

HITACHI

Distributed to C Areas:

All Areas		The middle East	
Europe	☉	Southeast Asia	
Australia		Africa	
Others (50Hz areas)			

**ADVANCED
PRODUCT NEWS**

SUBJECT

Launching of new RPI-(2.0~6.0)FSN4E ducted indoor units series.

DATE: Sep'12

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Summary

This Advanced Products News introduces the launching of new RPI-(2.0~6.0)FSN4E ducted indoor units series driven by DC-Motor manufactured in H.A.P.E.

The details are indicated in the description.

Description

1. DESCRIPTION, CODES AND DATE OF SALES

- New models:

RPI-FSN4E series

Model description	Model Code	Date of sales
RPI-2.0FSN4E	7E424016	Nov'12
RPI-2.5FSN4E	7E424017	
RPI-3.0FSN4E	7E424018	
RPI-4.0FSN4E	7E424020	
RPI-5.0FSN4E	7E424021	
RPI-6.0FSN4E	7E424022	

*New RPI-(2.0~6.0)FSN4E series
(new DC-Motor and electronic control up line)*



- Discontinued models:

RPI-FSN3E series

Model description	Model Code	Discontinued Date
RPI-2.0FSN3E	7E424003	Nov'12
RPI-2.5FSN3E	7E424004	
RPI-3.0FSN3E	7E424005	
RPI-4.0FSN3E	7E424007	
RPI-5.0FSN3E	7E424008	
RPI-6.0FSN3E	7E424009	

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Barcelona (Spain)**

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2. FEATURES AND BENEFITS

DC-FAN MOTOR

New series of RPI-FSN4E has been designed with latest technology generation of DC-Fan Motor which provides the following advantages described below:

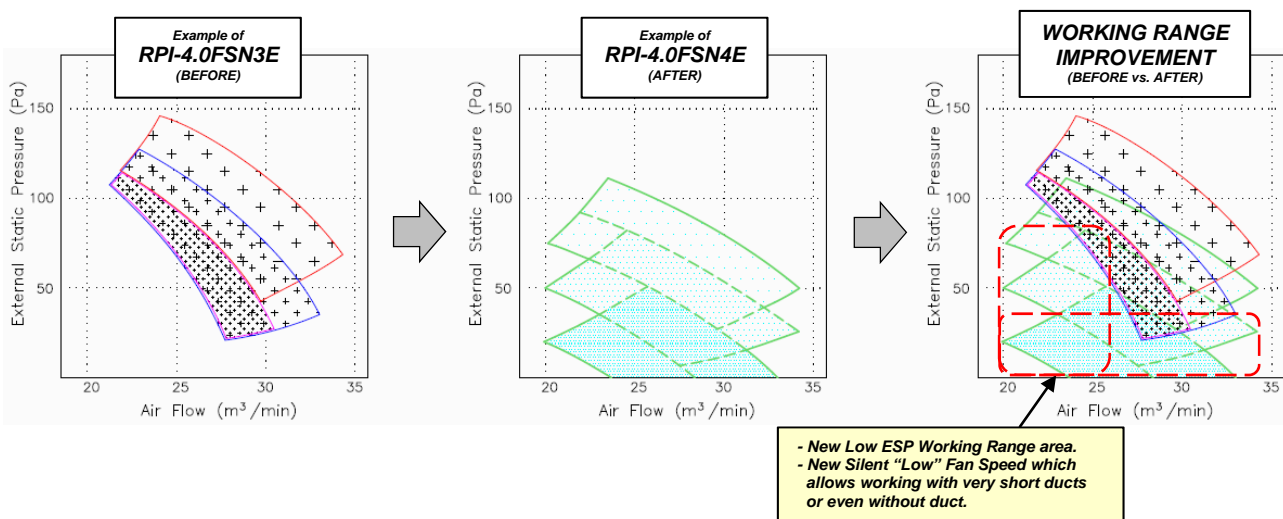
- Low Power Consumption → Efficiency Improvement.
One of the main benefits of the DC-Motors, against the AC-Motors, is the Low Input Power Consumption. As a result, the Efficiency of the Full System is improved much more than previous series giving a saving on the electricity bill.

EER & COP Improvement due to new DC-Motor (low IPT consumption): (System with RPI-FSN4E series vs. RPI-FSN3E series combined with IVX-Premium OU)										
	EER				COP					
	35°C	30°C	25°C	20°C	-10°C	-7°C	2°C	7°C	12°C	
RPI-2.0	106%	114%	119%	122%	103%	104%	112%	117%	118%	
RPI-2.5	105%	110%	115%	118%	103%	105%	112%	114%	116%	
RPI-3.0	103%	106%	114%	112%	102%	103%	106%	111%	115%	
RPI-4.0	104%	109%	119%	123%	103%	103%	107%	115%	118%	

Before (RPI-FSN3E)		After (RPI-FSN4E)		SEER improvement (%)	SCOP improvement (%)	Annual Electricity Bill Saving (*) (Eur.)
SEER	SCOP	SEER	SCOP			
4,29	3,54	5,10	4,00	119%	113%	110
4,45	3,92	5,11	4,40	115%	112%	89
5,12	3,76	5,71	4,03	112%	107%	108
5,21	3,90	6,11	4,28	117%	110%	115

NOTE ()*: Based on Spain std. Elec. Tarif --> 0,15 Eur/kWh.
Total year hours is based on EN14825 (Season Eff. Calc.)

- More Installation Flexibility and expanded Working Range.
 - Fan Speeds have been improved by better distribution at lower External Static Pressure area.
 - New Remote Control Switch (PC-ARF) allows getting an additional High Fan Speed ("Hi^H") which provides additional adaptability of the unit in those installations with Low External Static Pressure (or even with no Duct) and high Air Volume requirement.



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- Sound Level improvement

- New Silent "Lo" Fan Speed → Better fan speeds distribution with the aim of getting the lowest sound on those installations with very short ducts or even no duct.

Unit Power	RPI-FSN3E (before series)			RPI-FSN4E (new series)		
	Hi	Me	Lo	Hi	Me	Lo
2.0 HP	33	31	29	29	29	27
2.5 HP	35	33	30	30	30	28
3.0 HP	35	33	31	31	31	29
4.0 HP	37	36	35	37	35	32
5.0 HP	39	38	36	38	35	33
6.0 HP	40	39	38	39	36	33

NOTE: Sound Pressure data dB(A) measured in Anechoic chamber 1.5m below the unit.

- Feedback "rpm" control

- Intelligent DC-Fan Motor control which keeps always the comfort to the customer even when the Air Filter is capped by dust or in those installations where there is any dumper system which makes External Static Pressure variations.

- ErP ENER Lot.11 (new Eco Design Regulation) → "OK"

From Jan'13, Fan Motors with electrical consumption of 125W ~ 500kW, must comply a minimum Efficiency Target based on the European Regulation EC No.327/2011. Affected RPI-(5/6)FSN4E already use a compliant ErP ENER Lot.11 Fan Motor.

3. COMPATIBILITY

New RPI-(2.0~6.0)-FSN4E series are compatible and combinable with the current Utopia and Set Free systems as follows:

System		Description
UTOPIA	RAS-	H(V)RNM2E
		H(V)RNS2E
	RASC-	H(V)RNM(1)E
SET FREE	RAS-	FSXN
		FSN2
		FSNM
		FS(V)N(Y)2E

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4. GENERAL DATA

▪ RPI-(2.0~3.0)FSN4E

NEW

NEW

NEW

MODEL			RPI-2.0FSN4E	RPI-2.5FSN4E	RPI-3.0FSN4E
Power supply			1~ 230 V 50 Hz		
Nominal Cooling Capacity (UTOPIA)	kW		5.0	6.3	7.1
Nominal Heating Capacity (UTOPIA)	kW		5.6	7.0	8.0
Nominal Cooling Capacity (SET FREE)	kW		5.6	7.1	8.0
Nominal Heating Capacity (SET FREE)	kW		6.3	8.5	9.0
Air Flow Volume (ESP-00) ⁽²⁾	Speed (Hi / Me / Lo)	m ³ /min	16 / 15 / 13	19 / 17 / 15	22 / 20 / 17
External Static Pressure	Nom. ⁽¹⁾ (min.- max.)	Pa	30 (0 ~ 120)	30 (0 ~ 140)	30 (0 ~ 150)
Electric Fan Power		W	60	150	150
Sound Pressure Level (ESP-02) ⁽²⁾	Speed (Hi / Me / Lo)	dB(A)	29 / 29 / 27	30 / 30 / 28	31 / 31 / 29
Sound Power Level (ESP-02) ⁽²⁾	Speed (Hi)	dB(A)	55	56	57
Outer measurements	Height	mm	275	275	275
	Width	mm	1084	1084	1084
	Depth	mm	600	600	600
Net weight		kg	35	36	36
Refrigerant			R410A (factory-charged corrosion-proof nitrogen)		
Refrigerant pipe connection			Flare nuts		
Refrigerant pipe size	Liquid	mm (in)	ø6.35 (1/4)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas	mm (in)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate drain connection		mm	ø32 ⁽³⁾	ø32 ⁽³⁾	ø32 ⁽³⁾
Maximum current		A	5	5	5
Packaging measurements		m ³	0.25	0.25	0.25
Standard accessories			Air Filter, Drain Pump		
Remote control			PC-ART / PC-ARF		

⁽¹⁾ Nom.: External Static Pressure at Nominal Air Flow Volume.

⁽²⁾ ESP: External Static Pressure (setting throw Optional Functions "C5", 01 = High ESP, 00 = Std. ESP and 02 = Low ESP).

⁽³⁾ Outer diameter.

- The nominal cooling and heating capacity is the combined capacity of the outdoor and indoor units of the system and is based on Standard EN14511, with the following operating conditions.

Operation conditions		Cooling	Heating
Indoor air inlet temperature	DB	27.0 °C	20.0 °C
	WB	19.0 °C	—
Outdoor air inlet temperature	DB	35.0 °C	7.0 °C
	WB	—	6.0 °C

DB: dry bulb; WB: wet bulb Pipe length: 7.5 m; pipe height: 0 m.

- The sound pressure level has been measured in an anechoic chamber under the following conditions:
 - RPI indoor units: 1,5 m. below the unit.

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▪ RPI-(4.0~6.0)FSN4E



MODEL			RPI-4.0FSN4E	RPI-5.0FSN4E	RPI-6.0FSN4E
Power supply			1~ 230 V 50 Hz		
Nominal Cooling Capacity (UTOPIA)	kW		10.0	12.5	14.0
Nominal Heating Capacity (UTOPIA)	kW		11.2	14.0	16.0
Nominal Cooling Capacity (SET FREE)	kW		11.2	14.0	16.0
Nominal Heating Capacity (SET FREE)	kW		12.5	16.0	18.0
Air Flow Volume (ESP-02) ⁽²⁾	Speed (Hi / Me / Lo)	m ³ /min	30 / 28 / 25	35 / 32 / 28	36 / 33 / 29
External Static Pressure	Nom. ⁽¹⁾ (min.~ max.)	Pa	45 (0 ~ 110)	50 (0 ~ 140)	50 (0 ~ 150)
Electric Fan Power			250	250	250
Sound Pressure Level (ESP-00) ⁽²⁾ / (ESP-01) ^(2*)	Speed (Hi / Me / Lo)	dB(A)	37 / 35 / 32 ⁽²⁾	38 / 35 / 33 ^(2*)	39 / 36 / 33 ^(2*)
Sound Power Level (ESP-00) ⁽²⁾ / (ESP-01) ^(2*)	Speed (Hi)	dB(A)	62 ⁽²⁾	65 ^(2*)	66 ^(2*)
Outer measurements	Height	mm	275	275	275
	Width	mm	1474	1474	1474
	Depth	mm	600	600	600
Net weight			48	48	48
Refrigerant			R410A (factory-charged corrosion-proof nitrogen)		
Refrigerant pipe connection			Flare nuts		
Refrigerant pipe size	Liquid	mm (in)	ø9.53 (3/8)	ø9.53 (3/8)	ø9.53 (3/8)
	Gas	mm (in)	ø15.88 (5/8)	ø15.88 (5/8)	ø15.88 (5/8)
Condensate drain connection			ø32 ⁽³⁾	ø32 ⁽³⁾	ø32 ⁽³⁾
Maximum current			5	5	5
Packaging measurements			0.33	0.33	0.33
Standard accessories			Air Filter, Drain Pump		
Remote control			PC-ART / PC-ARF		

⁽¹⁾ Nom.: External Static Pressure at Nominal Air Flow Volume.

⁽²⁾ ESP: External Static Pressure (setting throw Optional Functions "C5", 01 = High ESP, 00 = Std. ESP and 02 = Low ESP).

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DB: dry bulb; WB: wet bulb Pipe length: 7.5 m; pipe height: 0 m.

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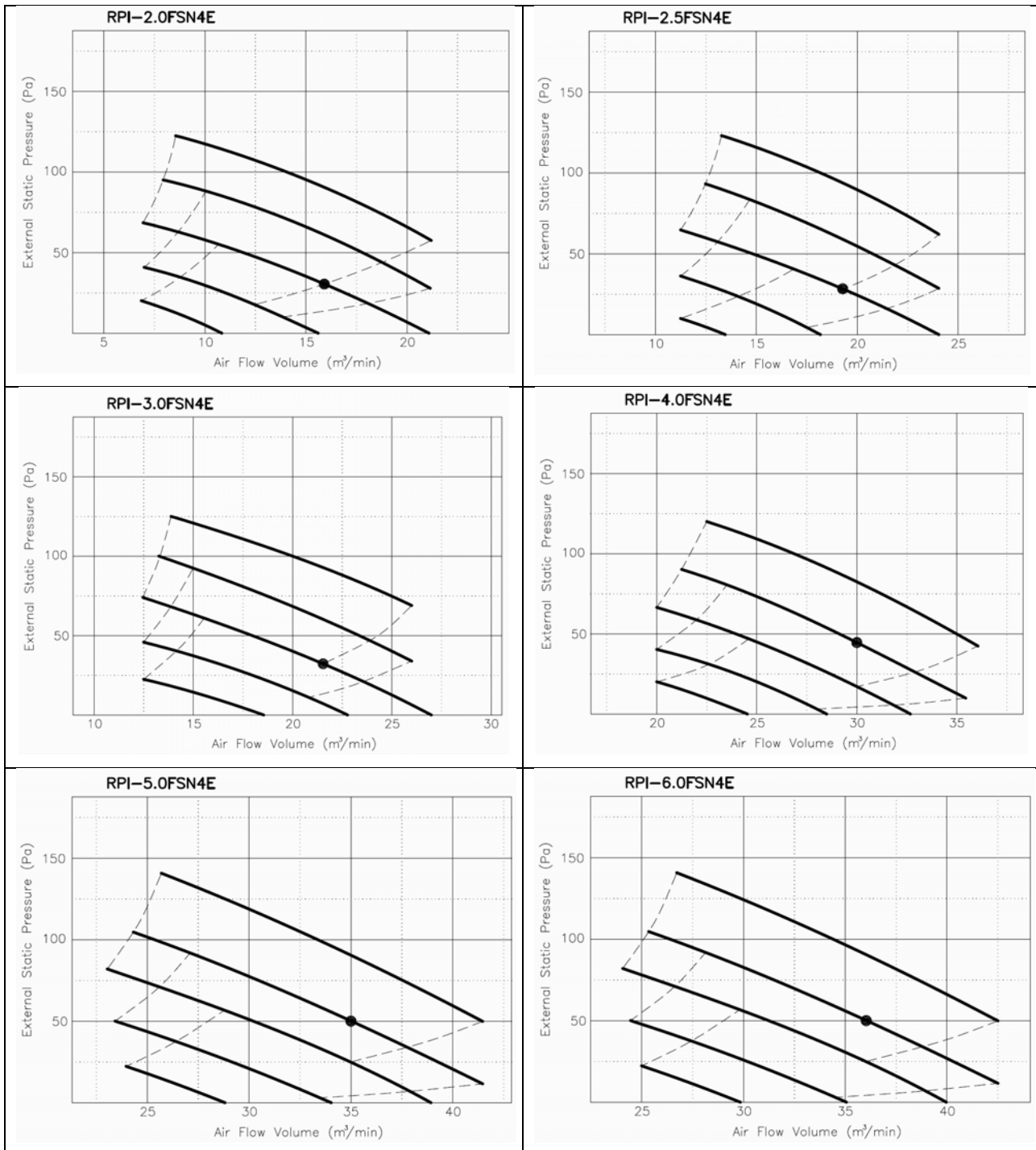
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5. FAN PERFORMANCE CURVES

- RPI-(2.0~6.0)FSN4E



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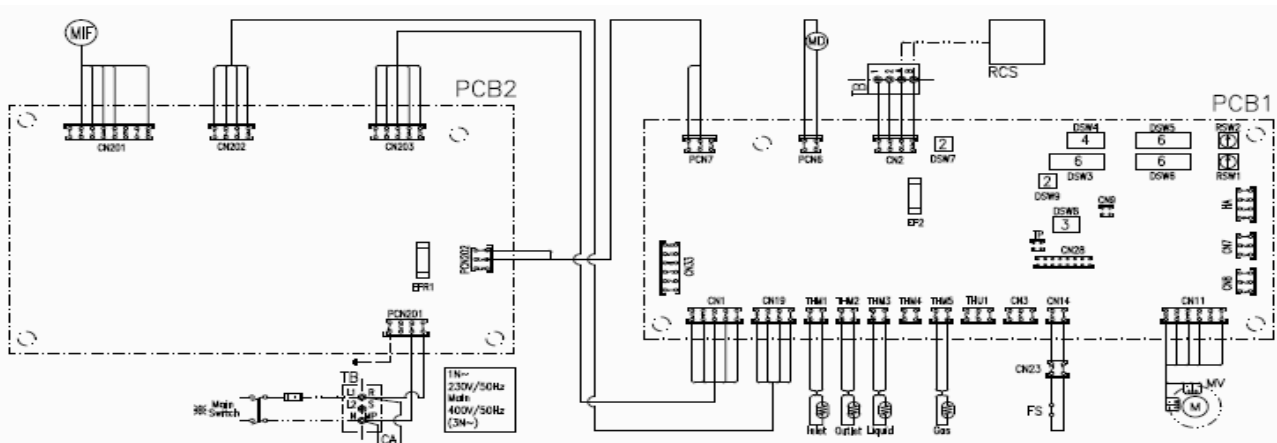
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6. ELECTRICAL DATA

Model	Main unit power supply			Applicable voltage		Fan Motor			
	U (V)	PH	f (Hz)	Max. U (V)	Min. U (V)	IPT (kW)	RNC (A)	Max. IPT (kW)	MC (A)
RPI-2.0FSN4E	230	1	50	253	207	0.04	0.4	0.10	5.0
RPI-2.5FSN4E						0.08	0.7	0.14	
RPI-3.0FSN4E						0.11	0.9	0.20	
RPI-4.0FSN4E						0.16	1.3	0.20	
RPI-5.0FSN4E						0.20	1.7	0.27	
RPI-6.0FSN4E						0.22	1.8	0.28	

7. ELECTRICAL WIRING DIAGRAM

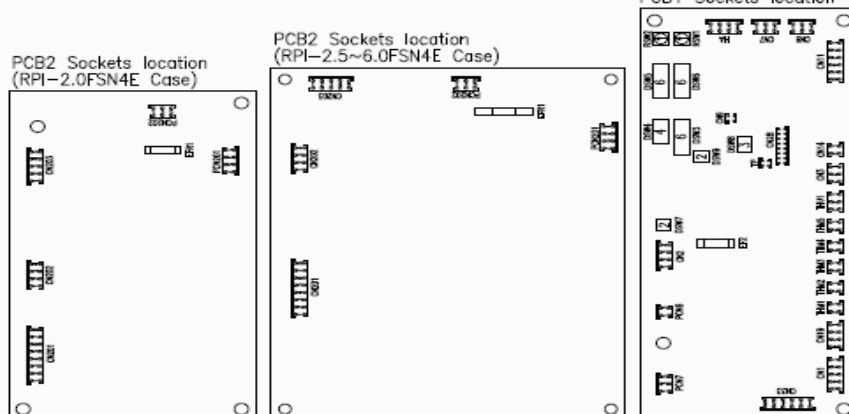
- RPI-(2.0~6.0)FSN4E



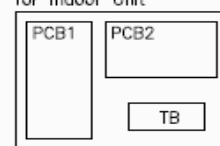
Factory Setting Position of Dip Switch

Model	DSW3	DSW4	DSW5	DSW6	DSW7	DSW8	DSW9	RSW1	RSW2
RPI-2.0FSN4E									
RPI-2.5FSN4E									
RPI-3.0FSN4E									
RPI-4.0FSN4E									
RPI-5.0FSN4E									
RPI-6.0FSN4E									

The side of the mark "■" indicates the dip switch position.



Electrical Control Box for Indoor Unit



Mark Table

Mark	Part Name	Remarks
CA	Capacitor	
CN23-25	Aerial Connector	
DSW3	Indoor Unit Capacity Setting	On PCB1
DSW4	Model Setting	On PCB1
DSW5	Refrigerant Cycle n°	On PCB1
DSW6	Refrigerant System Setting	On PCB1
DSW7	Transis. Recov. (DI Fuse Short Circuit)	On PCB1
DSW8	Opt. Func. (Humidity Sensor)	On PCB1
DSW9	Opt. Func. (Filter Cleaning/Low Airflow)	On PCB1
EF2	Fuse	On PCB1
EFR1	Fuse	On PCB2
FS	Float Switch	
MD	Motor for Drain Discharge	
MIF	Motor for Indoor Fan	
MV	Expansion Valve	
LED1,3,4,6	Alarm Code	On PCB1/2
PCB1	Printed Circuit Board	Control PCB
PCB2	Printed Circuit Board	Power PCB
RCS	Remote Control Switch	Opt. Part
RSW1	Setting no. of Indoor Unit	On PCB1
RSW2	Refrigerant System Setting	On PCB1
TB	Terminal Board	
THM1	Inlet Air Thermistor	On PCB1
THM2	Outlet Air Thermistor	On PCB1
THM3	Liquid Pipe Thermistor	On PCB1
THM4	Optional Room Thermistor	On PCB1
THM5	Gas Pipe Thermistor	On PCB1
⊙	Terminals	
⊛	Field Supplied	
---	Field Wiring	
---	Earth Wiring	
---	Factory Wiring	

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