ºC	
			4.5	4.5 ºC	
			5.0	5.0 ºC	
			5.5	5.5 ºC	
r4	Not used	-	00	-	Use at 00 conditions
			01		
r5	Not used	-	00	-	Use at 00 conditions
			01		
r6	Not used	-	00	-	Use at 00 conditions
			01		
r7	Not used	-	00	-	Use at 00 conditions
			01		
r8	Not used	-	00	-	Use at 00 conditions
			01		
r9	Not used	-	01	-	Use at 00 conditions
			02		
rA	Not used	-	00-07	-	Use at 00 conditions
rb	Not used	-	00-12	-	Use at 00 conditions

Item	Optional function	Individual Setting	Settings	Setting conditions	Description
51	Not used	-	00	-	Use at 00 conditions
			01		
52	Not used	-	00	-	Use at 00 conditions
			01		
53	Not used		00	-	Use at 00 conditions
			01		
54	Not used		00	-	Use at 00 conditions
			01		
55	Not used		00	-	Use at 00 conditions
			01		
56	Not used		00	-	Use at 00 conditions
			01		
			02		
57	Not used		00-07	-	Use at 00 conditions
58	Not used		00-15	-	Use at 00 conditions

NOTE

- *The changes to the optional function settings must be done after 3 minutes have passed since start-up.*
- *It is recommended to keep track of the changes made to optional function settings, for further reference.*
- *The available optional settings are different depending on the indoor and outdoor unit models. Check the technical documentation of the indoor and outdoor units to ensure whether the optional settings are available for these units.*
- *The above optional functions marked with an "X" at the individual setting can change the condition only when "All Rooms" is set.*

5.2.4 Description of the optional remote control functions (PC-ARH1E)

b1 – Removal of Heating Temperature Compensation (due to Uneven Heat Load)

This function is used when the temperature settings of the remote control switch and the suction air temperature of the indoor unit are required to be equal.

This is useful when the thermistor at the suction side of an indoor unit is removed and installed in another place.

Setting Temperature for Room Temperature Control at Heating

Setting Condition	Actual Control Temperature
00 (Standard)	Remote Control Switch Setting Temperature (Indicated Value) +4ºC
01	Remote Control Switch Setting Temperature (Indicated Value)
02	Remote Control Switch Setting Temperature (Indicated Value) +2ºC

NOTE

The setting temperature upper limit after compensation is as follows: Inverter Multi Unit: 34 ºC

b1 – Removal of heating temperature compensation

This function is used to adjust the difference of temperature between the setting temperature of the remote control switch and the inlet air temperature of the indoor unit.

This is useful when the inlet air thermistor is not placed inside the indoor unit or due to uneven Heat Load or for example in standard heating mode, the suction air temperature is greater than that of the room, therefore the setting temperature used according to the factory setting is calibrated to the indicated temperature +4 °C, but depending on the room conditions can be necessary to compensate a smaller value.

b2 – Circulator function at heating Thermo-OFF

This function means that the fan unit remains running after the air conditioning system has stopped in heating mode to prevent the air in the room from stratifying.

This function is useful when the air in the room is stratified (hot air accumulates at the ceiling). Air stratification may occur if has been selected fan speed changes to LOW when the thermostat of the unit is stopped. This function prevents air stratification in the room after stopping the air conditioning system.

This function maintains the fan speed, whether the thermostat is on or off. Hence, the air movement in the room is kept at the same level to ensure even air distribution.

NOTE

- *If the indoor unit has an automatic louver, this function also remains active when the heating thermostat is switched off.*
- *Everyone has a different perception of coolness, heat and air flow and, therefore, this issue should be discussed with the client and the unit set according to the results of the conversation.*

b3 – Not used

b4 – Change the filter cleaning period

This function is used to modify the period during which the remote control indicates the air filter replacement. The filter cleaning period can be changed depending on the condition of the filter.

NOTE

- *The remaining number of hours before cleaning the filter is factory-set for all indoor unit models b2=02 (1200 hours).*
- *For RPK-FSN(H)3M models Factory-Setting is b4=00: Standard setting 200 hrs.*

b5 – Locking of operation mode

This function is used when the operating mode does not have to be changed. Once the unit operating mode has been selected, this function prevents it from being modified from the remote control.

b6 – Locking of setting temperature

This function is used when the temperature setting does not have to be changed. Once the unit temperature has been selected, this function prevents it from being modified from the remote control.

b7 – Setting operation mode as cooling only

This function is available to use refrigeration mode only and to prevent heating mode from being enabled. When this function is selected, heating operation and the automatic COOL/HEAT operation are cancelled.

b8 – Automatic COOL/HEAT operation

This function allows the automatic change from the cooling to the heating mode for the units with the same refrigerant cycle.

NOTE

This function is not valid when the outdoor unit is an exclusive cooling model or when the function to set operations as an exclusive cooling unit is enabled.

b9 – Locking of fan speed

Once the unit fan speed has been selected, this function prevents it from being modified from the remote control.

NOTE

When this function is enabled, the fan speed cannot be changed using the remote control.

bA – Not available

bb – Cooling setting temperature correction

This function decrease the temperature and it is used to obtain longer cooling periods. When this function is enabled, the air conditioning system is switched on/off with the temperature condition below the temperature indicated on the remote control.

NOTE

The lower set temperature limit after offset is 19ºC.

bC – Not used

bd – Not used

bE – Not used

C1 – Not used

C2 – Not available

C3 – Not used

C4 – Not used

C5 – Increasing fan speed / Static pressure selection

This function is used to change the indoor units fan speed installed in high ceilings.

For RPI units this function is used to change the static pressure from the remote control.

C6 – Increasing speed at heating Thermo-OFF

This function is used to increase the fan speed when the thermostat reaches the set temperature in heating using function C5.

NOTE

The fan speed does not increase when the thermostat is switched off with the function setting (C5).

C7 – Cancellation of the forced compressor operation for at least 3 minutes

This function is available when b3 (Forced compressor operation for at least three minutes through C7 setting) is set 00 (C7 setting possible).

This function allows that the compressor are not forced 3 minutes operation.

NOTE

In the case of SET FREE units, the forced compressor operation for at least 3 minutes fixed as a standard function.

C8 – Thermistor of Remote Control Switch and Remote sensor

This function is useful when the unit is to be controlled by the thermistor included in the Remote Control or by Remote Sensor instead of by the suction air thermistor. It determines the thermistor to control the air temperature.

NOTE

When the function is set to "01" or "02", if the temperature detected by the remote control thermistor is abnormal due to a fault in the remote control thermistor or another fault, the Air Inlet Thermistor on the indoor unit is used automatically.

C9 – Not available

CA – Not available

Cb – Selection of forced stoppage logic

This function determines the operating logic for the forced stoppage contacts.

The setting conditions and contact logic are shown in the following table:

Setting condition				
Setting	Contact	Contact logic	Activation contact	
			Open	Closed
00	Contact A	Normally open	Normal	Forced stoppage
01	Contact B	Normally closed	Forced stoppage	Normal

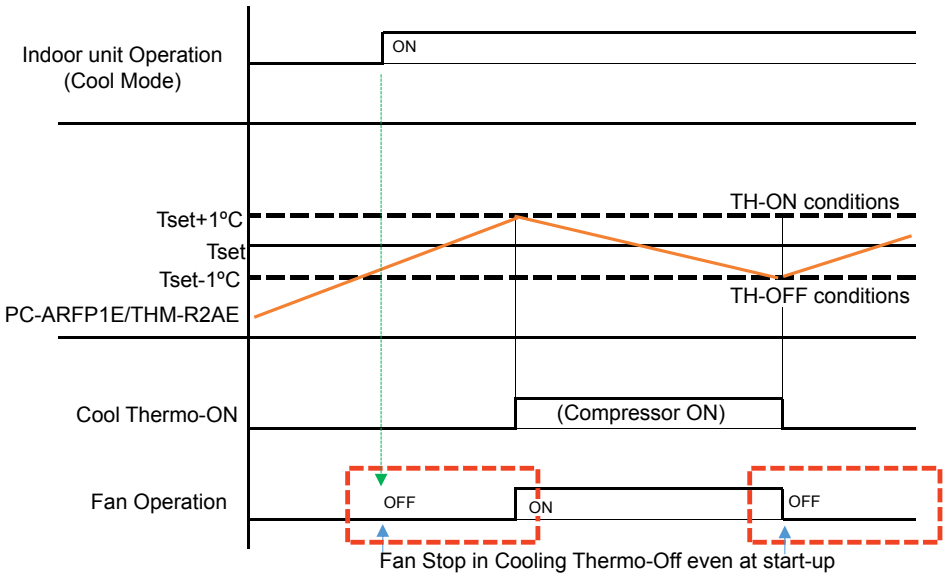
CC – Not used

Cd – Stop of indoor unit fan during cooling Thermo-OFF conditions

Fan stop operation in thermo-off conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or PC-ARFP1E temperature sensor

This optional function keeps the fan stopped when the indoor unit is in Thermo-OFF conditions, even upon start-up.

"Cd=01": Fan stop operation in thermo-off conditions when using the additional remote temperature sensor THM-R2AE (connected to THM4) or PC-ARFP1E temperature sensor ("C8=01" must be set in this case).



Fan Stop in Cooling Thermo-Off even at start-up

NOTE

It is advised to pay attention to the following points:

- *Do not set this function if no remote control sensor (in PC-ARFP1E) or remote sensor (THM-R2AE) are installed; otherwise, comfort conditions may never be reached*
- *Do not set "Cd" function when indoor unit temperature control is based on:*
  - *"C8=00" : Temperature control with the air inlet sensor of the indoor unit*
  - *"C8=02" : Temperature control with the average value of the remote control sensor and the air inlet sensor of the indoor unit. In these cases, comfort conditions may never be reached*
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions.*

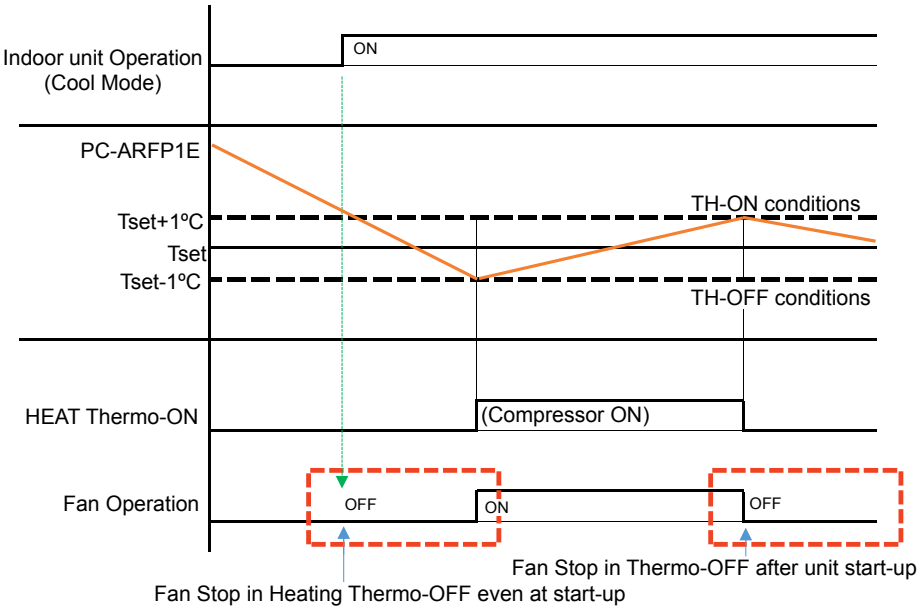
CE – Stop of indoor unit fan during heating Thermo-OFF conditions

This function is useful to avoid the perception of cold draughts.

When “CE=01” : Fan stop operation in thermo-off conditions when using the PC-ARFP1E sensor, “C8=01” must be set in this case. The fan will not be turned on when the indoor unit is switched on in Thermo-OFF conditions.

Indoor unit will use the PC-ARFP1E Remote Control temperature sensor to monitor the room temperature when fan is stopped (heating Thermo-OFF fan stop sequence). The Remote Control Switch shall be installed in a proper place for the correct detection of room temperature by its temperature sensor

Control by Remote Temperature Sensor not permitted.

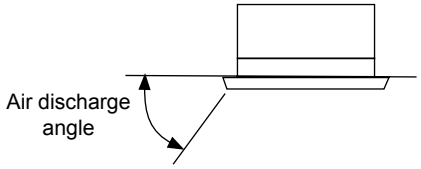


NOTE

- *These functions are only available when using the Remote Control Sensor (in PC-ARFP1E)*
- *NOTE When using CE function:*
  - “C8=00”: this setting is not permitted
  - “C8=02”: this setting is not recommended since it may cause that comfort conditions are never reached (C8 set at 02 means that unit control is carried out with the average value of the Remote Control Sensor and the air inlet sensor of the indoor unit)
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions*

CF – Change of louver swing angle

This function is useful when the louver swing angle (air discharge angle) must be changed.



Setting condition	Louver swing angle (Air discharge angle)	Purpose
00	7 steps	Standard Operation
01	5 steps	Cold draft Prevention
02	5 steps (*)	For High Ceiling

NOTE

(*) Not used for RPK-FSN(H)3M

d1 – Power supply ON/OFF 1 (Automatic Operation when Power Supply is ON)

This function stores the unit settings in the event of a power cut. The unit is restarted when the power is re-established.

CAUTION

When this function is used without anyone controlling the unit, set the system monitoring mode to avoid risks.

NOTE

In the event of an electrical fault, the unit starts and stops according to the on/off setting of the power supply. If the fault occurs during a stoppage enabled through the remote control, the unit will restart automatically once the power supply is reconnected.

d2 – Not available

d3 – Power supply ON/OFF 2 (Restarting Function After Power Failure)

This function is used to restart the unit after a power cut taking more than 2 seconds. The standard unit starts automatically under the same operating conditions, such as the operating mode, etc. in the case of an electrical fault lasting for a maximum of 2 seconds.

The compressor unit restarts after 3 minutes plus the maximum 2 seconds of the fault.

CAUTION

When this function is used without anyone controlling the unit, set the system monitoring mode to avoid risks.

d4 – Not used

d5 – Prevention of decrease of heating discharge air temperature

This function prevents a drop in the air temperature by decreasing the fan speed, apart from the settings on the remote control.

d6 – Not used

d7 – Not used

E1 – Not used

E2 – Not used

E3 – Not used

E4 – Not used

E5 – Not used

E6 – Indoor fan operation time after cooling operation stoppage

This functions prevents the condensation accumulation in the unit by keeping the fan running after it is switched off.

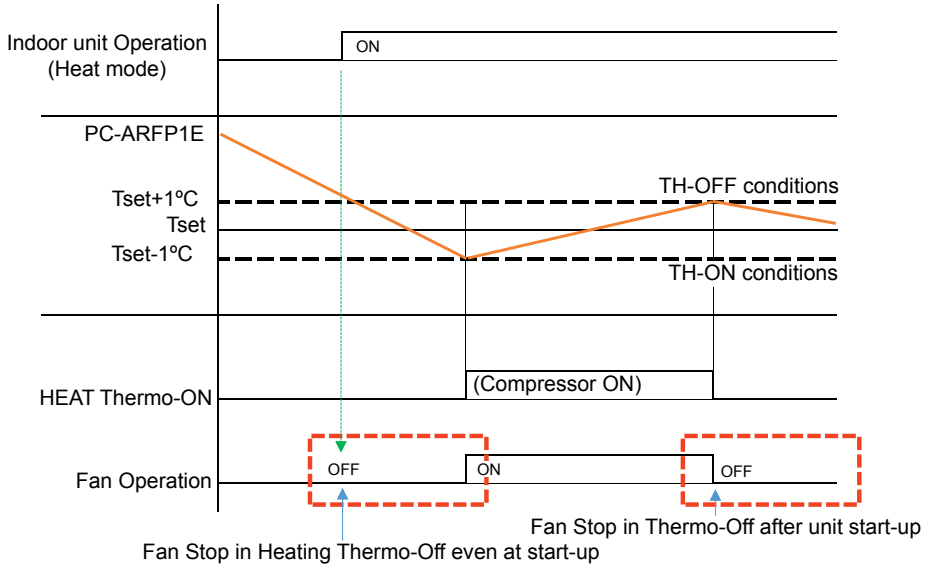
E7 – Not used

E8 – Fan operation control at heating Thermo-OFF

This function is useful to avoid the perception of cold draughts by stopping the indoor fan speed with the heating Thermo-OFF. These functions are only available when using the remote sensor (THM-R2AE).

THM-R2AE Remote temperature sensor (connected to the THM4 port on the IU PCB) is required.
This function stops the fan to prevent cold draughts.

The Remote Sensor shall be installed in a proper place for the correct detection of room temperature.



NOTE

- *These functions are only available when using the Remote Sensor (THM-R2AE)*
- *NOTE When using E8 function:*
  - "C8=00" : this setting is not permitted
  - "C8=02" : this setting is not recommended since it may cause that comfort conditions are never reached (C8 set at 02 means that unit control is carried out with the average value of the Remote Sensor and the air inlet sensor of the indoor unit)
- *In case that Automatic louver is set, the louver will keep operating in both Thermo-ON and Thermo-OFF conditions*

E9 – Not used

EA – Not used

Eb – Fan operation control at cooling Thermo-OFF

This function reduces the unit fan speed to reduce the spreading of smells and humidity.

EC – Forced Thermo-ON stoppage at cooling operation

This function is used to force Thermo-ON during 6 minutes when stopping in cooling operation. It is effective for avoiding unpleasant smells, as the heat exchanger remains clean, e.g. it is rinsed with drainage water.

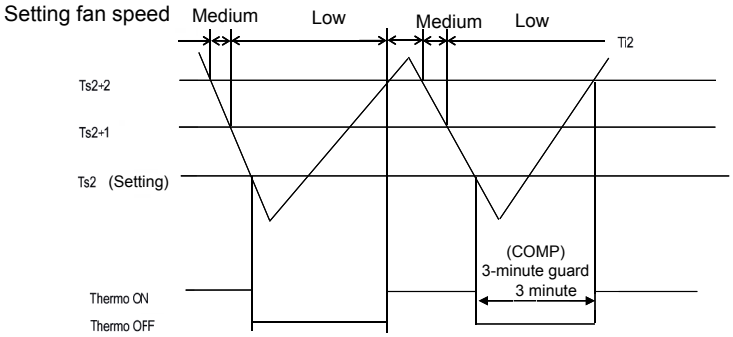
Ed – Not used

EE – Automatic fan speed control

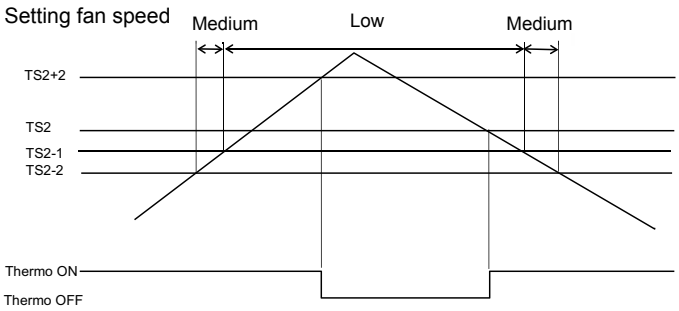
This function limits indoor fan speed when room temperature is close to setting temperature.

- When EE: Automatic indoor fan speed mode is set to "01: Enabled" in the function selection of the remote control, operation is carried out in automatic indoor fan speed mode.
- When setting fan speed is set as to "Auto" with the remote control, operation is carried out in automatic indoor fan speed mode with "High wind" as setting fan speed.

- Cooling
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 2ºC: Setting fan speed
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 1ºC: Medium (Low when setting fan speed is Low)
  - Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) < 1ºC: Low



- Heating
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 2ºC: Setting fan speed
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 1ºC: Medium (Low when setting fan speed is Low)
  - Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) < 1ºC: Low



- Maintenance of fan speed for 3 minutes
  - In switch ON with the remote control, fan speed is set to the setting fan speed, and then it enters in automatic mode after 3 minutes have passed. The switching of fan speed depending on temperature differential is performed when entering in the automatic mode, regardless of being in Thermo-ON or Thermo-OFF.
  - Once that fan speed is switched after Thermo-ON, the fan speed after the change is maintained for 3 minutes. (*) The aforementioned switching of fan speed depending on temperature differential is performed after 3 minutes have passed. Setting Temperature is the Temperature used for Thermo-OFF.
  - When switching fan speed due to a function of the motion sensor, it is switched immediately even during the 3 minutes of maintenance of fan speed.
  - When switching fan speed due to the control of the sensor for heating radiation temperature, it is switched immediately even during the 3 minutes of maintenance of fan speed.
  - When switching fan speed due to the beginning of the heating draft control, it is switched immediately even during the 3 minutes of maintenance of fan speed.

NOTE

**: However, when EE=01:Enabled is set, in case of switching setting fan speed from the remote control, it is directly switched to the automatic fan speed corresponding to the setting fan speed. When EE=00:Disabled is set, in case of switching setting fan speed from "Automatic" to "Other than automatic" from the remote control, it is directly switched to the setting fan speed. Also, in case of switching setting fan speed from "Other than automatic" to "Automatic" from the remote control, the switching of fan speed depending on temperature differential is carried out if being in Thermo-ON, while the switching of fan speed depending on temperature differential is not carried out if being in Thermo-OFF, and fan speed becomes the fan speed of the last automatic mode.*

- Common items
  - In case of changing from Thermo-ON to Thermo-OFF at the beginning of the automatic mode, the fan speed during Thermo-OFF is that of right after Thermo-OFF. Also, the switching of fan speed is not performed during Thermo-OFF. (When switching from Thermo-ON to Thermo-OFF, the maintenance of fan speed for 3 minutes is released, and the switching of fan speed depending on temperature differential is carried out)
  - The target of the automatic switching is the part of the control which operates at the normal setting fan speed.
  - When using a room thermostat and in test run, it is set to setting fan speed.
  - Even in case that the heating circulator is enabled (Function selection b2=01), it is set to the fan speed of the automatic indoor fan speed mode.

NOTE

- *The maximum fan speed in "Auto" mode is "High", unless EF function is also activated.*
- *Econofresh present, E1=01 and Fan speed setting is "Auto" mode, fan speed is fixed to "High"*

EF – Automatic indoor fan speed mode (supporting High H)

This function allows to increase the maximum fan speed to "High H" in "Auto" mode.

- Cooling

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 2ºC: Setting fan speed

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) ≥ 1ºC: Medium

Indoor control temperature (Ti2) - Setting temperature 2 (Ts2) < 1ºC: Low

- Heating

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 2ºC: Setting fan speed

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) ≥ 1ºC: Medium

Setting temperature 2 (Ts2) - Indoor control temperature (Ti2) < 1ºC: Low

- Relation with the automatic indoor fan speed mode (EE)

Setting of function selection EF	Setting of function selection EE	Remote control setting				
		Auto	High H	High	Medium	Low
00	00	High~Low	High2	High	High	Low
00	01	High~Low	High2~Low	High~Low	Medium~Low	Low
01	00	High2~Low	High2	High	High	Low
01	01	High2~Low	High2~Low	High~Low	Medium~Low	Low

F0 – Not available

F1 – Automatic OFF timer setting

This function is used to switch off the timer automatically when the unit is started using the remote control.

It is not possible to cancel or change the timer off setting during automatic timer off setting. However, it can be cancelled when the unit is stopped. When the unit is restarted, the off timer setting period is established according to the optional setting. Do not set the functions "0C"-"0F" when two remote control switches are used in the same remote control group.

NOTE

This function is not available for control using CSNET Manager 2 or 7-day timer.

F2 – Remote control main-sub setting

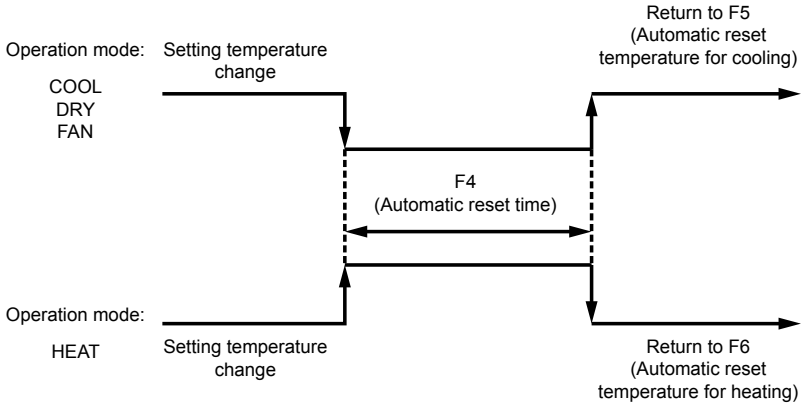
This function is useful when configuring two remote controls for the same installation: one in main mode and the other in secondary mode.

F3 – Automatic reset of setting temperature

This function releases the fixed temperature setting after a certain time to limit unit operations and save energy.

In case that the set temperature is changed and kept within the set time at “F4”, the temperature is automatically changed to “F5” and “F6”. In case that the set temperature is out of range at “F5” and “F6”, it is applied within upper and lower limit for the set temperature.

However, the temperature configuration does not perform the automatic Reset when operating in Automatic COOL/HEAT mode or operations using the remote control for the central unit are forbidden.



F4 – Automatic reset time

This function is used to set the automatic reset time with the temperature setting.

F5 – Automatic reset temperature for cooling

This function is used to set automatic temperature reset in FAN/COOL/DRY modes.

F6 – Automatic reset temperature for heating

This function is used to set automatic temperature reset in HEAT mode.

F7 – Prevention of operation stoppage due to Remote Control operating error

This function prevents the stoppage when pressing the start/stop button in the remote controller by error.

NOTE

Operation is stopped by pressing the run/stop switch for 3 seconds.

F8 – Lock function for operation mode selection

This function is used to prevent changes to the operating mode.

F9 – Lock function for temperature setting

This function is used to prevent changes to the temperature setting.

FA – Lock function for fan speed selection

This function is used to prevent changes to the fan speed.

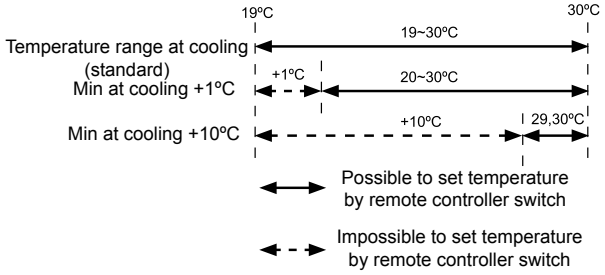
Fb – Lock function for swing louver operation

This function is used to prevent changes to automatic louver operations.

FC – Cooling lower limit for setting temperature

This function is used to define a lower temperature setting limit for FAN/COOL/DRY modes. It enables the cooling range to be reduced for configuration using the remote control.

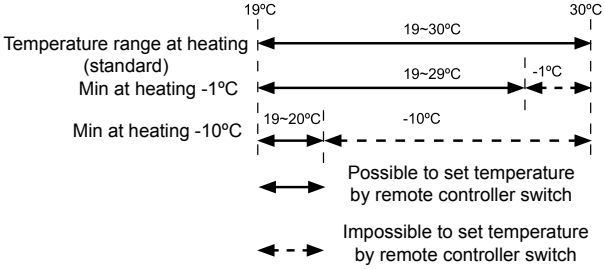
An example is shown in the following figure:



Fd – Heating upper limit for setting temperature

This function is used to define an upper temperature setting limit for the HEAT function. This function enables the heating range to be reduced for configuration using the remote control.

An example is shown in the following figure:



FE – Not used

FF – Not used

H1 – No indication of maintenance alarm

This function is used to display or hide the maintenance alarm indication.

H2 – Indication of hot start (No Indication of Operation Limitation)

This function is used to display or hide the automatic control indication.

H3 – Operation mode change restriction

This function is used in order to configure restrictions about the operation mode change action.

When this function is “00”, the operation mode change is disabled.

When this function is “01”, the operation mode change is only allowed from central control unit and mode FAN.

When this function is “02”, there are no restrictions.

H4 – Not used

H5 – Not used

H6 – Not used

J1 – Not used

J2 – Not used

J3 – Colour of the run indicator

This function is used to set the run indicator colour.

J4 – Not used

J5 – Not used

J6 – Not used

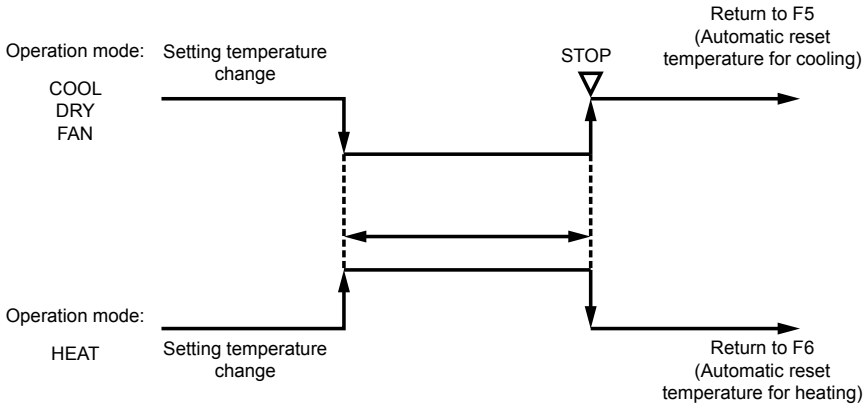
J7 – Not used

J8 – Eco-operation

This function is used to optimise the setting of temperature and provide energy saving.

When the setting temperature is changed during the air conditioning operation and while the operation is started/stopped by RUN/STOP on the remote control switch, the set temperature automatically returns to “Automatic Reset Temperature for Cooling/Heating (F5/F6)” (as shown in the next illustration).

However, the setting temperature is not automatically reset in the case that “Automatic COOL/HEAT Operation” mode, or “Prohibiting Operation by Remote Control Switch” is set by the centralized controller.



J9 – Not used

JA – Not used

Jb – Not used

A1 – Not used

A2 – Not used

A3 – Not used

A4 – Not used

A5 – Detection level of the motion sensor kit

This function is used to determine the amount of human activity depending on the reaction rate.

When “High” is set, the detection level becomes more sensitive. When “Low” is set the sensor becomes lower.

	Setting conditions		
	00 (factory setting)	01	02
Human activity	**Standard**	**High sensitive**	**Low sensitive**
Large	30% ≤ Reaction rate	20% ≤ Reaction rate	40% ≤ Reaction rate
Small	3% < Reaction rate < 30%	3% < Reaction rate < 20%	3% < Reaction rate < 40%
Not available	Reaction rate ≤ 3%	Reaction rate ≤ 3%	Reaction rate ≤ 3%

A6 – Selection of allowed operation modes

This function is used to select the operation modes in which the setting of C8 (use of remote control switch sensor or remote sensor on THM4 to control the indoor unit) is enabled.

A7 – Not used

K8 – Control for the prevention of condensation in the louvers

In that units that are equipped with louvers, condensation may occur around the air outlet during operation in cooling or dry modes, when horizontal air flow or downward air flow are sustained for long periods.

This function is used to prevent condensation by setting the louver swing angle to the third step automatically for 30 minutes every 1 hour.

(In RPK units, this function is activated by means of DSW2-4 instead of the K8 optional function)

K9 – Not used

KA – Not used

L1 – Not used

L2 – Not used

L3 – Operation of the louvers in energy-saving Thermo-OFF (Cooling / Dry mode)

Power save must be ON in order to use this function (L5 must be set to 01). This function is used to establish louvre swinging operation ranging from continuous swing to static operation.

- Low: Continuous louvre swing
- Medium: Louvre swing with intermittent stops for 20/40 seconds
- High: Louvre stopped at full opening position, according to the setting of CF.

L4 – Fan acceleration in energy-saving Thermo-OFF (Cooling mode)

This function increases fan speed by one step to prevent the loss of comfort due to the forced Thermo-OFF for energy saving during cooling operation.

L5 – Louver swing operation during energy-saving forced Thermo-OFF

This function is used to enabled the setting of function L3.

L6 – Not used

L7 – Not available

L8 – Not used

L9 – Not used

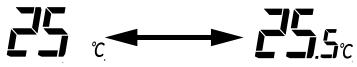
LA – Not used

Lb – Not used

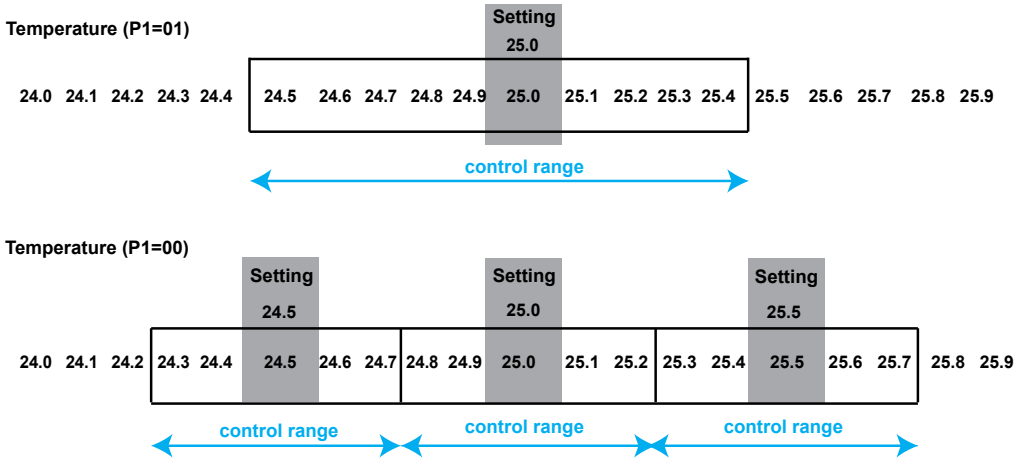
P1 – Setting temperature in 0.5 ºC steps

This function is used to define whether setting temperature is adjusted in 0.5 ºC steps (when set to “00”) or in 1 ºC steps (when set to “01”).

This setting also determines whether the resolution of temperature differential of the thermistor is 0.5 ºC (when set to “00”) or 1 ºC (when set to “01”) enabling more precise setting control.



Simplified scheme of the control system (for illustrative purposes only, as the control system also manages other parameters):



P2 – Not used

P3 – Temperature sensor displayed

This function is used to select the thermistor whose temperature is shown.

P4 – Display of sensor temperature

This function is used to display the temperature of the sensor selected with P3.

P5 – Display of setting temperature when operation mode is Fan

This function is used to hide the display of setting temperature during operation in fan mode.

P6 – Operation of the ECO button

The Operation of ECO button is disabled when P6 is set to 01.

P7 – Prohibition of menu screen transition

This function is used to prohibit the access to the menu screens. The text “Display disabled” appears on screen instead.

PA – Daylight saving time

This function is used to set the amount of adjustment when daylight saving time is applied.

Pb – Not used

PC – Not used

91 – Not used

92 – Not used

93 – Not used

94 – Not used

95 – Not used

96 – Not used

97 – Not used

98 – Not used

99 – Not used

9A – Not used

9b – Not used

9C – Not used

9d – Not used

9E – Not used

9F – Not used

r1 – Dual set point

Function in the automatic cooling/heating mode allowing the preset of respective setpoint for cooling and heating.

r2 – Setting of temperature differential for switching cooling and heating

Function in the automatic cooling/heating mode allowing the preset of respective setpoint for cooling and heating.

r3 – Not used

r4 – Not used

r5 – Not used

r6 – Not used

r7 – Not used

r8 – Not used

r9 – Not used

rb – Not used

rC – Not used

rd – Not used

rE – Not used

rF – Not used

S1 – Not used

S2 – Not used

S3 – Not used

S4 – Not used

S5 – Not used

S6 – Not used

S7 – Not used

S8 – Not used

5.2.5 Alarm indication

The run LED (green) will flash. The LCD screen will show the following information:

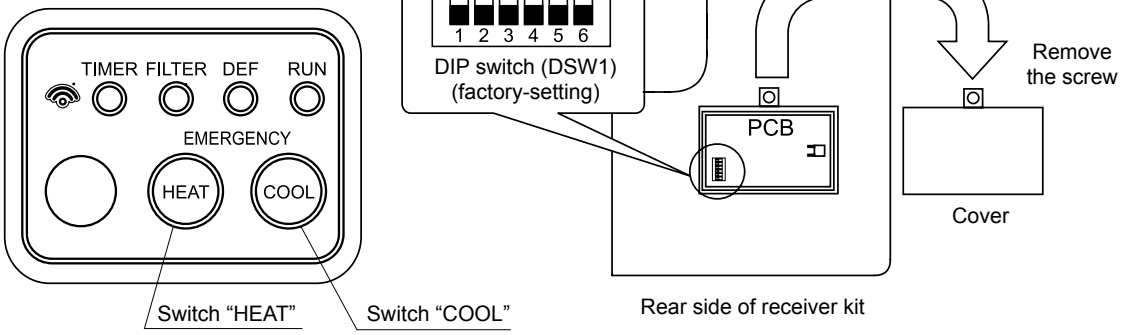
- Number of indoor unit affected by the alarm.
- Alarm code.
- Unit model.
- Number of indoor units connected to the system.

NOTE

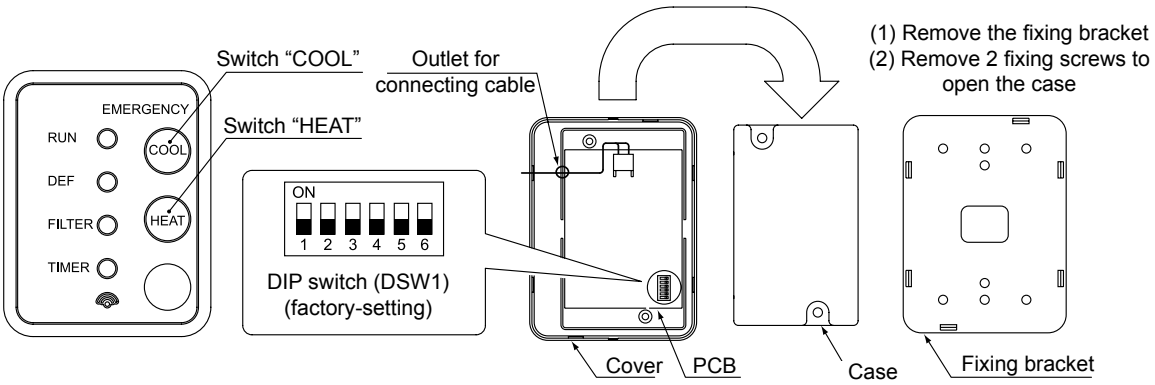
- *The Alarm code corresponds to the alarm that is happening on the unit.*
- *Refer to the Service Manual of the unit to know the meaning of the alarm code.*

5.2.6 Settings on wireless remote controls

PC-ALH3



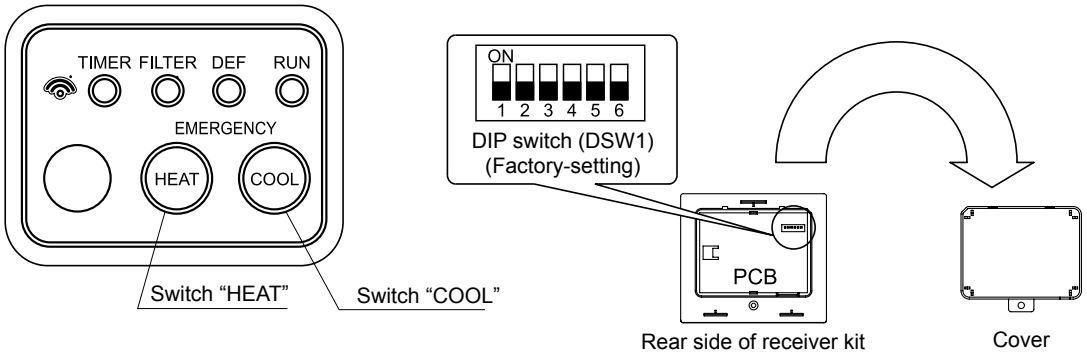
PC-ALHZ1



Secondary receiver setting

To enable this setting, enable terminal 1 on the DIP switch.

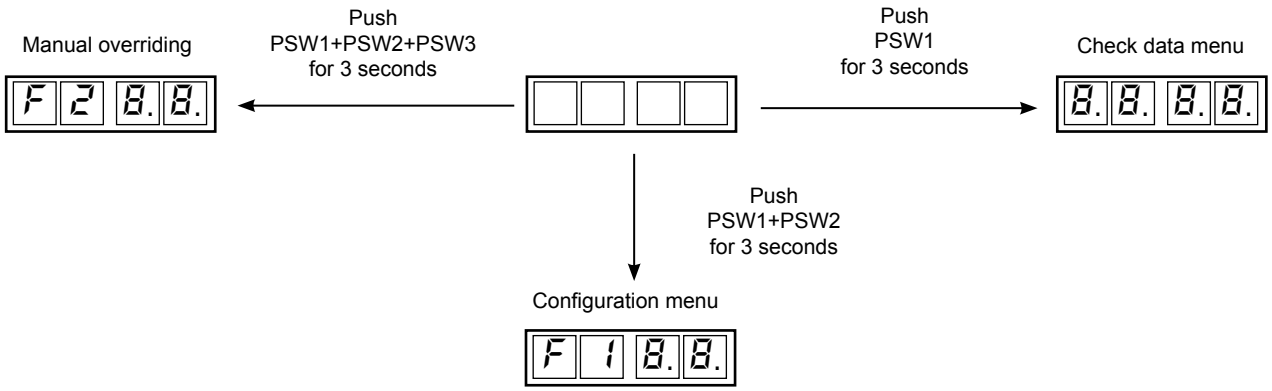
PC-ALHP1



5.3 Complementary systems

5.3.1 KPI and DX-Interface

5.3.1.1 7-segments display main menus



To come back to current status, push PSW1 for 3 seconds

◆ **Check data menu functions**

Push PSW1 during 3 seconds in order to activate the check data menu, push PSW2 tot move up or PSW3 to move down.

Push PSW1 during 3 seconds to return.

Check data:

Code display	Data display	Description	Detector	Check function	Application unit			Remarks
					KPI-E4E	KPI-X4E	DX-Interface	
t1	88	Air inlet DX Coil (Tx)	PCB2 THM1	(ºC)	-	O	(○)	Tin DX Coil
t2	88	Air outlet DX Coil (Tx')	PCB2 THM2	(ºC)	-	O	(○)	Tout DX Coil
F1	88	Fan 1 (0-83)	CN5-2	(%)	O	O	(○)	
S1	88	Fan 1 Tach	CN5-1	(Hz)	O	O	(○)	
F2	88	Fan 2 (0-83)	CN6-2	(%)	O	O	(○)	
S2	88	Fan 2 Tach	CN6-1	(Hz)	O	O	(○)	
u1	88	Duty 0-10v	CN3-2	(v)	-	-	(○)	(or 0-5v)
u2	88	Duty 4-20mA	CN2-2	(mA)	-	-	(○)	
00	888	Soft PCB 1	H-LINK	(Soft number)	O	O	O	(H-0XXX)
0.0.	888	Soft PCB 2	H-LINK	(Soft number)	O	O	O	(H-0XXX)

(○) Optional

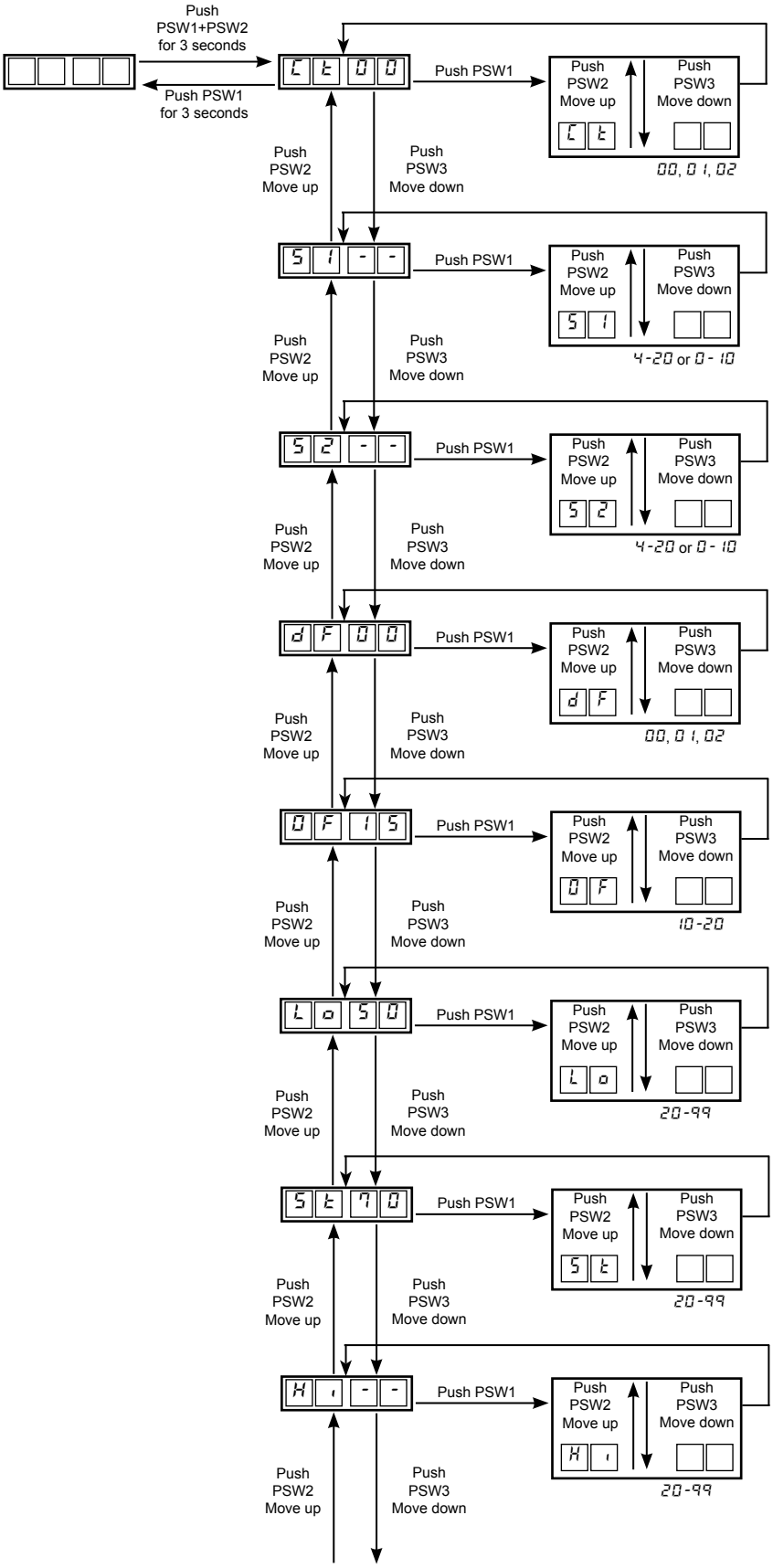
Configuration menu:

There are available the following configruation settings

Where	Code	Function	KPI-E4E	KPI-X4E	DX	Setting Status	Remarks
PCB2 (PSW)	CE	CO_2 sensor type	O	O	-	00: ON/OFF CO_2 signal *(*1)* 01: Activated 4-20mA signal 02: Activated 0-10V signal	
	S1	Set minimum	O	O	-	Range: 4-20 (Default= 01: 4) or range: 0-10 (Default= 02: 0)	If CE = 00 S1 will be "--"
	S2	Set maximum	O	O	-	Range: 4-20 (Default= 01: 20) or range: 0-10 (Default= 02: 10)	If CE = 00 S2 will be "--"
	dF	Defrost Fan	-	O	O	00: Fan Low operation (Default) 01: Fan kept operation 02: Fan stopped operation	
	oF	Offset for Thermo OFF conditions	O	O	O	Range: 10 to 20 ºC	Tset +- Offset
	Lo	Set low fan speed	-	-	O	Range: 20% to 99%	This function establishes the duty in order to fix the fan speed, only DX-Interface with EC Fan configuration
	SE	Set medium fan speed	-	-	O	Range: 20% to 99%	
	Hi	Set high fan speed	-	-	O	Range: 20% to 99%	

NOTE

*(*1): CO_2 sensor signal must be an ON/OFF signal. CO_2 sensor must be connected to CN3, pins 1-2, for i1 input signal (refer to outdoor unit technical catalogue for further information about the connection specs).*


Push
PSW1+PSW2
for 3 seconds
Push PSW1
for 3 seconds
Push PSW1
Push
PSW2
Move up
Push
PSW3
Move down
00, 01, 02
4-20 or 0-10
10-20
20-99

5.3.2 Econofresh Kit

◆ Available ports

The system has three optional input signals programmed into the PCB using connector CN3 on the RPI unit and using the remote control. Connector CN3 has two ports for configuring the optional input signals of the Econofresh kit.

The outdoor cooling function E1 requires no CN3 connector setting.

NOTE

When the RPI unit DSW6 is set for use of the Econofresh kit, CN3 connectors 1 and 2 are locked on the RPI unit PCB.

◆ Description of optional input signals

Enthalpy sensor

On-screen display: E2.

The signal opens and closes the air inlet valves and the outlet damper, mixing the outdoor air and the return air of the Econofresh kit. This function is based on the air quality parameters that provide precise control of the air quality.

Connect the cables as indicated in point *"5.1.1 Available ports"*. Only CN3 contacts 1 and 2 can be connected.

The signal has the following control logic:

Connector	Contact number	X1	Damper valve
CN3	1, 2	ON	—
		OFF	Enabled

CO_2 sensor

On-screen display: E4.

This signal controls the inlet of outdoor air according to the concentration of CO_2 inside the room.

Connect the cables as indicated in point *"5.1.1 Available ports"*. Only CN3 contacts 1 and 2 can be connected.

The signal has the following control logic:

Connector	Contact number	X1	Damper valve
CN3	1, 2	ON	—
		OFF	Enabled

Compatibilities between optional signals

The following table shows the compatibility between the different optional signals:

	PC-ARPFE optional functions	Room thermostat	Remote control thermistor	Remote thermistor	Wireless remote control	Outdoor cooling mode	Enthalpy sensor	CO_2 sensor
Room thermostat	–	–	–	–	–	–	–	–
Remote control thermistor	C8	–	–	–	–	O	O	O
Remote thermistor	–	–	–	–	–	–	–	–
Wireless remote control	–	–	–	–	–	O	O	O
Outdoor cooling mode	E1	–	O	–	O	–	–	–
Enthalpy sensor	E2	–	O	–	O	–	–	–
CO_2 sensor	E4	–	O	–	O	–	–	–

Not available: –
Available: O

5.4 Function availability vs. different series

New Functions	PC-ARFP1E	RCIM-FSN4E	RCI-FSN4	RPK-FSN4M	RPC-FSN3	RCD-FSN3	RPIM-(0.6-1.5)FSN4E	RPI-(0.4~3.0)FSN5E	RPI-(4.0-6.0)FSN5E	RPI-(8.0-10.0)FSN3E	RPF(I)-FSN2E	IVX RAS-(2-12)H(V)NP1(E) Centrifugal RASC-(4-10)HNPE	IVX RAS-(3-12)H(V)NC1(E)	SET FREE Mini (RAS-(4-6)FS(V)NME)	SET FREE Sigma RAS-(8-96)FSXNSE& RAS-(5-72)FSXNPE SET FREE Mini (RAS-(8-12)FSXNME)	Compatible software
Software	From beginning of mass production	P-4729	P-4736	From beginning of mass production	P-4736	P-4729	P-4735	P-4725	P-4735	Current	Current	--	--	--	--	--
Sensor selection for Temperature Control																
Parameter C8: Optional Setting for Indoor unit control by RCS sensor or remote sensor (THM4)	o	Depends on Remote Controller (RCS)														⊙
Parameter K6: operating mode by THM4 or RCS sensor only in COOL/DRY mode	o	o	o	o	o	o	x	o	x	x	x	Depends on RCS and Indoor Unit				▲
Special EU functions for Fan stop in Thermo-OFF																
Parameters Cd: Fan stop in cooling thermo-off by THM4 or RCS sensor control.	o	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
Parameters CE: Fan stop in heating thermo-off by RCS sensor	o	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
Parameter E8: Fan stop during Thermo-OFF when THM4 is connected	o	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
Temperatures display in RCS																
Parameters J1: Temporary ambient temperature (C8) display on the RCS.	x	Depends on connected Remote Controller														⊙
Parameters P3, P4: Ambient temperature display on the RCS.	o	Depends on connected Remote Controller														⊙
Parameter P5: Setting temperature display on the RCS. (hidden for Fan operation mode)	o	Depends on connected Remote Controller														⊙
Parameter P1: Temperature setting width (0.5 ºC)	o	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
Function preventing uncomfortable operation																
Parameter d4: Prevention for cooling discharge air temperature decrease RPK---Default ON Cancel function by using DSW2-4=OFF	o	x	x	x	x	x	o	x	o	o	o	Depends on RCS and Indoor Unit				▲
Comfort setting: 1-4	x	o	o	o	o	o	x	o	x	x	x	Depends on RCS and Indoor Unit				▲
Parameter K8: control of dew condensation prevention by indoor unit louvers (For RPK activation by DSW2-4 instead of K8)	o	o	o	x	o	o	x (no louver)	x	x	x	x	Depends on RCS and Indoor Unit				▲
Energy saving/noise/Eco functions																
"Parameter d6: Room temperature control for energy saving indoor unit in Cool Thermo-off when Tout<Tin"	o	o	o	o	o	o	o	o	o	o	o	x	o	o	o	■
Power saving function	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
ECO button	o	Depends on connected Remote Controller														⊙
Noise reduction operation	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
Power saving and noise reduction scheduled operations	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
Power consumption display	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
ECONOFRESH control	o	x	x	x	x	x	x	x	o	x	x	Depends on RCS and Indoor Unit				▲

New Functions	PC-ARFP1E	RCIM-FSN4E	RCI-FSN4	RPK-FSN4M	RPC-FSN3	RCD-FSN3	RPIM-(0.6-1.5)FSN4E	RPI-(0,4~3.0)FSN5E	RPI-(4.0-6.0)FSN5E	RPI-(8.0-10.0)FSN3E	RPF(I)-FSN2E	IVX RAS-(2-12)H(V)NP1(E) Centrifugal RASC-(4-10)HNPE	IVX RAS-(3-12)H(V)NC1(E)	SET FREE Mini (RAS-(4-6)FS(V)NME)	SET FREE Sigma RAS-(8-96)FSXNSE& RAS-(5-72)FSXNPE SET FREE Mini (RAS-(8-12)FSXNME)	Compatible software
Software	From beginning of mass production	P-4729	P-4736	From beginning of mass production	P-4736	P-4729	P-4735	P-4725	P-4735	Current	Current	--	--	--	--	--
Setback function																
Setback function for hotel application (key card)	x	o	o	o	o	o	o	o	o	x	x	Depends on RCS and Indoor Unit				▲
Smart set back function (key card, timer, manual)	o	o	o	o	o	o	o	o	o	x	x	Depends on RCS and Indoor Unit				▲
Auto Cool/Heat with dual setting																
Simple Auto Cool / Heat with dual Set Point	x	o	o	o	o	o	o	o	o	x	x	Depends on RCS and Indoor Unit				▲
Smart Auto Cool / Heat with dual Set Point	o	o	o	o	o	o	o	o	o	x	x	Depends on RCS and Indoor Unit				▲
Auto Cool/Heat with single setting																
Improvement for AUTO COOL HEAT operation mode (new differential Temperature Set Temp. - Room Air Temp. = 2°C instead of 3°C)	o	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
Setting main / sub controller	o	o	o	o	o	o	o	o	o	o	x	x	x	o	o	■
Operation mode / Tset priority	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
Quick functions	o	o	o	o	o	o	o	o	o	o	x	x	o	o	o	■
Others																
CN3 inputs i1 and i2 status read through H-LINK	Depends on IU	o	o	o	o	o	o	o	o	o	o	Depends on RCS and Indoor Unit				▲
0.4HP Indoor unit model	Depends on IU	o	x	o	x	x	x	o	x	x	x	Depends on RCS and Indoor Unit				▲
Languages	21	Depends on connected Remote Controller														⊙

o	Available
x	Not available
⊙	Function depending on remote controller switch
▲	Function depending on remote controller switch + indoor unit software
■	Function depending on remote controller switch + indoor unit + outdoor units software

6. Commissioning

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6.1 Checks prior to the test run

- Once installation is complete, carry out the test run in line with the procedure described below. The system can be handed over to the client once the test has been correctly completed.
- Prior instructions to carry out the test run:

1 Verify the check points described in Check points.
2 Carry out the check procedure described in Check procedure.
3 Carry out the test run on the indoor units individually and in order.
4 Check that the wiring and refrigerant piping connections are connect.
5 Start the indoor units individually and in order. Check that they are correctly numbered.
6 Carry out the test in line with the instructions given in section Test procedure using the remote control.

⚠ CAUTION

- *Bear the following in mind while the system is running:*
  - *Do not touch any component in the discharge gas area. The compressor chamber and the piping are at temperatures of over 90ºC. They may cause burns.*
  - *Do not touch the magnetic breakers. This could cause a serious accident.*
- *Wait for more than three minutes before touching electrical components after turning off the main switch.*
- *Check that the gas and liquid line stop valves are fully open.*

6.1.1 Check points

- Do not start the system until all of the check points have been verified.

1 Use a multimeter to measure the resistance between earth and the electrical component terminal. Check that the resistance is above 1 MΩ. Otherwise, do not start the system, locate the electrical leak and repair. Do not apply voltage to transmission terminals 1 and 2.
2 Check that the outdoor unit stop valves are fully open. If so, start the system.
3 Check that the power supply switch has been on for over 12 hours to heat up the compressor oil.

6.1.2 Check procedure

Check:

1 The gas and liquid line stop valves are fully open.
2 That there are no refrigerant leaks.

NOTE

Flare nuts may sometimes loosen due to vibrations during transportation.

3 Refrigerant piping and wiring form part of the same system.
4 The setting of the DIP switches on the printed circuit board of the indoor units is correct. Pay particular attention to the set different in height between the indoor and outdoor units. See the wiring diagrams for further details.
5 The power supply switch has been on for over 12 hours to heat up the compressor oil.
6 The wiring is correctly connected. See the wiring diagrams for further details.
7 Each terminal (L1, L2, L3, N or L1 and N) is correctly connected to the power supply.
8 The field-supplied electric components (main power switch protection fuse, circuit breaker without fuse, residual current breaker, wires, piping connectors and wire terminals) have been selected correctly in line with the electrical data given in the technical catalogue and in national and local regulations.
9 The power supply wiring terminal connection (L1 to L1 and N to N). Check the connection of the terminal boards running at 380 Vac. An incorrect connection may damage components.
10 Intermediate wire terminals between the indoor unit (operational line: terminals of every terminal board for 12 V) fit correctly. An incorrect connection may damage components.
11 The crankcase checker has been on for more than four hours. The device will not work unless it has been on for more than four hours.

12 The operating temperature:

- Cooling operation
  a. Indoor DB 21.5ºC and higher.
  b. Indoor WB 16ºC and higher.
  c. Outdoor DB 0ºC and higher.
- Heating operation
  a. Indoor DB 27ºC and below.

13 Use shielded cables for the installation to avoid electrical noise. This must be less than 1000 m in length and meet with national and local regulations.

14 Disconnect the KPI unit if it is connected to the indoor unit control. Otherwise the unit will not carry out the test run.

6.2 Test run procedure using the wireless remote control

From the remote controller switch can be carry out the test run procedure. Please follow the remote control switch technical documentation for details.

6.3 Test run check list

MODEL:	
SERIAL NUMBER	
COMPRESSOR MFG NO	
NAME AND ADDRESS OF CUSTOMER:	
DATE:	

1 Does the indoor unit fan turn in the correct direction? _____

2 Has the unit been running for at least twenty (20) minutes? _____

3 Check the temperature of the room:

Inlet:	Nº 1	DB/WB _____ºC	Nº 2	DB/WB _____ºC	Nº 3	DB/WB _____ºC	Nº 4	DB/WB _____ºC
Outlet:		DB/WB _____ºC		DB/WB _____ºC		DB/WB _____ºC		DB/WB _____ºC
Inlet:	Nº 5	DB/WB _____ºC	Nº 6	DB/WB _____ºC	Nº 7	DB/WB _____ºC	Nº 8	DB/WB _____ºC
Outlet:		DB/WB _____ºC		DB/WB _____ºC		DB/WB _____ºC		DB/WB _____ºC

4 Check the outside temperature:

Inlet	DB/WB _____ºC
Outlet	DB/WB _____ºC

5 Check the temperature of the refrigerant: Operating mode (cooling or heating).

Discharge gas temperature	Td = _____ºC
Liquid pipe temperature	Te = _____ºC

6 Check the pressure:

Discharge pressure	Pd = _____kg/cm^{2}G
Suction pressure	Ps = kg/cm^{2}G

7 Check the voltage:

Rated voltage	_____V	—	—
Service voltage	L1–L2 _____V	L1–L3 _____V	L2–L3 _____V
Initial voltage	_____V	—	—
Phase imbalance	1-(V/Vm) =	—	—

8 Check the compressor inlet operating current

Inlet	_____kW
Suction pressure	_____kW

9 Is the refrigerant charge OK? _____

10 Do the operating control devices work properly? _____

11 Do the safety devices work correctly? _____

12 Has the unit been checked for refrigerant leaks? _____

13 Is the unit clean? _____

14 Are all the panels of the unit fastened securely? _____

15 Are the panels of the cabinet fastened so that they do not make any noise? _____

16 Is the filter clean? _____

17 Is the heat exchanger clean? _____

18 Are the stop valves open? _____

19 Does the water flow freely through the drainage pipe? _____

7. Servicing

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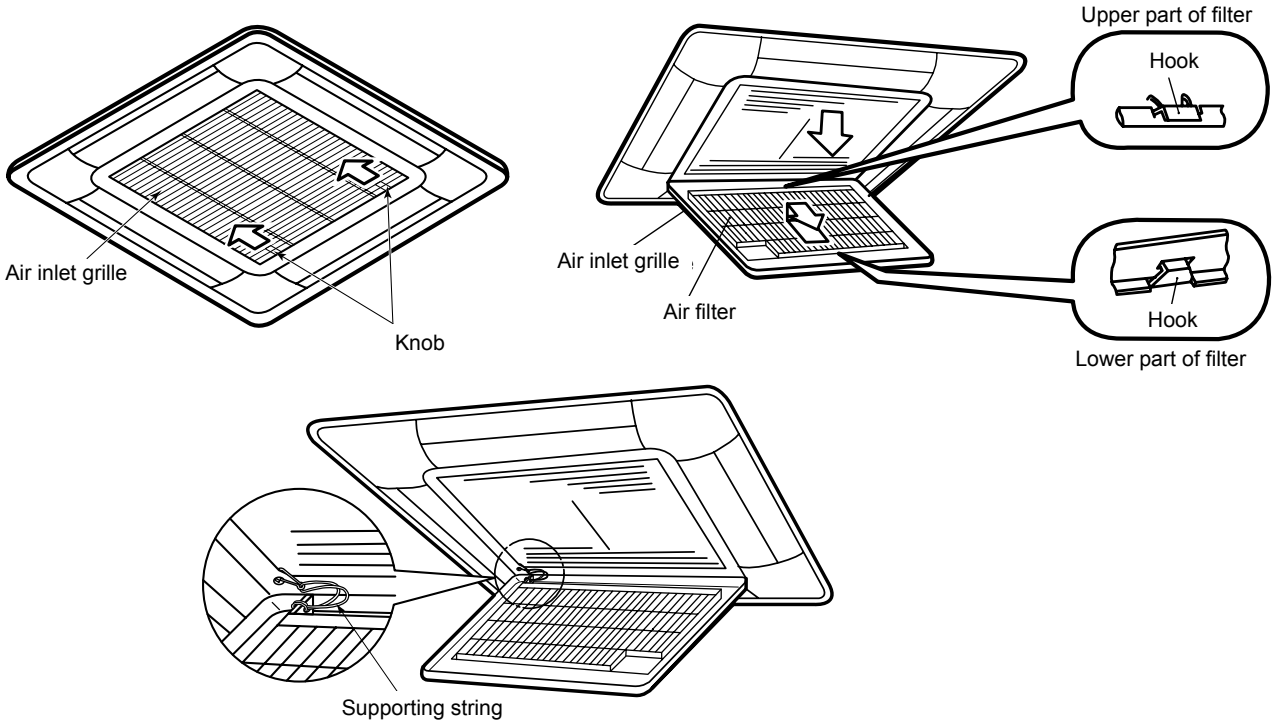
7.1 RCI-(1.0-6.0)FSN4 - 4-way cassette

7.1.1 Removing air filter and air inlet grille

1 The air filter is attached inside the air inlet grille. While pushing both ends of knobs at the air inlet grille toward the arrow direction, open the air inlet grille.
2 Hold the lower side of the air inlet grille keeping it inclined. Remove the hooks of air filter from the air inlet grille and remove the air filter.
3 Remove the supporting string from the air panel. After lifting the air inlet grille keeping it inclined, draw the air inlet grille forward to remove.
4 When attaching the air inlet grille, the supporting string shall be attached to the air panel.

⚠ CAUTION

TURN OFF all power source switches.

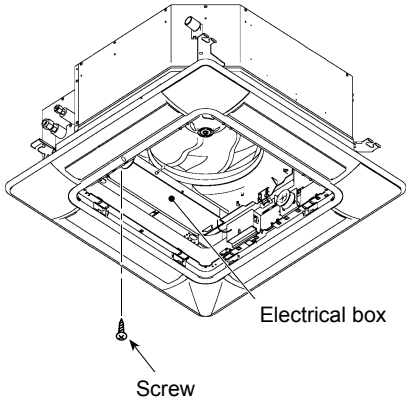


7.1.2 Removing electrical box cover

1 The electrical box appears when opening the air inlet grille. Remove the fixing screw for electrical box cover and open the electrical box.
2 The electrical box cover can hook onto the electrical box during the maintenance.

⚠ CAUTION

Pay attention not to fall the electrical box cover.



7.1.3 Removing optional air panel

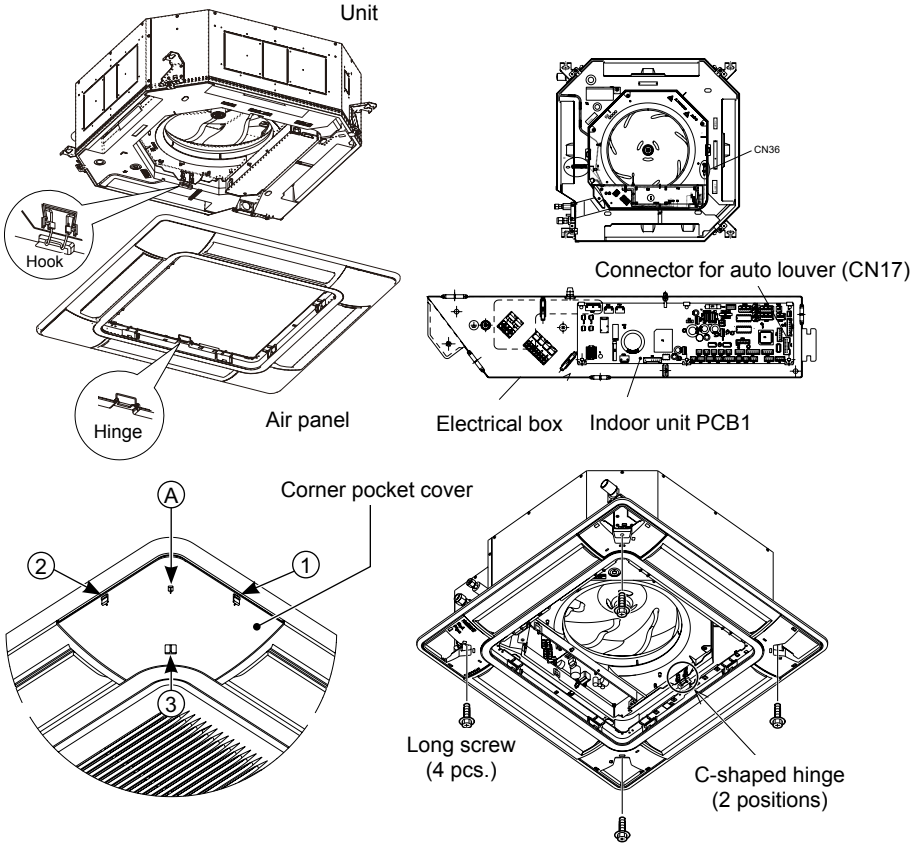
1 Open the air inlet grille. Remove the connector (CN36) at the air panel from the connector for auto louver (CN17) on the indoor unit PCB1.

2 Remove the air inlet grille from the air panel.

3 Remove 4 corner pocket covers from the air panel. They can be removed pulling "Ⓐ" part toward the arrow direction in the figure below.

*To attach the corner pocket covers again, insert the fixing hooks (① and ②) to the air panel and insert the fixing hook (③) to the air panel.

4 Remove 4 long screws from the air panel. Remove them with attention to temporally hook hinges of air panel (2 positions) onto hooks of unit (2 positions). Then, remove the air panel after unhooking 2 hinges from the 2 hooks.



7.1.4 Removing turbo fan and fan motor

1 Remove the air inlet grille and the electrical box cover according to the item *"7.1.1 Removing air filter and air inlet grille"* and the item *"7.1.2 Removing electrical box cover"*.

2 Moving Electrical Box

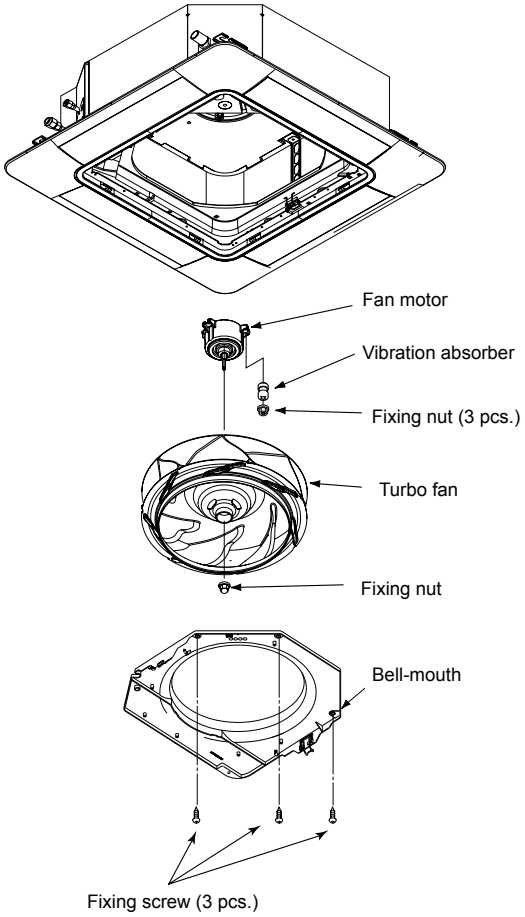
   a. Remove the outlet air thermistor (THM2), the drain pump motor connector (PCN6), the float switch connector (CN14), the pipe thermistors (THM5 and THM3), the expansion valve (CN11) and the fan motor connector (CN1) from indoor unit PCB1.

   b. Remove the fixing screws ④ and ⑤ for electrical box and hang the electrical box from the unit.

3 Removing Bell-Mouth. Remove three (3) fixing screws ①, ② and ③ for bell-mouth fixed to the drain pan, and remove the bell-mouth.

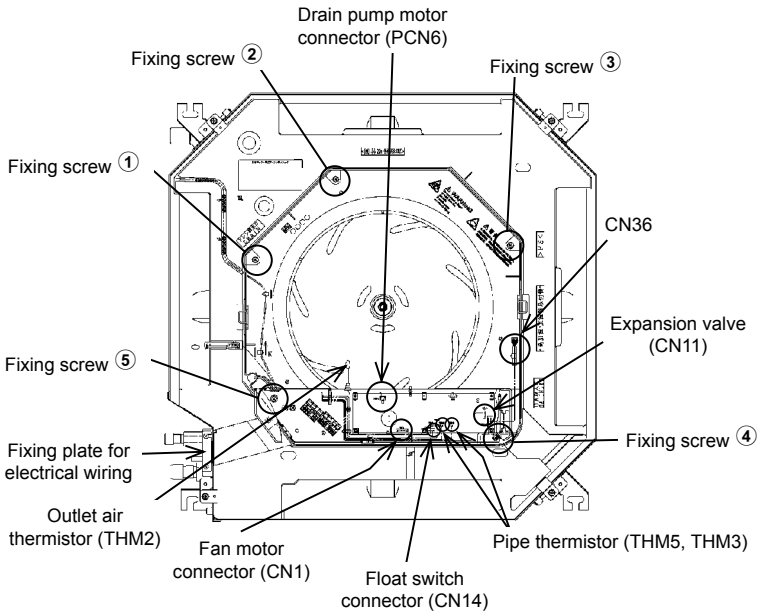
4 Removing Turbo Fan and Fan Motor

Remove the turbo fan after the fixing nut for the turbo fan is removed. Remove the fan motor after three (3) fixing nuts for the fan motor are removed. (When reassembling, the tightening torque for nuts shall be approximately 8Nm.)



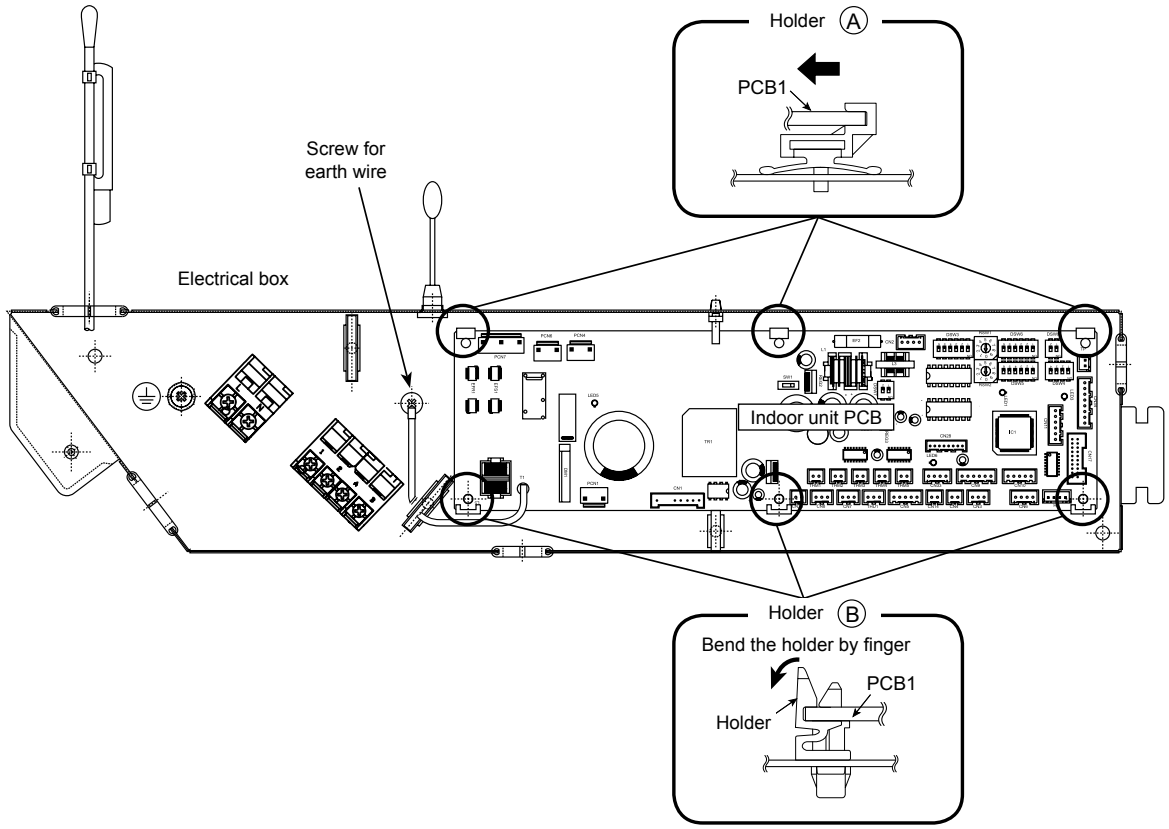
NOTE

When reassembling, temporally fix the fixing screws (① to ⑤), and align the centre of turbo fan and bell-mouth to match. Tighten securely after keeping the clearance between the turbo fan and the bell-mouth evenly. In addition, securely fix lead wires for fan motor, 2 pipe thermistors and expansion valve by the cord clamp attaching at the partition plate.



7.1.5 Removing printed circuit board (PCB1)

1 Remove the air inlet grille according to the item *"7.1.1 Removing air filter and air inlet grille"*.
2 Remove the electrical box according to the item *"7.1.2 Removing electrical box cover"*.
3 Disconnect all wiring connectors from PCB1.
4 Remove the screw for earth wire.
5 The PCB1 is fixed by six (6) holders. Bend the holders (B) by finger and raise the PCB1. Remove the PCB1 from the holders (A) by drawing it towards arrow direction in the figure below.



NOTE

- *Do not touch electrical parts on PCB1.*
- *Pay attention not to apply an excessive force to PCB1. It may cause failure of PCB1.*
- *When reassembling, attach connectors to the correct position. If not, the PCB1 may be damaged. In addition, securely attach the screw for earth wire.*

7.1.6 Removing drain pan

1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.

2 Remove the electrical box cover according to the item *"7.1.2 Removing electrical box cover"*. Disconnect connectors of air outlet thermistor, 2 pipe thermistors (gas and liquid), the expansion valve, the drain pump, the float switch and the fan motor.

3 Remove the electrical box and the bell-mouth according to the item *"7.1.4 Removing turbo fan and fan motor"*.

4 Draining Drain Water

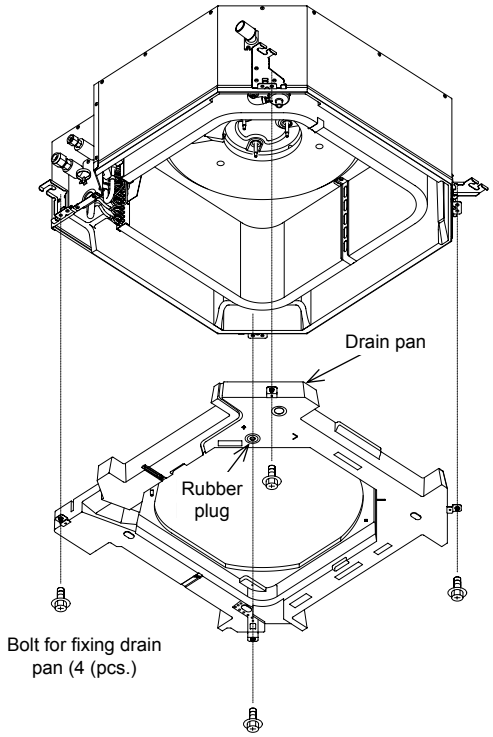
Pull out the rubber plug from the drain pan, and drain the water remaining in the drain pan. Although the silicon sealant is applied around the rubber plug, the rubber plug can be removed cutting the silicon sealant by a cutter. (Pay attention not to damage the rubber plug by a cutter.) In addition, check the clogging at the drain hole.

5 Removing Drain Pan

Remove four (4) bolts fixing the drain pan. Remove the drain pan.

NOTE

When attaching the rubber plug again, push in it into the drain hole by using Phillips Screwdriver, etc. after the rubber plug is wet by water. Seal the rubber plug after the silicone sealant is applied around the flange part of rubber plug.



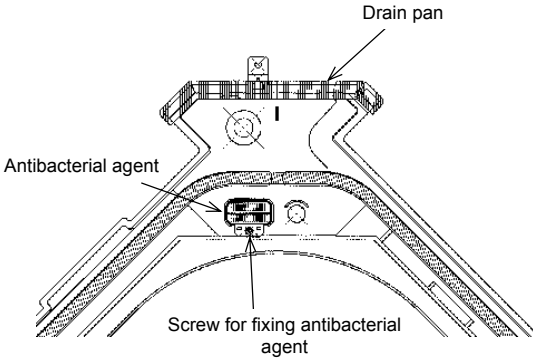
7.1.7 Removing antibacterial agent

1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.

2 Remove the electrical box cover according to the item *"7.1.2 Removing electrical box cover"*. Disconnect connectors of air outlet thermistor, 2 pipe thermistors (gas and liquid), the expansion valve, the drain pump, the float switch and the fan motor.

3 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.

4 Remove the antibacterial agent (cased) fixed inside the drain pan by screw.

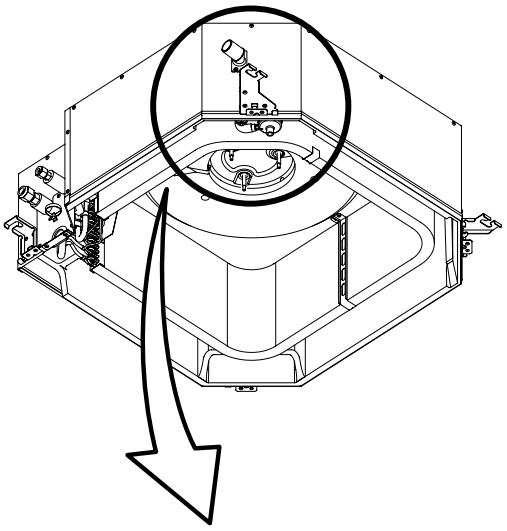


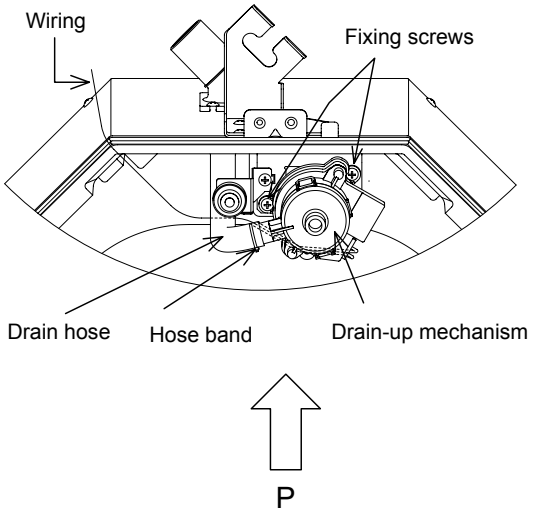
7.1.8 Removing drain-up mechanism

1 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.
2 Remove the insulation which attaches the wires for float switch and drain-up mechanism together.
3 Cut the plastic band fixing the wires at the fixing plate for float switch.
4 Cut the hose band for drain hose by nipper, and remove the drain hose from the drain-up mechanism.
5 Remove two (2) fixing screws for drain-up mechanism. When removing, hold the drain-up mechanism by hand in order not to fall.
6 Remove the drain-up mechanism.

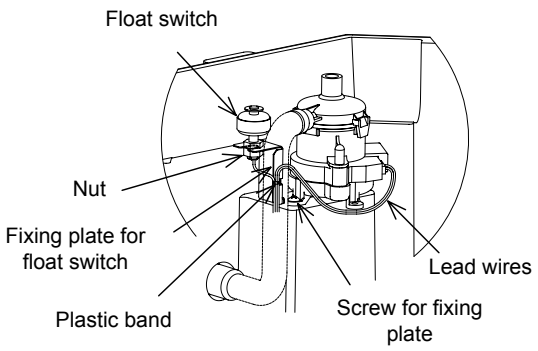
NOTE

When reassembling, wrap up the wires for float switch and drain-up mechanism together by the insulation Fix securely them to the original position. When attaching the drain pan again, pay attention not to pull the wires strongly. Otherwise, the insulation attaching at the cabinet may be peeled.





VIEW FROM P



7.1.9 Removing float switch

1 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.

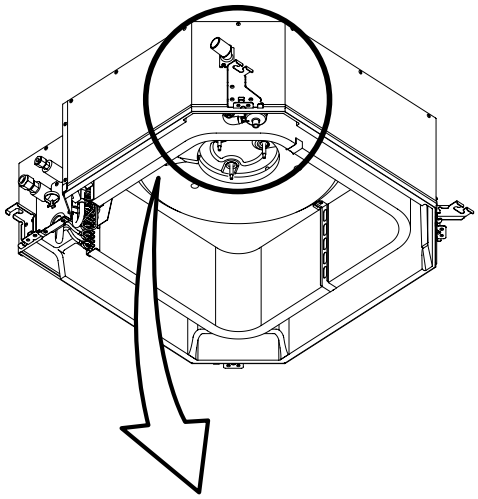
2 Remove the insulation which attaches the wires for float switch and drain-up mechanism together.

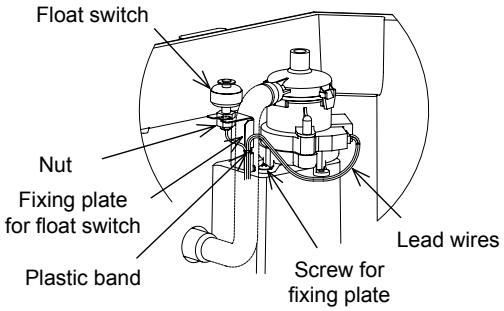
3 Cut the plastic band fixing the wires at the fixing plate for float switch.

4 Removing Float Switch. The float switch is attached next to the drain-up mechanism. Remove the float switch by loosening the fixing screw for the fixing base.

NOTE

- *When reassembling, wrap up the wires for float switch and drain-up mechanism together by the insulation. Fix securely them to the original position. When attaching the drain pan again, pay attention not to pull the wires strongly. Otherwise, the insulation attaching at the cabinet may be peeled.*
- *Pay attention to handle the float switch. If it is dropped to a floor, the malfunction may occur.*
- *When attaching the float switch, tighten the screw by hand. (Do not use a motor-driven screwdriver).*





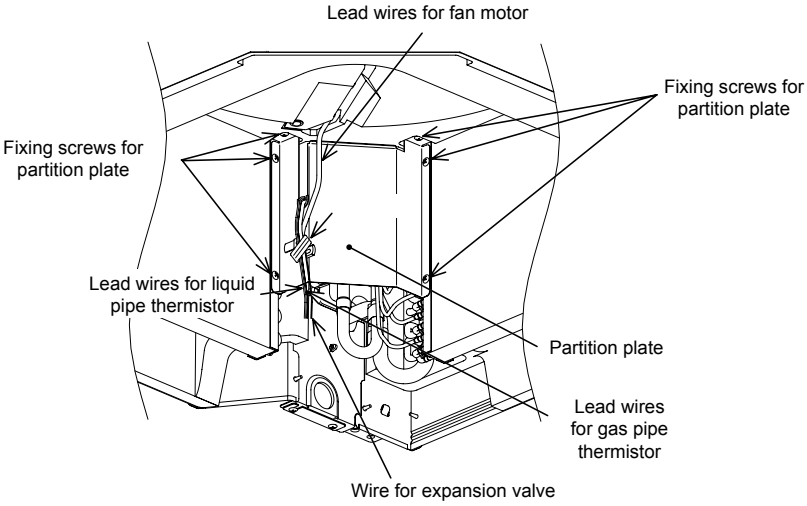
7.1.10 Removing thermistors for liquid pipe and gas pipe

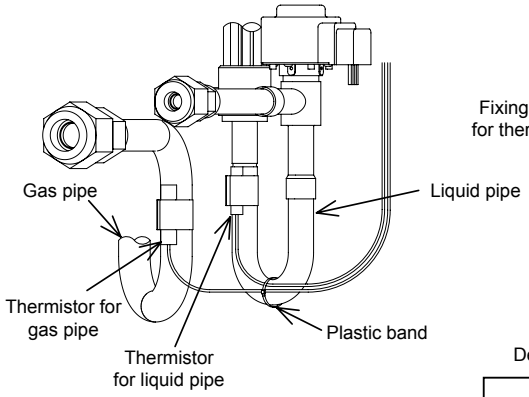
1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.
2 Remove the bell-mouth according to the item *"7.1.4 Removing turbo fan and fan motor"*.
3 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.
4 Removing Partition Plate. Remove six (6) fixing screws for partition plate. Remove lead wires (for fan motor, 2 pipe thermistors and expansion valve) from the cord clamp.

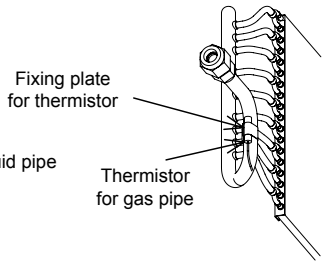
* When reassembling, bind lead wires (for liquid pipe and gas pipe thermistors) together by the plastic band (field-supplied).

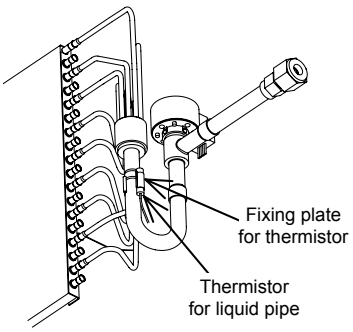
5 Remove the fixing plate for thermistor from the gas pipe, and remove the gas pipe thermistor.
6 Remove the fixing plate for thermistor from the liquid pipe, and remove the liquid pipe thermistor.

* When reassembling, securely fix lead wires (for fan motor, 2 pipe thermistors and expansion valve) together by the cord clamp attaching at the partition plate and attach each thermistor to the original position.

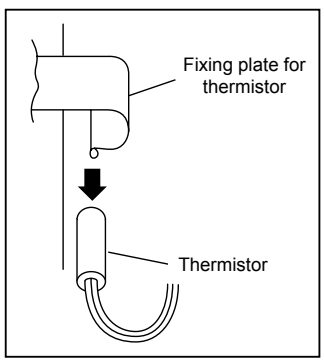








Details of thermistor installation



NOTE

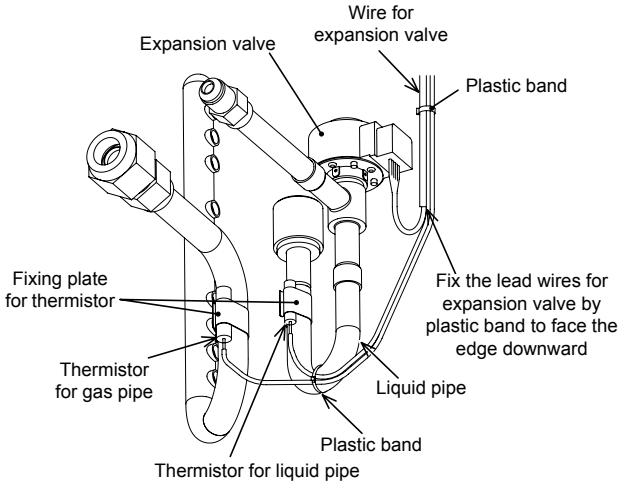
Fix lead wires (for 2 pipe thermistors and expansion valve) together by the plastic band to face the edge of vinyl tube downward as shown in the figure of the item "7.1.11 Removing electronic expansion valve coil". If the lead wires are not fixed correctly, it may cause water leakage.

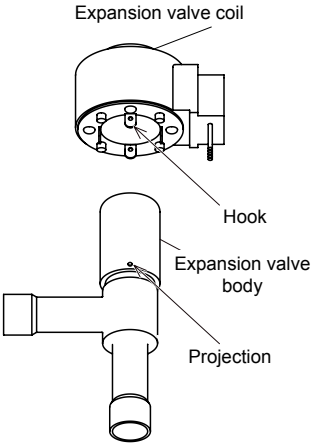
7.1.11 Removing electronic expansion valve coil

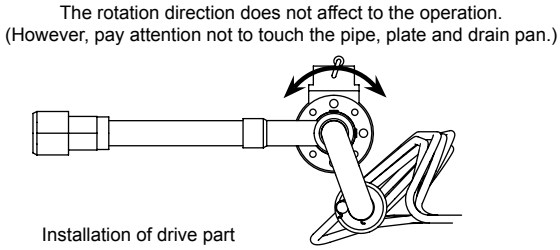
CAUTION

TURN OFF all power source switches.

1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.
2 Remove the bell-mouth according to the item *"7.1.4 Removing turbo fan and fan motor"*.
3 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.
4 Remove the partition plate according to the item *"7.1.10 Removing thermistors for liquid pipe and gas pipe"*.







5 Cut the plastic band fixing lead wires (for 2 pipe thermistors and expansion valve).
6 Remove the hooks of the expansion valve coil from the projection of the expansion valve body by a few turn of expansion valve coil. Pull up and remove the expansion valve coil. At this time, pay attention not to twist the pipes.
7 Insert the new expansion valve coil for replacement to the expansion valve body. When inserting, fix the expansion valve coil to catch the projections onto the hooks.

NOTE

- *The hooks are located each 90º, and the projections are located each 180º.*
- *The hooks shall catch onto the projections completely though the rotation direction does not affect to the operation. If the hooks do not completely catch onto the projections, it may cause malfunction of expansion valve coil.*

8 If the replacement work is completed, fix the wire for expansion valve near the expansion valve coil by plastic band. At this time, fix the lead wires for expansion valve to face the edge downward. After fixing the lead wires for expansion valve, fix again lead wires (for 2 pipe thermistors and the expansion valve) together by the plastic band.

NOTE

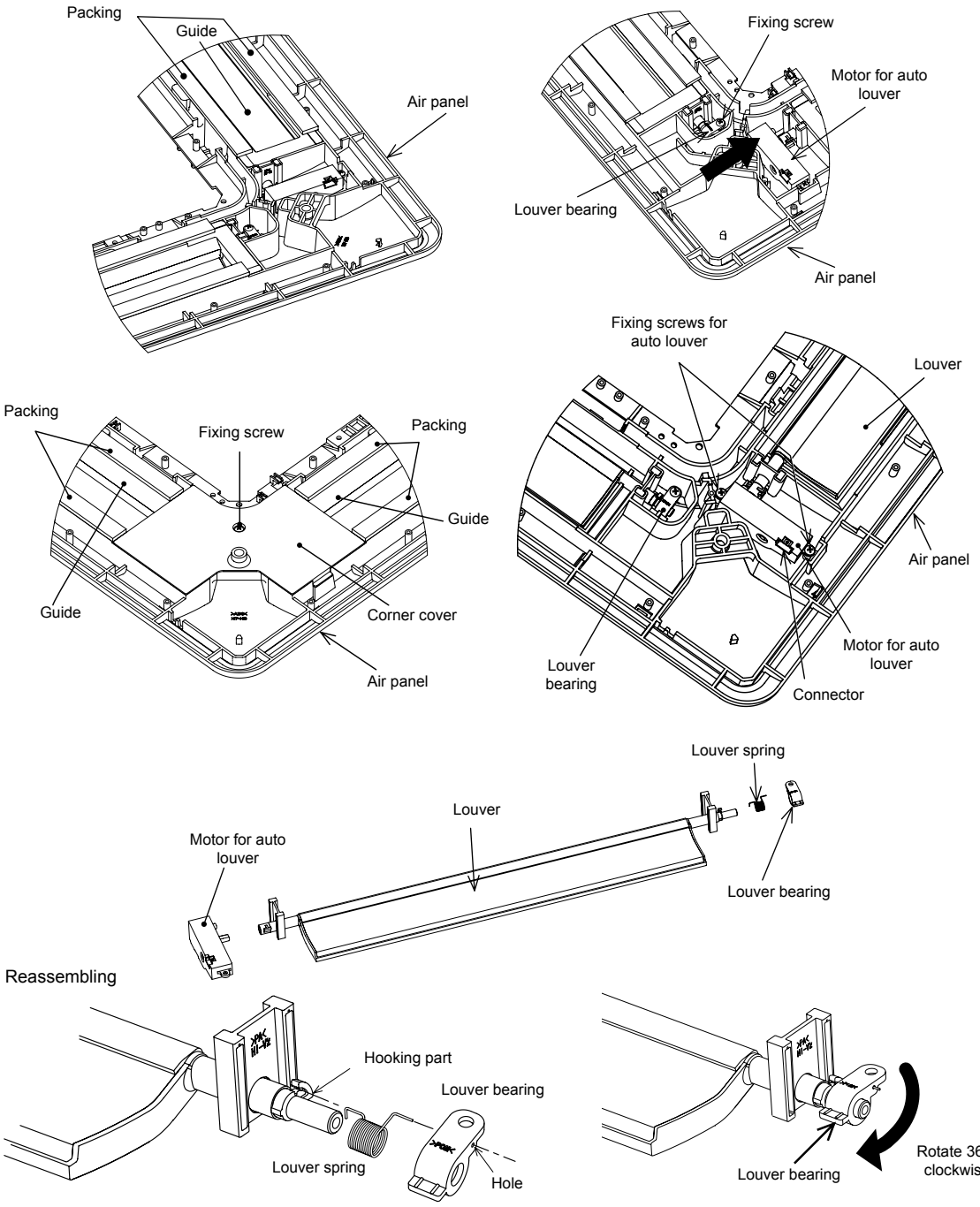
When reassembling, securely fix lead wires (for fan motor, 2 pipe thermistors and expansion valve) together by the cord clamp attaching at the partition plate.

7.1.12 Removing auto louver motors and louver

1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.
2 Remove the fixing screws for each corner cover and remove the corner covers.
3 Remove the packing and guides.
4 Remove two (2) fixing screws for each motor from the air panel.
5 Remove the screw for louver bearing, and pull it out from the air panel. Then, remove the louvres, louver bearings and motors.
6 Remove the motors from the louvres.
7 Remove each connector connected to the motors.
8 Remove each louver bearing and louver spring.

NOTE

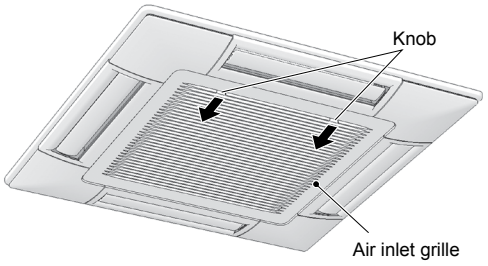
- *When reassembling, securely catch the C-shaped part of louver spring onto the hooking part of louver. Additionally, insert the L-shaped part of louver spring into the hole of louver bearing.*
- *Rotate the louver bearing 360° clockwise before fixing the screw for louver bearing.*



7.2 RCIM-(0.4-2.5)FSN4E - 4-way cassette (compact)

7.2.1 Removal of the air filter

1 The long-lasting filter is located inside the air inlet grille.
2 Press the knobs in the direction indicated by the arrows and open the air inlet grille.
3 Remove the filter from the grille by holding onto the lower part of the grille and the filter and detaching the blocked part.

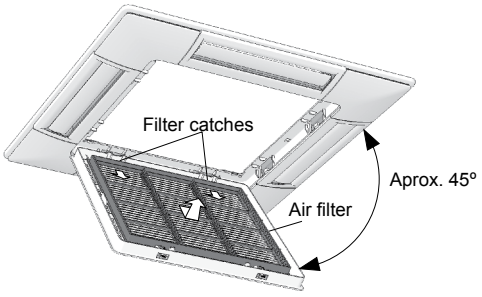


7.2.2 Removal of the air inlet grille

1 Lift the grille approximately 45° angle from the air panel surface.
2 Tilt the air inlet grille, lift it up to draw it forward

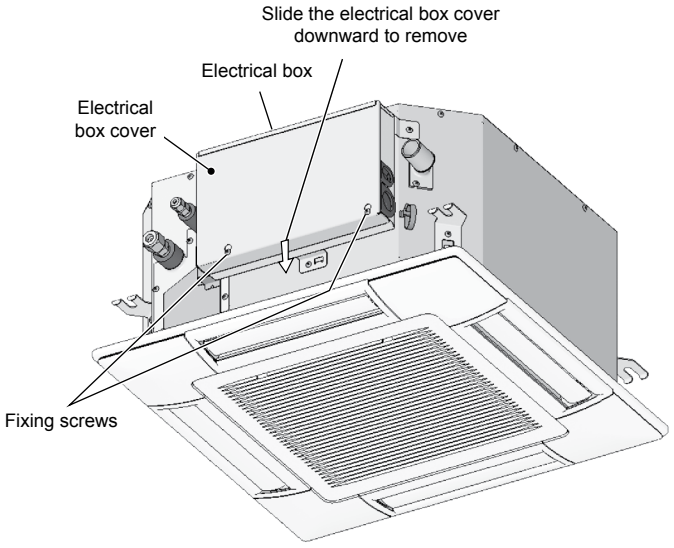
NOTE

If the louvers are to be moved, for example for cleaning purposes, select automatic swing mode to move the four louvers to the same position.



7.2.3 Removal of the electrical box cover

1 The electrical box can be removed by opening the air inlet grille.
2 Loosen 2 fixing screws from the electrical box cover and remove it.

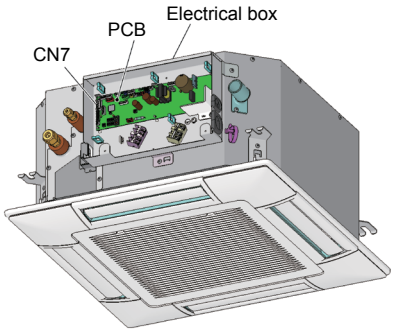


NOTE

The electrical box is placed outside the unit. Access to the electrical box must be by the hatch close to the indoor unit.

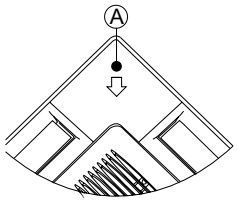
7.2.4 Removal of the optional air panel

1 Remove the auto swing motor connector (CN17) from PCB

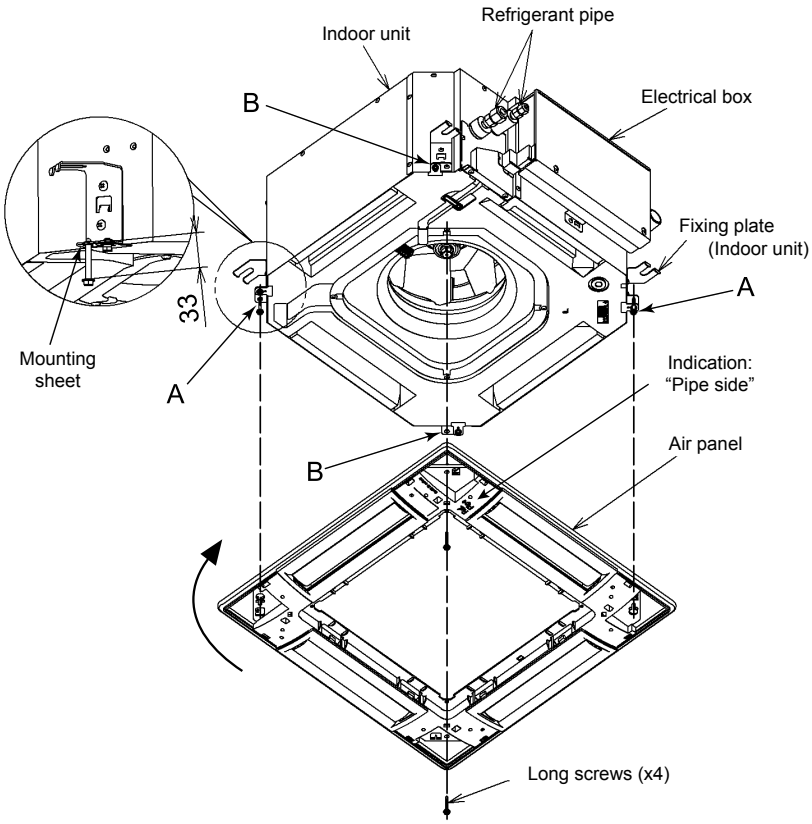


2 Remove the corner covers.

Corner covers can be removed pulling “A” part, toward the arrow direction, shown in the figure below.



3 Remove the long screws of “A” at the air panel. Loosen the long screws of “B”, and rotate the air panel to the arrow direction to remove the air panel.



7.2.5 Removal of the fan runner and the fan motor

1 Remove the air inlet grille as indicated in *"7.3.1 Removal of the air filter and the air inlet grille"*.

2 Remove the bell-mouth. Remove the 4 fixing screws attaching the bell-mouth to the drain pan and remove the bell-mouth.

3 Removing the fan guide. Remove the 8 fixing screws and remove the drain pan.

4 Removing the Fan runner and the Fan Motor

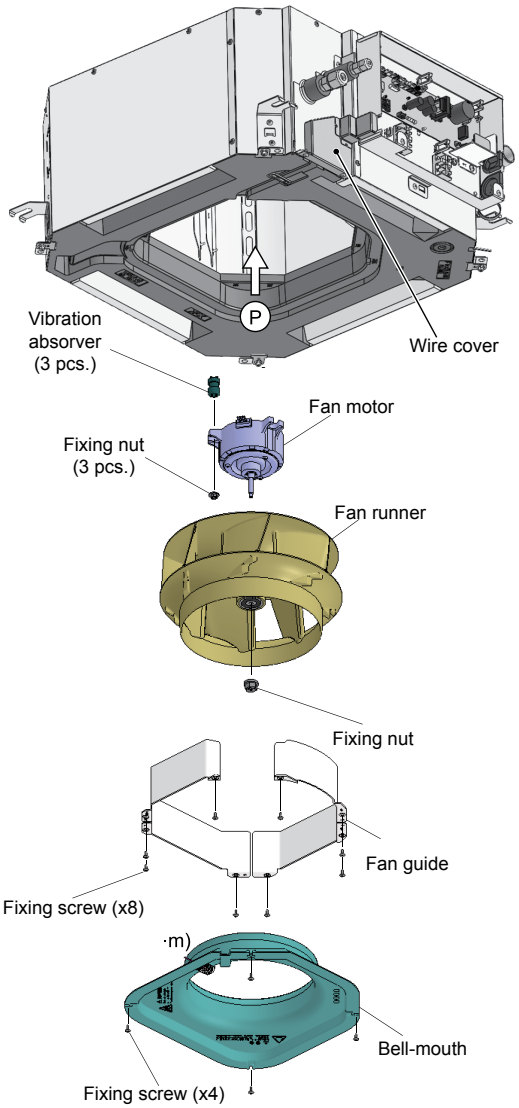
a. Remove the nut and the washer fixing the fan runner.

b. Remove 3 nuts fixing the fan motor.

c. Then remove the fan motor.

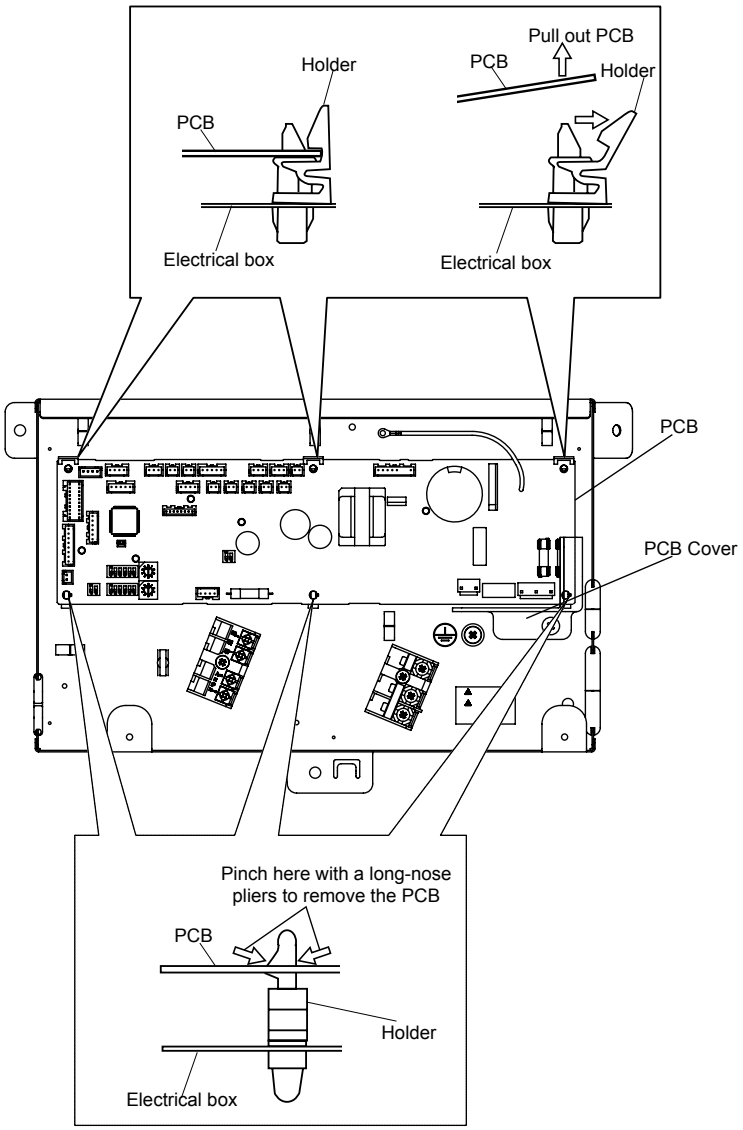
NOTE

When reassembling these parts, tighten the nuts with a tightening torque of 8N-m.



7.2.6 Removal of the printed circuit board (PCB)

1 Remove the electrical box cover as indicated in chapter *"7.2.3 Removal of the electrical box cover"*.
2 Disconnect all wire connectors from the indoor unit PCB.
3 Remove the screw fixing the earth wire terminal.
4 Remove the screw fixing the PCB cover. Then, remove the PCB cover.
5 The indoor unit PCB is fixed by 6 plastic holders. Carefully Pull out the PCB from each holder, as shown in the figure.



⚠ CAUTION

- *Do not touch the electrical components of the PCB.*
- *Do not apply force to the PCB, as this could damage it.*
- *Pay special attention to the position of the connectors on the PCB. An incorrect position during installation may damage the PCB.*

7.2.7 Removal of the drain pan

1 Remove the air panel in line with the instructions given in chapter *"7.2.4 Removal of the optional air panel"*.
2 Remove the screw of the wire cover. Then, remove the wire cover.
3 Remove the electrical box cover as indicated in chapter *"7.2.3 Removal of the electrical box cover"*.

Separate the connectors from:

a. The liquid pipe thermistor.
b. The gas pipe thermistor.
c. The electronic expansion valve.
d. The fan motor.

4 Remove the bell-mouth as described in *"7.2.5 Removal of the fan runner and the fan motor"*
5 Drain the water

a. Pull out the rubber plug from the drain pan, and drain the water remaining in the drain pan. Although silicon sealant is aplied over the rubber plug, the rubber plug can be removed by pulling the bottom side.

6 Check any clogging in the drain hole. Proceed to empty the pan of water by removing the rubber plug.

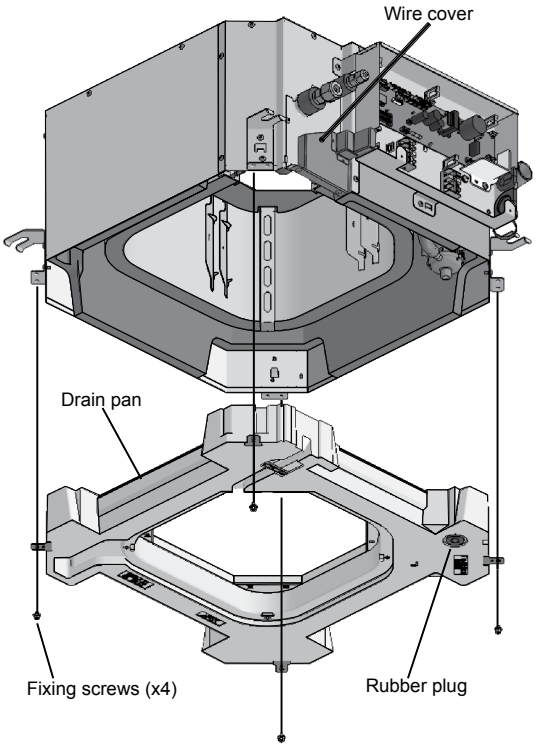
⚠ CAUTION

- *The plug is sealed with silicone but can be easily removed by pulling on the bottom of it.*
- *Do not use a knife or similar to remove the rubber plug, as this could damage it.*
- *Do not remove or damage the lower plug insulation when refitting.*

7 Remove the drain pan after removing the 4 set screws, pulling it carefully downwards.

⚠ CAUTION

- *Do not use a sharp tool, such as a screwdriver, to fit the rubber plug, as this could damage it.*
- *After fitting the plug, there must be a clearance of 2 - 3 mm between it and the drain pan.*

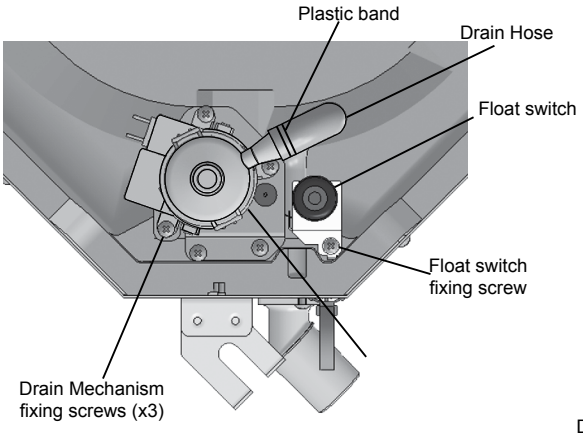


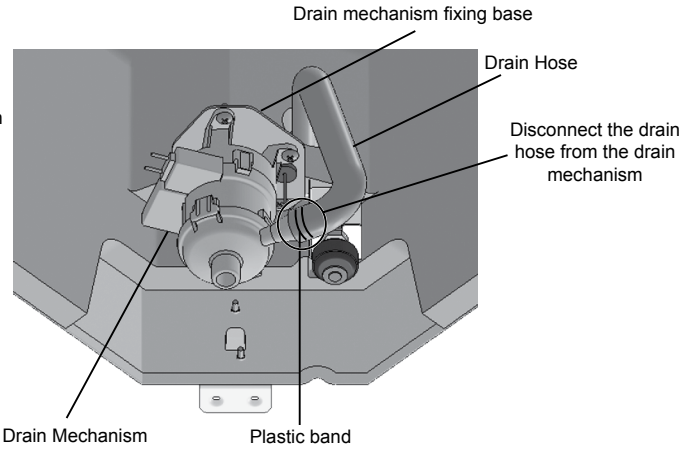
7.2.8 Removal of the drain mechanism

1 Remove the drain pan as indicated in chapter *"7.2.7 Removal of the drain pan"*.
2 Remove the lead wires of the drain pan mechanism, float switch and outlet air thermistor gathered with vinyl tube and a clamping band.
3 Cut the plastic band and disconnect the drain hose from the drain mechanism.
4 Hold the drain mechanism and remove the 3 screws from the mechanism securing plate.
5 Remove the mechanism with the securing plate.

NOTE

- *When installing, fit the drain hose as far as possible in the pump.*
- *After attaching the drain mechanism, check that the drain hose does not contact the fixing base of the drain mechanism. If it contacts, adjust the position of the drain hose.*
- *When reassembling, wrap up the lead wires for the drain mechanism, the float switch, and the outlet air thermistor together with the vinyl tube, seal with filament tape and then tighten with the clamping. Fix the gathered wires with the plastic band attached to the fixing base of the drain mechanism.*





7.2.9 Removal of the float switch

1 Remove the drain pan as indicated in chapter *"7.2.7 Removal of the drain pan"*.
2 Remove the lead wires for the drain mechanism, the float switch and the outlet air thermistor, as described in section *"7.2.8 Removal of the drain mechanism"*

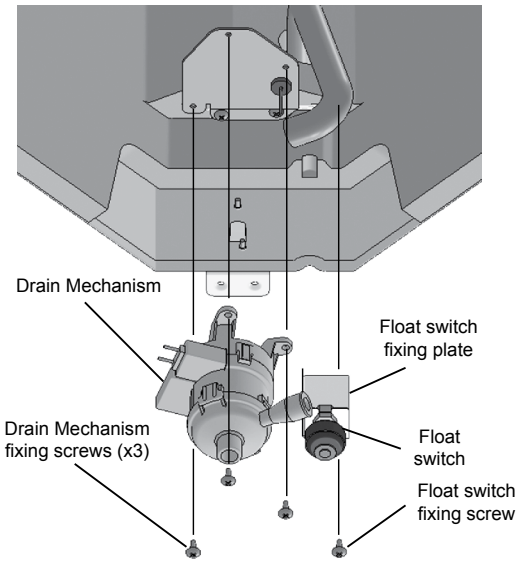
NOTE

The float switch is attached to the drain pan.

3 Remove the 3 screws securing the drain mechanism to remove the mechanism.
4 Remove the fixing plate for the float switch by removing the fixing screws.
5 Loosen the resin nut securing the float switch and remove it.

NOTE

- *When refitting, make sure the hook is fitted into the groove in the drain pan and screw into place.*
- *The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.*



7.2.10 Removal of the thermistors from the liquid and gas pipes

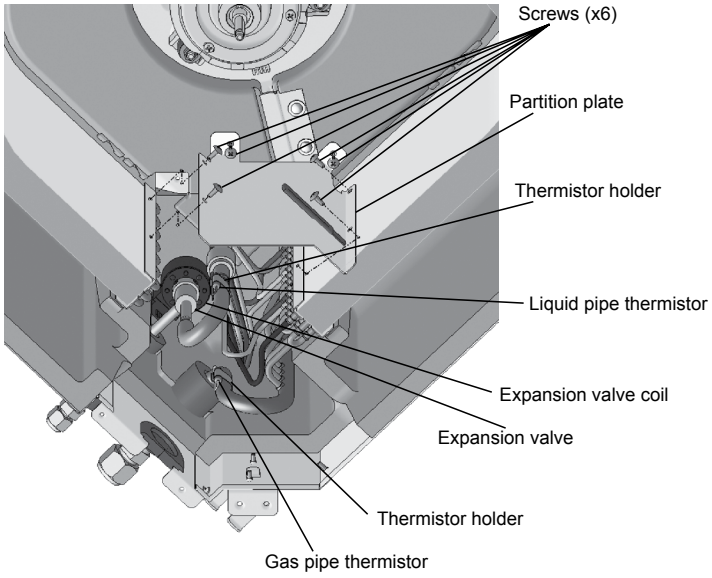
1 Remove the optional air panel in line with the instructions given in chapter *"7.2.4 Removal of the optional air panel"*.
2 Remove the bell-mouth and the fan runner as explained in chapter *"7.2.5 Removal of the fan runner and the fan motor"*.
3 Remove the drain pan as indicated in chapter *"7.2.7 Removal of the drain pan"*.
4 Remove the evaporator partition plate securing the heat exchanger by removing the five screws.
5 Remove the thermistors:

a. Remove the butyl sheet attached to each thermistor

b. Remove each thermistor for the gas and the liquid pipe. Note that each thermistor is fixed with a thermistor holder.

NOTE

- *The thermistor protection and securing system is the same on the gas and liquid pipe.*
- *The thermistors are secured with brackets.*

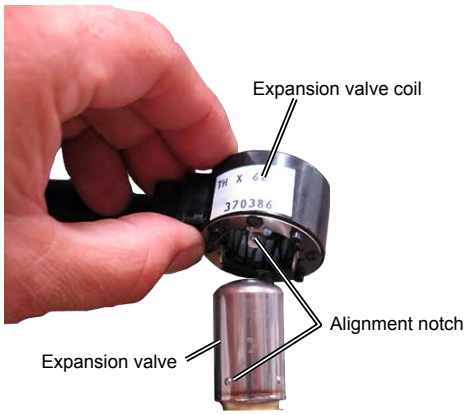


7.2.11 Removal of the electronic expansion valve coil

1 Remove the optional air panel in line with the instructions given in chapter *"7.2.4 Removal of the optional air panel"*.
2 Remove the bell-mouth and the fan runner as indicated in chapter *"7.2.5 Removal of the fan runner and the fan motor"*.
3 Remove the evaporator partition plate securing the heat exchanger by removing the five screws.
4 Remove the electronic expansion valve butyl sheet.
5 Remove the expansion valve coil by firmly pushing it.

NOTE

The coil has a fixation system which comprises a protrusion at the Expansion valve that has to match with the orifices located at the coil (see the picture beside), called alignment notch.

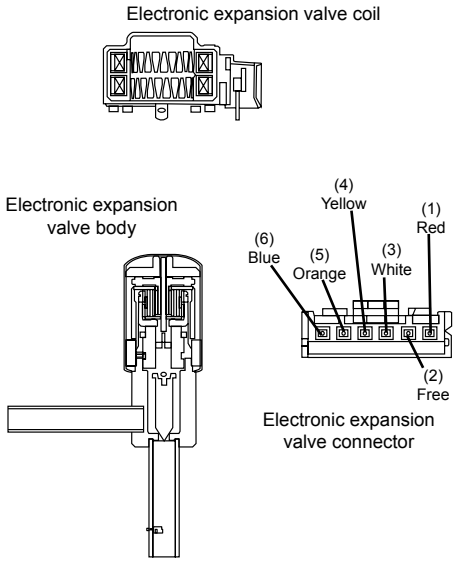


6 Once replaced, fit the electronic expansion valve in the reverse manner as indicated for the removal process.

7 Position the butyl sheet, attaching it correctly to the valve.

NOTE

Check that the cables do not touch the fan duct after installation is complete.



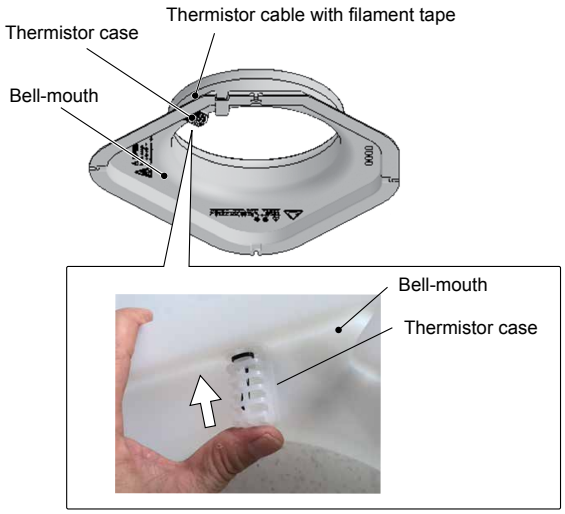
7.2.12 Removal of the inlet air thermistor

1 Remove the air inlet thermistor.

2 Remove the bell-mouth as described in *"7.2.5 Removal of the fan runner and the fan motor"*

3 Tear off the filament tape, then remove the thermistor cable attached to the bell-mouth.

4 Push the thermistor case to the direction shown in the picture below to remove the air inlet thermistor with the thermistor case.



7.2.13 Removal of the automatic louver motor

1 Stop the automatic louver:

a. Press AUTO LOUVER on the remote control while the automatic louver is operating.

b. The crank touches the end of the motor securing plate and the louver returns to position 0.

c. The motor power supply switches off when the louver is at the set position.

d. The louver stops at the set position.

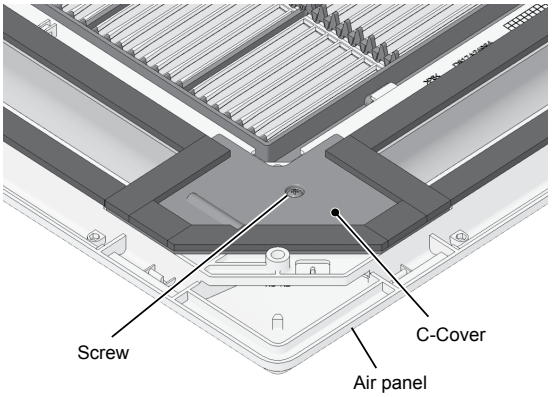
2 Remove the optional air panel in line with the instructions given in chapter *"7.2.4 Removal of the optional air panel"*.

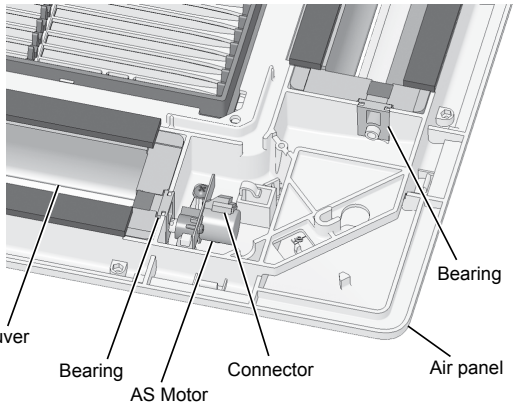
3 Remove the fixing screw for C-cover and remove the C-cover.

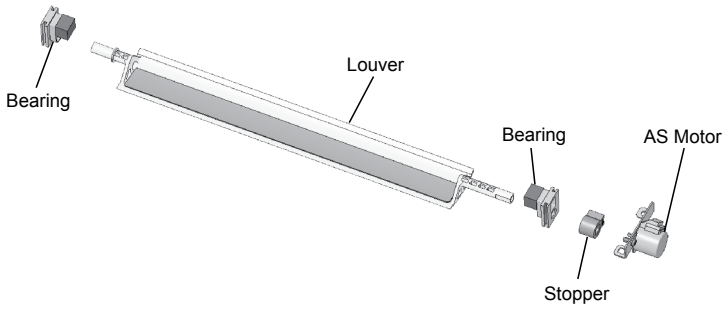
4 Remove the fixing screw on the AS motor from the air panel. Then, remove the louver, the louver bearing and the AS motor.

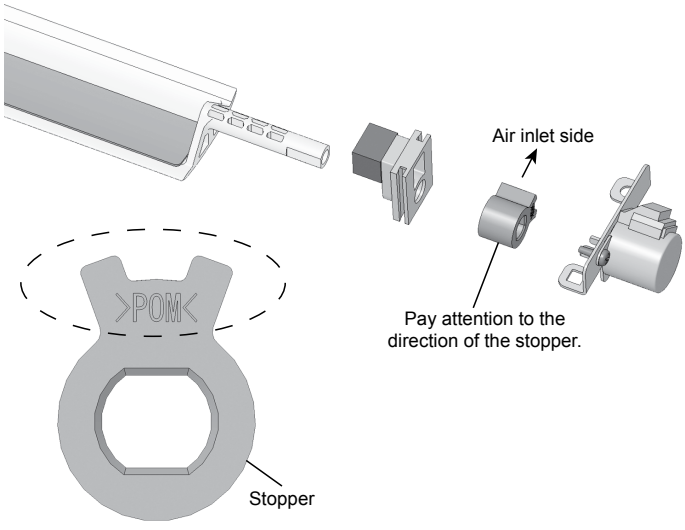
5 Remove the AS motor, stopper and bearing from the louver.

6 Disconnect the connector for the AS motor. Press the catch to disconnect the connector to avoid breakage.









7.3 RCD-(0.8-6.0)FSN3 - 2-way cassette

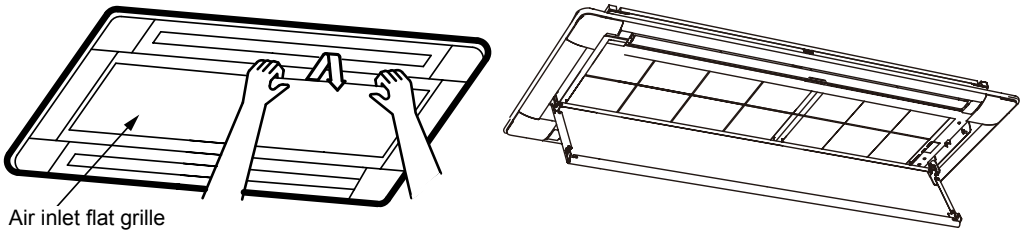
7.3.1 Removal of the air filter and the air inlet grille

NOTE

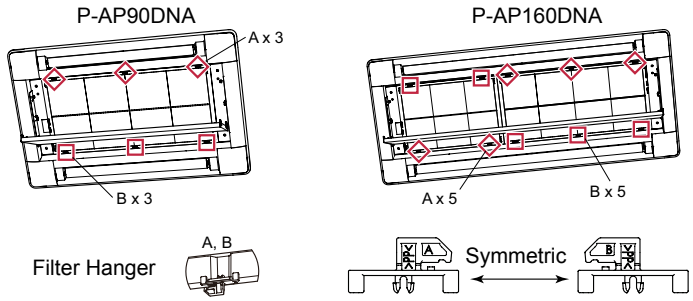
The Air filter is located inside the air inlet grille.

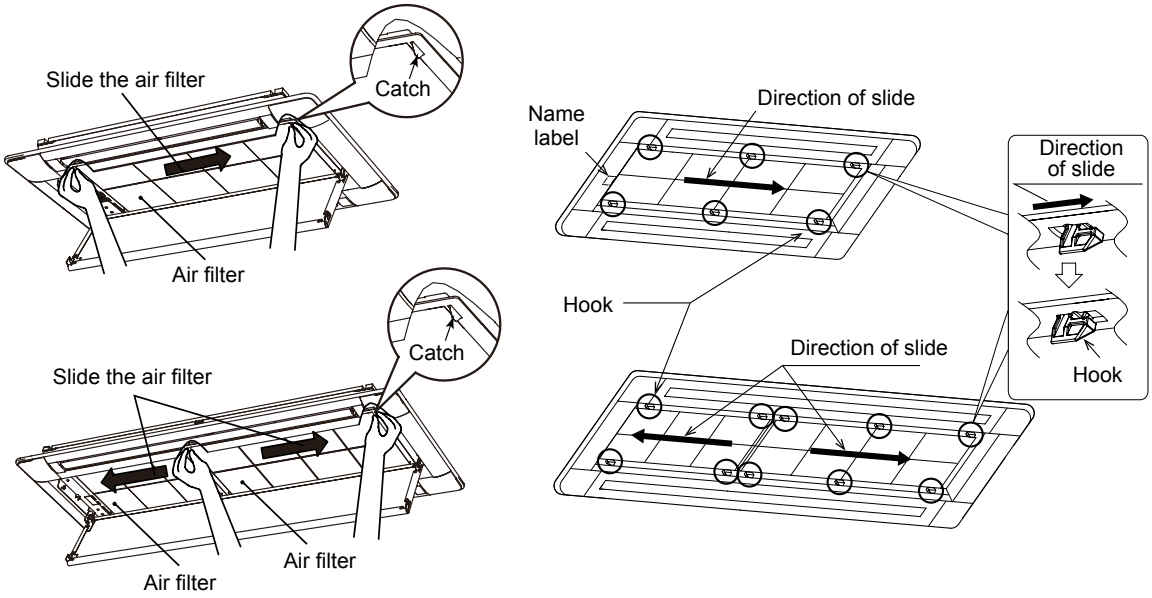
1 Open the air inlet flat grille.

Slide the air suction grille to the front side while pushing it up gently from the opposite side, then open the air suction grille downwards.



2 Slide the air filter in the arrow direction as shown below and release hooks on both sides to remove the air filter





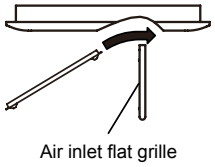
NOTE

- *Be sure to attach the air filter. If the indoor unit is operated without the air filter, it may cause malfunction of the indoor unit.*
- *Make sure that the air inlet flat grille is securely locked with the knobs. If it is not properly locked, it might open suddenly, resulting in the grille falling.*

◆ Method of Attaching Air Filter

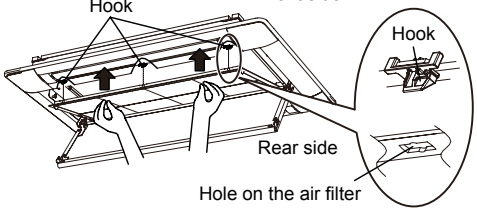
a. Place the air filter on the top of the air inlet flat grille.

b. Hold the trim of the air filter.

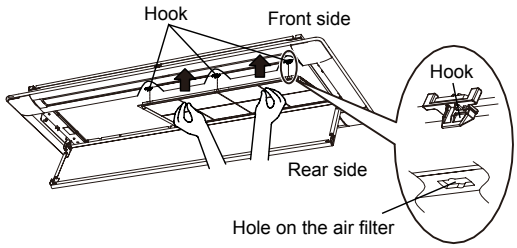


c. Insert the hooks into the holes on the air filter.

P-AP90DNA

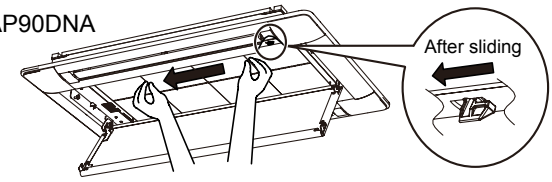


P-AP160DNA

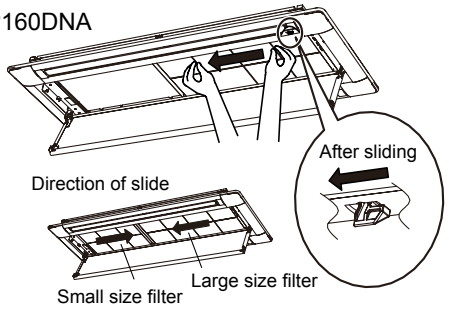


d. Slide the air filter only on the front side in order to lock the hooks.

P-AP90DNA



P-AP160DNA



e. Attach the air filter on the rear side.

3 Remove the air inlet flat grille

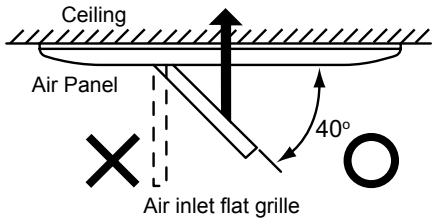
Remove the supporting string from the air panel.

- Open the air inlet flat grille at an approximately 40° angle from the air panel surface.
- Tilting the air inlet flat grille, lift it up to remove it.

NOTE

Although the air inlet flat grille can be opened up to 90°, it cannot be removed from the air panel at the angle. Tilt it at a 40° angle when removing it.

Tilting the air inlet flat grille, lift it up to remove it.



Attach the air inlet flat grille in the reverse procedure for removing. The supporting string is attached to the side plate.

7.3.2 Removal of the electrical box

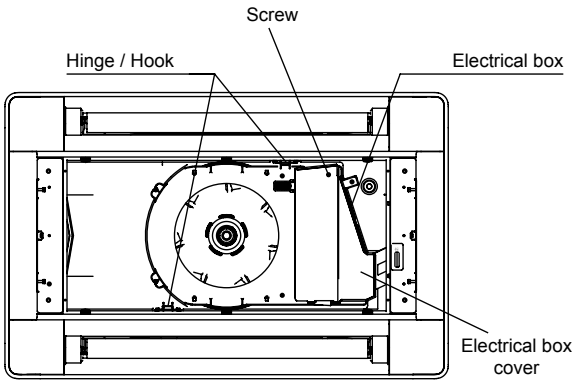
NOTE

The Electrical box appears when opening the air inlet grille.

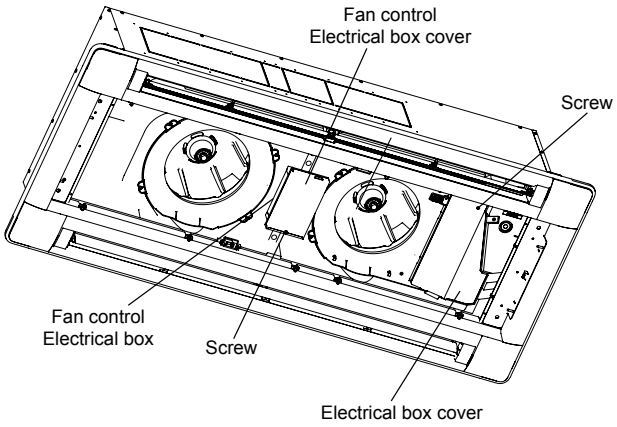
1 Open the air inlet grille.

2 Loosen the screw securing the electrical box cover. The electrical box cover does not need to be removed but keep hooked for maintenance work.

RCD-(0.8-3.0)FSN3



RCD-(4.0-6.0)FSN3

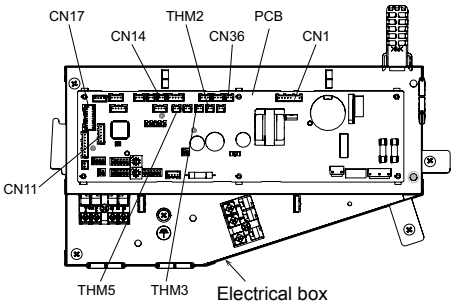


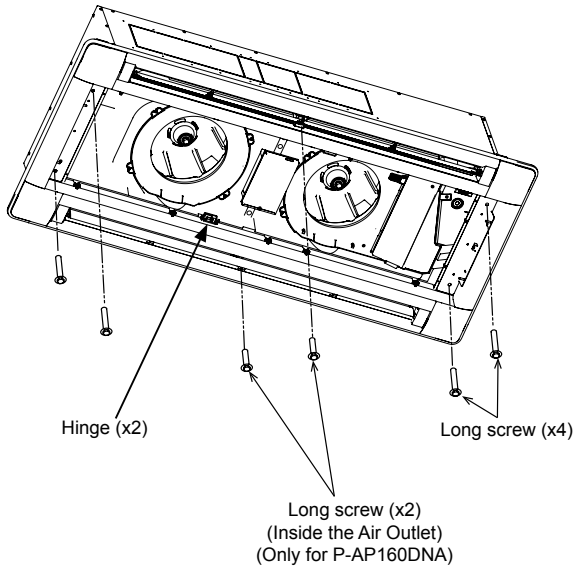
CAUTION

Pay attention during the removing work as the Electrical box may fall.

7.3.3 Removal of the optional air panel

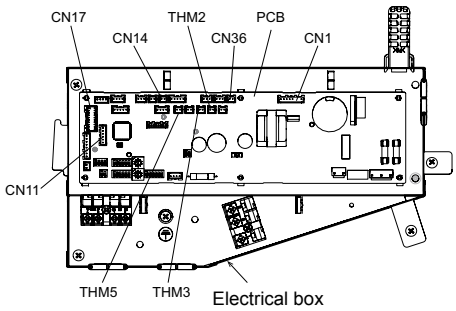
1 Open the air inlet grille.
2 Remove the electrical box cover.
3 Remove the connector (CN17) of the automatic louver on the indoor unit PCB.
4 Hang the air panel from the indoor unit by hooking the hinges and remove the long screws (4 for P-AP90DNA, 6 for P-AP160DNA) for air panel.
5 Then, remove the air panel by unhooking the hinges (x2) from the indoor unit drain pan.





7.3.4 Removal of the fan duct and the fan

1 Remove the electrical box cover according to the item *"7.1.2 Removing electrical box cover"*.
2 Remove the electrical box.
   a. Remove the outlet air thermistor (THM2), the drain-up mechanism connector (CN36), the float switch connector (CN14), the liquid pipe and gas pipe thermistors (THM5, THM3), the expansion valve (CN11), the fan motor connector (CN1) and the auto louver motor connector (CN17) from the PCB.
   For RCD-(4.0-6.0)FSN3, remove the fan control lead wire (x2) from the bell-mouth then remove the fan motor connector (CN4) inside the fan control electrical box.
   b. Remove the 2 fixing screws for the electrical box and remove the electrical box.
   For RCD-(4.0-6.0)FSN3, remove the 2 fixing screws for the fan control electrical box and remove the fan control electrical box.



3 Removing the Bell-mouth. Remove 4 fixing screws for the bell-mouth fixed to the drain pan, and remove the bell-mouth (1 Bell-mouth for RCD-(0.8-3.0)FSN3, 2 bell-mouth for RCD-(4.0-6.0)FSN3).

4 Removing Turbo Fan and Fan Motor:

a. Hold the turbo fan and remove the fixing nut then remove the turbo fan.

b. Remove the 2 screws from the plate holding the fan motor lead wire then remove the fan motor.

c. Remove the fan motor lead wire from 2 code clamp for evaporator partition plate.

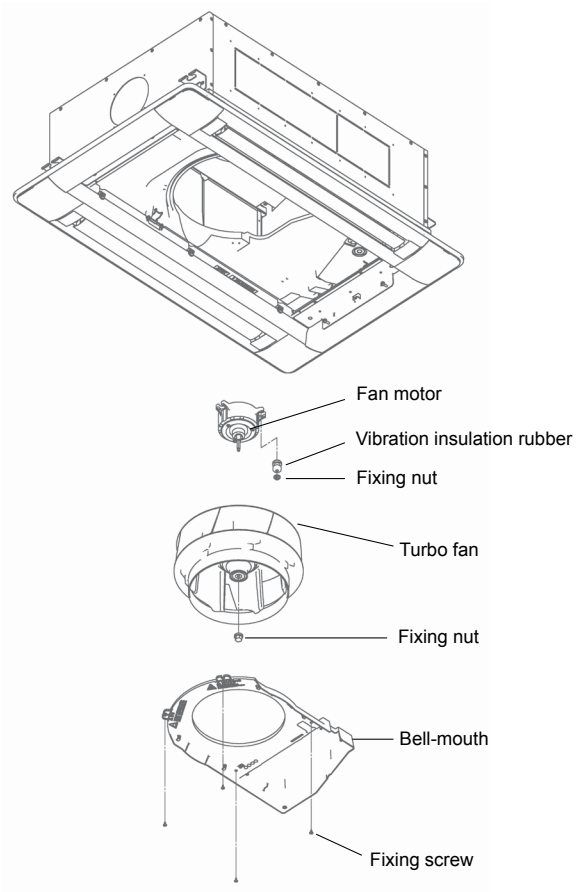
d. Remove the fixing nut and 3 vibration insulation rubber fixing the fan motor then remove the fan motor.

e. For RCD-(4.0-6.0)FSN3, remove the fan motor lead wire from 1 code clamp for fan partition plate placed on the centre of the indoor unit.
Remove the fixing nut and 3 vibration rubber fixing the fan motor the remove the fan motor.

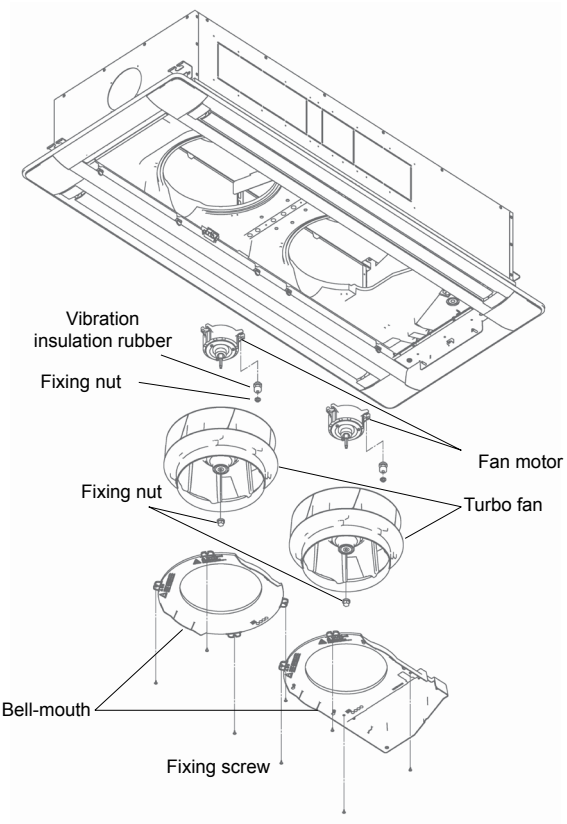
f. For reassembling, fix the bell-mouth to the drain pan with fixing screws temporarily then fix the fan motor lead wire to 2 code clamp for the evaporator partition plate.
For RCD-(4.0-6.0)FSN3, fix the fan motor lead wire to 1 code clamp for the fan partition plate placed on the centre of the indoor unit.

g. Center the turbo fan and bell-mouth to get enough clearance then fasten the fixing screws.

RCD-(0.8-3.0)FSN3



RCD-(4.0-6.0)FSN3

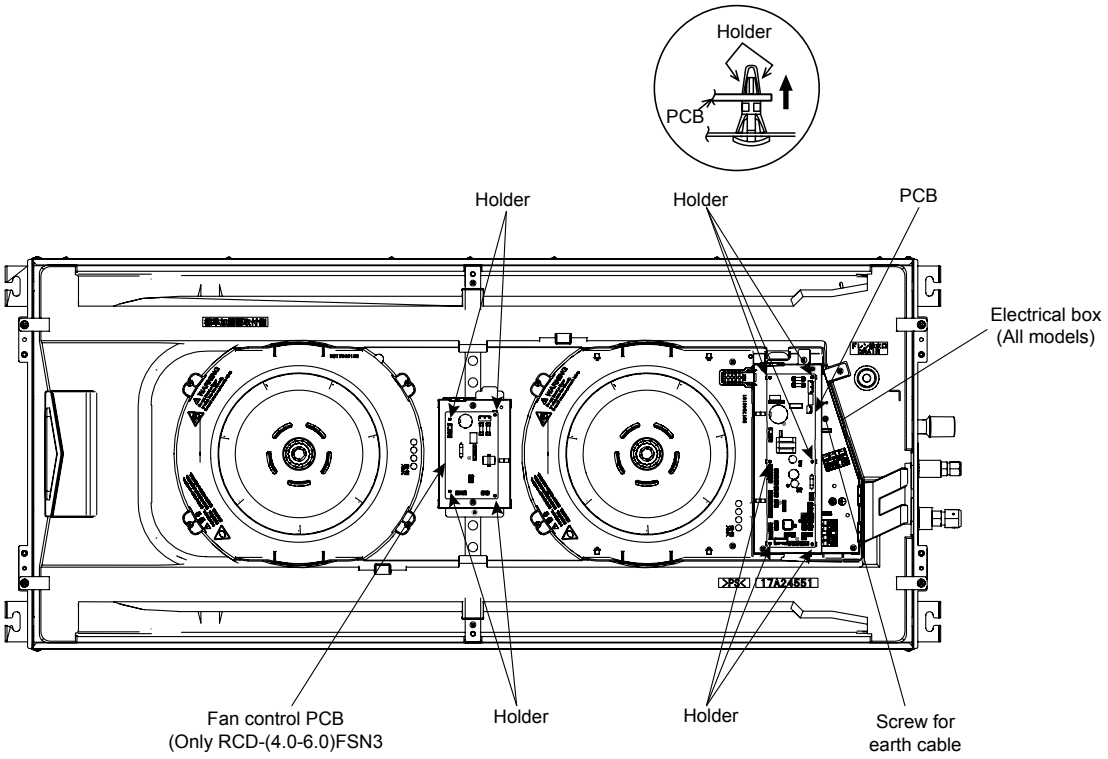


7.3.5 Removal of the printed circuit board (PCB)

1 Remove the electrical box cover according to the item *"7.1.2 Removing electrical box cover"*.
2 Disconnect all wire connectors from the indoor unit PCB.
3 Remove the screw for earth wire.
4 Remove the screw then remove the PCB cover.
5 The indoor unit PCB is fixed by holders (6 holders for PCB, 4 holders for fan control PCB). Pinch the holder with long-nose pliers and pull out PCB from the holders.

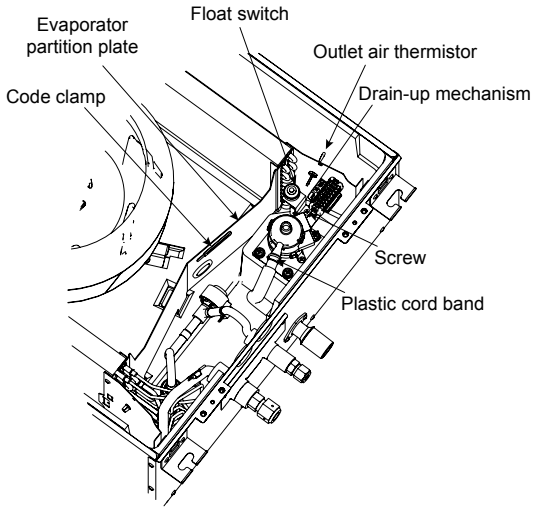
⚠ CAUTION

- *Do not touch the electrical components of the PCB.*
- *Do not apply force to the PCB, as this could damage it.*
- *The sealed earthing cable and the transformer are secured by a screw. When installing, be particularly careful not to overtighten the set screw.*
- *Make sure that all connectors are properly connected. Otherwise the Indoor unit PCB maybe be damaged.*



7.3.6 Removal of the float switch

1 Remove the Drain pan, as explained in *"7.3.8 Removal of the drain pan"*
2 Remove the lead wires for the Drain up mechanism, the Float switch and the Outlet air thermistor, as explained in *"7.3.6 Removal of the float switch"*
3 Remove the Float switch lead wire from the core clamp at the evaporator partition plate.
4 Cut the plastic cord bands gathering the lead wires of the Float switch, the drain mechanism and the Outlet air thermistor.
5 Remove the Float switch by removing the fixing screws of the Float switch fixing plate and remove the Float switch.

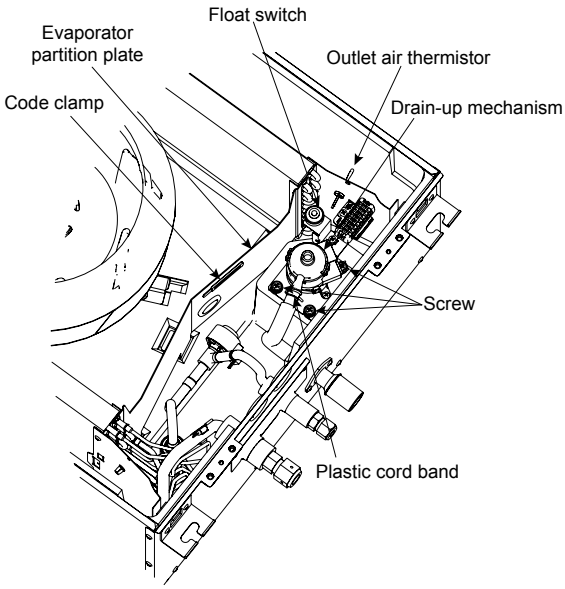


NOTE

- *for the reassembling, proceed in the reverse way than disassembling.*
- *The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.*

7.3.7 Removal of the drain mechanism

1 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.
2 Remove the drain-up mechanism lead wire from the code clamp attached to the evaporator partition plate.
3 Cut the clamping band gathering the lead wires for drain-up mechanism, float switch and outlet air thermistor.
4 Spread out the plastic band for drain hose the remove the drain hose from drain-up mechanism.
5 Remove three fixing screws for the drain-up mechanism. Make sure to hold the drain-up mechanism by hand so that it will not fall off.
6 Then remove the drain-up mechanism.



7.3.8 Removal of the drain pan

1 Remove the air panel according to the item *"7.1.4 Removing turbo fan and fan motor"*.
2 Remove the screw then remove the wire cover.
3 Remove the electrical box cover according to the item *"7.1.2 Removing electrical box cover"*.
Disconnect the connectors of the gas pipe thermistor, the liquid pipe thermistor, the expansion valve and the fan motor.
4 Remove the bell-mouth according to the item *"7.1.4 Removing turbo fan and fan motor"*.
5 Draining:

a. Pull out the rubber plug from the drain pan, and drain the water remaining in the drain pan. Although silicon sealant is applied over the rubber plug, the rubber plug can be removed by pulling the bottom side.

NOTE

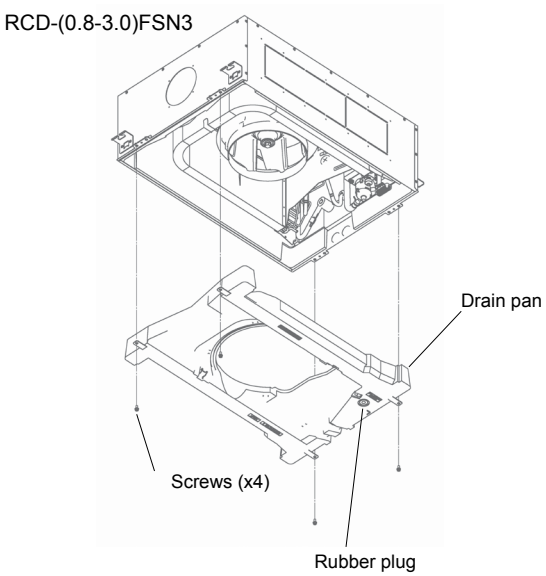
Be careful not to damage the rubber plug with a cutter knife.

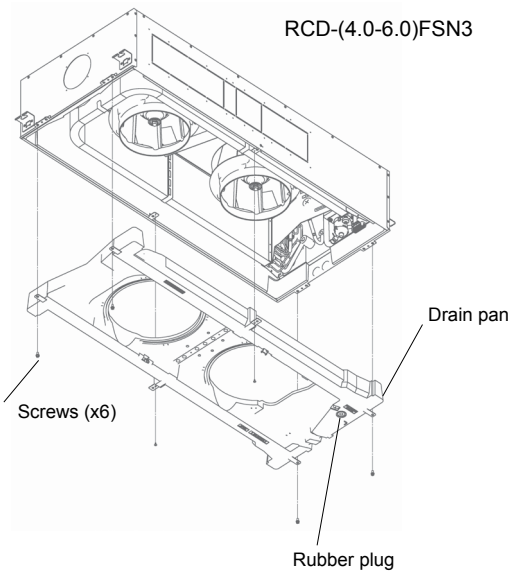
b. Check any clogging in the drain hole.

6 Removing Drain Pan

a. Remove the screws fixing the drain pan to the unit (4 screws for RCD-(0.8-3.0)FSN3, 6 screws for RCD-(4.0-6.0)FSN3).

b. Then remove the drain pan from the unit.





7.3.9 Removal of the thermistors from the liquid and gas pipes

1 Remove the air inlet grille as indicated in chapter *"7.3.1 Removal of the air filter and the air inlet grille"*.

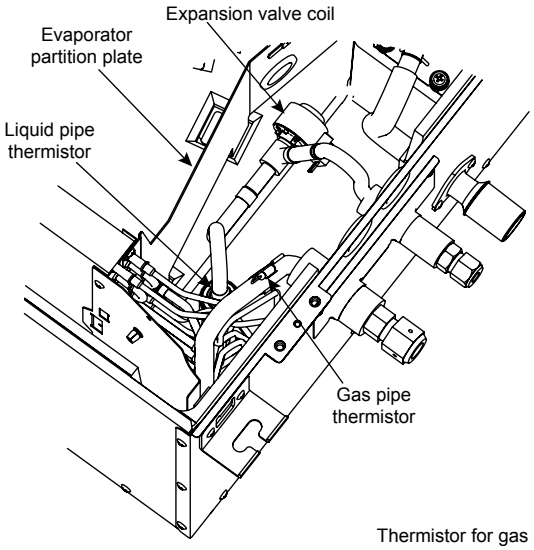
2 Remove the fan duct and the fan as indicated in chapter *"7.3.4 Removal of the fan duct and the fan"*.

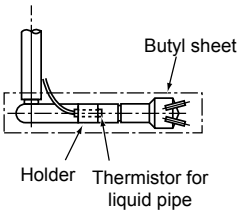
3 Remove the drain pan as indicated in chapter *"7.3.8 Removal of the drain pan"*.

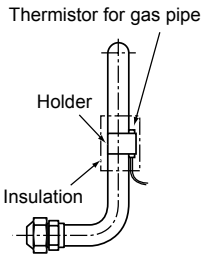
4 Remove the butyl sheet covering the thermistor. Remove the plate securing the thermistor to the pipe on which it is located and remove.

NOTE

- *The thermistor protection and securing system is the same on the gas and liquid pipe.*
- *The thermistors are secured with brackets.*







7.3.10 Removal of the electronic expansion valve coil

1 Remove the optional air panel in line with the instructions given in chapter *"7.2.4 Removal of the optional air panel"*.
2 Remove the bell-mouth and the fan runner as indicated in chapter *"7.2.5 Removal of the fan runner and the fan motor"*.
3 Remove the evaporator partition plate securing the heat exchanger by removing the five screws.
4 Remove the electronic expansion valve butyl sheet.
5 Remove the expansion valve coil by firmly pushing it.

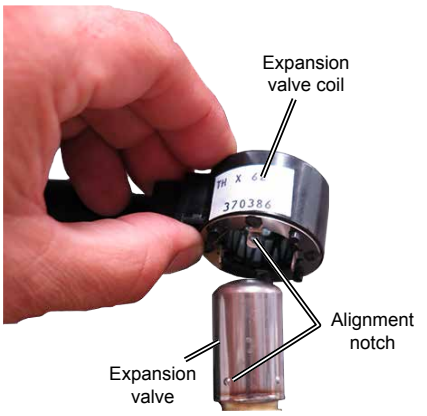
NOTE

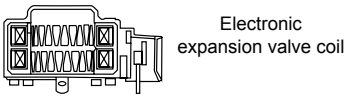
The coil has a fixation system which comprises a protrusion at the Expansion valve that has to match with the orifices located at the coil. (See the picture beside), called alignment notch.

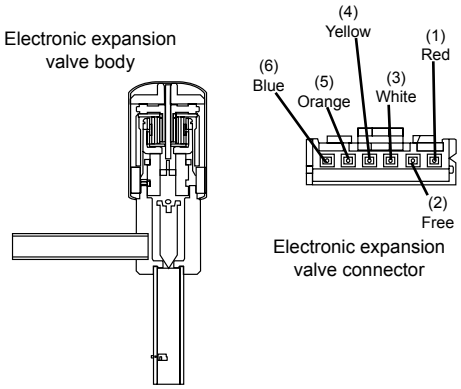
6 Once replaced, fit the electronic expansion valve in the reverse manner as indicated for the removal process.
7 Position the butyl sheet, attaching it correctly to the valve.

NOTE

Check that the cables do not touch the fan duct after installation is complete.







7.3.11 Removal of the automatic louver motor

1 Stop the automatic louver:

a. Press AUTO LOUVER on the remote control while the automatic louver is operating.

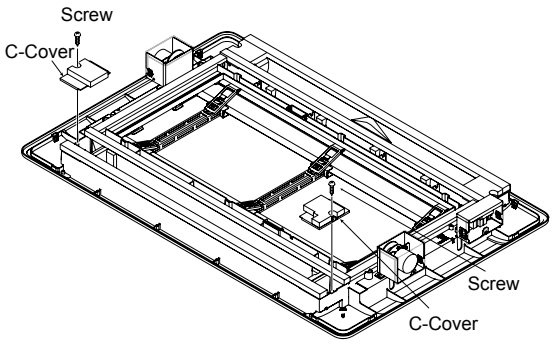
b. The crank (2) touches the end of the motor securing plate (7) and the louver returns to position 0.

c. The motor (1) power supply switches off when the louver is at the set position.

d. The louver (6) stops at the set position.

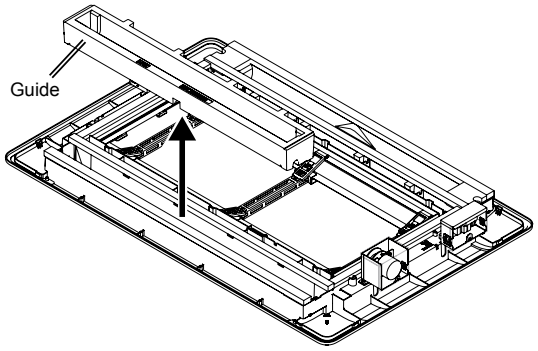
2 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.

3 Remove the fixing screw for C-cover and remove the C-cover.



4 Peel off the off the panel rib for the sealing gasket the remove the guide.

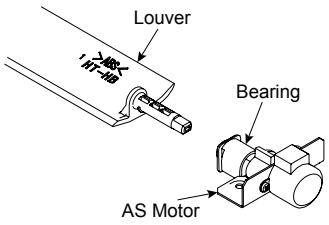
5 Pull the guide upwards and remove it.

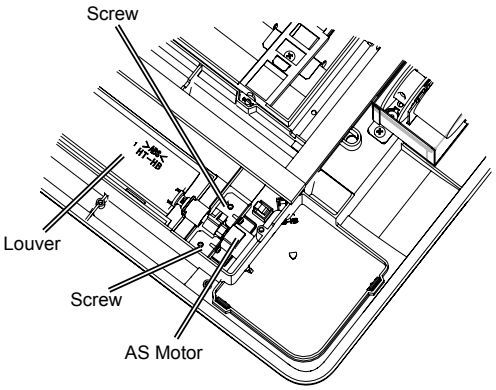


6 Disconnect the connector from the AS motor.

7 Remove two fixing screws for AS motor from the air panel. Then remove the louver and AS motor form the air panel.

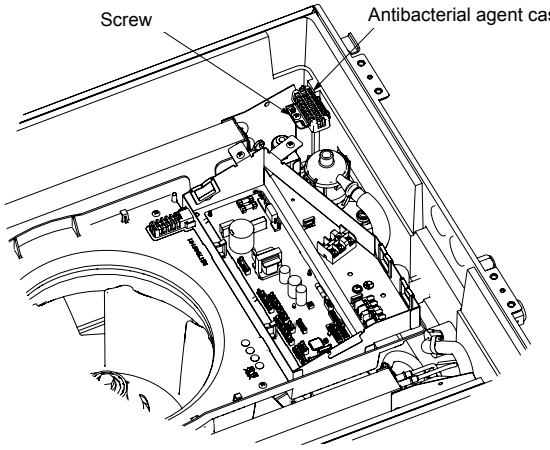
8 Remove the louver from the bearing for AS motor.





7.3.12 Remove the anti bacterial agent case

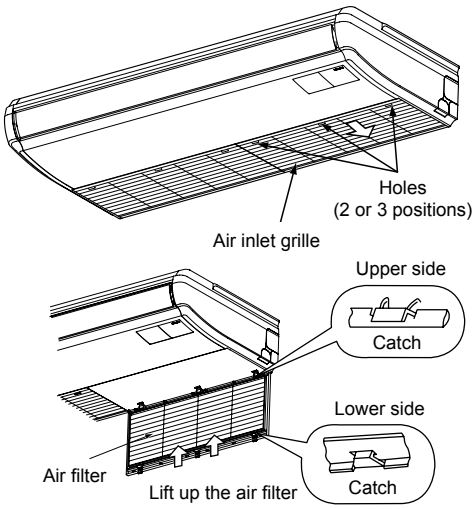
1 Remove the air panel according to the item *"7.1.3 Removing optional air panel"*.
2 Remove the bell-mouth and turbo fan according to the item *"7.1.4 Removing turbo fan and fan motor"*.
3 Remove the drain pan according to the item *"7.1.6 Removing drain pan"*.
4 Remove 1 screw for antibacterial agent case then remove the antibacterial agent case.



7.4 RPC-(1.5-6.0)FSN3 - Ceiling type

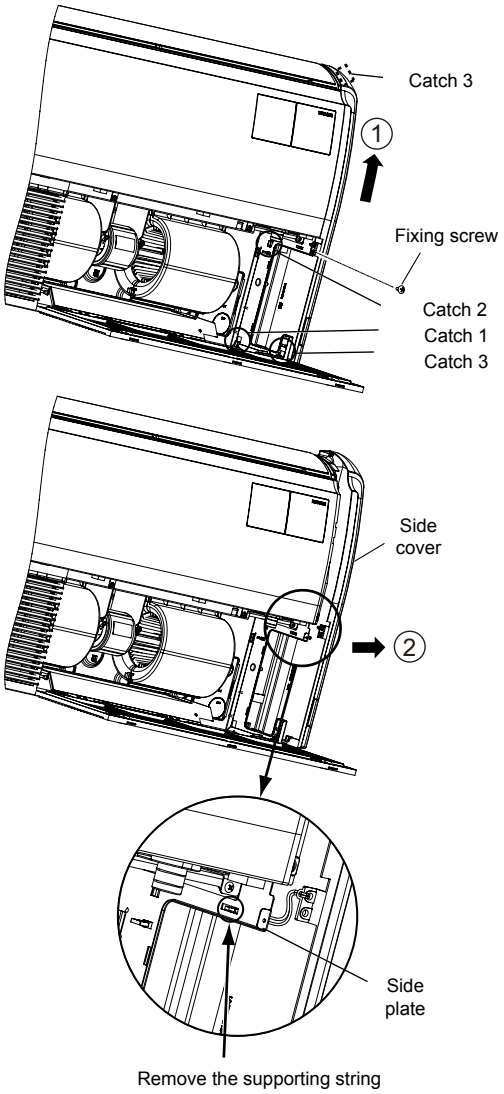
7.4.1 Removing air filter and air inlet grille

1 The air filter is attached inside the air inlet grille. Open the air inlet grille and remove the air filter.
2 Press and slide the cover of the air inlet grille in the direction of the arrow with fingers in the holes on the cover.
3 Then the air inlet grille is opened downward.
4 Lift up the air filter and release the catches on the air inlet grille to remove the air filter.



7.4.2 Removing side cover

1 Open the air inlet grille downward according to the item *"7.4.1 Removing air filter and air inlet grille"*.
2 Remove the fixing screw for side cover.
3 Slide the side cover in the direction of the arrow (①) and release 3 catches. Then remove the side cover in the direction of the arrow (②).
4 Remove the supporting string from the side plate.



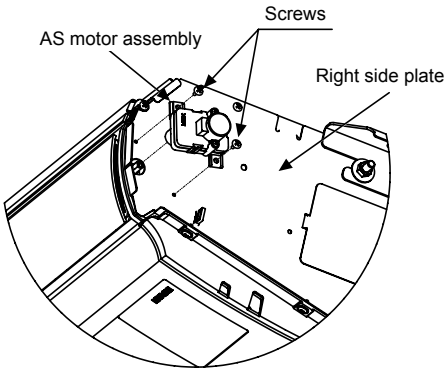
7.4.3 Removing louver

1 Remove the side covers according to *"7.4.2 Removing side cover"*.

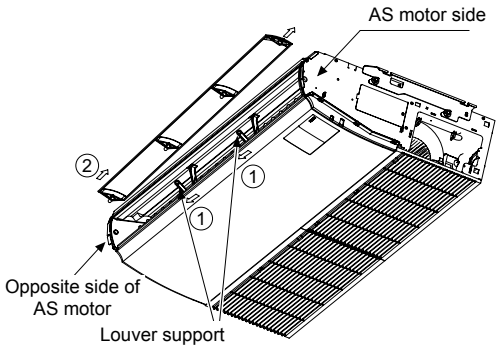
2 Remove 2 screws fixing AS motor assembly to the right side plate.

NOTE

The louver includes the linkage brackets.



3 Bend the louver support (①) slightly and remove the louver from the louver support. Bend the louver in the direction of the arrow (②). Remove the louver shaft on the opposite side of the AS motor and then pull out the louver.



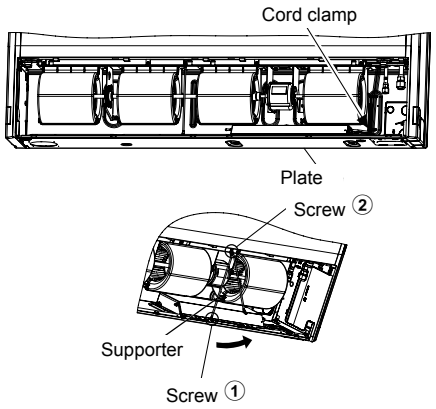
7.4.4 Removal of the fan motor

1 Open the air inlet grille as indicated in chapter *"7.4.1 Removing air filter and air inlet grille"*.

2 Open the air inlet grille downward according to the item *"7.4.1 Removing air filter and air inlet grille"*.

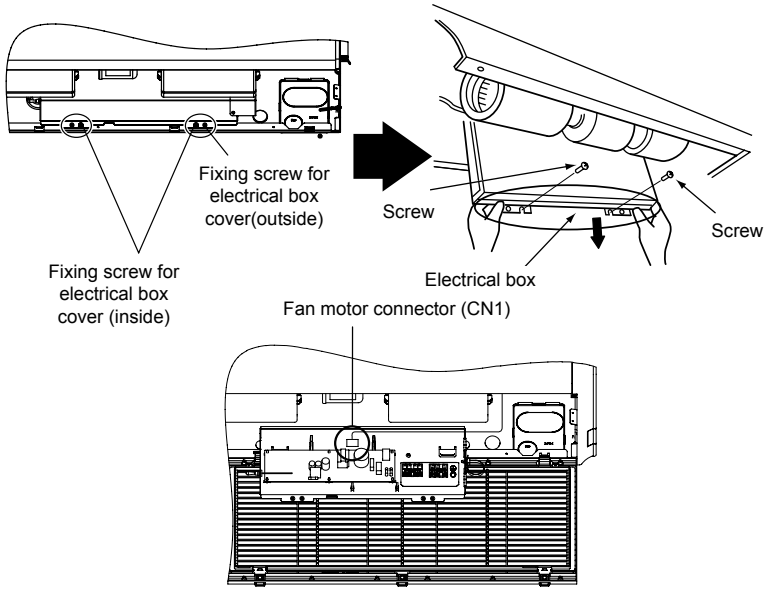
3 Remove the lead wires from the cord clamp on the plate (1 portion). (Only for RPC-(2.5/3.0)FSN3)

4 Remove the fixing screw for supporter (①) and loosen the fixing screw (②). Then rotate the supporter in the direction of the arrow.



5 Remove 2 fixing screws for the electrical box cover. Remove 2 fixing screws for the electrical box and hook the electrical box on the frame at the lower part of the unit. Hold the electrical box not to drop it during the work.

6 Remove the fan motor connector (CN1) from the Indoor Unit PCB.

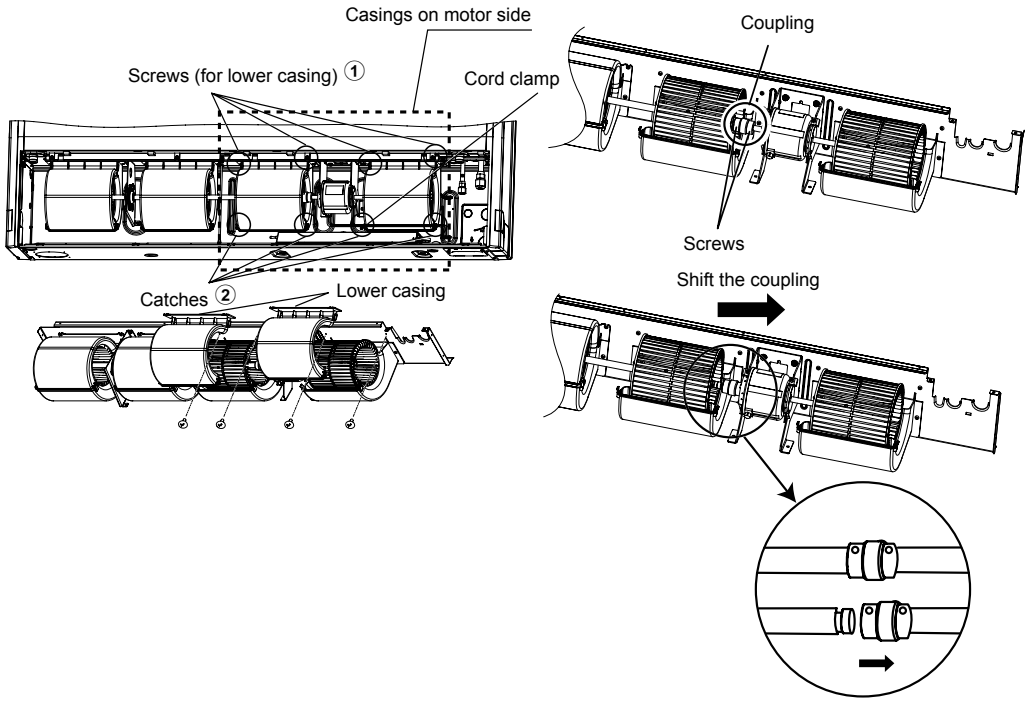


7 Remove the lead wires for the fan motor from the cord clamp on the plate.

8 Remove 2 fixing screws for each lower casing (①). Remove the lower casings by pushing 2 catches (②) inward. (Only 2 casings on the motor side shall be removed.) (Except for RPC-1.5 and 2.0FSN3).

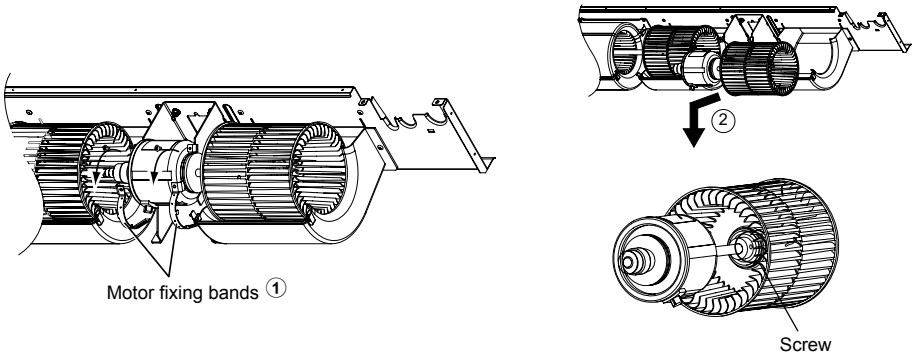
9 Loosen 2 fixing screws for the coupling with a hexagon wrench.

10 Shift the coupling to the fan motor.



11 Remove 2 motor fixing bands (①). Remove the fan runner on the right and fan motor by shifting them in the direction of the arrow (②) with care not to drop them. It takes 2 people to carry out the work.

12 Remove the fixing screw for the fan runner with a hexagon wrench and remove the fan runner from the fan motor.



7.4.5 Removing bearing (Except for RPC-1.5 and 2.0FSN3)

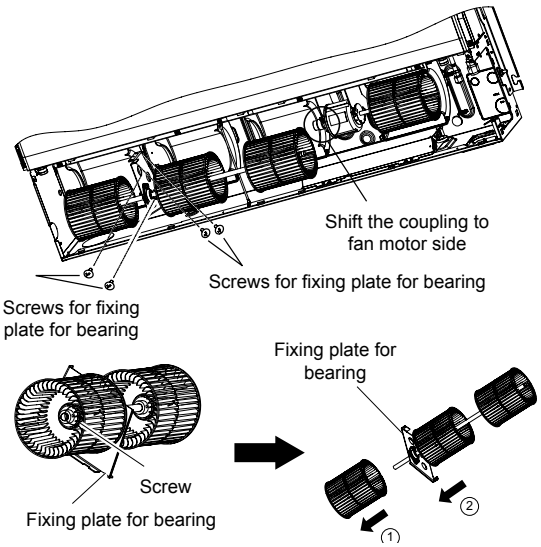
1 Open the air inlet grille downward according to *"7.4.1 Removing air filter and air inlet grille"*.

2 Remove the lower casing according to *"7.4.4 Removal of the fan motor"*.

3 Loosen 2 fixing screws for the coupling with a hexagon wrench and shift the coupling to the fan motor side according to *"7.4.4 Removal of the fan motor"*.

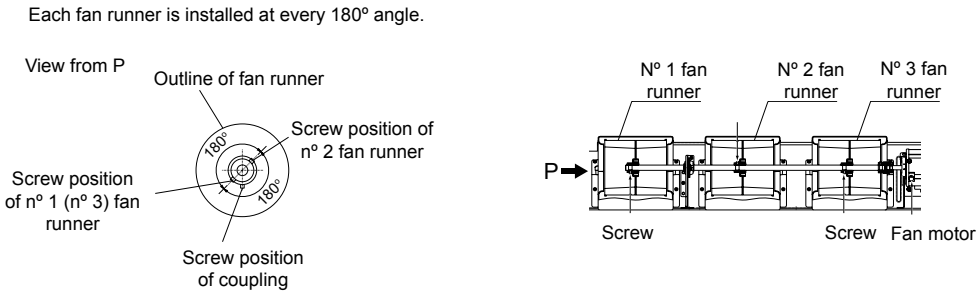
4 Remove 4 screws for the fixing plate for the bearing as shown in the figure. Remove the fixing plate for the bearing together with the shaft and fan runner. It takes 2 people to carry out the work.

5 Loosen 1 fixing screw for the fan runner with a hexagon wrench and remove the fan runner (①) from the shaft. Then pull the fixing plate for the bearing out from the shaft (②).

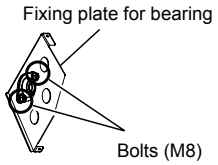


NOTE

When pulling the fixing plate for the bearing out, do not damage the shaft surface contacting the bearing. If it is damaged, an abnormal noise may occur. When remounting the fan runners, mount them with each of them rotated by 180º as shown in the figure.



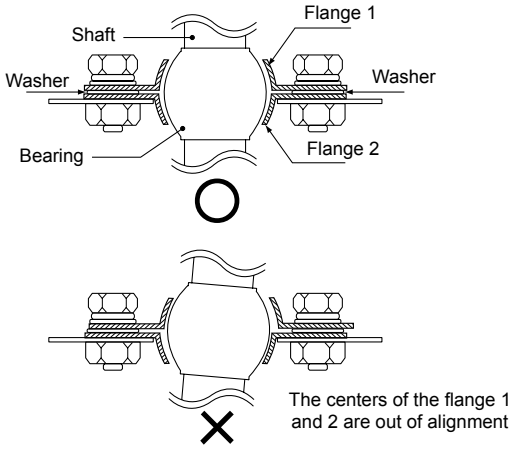
6 Remove 2 fixing bolts (M8) for the bearing and remove it. When mounting it, refer to the following notes.



Notes for mounting bearing

Mount the fixing plate for a flange bearing according to the following notes:

- Align the shaft centers of the flange 1 and flange 2.
- Insert washers between the flanges.
- The tightening torque for bolts shall be 6N-m. This indoor unit utilizes the self-aligning bearing which enables the self-alignment by reducing the alignment torque for the bearing. Therefore, if the tightening work is not performed correctly, an abnormal noise may occur.
- Check that only the bearing body rotates and moves with the bolts tightened.



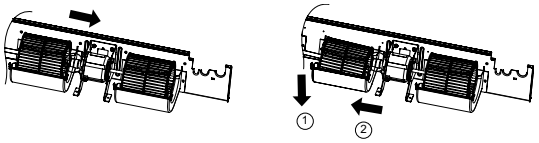
7.4.6 Removing coupling (Except for RPC-1.5 and 2.0FSN3)

1 Open the air inlet grille downward according to *"7.4.1 Removing air filter and air inlet grille"*.

2 Remove the lower casing according to *"7.4.4 Removal of the fan motor"*.

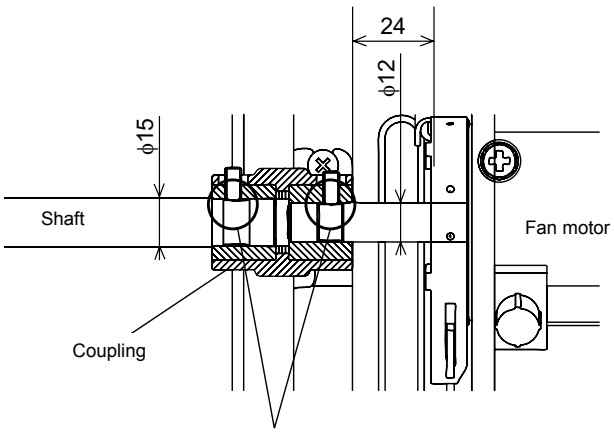
3 Loosen 2 fixing screws for the coupling with a hexagon wrench and shift the coupling to the fan motor according to *"7.4.4 Removal of the fan motor"*.

4 Shift the shaft to the plate in the direction of the arrow (①). Then remove the coupling from the fan motor (②).



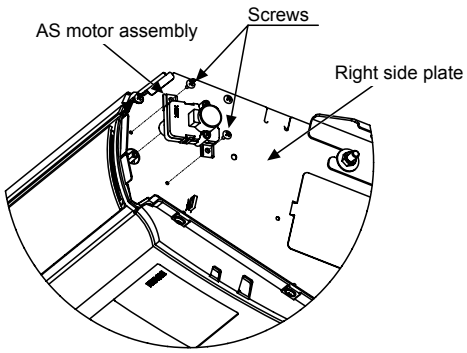
Notes for remounting coupling

- Tighten the fixing screws, inserting them into the grooves on the shaft.
- Pay attention to the insertion direction of the coupling because the diameters of the shaft and the motor shaft are different.
- The coupling shall be located 24mm away from the fan motor.



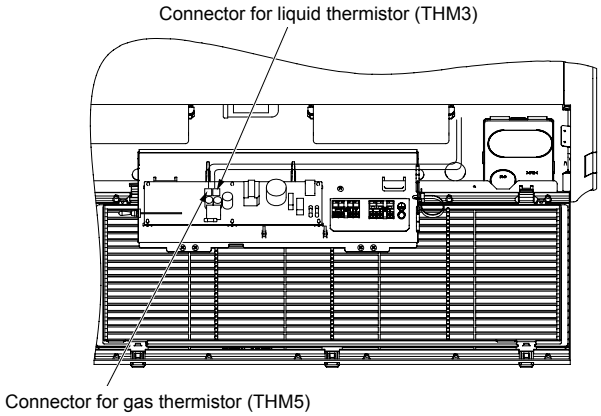
7.4.7 Removing auto louver motor

1 Remove the right side cover according to *"7.4.2 Removing side cover"*.
2 Remove the AS motor assembly attached to the right end of the louver shaft.
3 Push the stopper to disconnect the connector.

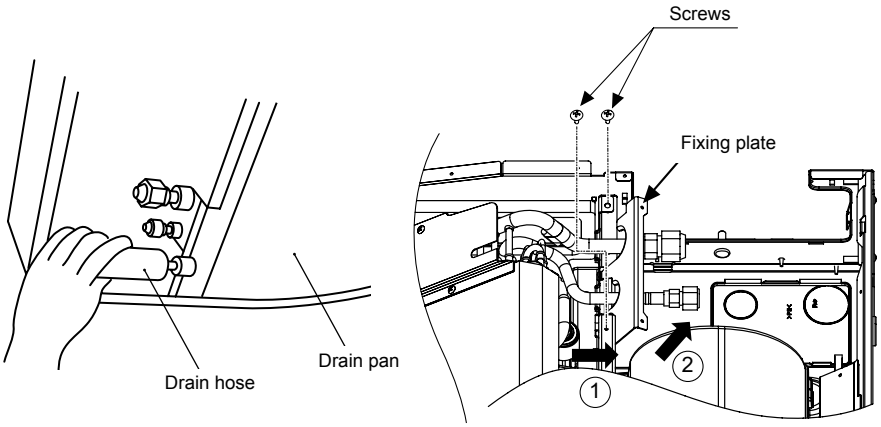


7.4.8 Removal of the thermistors from the liquid and gas pipes

1 Open the air inlet grille downward according to *"7.4.1 Removing air filter and air inlet grille"*.
2 Remove the side covers according to *"7.4.2 Removing side cover"*.
3 Remove the electrical box and hook it on the flame at the lower part of the unit according to *"7.4.4 Removal of the fan motor"*.
4 Open the electrical box cover and disconnect the connectors for the gas pipe thermistor (yellow, THM5) and the liquid pipe thermistor (black, THM3) from the indoor unit PCB.



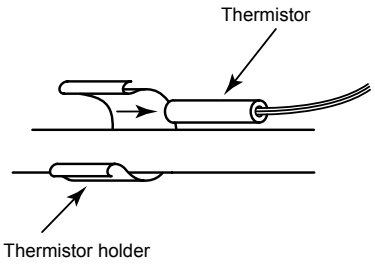
5 Remove the drain hose from the drain pan. Remove the screws (1.5 and 2HP: 9, 2.5 to 6HP: 10) fixing the drain pan to the indoor unit. Be careful in removing the drain pan because the water may have collected in the drain pan.
6 Remove the drain pan.
7 Remove 2 screws for the fixing plate and pull it out in the direction of the arrow (① → ②) to remove it.

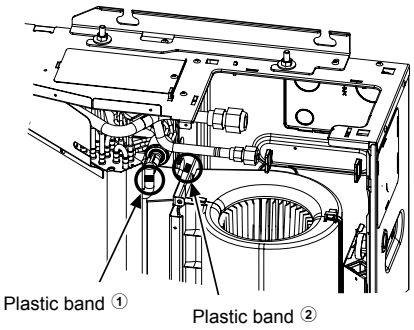


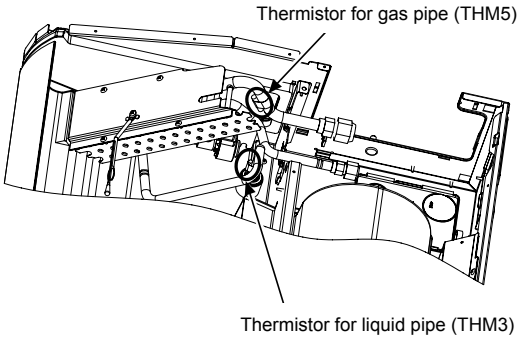
8 Remove 2 plastic bands (① and ②) tying the lead wires for the thermistors in a bundle.

9 Remove the butyl sheets attached to the thermistors.

10 Remove the thermistors for the liquid pipe and gas pipe from the unit.







CAUTION

Take special care not to be injured by the heat exchanger fins.

7.4.9 Removing electronic expansion valve coil

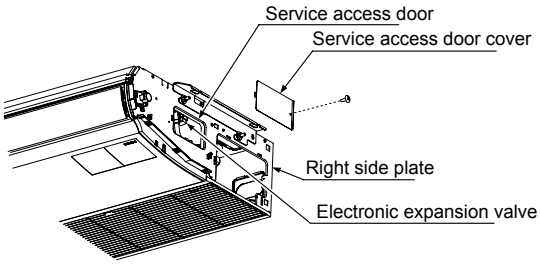
1 Remove the right side cover according to *"7.4.2 Removing side cover"*.

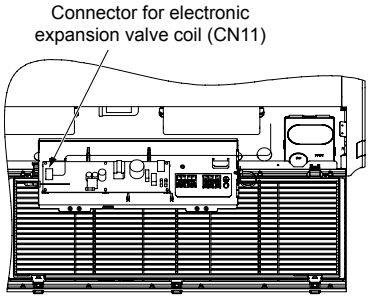
2 Remove the service access door cover from the right side plate. Then the electronic expansion valve can be seen from the service access door.

3 Check the motion of the electronic expansion valve by hand.

4 Remove the electrical box and hook it on the flame at the lower part of the unit according to *"7.4.4 Removal of the fan motor"*.

5 Open the electrical box cover and disconnect the connector (CN11) for the electronic expansion valve coil from the indoor unit PCB.





6 Remove the gas and liquid pipe thermistors according to *"7.4.8 Removal of the thermistors from the liquid and gas pipes"*.

7 Remove 2 plastic bands tying the lead wires for the thermistors in a bundle according to *"7.4.8 Removal of the thermistors from the liquid and gas pipes"*.

8 Rotate the expansion valve coil. After releasing the detents for the expansion valve coil from the projection portions of the expansion valve body, pull up the coil frontward to remove it.

NOTE

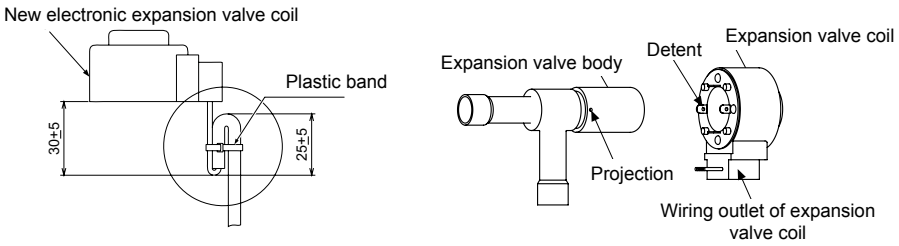
Take care not to twist the piping.

9 Tie the lead wires for a new expansion valve coil together with a plastic band as shown in the figure below.

10 Insert the new expansion valve coil for replacement into the expansion valve body. Fit the projection portions into the detents with the wiring outlet facing up.

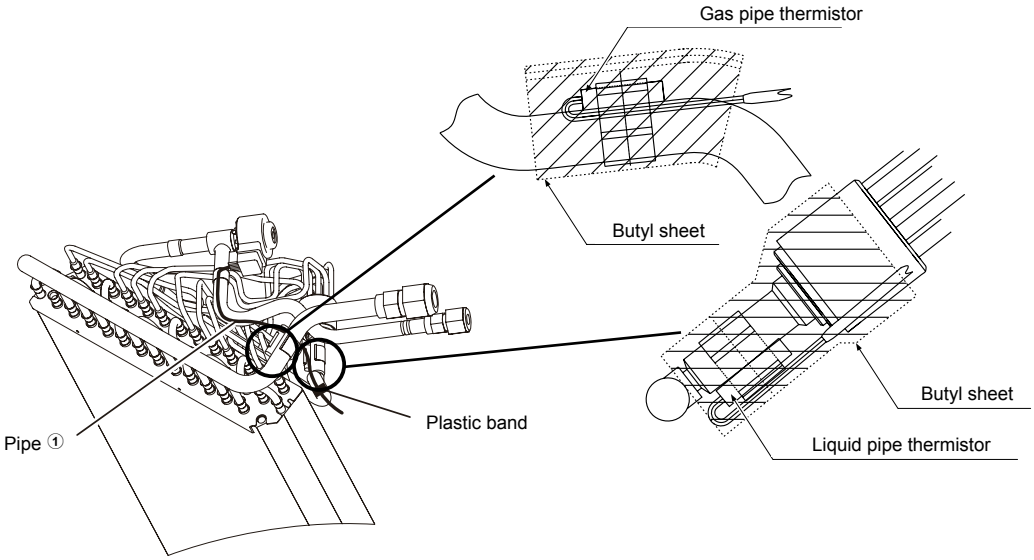
NOTE

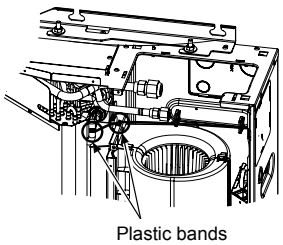
The detents are located 90º apart in a circle and the projections are located 180º apart in a circle. Fit the projection portions into the detents. If inserting the coil incorrectly, it may cause malfunction of the expansion valve coil.

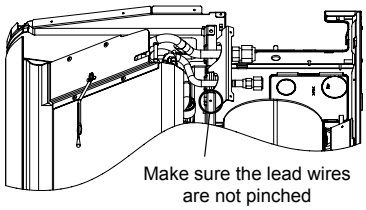


Notes for mounting pipe thermistors and expansion valve coil

- When mounting the pipe thermistors, pay attention to the outlet direction and position of the lead wires. Seal the thermistors with butyl sheets after mounting them.
- Run the lead wires for the expansion valve coil along the outside of the pipe (①). Tie the wires and the pipe thermistors in a bundle at 2 positions with plastic bands as shown in the figure below.
- Attach the fixing plate for the liquid and gas pipes carefully so that the lead wires are not pinched.







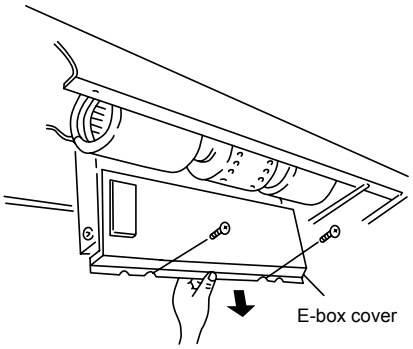
7.4.10 Removal of the printed circuit board (PCB)

1 Open the air inlet grille downward according to *"7.4.1 Removing air filter and air inlet grille"*.

2 Remove the electrical box and hook it on the flame at the lower part of the unit according to *"7.4.4 Removal of the fan motor"*.

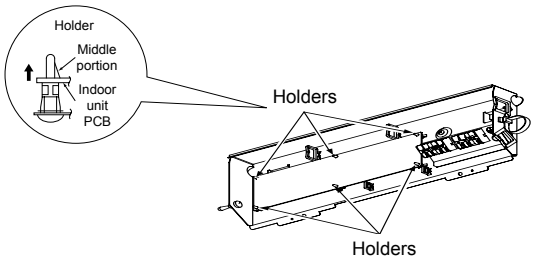
3 Remove 2 fixing screws for the electrical box cover and remove it.

4 Remove the 6 holders fixing the indoor unit PCB. Pinch the middle portion with a long-nose pliers and pull them out.

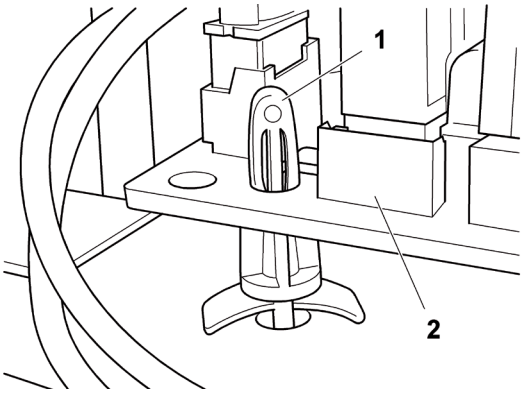


⚠ CAUTION

- *Do not touch the electrical components on the PCB.*
- *Do not apply an excessive force to the PCB nor bend it. Otherwise, it will lead to a PCB failure*
- *An incorrect position during installation may damage the PCB.*



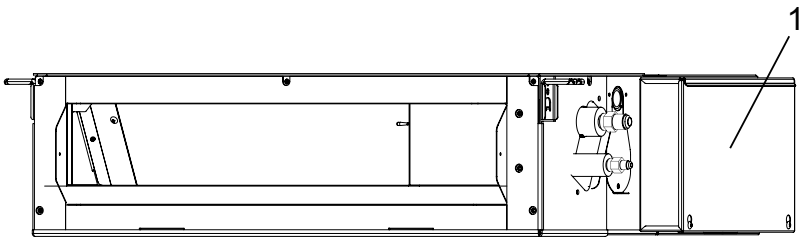
Carefully remove the securing supports from the printed control board (PCB) by pressing carefully on the support tabs with long-tipped pliers.



Nº	Part
1	Extended support part
2	PCB

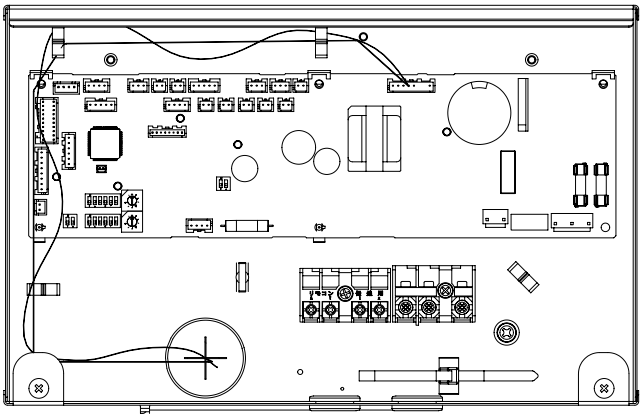
7.5 RPI-(0.4-6.0)FSN5E - Ducted indoor unit

7.5.1 Removal of the electrical box

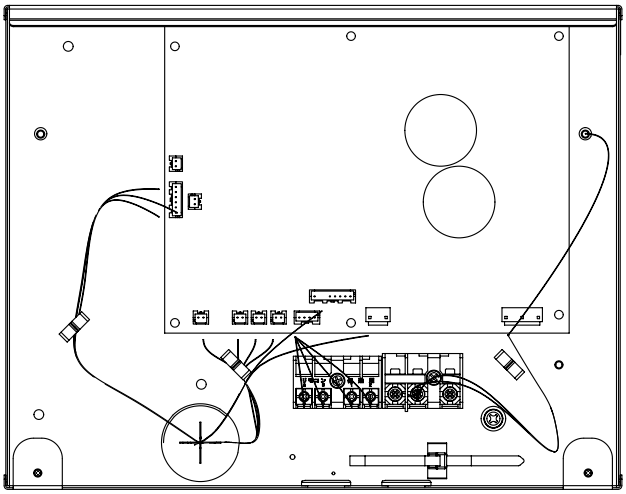


Nº	Part
1	Location of the electrical box cover

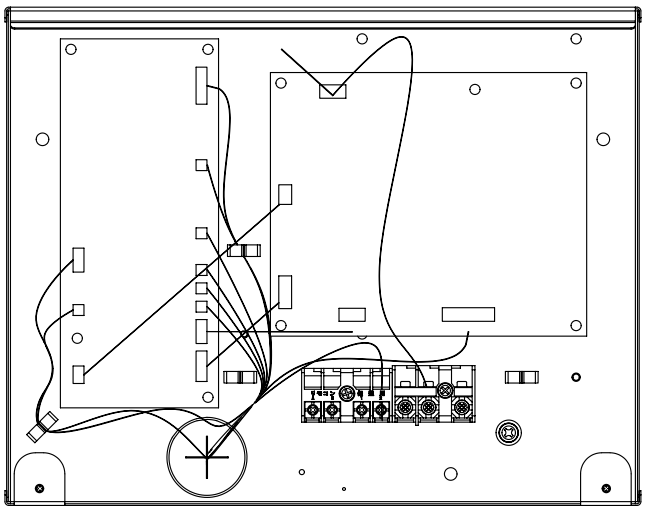
RPI-(0.4-1.5)FSN5E



RPI-(2.0-3.0)FSN5E

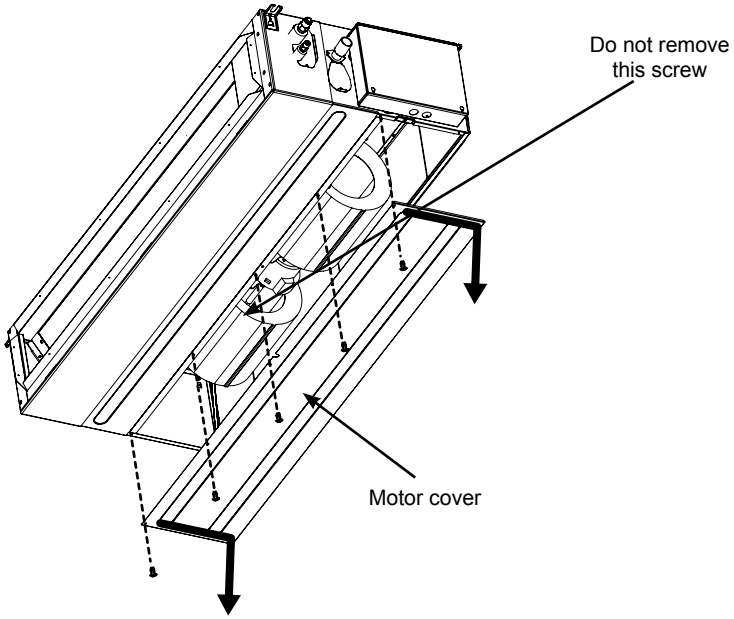


RPI-(4.0-6.0)FSN5E



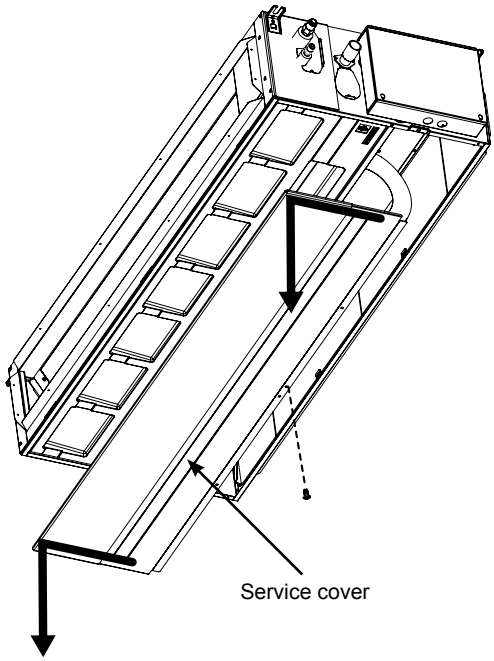
7.5.2 Removal of the motor cover

1 Remove the motor cover screws from the unit
2 Pull the motor cover backwards and then pull the motor cover down.

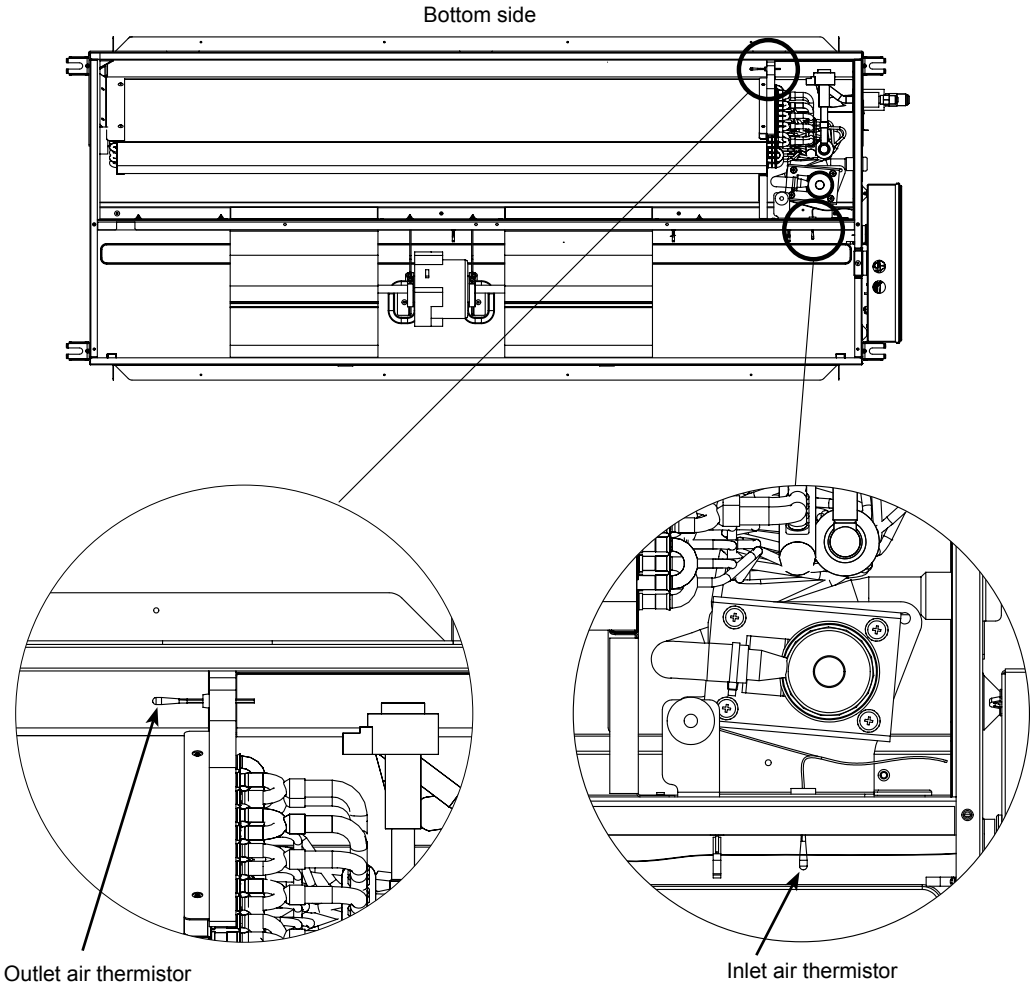


7.5.3 Removal of the service cover

1 Remove the motor cover as explained before.
2 Remove the service cover screw.
3 Pull the service cover backwards and then pull the service cover down.

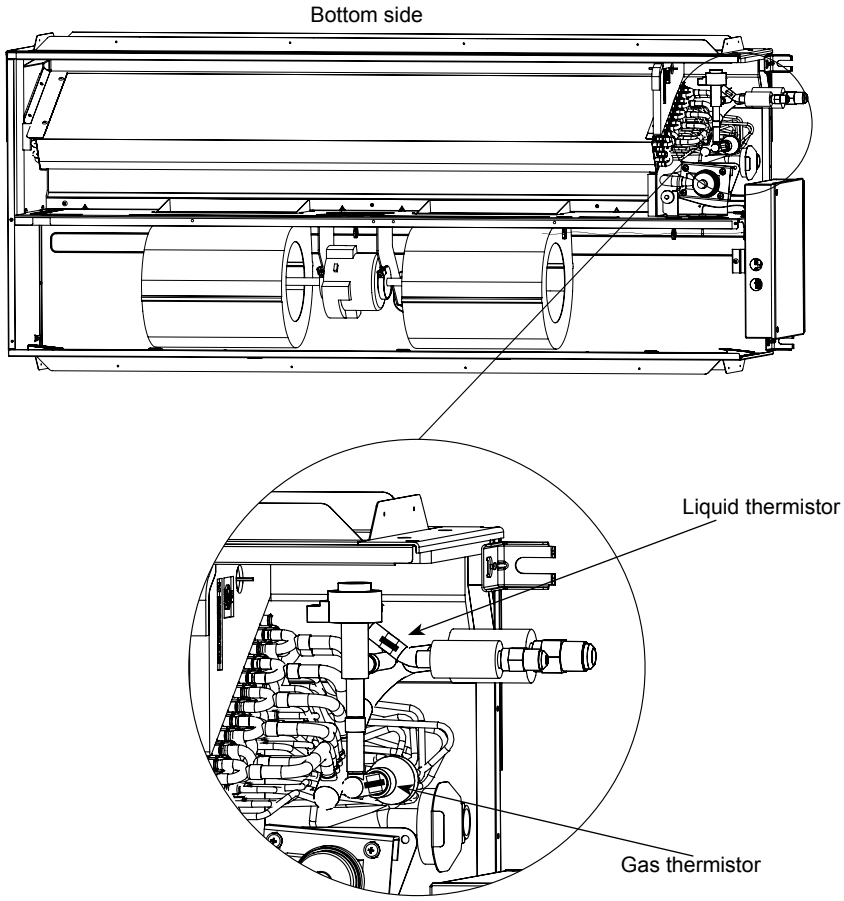


7.5.4 Removal of the inlet and outlet air thermistors



1 Remove the motor and service covers.
2 Remove the drain pan.
3 Disconnect from the Electrical Box and remove the thermistor.

7.5.5 Removal of the thermistors from the liquid and gas pipes



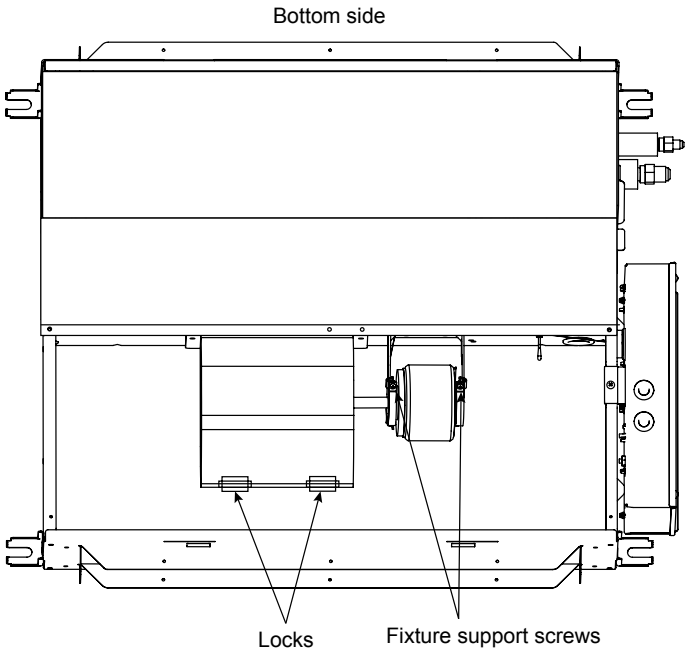
1 Remove the motor and service covers.
2 Remove the drain pan.
3 Remove the insulation covering the thermistors
4 Remove the special clamp
5 Remove the gas or liquid thermistor.

NOTE

- *To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.*
- *Cover the thermistors with pipe insulation using the factory-supplied. Replace them if damaged during maintenance work.*

7.5.6 Removal of the fan parts

◆ **RPI-0.4FSN5E**

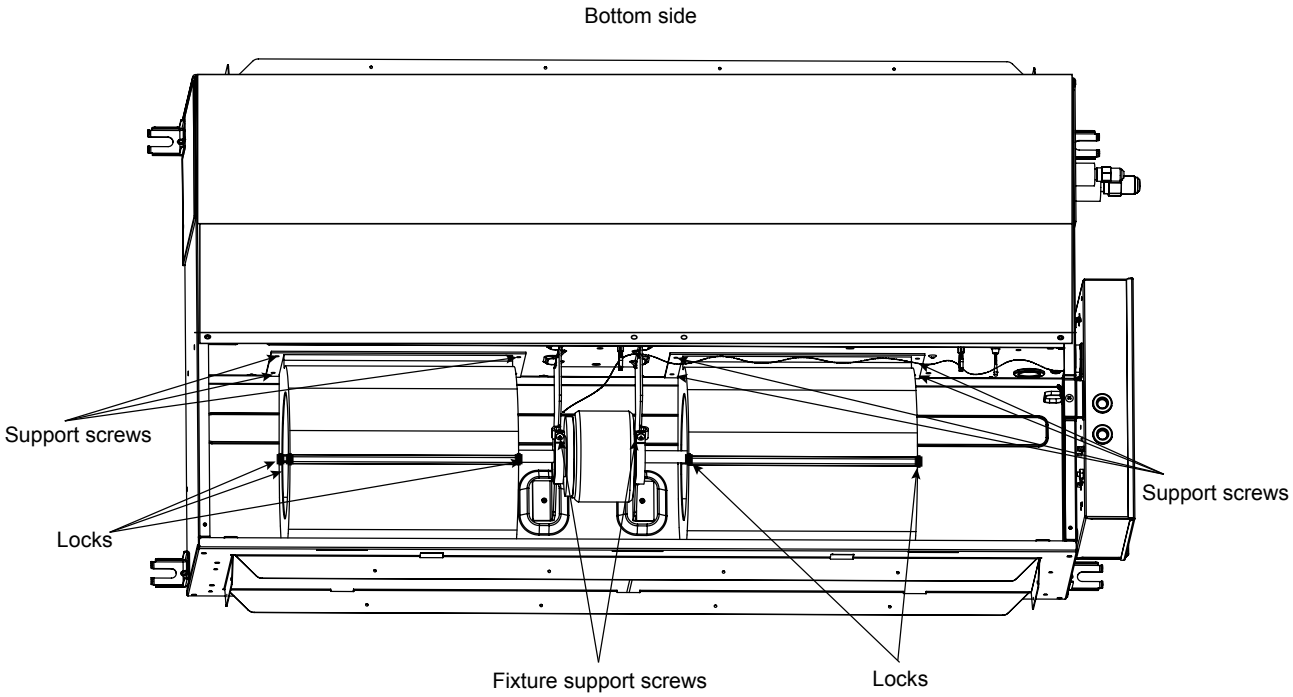


1 Remove the motor cover.
2 Press the locks and remove half of the fan casing.
3 Remove the fixture support screws and carefully remove the motor together with the fan.
4 Loosen the screws securing the fans to the motor shaft.

NOTE

If the fan casing is to be fully removed, remove the screws securing the other half to the fan motor fixture.

◆ RPI-(0.6-6.0)FSN5E



Option 1

1 Remove the motor cover.
2 Remove the support screws (4 screws in each casing).
3 Remove the fan casing.
4 Remove the fixture support screws and carefully remove the motor together with the runners.
5 Loosen the screws securing the runner to the motor shaft.

Option 2

1 Remove the motor cover.
2 Remove the support screws (2 screws in each casing).
3 Remove half of the fan casing.
4 Remove the fixture support screws.
5 Loosen 1 fixing screw for the fan runner with a hexagon wrench and remove the fan runner from the shaft.
6 Remove the runner from the casing.
7 Then remove the fan motor.

7.5.7 Removal of the drain mechanism

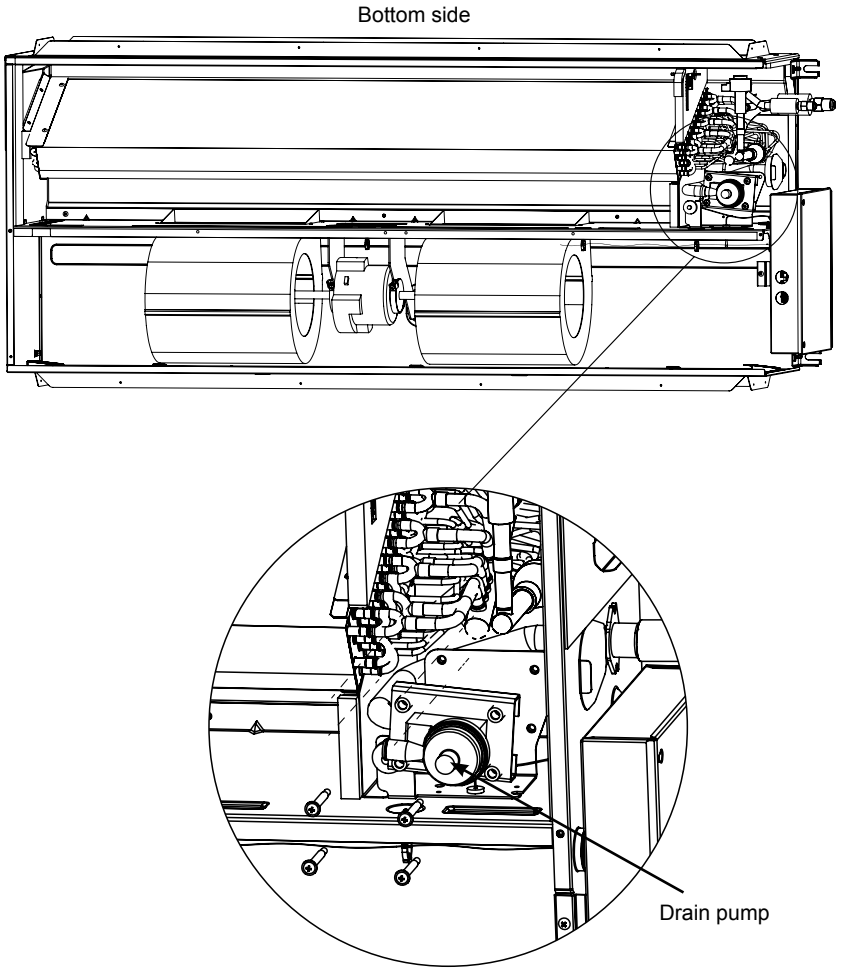
NOTE

To disconnect and remove the drain mechanism, previously see the chapter corresponding to the wiring diagrams in this Manual.

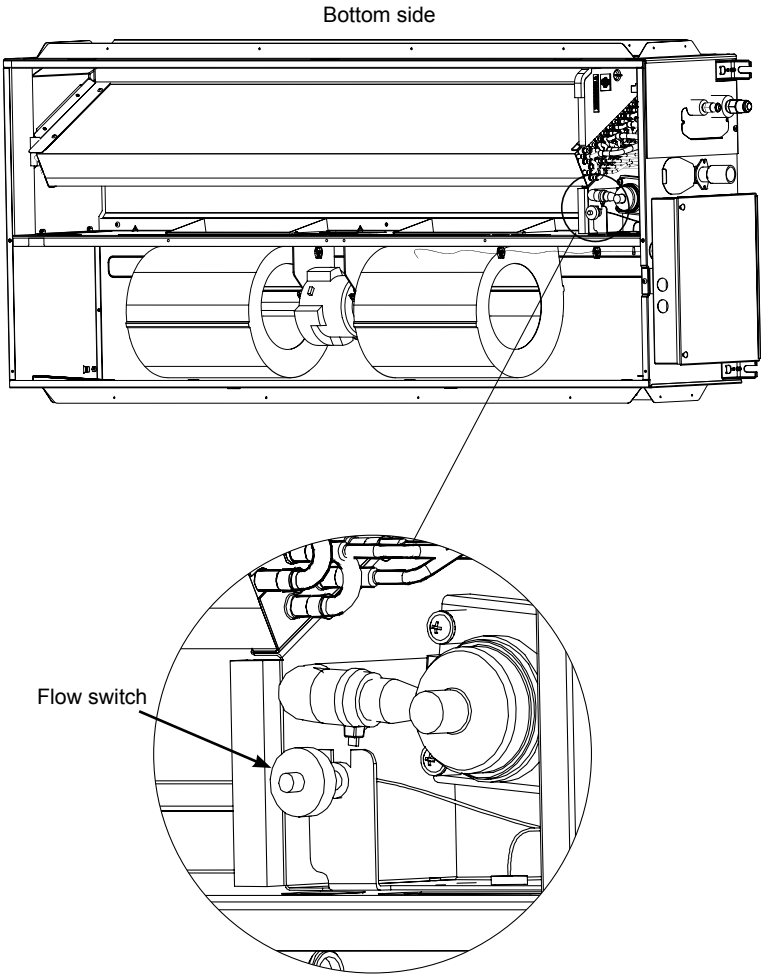
1 Remove the drain pump support screws and remove it.

2 Remove the electrical box from the unit to connect it to the printed circuit board (PCB) in line with the instructions given in chapter *"7.5.1 Removal of the electrical box"*.

3 Seal the drain hose gaskets correctly.



7.5.8 Removal of the float switch

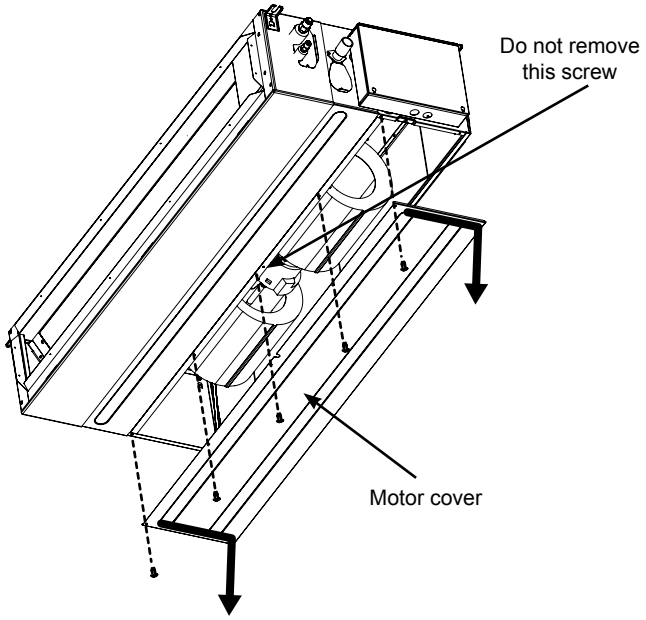


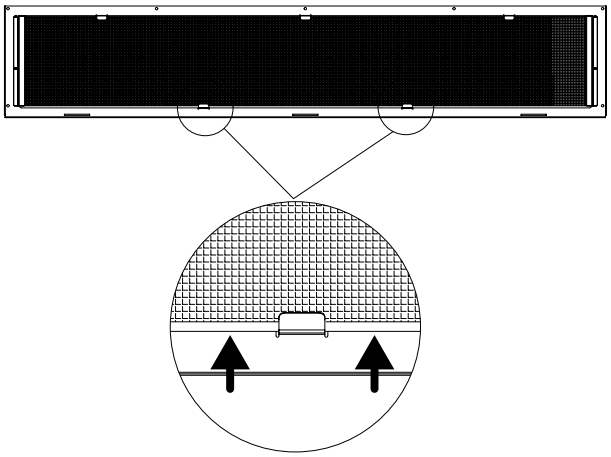
1 Remove the motor cover and service cover.
2 Loosen the screws securing the float switch to the support.
3 Loosen the resin nut securing the float switch and remove it.

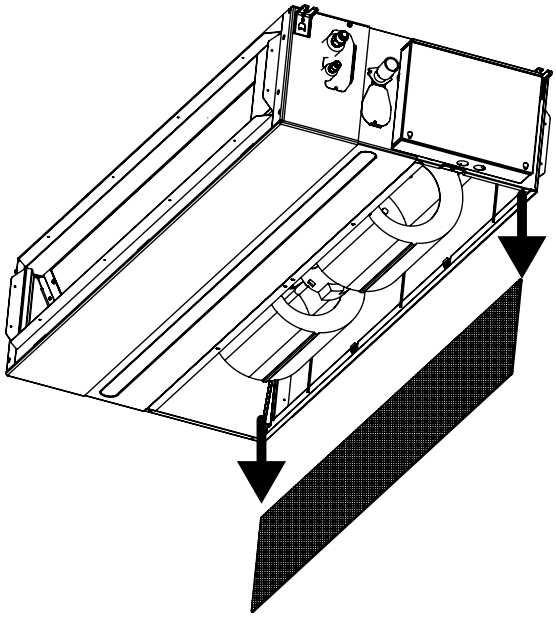
NOTE

- *To disconnect and remove the float switch, previously see the chapter corresponding to the wiring diagrams in this Manual.*
- *The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.*

7.5.9 Removal of the air filter







1 Remove the motor cover from the unit.

2 The filter is held by a tab (2x) in the cover. The filter must be gently pushed in order to make it come off from the tab.

3 To put the filter back in place, pass the filter through the lateral guides and fit it in the upper tabs. Then push the filter in order to insert it in the bottom tabs.

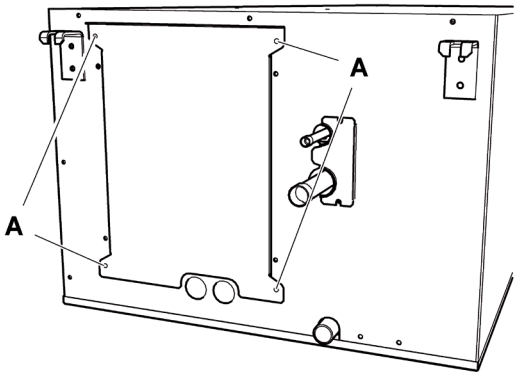
7.6 RPI-(8.0-20.0)FSN3(P)E(-f) - Ducted indoor unit

NOTE

In the following general illustrations are examples for RPI-(8.0/10.0)FSN3E(-f), but they are applicable for RPI-(16.0/20.0)FSN3PE(-f) as well. In the specific cases where there are differences between both units, the illustrations are shown separately for each one.

7.6.1 Removal of the electrical box cover

1 Remove the set screws -A- from the electrical box cover to access the electrical components.



7.6.2 Removal of electrical components

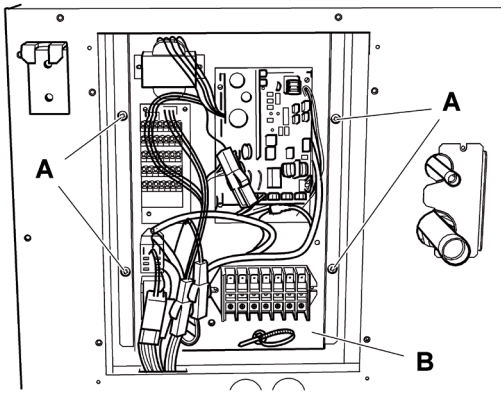
1 Remove the electrical box cover as indicated in chapter *"7.6.1 Removal of the electrical box cover"*.

2 Separate the connections of all electrical components.

3 Remove the set screws -A- and separate the full electrical component support -B-.

CAUTION

Handle the support carefully to avoid damaging the electrical components.



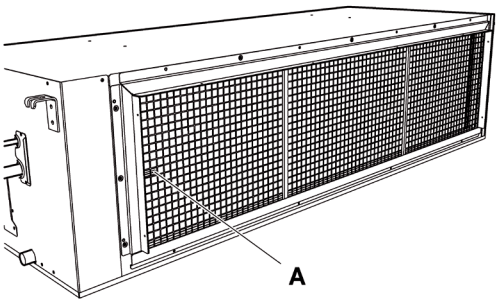
7.6.3 Removal of the inlet and outlet air thermistors

Inlet air thermistor

1 Remove the air filter as indicated in chapter *"7.6.8 Removal of the air filter"*.

NOTE

The inlet air thermistor -A- is located on the left-hand side of the air inlet to the unit.

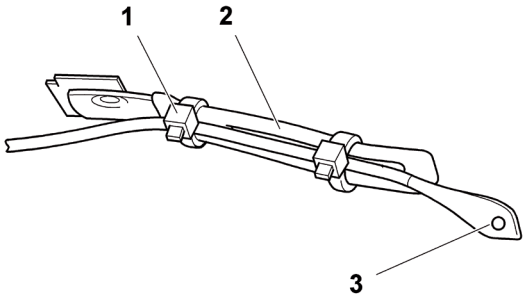


2 Remove the electrical box cover as indicated in chapter *"7.6.1 Removal of the electrical box cover"*.

3 Disconnect and remove the thermistor (x2 thermistors in RPI- (16.0/20.0)FSN3PE(-f))

NOTE

To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.



Nº	Part
1	Tie
2	Cable clamp
3	Thermistor

Outlet air thermistor

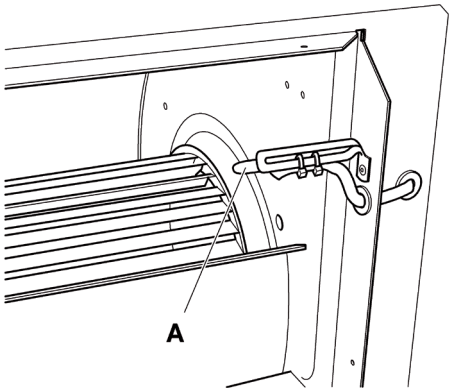
The outlet air thermistor -B- is located on the right-hand side of the air outlet from the unit.

1 Remove the electrical box cover as indicated in chapter *"7.6.1 Removal of the electrical box cover"*.

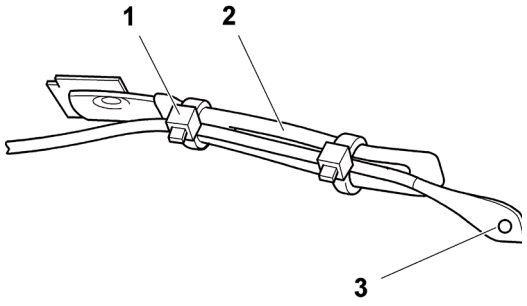
2 Disconnect and remove the thermistor (x2 thermistors in RPI- (16.0/20.0)FSN3PE(-f)).

NOTE

To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.



Nº	Part
1	Tie
2	Cable clamp
3	Thermistor

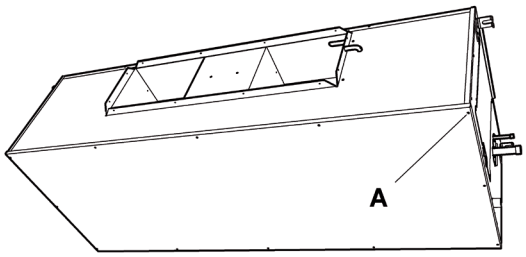


7.6.4 Removal of the thermistors from the liquid and gas pipes

1 Remove the appropriate service cover for accessing to the liquid / gas thermistors.

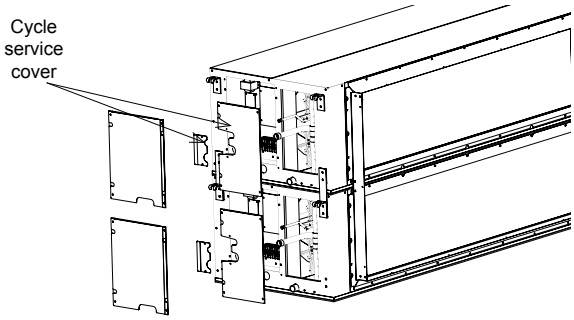
   a. For (8.0/10.0)HP: Remove all the screws (A) from the lower cover of the unit and remove the cover.

   b. For (16.0/20.0)HP: Remove the screws from the cycle service cover and remove it.



2 Remove the electrical box cover as indicated in chapter *"7.6.1 Removal of the electrical box cover"*.

3 Disconnect the thermistor.

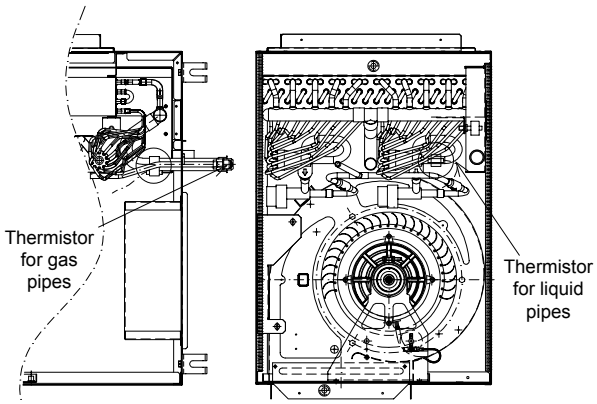


NOTE

- *To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.*
- *Black connector: liquid thermistor.*
- *Yellow connector: gas thermistor.*

4 Remove the gas and liquid thermistor insulation cover.

5 Remove the special clamp holding the thermistor to the copper piping and remove it.



NOTE

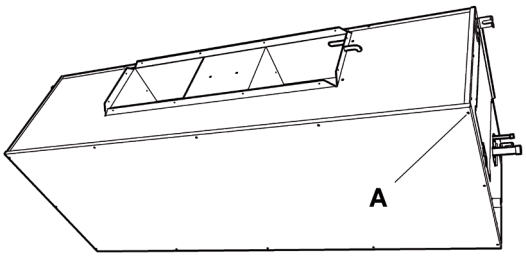
When fitting the thermistors, remember that they must be secured correctly by the special clamp and completely covered by the previously removed insulation.

7.6.5 Removal of the drain pan

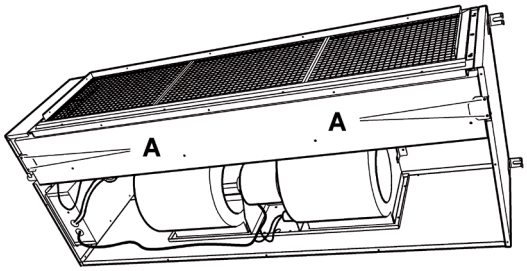
◆ For RPI-(8.0/10.0)FSN3E(-f)

1 Remove all screws -A- from the lower cover of the unit and separate it.

2 Release the unit drainage connection.



3 Remove the screws -A- securing the drain pan and remove it.

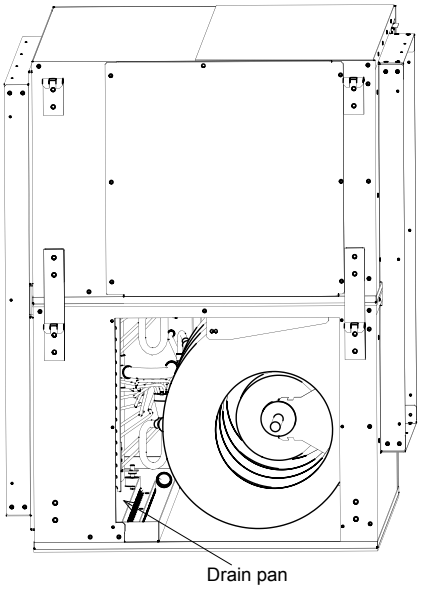


NOTE

When fitting, seal the drain hose gasket correctly.

◆ For RPI-(16.0/20.0)FSN3PE(-f)

1 The servicing of these units can be carried out either by the fan motor side cover or by the cycle service cover. Access to the drain pan through any of these covers and clean it in order to guarantee a correct operation.



7.6.6 Fan removal

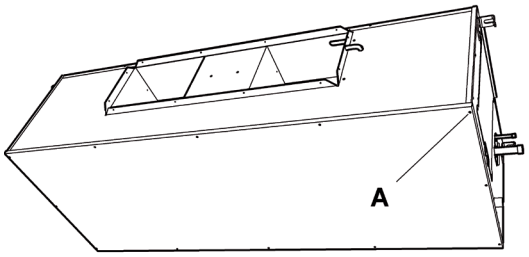
◆ For RPI-(8.0/10.0)FSN3E(-f)

1 Remove all screws -A- from the lower cover of the unit and separate it.
2 Remove the electrical box cover as indicated in chapter *"7.6.1 Removal of the electrical box cover"*.
3 Disconnect the fan motor.

NOTE

To disconnect and remove the fan motor, previously see the chapter corresponding to the wiring diagrams in this Manual.

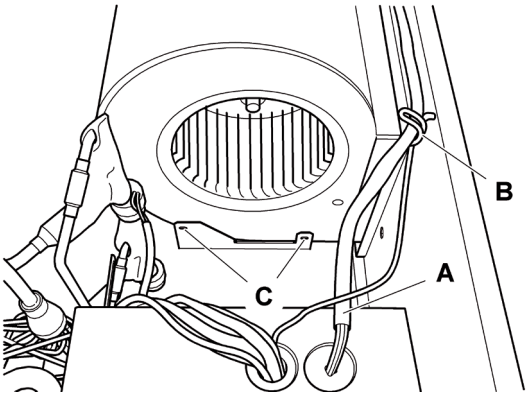
4 Remove the drain pan as indicated in chapter *"7.6.5 Removal of the drain pan"*.



5 Remove the wiring -A- from the electrical box and release it from the support -B-.
6 Remove the screws -C- on both sides of the fan.

CAUTION

- *Make sure the fan can be removed correctly, without the risk of injuring anyone in the surrounding area.*
- *The fan is heavy. Request the assistance of two operators to hold the fan while it is being removed.*

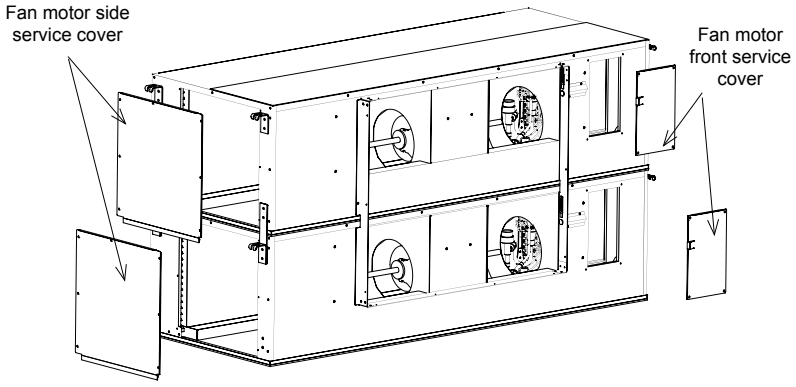


◆ For RPI-(16.0/20.0)FSN3PE

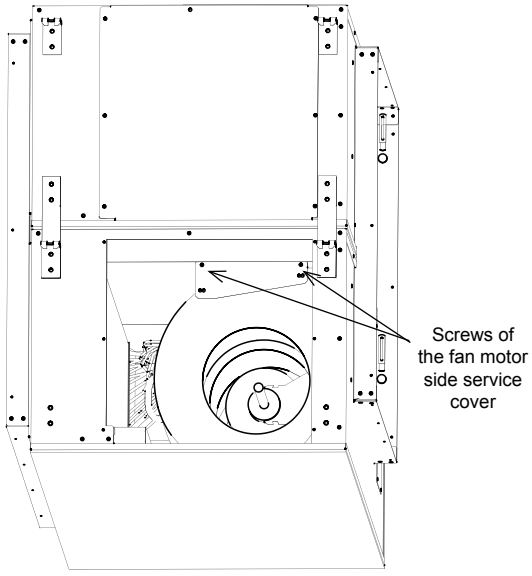
NOTE

The following procedure applies to both upper and lower fan motor groups.

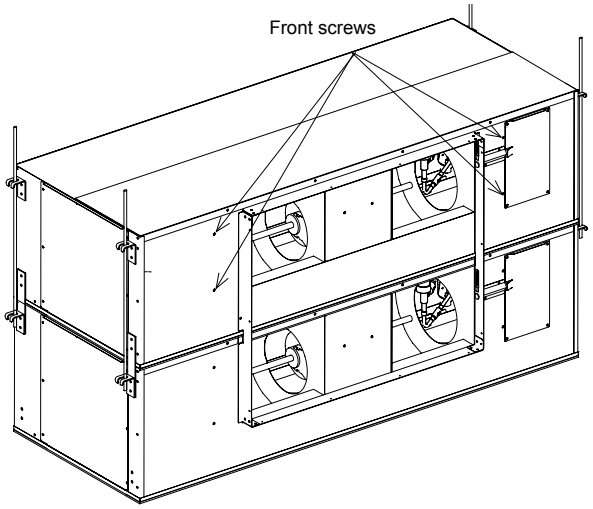
1 Unscrew and remove the 7 screws of the fan motor side service cover and the 4 screws of the fan motor front service cover.



2 After removing the service covers, remove the screws which fix the fan motor to its supports (4 screws at the fan motor side service cover and 2 screws at the fan motor service cover).



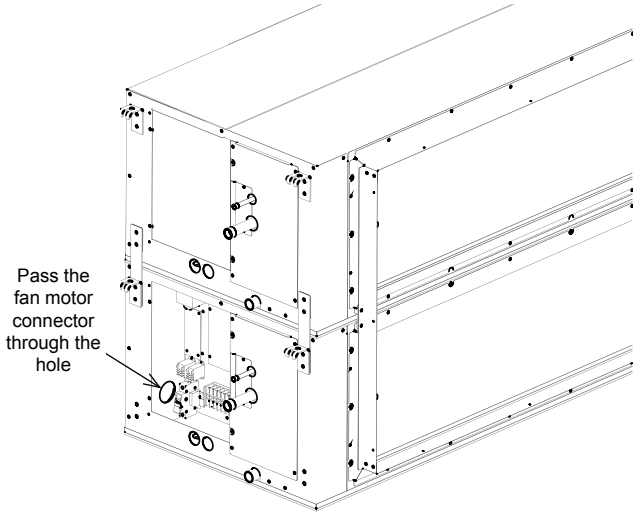
3 Remove the 4 front screws which fix the fan motor group to the front side of the unit.



4 Once the fan motor group has been released, disconnect the fan motor connector from the electrical box and pass it through the electrical box hole.

⚠ CAUTION

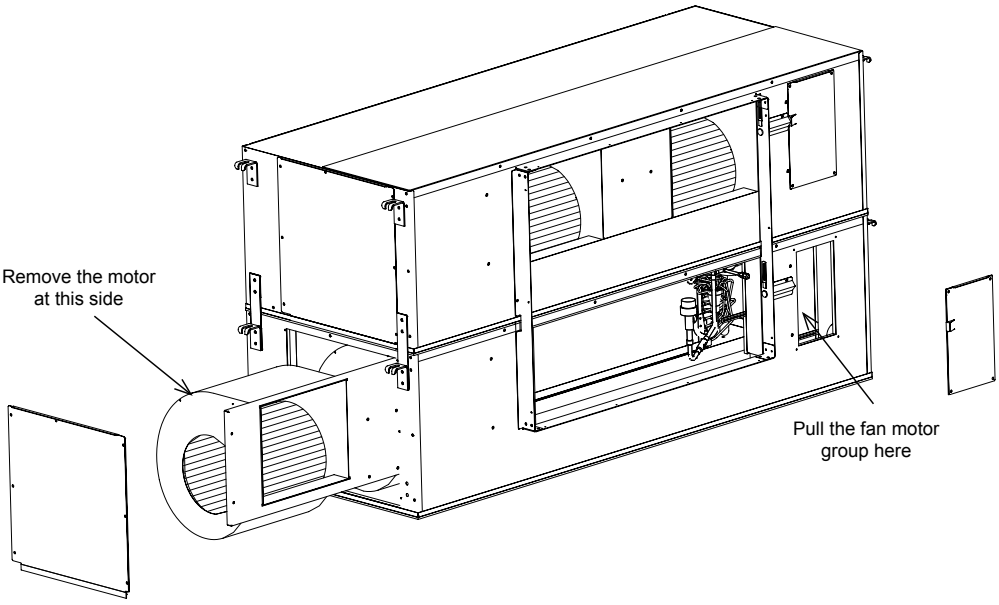
Loosen the clamp around the fan motor connector cable to ease the release of fan motor group.



5 Remove the fan motor group. One person shall push the fan motor group from the position of the front service cover, while a second person is pulling from the position of the fan motor side service cover.

⚠ CAUTION

The fan motor group has an approximate weight of 25 kg, and therefore removal operation shall be carried out by two persons at least.

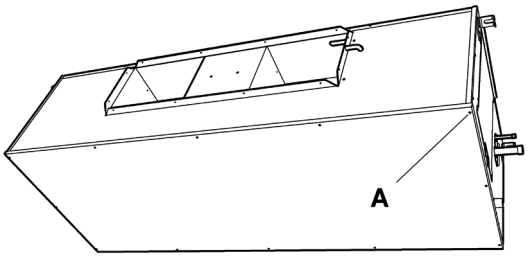


7.6.7 Removal of the float switch

◆ **For RPI-(8.0/10.0)FSN3E(-f)**

1 Remove all screws -A- from the lower cover of the unit and separate it.

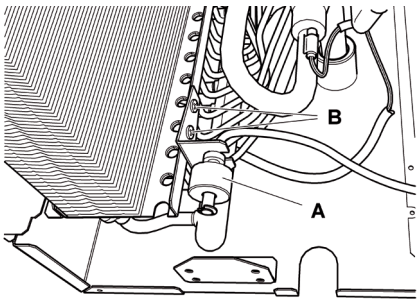
2 Remove the drain pan as indicated in chapter *"7.6.5 Removal of the drain pan"*.



NOTE

To disconnect and remove the float switch, previously see the chapter corresponding to the wiring diagrams in this Manual.

3 Loosen the resin nut securing the float switch -A- and remove it. If the switch support is to be removed, remove screws -B-.



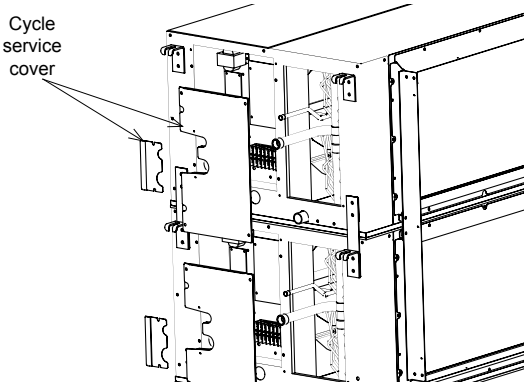
NOTE

The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.

◆ **For RPI-(16.0/20.0)FSN3PE(-f)**

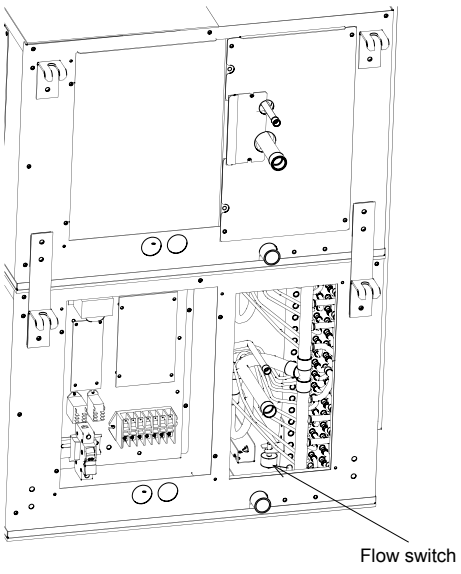
1 Remove the cycle service cover by unscrewing its fixing screws

2 Loosen the resin nut securing the float switch and remove it. If the switch support is to be removed, remove screws.



NOTE

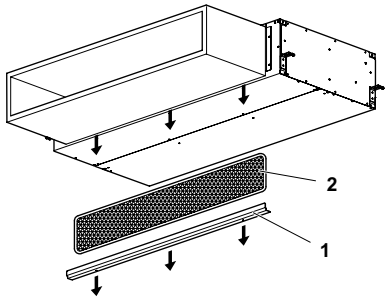
The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.



7.6.8 Removal of the air filter

◆ For RPI-(8.0/10.0)FSN3E(-f)

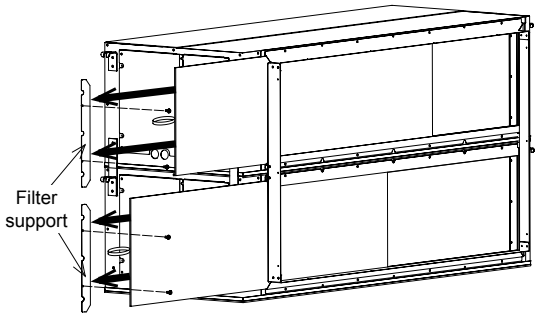
Remove the four set screws from the support fixture -1- of the air filter -2- and separate both parts.



◆ For RPI-(16.0/20.0)FSN3PE(-f)

Filter maintenance can be performed from right or left side of the unit.

Remove filter support (x2 screws / each support) and pull out the filter from the handle. In those installations where the servicing space is narrow, the filter could be bent (in three pieces) when pulling it out.

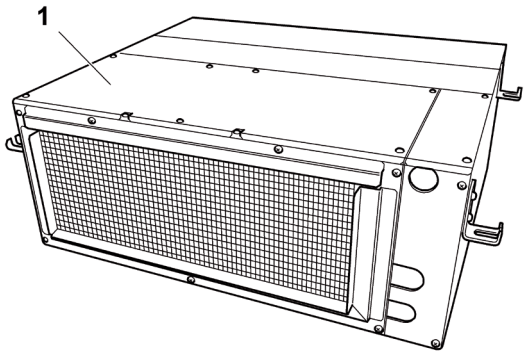


7.7 RPIM-(0.6-1.5)FSN4E - Ducted indoor unit

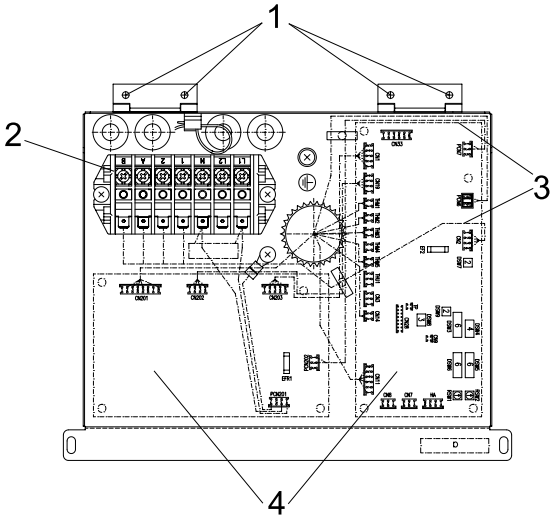
7.7.1 Removal of the electrical box

1 Remove the electrical box cover to access the electrical components.

Nº	Part
1	Location of the electrical box cover



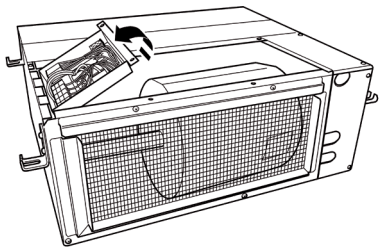
Nº	Part
1	Set screws
2	Terminal board
3	Transformer
4	PCB



2 Remove the set screws and remove the electrical box from the unit.

NOTE

The electrical box is fitted with a hinge.



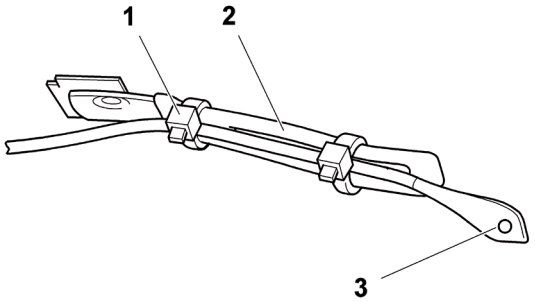
7.7.2 Removal of the inlet and outlet air thermistors

Inlet air thermistor

NOTE

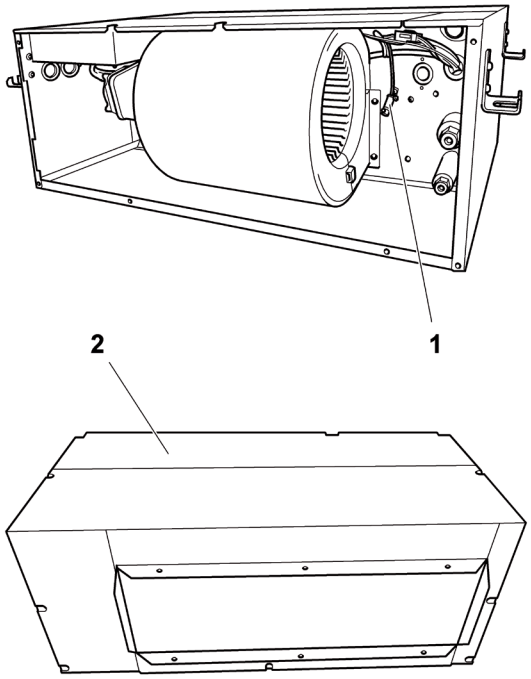
To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.

Nº	Part
1	Tie
2	Cable clamp
3	Thermistor



1 Remove the screws securing the rear cover of the unit.
2 Disconnect and remove the thermistor.

Nº	Part
1	Location of the air inlet thermistor
2	Rear cover



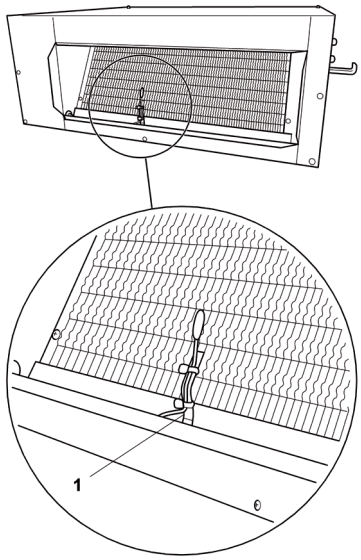
Outlet air thermistor

NOTE

- *The thermistor is located on the outlet side of the unit.*
- *To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.*

1 Disconnect and remove the thermistor.

Nº	Part
1	Outlet thermistor

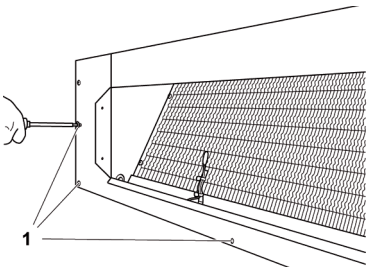


NOTE

- *The thermistor is located on the outlet side of the unit.*
- *To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.*

2 Disconnect and remove the thermistor. Removal of the thermistors from the liquid and gas pipes.

Nº	Part
1	Screws



NOTE

- *To disconnect and remove the appropriate thermistor, previously see the chapter corresponding to the wiring diagrams in this Manual.*
- *Cover the thermistors with cork tape or pipe insulation, depending on the location. Both materials are factory-supplied. Replace them if damaged during maintenance work.*

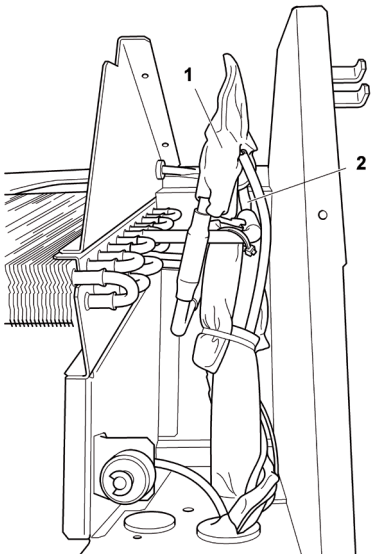
3 Remove the electrical box cover.

4 Remove the service cover.

The liquid and gas pipe thermistors are secured to the copper piping by a special clamp.

- Liquid pipe thermistor: covered with cork tape.
- Gas pipe thermistor: covered with pipe insulation.

Nº	Part
1	Location of the thermistor



NOTE

- *Black connector: liquid thermistor.*
- *Yellow connector: gas thermistor.*

7.7.3 Removal of the fan parts

Fan parts: fan motor, fan casing and duct.

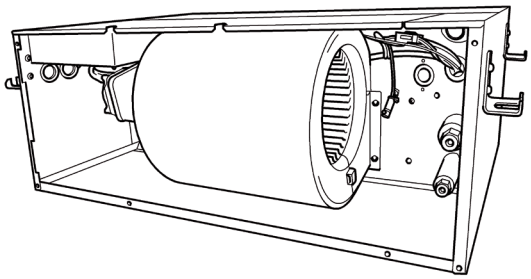
1 Remove the rear cover as indicated in chapter *"7.7.2 Removal of the inlet and outlet air thermistors"*.

2 Remove the tape located in the centre of the casing.

3 Press the locks and remove half of the fan casing.

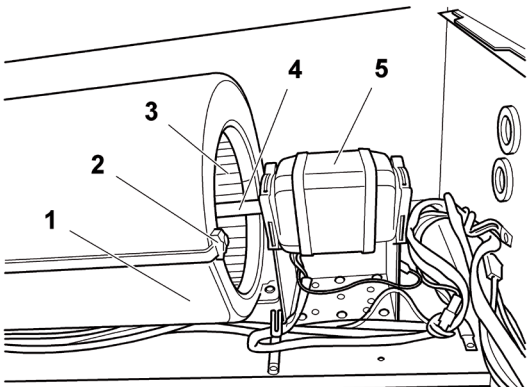
4 Remove the fixture support screws and carefully remove the motor together with the fans.

5 Loosen the screws securing the fans to the motor shaft.



NOTE

If the fan casing is to be fully removed, remove the screws securing the other half to the fan motor fixture.



Nº	Part
1	Fan casing
2	Lock
3	Fan duct
4	Shaft
5	Fan motor

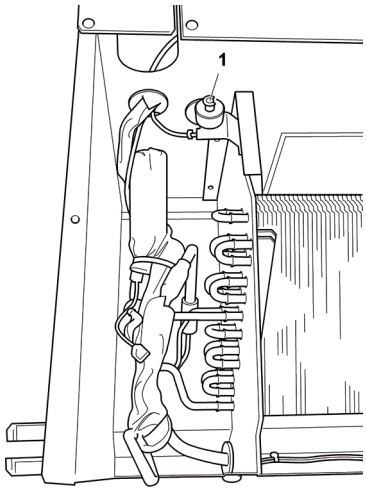
7.7.4 Removal of the float switch

NOTE

To disconnect and remove the float switch, previously see the chapter corresponding to the wiring diagrams in this Manual.

1 Remove the necessary covers to access the float switch.

2 Loosen the screws securing the float switch to the support.

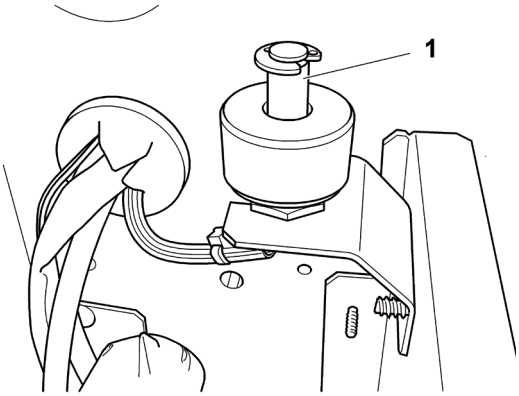


NOTE

The torque value of the resin nut is 0.3 - 0.4 Nm. If the torque value is higher, the nut will be damaged.

Nº	Part
1	Float switch position

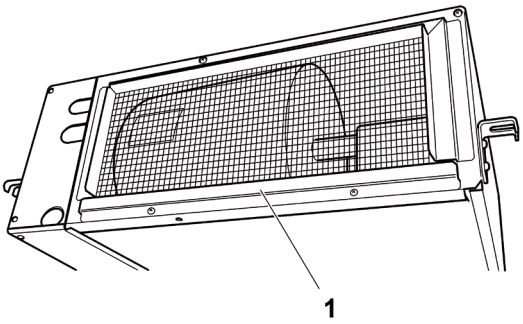
3 Loosen the resin nut securing the float switch and remove it.



Nº	Part
1	Float switch

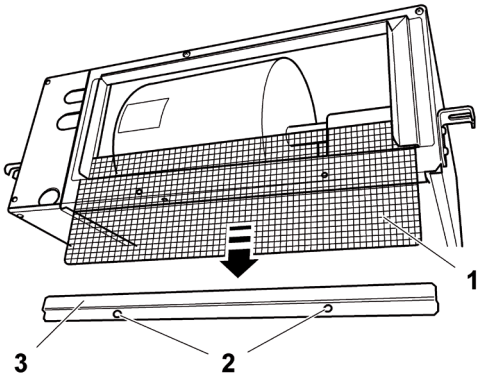
7.7.5 Removal of the air filter

1 Remove the air filter fixture support screws and remove the air filter.



Nº	Part
1	Air filter fixture bar

2 Pull the air filter downwards.



Nº	Part
1	Air filter
2	Screws
3	Air filter fixture bar

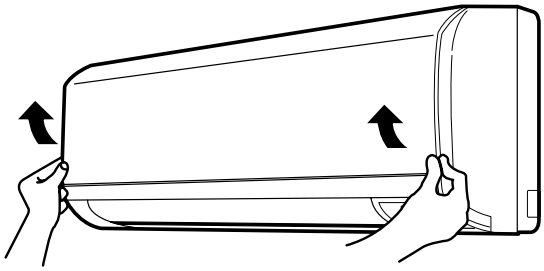
7.8 RPK-FSN(H)4M - Wall mounted

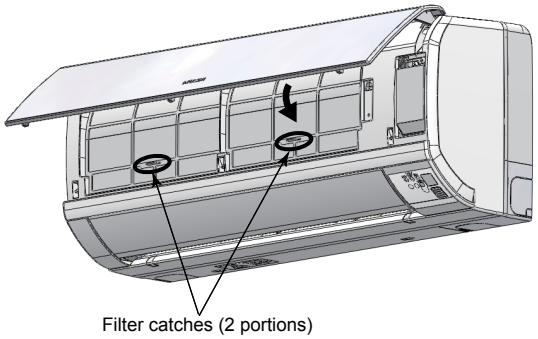
7.8.1 Removal of the air filter

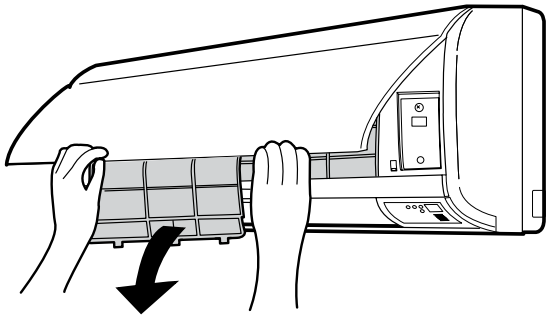
◆ For RPK-(0.4-1.5)FSN(H)4M

1 Open the flat panel. Hold the both sides of flat panel and pull it up

2 Hold both sides of the flat panel and lift it up. Release the 2 catches and pull the air filter downward to remove it.







7.8.2 Removal of the front panel

⚠ CAUTION

- *Cover completely the front panel with a sheet of plastic to protect it during installation work.*
- *The shaft is coated with a lubricant. If it gets in eyes or contacts with skin, flash them out with water immediately. Also consult a doctor if necessary. Wash your hands thoroughly after handling the shaft.*
- *After heating operation stops, temperatures in the pipes and the heat exchanger might remain being high. Becareful when touching the pipes and the heat exchanger after removing the front panel.*
- *Take special care not to be injured by the heat exchanger fins.*

◆ For RPK-(0.4-1.5)FSN(H)4M

1 Remove the air filter according to the *"7.8.1 Removal of the air filter"* chapter.

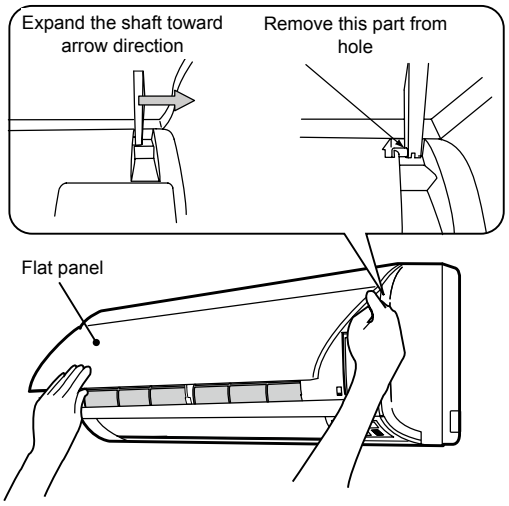
2 Open the flat panel fully and slightly extend the right arm shaft outward. After the shaft is removed from the front panel, pull the flat panel frontward with the right arm shaft slightly extended outward and then remove the flat panel.

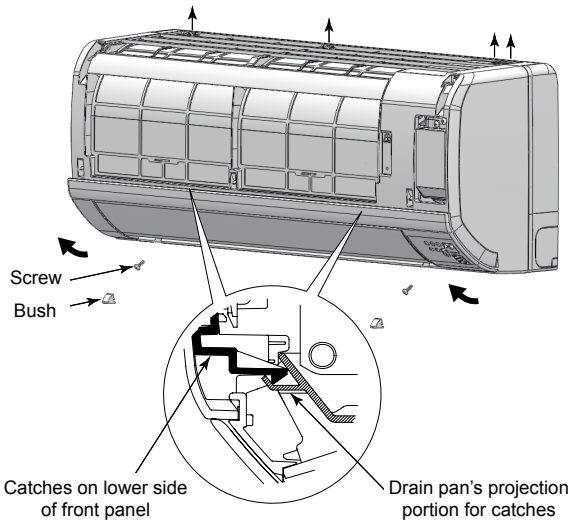
3 Remove 2 bushes and then 2 screws. Pull the lower side of the front panel forward to release the catches. Then remove the front panel carefully so that it does not touch the horizontal louver attached to the air outlet.

4 Slightly lift the front panel up to release the catches (4 positions) on the upper side of the unit. Then pull the front panel forward to remove it

NOTE

When releasing the catches, snap sound is heard. This is the sound made when the catches are released and so there are no safety concerns.





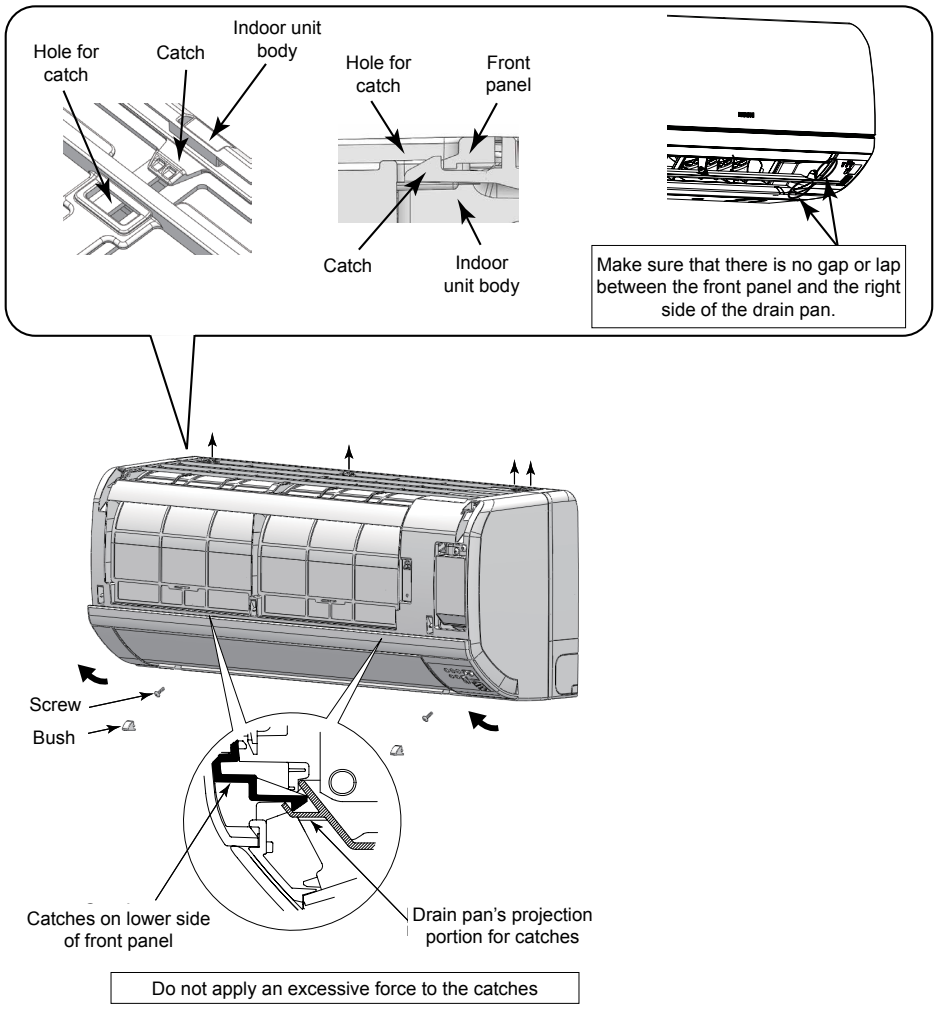
5 When mounting the front panel, firstly attach the air outlet side of the panel to the unit and then put the catches (4 positions) on the upper side of the unit into the holes on the panel. Push the lower side of the panel to fasten the catches.

NOTE

Make sure that there is no gap nor lap between the front panel and the right side of the drain pan. If there is a gap there, an air leakage and dew condensation may occur and the dew may drop on the front panel.

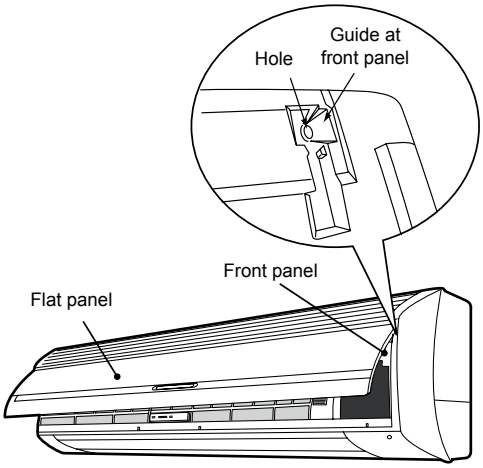
6 Tighten 2 screws and attach 2 bushes. And then mount the air filter.

7 Insert the arm shafts on both sides of the flat panel into the holes on the unit body, along the guide of the front panel. After the flat panel is attached properly, close the flat panel.



Attaching flat panel.

Insert completely the left and right arm shafts of flat panel into the holes along the guide at the front panel. After the flat panel is attached completely, insert the catches for air filter to fix it.



◆ For RPK-(2.0-4.0)FSN4M

1 Remove the air filter according to the *"7.8.1 Removal of the air filter"* chapter.

2 Hold both sides of flat panel and open it fully. After the right arm shaft is pushed inward and shafts are removed from the front panel, pull the flat panel forward while the right arm shaft is slightly pushed inward.

3 Remove 3 bushes and then 3 screws. Pull the center of the bottom side in the flat panel (2 positions) and the lower side of the louver (2 positions) forward to release the catches. Use a slotted screwdriver when the catches are difficult to release.

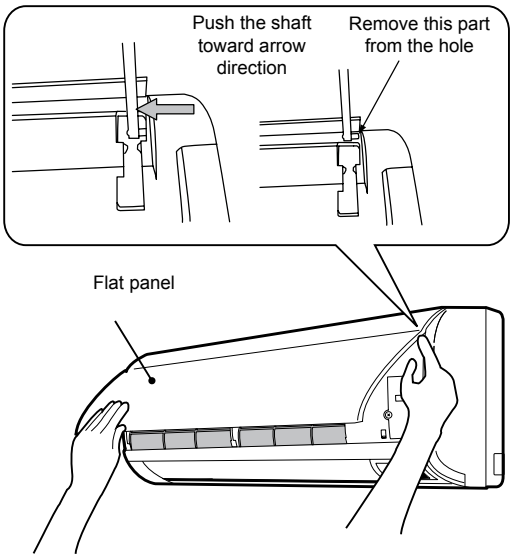
4 Remove the front panel carefully so that it does not touch the horizontal louver attached to the air outlet. Slightly lift the front panel up to release the catches (4 positions) on the upper side of the unit. Then pull the front panel forward to remove it.

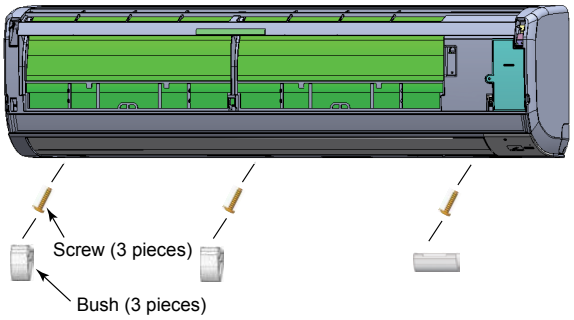
⚠ CAUTION

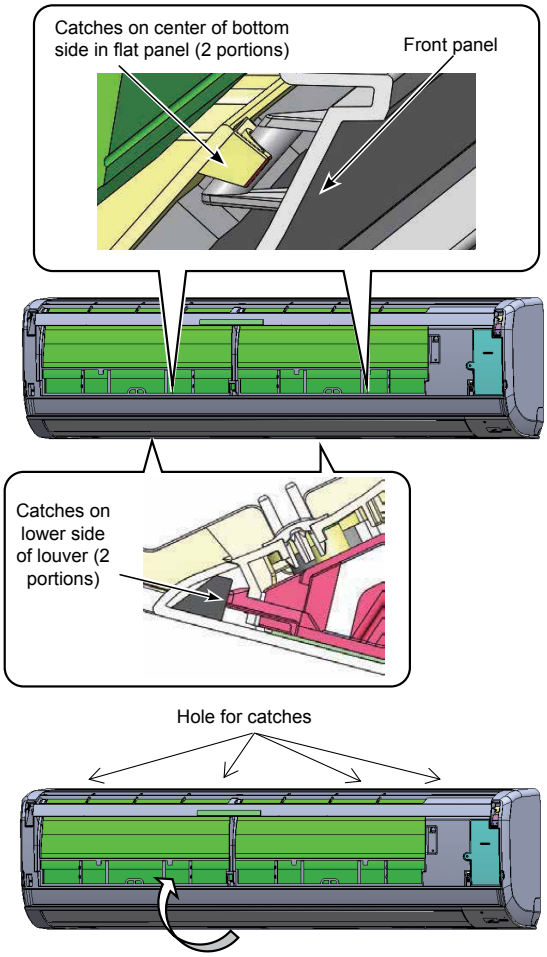
Take special care not to be injured by the heat exchanger fins.

NOTE

When releasing the catches, snap sound is heard. This is the sound made when the catches are released and so there are no safety concerns.







5 When mounting the front panel, be careful that it does not touch the horizontal louver. Paying attention to both sides of the panel, put the catches (4 positions) on the upper side of the unit into the holes on the panel. Then push the center of bottom side in the flat panel (2 portions) and the lower side of the louver (2 positions) to fasten the catches.

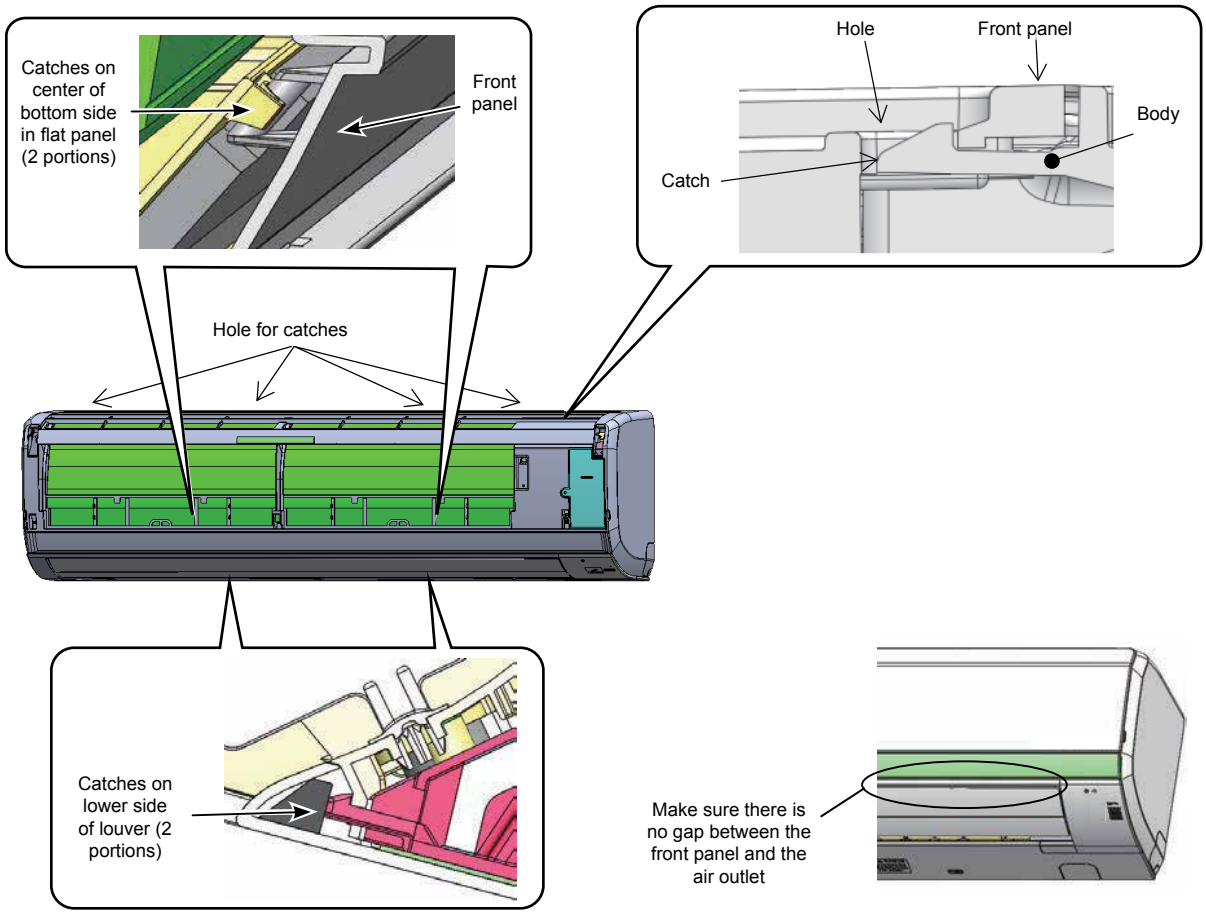
NOTE

Make sure that there is no gap nor lap between the front panel and the left side of the condensate pan. If there is a gap there, an air leakage and dew condensation may occur and the dew may drop on the front panel.

6 Tighten 3 screws and attach 3 bushes. And then mount the air filter.

7 Insert completely the arm shafts of left and right side of the panel into the holes along the guide of the front panel. After the flat panel is attached properly, close the flat panel.

Tool: Phillips Screwdriver, Slotted Screwdriver

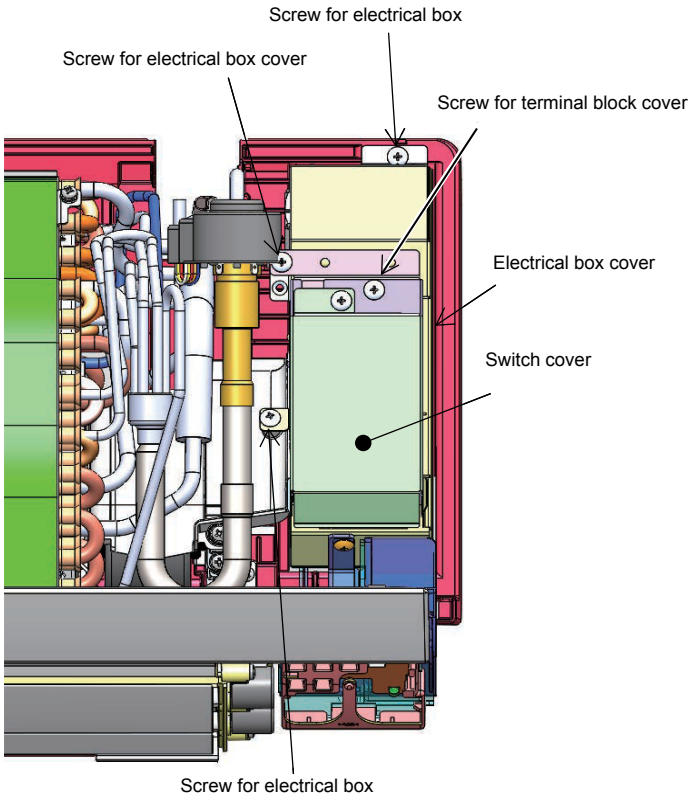

Catches on center of bottom side in flat panel (2 portions)
Front panel
Hole
Front panel
Body
Catch
Hole for catches
Catches on lower side of louver (2 portions)
Make sure there is no gap between the front panel and the air outlet

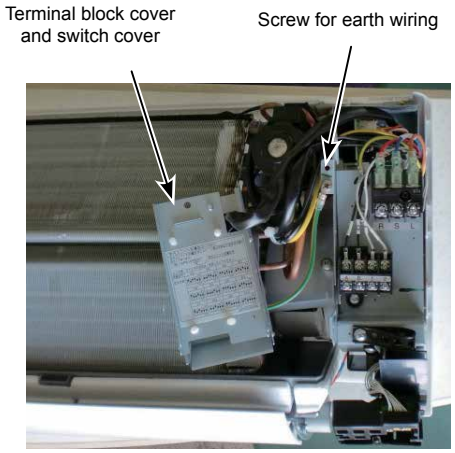
7.8.3 Remove the electrical box cover

1 Remove the flat panel as indicated in section *"7.8.2 Removal of the front panel"*. The electrical box cover can be opened without removing the front panel.
2 Remove one (1) screw fixing the terminal block cover to remove it. Also remove 1 screw fixing the electrical box cover to remove it.
3 Then, remove the power supply wiring, the transition wiring and the wiring for the remote control switch from the terminal block.
4 Remove the connectors (on the PCB1) for the freeze protection thermistor, gas pipe thermistor, inlet air thermistor, outlet thermistor, auto-louver, fan motor and expansion valve coil.
5 Remove the wirings for the freeze protection thermistor, gas pipe thermistor, inlet air thermistor and the expansion valve coil from the wiring outlet at the upper part. Also remove the wirings for the outlet air thermistor, auto-louver and fan motor from the wiring outlet at the lower part.
6 Remove the earth screw to disconnect earth wire between the heat exchanger and the electrical box.
7 Remove two (2) screws fixing the electrical box to dismount it from the indoor unit body.

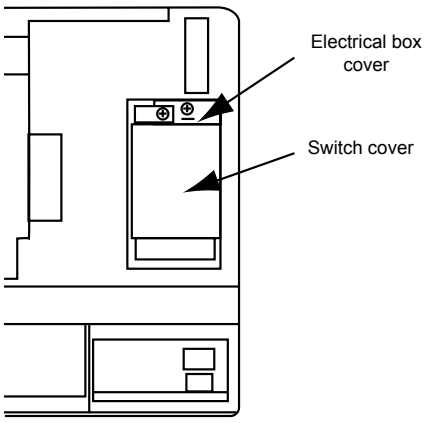
NOTE

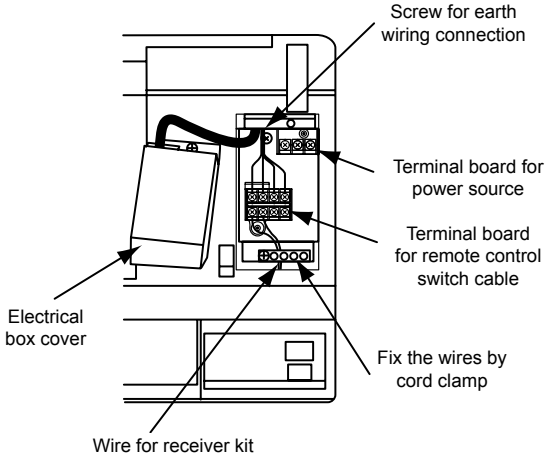
If the unit with the expansion valve kit is used, regard "expansion valve coil" as "expansion valve relay cord"





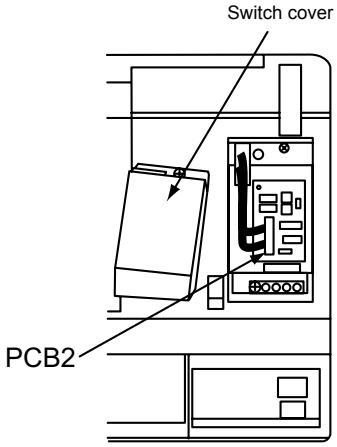
Example for 0.6HP to 1.5HP





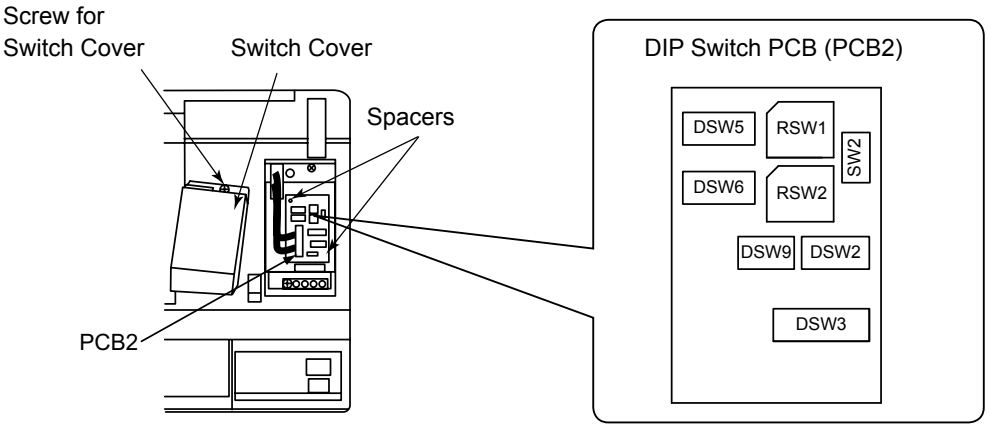
7.8.4 Remove the switch cover

Remove the flat panel as indicated in section *"7.8.2 Removal of the front panel"*. The switch cover can be opened without removing the front panel.



7.8.5 Replacing DIP Switch PCB (PCB2)

a. Remove the flat panel.
b. Remove one (1) screw fixing the switch cover to remove it.
c. Disconnect the connectors for PCB2.
d. Remove spacers and then PCB2.
e. After the replacement, attach PCB2 in the reverse procedure.
f. Set the capacity code on DSW3.



7.8.6 Replacing PCB1 for control

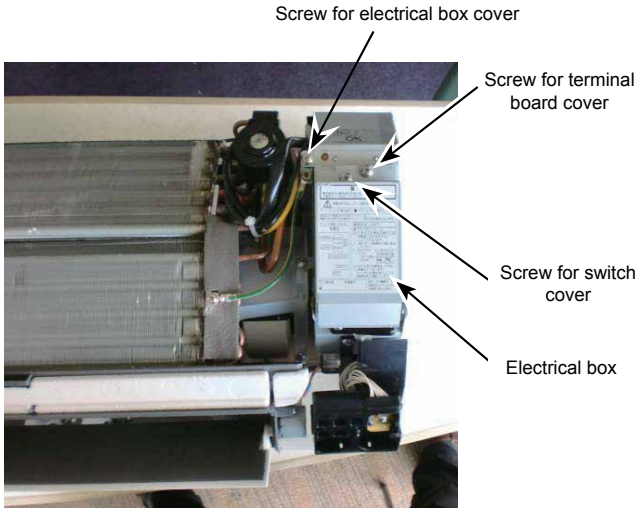
1 Remove the electrical box according to the *"7.8.7 Removing AS motor"* chapter.

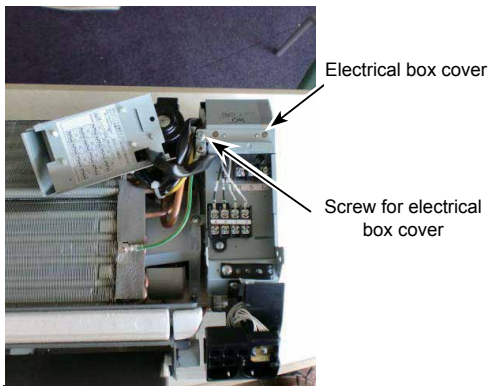
NOTE

If there is enough service space to the right side of the electrical box, PCB1 can be replaced without removing the electrical box.

2 Remove 2 spacers in the direction of the arrow (A) and also remove PCB1 in the direction of the arrow (B).

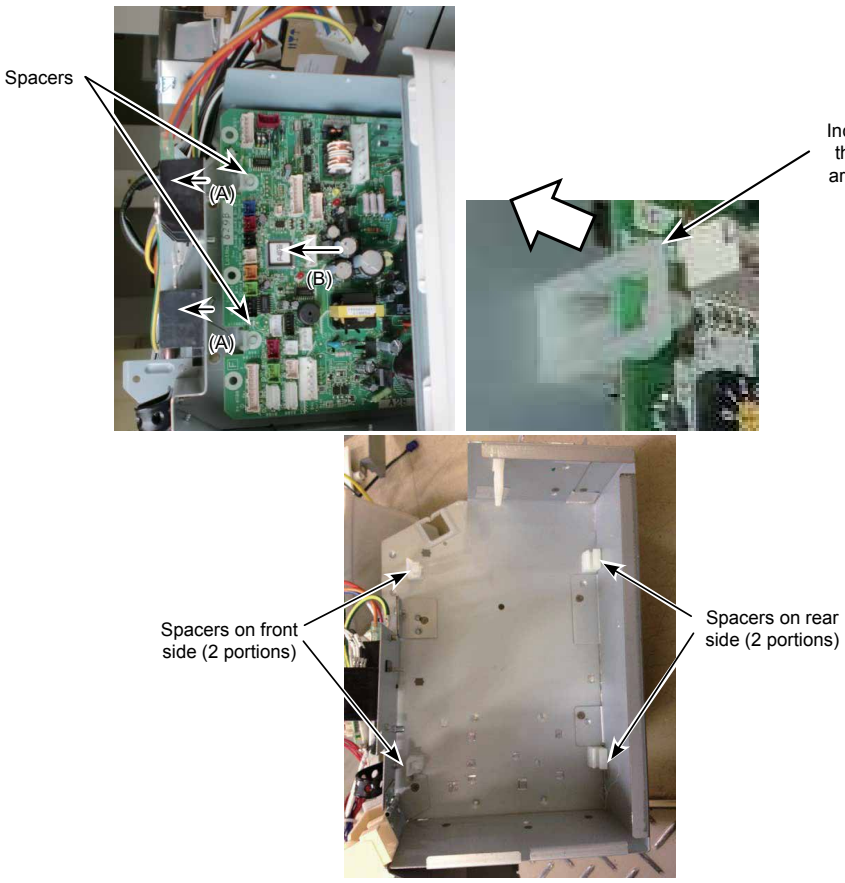
3 After the replacement, attach them in the reverse procedure.





NOTE

If the unit with the expansion valve kit is used, regard "expansion valve coil" as "expansion valve relay cord."



7.8.7 Removing AS motor

◆ For RPK-(0.4-1.5)FSN(H)4M

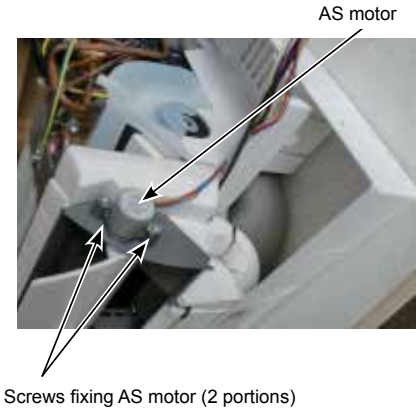
1 Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.
2 Remove the electrical box according to the *"7.8.7 Removing AS motor"* chapter.
3 Remove 2 screws fixing the AS motor to remove it. Then pull the AS motor outward and remove it from the shaft of the horizontal louver.
4 When mounting the AS motor, insert the shaft of the AS motor into the D-cut portion of the horizontal louver. Then mount the AS motor in the reverse procedure.

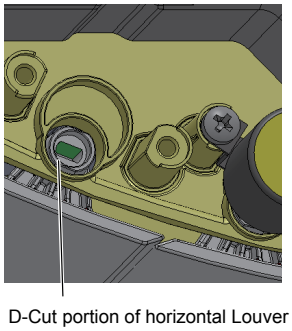
◆ For RPK-(2.0-4.0)FSN4M

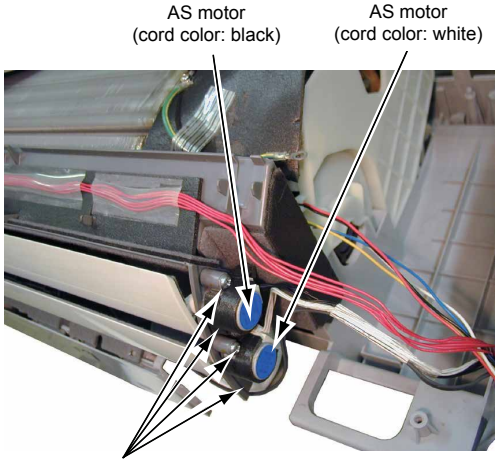
1 Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.
2 Remove the electrical box from the cabinet according to the *"7.8.7 Removing AS motor"* chapter.
3 Remove 4 screws fixing 2 AS motors to remove them. Then pull the AS motors outward and remove them from the shaft of the horizontal louver.
4 When mounting the AS motors, insert the shafts of the AS motors into the D-cut portions of the horizontal louver. Then mount the AS motors in the reverse procedure.

NOTE

The AS motor connected to the black cord is for the upper horizontal louver and the AS motor connected to the white cord is for the lower horizontal louver. Take care not to mount a wrong AS motor when mounting them.







7.8.8 Removing drain pan

Take care when removing the drain pan, as water may have collected in the drain pan.

Do not remove the horizontal louver. Otherwise, some component may be damaged.

NOTE

Before removing the drain pan, check that the drain hose is not fixed. If the drain hose is firmly fixed, the drain pan cannot be removed.

1 Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.

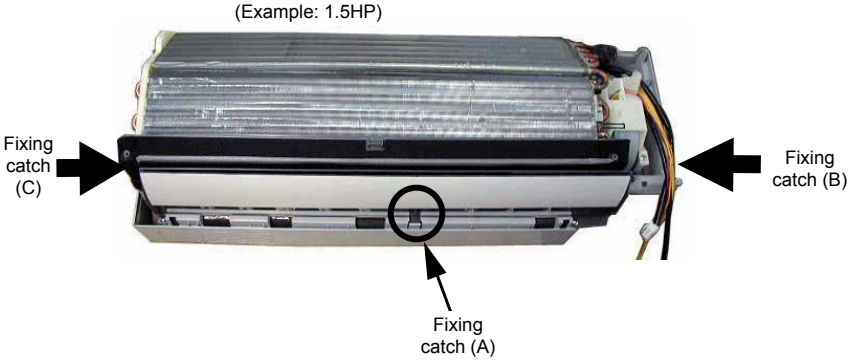
2 Remove the electrical box according to the *"7.8.7 Removing AS motor"* chapter.

3 Release the catches fixing the drain pan.
- 0.4HP to 1.0HP (3 positions): (A)×1, (B)×1 and (C)×1
- 1.5HP to 4.0HP (4 positions): (A)×2, (B)×1 and (C)×1
  Then draw the drain pan in the direction of the arrow in the figure below to remove it.

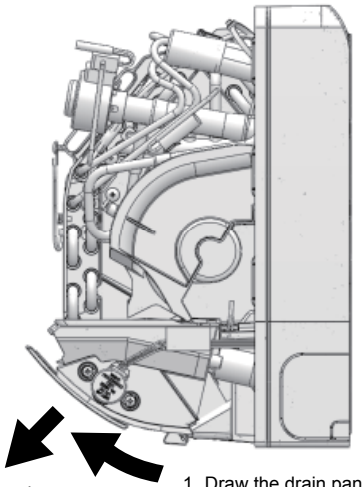
4 When mounting the drain pan, mount it in the reverse procedure. Make sure that the catches fixing the drain pan, mentioned in the procedure (3), are fastened.

Positions of fixing catches for drain pan

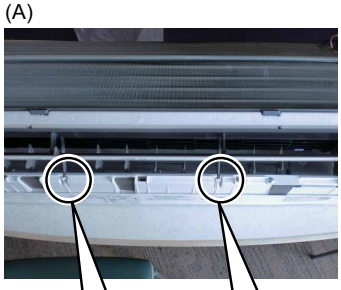
(Example: 1.5HP)

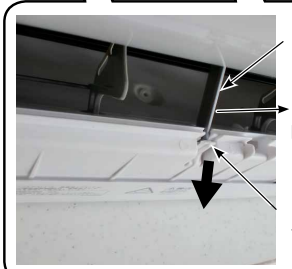


Direction for removing drain pan

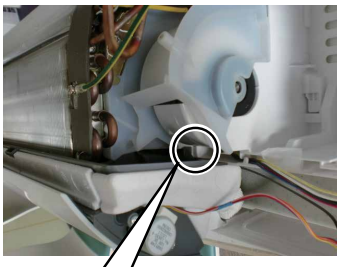


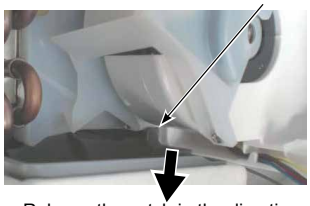
(A)



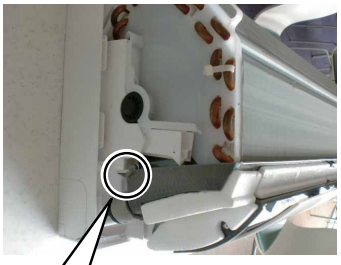


(B)





(C)





7.8.9 Removing heat exchanger

DANGER

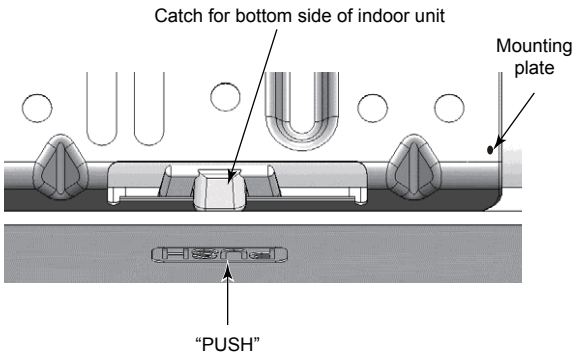
TURN OFF all power source switches.

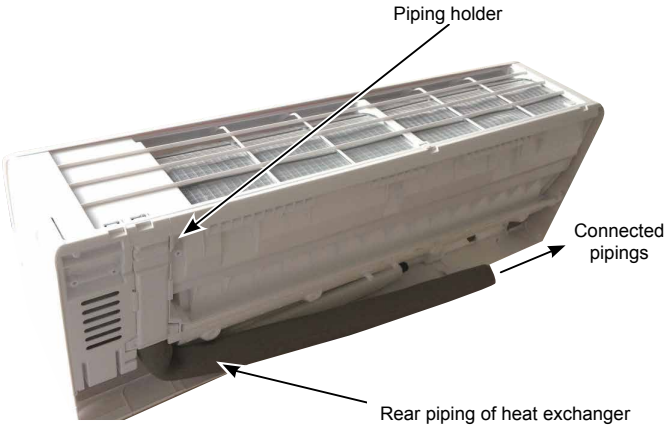
CAUTION

- *Recover the refrigerant from the unit before the work. After all the refrigerant is recovered, turn OFF all power source switches.*
- *Make sure that the unit will not be damaged. If having difficulty in performing the work alone, the work shall be taken by two people.*
- *Take special care not to be injured by the heat exchanger fins.*

◆ For RPK-(0.4-1.5)FSN(H)4M

1 Remove the power source wiring, the transmission wiring and the wiring for the remote control switch.
2 Push the portion indicated by “PUSH” on the underside of the unit to release the catches at the lower part of the unit.
3 Remove the flare nuts attached to the rear piping of the heat exchanger to disconnect the pipings. Then lift the indoor unit up and draw it frontward to remove it.
4 Remove the front panel according to the *“7.8.2 Removal of the front panel”* chapter.
5 Remove the electrical box according to the *“7.8.7 Removing AS motor”* chapter.
6 Remove the drain pan according to the *“7.8.8 Removing drain pan”* chapter.



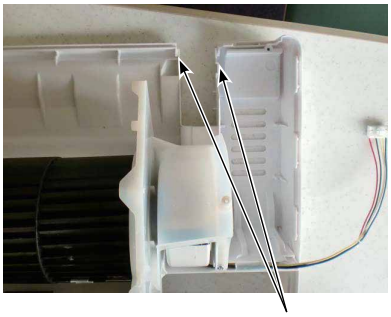


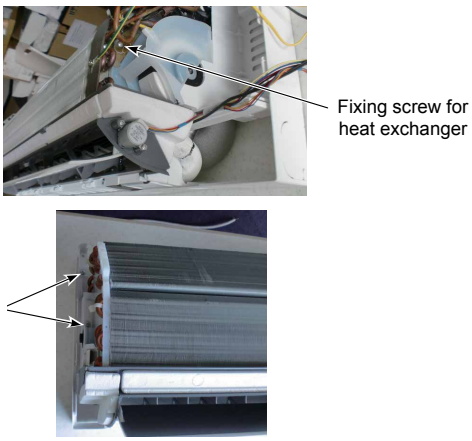
Rear side of indoor unit

7 Release 2 catches on the inside of the piping holder at the rear side of the indoor unit and remove the piping holder.

8 Remove 1 screw fixing the right side of the heat exchanger. Then remove 2 screws fixing the left side of the heat exchanger.

Front Side of Indoor Unit (The figures above show the examples with the piping for heat exchanger removed.)





9 Tilt up the piping holder at the rear side approximately 10 degrees in the direction of the arrow (A) as shown in the figure below.

10 Pull out the heat exchanger with the rear pipings obliquely upward in the direction of the arrow (B) to remove it from the slotted portion.

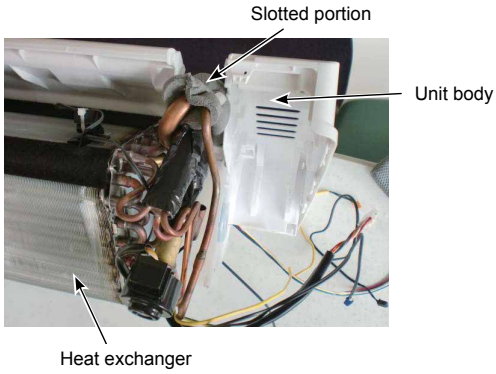
NOTE

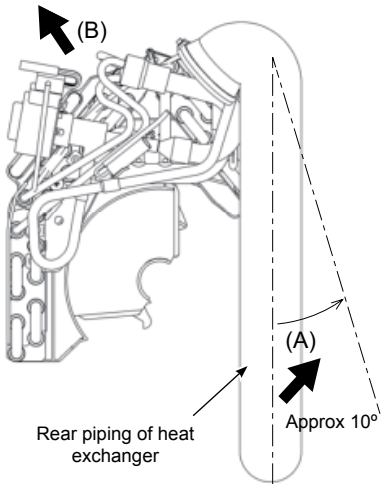
Make sure that the heat exchanger and the unit body will not be damaged when removing the heat exchanger.

11 When mounting the heat exchanger, mount it in the reverse procedure.

NOTE

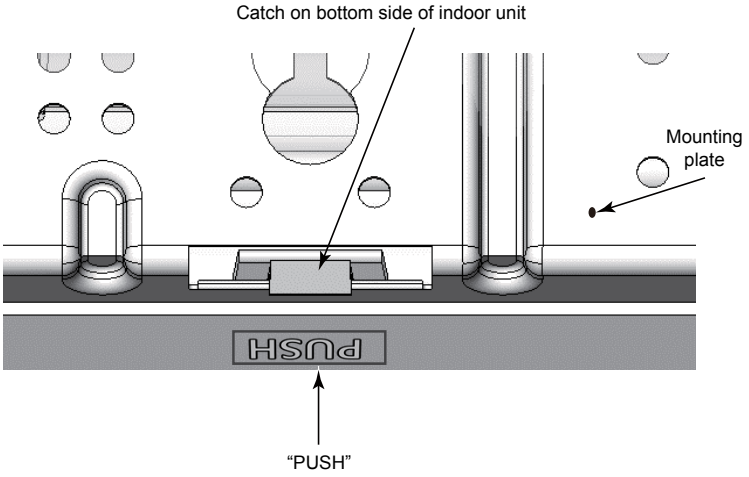
Before mounting the heat exchanger, check to ensure that there is no clearance between the heat exchanger and the motor clamp in order to prevent dew drops.

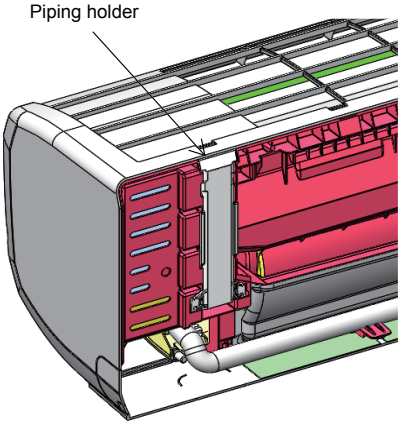


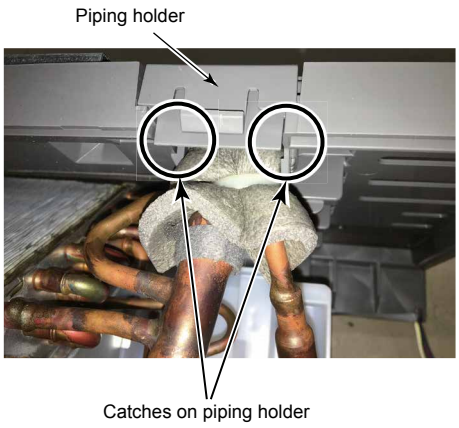


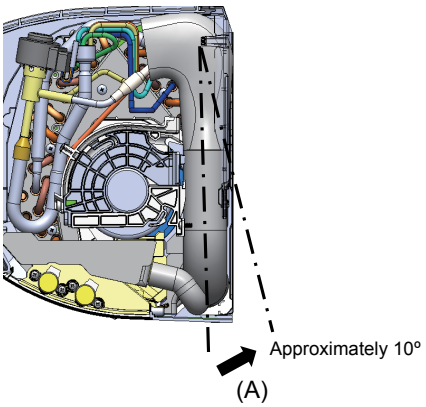
◆ For RPK-(2.0-4.0)FSN4M

1 Remove the power source wiring, the transmission wiring and the wiring for the remote control switch.
2 Push the portion indicated by “PUSH” on the underside of the unit to release the catches at the lower part of the unit.
3 Remove the flare nuts attached to the rear pipings of the heat exchanger to disconnect the piping. Then lift the indoor unit up and draw it frontward to remove it.
4 Remove the front panel according to the *“7.8.2 Removal of the front panel”* chapter.
5 Remove the electrical box according to the *“7.8.7 Removing AS motor”* chapter.
6 Release 2 catches on the inside of the piping holder at the rear side of the indoor unit and remove the piping holder.
7 Tilt up the piping holder at the rear side approximately 10 degrees in the direction of the arrow (A) as shown in the figure below.









8 Remove one (1) screw fixing the right side of the heat exchanger. Then remove two (2) screws fixing the left side of the heat exchanger.
9 Disconnect the catch on the resin plate in the left of the heat exchanger fitted in the cabinet.
10 Take the heat exchanger out of the body as like pulling it up.

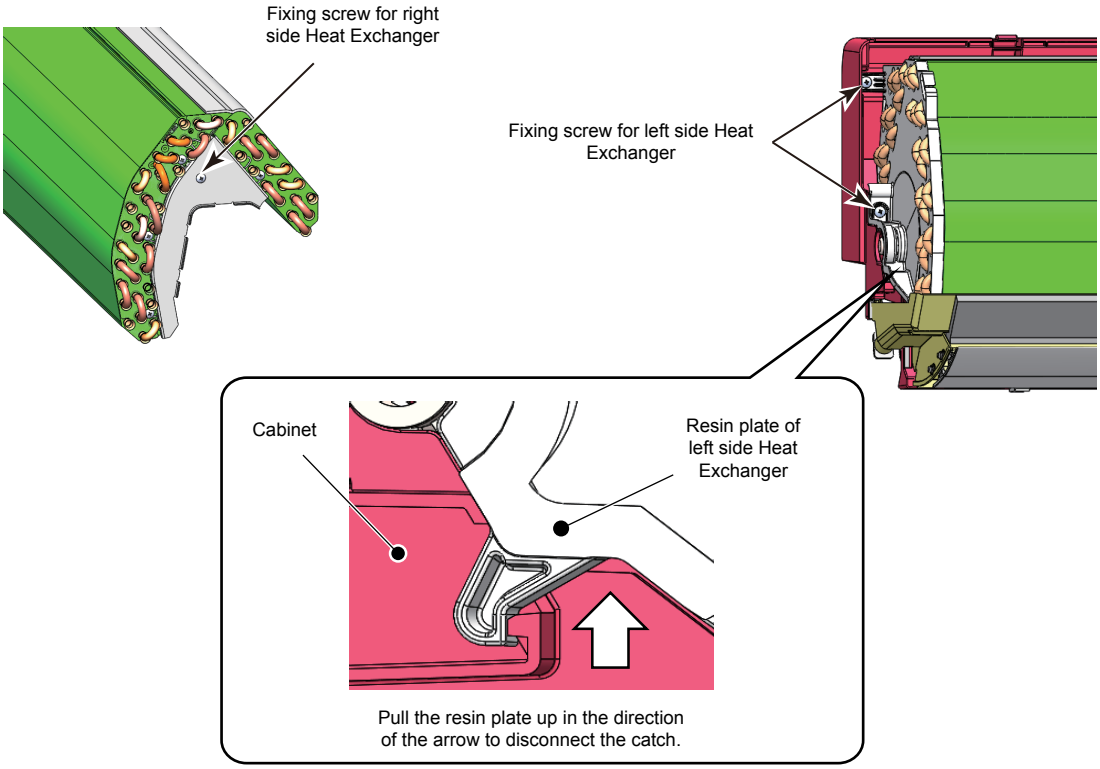
NOTE

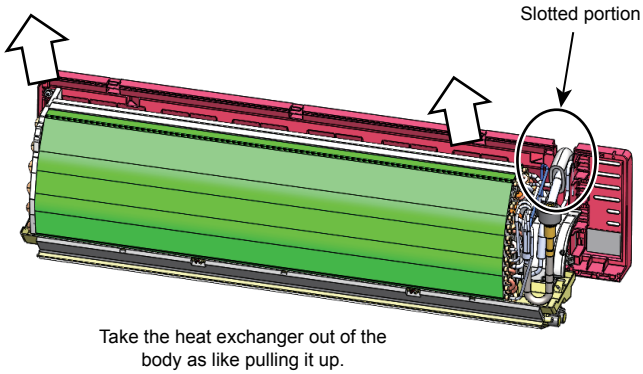
Make sure that the heat exchanger and the unit body will not be damaged when removing the heat exchanger. Use care to prevent the pipe from being caught in the slotted portion of the body.

11 When mounting the heat exchanger, mount it in the reverse procedure.

NOTE

Before mounting the heat exchanger, check to ensure that there is no clearance between the heat exchanger and the motor clamp in order to prevent dew drops.





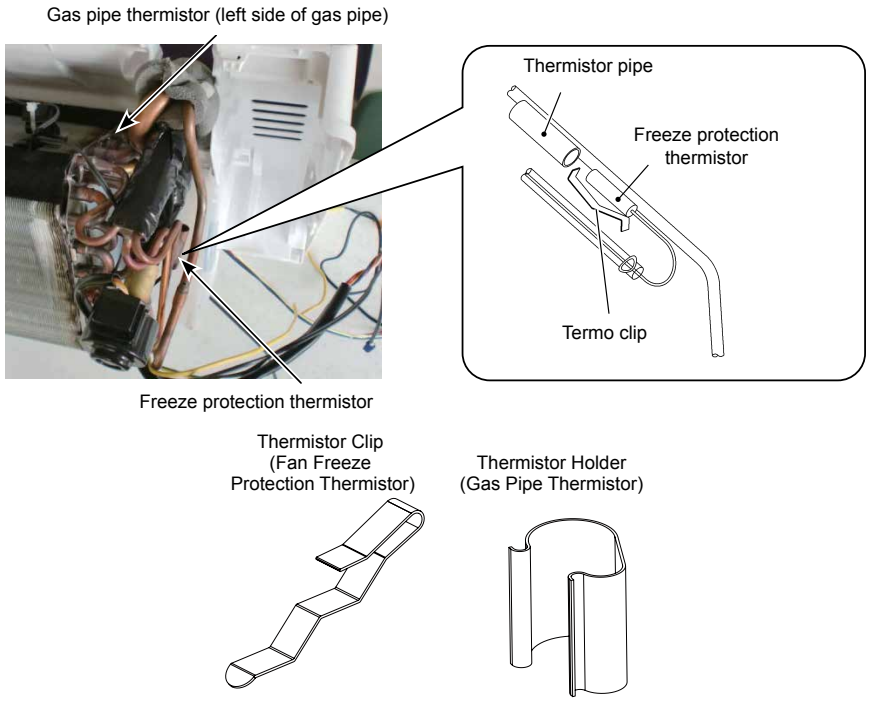
7.8.10 Removing thermistors for freeze protection, gas pipe, outlet air and inlet air

◆ For RPK-(0.4-1.5)FSN(H)4M

1 Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.
2 Remove the electrical box according to the *"7.8.7 Removing AS motor"* chapter.
3 Remove the plastic band (A) clamping each thermistor.



4 Removing Freeze Protection Thermistor
   a. The freeze protection thermistor is fixed by thermistor pipe with a thermo clip. Remove the thermistor from the thermo clip.
   b. When attaching the freeze protection thermistor, attach it in the reverse procedure. Insert the thermistor into the thermistor pipe and fix it with the thermo clip.
   c. After attaching the thermistor, clamp the wirings for the expansion valve, freeze protection thermistor, gas pipe thermistor and inlet air thermistor with one (1) plastic band.
5 Removing Gas Pipe Thermistor
   a. The gas pipe thermistor is fixed by the thermistor holder. Remove the thermistor holder from the thermistor. Then, the gas pipe thermistor can be removed.
   b. When attaching the gas pipe thermistor, attach it in the reverse procedure. Get the thermistor firmly attached to the inside of the piping with the thermistor holder.
   c. After attaching the thermistor, clamp the wirings for the expansion valve, freeze protection thermistor, gas pipe thermistor and inlet air thermistor with one (1) plastic band.

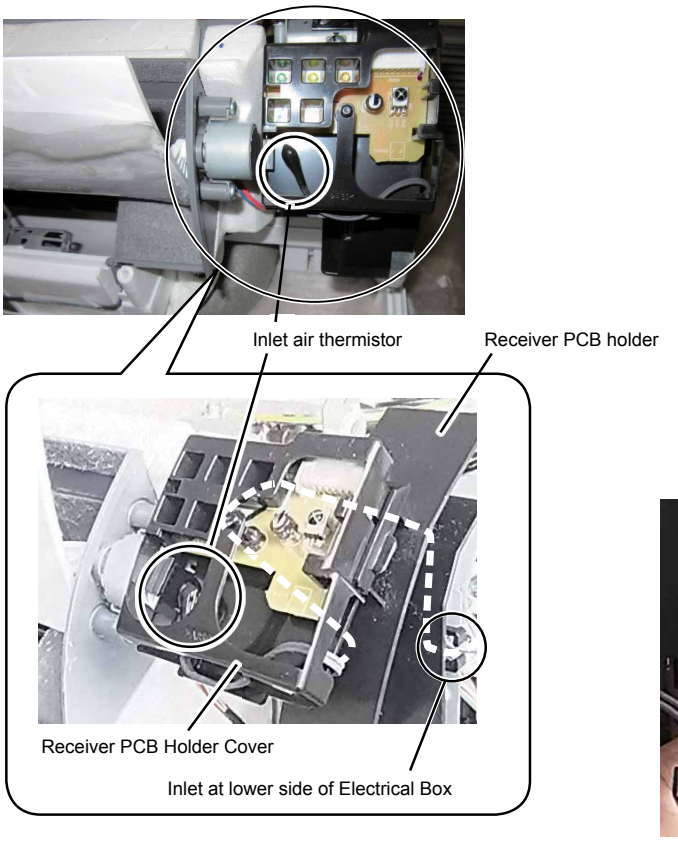


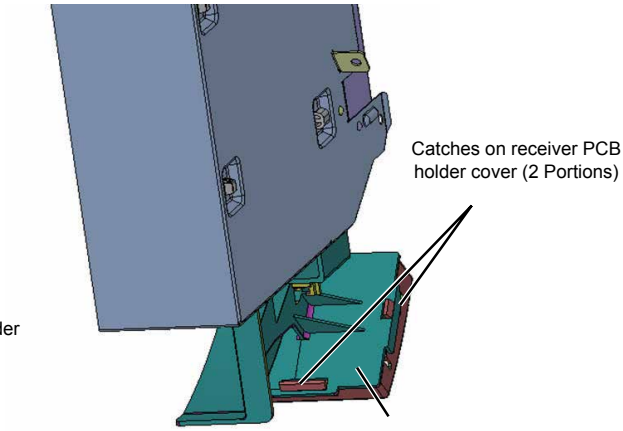
6 Removing Inlet Air Thermistor

a. The inlet air thermistor is fixed to the receiver PCB holder cover under the electrical box. Its wire runs the back of the receiver PCB holder and enters into the electrical box from the opening for wires on the bottom of the electrical box. Detach two catches on the back of the receiver PCB holder cover to dismount the holder cover. Remove the thermistor fixed into two grooves on the receiver PCB holder cover.

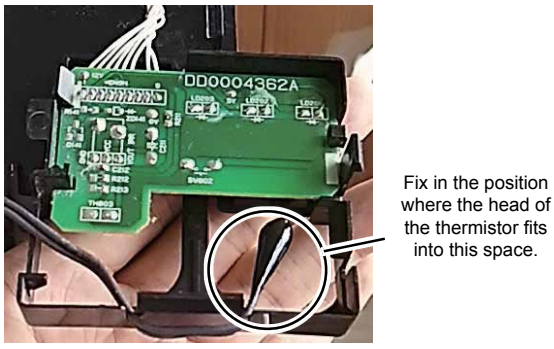
b. When to attach inlet air thermistor, take the reverse steps of it. Care to not get the wire caught between the receiver PCB holder cover and the receiver PCB holder. The risk runs of wire disconnection.

c. After attaching the thermistor, clamp the wiring for the expansion valve, freeze protection thermistor, gas pipe thermistor and inlet air thermistor with 1 plastic band.





(Reverse Side of Receiver PCB Holder)



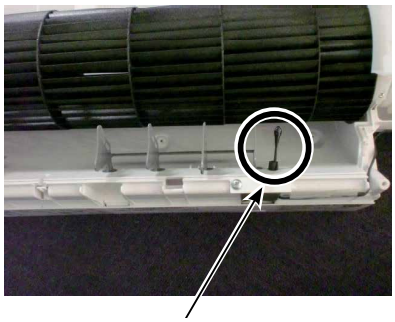
(When Receiver PCB Holder Cover was removed.)

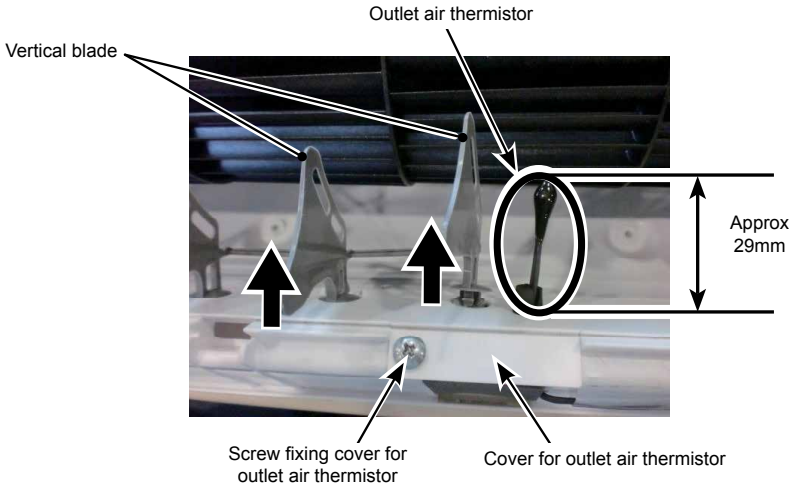
7 Removing Outlet Air Thermistor

a. Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.

b. Lift the front side of the vertical blade up in the direction of the arrow to remove it.

c. Remove 1 screw fixing the outlet air thermistor cover to remove the cover.





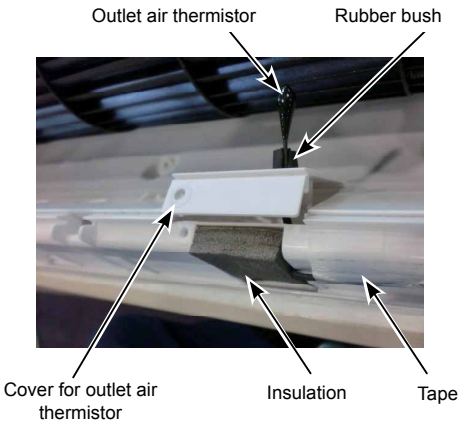
d. After removing the insulation, pull out the rubber bush to remove the outlet air thermistor.

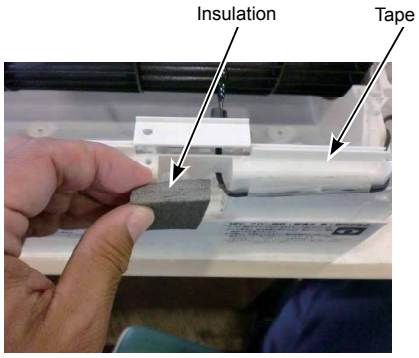
e. Remove the tape fixing the thermistor to remove the thermistor.

f. When attaching the outlet air thermistor, attach it in the reverse procedure.

NOTE

- *Take care during the work so that the wiring for the thermistor will not get caught in the cover.*
- *Make sure that it is 29mm from the upper surface of the thermistor cover to the top of the thermistor.*





◆ For RPK-(2.0-4.0)FSN4M

1 Remove the front panel according to the *"7.8.2 Removal of the front panel"* chapter.

2 Remove the electrical box according to the *"7.8.7 Removing AS motor"* chapter.

3 Removing Freeze Protection Thermistor



a. The freeze protection thermistor is fixed to the inside of the thermistor pipe brazed to the gas pipe by the thermo clip. Remove the thermistor from the thermo clip.

b. When attaching the freeze protection thermistor, attach it in the reverse procedure. Insert the thermistor into the thermistor pipe and fix it with the thermo clip.

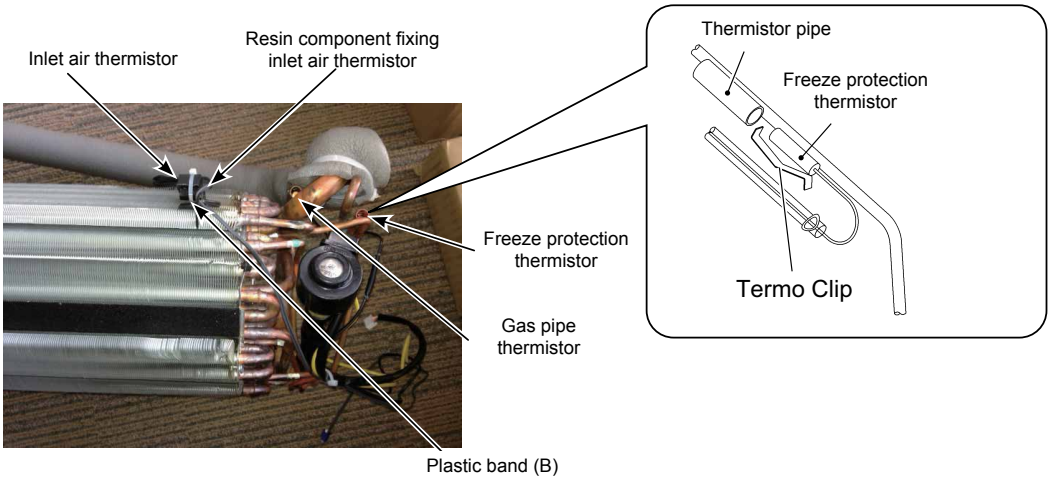
c. After attaching the thermistor, clamp the wiring for the expansion valve, freeze protection thermistor, gas pipe thermistor and inlet air thermistor with 1 plastic band.

4 Removing Gas Pipe Thermistor

a. The gas pipe thermistor is fixed to the inside of the thermistor pipe brazed to the gas pipe by the thermistor holder. Remove the thermistor holder from the thermistor. Then, the gas pipe thermistor can be removed.

b. When attaching the gas pipe thermistor, attach it in the reverse procedure. Get the thermistor firmly attached to the inside of the piping with the thermistor holder.

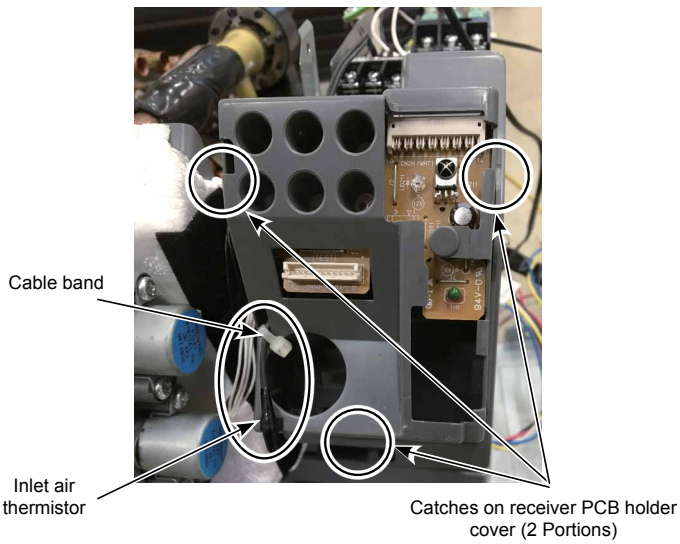
c. After attaching the thermistor, clamp the wiring for the expansion valve, freeze protection thermistor, gas pipe thermistor and inlet air thermistor with 1 plastic band.

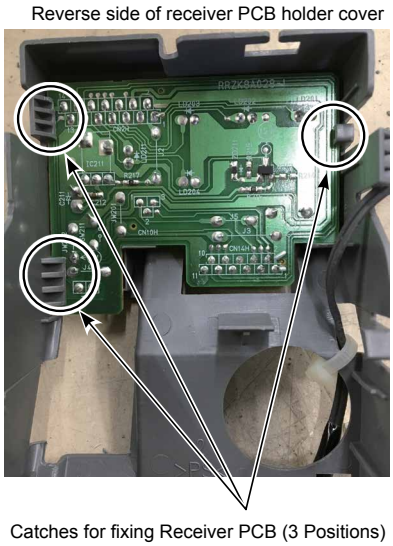


5 Removing Inlet Air Thermistor

a. The inlet air thermistor is fixed to the receiver PCB holder cover under the electrical box. Its wire runs the back of the receiver PCB holder and enters into the electrical box from the opening for wires on the bottom of the electrical box. Detach three catches on the back of the receiver PCB holder cover to dismount the cover out of the holder. Dismount the receiver PCB out of the receiver PCB holder cover that clamp the PCB with three catches. Cut the cable band off and remove the inlet air thermistor.

b. When to attach inlet air thermistor, take the reverse steps of it. Care to not get the wire caught between the receiver PCB holder cover and the receiver PCB holder. The risk runs of wire disconnection.





6 Removing Outlet Air Thermistor

a. Remove the drain pan according to the item *"7.8.8 Removing drain pan"*.

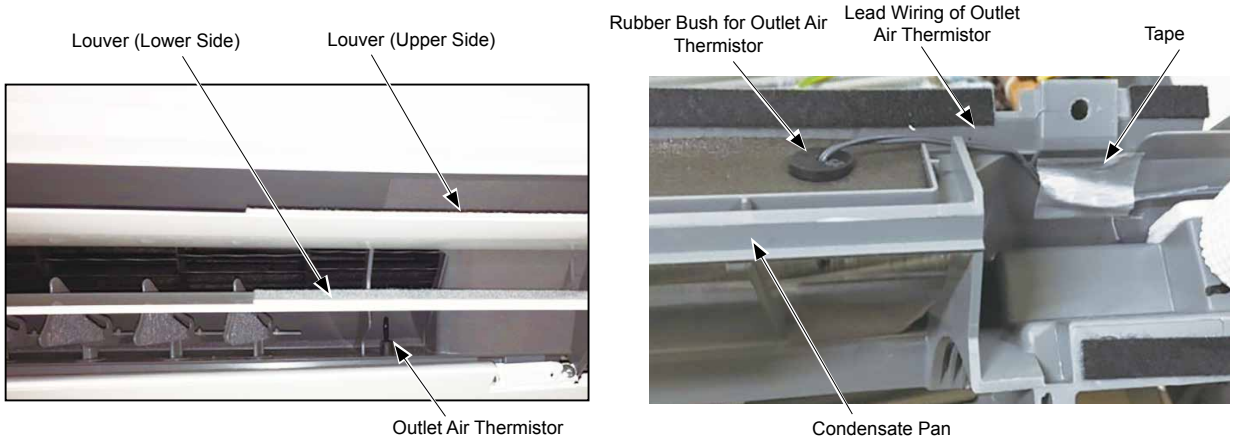
b. Detach cord fitment tape on the outlet air thermistor.

c. Remove the air outlet thermistor that is fixed with rubber bush from the back of the condensate pan

d. When to attach air outlet thermistor, take the reverse steps of it.

NOTE

- *Care that the wire of the air outlet thermistor should not get caught in the front cover.*
- *Commodity filament tape (25mm × 40mm) can be available as thermistor fitment tape. See photo below on to where the tape attaches.*



7.8.11 Removing fan and fan motor

DANGER

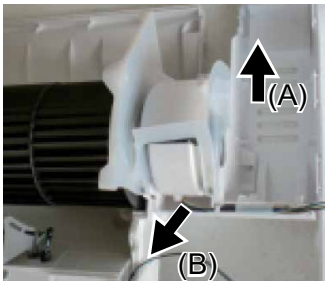
TURN OFF all power source switches.

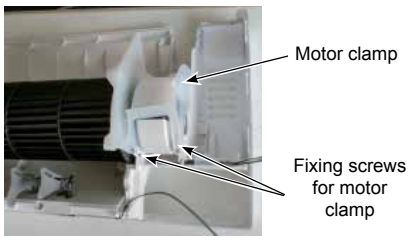
◆ For RPK-(0.4-1.5)FSN(H)4M

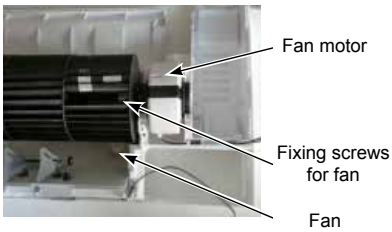
1 Remove the heat exchanger according to the *"7.8.9 Removing heat exchanger"* chapter.

2 Remove 2 screws fixing the motor clamp to remove it. As lifting up the motor clamp in the direction of the arrow (A), pull it out in the direction of the arrow (B).

3 Then Loosen 1 screw fixing the fan and the motor shaft.



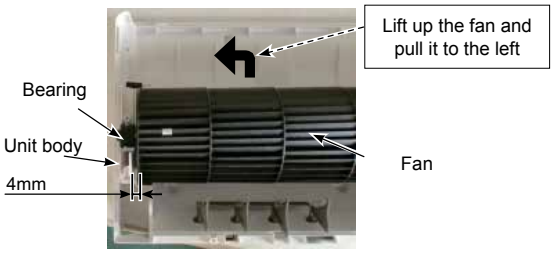


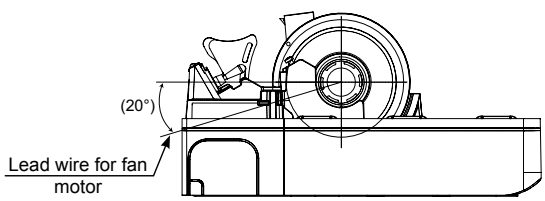


4 Hold the fan with hands and lift the bearing side up slightly. Then pull out the fan in the direction of the arrow to remove the fan and the motor as shown in the figure below.

5 When mounting the fan motor and fan, mount them in the reverse procedure. The fan shall be mounted 4mm away from the unit body.

6 The lead wire for the fan motor shall be pulled out as shown in the figure below.





◆ For RPK-(2.0-4.0)FSN4M

1 Remove the electrical box according to the “Removing Electrical Box” chapter.

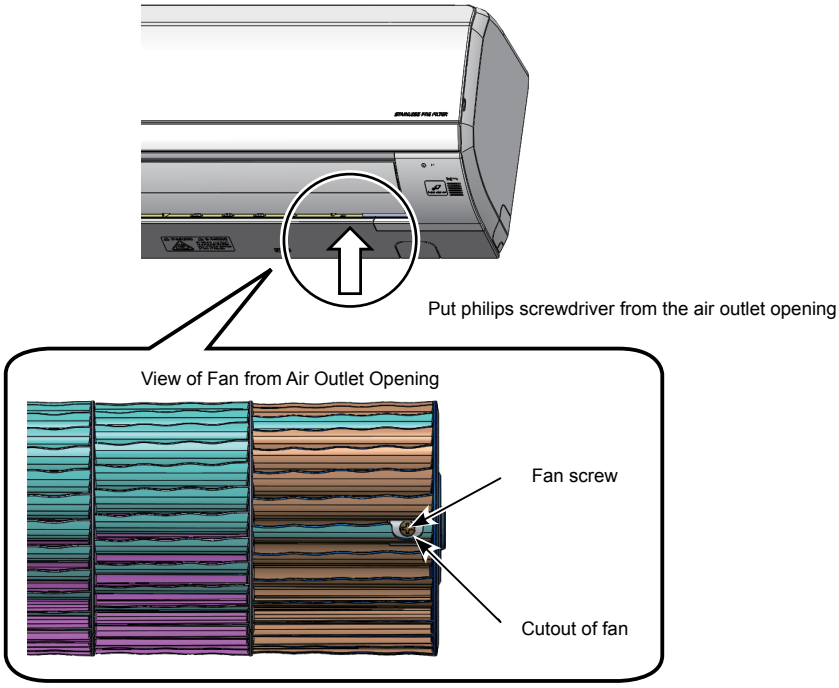
2 Put Philips screw driver from the air outlet opening. Unscrew the screws that connect the fan and the fan motor. The Philips screw driver goes straight against the cutout of the fan.

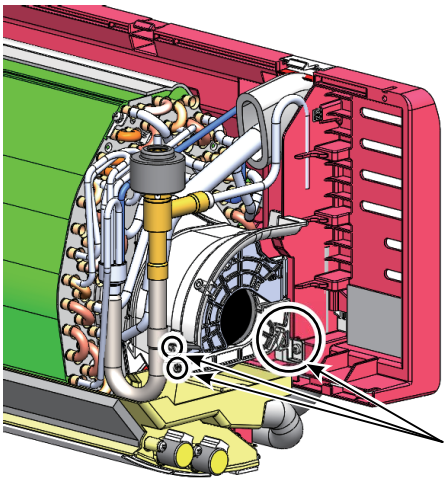
NOTE

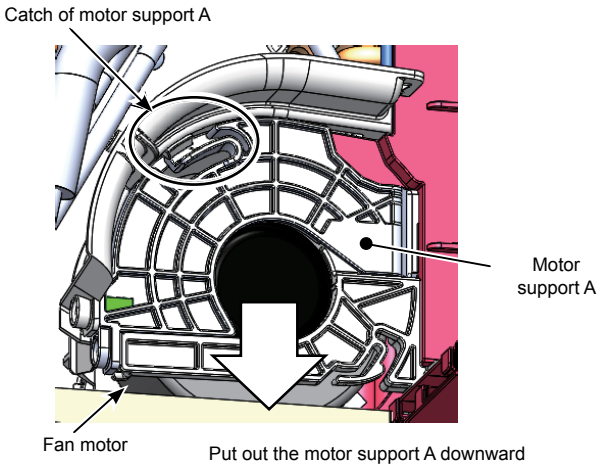
The fan motor can be taken out even if the screws are not perfectly disconnected.

3 Detach three screws that fix the motor support

4 Disconnect the catch of the motor support A out of the body. Pull the motor support A out.





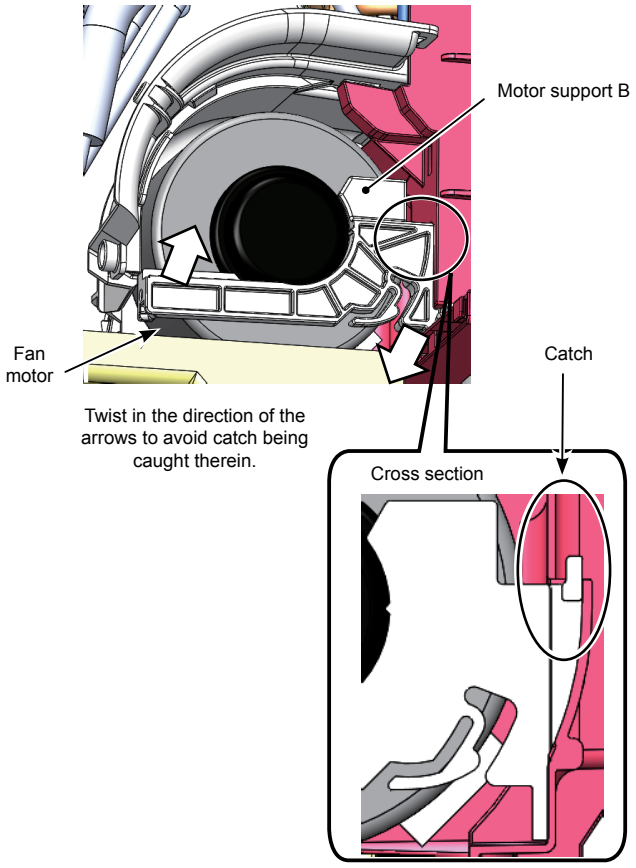


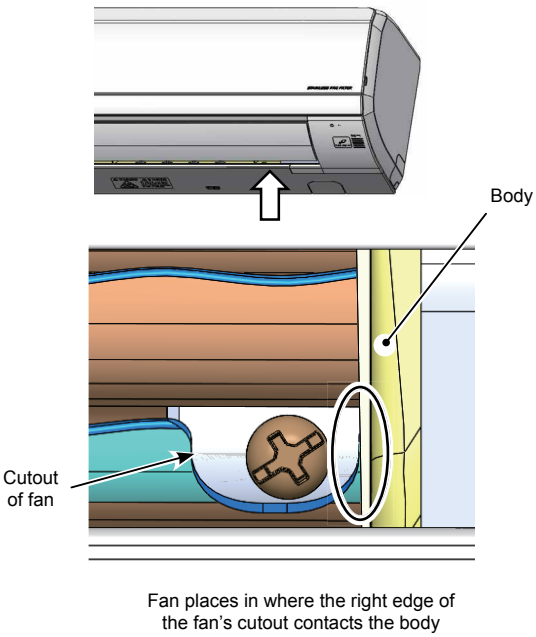
5 Twist away the motor support B out of the rubber bush. Pull the motor support B out to avoid catch being caught therein.

6 Remove the motor wire out of the clamp to pull the fan motor out.

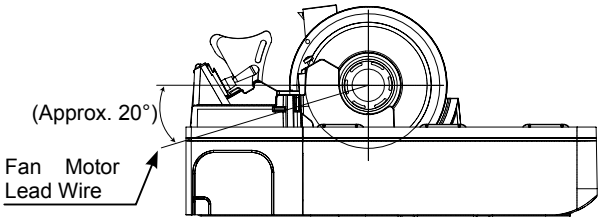
7 When to mount fan motor and fan, take the reverse steps of it. Degree of pulling out of fan motor lead wire is approximately 20°. See illustration below.

8 From the view of downward of the body, fan places in where the right edge of the fan's cutout contact the body. After mounting, rotate the fan by the hand to check for no friction.





Fan places in where the right edge of the fan's cutout contacts the body

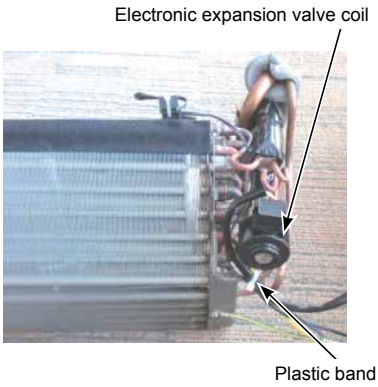


7.8.12 Removing electronic expansion valve coil

◆ For RPK-(0.4-1.5)FSN(H)4M

1 Remove the electrical box according to the “Removal electrical box cover” chapter.

2 Remove the plastic band clamping wiring for the electronic expansion valve.



3 Rotate the expansion valve coil in the direction of the arrow (A) shown in the figure below. After releasing the detents for the expansion valve coil from the projection portions of the expansion valve body, pull up the coil frontward to remove it.

NOTE

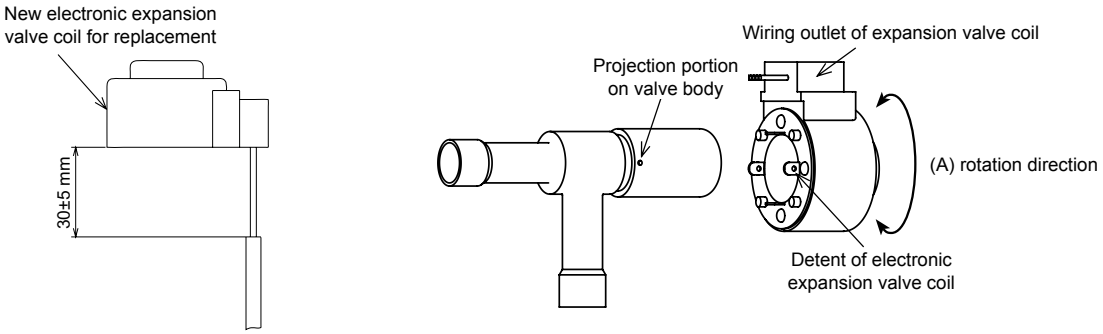
Take care not to twist the piping.

4 Insert the new expansion valve coil for replacement into the expansion valve body. Fit the projection portions into the detents with the wiring outlet facing up.

NOTE

- *The detents are located 90° apart in a circle and the projections are located 180° apart in a circle.*
- *Fit the projection portions into the detents. If inserting the coil incorrectly, it may cause malfunction of the expansion valve coil.*

5 After the work, clamp the wirings for the expansion valve, the freeze protection thermistor, gas pipe thermistor and inlet air thermistor with one (1) plastic band.

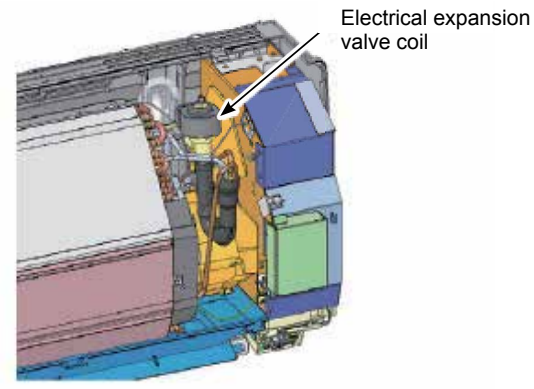


◆ For RPK-(2.0-4.0)FSN4M

1 Remove the electrical box according to the “Removal electrical box cover” chapter.

2 Remove the cable band clamping wiring for the electronic expansion valve.

3 The rear pipe for the heat exchanger, the electronic expansion valve, and the piping at the inlet/outlet of the electronic expansion valve are protected with butyl sheets. Remove butyl sheets covering the piping, the expansion valve coil and the expansion valve body.



4 Rotate the expansion valve coil in the direction of the arrow (A) shown in the figure below. After releasing the detents for the expansion valve coil from the projection portions of the expansion valve body, pull up the coil to remove it.

NOTE

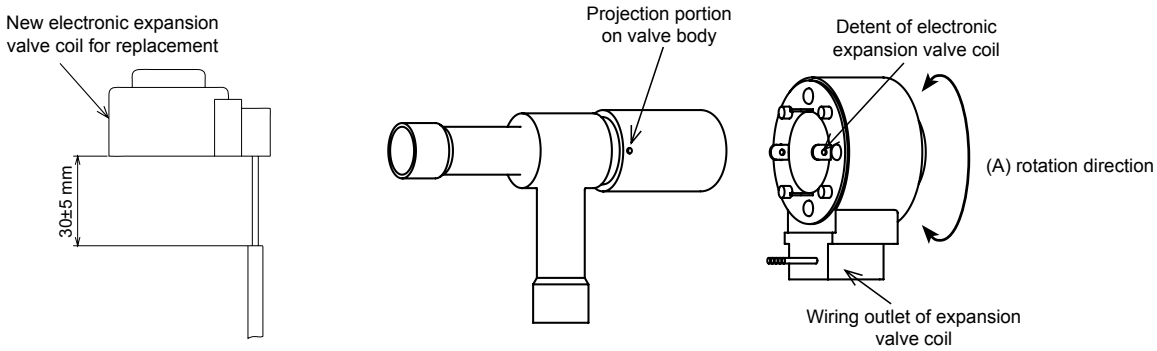
Take care not to twist the piping.

5 Insert the new expansion valve coil for replacement into the expansion valve body. Fit the projection portions into the detents with the wiring outlet facing down.

NOTE

The detents are located 90° apart in a circle and the projections are located 180° apart in a circle. Fit the projection portions into the detents. If inserting the coil incorrectly, it may cause malfunction of the expansion valve coil.

6 After the work, protect the expansion valve coil with butyl sheets, mount the heat exchanger in the reverse procedure and clamp the wirings for the expansion valve, the freeze protection thermistor and gas pipe thermistor with 1 cable band.



7.8.13 Removing Horizontal Louver

NOTE

- ***For RPK-(0.4-1.5)FSN(H)4M***

Do not remove the horizontal louver when removing the drain pan. Removing the horizontal louver will result in component failures.

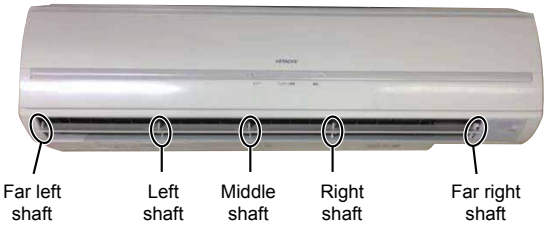
- ***For RPK-(2.0-4.0)FSN4M***

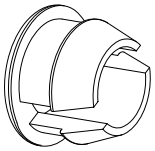
Do not lose the bearings for each shaft at the right, middle, left and far left.

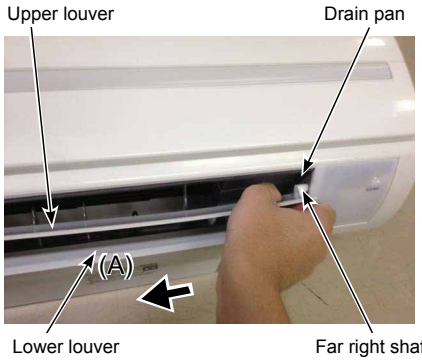
1 Open the upper and lower horizontal louver slightly.

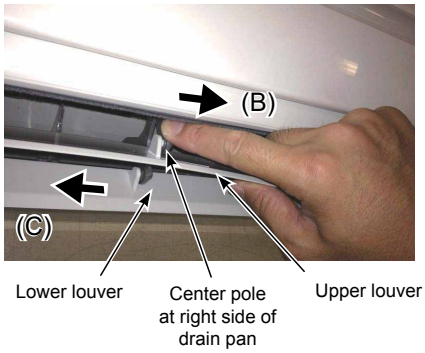
2 Slightly bend the upper horizontal louver and pull it in the direction of the arrow (A) to remove the shaft at the far right from the drain pan.

3 As slightly bending the center pole at the right side of the drain pan in the direction of the arrow (B), pull the upper horizontal louver in the direction of the arrow (C) to remove the shaft at the right from the drain pan.

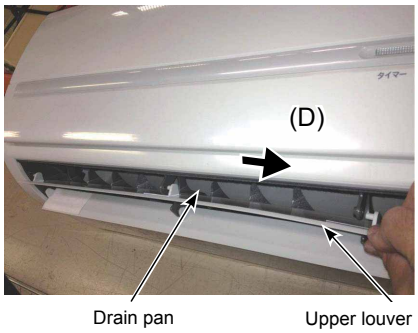








4 Pull out the upper horizontal louver in the direction of the arrow (D) to remove it.



5 Remove the lower horizontal louver in the same procedure as the upper horizontal louver.

6 When mounting the horizontal louvers, mount the louvers in the reverse procedure.

NOTE

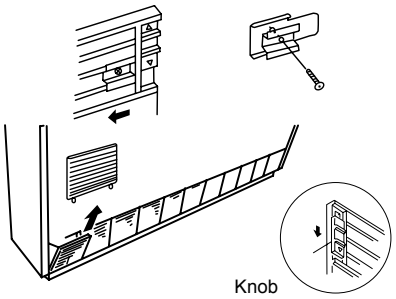
When mounting the horizontal louvers, insert the D-cut portions at the far right shafts of the louvers into the AS Motor shafts.

7.9 RPF(I)-(1.0-2.5)FSN2E - Floor and Floor concealed type

7.9.1 Removal of the air inlet grille

RPF-(1.0-2.5)FSN2E

1 Loosen the screws on the securing plate of the right part of the grille then remove the plates.
2 Press the button on both sides of the grille in the direction indicated by the arrow. The grille can be opened at a 30° angle.
3 Remove the air inlet grille from the hinges.

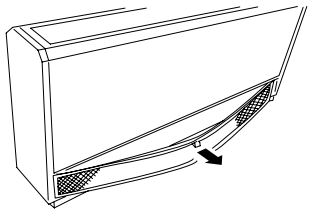


7.9.2 Removal of the air filter

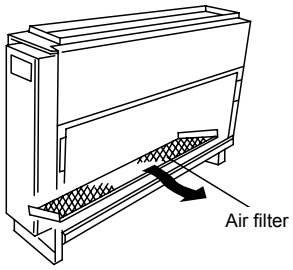
RPF-(1.0-2.5)FSN2E

The air filter is located inside the air inlet grille.

1 Remove the air inlet grilles as indicated in section *"7.9.1 Removal of the air inlet grille"*.



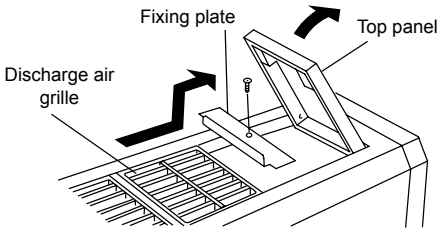
2 Remove the filter by pulling the filter button.



7.9.3 Removal of the air outlet grille

RPF-(1.0-2.5)FSN2E

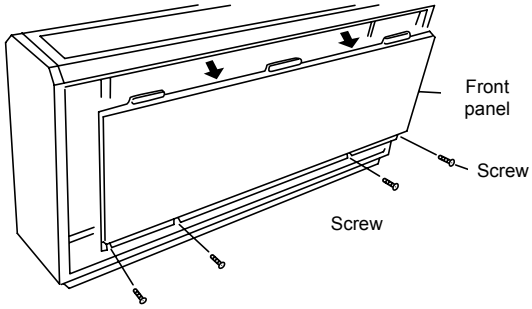
1 Remove the screw holding the securing plate.
2 Open the upper panel so that it is vertical.
3 Slide and remove the air outlet grille.



7.9.4 Removal of the front panel

1 Remove the central panel air filter in line with the instructions given in chapter *"7.9.2 Removal of the air filter"*.

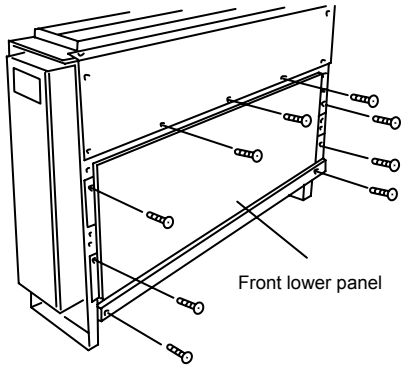
2 Remove the screws from the lower part of the front panel.



NOTE

- *RPF-(1.0-2.5)FSN2E: 4 screws.*
- *RPFI-1.0FSN2E: 9 screws.*
- *RPFI-1.5FSN2E: 10 screws.*

3 Remove the 11 set screws and remove the front panel.



7.9.5 Removal of the fan motor

1 Remove the air inlet grille as indicated in chapter *"7.9.1 Removal of the air inlet grille"*.

2 Remove the air filter as indicated in section *"7.9.2 Removal of the air filter"*.

3 Remove the four set screws from the fan motor assembly plate and remove it.

4 Disconnect the wiring from the fan motor connector. Remove the wiring board and the connector.

5 Remove the cover by pressing the four attachment points inwards.

6 Loosen the bolts using a wrench.

7 Remove the securing plate.

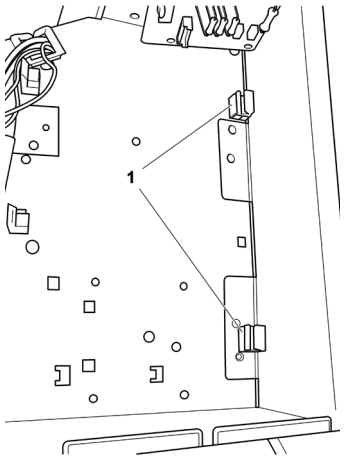
8 Remove the fan motor by sliding it backwards.

NOTE

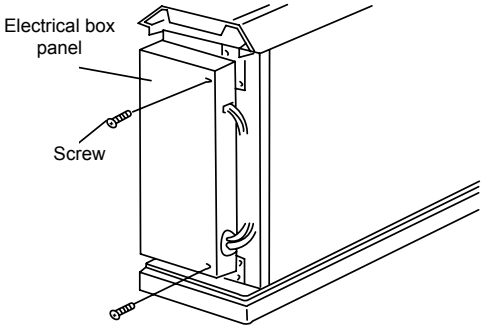
Be careful when releasing the fan motor, as it could fall.

7.9.6 Removal of the printed circuit board (PCB)

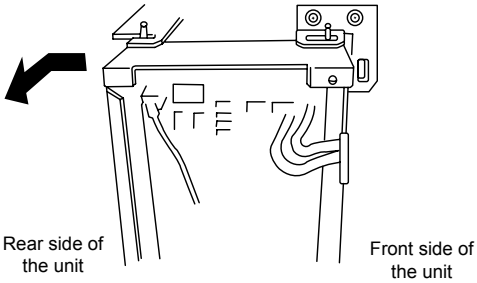
1 Remove the air inlet grille as indicated in section *"7.9.1 Removal of the air inlet grille"*.
2 Remove the air filter as indicated in section *"7.9.2 Removal of the air filter"*.
3 Remove the front panel as indicated in section *"7.9.4 Removal of the front panel"*.
4 Remove the side panel, removing the 3 set screws and pulling the panel downwards.



5 Remove the panel from the electrical box after removing the four set screws.
6 Remove the 2 set screws from the electrical box and release the attachment from the top of the box. Turn the electrical box at a 90° angle.



7 Press the four attachment points of the PCB using long-tipped pliers and placing a finger next to the hole in the PCB before removing the PCB.

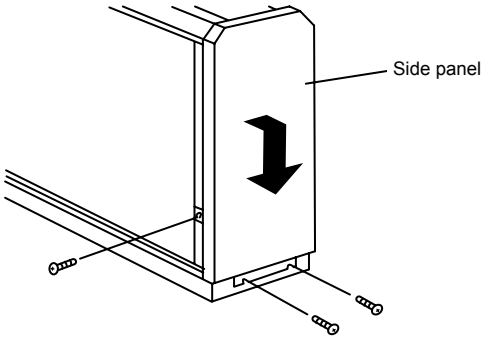


⚠ CAUTION

- *Do not touch the electrical components of the PCB.*
- *Do not apply force to the PCB, as this could damage it.*
- *Pay special attention to the position of the connectors on the PCB. An incorrect position during installation may damage the PCB.*

7.9.7 Removal of the thermistors from the liquid and gas piping

1 Remove the air inlet grille as indicated in section *"7.9.1 Removal of the air inlet grille"*.
2 Remove the air filter as indicated in section *"7.9.2 Removal of the air filter"*.
3 Remove the front panel as indicated in section *"7.9.4 Removal of the front panel"*.
4 Remove the side panel, removing the 3 set screws and pulling the panel downwards.
5 Disconnect the wiring from the thermistor and remove the thermistor.



7.10 KPI-(252-2002)(E/X)4E - Energy recovery and active energy recovery ventilation units

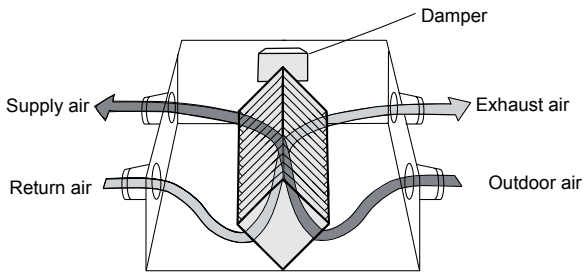
7.10.1 System description

An example of the system is shown below. Make sure the system has been checked by a HITACHI distributor.

Exchange mode

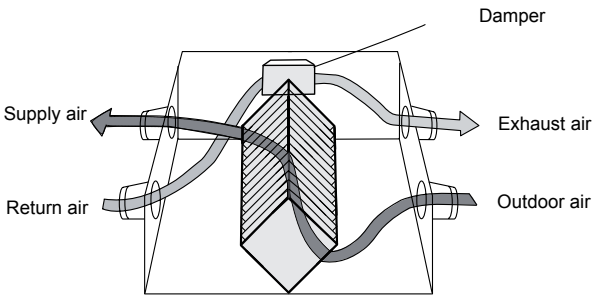
The air returning from the indoor part passes through the total heat exchanger unit and is expelled outdoors.

The outdoor air is supplied through the total heat exchanger.



Ventilation bypass mode

The air from indoors is expelled without heat exchange.



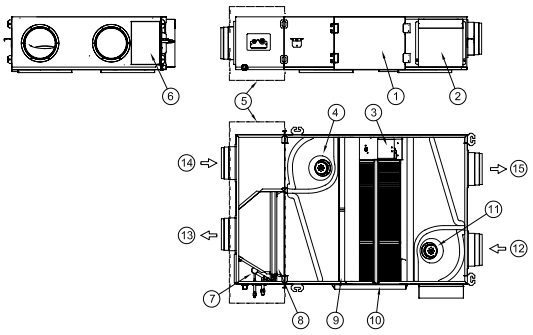
Automatic selection mode

(Factory-set). The operating mode is selected automatically according to the temperature conditions (outdoor, indoor and set).

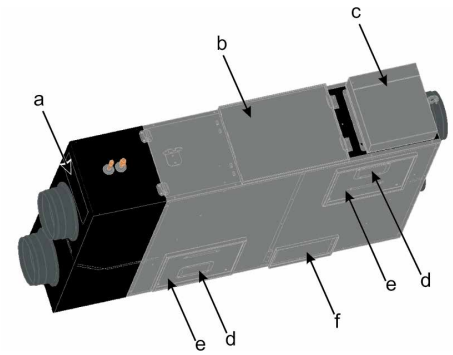
7.10.2 Structure and part names

KPI-(252-2002)E4E and KPI-(502-1002)X4E

Nº	Part
1	HEX/Filters Service Cover
2	Electrical Box
3	Damper
4	Return air fan motor
5	Active module (only KPI-(502-1002)X4E)
6	Evaporator service cover (only KPI-(502-1002)X4E)
7	Expansion Valve (only KPI-(502-1002)X4E)
8	Evaporator (only KPI-(502-1002)X4E)
9	High efficiency filter (optional)
10	Heat exchanger
11	Supply air fan motor
12	OA - Outdoor Air
13	SA - Supply Air
14	RA - Return Air
15	EA - Exhaust Fan



7.10.3 Service cover location



7.10.4 Removal of heat exchanger

1 Pull the hinges back. Open and remove the service cover (b).

⚠ CAUTION

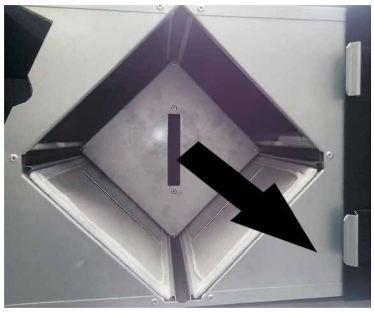
The service cover (b) is not fixed, pay attention when pull the hinges back because the cover can fall.



2 Hold onto the handle.

3 Remove the two total heat exchanger elements from the main unit.





7.10.5 Removal of the air filter

1 Pull the hinges back.

2 Open and remove the service cover (b).

⚠ CAUTION

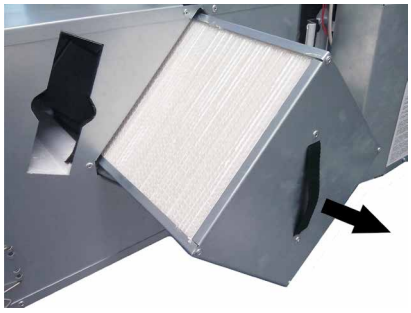
The service cover (b) is not fixed, pay attention when pull the hinges back because the cover can fall.

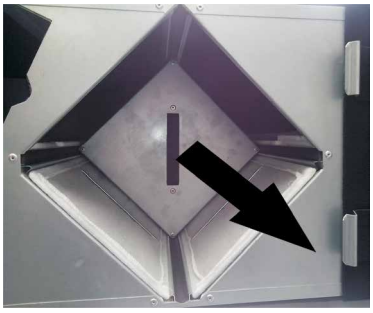


It is recommended to remove the two heat exchanger

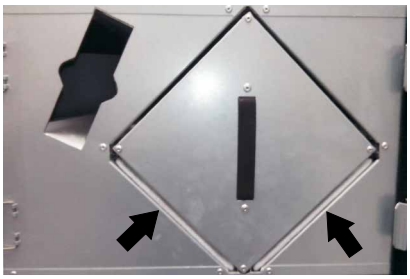
3 Hold onto the handle.

4 Remove the two total heat exchanger elements from the main unit.





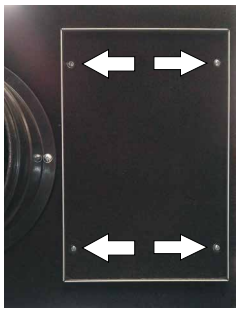
5 Draw out the air filters (2 pieces) which are located at the bottom of the heat exchanger elements.





7.10.6 Removal of the float switch (X4E series only)

1 Remove the 4 screw from the service cover (a) situated closed the SA duct connector and remove the service cover.

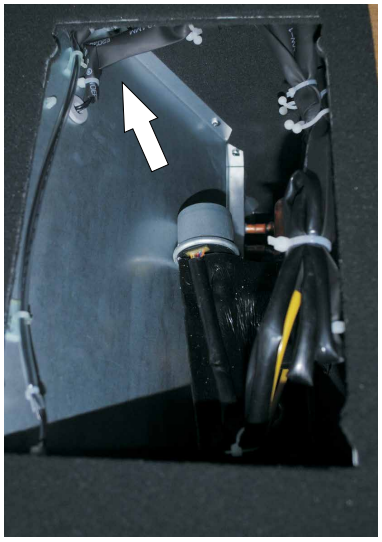


2 Float switch is on the bottom left side, close de service window.



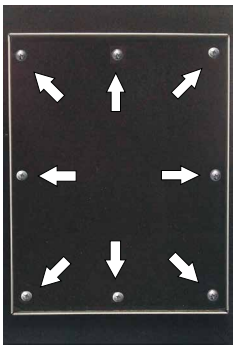
3 Unscrew the nut on the float switch and remove from its bracket.

4 Unplug the connector that is inside the protection cap and take out the float switch.

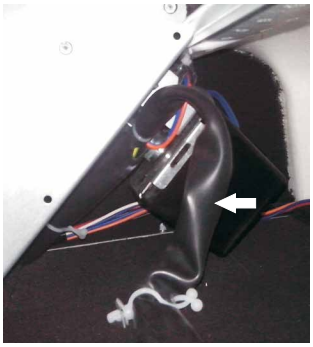


7.10.7 Removal of the damper motor

1 Unscrew the 6 screw form the service cover (f).



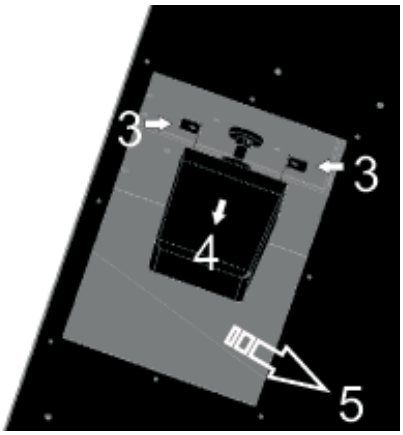
2 Unplug the connector that is inside the protection cap.



3 Unscrew the 2 screws that are fixing the motor brackets

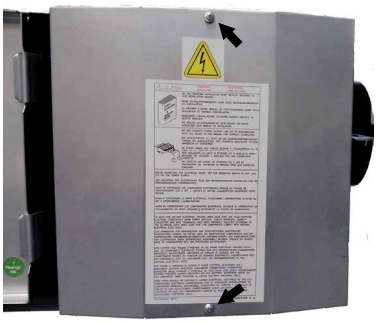
4 Separate the damper motor from the housing

5 Remove the damper motor



7.10.8 Removal of the electrical box

1 Unscrew the 2 screw from the service cover (c)



2 Unplug all connectors.

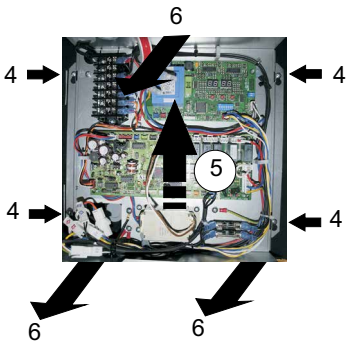
3 Disconnect the power supply and communication cables from the terminal board



4 Loosen all four screws

5 Move the electrical box slightly upwards

6 Pull it out towards yourself

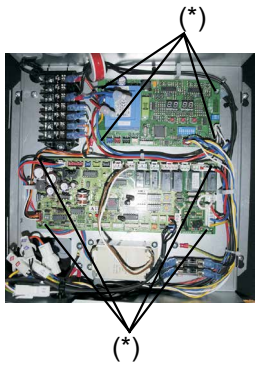


7.10.9 Removal of the PCB

1 Remove the electrical box

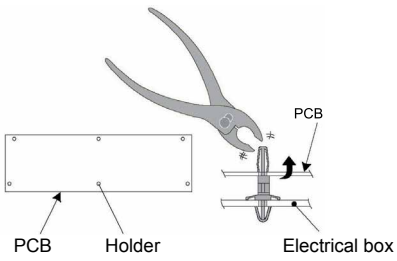
2 Disconnect all the connectors in the PCB.

3 Remove the PCB by unlocking the four (4) plastic holders (*) per PCB



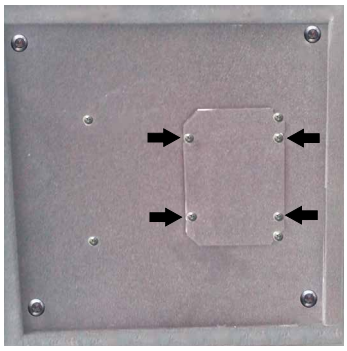
⚠ CAUTION

- *Do not touch the electrical components of the PCB.*
- *Do not apply force to the PCB, as this could damage it.*
- *Pay special attention to the position of the connectors on the PCB. An incorrect position during installation may damage the PCB.*



7.10.10 Removal of the fan motor

1 Remove all 4 screws from the fan service cover (d)



2 Unplug the connector that is inside the protection cap

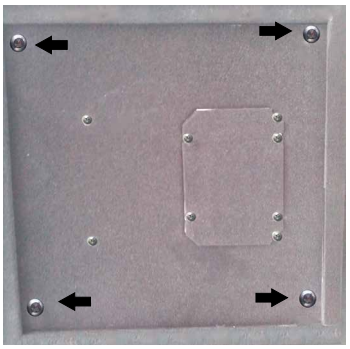




3 Remove all 4 screws from the fan assy (e)

NOTE

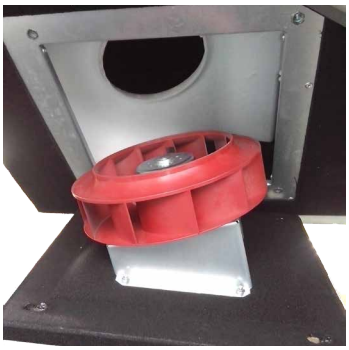
Use a 5 mm allen key (hexagon key)



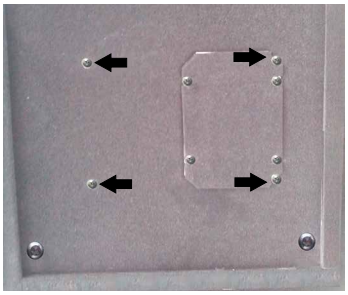
4 Remove the fan with the assembled cover

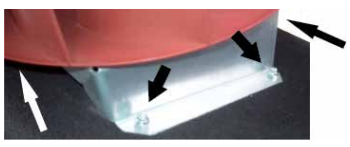
CAUTION

The fan kit is not fixed, pay attention when all 4 screws are removed, the fan can fall.



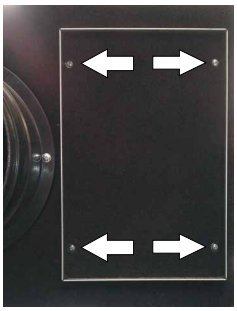
In order to remove de cover from the fan, unscrew all 4 screws.





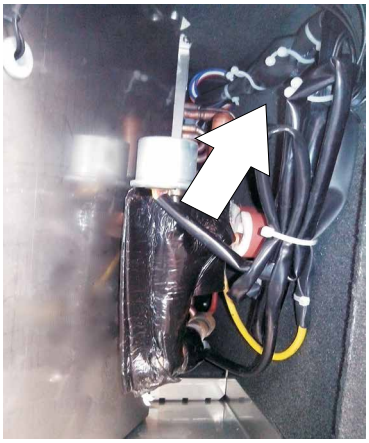
7.10.11 Removal of the DX-Coil Module (X4E series only)

1 Unscrew the 4 screw from the service cover (a) situated closed the SA duct connector and remove the service cover.



2 Unplug the connector that is inside the protection cap

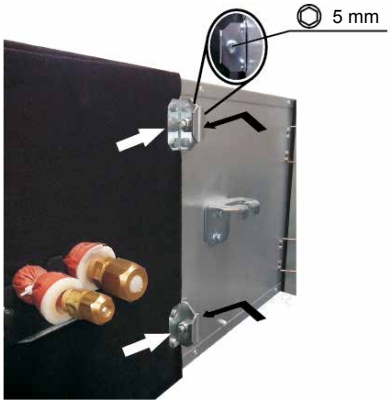
3 Cross the connector thought the hole in the end wall.



4 Unscrew all 4 screw (2 in on side and 2 in the other side)

⚠ DANGER

- ***When unscrew all 4 screw pay attention because the DX-Coil module is not fixed,and can fall.***
- ***DX-Coil module it heavy, two persons are required for remove this component.***



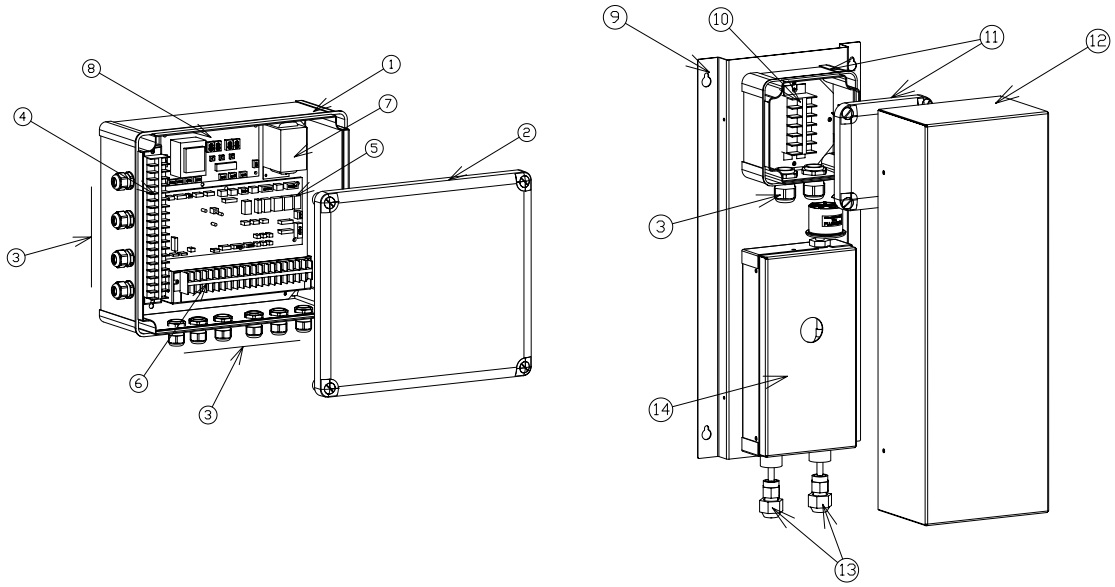
5 The DX-Coil Module can be removed



7.11 DX-Interface

7.11.1 Structure and part names

DX-Interface EXV-(2.0-10.0)E2



Nº	Name	Nº	Name
1	Control box	8	PCB2
2	Control box cover	9	Expansion valve box
3	Cable gland	10	Terminal board 3
4	Terminal board 1	11	Terminal board box and cover
5	PCB1	12	Expansion valve box cover
6	Terminal board 2	13	Refrigerant connections
7	Transformer	14	Expansion valve device

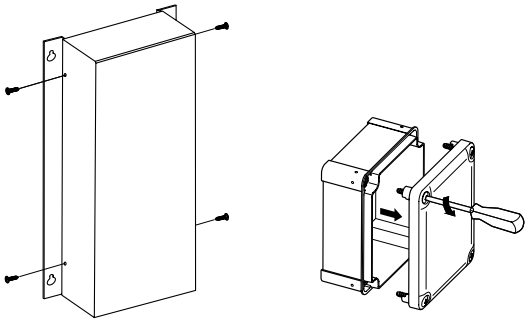
7.11.2 Removal of the electrical components

◆ Control box

1 Remove the control box cover unscrewing the 4 screws.

◆ Expansion valve box

1 Remove the expansion valve box cover unscrewing the 4 screws.
2 Remove the terminal box like the control box cover.

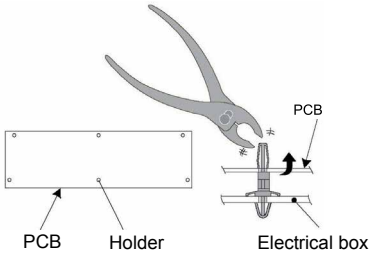


⚠ CAUTION

Handle the support carefully to avoid damaging the electrical components.

⚠ CAUTION

- *Do not touch the electrical components of the PCB.*
- *Do not apply force to the PCB, as this could damage it.*
- *Pay special attention to the position of the connectors on the PCB. An incorrect position during installation may damage the PCB.*



8. Troubleshooting

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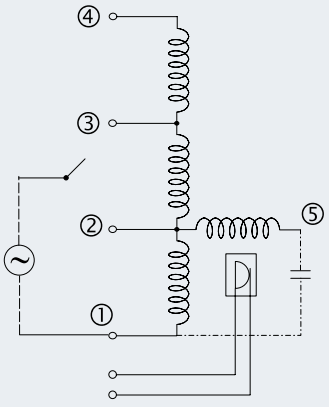
8.1 Electronic expansion valve check procedure

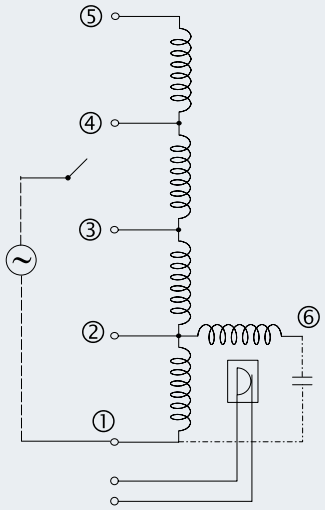
Valve position	Electronic expansion valve
Locked fully closed	Check the temperature of the piping in the heating process. Failure of the temperature to rise indicates a fault.
Locked slightly open	The following conditions indicate a fault:
Locked fully open	Where the freeze protection thermistor temperature is lower than the intake air temperature.
	Where the unit being inspected stops and other units continue operating in cooling mode.

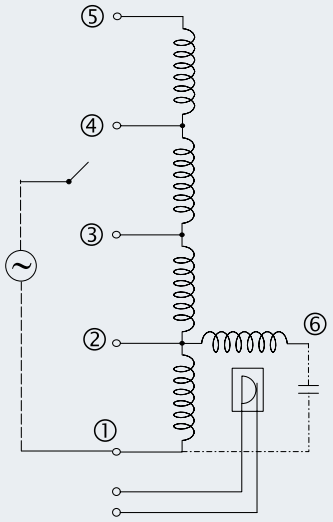
8.2 Procedure for checking fan motors in indoor units

Name and abbreviation of the cable colours used:

Black	Brown	Red	Yellow	Green	Blue	Grey	Orange	White
BLK	BRN	RED	YEL	GRN	BLU	GRY	ORN	WHT

Indoor units	Power output	Wiring diagram	Cable number	Resistance (Ω)
RCI-1.0FSN4 RCI-1.5FSN4 RCI-2.0FSN4 RCI-2.5FSN4 RCI-3.0FSN4	57 W	DC motor	—	—
RCI-4.0FSN4 RCI-5.0FSN4 RCI-6.0FSN4	127 W	DC motor	—	—
RCIM-0.4FSN4E RCIM-0.6FSN4E RCIM-0.8FSN4E RCIM-1.0FSN4E RCIM-1.5FSN4E RCIM-2.0FSN4E RCIM-2.5FSN4E	57 W	DC motor	—	—
RCD-0.8FSN3 RCD-1.0FSN3 RCD-1.5FSN3 RCD-2.0FSN3	57 W	DC Motor	—	—
RCD-2.5FSN3 RCD-3.0FSN3	55 W			
RCD-4.0FSN3	35 W x 2			
RCD-5.0FSN3 RCD-6.0FSN3	55 W x 2			
RPC-3.0FSN3E RPC-4.0FSN3E RPC-5.0FSN3E RPC-6.0FSN3E	145 W		BLK1-2RED RED2-3YEL YEL3-4GRY RED2-6WHT	32.10 24.50 24.50 44.70 to 25 ºC

Indoor units	Power output	Wiring diagram	Cable number	Resistance (Ω)
RPC-1.5FSN3 RPC-2.0FSN3	50 W	DC motor	—	—
RPC-2.5FSN3 RPC-3.0FSN3	80 W	DC motor	—	—
RPC-4.0FSN3 RPC-5.0FSN3 RPC-6.0FSN3	160 W	DC motor	—	—
RPIM-0.6FSN4E(-DU) RPIM-0.8FSN4E(-DU) RPIM-1.0FSN4E(-DU) RPIM-1.5FSN4E(-DU) RPI-0.4FSN5E RPI-0.6FSN5E RPI-0.8FSN5E RPI-1.5FSN5E RPI-2.0FSN5E	60 W	DC motor	—	—
RPI-2.5FSN5E RPI-3.0FSN5E	150 W		—	—
RPI-4.0FSN5E RPI-5.0FSN5E RPI-6.0FSN5E	250 W		—	—
RPI-(8.0/10.0)FSN3E(-f) RPI-(16.0/20.0)FSN3PE(-f)	1065 W		BLK1-2RED RED2-3BLU BLU3-4GRY GRY4-5YEL RED2-6WHT	5.00 0.75 0.75 0.75 9.20 to 20 ºC
RPK-0.4FSN(H)4M RPK-0.6FSN(H)4M RPK-0.8FSN(H)4M	38 W	DC motor	—	
RPK-1.0FSN(H)4M RPK-1.5FSN(H)4M RPK-2.0FSN4M RPK-2.5FSN4M RPK-3.0FSN4M RPK-4.0FSN4M	40 W	DC motor	—	

Indoor units	Power output	Wiring diagram	Cable number	Resistance (Ω)
RPF(I)-1.0FSN2E	20 W		BLK1-2RED RED2-3WHT WHT3-4BLU BLU4-5ORN ORN5-6YEL	231.70 198.70 136.20 71.20 202.40 to 20 ºC
RPF(I)-1.5FSN2E	28 W			
RPF(I)-2.0FSN2E RPF(I)-2.5FSN2E	45 W		BLK1-2RED RED2-3WHT WHT3-4BLU BLU4-5ORN ORN5-6YEL	97.90 138.10 61.60 35.20 61.00 to 20 ºC

8.3 Inspection of other components

Component name	Unit model	Resistance (MΩ)
Drain motor	RCI-FSN4	100 ºC
	RCIM-FSN4E	100 ºC
	RPIM-FSN4E(-DU)	
	RPI-FSN5E	
	RPI-FSN3(P)E(-f)	
	RCD-FSN3	347 to 21 ºC

8.4 Alarm codes displayed in the remote control switch

The list of the alarms which are actually shown in the remote control switch display may vary depending on the models and combinations of indoor and outdoor units. The causes leading to the activation of a specific alarm in certain models may not trigger the same alarm in other models, without this implying an abnormality.

Code	Category	Content of Abnormality	Leading Cause
01	Indoor unit	Activation of protection device (Float switch (*1))	Activation of float switch (High water level in drain pan, abnormality of drain pipe, float switch, or drain pan)
02	Outdoor unit	Activation of protection device (High pressure cut)	Activation of HPS (Pipe clogging, excessive refrigerant, inert gas mixing)
03	Communication	Abnormal communication between Indoor units and outdoor units	Incorrect wiring, loose terminals, disconnected communication cable, blowout of fuse, indoor unit power OFF, Outdoor fuse meltdown
04		Abnormal communication between inverter PCB and Outdoor PCB	Inverter PCB - outdoor PCB communication failure (loose connector, wire breaking, blowout of fuse)
05	Supply phase	Abnormality of power supply phases	Incorrect power supply, open-phase
06	Voltage	Abnormal inverter voltage	Outdoor voltage decrease, insufficient power capacity
07	Cycle	Decrease in discharge gas superheat	Excessive refrigerant charge, failure of thermistor, incorrect wiring, incorrect piping connection, expansion valve locking at opened position (Disconnect connector)
08		Excessively high discharge gas temperature	Insufficient Refrigerant Charge, Pipe Clogging, Failure of Thermistor, Incorrect Wiring, Incorrect Piping Connection, Expansion Valve Locking at Closed Position (Disconnect Connector)
09	Fan motor	Activation of protection device for outdoor fan	Fan motor overheat, locking
0A	Communication	Abnormal communication between outdoor units	Incorrect wiring, broken cable, loose terminals
0b	Outdoor unit	Incorrect outdoor unit address setting	Duplication of address setting for outdoor units (Sub units) in same refrigerant cycle number
0C		Main unit of the outdoor unit incorrectly set	Two (or more) outdoor units set as "Main Unit" exist in same refrigerant cycle number
11	Sensor on Indoor Unit	Abnormality of inlet air thermistor	Incorrect wiring, disconnecting wiring, breaking wire, short circuit
12		Abnormality of outlet air thermistor	
13		Abnormality of freeze protection thermistor	
14		Abnormality of gas piping thermistor	
15		Abnormality of outdoor air thermistor (Econofresh)	
16		Abnormality of remote sensor (DOAS)	
17		Abnormality of thermistor built-in remote Controller (DOAS)	
18	Indoor fan motor	Abnormality of indoor fan system	Abnormality of indoor fan motor (Step-out), indoor fan controller failure
19		Activation of protection device for indoor fan	Fan motor overheat, lockup
1A	Indoor fan controller	Abnormality of fan controller fin temperature	Abnormality of fin thermistor or fan controller, heat exchanger clogging, abnormality of fan motor
1b		Activation of overcurrent protection	Abnormality of fan motor
1C		Problem with current sensor	Abnormality of fan controller current sensor
1d		Activation fan controller protection	Driver IC error signal detection, instantaneous overcurrent
1E		Abnormality of indoor fan controller voltage	Indoor voltage decrease, insufficient capacity of power supply wiring

Code	Category	Content of Abnormality	Leading Cause
20	Sensor on Outdoor Unit	Abnormality of the compressor thermistor	
21		Abnormality of high pressure sensor	Incorrect wiring, disconnecting wiring, breaking wire, short circuit
22		Abnormality of outdoor air thermistor	
23		Abnormality of discharge gas thermistor on top of compressor	
24		Abnormality of heat exchanger liquid pipe thermistor	
25		Abnormality of heat exchanger gas pipe thermistor	
29		Abnormality of low pressure sensor	
30	System	Incorrect DSW settings of outdoor unit for CH-Box	Connection of CH-Box to heat pump system, disconnection of CH-Box to heat recover system.
31		Incorrect capacity setting of outdoor unit and indoor unit	Incorrect capacity setting of outdoor unit and indoor unit, excessive or insufficient indoor unit total capacity code
32		Incorrect setting of other indoor unit number (RPK series only)	Problem with a different Indoor Unit in the same refrigerant cycle; (Failure at the power supply, defective PCB)
35		Incorrect indoor unit number setting	Duplication of indoor unit number in same refrigerant cycle number
36		Incorrect of indoor unit combination	Indoor unit is designed for R22
38		Abnormality of picking up circuit for protection (outdoor unit)	Failure of protection detecting device (incorrect wiring of outdoor PCB)
39	Compressor	Abnormal operation current in constant speed compressor	Overcurrent, blown fuse, current sensor fault, instant power failure, voltage drop, abnormal power supply
3A	Outdoor Unit	Abnormal outdoor unit capacity	Outdoor unit capacity > Permitted maximum
3b		Incorrect setting of outdoor unit models combination or voltage	Incorrect setting of main and sub units(s) combination or voltage
3d		Abnormal communication between main unit and sub unit(s)	Incorrect wiring, disconnect wire, breaking wire, PCB failure
3E		Abnormal combination between inverter PCB and outdoor PCB	Incorrect combination between inverter PCB and outdoor PCB
41	Protection Device	Cooling overload (possible activation of high pressure device)	If the outdoor unit pipe thermistor temperature is higher than 55ºC and the compressor top temperature is higher than 95ºC, outdoor unit pretection device is activated.
42		Heating overload (possible activation of high pressure device)	If the indoor unit freeze protection thermistor temperature is higher than 55ºC and the compressor top temperature is higher than 95ºC, outdoor unit pretection device is activated
43		Activation of the protection device from compression ratio decrease	Abnormal compression (failure of compressor or inverter, loose power supply connection)
44		Activation of the protection device from excessively high suction pressure	Overload during cooling, high temperature with heating, locked expansion valve
45		Activation of the protection device from excessively high discharge pressure	Overload (obstruction of Heat exchanger or clogging, short circuit) mixture of inert gas
47		Activation of the protection device from excessively low suction pressure (protection from vacuum operation)	Shortage or leakage of refrigerant, piping clogging, expansion valve close-locked, fan motor locked
48		Abnormality of current sensor for inverter	Overload operation, compressor failure, failure of DIP-IPM, heat exchanger clogged, locked compressor, EVI/EVO failure or overcharge
51	Sensor	Abnormality of current sensor for inverter	Current sensor failure
53	Inverter	Protection activation of inverter module	Driver IC error signal detection (inverter module abnormality, protection for overcurrent, voltage decrease, short circuit), instantaneous overcurrent. Failure of compressor, clogging of heat exchanger
54		Inverter fin temperature increase	Abnormal inverter fin thermistor, clogging of heat exchanger, abnormal outdoor fan.
55		Inverter Module abnormality	Failure of inverter module (PCB failure)
56	Outdoor fan	Abnormal detection of fan motor position	Abnormal of fan motor position detection circuit, disconnected wiring

Code	Category	Content of Abnormality	Leading Cause
57	Fan Controller	Activation of fan controller protection	Driver IC error signal detection (protection for overcurrent, voltage decrease, short circuit), instantaneous overcurrent, disconnected wire or incorrect wiring between control PCB and inverter PCB, incorrect wiring or fan motor abnormality.
58		Abnormal fan controller	Abnormal operation speed
88		Alarm for abnormality of fan or compressor driver	The fan or the compressor driver do not transfer an identification code
5A		Abnormal fan controller fin temperature	Fin thermistor fault, heat exchanger clogging, fan motor fault
5b		Activation of overcurrent protection	Fan motor failure
5C		Abnormality of fan controller sensor	Failure of current sensor (instantaneous overcurrent, increase of fin temperature, low voltage, grand fault, step-out)
A1	External input	Detection of external abnormality	Input signal by external abnormality detection setting
b0	Indoor Unit	Incorrect setting of unit model code	Incorrect setting of indoor unit model
b1		Incorrect setting of unit and refrigerant cycle number	The setting number of the indoor units is over 64 or the indoor unit address not correct
b3		Wrong combination of indoor unit and remote control switches	Wrong combination of indoor unit and remote control switches
b2		Abnormality of EEPROM	EEPROM failure, incorrect data of EEPROM
b5		Incorrect indoor unit connection number setting	There are more than 17 units not corresponding to H-LINK II connected to one system
b6		Abnormal communication between indoor PCB and indoor fan controller	Communication failure, disconnected communication cable, abnormal connection
b7		Transmission abnormality between the indoor and the PCB for 2 fans	Transmission abnormality between the indoor unit and the PCB for 2 fans
bF		Abnormality in the number of connected sub-PCB	Abnormality in the number of connected sub-PCB
C1	CH-Box	Incorrect CH-Box connection	2 Or more CH-Box are connected between outdoor unit and indoor unit
C2		Connection number of the indoor unit incorrectly set	There are 9 or more indoor units connected to CH-Box
C3		Incorrect Indoor Unit Refrigerant Number Setting	Indoor units from different refrigerant cycles have been connected to CH-Box
EE	Compressor	Compressor protection alarm (it can not be reset from wired controller)	This alarm code appears when the following alarms* occurs three times within 6 hours *02, 07, 08, 39, 43 To 45, 47

NOTE

(*) In the case of RPI-16/20, the fan motor of both units is stopped immediately upon occurrence of an alarm at either of the units (upper or lower side). The remote control switch indicates the cause of alarm (codes 1, 11, 12, 13, 14, 19) for the unit where the alarm has occurred, while alarm code 19 (Fan motor stoppage) is indicated for the other unit. Therefore it is necessary to check both units only in case of occurrence of alarm 19.

8.5 DX-Interface EXV-(2.0-10.0)E2 or KPI-(E/X)4E alarm codes

Code number	DX-KIT2	KPI-4E	KPI-Active	Category	Type of abnormality	Main cause
01	o	-	o	Indoor	Activation of protection device	Float switch activation (high water level in drain hose or abnormality in drain pipe, float switch or drain pan).
03	o	-	o	Transmission	Transmission error	Outdoor fuse meltdown, Indoor/outdoor connection wiring (breaking, wiring error, etc.)
11	o	o	o	Indoor	Air inlet thermistor (RA for KPI)	Loose, disconnected, broken or short-circuited connector
12	o	o	o	Indoor	Air outlet thermistor (OA for KPI)	Loose, disconnected, broken or short-circuited connector
13	o	-	o	Indoor	Liquid pipe thermistor	Loose, disconnected, broken or short-circuited connector
14	o	-	o	Indoor	Gas pipe thermistor	Loose, disconnected, broken or short-circuited connector
15	-	-	-	Indoor	Fresh outdoor air thermistor (Econofresh)	Loose, disconnected, broken or short-circuited connector
16	-	-	o	Indoor	Air inlet DX Coil thermistor (Tincoil)	Loose, disconnected, broken or short-circuited connector
17	-	-	o	Indoor	Air outlet DX Coil thermistor (Toutcoil)	Loose, disconnected, broken or short-circuited connector
18	(o)	o	o	Indoor	Indoor RA fan protection device activation for KP	Fan motor overheating, locking.
19	o	o	o	Indoor	Indoor OA fan protection device activation for KPI or DX-KIT2 Fan	Fan motor overheating, locking.
31	o	-	o	System	Incorrect setting of outdoor and indoor units	Outdoor/Indoor Unit capacity setting error, Indoor total capacity excessively large/small
35	o	-	o	System	Indoor unit number setting error	Indoor units with the same number exist in a refrigerant piping system
70	o	o	o	Indoor	Abnormal transmission between PCB1 and PCB2	Loose, disconnected
71	o	o	o	Indoor	Incorrect PCBs setting	Wrong setting are performed in PCBs
73	o	o	o	Indoor	Incorrect 4-20mA, 0-10V, 0-5V, 0-10kΩ setting	Loose, disconnected, broken or short-circuited connector
EE	o	-	o	Compressor	Compressor protection alarm (cannot be reset from the remote controller)	This alarm code is displayed when the following alarms are triggered three times within six hours: 02,07,08,39,43 to 45, 47
74	-	-	-	Indoor	Remote sensor thermistor (Trem)	Loose, disconnected, broken or short-circuited connector

These alarm codes are displayed in the 7 segments on PCB2 corresponding to the **DX-Interface EXV-(2.0-10.0)E2 or KPI-(E/X)4E.**

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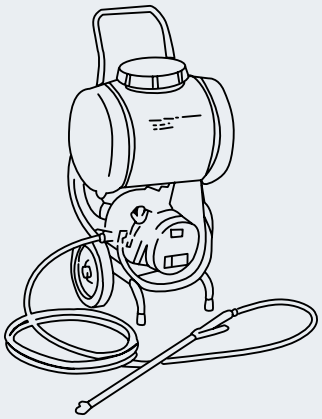
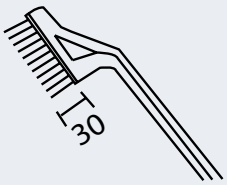
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9.1 Regular equipment maintenance

9.1.1 Necessary tools, equipment and consumable for regular maintenance

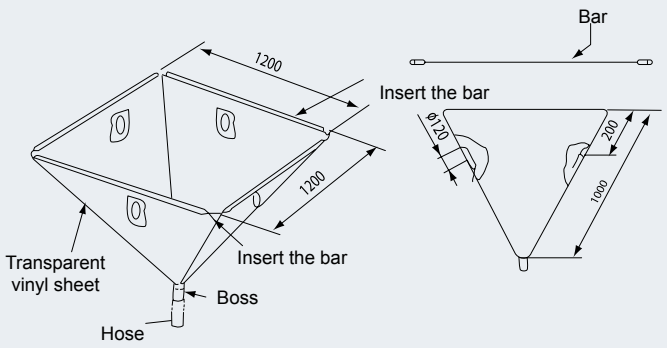
◆ Tools

Tool	Remarks
Water pump for cleaning 	Use of a water pump with a tank is recommended
Water tank with clean water	Approx. 18 litres
Nozzle	Attached with Water Pump
Brush 	Nonmetal, with a brush length of 25 to 35 mm. If the heat exchanger is heavily clogged with dust, remove it with this brush.
Bucket	Capacity 2 to 5 litres
Philips screwdriver	1
Tweezers	1
Adjustable wrench	1
Megohmmeter	Measured voltage of up to 500 V
Gun	Applying cleaning water
Rope	4 ropes measuring 1 m
Vinyl sheeting	Thickness of 0.5 mm
Gloves	
Water pan pipe	Select a pipe in line with the installation requirements
Cleaning product	Use a neutral cleaning product

Consumables

Consumable	Remarks
Cleaning product	Neutral soap
Adhesive tape	To secure the vinyl sheeting so that the room is protected from the cleaning water
Piece of felt	Diameter of 120 mm

Equipment

Equipment	Remarks
Cleaning water manifold  Inner side of Ø120 should be covered with felt sheet in order to insert the spray nozzle	Depending on the type of unit to be cleaned, use a duct-type, built-in 2-way type, wall type or ceiling type manifold. The lower part of the Ø120 hole must be covered with a piece of felt to insert the nozzle of the gun
Cleaning water manifold kit	Built-in 4-way

9.2 Indoor cleaning

9.2.1 Cleaning the built-in 4-way indoor unit RCI(M)

Preliminary procedure

1 Place a vinyl sheet on the floor to protect the furniture and other items from the cleaning water before starting this work.
2 Remove the optional air panel as indicated in section *"7.1.3 Removing optional air panel"*.
3 Remove the electrical box after opening the corresponding panel and then disconnect the connectors located between the indoor and outdoor units and other connectors, as indicated in sections *"7.1.2 Removing electrical box cover"* and *"7.1.4 Removing turbo fan and fan motor"*.
4 Remove the bell mouth and fan as indicated in section *"7.1.5 Removing printed circuit board (PCB1)"*.
5 Remove the drain pan, according to *"7.1.6 Removing drain pan"*.
6 Remove the float switch as indicated in sections *"7.1.8 Removing drain-up mechanism"*.
7 Remove the drain-up mechanism.

Also carry out the following tasks:

1 Remove the drain pan after emptying it of water.
2 Empty the drain pan of water by removing the rubber plug. Make sure the water flows easily through the hole by inserting a pencil into it.
3 Once the drain pan has been removed, check that there is no water in the drainage at the bottom of the pan.
4 Clean and dry the pan before removing it. Handle the pan carefully.

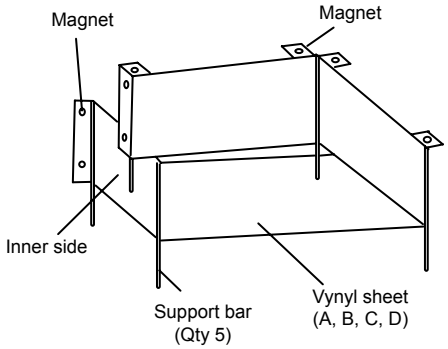
Cleaning the indoor unit

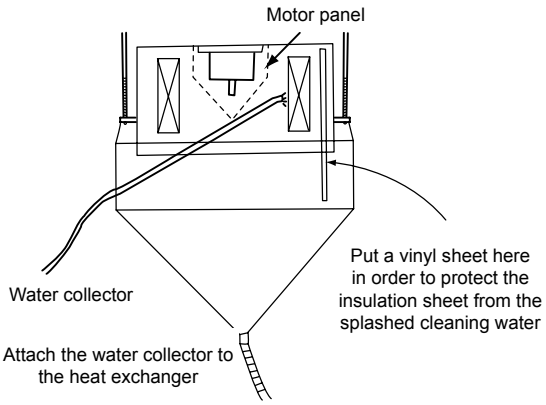
NOTE

Wear gloves to avoid injuries caused by the heat exchanger fins.

Place a vinyl sheet around the heat exchanger to prevent the cleaning water from splashing the insulation surface and drain pump.

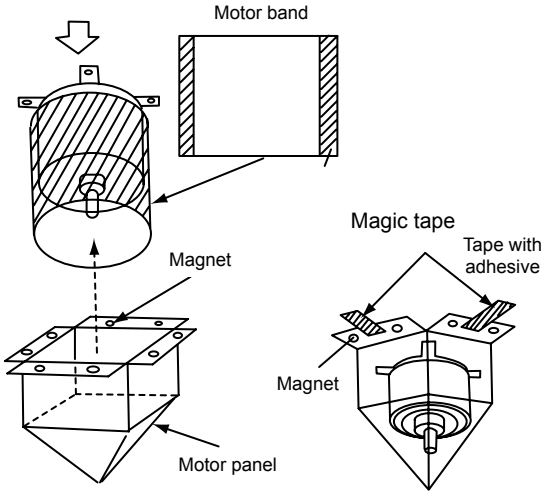
Secure the vinyl sheet to the side plate of the exchanger using adhesive tape and seal the gap between the vinyl sheets in the same manner.



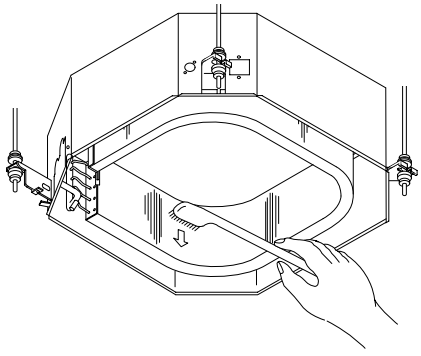


Place a vinyl sheet around the motor to prevent the cleaning water from splashing the electrical motor.

Secure the motor panel using adhesive tape.



Clean the dust from the inner surface of the heat exchanger by brushing it downwards. Collect all of the dust in a bucket or a cardboard box.



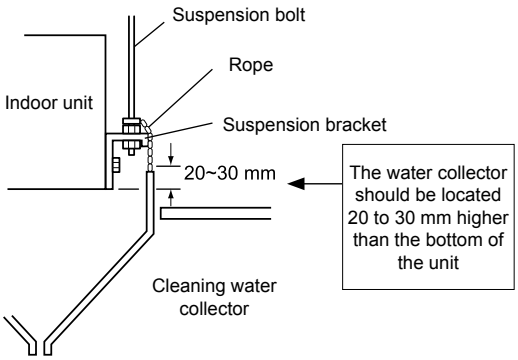
Hang the cleaning water manifold from the indoor unit.

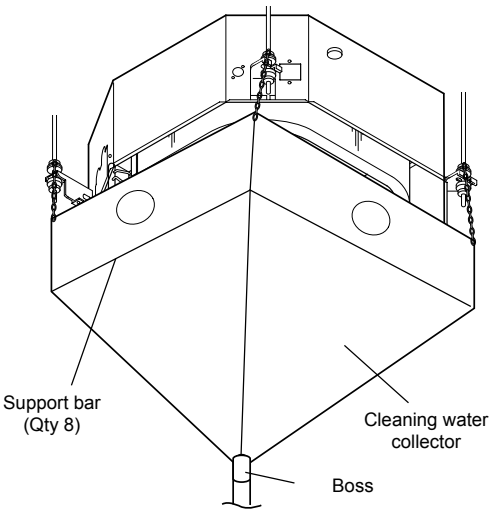
Tie the rope to the suspension bolts of the indoor unit and drop downwards.

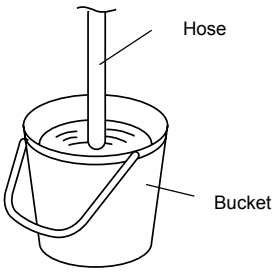
Insert the support bars into the holes in the water manifold.

Tie the rope to the support bar of the water manifold and hang the manifold.

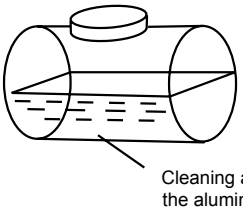
Connect a pipe to the boss and place the end inside the pipe.







Pour approximately 15 litres of cleaning product for the aluminium fins into a supply tank.

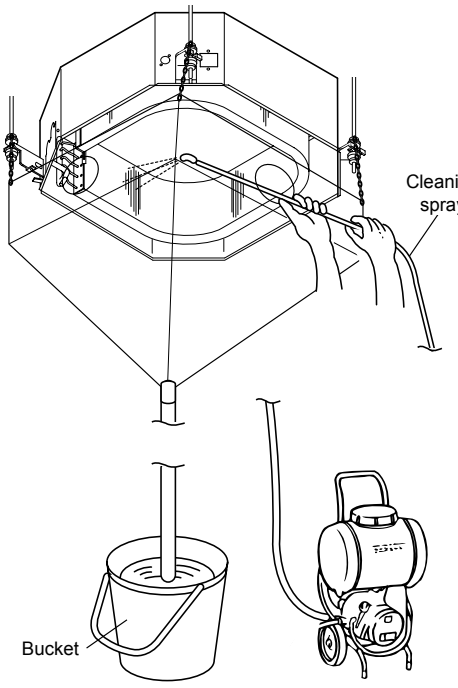


Insert the nozzle of the pressurised water gun into the hole in the cleaning water manifold. Start the water pump and clean the heat exchanger of any dust.

Adjust the pressure of the water pump in order not to damage the fins.

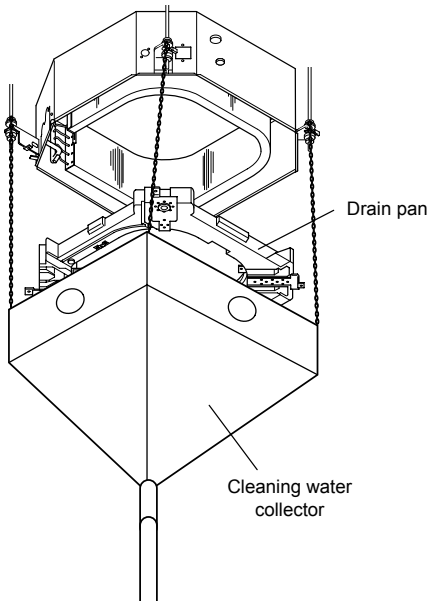
After cleaning, spray and remove all remains of water.

1 After cleaning, fit the drain pan by lowering the rope.
2 Dry the remains of any water on the indoor unit.
3 Check the insulation of the drain pump using a megohmmeter. Check that the insulation is above 1 MΩ when 500V are applied.
4 Connect the wiring.
5 Perform the neutralisation treatment after cleaning.



After cleaning remove all remains of water.

1 After cleaning, fit the drain pan by lowering the rope.
2 Dry the remains of any water on the indoor unit.
3 Check the insulation of the drain pump using a megohmmeter. Check that the insulation is above 1 MΩ when 500V are applied.
4 Connect the wiring.
5 Perform the neutralisation treatment after cleaning.



9.2.2 Cleaning the built-in 2-way indoor unit (RCD)

Preliminary procedure

Place a vinyl sheet on the floor to protect the furniture and other items from the cleaning water before starting this job.

Remove the drain pan as indicated in section *"7.3.8 Removal of the drain pan"*. Also carry out the following tasks:

1 Remove the drain pan after emptying it of water.
2 Empty the drain pan of water by removing the rubber plug. Make sure the water flows easily through the hole by inserting a pencil into it.
3 Once the drain pan has been removed, check that there is no water in the drainage at the bottom of the pan.
4 Clean and dry the pan before removing it. Handle the pan carefully.

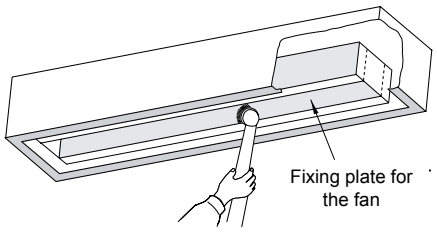
Remove the electrical box after opening the corresponding panel and then disconnect the connectors located between the indoor and outdoor units and other connectors, as indicated in section *"7.3.2 Removal of the electrical box"*.

Remove the float switch as indicated in section *"7.3.6 Removal of the float switch"*.

Remove the drainage mechanism as indicated in section *"7.3.7 Removal of the drain mechanism"*.

Cleaning the indoor unit

Clean the dust from the inner surface of the heat exchanger by brushing it downwards. Collect all of the dust in a bucket or a cardboard box.

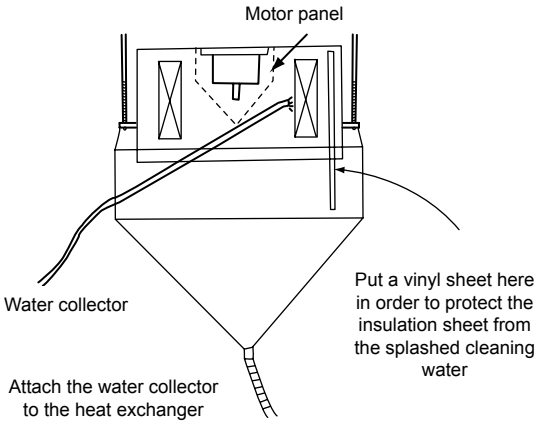


NOTE

Wear gloves to avoid injuries caused by the heat exchanger fins.

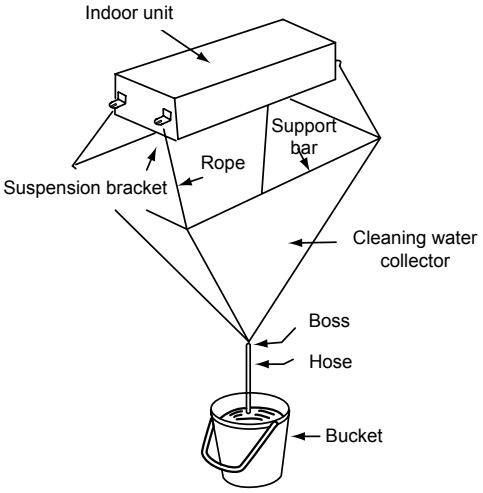
Place a vinyl sheet around the heat exchanger to prevent the cleaning water from splashing the insulation surface and drain pump. Secure the vinyl sheet to the side plate of the exchanger using adhesive tape and seal the gap between the vinyl sheets in the same manner.

Secure the motor panel using adhesive tape.



Hang the cleaning water manifold from the indoor unit.

1 Tie the rope to the suspension bolts of the indoor unit and drop downwards.
2 Insert the support bars into the holes in the water manifold.
3 Tie the rope to the support bar of the water manifold and hang the manifold.
4 Connect a pipe to the boss and place the end inside the pipe.



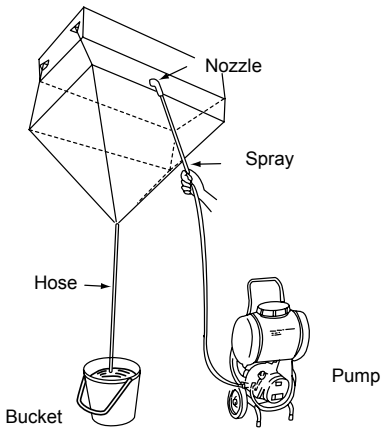
Pour approximately 15 litres of cleaning product for the aluminium fins into a supply tank.

Insert the nozzle of the pressurised water gun into the hole in the cleaning water manifold. Start the water pump and clean the heat exchanger of any dust.

After cleaning, spray and remove all remains of water.

NOTE

- *Set the pressure of the water pump so as not to damage the funs.*
- *Any cleaning water left behind will rust the fins. Set the pump pressure to between 2.5 and 5 kg/cm³ to protect the fins.*



After cleaning, fit the drain pan by lowering the rope.

Dry the remains of any water on the indoor unit.

Check the insulation of the drain pump using a megohmmeter. Check that the insulation is above 1 MΩ when 500V are applied.

Connect the wiring.

Perform the neutralisation treatment after cleaning.

9.2.3 Cleaning of the wall-type indoor unit (RPK)

Preliminary procedure

Place a vinyl sheet on the floor to protect the furniture and other items from the cleaning water before starting this job.

Remove each part as indicated in the *"7.8 RPK-FSN(H)4M - Wall mounted"* section.

Remove the front panel as indicated in section *"7.8.2 Removal of the front panel"*.

Remove the electrical box after opening the corresponding panel and then disconnect the connectors located between the indoor and outdoor units and other connectors.

Remove the drain pan. Also carry out the following tasks:

1 Remove the drain pan after emptying it of water.
2 Empty the drain pan of water by removing the rubber plug. Make sure the water flows easily through the hole by inserting a pencil into it.
3 Once the drain pan has been removed, check that there is no water in the drainage at the bottom of the pan.
4 Clean and dry the pan before removing it. Handle the pan carefully.

Remove the heat exchanger as indicated in sections *"7.8.9 Removing heat exchanger"* and *"7.8.11 Removing fan and fan motor"*.

Cleaning the indoor unit

NOTE

Wear gloves to avoid injuries caused by the heat exchanger fins.

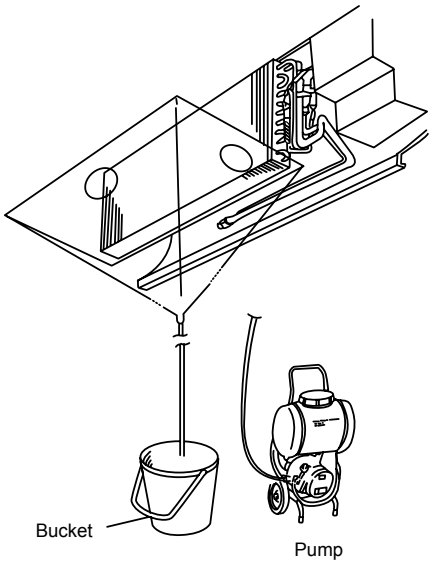
Clean the inner surface of dust. Collect all of the dust in a bucket or a cardboard box.

Place a vinyl sheet around the electrical components to protect them from splashed cleaning water.

Secure the motor panel using adhesive tape.

Hang the cleaning water manifold from the indoor unit.

1 Tie the rope to the suspension bolts of the indoor unit and drop downwards.
2 Insert the support bars into the holes in the water manifold.
3 Tie the rope to the support bar of the water manifold and hang the manifold.
4 Connect a pipe to the boss and place the end inside the pipe.



Pour approximately 15 litres of cleaning product for the aluminium fins into a supply tank.

Insert the nozzle of the pressurised water gun into the hole in the cleaning water manifold. Start the water pump and clean the heat exchanger of any dust.

After cleaning, spray and remove all remains of water.

NOTE

- *Set the pressure of the water pump so as not to damage the funs.*
- *Any cleaning water left behind will rust the fins. Set the pump pressure to between 2.5 and 5 kg/cm³ to protect the fins.*

Dry the remains of any water on the indoor unit.

Check the insulation of the drain pump using a megohmmeter. Check that the insulation is above 1 MΩ when 500V are applied.

Connect the wiring.

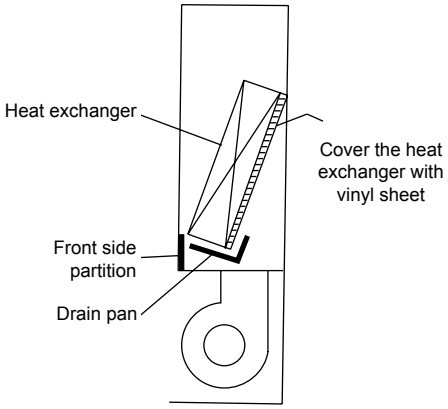
Perform the neutralisation treatment after cleaning.

After cleaning, fit the drain pan by lowering the rope.

Perform the neutralisation treatment after cleaning.

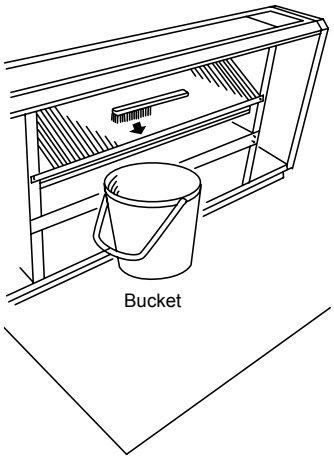
9.2.4 Cleaning the floor console and floor concealed console indoor unit RPF(I)

Remove the front panel in line with the instructions given in chapter *"7.9.4 Removal of the front panel"*



Remove any dust from the heat exchanger.

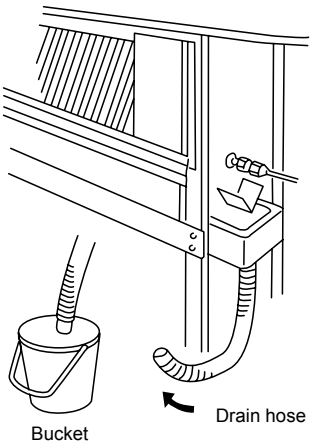
Remove the dust from the heat exchanger by brushing it in a downwards direction. Collect all of the dust in a bucket or a cardboard box.



Disconnect the drain pipe from the piping.

Cover the rear of the heat exchanger with a sheet of vinyl after removing the front partition and the drain pan. After covering the rear, refit the front partition and the drain pan.

Lift the drain pipe and place the end in a bucket.



9.2.5 Cleaning of the ceiling-type indoor unit (RPC)

Preliminary procedure

Place a vinyl sheet on the floor to protect the furniture from the cleaning water before starting this job.

Remove the side panels.

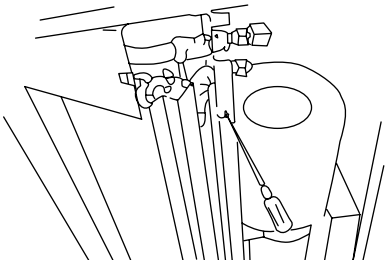
Remove the louver.

Open the air inlet grille as indicated in chapter *"Removal of the air filter"*.

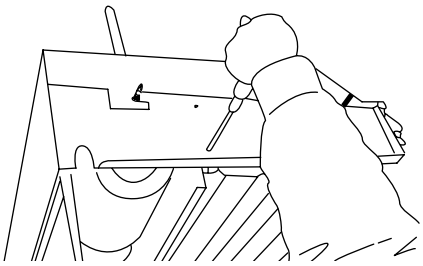
Remove the lower panel and drain pan in line with the instructions given in chapter *"Removal of the thermistors from the liquid and gas pipes"*.

Remove the partition plate after removing the set screws.

Remove the fan securing cover after removing the two screws located on the left and right of the partition.



Fit the drain pan and the lower panel in the opposite order of the instructions.

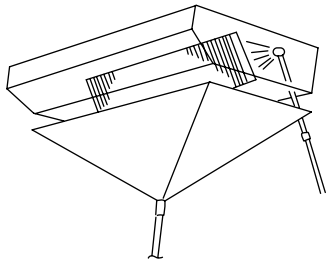


Cleaning the indoor unit

NOTE

Wear gloves to avoid injuries caused by the heat exchanger fins.

Place a vinyl sheet around the electrical components except the drain pan to protect them from splashed cleaning water.



Secure the motor panel using adhesive tape.

Clean the dust from the inner surface of the heat exchanger by brushing it downwards. Collect all of the dust in a bucket or a cardboard box.

Hang the cleaning water manifold from the indoor unit.

Insert the nozzle of the pressurised water gun into the hole in the cleaning water manifold. Start the water pump and clean the heat exchanger of any dust.

After cleaning, spray and remove all remains of water.

NOTE

- *Set the pressure of the water pump so as not to damage the funs.*
- *Any cleaning water left behind will rust the fins. Set the pump pressure to between 2.5 and 5 kg/cm^3 to protect the fins.*

After cleaning, fit the drain pan by lowering the rope.

Dry the remains of any water on the indoor unit.

Check the insulation of the drain pump using a megohmmeter. Check that the insulation is above 1 MΩ when 500V are applied.

Perform the neutralisation treatment after cleaning.

◆ RPI(M) - Ducted indoor unit type

DANGER

Wear gloves to avoid injuries when handling components.

Work prior to cleaning

Turn off the power supply switches before starting maintenance work and fit the appropriate safety locks and warnings.

Wait 5 minutes after turning off the power supply switches.

Place a vinyl sheet on the floor to protect the furniture and other items from the cleaning water.

Remove the following components:

1 Side panel.
2 Discharge air grille.
3 Air filter.
4 Liquid and gas piping thermistors.
5 Fan motor.

Remove the set screws from the partition plate 2 and remove the plate.

Remove the set screws from the fan cover, located on the left and right of the partition. Then remove the fan cover.

Fit the drain pan and the lower panel.

Cover the components (except the drain pan) with a vinyl sheet to avoid splashing with cleaning water.

Use a brush to clean any dust from the interior surface of the heat exchanger and the fins. To do so, brush downwards and collect all of the dust in a bucket or cardboard box.

Spray cleaning water over the fins from the rear of the heat exchanger.

Follow the steps below to wash with clean water:

1 Set the water pump pressure to between 2.5 and 5 kg/cm^2 to protect the fins.
2 Start the water pump and wash the fins with clean water.

Work and checks after cleaning

1 Measure the drainage pump insulation using a megohmmeter, check that the insulation is over a 1 MΩ on applying 500 V.
2 Pour water into the drain pan to check that the water flows easily.
3 Remove the vinyl sheets.
4 Fit the fan cover and fit and tighten the cover securing screws.
5 Fit the partition plate and fit and tighten the plate securing screws.
6 Fit the following components:
   a. Fan motor.
   b. Liquid and gas piping thermistors.
   c. Air filter.
   d. Discharge air grille.
   e. Side panel.

NOTE

The cleaning product is neutral. However, after it has been used the cleaning water may no longer be neutral.

7 Collect the cleaning water and apply the neutralisation treatment once you have disposed of it.

9.3 Cleaning of KPI units

Filter maintenance

Preliminary procedures

Turn off all power supply switches before starting maintenance work.

Wait 5 minutes after stopping the unit before starting the cleaning procedure.

Do not start the system without the air filter to avoid blockages in the total heat exchanger.

DANGER

Wear gloves to avoid injuries when handling the filter.

NOTE

- *Clean the heat exchanger unit once or more every two years.*
- *Clean the air filter more than once a year.*

KPI-(252-2002)E4E and KPI-(502-1002)X4E

Pull the hinges back.

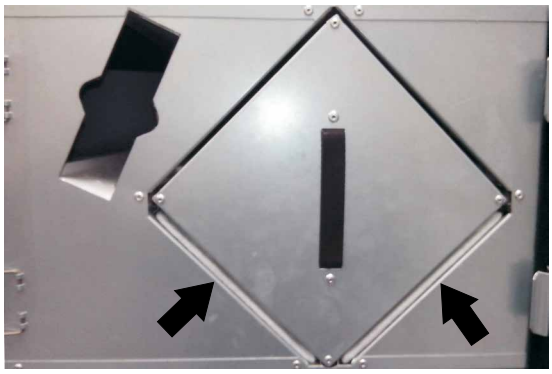
Open and remove the service cover.



CAUTION

The service cover is not fixed, pay attention when pull the hinges back because the cover can fall.

Remove the air filters located at the bottom left and bottom right, close to the heat exchanger unit.





Use a vacuum cleaner to suck up any dust.

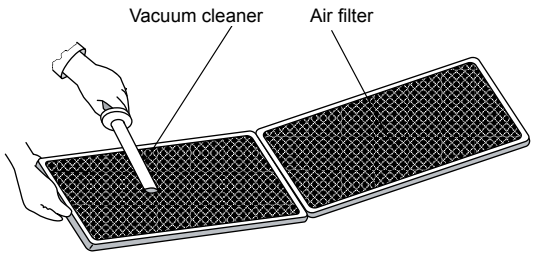
Dissolve a little neutral soap in cold or warm water to clean the dirt.

Place the filters in the soapy water to clean them.

Allow the filters to dry.

Fit the filter.

Close the service cover.



Cleaning energy recovery ventilation unit elements

NOTE

Clean the element once or more every two years to prevent the air flow and efficiency from dropping.

CAUTION

- *Do not wash the element with water under any circumstances.*
- *Do not use the hard nozzle on the vacuum cleaner, as this could damage the exposed parts of the heat exchanger.*

Hold onto the handle. Remove the two total heat exchanger elements from the main unit.





KPI-(252-2002)E4E and KPI-(502-1002)X4E

Use a vacuum cleaner to suck up any dust and dirt from the exposed surfaces of the total exchanger elements.

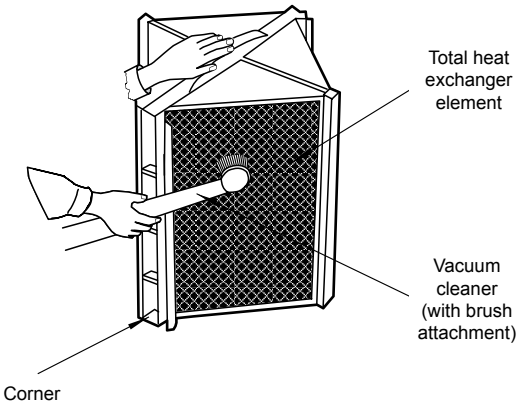
Fit a nozzle with a brush to a vacuum cleaner to carry out this task.

Clean the elements by brushing the exposed surfaces gently.

Fit the element.

Fit the air filter.

Close the service cover.



9.4 Econofresh kit

DANGER

Wear gloves to avoid injuries when handling components.

CAUTION

- *Clean the air filter more than once a year.*
- *Clean the heat exchanger unit once or more every two years.*

Turn off the power supply switches before starting maintenance work and fit the appropriate safety locks and warnings.

Wait 5 minutes after turning off the power supply switches.

Clean the exchanger and/or air filter.

CAUTION

- *Do not start the system without the air filter.*
- *Turn on the power supply after completing the maintenance work.*

9.5 Collection of refrigerant to replace the indoor unit

◆ Collection of refrigerant after replacing the indoor unit

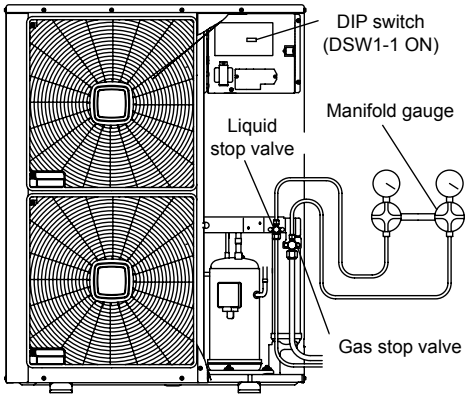
1 Connect the gauge manifold to the gas and liquid stop valve.
2 Switch the power supply ON.
3 Enable pin 1 of DSW1 on the outdoor unit PCB for cooling operation. Close the liquid stop valve and collect the refrigerant.
4 Carry out the following procedures immediately when the side pressure drops and the gas stop valve indicates –0.01 MPa.

NOTE

Prevent the pressure from dropping below –0.01 MPa. If the pressure is less, the compressor may be faulty.

a. Close the gas stop valve.
b. Disable pin 1 of DSW1.

5 Switch off the power supply.



9.6 Cleaning agents for heat exchanger

The aluminium fin surfaces of the heat exchanger for all the indoor units of packaged air conditioners are coated with a hydrophilic coating to prevent the increase of airstream resistance due the occurrence of condensing water during cooling operation.

However, if the Aluminium fin's hydrophilic is decreased by the adhesion of contaminants, etc., the following phenomenon will happen.

Dew will adhere between each aluminium fin space (Bridging Phenomenon)

↓

Increase of airstream resistance

↓

Decrease of the airflow volume

↓

Decrease of cooling capacity

↓

In some cases, dew may be splashed from the indoor unit

In order to avoid the malfunction of the unit, we recommend the use of cleaning agent for the aluminium fins.

9.6.1 Recommended specifications of cleaning agents for aluminium fins

Effect on hydrophilic coating		No effect
Effectiveness against specific types of dirt	Grease and Oil	Specially effective
	Tar	Effective
	White powder (*1)	Ineffective
Possibility of occurrence of cracking (*2)		Low
pH of the solution		Alkaline or Weak alkaline
Requirement of dilution		Yes or No
Personal Protection Equipment (PPE) to be used in handling (*3)		Mask, Glasses, Gloves

(*1): The hydroxide caused by the reaction of aluminium fins and the water condensed on the surface of the fins.

(*2): The possibility of occurrence of cracking was also examined taking into account the results of the examination of the possibility of occurrence of cracking in Acrylonitrile Butadiene Styrene (ABS) and Polystyrene (PS).

(*3): Personal Protection Equipment (PPE) must be used whenever manipulating chemical products, in order to ensure safety.

9.6.2 Particularities and benefits

HITACHI has ben tested the effect of cleaning benefits using special fin cleaners for hydrophilic coated fins on the indoor units. Those tests were focused on the wettability, and confirmed as follows:

- Cleaning aluminium fins makes its hydrophilicity possible to recover.
- The hydrophilic coating is not damaged even if it's washed repeatedly by using special cleaning special agents for hydrophilic aluminium coatings.

9.6.3 To consider

Before washing aluminium fins, protect the fan motor, the electrical box, the connectors and, in general, all the wiring of being splashed with the cleaning products and water. In addition, before starting an air-conditioning operation, after washing the aluminium fins, be sure that there is no splashing water on those items.

If the cleaning agents are used incorrectly, it will cause damage to aluminium fins. When using those products, pay special attention to the indications referred on each instructions manual

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ISO 14001 of JACO, Japan for its Environmental Management accordance with the standard.

HITACHI air conditioning products are manufactured according to:
ISO 9001 of Malaysia, for its Quality Management accordance with the standard.
ISO 14001 of Malaysia, for its Environmental Management systems accordance with the standard.

HITACHI participates in the Eurovent Certification Programme; the certified data of certified models are listed in the Eurovent Certification Online Directory (www.eurovent-certification.com).

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