



United Technologies

turn to the experts 



42CN

Tranquil Type Fan Coil Unit

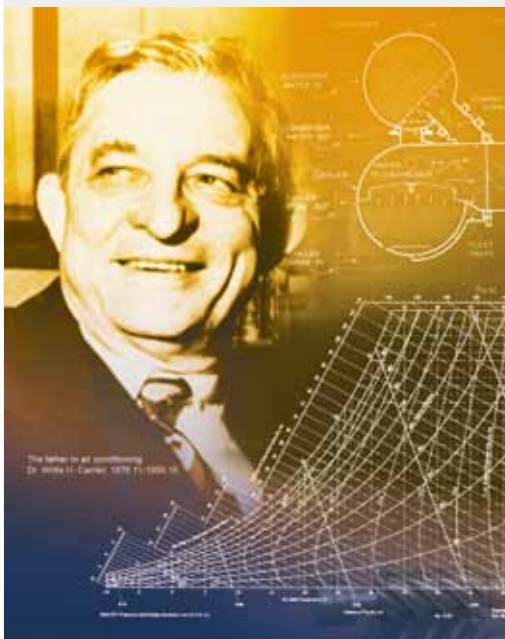
Air Volume: 340~2380m³/h



Carrier China

Carrier Corporation is a subsidiary of the United Technologies Corp. (UTC), which ranks the 150th in Fortune Top 500 in 2011 and has its operations in aerospace and building systems industries all over the world. From the time the founder Dr. Carrier invented the first system of modern air conditioning in 1902, Carrier has been the world leader in the air conditioning industry with its products and system solutions supplied to numerous famous buildings, and up to now, the network of distribution cover more than 170 countries all over the world. In 2011, Carrier ranked top in the HVAC industry field with its sales revenue of US \$12 billion.

In China, there are 6 Carrier factories which have more than 2500 employees. As the world-class factory, Carrier has a number of technically advanced production lines, manufacturing commercial and residential chillers, compressors and air-side products. A wide range of products are able to meet diversified requirements of different customers. The global R&D center located in Shanghai has the capability of developing several major projects in the same time, with many advanced technical patents awarded to support Carrier stay most competitive in terms of technology advantage in the HVAC industry.



The father of air conditioning
Dr. Willis H. Carrier, 1876-1930



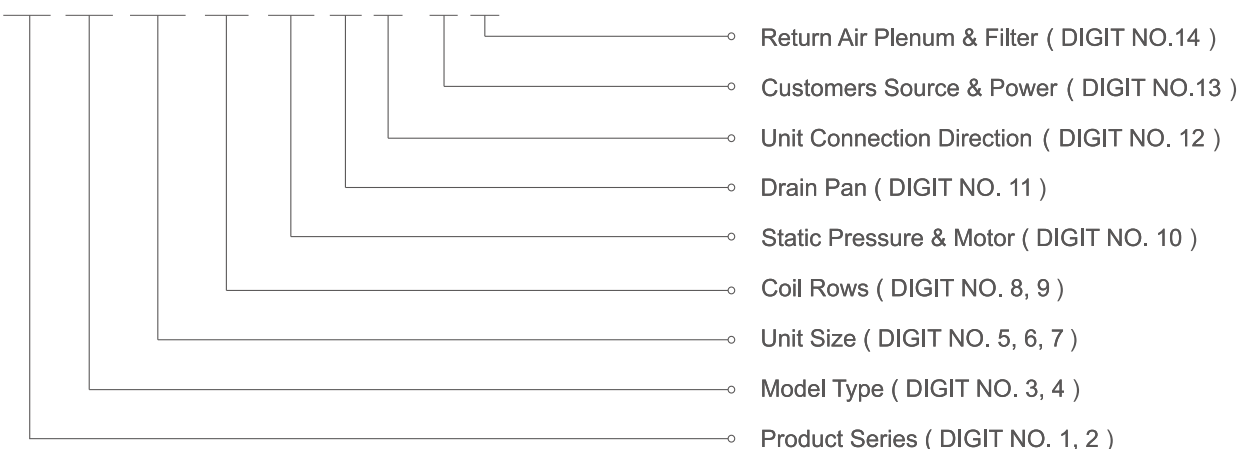
In 1998, Time magazine named Dr. Carrier one of its 20 most influential builders and titans of the 20th century.



Model Number Nomenclature

42CN Fan coil unit

42 CN 002 30 A A L 1 A



🍃 DIGIT NO. 1, 2

product series
42: fan coil

🍃 DIGIT NO. 3, 4

model type
CN: low noise horizontal ceiling type FCU

🍃 DIGIT NO. 5, 6, 7

unit size (air volume = unit size x 170m³ / h)
002:340m³/h
003:510m³/h

🍃 DIGIT NO. 8, 9

coil row
20: 2R cooling
30: 3R cooling
31: 3R cooling +1R heating

🍃 DIGIT NO. 10

external static pressure
A: 12Pa standard
B: 30Pa mid static pressure
C: 50Pa high static pressure
*E: brushless DC motor (Single Control)
*F: brushless DC motor (Zone Control)
* not available for model 014 12/30/50Pa and model 010/012 50Pa

🍃 DIGIT NO. 11

drain pan
A: standard drainpan
B: lengthen drainpan
C: stainless drainpan
D: lengthen stainless drainpan

🍃 DIGIT NO. 12

unit connection direction (face to discharge air)
L: left
R: right

🍃 DIGIT NO. 13

customer source & power
0: sale in mainland 220V-1PH-50HZ (omissible)
1: export to HongKong 220V-1PH-50HZ
2: export 220V-1PH-50Hz
*3: export 230V-1PH-50Hz
*4: export 220V-1PH-60Hz
*5: export 230V-1PH-60Hz
*6: export 115V-1PH-60Hz
*7: export 240V-1PH-50Hz
* Not compatible with BLDC option, i.e. E & F in digit 10.

🍃 DIGIT NO. 14

return air plenum & filter
0: without both (omissible)
A: unit with rear return air plenum
B: unit with bottom return air plenum
C: unit with rear return air plenum & nylon filter
D: unit with bottom return air plenum & nylon filter

Note: BLDC unit doesn't include room controller. Please select room controller separately according to control requirements.

Room controller for BLDC option

42CN0F000B: Zone room controller

42CN0F0003: Local room controller

Features

Ultra low noise

- 🌿 The unit adopts the newly designed wide impeller with large diameter and slow speed forward multi-blade impeller. The fan casing is strengthened with reinforcing ribs for additional strength.
- 🌿 It adopts NSK bearings, ensuring small vibration and low noise in operation.
- 🌿 The unit adopts PEF heat insulating material and one-step forming process of drain pan for thermal insulation, making it durable and good in heat preservation.
- 🌿 42CN adopts new national standard GB/T19232-2003. The noise level of the unit is 3~5 dB lower than new GB.



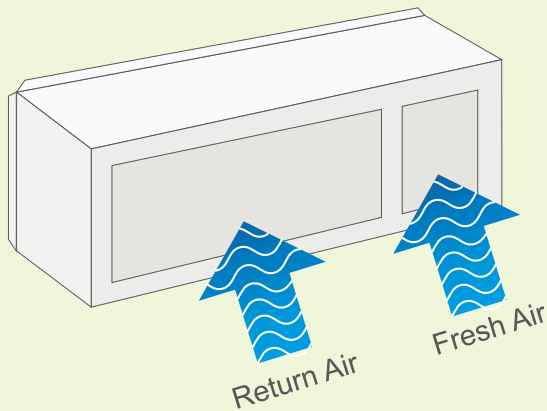
Fan Impeller



NSK Bearing

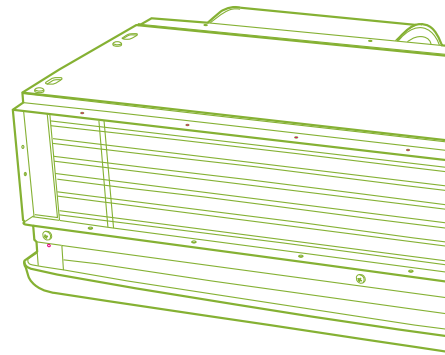
Fresh air intake design

The improvement of IAQ is the current emphase of HVAC system by supplying fresh air to air-conditioned rooms. 42CN ultra tranquil unit can be configured with fresh air intake equipment, which can adjust the intake size reason according to fresh air flow required. It is easy in field assembly.



Ultra thin

The unit height is only 230mm so that they can save installation space and meet the requirement of all kinds of situations.



Brushless DC motor (option)

By providing nearly constant temperature and humidity, lower noticeable operation sound, and energy saving up to 50%, Carrier brushless DC motor fan coil allows us to balance intelligent performance with environmental and economic benefits, increase both owner and occupant satisfaction.



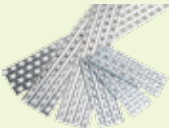
Optional room controller



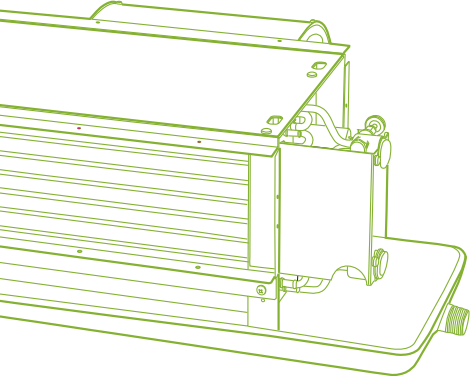
Brushless DC motor

Ultra high efficiency

The unit coil adopts the newly developed double-flanging structure of lanced blue fin and advanced mechanical tube-expanding technique to ensure that the copper tube optimally contacts with the aluminum foil. The lanced fin provides an optimal heat transfer channel for full heat exchanging and the extra wide impeller provides an even air velocity environment for heat transfer. It makes the heat transfer more complete and thereby ensures that the cooling capacity per input power for the 2 row unit exceeds that of the same type 3 row unit at home and abroad.



Aluminum Heat Transfer Fin



Accessories (optional)

- ✔ The diversified drain pans are provided to meet application demands at various situations with good thermal insulation and watertightness.
- ✔ The large screen LCD temperature controller is exquisite in appearance and convenient in operation. The block contact, remote-control receiver or remote controller can be selected. The four-pipe function can also be selected.
- ✔ The motorized 2-way & 3-way valves ensure more reasonable energysaving in system usage.
- ✔ The UV-C sterilizing lamp meets high requirements for air quality.
- ✔ The film humidifier increases indoor air humidity and ensures more comfortable environment.



TMS710/720



TMS810

Thermostat (Optional)



UV-C Sterilizing Lamp (Optional)



Motorized 2-way Valve (Optional)

Motorized 3-way Valve (Optional)

Features and applications of brushless DC motor FCU

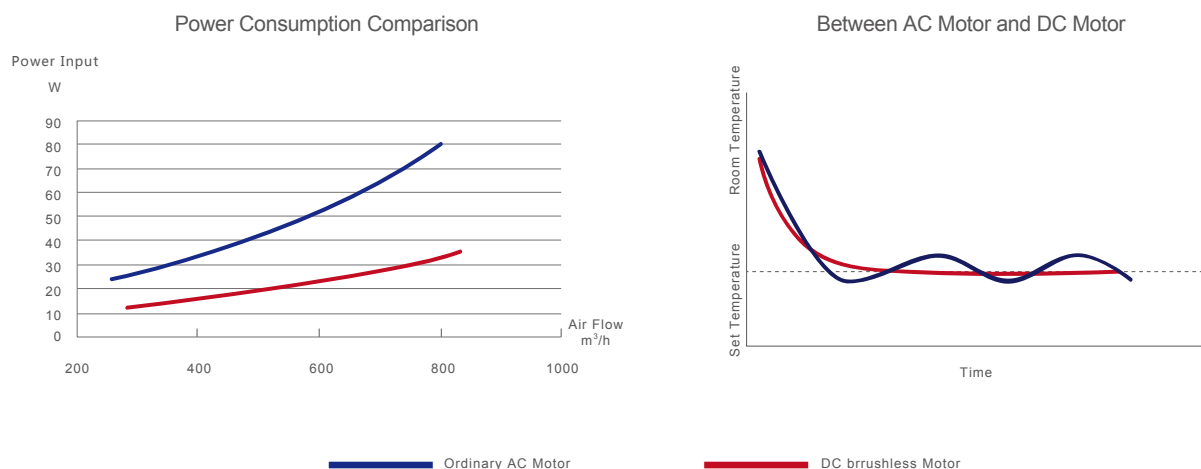
- Compared to traditional fan coils, brushless DC motor fan coils are featured by energy-saving, supreme comfort, intelligent control and reliability with up-to-date brushless DC stageless motor and advanced control technology. Carrier brushless DC fan coil is ideal choice for buildings seeking for both green and comfort.

Significant energy saving

- The BLDC fan coil offers an average energy saving of 50% or more, compared to conventional AC fan coil units. In automatic mode, energy consumption can be reduced even further as the unit's advanced intelligent control technology gradually adjusts the motor speed for optimal energy saving. This adds up to a significant reduction in the total HVAC system running cost.

Supreme comfort

- Conventional AC fan coil units regulate room temperature by water flow control and fan speed, which is set at high, medium, or low. Considerable fluctuation in actual room temperature is inevitable and poor humidity control is a common problem. Through its AC/DC converter, the BLDC fan coil linearly regulates motor speed using pulse-width modulation. Airflow and water flow are regulated according to room load change or a customized temperature/humidity control scheme.
- In contrast to the traditional fan coil unit, the BLDC fan coil delivers precise temperature and humidity control in accordance with actual demand and is able to stabilize the room temperature to within $\pm 0.5^\circ \text{C}$ in automatic mode.



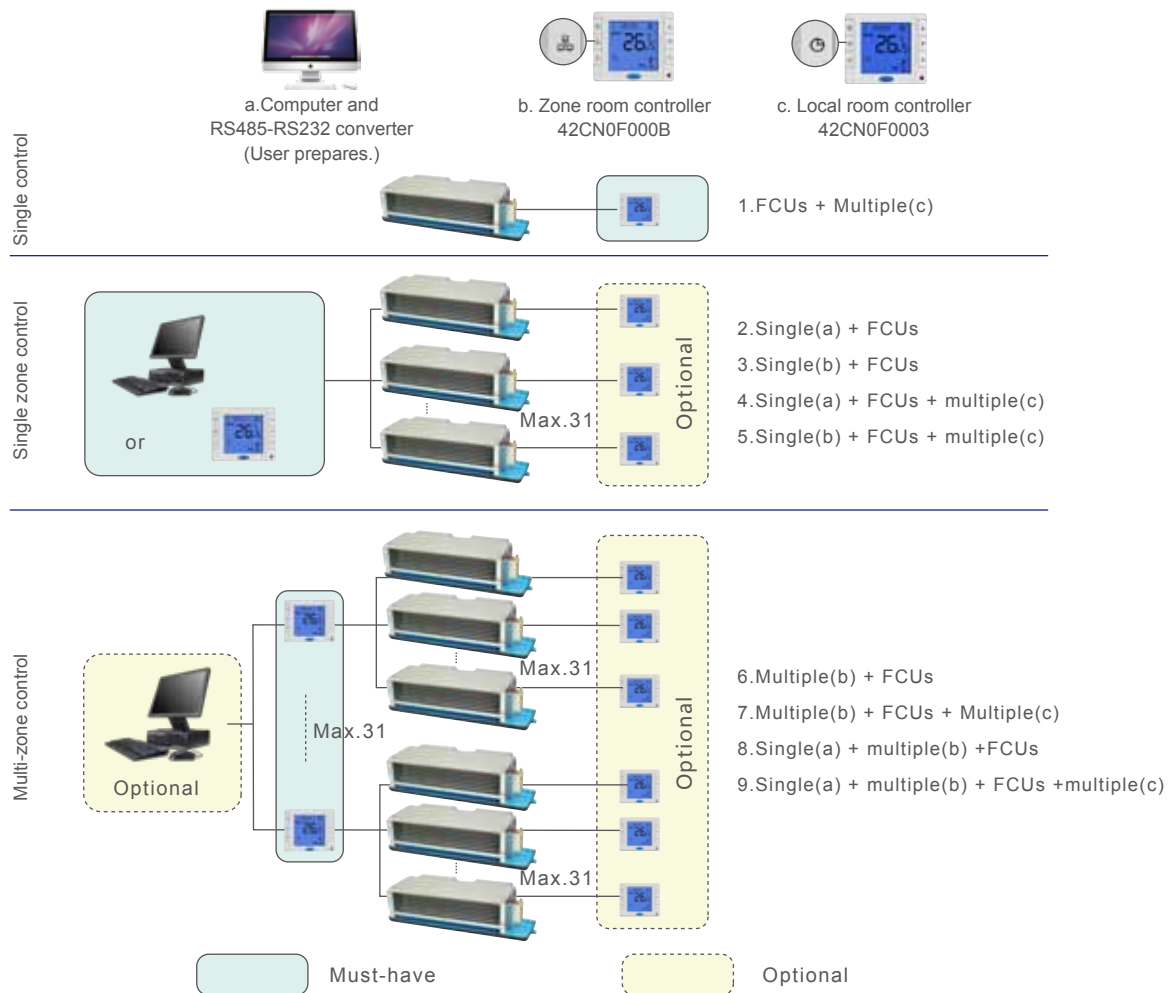
Super-quiet operation

- The 42CN series fan coil unit was developed for quiet operation. Engineered with advanced low-noise fan technology, it is manufactured with state-of-art craftsmanship, adopting a large fan wheel structure and NSK bearings.
- Carbon brush noise, unavoidable in conventional AC fan coil units, is eliminated in the BLDC fan coil. Most of the time, the unit is operating at medium or low speeds, where quiet operation is all the better.



Intelligent control

- ✔ The 42CN series fan coil provides both stand-alone and zone control. It is offered with multiple control plans to meet the needs of various buildings, including hotels and office complexes.
- ✔ For zone control, the fan coil controller uses the industry-standard RS485 communications interface and Mudbugs protocol. The fan coil controller can be integrated into building management system for centralized operation and remote access and monitoring.
- ✔ The unit features a large LCD thermostat that is easy to use, providing a full range of functions, including parameter setting and query, panel lock, trouble query and alarm, and software version display.
- ✔ Each single zone thermostat is able to control up to 31 fan coils and there can be up to 31 zone thermostats in each system, for a total of 961 fan coils. The system can also be customized if more fan coils need to be incorporated into a system.
- ✔ The following control plans represent a wide range of application needs:



Flexible and convenient

- ✔ With factory default settings for both the fan coil, the 42CN BLDC fan coil unit is ready to operate by simply wiring the fan coil and thermostat.
- ✔ Modifying the external static pressure is easily done in the field by changing the dip switch settings between 12Pa, 30Pa and 50Pa, as required.

Safe and reliable

- ✔ The 42CN fan coil comes with a power factor correction (PFC) module for surge protection and improved efficiency. The high voltage power module ensures safe and stable operation under a wide range of power environment. Overload and over-current protection prevents motor burnout.

Technical Parameter

Technical Data (2R Coil)

Performance	Model	002	003	004	005	006	008
Air Volume m ³ /h	HIGH	340	530	700	880	1020	1430
	MED	270	420	560	700	810	1140
	LOW	200	310	420	520	610	850
Cooling Capacity W		1900	2820	3640	4500	5400	7200
Heating Capacity W		3100	4400	5820	6900	8400	11160
Power Input W	AC-12Pa	32	46	56	75	94	134
	AC-30Pa	42	54	72	87	106	155
	AC-50Pa	46	65	84	98	116	174
	DC-12Pa	18	23	33	45	54	64
	DC-30Pa	22	32	45	57	66	75
	DC-50Pa	30	45	63	72	88	115
Noise dB(A)	12 Pa	34	36	38	42	44	43
	30 Pa	37.5	39.5	41.5	43.5	44.5	46
	50 Pa	41	43	44.5	45.5	46.5	47.5
Water Flow l/min		5.4	8.1	10.4	12.9	15.5	20.6
Water Drop KPa		20	28	30	30	38	38
Fan	Type	Centrifugal, forward multi-blade					
Motor	Type	Permanent Split Capacitor					
Coil	Working Pressure	1.6 MPa					
CONNS	In-Out	3/4" FPT					
	Condensing Drain	3/4" MPT					
Net Weight Kg		12.7	14.2	16.1	17.4	18.5	25.8
Options		Thermostat, 2 Way/ 3Way Valve,Return air plenum					

Note: 1. The data is the performance in high speed with relevant static pressure.

2. Cooling Conditions: Entering Water 7°C, Temperature Rise 5°C, Entering Air Temperature 27°CDB,19.5°CWB.

Heating Conditions: Entering Water 60°C, Air 21°CDB, the same water flow as the cooling conditions.

3. The noise is tested in the anechoic test room, measured with a fine audiometer located 1 meter away from the unit front panel and the unit bottom panel.

Technical Parameter

Technical Data (3R Coil)

Performance	Model	002	003	004	005	006	008	010	012	014
Air Volume m ³ /h	HIGH	340	510	680	850	1020	1360	1700	2040	2380
	MED	265	405	535	680	790	1060	1360	1595	1904
	LOW	195	305	405	510	585	790	1020	1180	1428
Cooling Capacity W		2300	3200	4150	5000	6200	8100	9800	11500	13500
Heating Capacity W		3600	5100	6450	7870	9300	12500	15200	17200	20500
Power Input W	AC-12Pa	32	46	56	75	94	134	150	180	225
	AC-30Pa	42	52	72	87	106	155	172	210	240
	AC-50Pa	46	63	84	98	116	174	195	236	290
	DC-12Pa	18	23	33	45	54	64	88	116	/
	DC-30Pa	22	32	45	57	66	75	111	146	/
	DC-50Pa	30	45	63	72	88	115	/	/	/
Noise dB (A)	12 Pa	34	36	38	42	44	43	46.5	48.5	48.5
	30 Pa	37.5	39.5	41.5	43.5	44.5	46	48.5	49.5	51
	50 Pa	41	43	44.5	45.5	46.5	47.5	50	50.5	52
Water Flow l/min		6.6	9.2	11.9	14.3	17.8	23.2	28.1	32.9	38.6
Water Drop KPa		25	21	30	30	32	28	40	40	50
Fan	Type	Centrifugal, forward multi-blade								
Motor	Type	Permanent Split Capacitor								
Coil	Working Pressure	1.6 MPa								
CONNS	In-Out	3/4" FPT								
	Condensing Drain	3/4" MPT								
Net Weight Kg		13.4	14.9	16.9	18.2	19.5	26.9	29.5	33.6	39.5
Options		Thermostat, 2 Way/ 3Way Valve, Return air plenum								

Note: 1. The data is the performance in high speed with relevant static pressure.

2. Cooling Conditions: Entering Water 7°C, Temperature Rise 5°C, Entering Air Temperature 27°CDB, 19.5°CWB.

Heating Conditions: Entering Water 60°C, Air 21°CDB, the same water flow as the cooling conditions.

3. The noise is tested in the anechoic test room, measured with a fine audiometer located 1 meter away from the unit front panel and the unit bottom panel.

Technical Parameter

Technical Data (3+1R Combined Coil)

Performance	Model	002	003	004	005	006	008
Air Volume m ³ /h	HIGH	340	510	680	850	1020	1360
	MED	265	405	535	680	790	1060
	LOW	195	305	405	510	585	790
Cooling Capacity W		2200	2900	3850	4750	5800	7900
Heating Capacity W		1900	2740	3300	4150	4900	6400
Power Input W	AC-12Pa	32	46	56	75	94	134
	AC-30Pa	42	52	72	87	106	155
	AC-50Pa	46	63	84	98	116	174
	DC-12Pa	18	23	33	45	54	64
	DC-30Pa	22	32	45	57	66	75
	DC-50Pa	30	45	63	72	88	115
Noise dB(A)	12 Pa	34	36	38	42	44	43
	30 Pa	37.5	39.5	41.5	43.5	44.5	46
	50 Pa	41	43	44.5	45.5	46.5	47.5
Water Flow l/min	Cooling	6.3	8.3	11.0	13.6	16.6	22.6
	Heating	2.8	4.0	4.8	6.0	7.1	9.3
Water Drop KPa	Cooling	22	20	30	30	30	32
	Heating	9	11	14	17	20	23
Fan	Type	Centrifugal, forward multi-blade					
Motor	Type	Permanent Split Capacitor					
Coil	Working Pressure	1.6 MPa					
CONNS	In-Out	3/4" FPT					
	Condensing Drain	3/4" MPT					
Net Weight Kg		14.4	16.0	18.1	19.5	21.0	28.7
Options		Thermostat, 2 Way/ 3Way Valve,Return air plenum					

Note: 1. The data is the performance in high speed with relevant static pressure.

2. Cooling Conditions: Entering Water 7°C, Temperature Rise 5°C, Entering Air Temperature 27°CDB, 19.5°CWB.

Heating Conditions: Entering Water 60°C, Temperature Drop 10°C, Entering Air Temperature DB=21°C.

3. The noise is tested in the anechoic test room, measured with a fine audiometer located 1 meter away from the unit front panel and the unit bottom panel.

Dimensions

2R/3R Coil

Type	Dimension										
	A	B	C	D	E	F	H	J	K	M	N
42CN002	690	770	550	520	35	480	550	75	400	10	6
42CN003	770	890	630	600	75	480	630	115	400	12	6
42CN004	890	970	750	720	75	600	750	75	600	14	6
42CN005	970	1090	830	800	55	720	830	115	600	16	8
42CN006	1170	1410	1030	1000	95	840	1030	115	800	18	8
42CN008	1410	1530	1270	1240	95	1080	1270	35	1200	26	10
42CN010	1530	1770	1390	1360	95	1200	1390	95	1200	28	10
42CN012	1770	2010	1630	1600	95	1440	1630	115	1400	32	12
42CN014	2010	2250	1870	1840	95	1680	1870	135	1600	36	14

Note: B is the dimension of lengthening drain pan.

3+1R Coil

Type	Dimension										
	A	B	C	D	E	F	H	J	K	M	N
42CN002	690	770	550	520	35	480	550	75	400	10	6
42CN003	770	890	630	600	75	480	630	115	400	12	6
42CN004	890	970	750	720	75	600	750	75	600	14	6
42CN005	970	1090	830	800	55	720	830	115	600	16	8
42CN006	1170	1410	1030	1000	95	840	1030	115	800	18	8
42CN008	1410	1530	1270	1240	95	1080	1270	35	1200	26	10

Note: B is the dimension of lengthening drain pan.

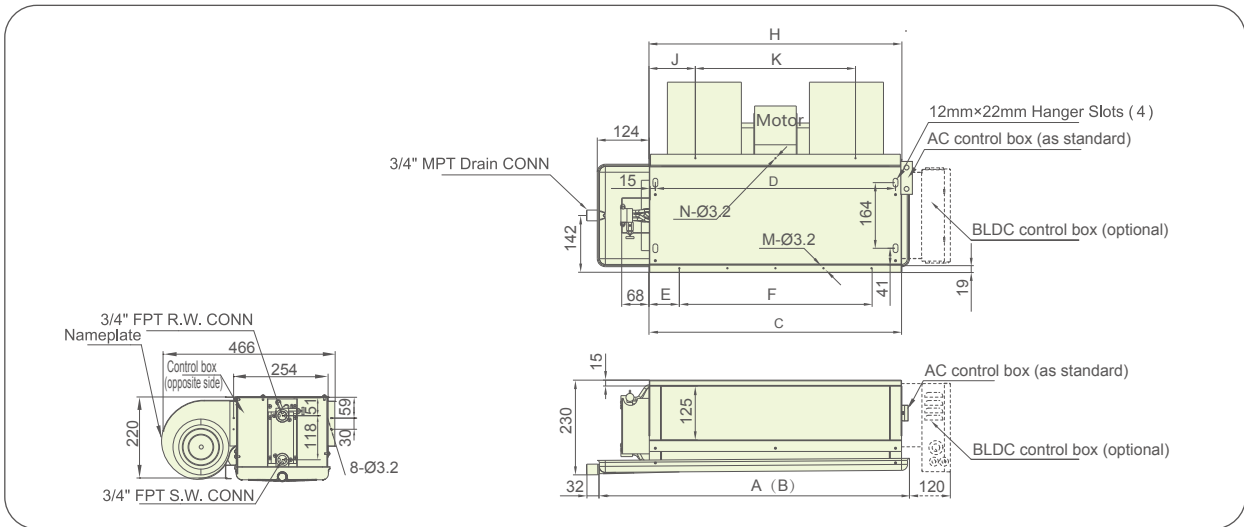
42CN Return Air Plenum

Part Number	Dimension							Used In
	A	B	C	D	E	F		
42CE402900	554	47	2	400	494	520	42CN002	
42CE403900	634	87	2	400	574	600	42CN003	
42CE404900	754	47	3	600	694	720	42CN004	
42CE405900	834	87	3	600	774	800	42CN005	
42CE406900A	1034	87	4	800	974	1000	42CN006	
42CE408900	1274	107	5	1000	1214	1240	42CN008	
42CE410900	1394	67	6	1200	1334	1360	42CN010	
42CE412900	1634	87	7	1400	1574	1600	42CN012	
42CE414900	1874	107	8	1600	1814	1840	42CN014	

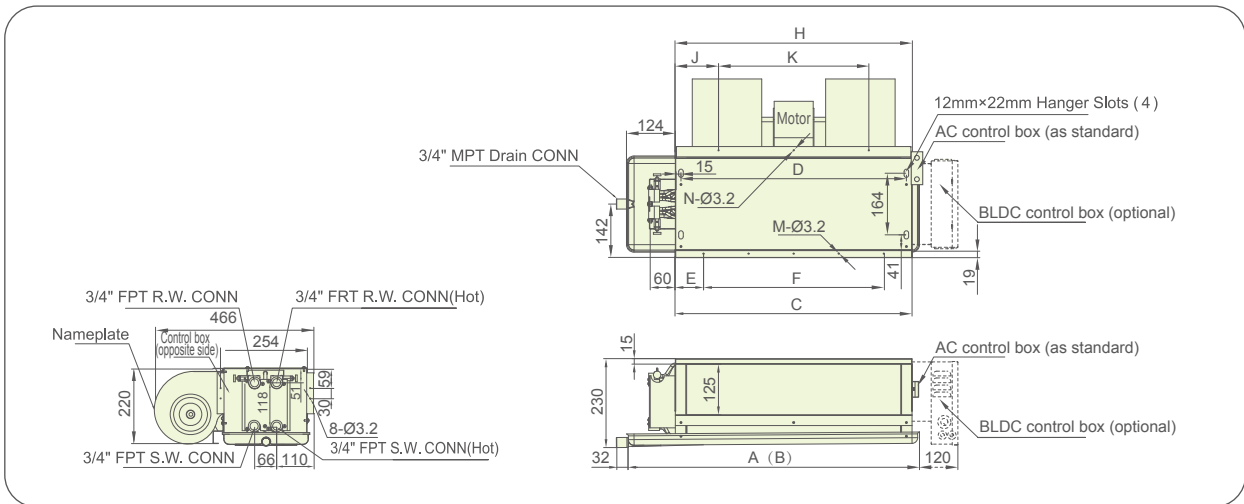
- Note: 1. With Rear/Bottom air return plenum
 2. Easily connect with Rear/Bottom air return plenum in the jobsite.
 3. For use of an additional purifying module, please consult separately.
 4. The part number of return air plenum used in 42CN and 42CE is the same.

Dimensions

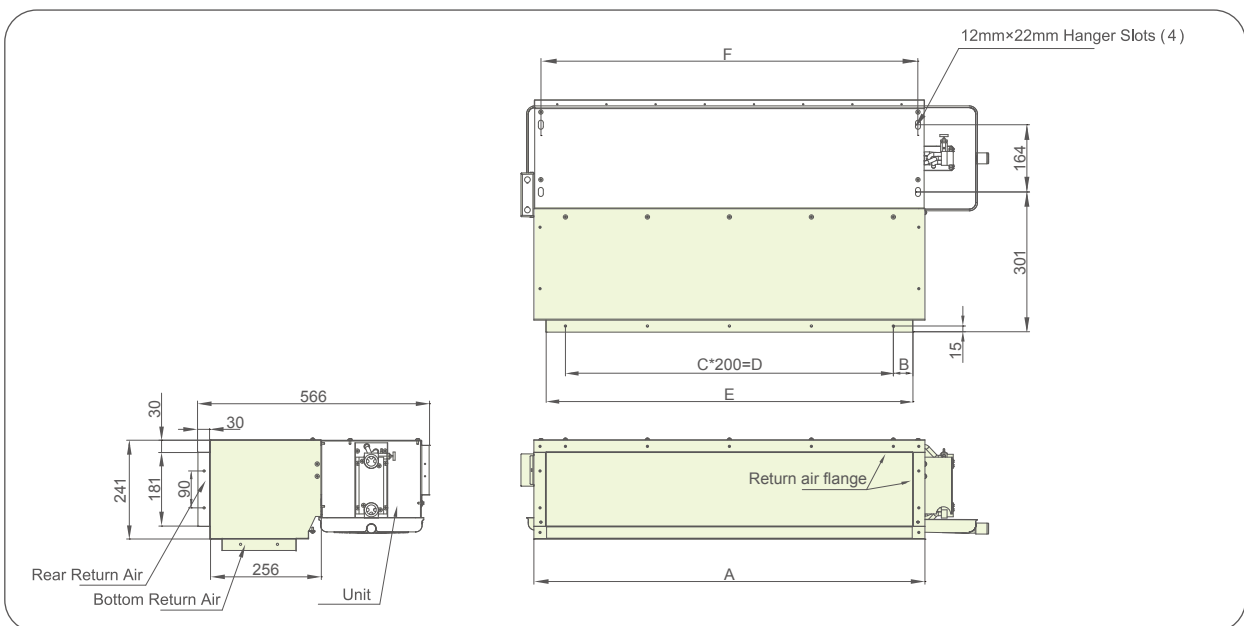
2R/3R Coil



3+1R Coil

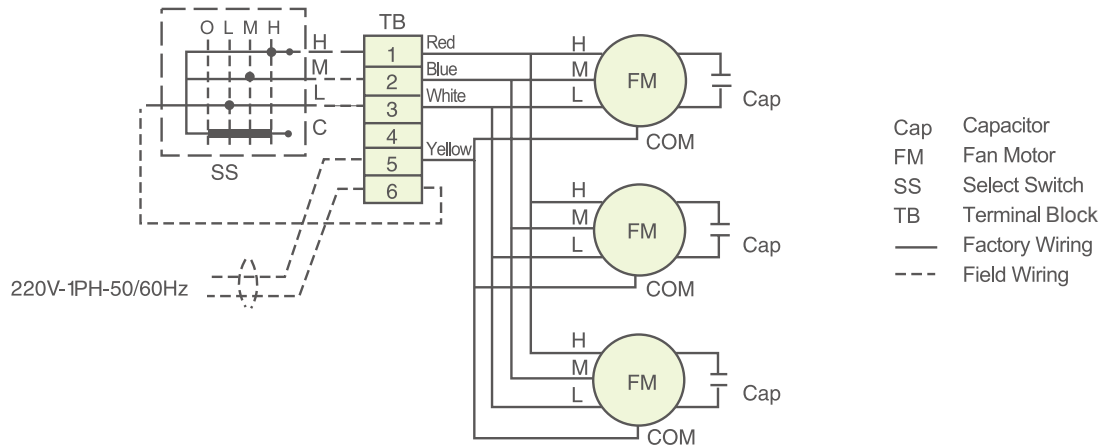


42CN Return Air Plenum



Electrical Diagram

Wiring (for AC motor)

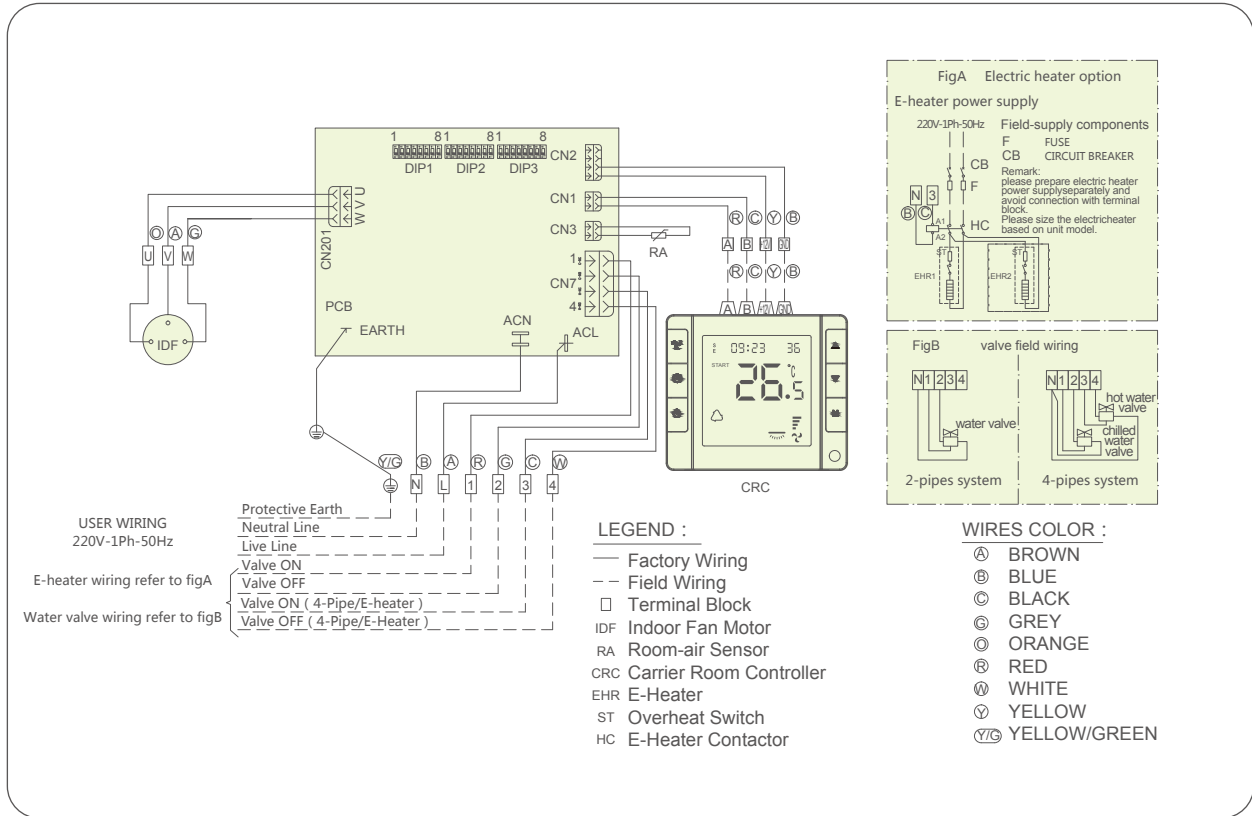


Power: 220V-1 Ph-50Hz

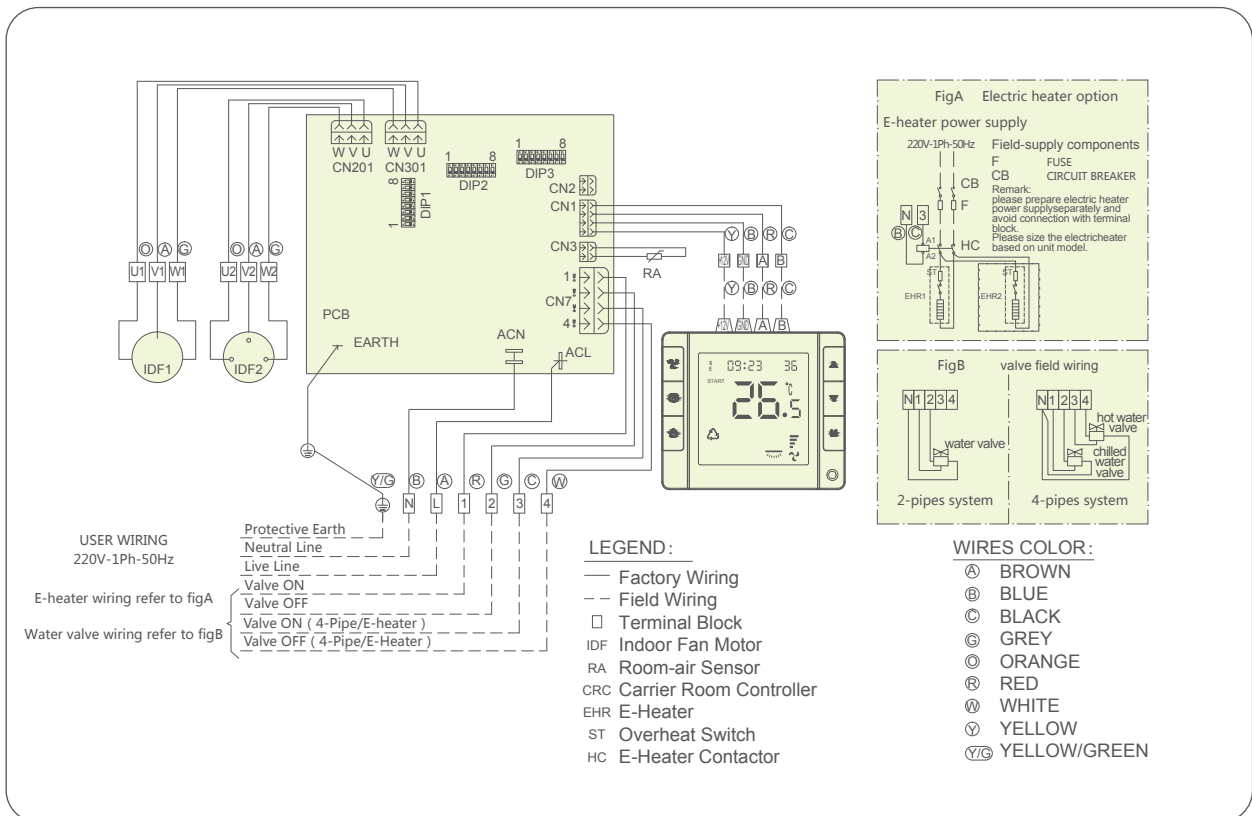
Type			002	003	004	005	006	008	010	012	014
2R	Power Input(W)	12Pa	32	46	56	75	94	134	-	-	-
		30Pa	42	54	72	87	106	155	-	-	-
		50Pa	46	65	84	98	116	174	-	-	-
	Current (A)	12Pa	0.15	0.21	0.25	0.34	0.43	0.61	-	-	-
		30Pa	0.19	0.25	0.33	0.40	0.48	0.70	-	-	-
		50Pa	0.21	0.30	0.38	0.45	0.53	0.79	-	-	-
3R	Power Input(W)	12Pa	32	46	56	75	94	134	150	180	225
		30Pa	42	52	72	87	106	155	172	210	240
		50Pa	46	63	84	98	116	174	195	236	290
	Current (A)	12Pa	0.15	0.21	0.25	0.34	0.43	0.61	0.68	0.82	1.02
		30Pa	0.19	0.24	0.33	0.40	0.48	0.70	0.78	0.95	1.09
		50Pa	0.21	0.29	0.38	0.45	0.53	0.79	0.89	1.07	1.32
3+1R	Power Input(W)	12Pa	32	46	56	75	94	134	-	-	-
		30Pa	42	52	72	87	106	155	-	-	-
		50Pa	46	63	84	98	116	174	-	-	-
	Current (A)	12Pa	0.15	0.21	0.25	0.34	0.43	0.61	-	-	-
		30Pa	0.19	0.24	0.33	0.40	0.48	0.70	-	-	-
		50Pa	0.21	0.29	0.38	0.45	0.53	0.79	-	-	-

Wiring (for brushless DC motor, single control type)

Single motor unit

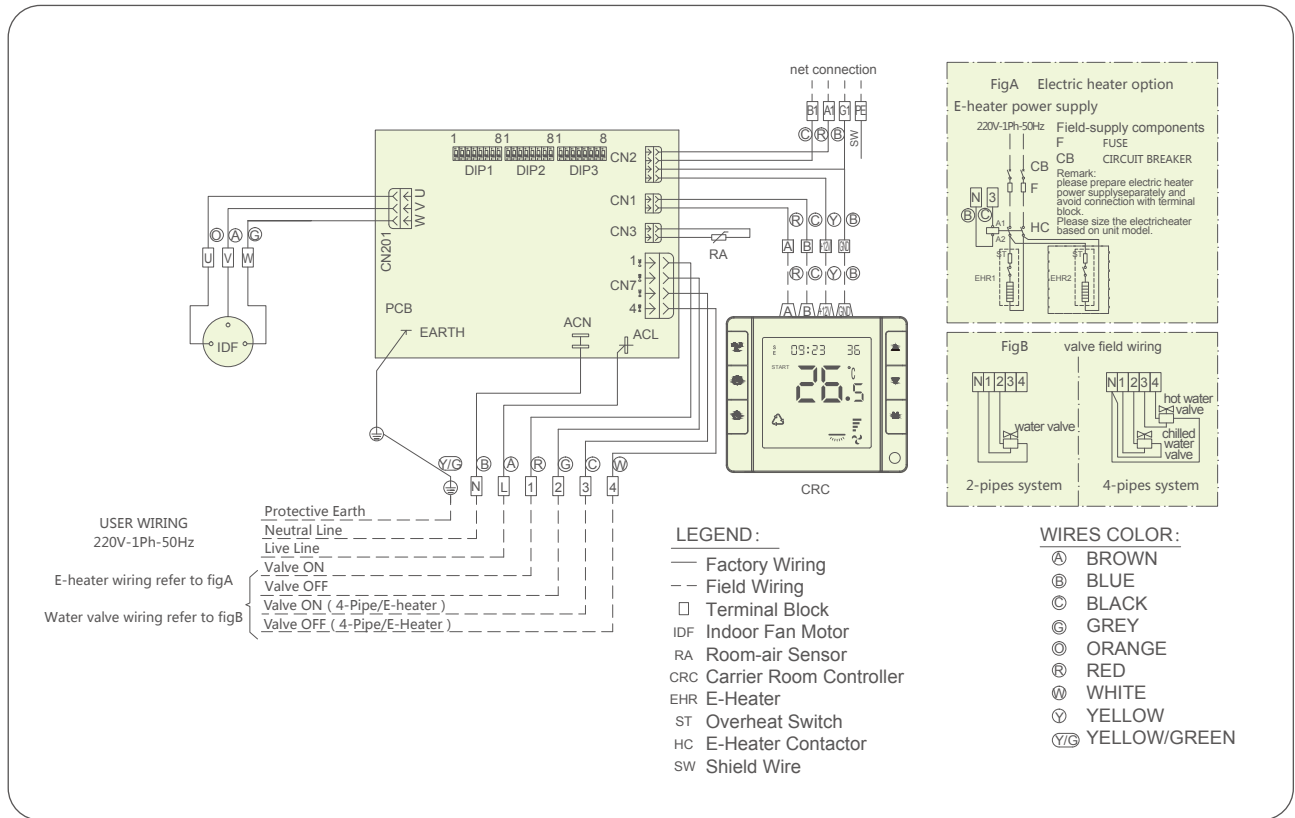


Dual motor unit

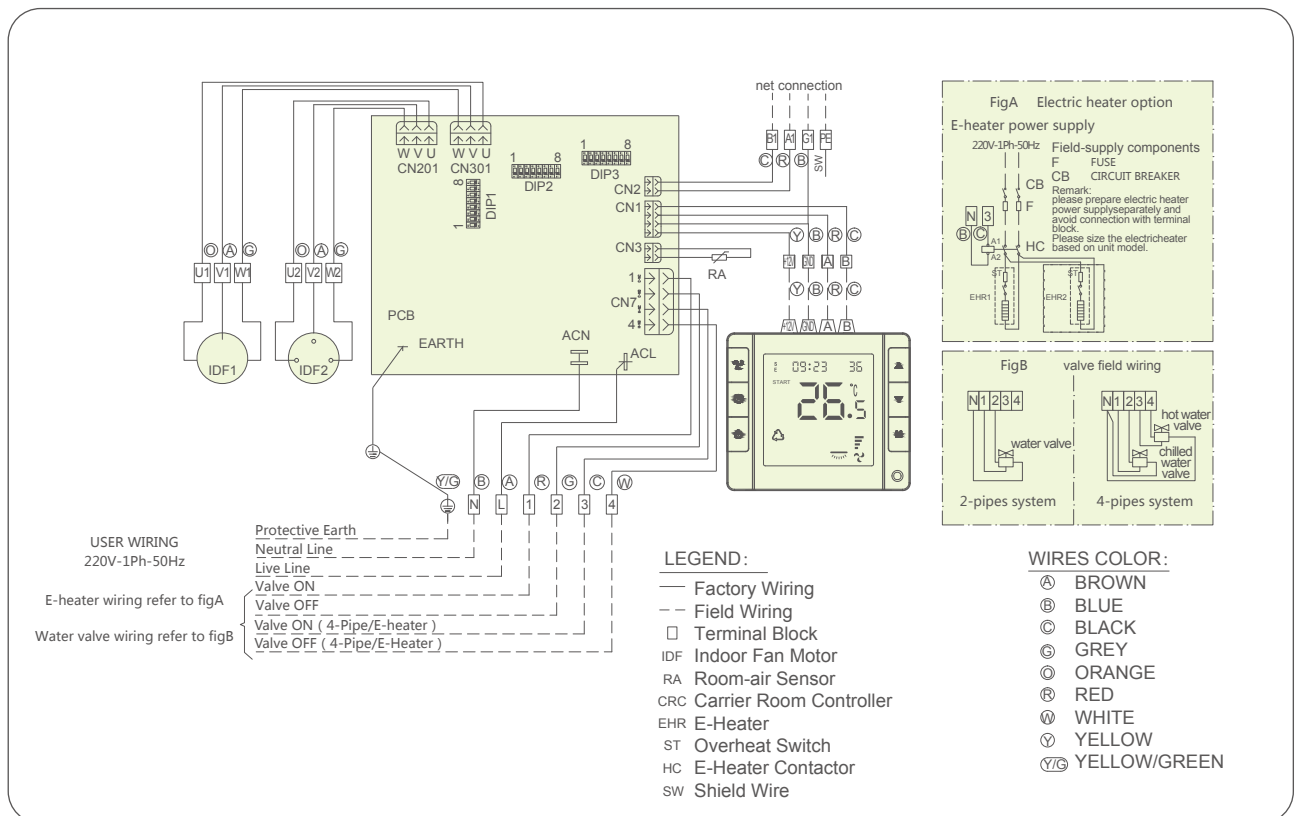


Wiring (for brushless DC motor, zone control type)

Single motor unit



Dual motor unit





Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.



The Manufacturer reserves the right to change any product specifications without prior notices
© All Rights Reserved Carrier

Version:	CAT_42CN_E-1301_03_CHK
Supersede:	CAT_42CN_E-1211_02_CHK
Effective date:	Feb, 2013