

IECS-D Series Round-Flow Ceiling Cassette

Technical Manual

220-240V/1/50Hz



Applicable Models:

Indoor units:

Four-Way Cassette
IECS018J3A-DWG053
IECS024J3A-DWG071
IECS031J3A-DWG090
IECS036J3A-DWG105
IECS042J3A-DWG120
IECS048J3A-DWG140

Outdoor unit

ICHD018J0A-DMG053
ICHD024J0A-DMG071
ICHD031J0A-DMG090
ICHD036J0A-DMG105
ICHD042J0A-DMG120
ICHD048J0A-DMG140

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Part. 1 General information

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1. Model Names of Indoor/Outdoor Units

Type	Indoor unit		Outdoor unit	
	Model	Power supply	Model	Power supply
Four-way Cassette	IECS018J3A	220-240V~, 1Ph, 50Hz	ICHD018J0A	220-240V~, 1Ph, 50Hz
Four-way Cassette	IECS024J3A	220-240V~, 1Ph, 50Hz	ICHD024J0A	220-240V~, 1Ph, 50Hz
Four-way Cassette	IECS031J3A	220-240V~, 1Ph, 50Hz	ICHD031J0A	220-240V~, 1Ph, 50Hz
Four-way Cassette	IECS036J3A	220-240V~, 1Ph, 50Hz	ICHD036J0A	220-240V~, 1Ph, 50Hz
Four-way Cassette	IECS042J3A	220-240V~, 1Ph, 50Hz	ICHD042J0A	220-240V~, 1Ph, 50Hz
Four-way Cassette	IECS048J3A	220-240V~, 1Ph, 50Hz	ICHD048J0A	220-240V~, 1Ph, 50Hz

2. External Appearance

2.1 Indoor units

IECS018J3A / IECS024J3A / IECS031J3A / IECS036J3A / IECS042J3A / IECS048J3A



2.2 Outdoor unit

ICHD018J0A / ICHD024J0A



ICHD031J0A / ICHD036J0A / ICHD042J0A / ICHD048J0A



Part. 2 Outdoor Unit

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Part. 3 Indoor Unit

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Table 1.4: IECS018, 024, 031, 036 specifications

Model name			IECS018J3A	IECS024J3A	IECS031J3A	IECS036J3A
Power supply			1-phase, 220-240V, 50Hz			
Cooling	Capacity	W	5300(1050~6200)	7200(2400~8200)	9000(2800~9400)	10500(3200~11200)
	Input (IDU+ODU)	W	1600(330~2520)	2240(560~2840)	3000(680~3480)	3500(820~4200)
	Input (IDU)	W	80	100	100	190
	EER	/	3.31	3.21	3.00	3.00
Heating	Capacity	W	6000(1340~6600)	8200(1880~8800)	9900(2600~10200)	11600(3300~12500)
	Input (IDU+ODU)	W	1740(350~2250)	2740(435~3180)	3000(640~3520)	3400(800~4300)
	Input (IDU)	W	80	100	100	190
	COP	/	3.45	2.99	3.30	3.41
Fan motor	Model		YDK26-6S	YDK30-6S	YDK30-6S	YDK65-6S
	Type		Ac motor			
	Brand		Welling			
	Speed (H/M/L)	r/min	490/400/340	590/500/420	590/500/420	630/590/480
Coil	Number of rows		2	2	2	2
	Tube pitch × row pitch	mm	21×13.37	21×13.37	21×13.37	21×13.37
	Fin spacing	mm	1.5			
	Fin type		Arc shutter			
	Tube OD and type	mm	ø7, Copper pipe with internal thread			
	Dimensions (L×H×W)	mm	2051×168×26.7			2051×252×26.7
	Number of circuits		8			12
Airflow rate		m ³ /h	900/730/620	1000/840/710	1200/1000/850	1600/1500/1140
Sound pressure level		dB(A)	38/36/35	41/39/38	43/39/38	46/39/38
Unit	Net dimensions (W×H×D)	mm	840×230×840			840×300×840
	Packed dimensions (W×H×D)	mm	955×260×955			955×330×955
	Net/Gross weight	kg	22.5/27.3	22.8/27.6	23.3/28.1	28.7/33.7
Refrigerant type		R410A				
Design pressure (H/L)		MPa	4.4/2.6			
Pipe connections	Liquid/Gas pipe	mm	Φ6.35/Φ12.7	Φ6.35/Φ15.9	Φ9.5/Φ15.9	Φ9.5/Φ15.9
	Drain pipe	mm	Φ32	Φ32	Φ32	Φ32
Piping Length		m	25	25	30	30
Level Difference		m	15	15	20	20
Controller		RM05				
Panel	Model		IACS-DCP05			
	Net/Gross weight	kg	5.8/7.9			
	Packed dimensions (W×H×D)	mm	1030×1030×105			

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

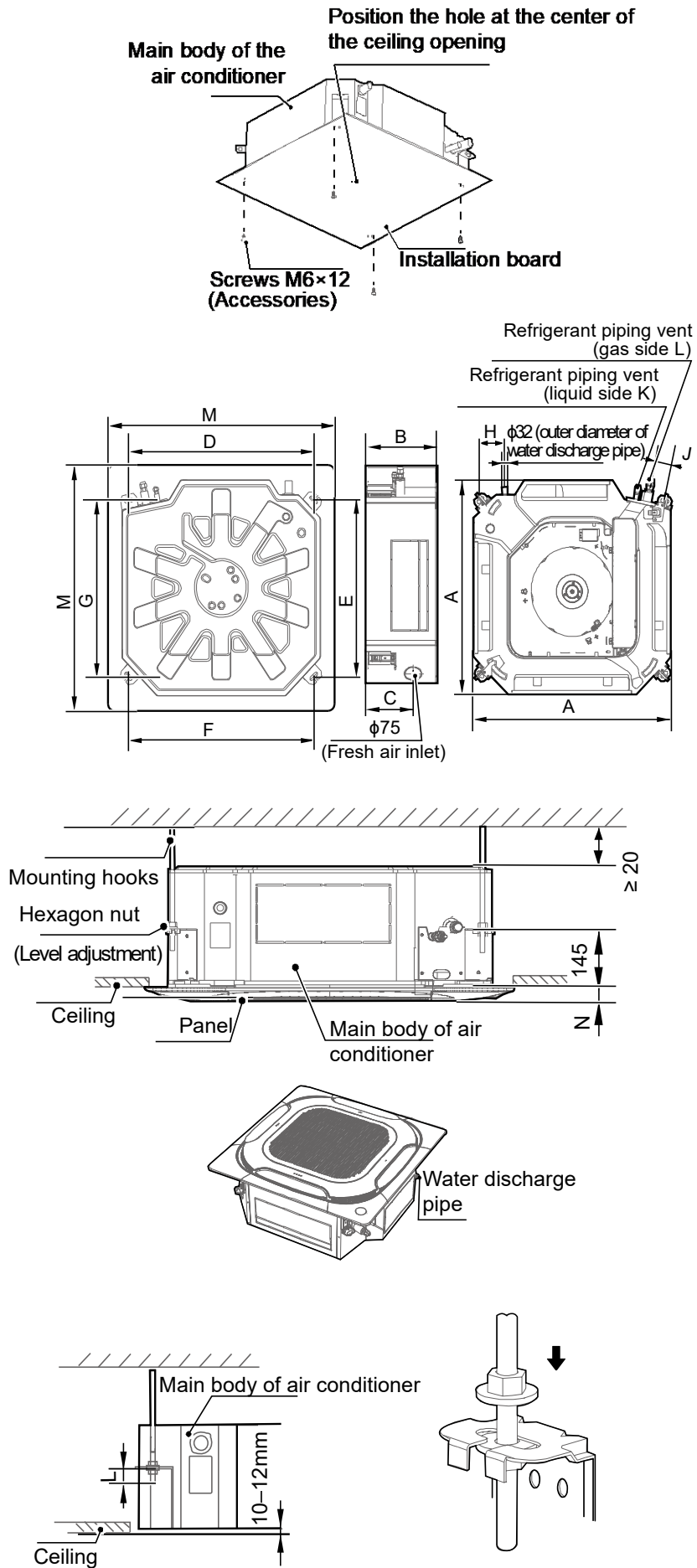
Table 1.5: IECS042, 048 specifications

Model name			IECS042J3A	IECS048J3A
Power supply			1-phase, 220-240V, 50Hz	
Cooling	Capacity	W	12000(3200~12500)	14000(4200~14200)
	Input (IDU+ODU)	W	4850(800~5200)	6000(1200~6200)
	Input(IDU)	W	190	190
	EER	/	2.47	2.33
Heating	Capacity	W	13200(3300~13800)	15400(4500~16000)
	Input (IDU+ODU)	W	4500(700~4900)	4800(1000~5200)
	Input (IDU)	W	190	190
	COP	/	2.93	3.21
Fan motor	Model		YDK65-6S	YDK65-6S
	Type		Ac motor	
	Brand		Welling	
	Speed (H/M/L)	r/min	630/590/480	660/620/510
Coil	Number of rows		2	3
	Tube pitch × row pitch	mm	21×13.37	
	Fin spacing	mm	1.5	
	Fin type		Arc shutter	
	Tube OD and type	mm	∅7, Copper pipe with internal thread	
	Dimensions (L×H ×W)	mm	2051×252×26.7	2007×252×40.1
	Number of circuits		12	12
Airflow rate		m ³ /h	1600/1500/1140	1720/1600/1220
Sound pressure level		dB(A)	46/39/38	48/41/39
Unit	Net dimensions (W×H×D)	mm	840×300×840	
	Packed dimensions (W×H×D)	mm	955×330×955	
	Net/Gross weight	kg	28.7/33.7	30.8/35.8
Refrigerant type			R410A	
Design pressure (H/L)		MPa	4.4/2.6	
Pipe connections	Liquid/Gas pipe	mm	∅9.5/∅15.9	∅9.5/∅15.9
	Drain pipe	mm	∅32	∅32
Piping Length		m	30	50
Level Difference		m	20	25
Controller			RM05	
Panel	Model		IACS-DCP05	
	Net/Gross weight	kg	5.8/7.9	
	Packed dimensions (W×H×D)	mm	1030×1030×105	

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

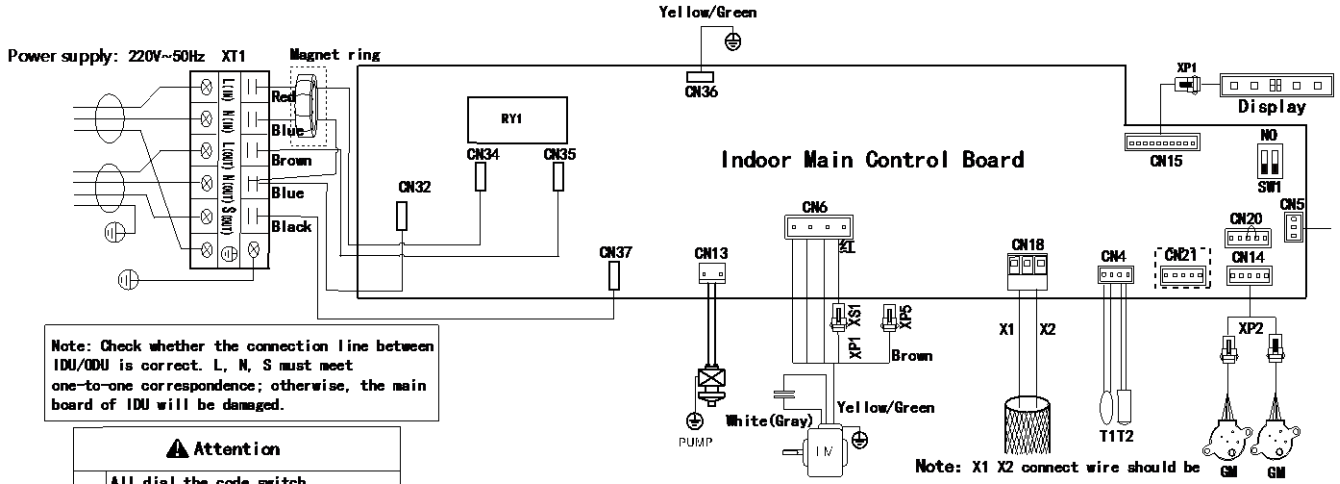
2.2 Four-way Cassette



Model	IECS018J3A- DWG-053	IECS024J3A- DWG-071	IECS031J3A- DWG-090	IECS036(42,48)J3A -DWG-105(120,140)
A	840	840	840	840
B	230	230	230	300
C	126	126	126	197
D	780	780	780	780
E	680	680	680	680
F	780	780	780	780
G	680	680	680	680
H	105	105	105	105
J	70	70	70	70
K	Φ6.4	Φ6.4	Φ9.5	Φ9.5
L	Φ12.7	Φ15.9	Φ15.9	Φ15.9
M	950	950	950	950
N	46	46	46	46

3.2 Four-way Cassette

IECS018J3A-DWG053 / IECS024J3A-DWG071



Note: Check whether the connection line between IDU/ODU is correct. L, N, S must meet one-to-one correspondence; otherwise, the main board of IDU will be damaged.

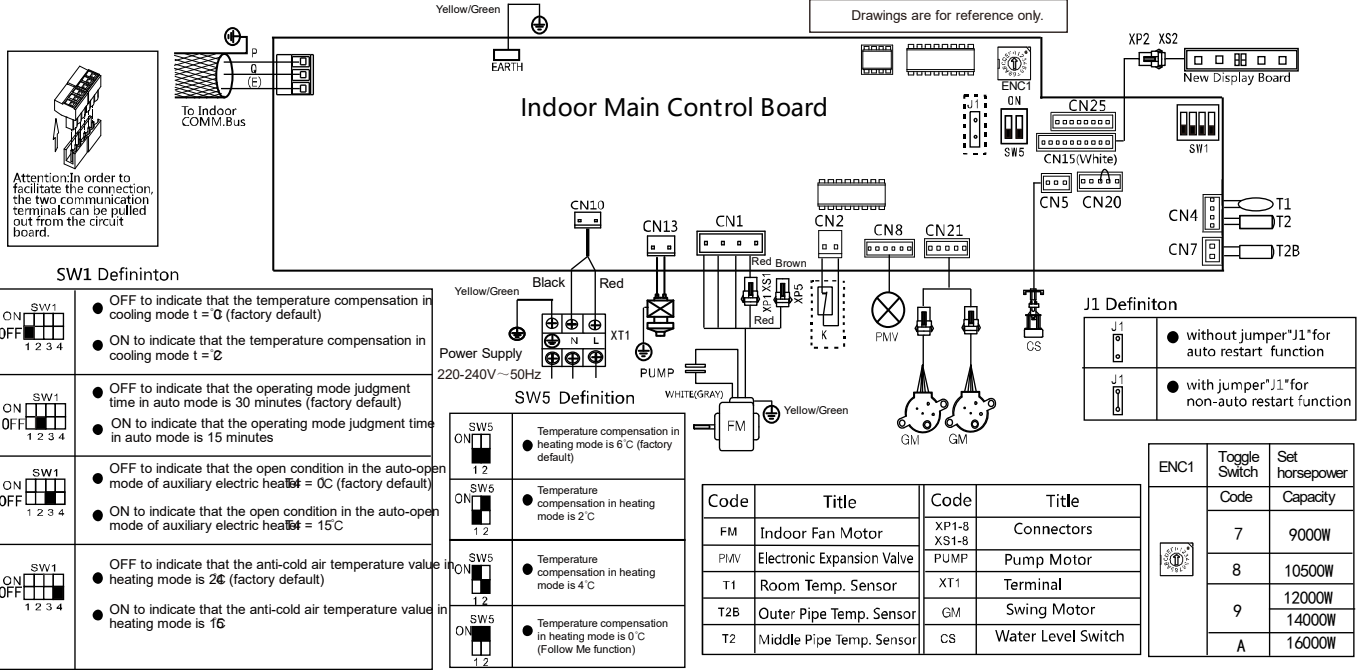
Attention	
(1)	All dial the code switch (including power switch) users cannot be adjusted freely
(2)	After the installation or maintenance, the power line fastening bolts must be tightened, the E-Parts box cover must be covered up, otherwise there is a risk of fire and electric shock

Item	Name	Item	Name	Item	Name
FM	Fan motor	XP1	Display connector	CN15	Display terminal
PUMP	Drain pump	XP2	Swing motor connector	CS	Water level switch
T1	Room temp. sensor	TX1	Terminal	GM	Swing motor
T2	Pipe temp. sensor	F	Fuse		

Error Description	Error Code
IDU EEPROM error	E0
Indoor-outdoor communication fault	E1
Indoor fan stall fault	E3
ODU temperature sensor or EPROM fault	E5
ODU temperature sensor fault	E50
ODU EPROM fault	E51
T3 sensor error	E52
T4 sensor error	E53
TP sensor error	E54
Air return temperature sensor error	E55
IDU temperature sensor fault	E6
IDU room temperature T1 sensor error	E60
IDU pipe temperature T2 sensor error	E61
ODU DC fan stall fault	E7
Outdoor fan over-current (external driving)	E71
Outdoor fan stall (external driving)	E72
Outdoor fan phase loss (external driving)	E73
Outdoor fan zero speed (external driving)	E74
Water level alarm error	EE
High temperature protection of condenser	PA
PFC module switch power-off	PF
ODU IPM module protection	P0
Voltage protection	P1
Low voltage protection	P10
High voltage protection	P11
Outdoor DC-side voltage protection	P12
Temperature protection for compressor top	P2
ODU compressor feedback protection	P4

Error Description	Error Code
Main control chip and driver chip communication fault	P40
Compressor current sampling circuit fault	P41
Compressor start-up fault	P42
Compressor phase loss protection	P43
Compressor zero speed protection	P44
ODU electric control power down protection	P45
Compressor stall protection	P46
Compressor lock protection	P47
Compressor out-synchronous protection	P48
Compressor over-current protection	P49
Compressor high discharge temperature protection	P6
Outdoor electric control current protection	P8
ODU current protection	P81
Input AC current sampling circuit fault	P82
Evaporator high or low temperature protection	P9
Evaporator high temperature protection	P90
Evaporator low temperature protection	P91
Evaporator high and low temperature frequency limit	L0
Condenser high temperature frequency limit	L1
Compressor high discharge temperature frequency limit	L2
Current frequency limit	L3
Voltage frequency limit	L5
PFC module fault frequency limit	L6

Attention: Please use three core shielding wire, and the shielding layer must be connected to the ⊕ of sheet metal



Error code	Error or protection definition	Error Code	Error or protection definition
HF	IDU mismatching error	P1	High pressure protection
E7	IDU EEPROM error	P2	Low pressure protection
E9	ODU EEPROM error	P3	Input current protection
E.9.	Wrong compressor model in EPROM	P4	Discharge temperature protection
H0	Communication error between main control board and IR341	P5	Outdoor condenseif 3 high temperature protection
E1	Communication error between IDU and ODU PE	EvaporatorT2	high temperature protection
E2	T1 sensor error	L0	Module protection is triggered
E3	T2 sensor error	L1	DC bus low voltage protection
E4	T2B sensor error	L2	DC bus high voltage protection
E43	T3 sensor error	L4	MCE error
E44	T4 sensor error	L5	Zero speed protection
E45	T5 sensor error	L7	Phase loss
E5	Voltage protection error	L8	Protection when the previous and next speed change is > 15 Hz
E6	ODU DC fan error	L9	Protection for a difference of > 15 Hz between the set speed and operating speed
EE	Water level alarm error	F1	Detected DC bus voltage (PN voltage) < 200 VDC for 5S after power-on
EH	TL sensor error	P8	Typhoon protection
Eb	E6 error occurs six times in one hour, requiring power failure recovery	EP	Ambient temperature less than or equal to 10°C in cooling mode
EF	PFC feedback resistance failure	H4	L (L0/L1) error occurs three times in one hour, reporting H4, and this error is not recoverable
PL	Heat sinkTF high temperature protection	Ed	ODU error

4.2 Four-way Cassette

Model IECS018J3A-DWG053

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
Indoor Airflow(m3/h)		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
900	10.00	6.45	4.44	6.60	4.48	6.70	4.48	6.80	4.61	7.00	4.81	7.20	5.01	7.30	5.14
	12.00	6.33	4.42	6.48	4.46	6.58	4.46	6.68	4.59	6.88	4.78	7.08	4.98	7.18	5.12
	14.00	6.21	4.40	6.36	4.44	6.46	4.44	6.56	4.55	6.76	4.75	6.96	4.96	7.06	5.09
	16.00	6.09	4.37	6.24	4.41	6.34	4.42	6.44	4.52	6.64	4.72	6.84	4.92	6.94	5.06
	18.00	5.97	4.35	6.12	4.39	6.22	4.39	6.32	4.49	6.52	4.69	6.72	4.89	6.82	5.03
	20.00	5.85	4.32	6.00	4.36	6.10	4.37	6.20	4.45	6.40	4.65	6.60	4.86	6.70	4.99
	21.00	5.79	4.33	5.94	4.37	6.04	4.38	6.14	4.45	6.34	4.66	6.54	4.87	6.64	5.00
	23.00	5.67	4.29	5.82	4.34	5.92	4.35	6.02	4.41	6.22	4.62	6.42	4.83	6.52	4.96
	25.00	5.55	4.26	5.70	4.31	5.80	4.32	5.90	4.37	6.10	4.58	6.30	4.79	6.40	4.92
	27.00	5.43	4.22	5.58	4.27	5.68	4.28	5.78	4.33	5.98	4.54	6.18	4.75	6.28	4.88
	29.00	5.31	4.18	5.46	4.23	5.56	4.24	5.66	4.28	5.86	4.49	6.06	4.70	6.16	4.84
	31.00	5.19	4.13	5.34	4.19	5.44	4.21	5.54	4.23	5.74	4.44	5.94	4.66	6.04	4.79
	33.00	5.07	4.09	5.22	4.15	5.27	4.12	5.42	4.19	5.62	4.40	5.82	4.61	5.92	4.75
	35.00	4.95	4.04	5.10	4.10	5.20	4.12	5.30	4.13	5.50	4.35	5.70	4.56	5.80	4.70
	37.00	4.75	3.92	4.90	3.99	5.00	4.01	5.10	4.02	5.30	4.23	5.50	4.44	5.60	4.58
	39.00	4.55	3.80	4.70	3.87	4.80	3.89	4.90	3.90	5.10	4.11	5.30	4.32	5.40	4.46
	42.00	4.25	3.59	4.40	3.66	4.50	3.69	4.60	3.70	4.80	3.91	5.00	4.12	5.10	4.25
	44.00	3.85	3.29	4.00	3.37	4.10	3.40	4.20	3.41	4.40	3.62	4.60	3.83	4.70	3.96
46.00	3.55	3.07	3.70	3.15	3.80	3.19	3.90	3.19	4.10	3.40	4.30	3.61	4.40	3.74	
48.00	3.35	2.93	3.50	3.02	3.60	3.06	3.70	3.06	3.90	3.27	4.10	3.48	4.20	3.61	
50.00	3.15	2.79	3.30	2.88	3.40	2.92	3.50	2.92	3.70	3.13	3.90	3.34	4.00	3.47	
52.00	2.85	2.55	3.00	2.64	3.10	2.69	3.20	2.70	3.40	2.90	3.60	3.11	3.70	3.24	
55.00	2.55	2.31	2.70	2.41	2.80	2.46	2.90	2.47	3.10	2.67	3.30	2.88	3.40	3.00	

Model IECS024J3A-DWG071

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Indoor Airflow(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1000	10.00	8.64	5.34	8.88	5.41	9.04	5.43	9.20	5.61	9.44	5.82	9.68	6.04	9.80	6.18
	12.00	8.48	5.30	8.72	5.37	8.88	5.39	9.04	5.56	9.28	5.77	9.52	5.99	9.64	6.14
	14.00	8.32	5.26	8.56	5.33	8.72	5.35	8.88	5.51	9.12	5.72	9.36	5.94	9.48	6.09
	16.00	8.16	5.21	8.40	5.29	8.56	5.32	8.72	5.46	8.96	5.67	9.20	5.89	9.32	6.04
	18.00	8.00	5.17	8.24	5.25	8.40	5.27	8.56	5.40	8.80	5.62	9.04	5.84	9.16	5.98
	20.00	7.84	5.12	8.08	5.20	8.24	5.23	8.40	5.35	8.64	5.56	8.88	5.78	9.00	5.93
	21.00	7.76	5.12	8.00	5.21	8.16	5.24	8.32	5.34	8.56	5.56	8.80	5.78	8.92	5.93
	23.00	7.60	5.07	7.84	5.16	8.00	5.19	8.16	5.28	8.40	5.50	8.64	5.72	8.76	5.87
	25.00	7.44	5.02	7.68	5.11	7.84	5.14	8.00	5.22	8.24	5.44	8.48	5.67	8.60	5.81
	27.00	7.28	4.96	7.52	5.05	7.68	5.09	7.84	5.16	8.08	5.38	8.32	5.61	8.44	5.75
	29.00	7.12	4.90	7.36	5.00	7.52	5.03	7.68	5.10	7.92	5.32	8.16	5.54	8.28	5.69
	31.00	6.96	4.84	7.20	4.94	7.36	4.98	7.52	5.03	7.76	5.25	8.00	5.48	8.12	5.63
	33.00	6.80	4.78	7.04	4.88	7.12	4.86	7.36	4.96	7.60	5.19	7.84	5.41	7.96	5.56
	35.00	6.64	4.71	6.88	4.82	7.04	4.86	7.20	4.90	7.44	5.12	7.68	5.35	7.80	5.49
	37.00	6.40	4.59	6.64	4.69	6.80	4.74	6.96	4.77	7.20	4.99	7.44	5.22	7.56	5.36
	39.00	6.16	4.46	6.40	4.57	6.56	4.62	6.72	4.64	6.96	4.87	7.20	5.09	7.32	5.24
	42.00	5.80	4.24	6.04	4.35	6.20	4.41	6.36	4.43	6.60	4.65	6.84	4.87	6.96	5.02
	44.00	5.26	3.88	5.50	4.00	5.66	4.06	5.82	4.08	6.06	4.30	6.30	4.53	6.42	4.66
	46.00	4.82	3.59	5.06	3.72	5.22	3.78	5.38	3.80	5.62	4.02	5.86	4.24	5.98	4.38
	48.00	4.58	3.45	4.82	3.58	4.98	3.64	5.14	3.66	5.38	3.88	5.62	4.10	5.74	4.23
50.00	4.34	3.30	4.58	3.43	4.74	3.50	4.90	3.52	5.14	3.73	5.38	3.95	5.50	4.09	
52.00	4.00	3.07	4.24	3.21	4.40	3.28	4.56	3.30	4.80	3.51	5.04	3.73	5.16	3.87	
55.00	3.64	2.82	3.88	2.96	4.04	3.04	4.20	3.06	4.44	3.27	4.68	3.49	4.80	3.62	

Heating mode:

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
Indoor Airflow(m ³ /h)	WB	DB	kW	kW	kW	kW	kW	kW
1000	-15.30	-15.00	3.62	3.49	3.36	3.30	3.23	3.10
	-13.00	-12.60	4.15	4.02	3.89	3.82	3.76	3.63
	-11.00	-10.50	4.61	4.48	4.35	4.29	4.22	4.09
	-10.00	-9.50	4.83	4.70	4.57	4.51	4.44	4.31
	-9.10	-8.50	5.05	4.92	4.79	4.73	4.66	4.53
	-7.60	-7.00	5.38	5.25	5.12	5.06	4.99	4.86
	-5.60	-5.00	5.62	5.49	5.36	5.30	5.23	5.10
	-3.70	-3.00	5.96	5.83	5.70	5.64	5.57	5.44
	-0.70	0.00	6.36	6.23	6.10	6.04	5.97	5.84
	2.20	3.00	6.86	6.73	6.60	6.54	6.47	6.34
	4.10	5.00	7.66	7.53	7.40	7.34	7.27	7.14
	6.00	7.00	8.46	8.33	8.20	8.14	8.07	7.94
	7.90	9.00	8.66	8.53	8.40	8.34	8.27	8.14
	9.80	11.00	8.86	8.73	8.60	8.54	8.47	8.34
	11.80	13.00	9.06	8.93	8.80	8.74	8.67	8.54
	13.70	15.00	9.26	9.13	9.00	8.94	8.87	8.74
	15.60	17.00	9.46	9.33	9.20	9.14	9.07	8.94
	17.56	19.00	9.66	9.53	9.40	9.34	9.27	9.14
19.48	21.00	9.86	9.73	9.60	9.54	9.47	9.34	
21.41	23.00	10.06	9.93	9.80	9.74	9.67	9.54	
22.37	24.00	10.16	10.03	9.90	9.84	9.77	9.64	

Model IECS031J3A-DWG090

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Indoor Airflow(m ³ /h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1200	10.00	10.94	7.31	11.18	7.38	11.34	7.40	11.50	7.52	11.74	7.76	11.98	8.01	12.10	8.17
	12.00	10.74	7.25	10.98	7.33	11.14	7.34	11.30	7.46	11.54	7.70	11.78	7.94	11.90	8.11
	14.00	10.54	7.19	10.78	7.27	10.94	7.28	11.10	7.39	11.34	7.63	11.58	7.88	11.70	8.05
	16.00	10.34	7.12	10.58	7.20	10.74	7.22	10.90	7.32	11.14	7.56	11.38	7.81	11.50	7.98
	18.00	10.14	7.05	10.38	7.14	10.54	7.16	10.70	7.25	10.94	7.49	11.18	7.74	11.30	7.91
	20.00	9.94	6.98	10.18	7.07	10.34	7.09	10.50	7.17	10.74	7.42	10.98	7.67	11.10	7.83
	21.00	9.84	6.98	10.08	7.06	10.24	7.09	10.40	7.17	10.64	7.41	10.88	7.66	11.00	7.83
	23.00	9.64	6.90	9.88	6.99	10.04	7.02	10.20	7.09	10.44	7.33	10.68	7.58	10.80	7.75
	25.00	9.44	6.82	9.68	6.91	9.84	6.94	10.00	7.01	10.24	7.25	10.48	7.51	10.60	7.67
	27.00	9.24	6.74	9.48	6.84	9.64	6.87	9.80	6.93	10.04	7.17	10.28	7.42	10.40	7.59
	29.00	9.04	6.66	9.28	6.75	9.44	6.79	9.60	6.84	9.84	7.09	10.08	7.34	10.20	7.51
	31.00	8.84	6.57	9.08	6.67	9.24	6.71	9.40	6.75	9.64	7.00	9.88	7.25	10.00	7.42
	33.00	8.64	6.48	8.88	6.58	8.96	6.56	9.20	6.66	9.44	6.91	9.68	7.16	9.80	7.33
	35.00	8.44	6.39	8.68	6.49	8.84	6.53	9.00	6.57	9.24	6.82	9.48	7.07	9.60	7.24
	37.00	8.04	6.14	8.28	6.25	8.44	6.29	8.60	6.33	8.84	6.58	9.08	6.83	9.20	6.99
	39.00	7.64	5.89	7.88	6.00	8.04	6.05	8.20	6.08	8.44	6.33	8.68	6.58	8.80	6.74
	42.00	7.04	5.47	7.28	5.59	7.44	5.65	7.60	5.68	7.84	5.92	8.08	6.17	8.20	6.33
	44.00	6.54	5.13	6.78	5.25	6.94	5.31	7.10	5.35	7.34	5.59	7.58	5.84	7.70	5.99
	46.00	6.04	4.78	6.28	4.91	6.44	4.97	6.60	5.01	6.84	5.25	7.08	5.49	7.20	5.65
	48.00	5.64	4.50	5.88	4.64	6.04	4.70	6.20	4.74	6.44	4.98	6.68	5.22	6.80	5.37
50.00	5.24	4.22	5.48	4.36	5.64	4.43	5.80	4.47	6.04	4.71	6.28	4.95	6.40	5.10	
52.00	4.74	3.85	4.98	3.99	5.14	4.07	5.30	4.12	5.54	4.35	5.78	4.59	5.90	4.73	
55.00	4.14	3.39	4.38	3.54	4.54	3.63	4.70	3.68	4.94	3.91	5.18	4.14	5.30	4.28	

Heating mode:

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
Indoor Airflow(m ³ /h)	WB	DB	kW	kW	kW	kW	kW	kW
1200	-15.30	-15.00	4.82	4.66	4.50	4.42	4.34	4.18
	-13.00	-12.60	5.42	5.26	5.10	5.02	4.94	4.78
	-11.00	-10.50	5.95	5.79	5.63	5.55	5.47	5.31
	-10.00	-9.50	6.20	6.04	5.88	5.80	5.72	5.56
	-9.10	-8.50	6.45	6.29	6.13	6.05	5.97	5.81
	-7.60	-7.00	6.82	6.66	6.50	6.42	6.34	6.18
	-5.60	-5.00	7.12	6.96	6.80	6.72	6.64	6.48
	-3.70	-3.00	7.42	7.26	7.10	7.02	6.94	6.78
	-0.70	0.00	7.83	7.67	7.51	7.43	7.35	7.19
	2.20	3.00	8.24	8.08	7.92	7.84	7.76	7.60
	4.10	5.00	9.28	9.12	8.96	8.88	8.80	8.64
	6.00	7.00	10.32	10.16	10.00	9.92	9.84	9.68
	7.90	9.00	10.52	10.36	10.20	10.12	10.04	9.88
	9.80	11.00	10.72	10.56	10.40	10.32	10.24	10.08
	11.80	13.00	10.92	10.76	10.60	10.52	10.44	10.28
	13.70	15.00	11.12	10.96	10.80	10.72	10.64	10.48
	15.60	17.00	11.32	11.16	11.00	10.92	10.84	10.68
	17.56	19.00	11.52	11.36	11.20	11.12	11.04	10.88
	19.48	21.00	11.72	11.56	11.40	11.32	11.24	11.08
	21.41	23.00	11.92	11.76	11.60	11.52	11.44	11.28
22.37	24.00	12.02	11.86	11.70	11.62	11.54	11.38	

Model IECS036J3A-DWG105

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Indoor Airflow(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1600	10.00	12.80	8.18	13.10	8.23	13.30	8.21	13.50	8.32	13.90	8.70	14.30	9.10	14.50	9.37
	12.00	12.56	8.15	12.86	8.21	13.06	8.19	13.26	8.29	13.66	8.68	14.06	9.07	14.26	9.35
	14.00	12.32	8.12	12.62	8.18	12.82	8.16	13.02	8.25	13.42	8.64	13.82	9.04	14.02	9.32
	16.00	12.08	8.08	12.38	8.14	12.58	8.13	12.78	8.21	13.18	8.61	13.58	9.01	13.78	9.29
	18.00	11.84	8.04	12.14	8.10	12.34	8.10	12.54	8.17	12.94	8.56	13.34	8.97	13.54	9.25
	20.00	11.60	7.99	11.90	8.06	12.10	8.06	12.30	8.12	12.70	8.52	13.10	8.93	13.30	9.21
	21.00	11.48	8.02	11.78	8.10	11.98	8.09	12.18	8.14	12.58	8.55	12.98	8.96	13.18	9.25
	23.00	11.24	7.97	11.54	8.04	11.74	8.04	11.94	8.09	12.34	8.50	12.74	8.91	12.94	9.20
	25.00	11.00	7.91	11.30	7.99	11.50	7.99	11.70	8.03	12.10	8.44	12.50	8.86	12.70	9.14
	27.00	10.76	7.84	11.06	7.93	11.26	7.93	11.46	7.96	11.86	8.38	12.26	8.80	12.46	9.09
	29.00	10.52	7.77	10.82	7.86	11.02	7.87	11.22	7.90	11.62	8.31	12.02	8.74	12.22	9.02
	31.00	10.28	7.70	10.58	7.79	10.78	7.80	10.98	7.82	11.38	8.24	11.78	8.67	11.98	8.96
	33.00	10.04	7.62	10.34	7.72	10.44	7.66	10.74	7.75	11.14	8.17	11.54	8.60	11.74	8.88
	35.00	9.80	7.54	10.10	7.64	10.30	7.65	10.50	7.67	10.90	8.09	11.30	8.52	11.50	8.81
	37.00	9.26	7.21	9.56	7.32	9.76	7.35	9.96	7.36	10.36	7.78	10.76	8.21	10.96	8.50
	39.00	8.72	6.88	9.02	7.00	9.22	7.03	9.42	7.04	9.82	7.46	10.22	7.89	10.42	8.17
	42.00	7.91	6.32	8.21	6.45	8.41	6.49	8.61	6.51	9.01	6.93	9.41	7.35	9.61	7.63
	44.00	7.27	5.88	7.57	6.02	7.77	6.07	7.97	6.10	8.37	6.51	8.77	6.93	8.97	7.20
	46.00	6.63	5.43	6.93	5.58	7.13	5.64	7.33	5.67	7.73	6.08	8.13	6.50	8.33	6.76
	48.00	6.09	5.05	6.39	5.21	6.59	5.28	6.79	5.31	7.19	5.72	7.59	6.13	7.79	6.40
50.00	5.55	4.66	5.85	4.83	6.05	4.90	6.25	4.95	6.65	5.35	7.05	5.76	7.25	6.02	
52.00	4.91	4.17	5.21	4.35	5.41	4.44	5.61	4.49	6.01	4.89	6.41	5.30	6.61	5.55	
55.00	4.10	3.52	4.40	3.72	4.60	3.82	4.80	3.88	5.20	4.28	5.60	4.68	5.80	4.92	

Heating mode:

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
Indoor Airflow(m ³ /h)	WB	DB	kW	kW	kW	kW	kW	kW
1600	-15.30	-15.00	5.84	5.64	5.44	5.34	5.24	5.04
	-13.00	-12.60	6.51	6.31	6.11	6.01	5.91	5.71
	-11.00	-10.50	7.10	6.90	6.70	6.60	6.50	6.30
	-10.00	-9.50	7.38	7.18	6.98	6.88	6.78	6.58
	-9.10	-8.50	7.66	7.46	7.26	7.16	7.06	6.86
	-7.60	-7.00	8.08	7.88	7.68	7.58	7.48	7.28
	-5.60	-5.00	8.44	8.24	8.04	7.94	7.84	7.64
	-3.70	-3.00	8.80	8.60	8.40	8.30	8.20	8.00
	-0.70	0.00	9.20	9.00	8.80	8.70	8.60	8.40
	2.20	3.00	9.60	9.40	9.20	9.10	9.00	8.80
	4.10	5.00	10.80	10.60	10.40	10.30	10.20	10.00
	6.00	7.00	12.00	11.80	11.60	11.50	11.40	11.20
	7.90	9.00	12.20	12.00	11.80	11.70	11.60	11.40
	9.80	11.00	12.40	12.20	12.00	11.90	11.80	11.60
	11.80	13.00	12.60	12.40	12.20	12.10	12.00	11.80
	13.70	15.00	12.80	12.60	12.40	12.30	12.20	12.00
	15.60	17.00	13.00	12.80	12.60	12.50	12.40	12.20
	17.56	19.00	13.20	13.00	12.80	12.70	12.60	12.40
	19.48	21.00	13.40	13.20	13.00	12.90	12.80	12.60
	21.41	23.00	13.60	13.40	13.20	13.10	13.00	12.80
22.37	24.00	13.70	13.50	13.30	13.20	13.10	12.90	

Model IECS042J3A-DWG120

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Indoor Airflow(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1600	10.00	14.30	9.42	14.60	9.50	14.80	9.52	15.00	9.53	15.40	9.90	15.80	10.28	16.00	10.54
	12.00	14.06	9.37	14.36	9.45	14.56	9.47	14.76	9.48	15.16	9.86	15.56	10.24	15.76	10.50
	14.00	13.82	9.31	14.12	9.40	14.32	9.42	14.52	9.43	14.92	9.81	15.32	10.20	15.52	10.46
	16.00	13.58	9.25	13.88	9.34	14.08	9.36	14.28	9.38	14.68	9.76	15.08	10.15	15.28	10.41
	18.00	13.34	9.19	13.64	9.28	13.84	9.31	14.04	9.33	14.44	9.71	14.84	10.10	15.04	10.36
	20.00	13.10	9.12	13.40	9.22	13.60	9.25	13.80	9.27	14.20	9.65	14.60	10.05	14.80	10.31
	21.00	12.98	9.14	13.28	9.24	13.48	9.26	13.68	9.29	14.08	9.68	14.48	10.07	14.68	10.33
	23.00	12.74	9.07	13.04	9.17	13.24	9.20	13.44	9.22	13.84	9.61	14.24	10.01	14.44	10.28
	25.00	12.50	8.99	12.80	9.10	13.00	9.13	13.20	9.15	13.60	9.55	14.00	9.95	14.20	10.21
	27.00	12.26	8.91	12.56	9.02	12.76	9.05	12.96	9.08	13.36	9.48	13.76	9.88	13.96	10.15
	29.00	12.02	8.83	12.32	8.94	12.52	8.97	12.72	9.01	13.12	9.40	13.52	9.81	13.72	10.07
	31.00	11.78	8.74	12.08	8.86	12.28	8.89	12.48	8.93	12.88	9.33	13.28	9.73	13.48	10.00
	33.00	11.54	8.65	11.84	8.77	11.94	8.74	12.24	8.85	12.64	9.25	13.04	9.66	13.24	9.92
	35.00	11.30	8.55	11.60	8.68	11.80	8.72	12.00	8.76	12.40	9.16	12.80	9.57	13.00	9.84
	37.00	10.66	8.15	10.96	8.28	11.16	8.33	11.36	8.38	11.76	8.78	12.16	9.19	12.36	9.45
	39.00	10.02	7.74	10.32	7.87	10.52	7.93	10.72	7.98	11.12	8.38	11.52	8.79	11.72	9.05
	42.00	9.06	7.06	9.36	7.21	9.56	7.28	9.76	7.34	10.16	7.73	10.56	8.14	10.76	8.39
	44.00	8.42	6.63	8.72	6.78	8.92	6.86	9.12	6.92	9.52	7.32	9.92	7.72	10.12	7.97
	46.00	7.78	6.18	8.08	6.35	8.28	6.42	8.48	6.50	8.88	6.89	9.28	7.29	9.48	7.54
	48.00	7.14	5.73	7.44	5.90	7.64	5.98	7.84	6.07	8.24	6.45	8.64	6.85	8.84	7.09
50.00	6.50	5.26	6.80	5.44	7.00	5.54	7.20	5.62	7.60	6.01	8.00	6.40	8.20	6.64	
52.00	5.86	4.79	6.16	4.98	6.36	5.08	6.56	5.17	6.96	5.55	7.36	5.95	7.56	6.18	
55.00	4.90	4.04	5.20	4.24	5.40	4.35	5.60	4.46	6.00	4.83	6.40	5.22	6.60	5.45	

Heating mode:

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
Indoor Airflow(m ³ /h)	WB	DB	kW	kW	kW	kW	kW	kW
1600	-15.30	-15.00	6.80	6.59	6.38	6.27	6.16	5.94
	-13.00	-12.60	7.54	7.33	7.12	7.01	6.90	6.68
	-11.00	-10.50	8.20	7.99	7.78	7.67	7.56	7.34
	-10.00	-9.50	8.51	8.30	8.09	7.98	7.87	7.65
	-9.10	-8.50	8.82	8.61	8.40	8.29	8.18	7.96
	-7.60	-7.00	9.28	9.07	8.86	8.75	8.64	8.42
	-5.60	-5.00	9.60	9.39	9.18	9.07	8.96	8.74
	-3.70	-3.00	9.92	9.71	9.50	9.39	9.28	9.06
	-0.70	0.00	10.27	10.06	9.85	9.74	9.63	9.41
	2.20	3.00	10.62	10.41	10.20	10.09	9.98	9.76
	4.10	5.00	12.12	11.91	11.70	11.59	11.48	11.26
	6.00	7.00	13.62	13.41	13.20	13.09	12.98	12.76
	7.90	9.00	13.92	13.71	13.50	13.39	13.28	13.06
	9.80	11.00	14.22	14.01	13.80	13.69	13.58	13.36
	11.80	13.00	14.52	14.31	14.10	13.99	13.88	13.66
	13.70	15.00	14.82	14.61	14.40	14.29	14.18	13.96
	15.60	17.00	15.12	14.91	14.70	14.59	14.48	14.26
	17.56	19.00	15.42	15.21	15.00	14.89	14.78	14.56
19.48	21.00	15.72	15.51	15.30	15.19	15.08	14.86	
21.41	23.00	16.02	15.81	15.60	15.49	15.38	15.16	
22.37	24.00	16.17	15.96	15.75	15.64	15.53	15.31	

Model IECS048J3A-DWG140

Cooling mode:

Capacity(kW)	Outdoor air temperature (°C DB)	Indoor air temperature (°C WB/DB)													
		14/20		16/23		18/26		19/27		20/28		22/30		24/32	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
Indoor Airflow(m3/h)		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1720	10.00	16.00	10.24	16.75	10.60	17.25	10.79	17.75	11.13	18.25	11.56	18.75	12.00	19.00	12.28
	12.00	15.70	10.13	16.45	10.50	16.95	10.70	17.45	11.03	17.95	11.46	18.45	11.90	18.70	12.18
	14.00	15.40	10.03	16.15	10.40	16.65	10.60	17.15	10.92	17.65	11.35	18.15	11.79	18.40	12.08
	16.00	15.10	9.92	15.85	10.29	16.35	10.50	16.85	10.81	17.35	11.25	17.85	11.69	18.10	11.97
	18.00	14.80	9.81	15.55	10.19	16.05	10.40	16.55	10.70	17.05	11.14	17.55	11.58	17.80	11.86
	20.00	14.50	9.69	15.25	10.08	15.75	10.29	16.25	10.58	16.75	11.02	17.25	11.46	17.50	11.75
	21.00	14.35	9.67	15.10	10.06	15.60	10.28	16.10	10.56	16.60	11.00	17.10	11.45	17.35	11.73
	23.00	14.05	9.55	14.80	9.95	15.30	10.17	15.80	10.44	16.30	10.88	16.80	11.33	17.05	11.61
	25.00	13.75	9.42	14.50	9.83	15.00	10.05	15.50	10.32	16.00	10.76	16.50	11.21	16.75	11.49
	27.00	13.45	9.30	14.20	9.70	14.70	9.93	15.20	10.19	15.70	10.64	16.20	11.09	16.45	11.37
	29.00	13.15	9.16	13.90	9.58	14.40	9.81	14.90	10.07	15.40	10.51	15.90	10.96	16.15	11.24
	31.00	12.85	9.03	13.60	9.45	14.10	9.68	14.60	9.93	15.10	10.38	15.60	10.83	15.85	11.11
	33.00	12.55	8.89	13.30	9.31	13.55	9.38	14.30	9.80	14.80	10.24	15.30	10.70	15.55	10.98
	35.00	12.25	8.75	13.00	9.18	13.50	9.42	14.00	9.66	14.50	10.11	15.00	10.56	15.25	10.84
	37.00	11.45	8.24	12.20	8.68	12.70	8.94	13.20	9.17	13.70	9.62	14.20	10.07	14.45	10.35
	39.00	10.65	7.73	11.40	8.18	11.90	8.44	12.40	8.68	12.90	9.12	13.40	9.57	13.65	9.84
	42.00	9.45	6.91	10.20	7.37	10.70	7.65	11.20	7.89	11.70	8.33	12.20	8.77	12.45	9.04
	44.00	8.85	6.52	9.60	6.99	10.10	7.28	10.60	7.52	11.10	7.95	11.60	8.40	11.85	8.66
	46.00	8.15	6.05	8.90	6.53	9.40	6.82	9.90	7.07	10.40	7.50	10.90	7.94	11.15	8.21
	48.00	7.65	5.72	8.40	6.22	8.90	6.51	9.40	6.76	9.90	7.19	10.40	7.63	10.65	7.89
50.00	6.85	5.16	7.60	5.67	8.10	5.97	8.60	6.22	9.10	6.65	9.60	7.09	9.85	7.35	
52.00	6.05	4.60	6.80	5.11	7.30	5.42	7.80	5.68	8.30	6.11	8.80	6.54	9.05	6.79	
55.00	4.85	3.71	5.60	4.24	6.10	4.56	6.60	4.84	7.10	5.26	7.60	5.69	7.85	5.93	

Heating mode:

Capacity (kW)	Outdoor air temperature (°C)		Indoor air temperature (°C DB)					
			16	18	20	21	22	24
			TC	TC	TC	TC	TC	TC
Indoor Airflow(m ³ /h)	WB	DB	kW	kW	kW	kW	kW	kW
1720	-15.30	-15.00	8.22	7.96	7.70	7.57	7.44	7.18
	-13.00	-12.60	9.06	8.80	8.54	8.41	8.28	8.02
	-11.00	-10.50	9.80	9.54	9.28	9.15	9.02	8.76
	-10.00	-9.50	10.15	9.89	9.63	9.50	9.37	9.11
	-9.10	-8.50	10.50	10.24	9.98	9.85	9.72	9.46
	-7.60	-7.00	11.02	10.76	10.50	10.37	10.24	9.98
	-5.60	-5.00	11.32	11.06	10.80	10.67	10.54	10.28
	-3.70	-3.00	11.72	11.46	11.20	11.07	10.94	10.68
	-0.70	0.00	12.22	11.96	11.70	11.57	11.44	11.18
	2.20	3.00	12.72	12.46	12.20	12.07	11.94	11.68
	4.10	5.00	14.32	14.06	13.80	13.67	13.54	13.28
	6.00	7.00	15.92	15.66	15.40	15.27	15.14	14.88
	7.90	9.00	16.12	15.86	15.60	15.47	15.34	15.08
	9.80	11.00	16.32	16.06	15.80	15.67	15.54	15.28
	11.80	13.00	16.52	16.26	16.00	15.87	15.74	15.48
	13.70	15.00	16.72	16.46	16.20	16.07	15.94	15.68
	15.60	17.00	16.92	16.66	16.40	16.27	16.14	15.88
	17.56	19.00	17.12	16.86	16.60	16.47	16.34	16.08
19.48	21.00	17.32	17.06	16.80	16.67	16.54	16.28	
21.41	23.00	17.52	17.26	17.00	16.87	16.74	16.48	
22.37	24.00	17.62	17.36	17.10	16.97	16.84	16.58	

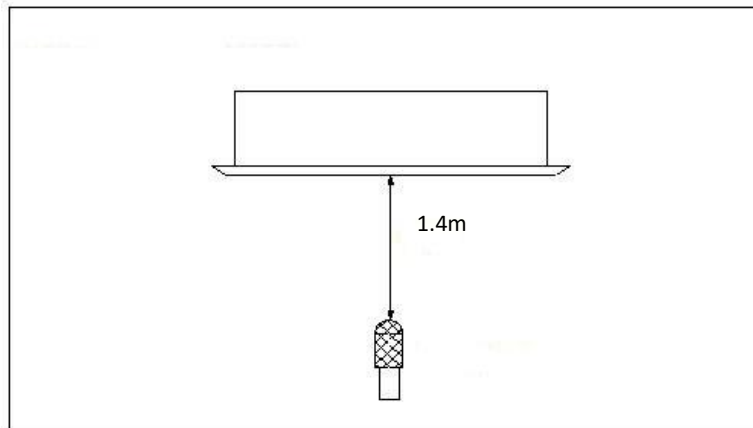
6. Electric Characteristics

Model name	Power supply						Indoor fan motors	
	Hz	Volts	Min. volts	Max. volts	MCA	MFA	Rated motor output (kW)	FLA
IECS018J3A	50	220-240	198	264	0.475	25	0.026	0.38
IECS024J3A	50	220-240	198	264	0.475	32	0.03	0.38
IECS031J3A	50	220-240	198	264	0.475	6	0.03	0.38
IECS036J3A	50	220-240	198	264	0.975	6	0.05	0.78
IECS042J3A	50	220-240	198	264	0.9875	6	0.065	0.79
IECS048J3A	50	220-240	198	264	1.1875	6	0.082	0.95

Abbreviations:

MCA: Minimum Circuit Amps MFA: Maximum Fuse Amps FLA: Full Load Amps

7.2 Four-way Cassette



Unit Number	Model	Noise level under three speeds of fan (dB(A))
1	IECS018J3A-DWG053	38/36/35
2	IECS024J3A-DWG071	41/39/38
3	IECS031J3A-DWG090	43/39/38
4	IECS036J3A-DWG105	46/39/38
5	IECS042J3A-DWG120	46/39/38
6	IECS048J3A-DWG140	48/41/39

8. Accessories

Accessory name of indoor unit	Qty.	Purpose
Installation Manual	1	Installation
Insulation piping	2	For insulation of piping connections
User Manual	1	Operating Instructions of air conditioner
Display control box assembly	1	For receiving remote signals
User Service Guide	1	User Service Guide
Mounting spring	2	Control box fixing assembly
Water discharge hose	1	For drainage of IDU
Ring clamp	1	For use in the installation works of connecting pipe
Brass nut	2	For use in the installation of connecting pipe (the quantity is one for models with a process pipe)

Part. 4 Installation & Troubleshooting

- 1. Notes.....**
- 2. Installation of Duct Type Indoor Units**
- 3. Installation of Outdoor Units.....**
- 4. Water discharge piping layout.....**
- 5. Connection of Refrigerant Pipe**
- 6. Electric Connection.....**
- 7. Duct Design Scheme.....**
- 8. Trial Run**
- 9. Trouble shooting**

1. Notes

1.1 Selecting an installation site for IDU

- Enough space for installation and maintenance.
- The ceiling is level, and the structure is strong enough to support the weight of IDU; take reinforcement measures when necessary.
- Airflow in/out of the machine is not obstructed, and the external air exerts minimum impact.
- Easy to supply airflow to every corner in the room.
- Easy to drain fluids from the connected piping and water discharge piping.
- No direct heat radiation.
- Avoid installation in narrow spaces or where there are more stringent noise requirements.

CAUTION:

Installing the unit in the following places may cause it to malfunction (please enquire if it is unavoidable):

- Places that contain mineral oil such as machine oil for cutting.
- Places with high salt content in the air such as the sea.
- Areas like hot springs where there are corrosive gases like sulphur gases.
- Factories with major voltage fluctuations in the power supplies.
- Places like a car or cabin room.
- Areas filled with cooking oil and gas like kitchens.
- Places where strong electromagnetic waves are present.
- Places where flammable gases or materials are present.
- Areas where there is evaporation of acid or alkaline gases.
- Other special environmental conditions.

1.2 Selecting an installation site for ODU

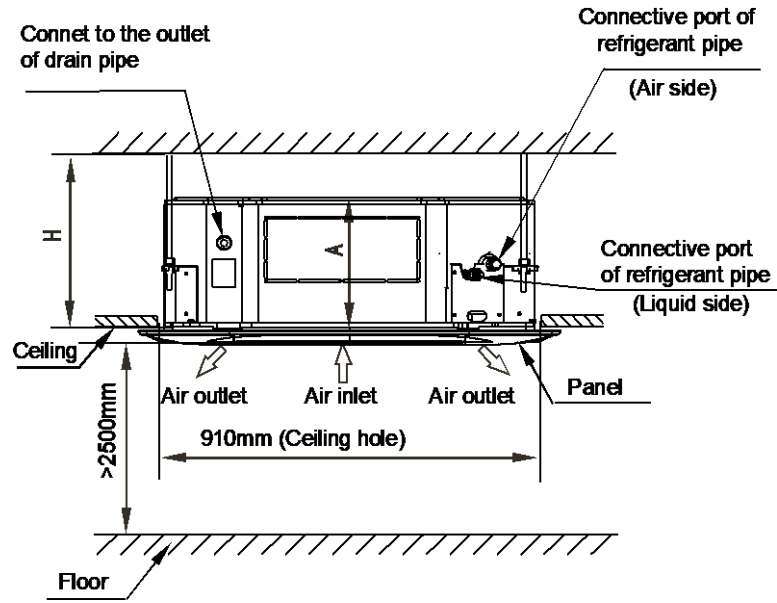
- Enough space for installation and maintenance.
- Unobstructed airflow in/out of the unit; no strong breeze.
- The site should be dry and well-ventilated.
- The supporting surface should be flat and able to bear the weight of the unit. The ODU should be able to be installed horizontally without increasing vibration and noise. Take reinforcement measures when necessary.
- The operating noise and the discharged air should not affect neighbours.
- There should be no leakage of flammable gas nearby.
- It should be easy to install the connecting pipes and complete electrical connections.
- The level difference of connection pipes and the lengths of connection pipes must be within the allowed ranges.

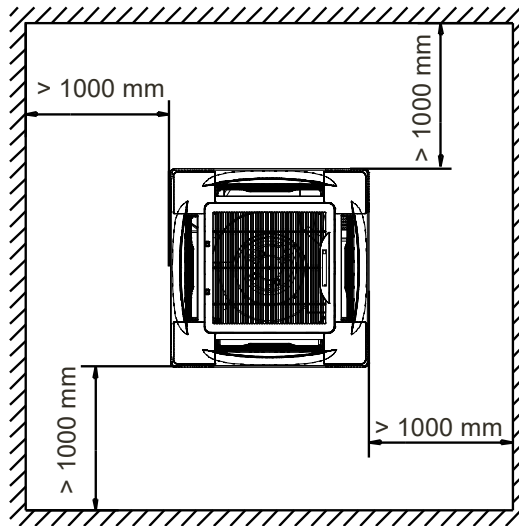
CAUTION:

- Choose the correct move-in path.
- Carry the device in its original package.
- Electrical insulation measures can be taken in accordance with relevant technical specifications of electrical equipment if the air conditioner is to be installed onto the metal part of a building.
- If the height difference is greater than the allowed level difference, it is recommended to place the ODU above the IDU.

2. Installation of Four-way Cassette

2.1 Installing space





Indoor unit	A(mm)	H(mm)
018, 024, 031	230	≥260
036, 042, 048	300	≥330

2.2 Installation of the Main Body

■Existing ceiling (which must be level)

1. Drill a 910 mm × 910 mm square hole into the ceiling based on the layout of the installation board (see Figures 1, 2, and 3).
 - a. The center of the ceiling opening should match that of the unit.
 - b. Determine the length and outlets of the connecting pipes, water discharge piping and the electrical wiring.
 - c. To keep the ceiling level and prevent vibrations, reinforce the strength of the ceiling when necessary.
2. Install the hooks in four corners based on the layout for the hooks outlined in the installation board.
 - a. Drill four holes with a diameter of 12 mm and a depth of 50–55 mm in the ceiling. Then, insert and fix the expansion hook anchors.
 - b. During the installation of the hooks, make sure that the concave portion of the hanger corresponds to that of the expansion hook anchors. Determine the appropriate hook length for installation based on the ceiling's height. Remove any excess.
 - c. Use M10 or W3/8 bolts for the screws of the mounting hooks.
 - d. Take approximately 1/2 of the screw length for the installed hooks as the excess length L, as shown in Figure 5.
3. Use the hex nuts on the four mounting hooks to evenly adjust and make sure that the unit is level.
 - a. If the water discharge pipe is slanted, it may cause the water level switch to malfunction, and water may leak.
 - b. Adjust the position of the unit, and make sure that the gap with the ceiling is evenly spaced on all four sides of the unit, and the base of the unit is 10–12 mm into the base of the ceiling (see Figure 5).
 - c. Once the position and level of the unit is adjusted, use the nuts on the mounting hooks to secure the air conditioner (see Figure 6).

■New room and ceiling

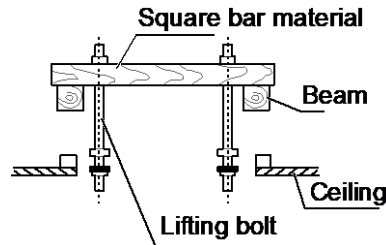
1. Install the unit according to the above description. Pre-bury the hooks in the new ceiling, and make sure that they are strong enough to bear the weight of the IDU, and that the unit will not become loose when the concrete shrinks.
2. After lifting the unit, use M6×12 screws (accessory) to secure the installation board on the main body of the air conditioner to pre-determine the size and position of the opening in the ceiling (see Figure 1).

- a. Before you mount the ceiling, make sure it is level.
- b. Operate according to the above description (step 1 in "Existing ceiling").
3. Operate according to the above description (step 3 in "Existing ceiling").
4. Remove the installation board.

■To match the existing structure, set the screw pitch according to the product dimensions shown below.

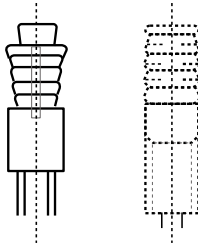
1. Wooden Structure

Place the square bar by crossing the beams and set the lifting bolts



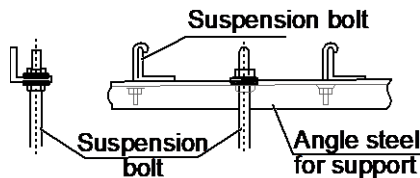
2. Original concrete slab Structure

Use embedded bolts, embedded pull bolts, and embedded plug columns



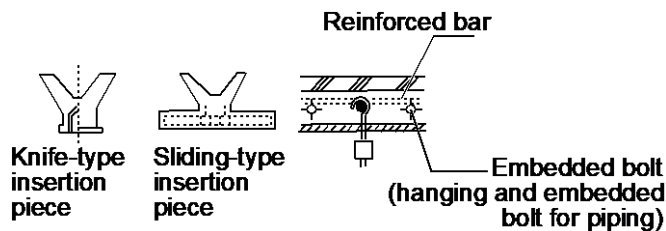
3. Steel framework

Directly set and use an angle steel for support.



4. Newly set concrete slab Structure

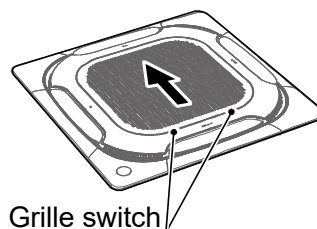
Set using embedded appliances and embedded type of bolts.



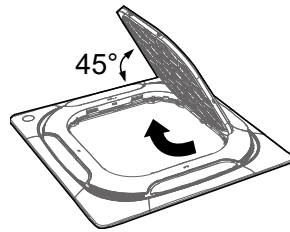
2.3 Panel Installation

■Remove the air inlet grille.

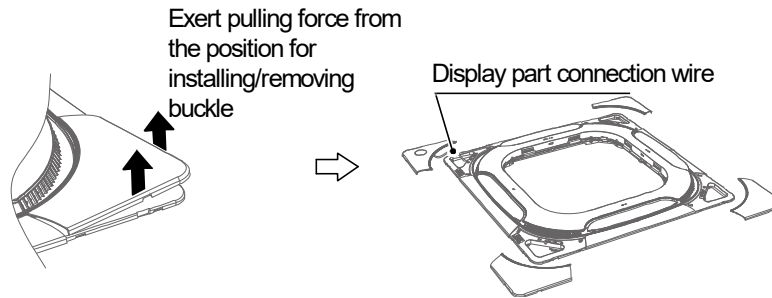
Press the two grille locks at the same time to lift it up.



Raise the air inlet grille to about 45°, and remove the grille.

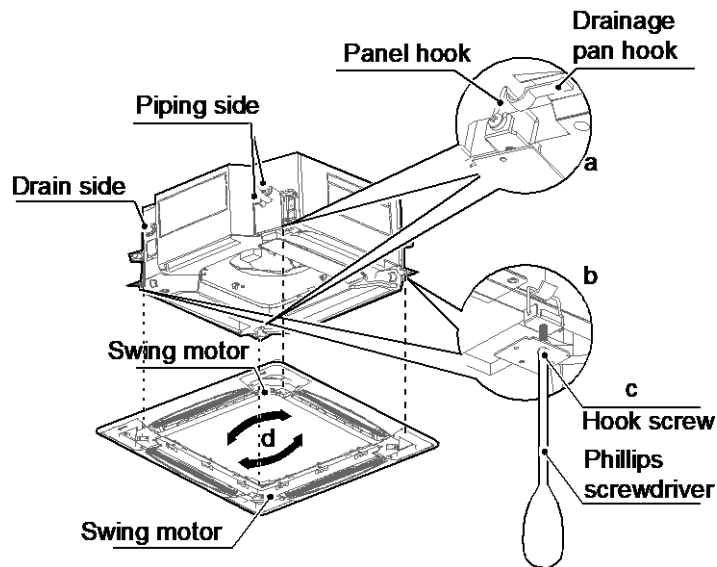


■ Remove the screws from all four corners of the installation cover plate to release the cover plate rope, and take out the cover plate, facing outwards.

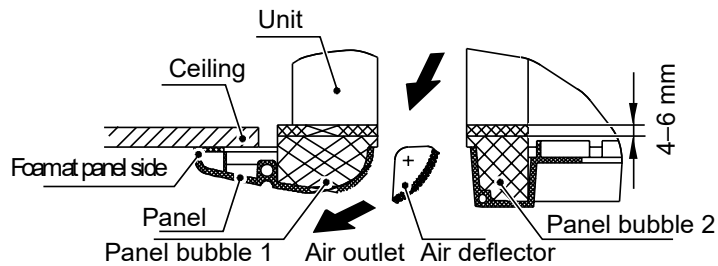


■ Installing the panel

1. Align the "PIPING SIDE" and "DRAIN SIDE" sections marked on the panel with the corresponding piping connector and water discharge connector of the unit.
2. When installing the panel, first hang its hooks on the swing motor side and opposite side of the panel to the corresponding drainage pan hooks on the unit (see a in the figure). Then, hang the two remaining panel hooks to the corresponding suspension bracket of the unit (see b in the figure).



3. Slot the guide wire of the swing motor to the card slot on the panel, and connect the power supply terminal of the swing motor to the corresponding connector of the electric control box.
4. Adjust the four panel hook screws to keep the panel level, and lift it evenly up to the ceiling (see a in the figure).
5. Adjust the panel slightly in the direction indicated by d in the figure, so that the center of the panel aligns with the center of the opening of the ceiling. Verify that the hooks in all four corners are securely in place.
6. Continue to evenly tighten the screws under the hooks of the panel until the foam thickness between the unit and the air outlet on the panel is reduced to about 4–6 mm, and the panel has a steady contact with the ceiling surface.



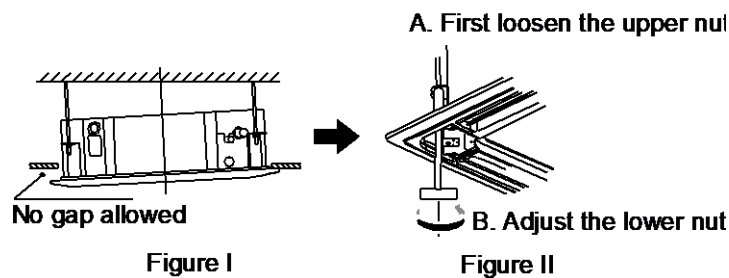
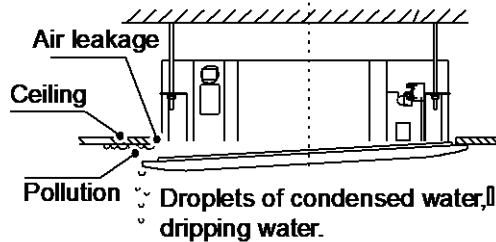
■Caution

The plastic cover plate protruding from the swing motor must be embedded within the concave area of the sealing plate. Make sure the wiring of the swing motor is not caught inside the sealed foam.

Improper screw tightening will result in the fault shown in the right figure.

If there is still a gap between the ceiling and panel after the screws are tightened, re-adjust the IDU height (Figure I).

Without affecting the lifting, lowering, and levelness of the IDU and the water discharge piping, you can use the openings at the four corners of the panel to adjust the IDU height (Figure II).

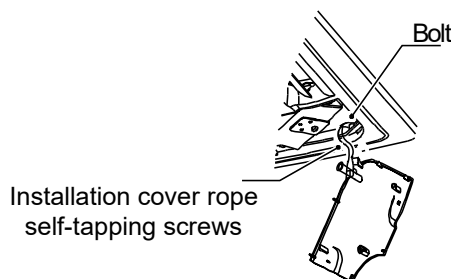


■First hang the air inlet grille on the panel, and then connect the leads of the swing motor and control box to the corresponding connectors on the unit respectively

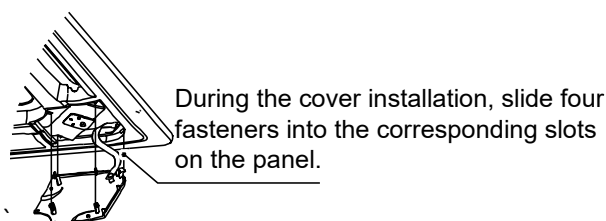
■Reinstall the air inlet grille by performing the steps used to remove the air inlet grille in the reverse order.

■Reinstall the installation cover.

1. Secure the installation cover rope onto the bolt on the installation cover with screws



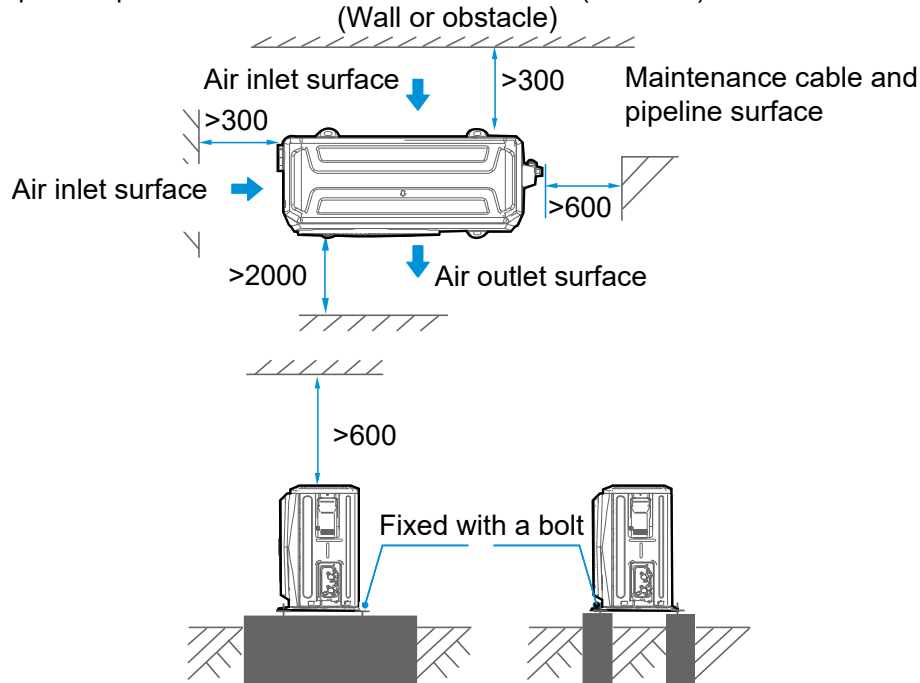
2. Gently press the installation cover into the panel.



5. Installation of Outdoor Units

5.1 Installing space

Ensure enough space required for installation and maintenance. (Unit: mm)



5.2 Handling and installation

- Because the center of gravity of the unit is not at the center, be careful when lifting the unit with a hoist cable.
- Do not hold the suction port on the casing; otherwise, it will be deformed.
- Do not touch the blades with your hands or other objects.
- Do not tilt the unit over 45° when carrying it; do not store it horizontally.
- Use M8 or M10 bolts to secure the feet of the unit. The unit must be installed firmly to prevent collapse in the event of an earthquake or a sudden blast.

6. Water discharge piping layout

Note:

Do not exert too much force when installing the suction piping in order not to break the pipes. Wrap both the suction piping and water discharge piping evenly with heat insulation protective casing to prevent water condensation.

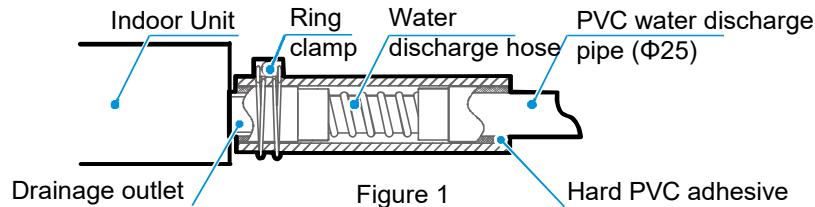
6.1 Installation of water discharge piping for the indoor unit

- Use the attached water discharge hose to connect to the drainage outlet and PVC piping of the indoor unit. Use the provided ring clamps to clasp tightly (see Figure 1).
- Use hard PVC adhesives for connecting to other water piping. Check that the connections are tight with no leakage. Use insulation casing to wrap the water suction piping connections and water discharge piping of the main body (especially the indoor portion) tie for the water discharge piping to bind them firmly to make sure air does not enter and condense to form water.
- In order to prevent the back-flow of water into the interior of the air conditioner when the unit stops operating, the water discharge pipe should slope downwards towards the outside (drainage side) at a slope of more than 1/100. Make sure that the water discharge pipe does not swell or store water, otherwise it will cause abnormal sounds.
- When connecting the water discharge piping, do not use force to pull and tug the pipes to prevent the main body from being affected by the force. The distance to pull out the water discharge piping should be within 20m, with supporting points set at every 0.8 to 1.0m to prevent the water discharge piping from bending.

- When concentrating and installing the water discharge piping, arrange the pipes according to the diagram provided in Figure 3.
- The end of the water discharge pipe must be more than 50 mm above the ground or from the base of the water discharge slot. In addition, do not submerge it in water. To discharge the condensed water directly into a ditch, the water discharge pipe must bend upwards to form a U-shaped water plug to stop the odour from entering the room via the water discharge pipe.

Caution:

Make sure all the connections in the piping system are properly sealed to prevent water leakages.



Connection of drainage pipe (see Figures 2 and 3):

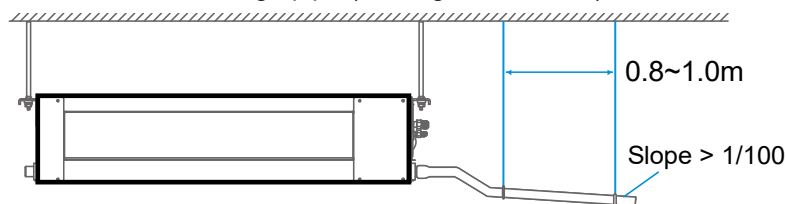


Figure 2 Method to connect the water discharge piping for a single unit

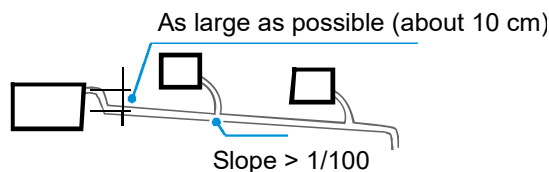
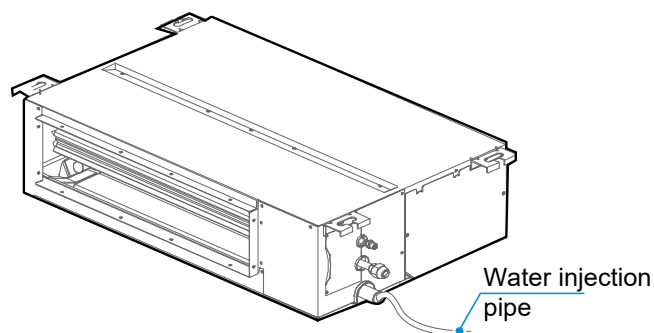


Figure 3 Method for centralized water discharge piping connection

6.2 Water discharge test

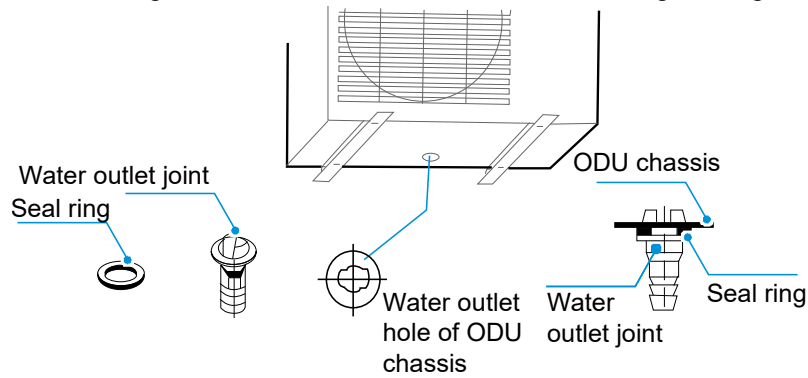
1. Before the test, make sure that the water discharge pipeline is smooth, and check that each connection is sealed properly.
2. Conduct the water discharge test in the new room before the ceiling is paved.
 - Use the water injection pipe to fill the drain pan with about 500ml of water through the drain pan outlet (high side) or through the air outlet (if the air outlet duct is not installed).
 - Connect the power supply, and set the air conditioner to operate in the cool mode. Check that the water discharge piping outlet discharges water properly (based on the length of the pipe, the discharge may occur at a delay of 1 minute or so), and check for water leakages at each joint. The water injection pipe is marked as shown in the following figure.



6.3 Installation of water discharge piping of ODU

Put the seal ring on the water outlet joint, insert it from the bottom of the ODU into the hole of the chassis and rotate it 90 degrees to make it fit firmly. Connect the water discharge piping (to be purchased by the customer)

to the water outlet joint to discharge condensation water from the ODU during heating.



7. Connection of Connecting Pipe

7.1 Length and level difference requirements for the pipe connections of IDU and ODU

Product Model	Maximum length(m)	Maximum level difference(m)	Maximum number of bends(m)
ICHD009(12)J0A-DMG026(35)	15	10	5
ICHD018(24)J0A-DMG053(71)	25	15	15
ICHD031(36,42)J0A-DMG090(105,120)	30	20	15
ICHD048(60)J0A-DMG140(160)	50	25	15

Notes:

If the height difference is greater than the allowed level difference, it is recommended to place ODU above the IDU.

Caution:

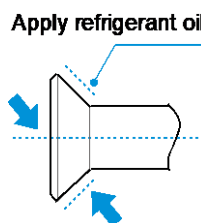
- Do not let air, dust, or other particles invade the pipeline system during installation of the connecting pipes.
- Install the connecting pipes only when the indoor and outdoor units are secured.
- Make sure to keep the connecting pipes dry during installation so that no water will enter the piping system.
- Connecting copper pipes must be wrapped with insulation materials (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

7.2 Steps of pipe connection

Measure the required length of the connecting pipe. Make the connecting pipe using the following method (see the column Pipe Connection for details).

1. Connect the IDUs before the ODU.

- Bend and arrange pipes carefully without damaging the pipes and their insulating layers.
- Before tightening the flare nut, apply refrigerant oil on the outer surface at the pipe flaring position and the conical surface of the connecting nut (the refrigerant oil used must be compatible with the refrigerant of this model), and screw it 3 to 4 turns with your hand to tighten it as shown in the figure below.



- When connecting or removing a pipe, use two wrenches at the same time.
- Do not put the weight of the connecting pipe on the connector of the IDU. Otherwise, the heavy weight will deform the connector and affect the cooling (heating) effect.

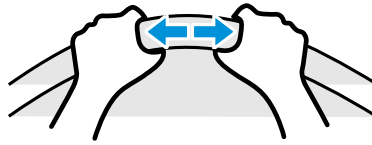
2. The check valve of the ODU should be completely closed (e.g. the ex-factory condition). Unscrew nuts from the check valve in each connection, and connect the flared tube immediately (within 5 minutes). When the nut at the check valve is removed and placed for too long, dust and other sundries may enter the pipeline system and cause failures at a later time.

3. After the refrigerant pipe is connected to the IDU and ODU, discharge the air according to the column Air Discharge. After the air is discharged, tighten the service nut.

Precautions for flexible pipes:

- Do not bend a pipe more than 90 degrees (see the figure below).

Bend the pipe with your thumbs

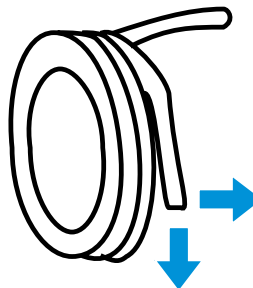


- The bend should be as close as possible to the center of the tube and the bend radius should not be less than 3.5D (pipe diameter).

- Do not bend the flexible tube back and forth more than 3 times.

Bend a thin-walled connecting pipe (see the figure below):

Method of unwinding the coil:
Straighten the pipe end



- When bending a pipe, cut off the required recess in the insulation pipe at the bend and expose the pipe (wrap the bend with a binding tie after bending).
- Keep the elbow radius as much as possible to prevent flattening or crushing. Use a pipe bender to make tight elbows.

If a copper pipe purchased from the market is used, the heat insulation material of the copper pipe must be the same (thicker than 10mm, the thickness should be increased if the unit is installed in a closed humid place).

7.3 Pipe layout

1. Bend the pipe or drill a hole in the wall as needed. The cross-sectional area of the pipe bending deformation must not exceed 1/3 of the original pipe section. A protective casing should be provided at the wall or floor hole. The weld joint must not be inside the casing. The drill hole on the external wall must be sealed and tightly wrapped with a binding tie to prevent impurities from entering the pipe. The pipe must be insulated with an insulation pipe of suitable size.

2. Insert the bundled piping and wiring from outside the room through the wall opening into the room. Be careful when laying out the pipes. Do not damage them.

Vacuum the connecting pipe.

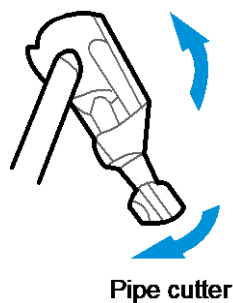
After completing the above steps, the check valve stem of the ODU should be fully opened to ensure that the refrigerant pipeline of the IDU and ODU is unobstructed.

Use a leak detector or soapy water to carefully check for leakage and ensure that there is no leakage. Cover the joint of the IDU with a sound/heat insulation sleeve (accessory) and wrap it tightly with a binding tie to prevent condensation and water leakage.

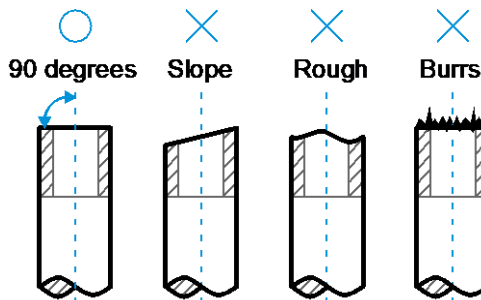
7.4 Pipe connection

Flaring

Use a pipe cutter to cut off the pipe, and rotate the pipe cutter repeatedly to cut off the pipe.

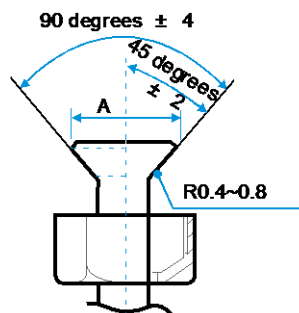


Pipe cutter



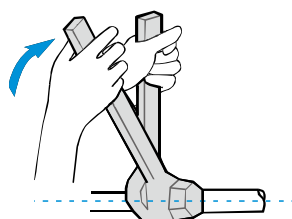
Insert the pipe into the connection nut flare.

Outer diameter(mm)	A(mm)	
	Max.	Min.
Φ6.4	8.7	8.3
Φ9.5	12.4	12.0
Φ12.7	15.8	15.4
Φ15.9	19.0	18.6
Φ19.1	23.3	22.9



7.5 Fasten the nut

Align the connection pipe, tighten the connecting nut with a hand, and tighten them with a wrench as shown in the figure below.



7.6 Air discharge

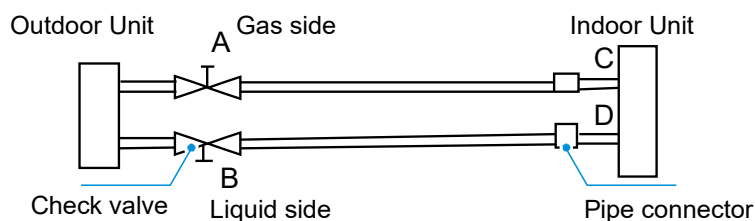
Use a vacuum pump to discharge the air.

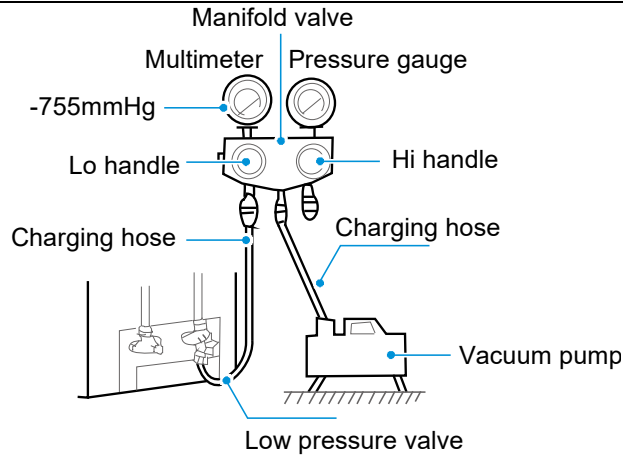
- Loosen and remove the service port nut of check valve A and connect the manifold valve charging hose to the service port of check valve A (check valves A and B are closed).
- Connect the charging hose connector to the vacuum pump.
- Fully open the manifold valve Lo (low pressure) handle.
- Start the vacuum pump. When the vacuum is started, slightly loosen the service port nut of the check valve B to check if the air enters (the vacuum pump noise changes, and the multimeter reading changes from negative to 0). Tighten the service port nut.
- After the vacuum is complete, fully close the manifold valve low pressure (Lo) handle and stop the vacuum pump.

Vacuum the pipe for 15 minutes or more, check whether the multimeter reading is $-1.0 \times 10^4 \text{ Pa}$ (-755 mmHg).

- Loosen and remove the square head covers of check valves A and B, fully open the check valves A and B, and tighten the square head covers of the check valves A and B.
- Remove the charging hose from the service port of check valve A and tighten the nut.

(Refer to its manual for the use of the manifold valve)





Adding Refrigerant

- If the one-way pipe length is less than 5m (including 5m), the refrigerant charging amount is determined according to the nameplate.
- If the one-way pipe length exceeds 5m, it is necessary to calculate the refrigerant charging amount according to the pipe diameter and length of the liquid-side pipes of the IDU and ODU. See the table below for details.
- Record the amount of refrigerant charged and retain the record for use during future maintenance.

Diameter of liquid-side pipe	Refrigerant charging amount	Remarks
Φ6.4	11.5g(L-5)	L is the one-way pipe length

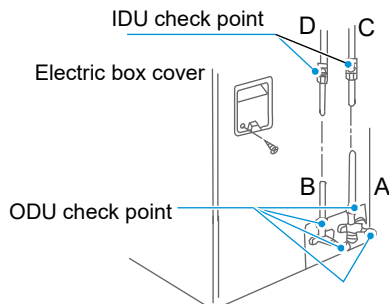
7.7 Leak detection

Use soapy water or a leak detector to check whether air leaks at each joint.

The low pressure check valve is indicated by A in the figure.

B indicates the high pressure side check valve.

C and D indicate IDU connecting pipe ports.



7.8 Check Valve Instructions

- Open the valve plug until it touches the limit block. Do not attempt to continue opening it.
- Use a wrench or similar tool to fasten the valve cap.
- See the torque table for the valve cap fastening torque.

Pipe size	Tightening torque N.m
Φ6.4	14.2~17.2 N.m (144~176 kgf.cm)
Φ9.5	32.7~39.9 N.m (333~407 kgf.cm)
Φ12.7	49.5~60.3 N.m (504~616 kgf.cm)
Φ15.9	61.8~75.4 N.m (630~770 kgf.cm)
Φ19.1	97.2~118.6 N.m (990~1210 kgf.cm)

7.9 Heat insulation

- The exposed flared tube connection portion and the refrigerant tube portion of the liquid pipe and the gas pipe must be wrapped with the heat insulation material with no gap in between.
- Insufficient insulation may cause condensation and water dripping.

8. Electric Connection

8.1 Caution

- Before the installation, check whether the power supply of the user meets the electrical installation

requirements of the product (including reliable grounding, power leakage, and wire-diameter electrical load). Do not install the product before the modification if the electrical installation requirements of the product are not met.

- Air conditioners must use a dedicated power supply. The power voltage must conform to the rated voltage.
- The external power supply circuit of the air conditioner must include a grounding line, and the grounding line of the power cable connecting to the indoor unit must be securely connected to the grounding line of the external power supply.
- Electrical wiring work must be carried out by a professional technician, and must comply with the labels stated in the circuit diagram.
- The fixed wiring connected must be equipped with an all-pole disconnection device with a minimum 3mm of contact separation.
- Leakage protection devices must be configured according to national standards for electrical equipment.
- The power cord and signal cables must be neatly and properly arranged without interfering with one another or contacting with any connecting pipes or valves.
- When multiple air conditioners are installed in a centralized manner, ensure load balance of the three-phase power supply, and avoid installing multiple units at the same phase of the three-phase power supply.
- In general, two wires cannot be connected unless the joint is securely welded and wrapped with insulation tape.
- Power the system on only after all the completed wiring operations have been carefully checked.

8.2 Power Supply Specifications

Four-way Cassette:

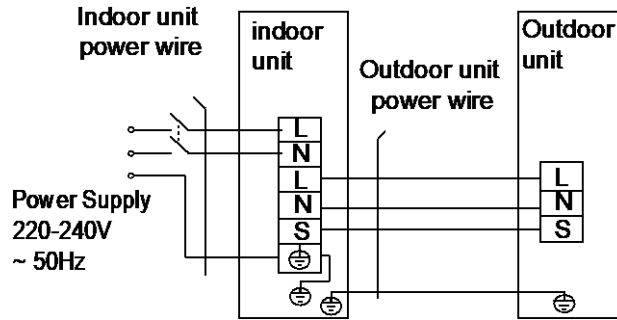
IECS018(24,31,36,42,48)J3A-DWG053(71,90,105,120,140)

Model	Power supply	Switch capacity of the main power supply(A)	power cable includes grounded wire (mm ²)	Indoor/Outdoor unit power cable includes grounded wire(mm ²)
	Voltage and frequency			
18	220V-240V~50Hz	20	2X2.5+1X2.5	4×2.5
24	220V-240V~50Hz	25	2X4.0+1X4.0	4×2.5

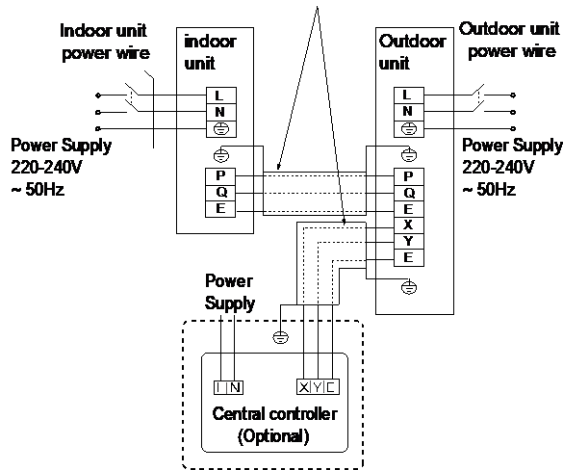
Model		Power supply	Switch capacity of the main power supply(A)	power cable includes grounded wire (mm ²)	Connective wire(mm ²)
		Voltage and frequency			
31	IDU	220V-240V~50Hz	6	2X1.0+1X1.0	3X0.75
	ODU		25	2X2.5+1X2.5	
36	IDU	220V-240V~50Hz	6	2X1.0+1X1.0	3X0.75
	ODU		32	2X4.0+1X4.0	
42	IDU	220V-240V~50Hz	6	2X1.0+1X1.0	3X0.75
	ODU		32	2X4.0+1X4.0	
48	IDU	220V-240V~50Hz	6	2X1.0+1X1.0	3X0.75
	ODU		40	2X6.0+1X6.0	

Four-way Cassette:

IECS018(24)J3A-DWG053(71)



IECS031(36,42,48)J3A-DWG090(105,120,140)



Note: The communication wire should be 3-core shielding wire, and the shielding wire layer must be connected the earth of sheet metal.

10. Trial Run

1. Conduct the test run only after all installation tasks have been completed.
2. Check the following items during the test run.
 - Indoor and outdoor units are properly installed.
 - Piping length, and the amount of refrigerant charged have been recorded.
 - Piping and wiring are correct.
 - The voltage of the power supply is the same as the rated voltage of the air conditioner.
 - No leakage from the refrigerant piping system.
 - There is no obstacle at the air inlet and outlet of the IDUs and ODU.

- Water discharge is smooth.
 - Open the check valves on the gas and liquid sides.
 - Heat insulation is complete.
 - Connect to the power supply to let the air conditioner warm up first.
 - Grounding cables have been properly connected.
3. Install the remote controller mounting rack according to the user's requirements.
The location of the mounting rack must be such that the remote control signal can be successfully transmitted to the indoor unit.
4. Test Run
Use wired/remote controller to control and operate the air conditioner in the cooling mode. Check the following items according to the manual. If there is any fault, troubleshoot by referring to the section "Fault and Troubleshooting" in the manual.

11. Trouble shooting

11.1 Fault information and codes

Four-way Cassette:

1. Error code table(Indoor unit display)

IECS018(24)J3A-DWG053(71)

Error code	Error definition	Error display
E0	IDU EPROM fault	Immediate display, spot check
E1	ODU communication fault	Immediate display, spot check
E3	IDU fan stall fault	Immediate display, spot check
E5	ODU temperature sensor or EPROM fault	Immediate display, spot check
E50	ODU temperature sensor fault	Immediate display, spot check
E51	ODU EPROM fault	Immediate display, spot check
E52	Outdoor coil T3 temperature sensor fault	Immediate display, spot check
E53	Outdoor ambient T4 temperature sensor fault	Immediate display, spot check
E54	Outdoor discharge temperature sensor fault	Immediate display, spot check
E55	Outdoor air return temperature sensor fault	Immediate display, spot check
E6	IDU temperature sensor fault	Immediate display, spot check
E60	IDU room temperature T1 sensor fault	Immediate display, spot check
E61	IDU pipe temperature T2 sensor fault	Immediate display, spot check
E7	ODU DC fan stall fault	Immediate display, spot check
E71	Outdoor fan over-current (external driving)	Immediate display, spot check
E72	Outdoor fan stall (external driving)	Immediate display, spot check
E73	Outdoor fan phase loss (external driving)	Immediate display, spot check
E74	Outdoor fan zero speed (external driving)	Immediate display, spot check
EE	Water level alarm error	Immediate display, spot check
P0	ODU IPM protection	Immediate display, spot check
P1	Voltage protection	Immediate display, spot check
P10	Low voltage protection	Immediate display, spot check
P11	High voltage protection	Immediate display, spot check
P12	Outdoor DC-side voltage protection	Immediate display, spot check
P2	Temperature protection for compressor top	Immediate display, spot check
P4	ODU compressor feedback protection	Immediate display, spot check
P40	Main control chip and driver chip communication fault	Immediate display, spot check
P41	Compressor current sampling circuit fault	Immediate display, spot check
P42	Compressor start-up fault	Immediate display, spot check

P43	Compressor phase loss protection	Immediate display, spot check
P44	Compressor zero speed protection	Immediate display, spot check
P45	Outdoor 341 main chip drive synchronization fault	Immediate display, spot check
P46	Compressor stall protection	Immediate display, spot check
P47	Compressor lock protection	Immediate display, spot check
P48	Compressor out-synchronous protection	Immediate display, spot check
P49	Compressor over-current protection	Immediate display, spot check
P6	Compressor high discharge temperature protection	Immediate display, spot check
P8	Outdoor electric control current protection	Immediate display, spot check
P81	ODU current protection	Immediate display, spot check
P82	Input AC current sampling circuit fault	Immediate display, spot check
PA	High temperature protection of condenser	Immediate display, spot check
PF	PFC switch power-off	Immediate display, spot check
P9	Evaporator high and low temperature protection	Code will not be displayed, but can be queried
P90	Evaporator high temperature protection	Code will not be displayed, but can be queried
P91	Evaporator low temperature protection	Code will not be displayed, but can be queried
L0	Evaporator high and low temperature frequency limit	Code will not be displayed, but can be queried
L1	Condenser high temperature frequency limit	Code will not be displayed, but can be queried
L2	Compressor discharge high temperature frequency limit	Code will not be displayed, but can be queried
L3	Current frequency limit	Code will not be displayed, but can be queried
L4	Voltage frequency limit	Code will not be displayed, but can be queried
L6	PFC fault frequency limit	Code will not be displayed, but can be queried

IECS031(36,42,48)J3A-DWG090(105,120,140)

Error code	Error or protection definition	Error display
HF	IDU mismatching error	Immediate display, spot check
H4	L (L0/L1) error occurs three times in one hour, reporting H4, and this error is not recoverable. After H4 error, spot check may be performed on the latest three L errors (not limited to L0, L1). For example: report L0-L4-L8-L9-L0-L1 within one hour, and report H4 error. The errors for spot check are L9, L0, and L1.	Immediate display, spot check
E7	IDU EEPROM error	Immediate display, spot check
E9	ODU EEPROM error	Immediate display, spot check
E.9.	Wrong compressor model in parameter memory EPROM	Immediate display (display E9), spot check available
H0	Communication error between main control board and IR341	Immediate display, spot check
E1	Communication error between IDU and ODU	Immediate display, spot check
E2	T1 sensor error	Immediate display, spot check
E3	T2 sensor error	Immediate display, spot check
E4	T2B sensor error	Immediate display, spot check
E43	T3 sensor error	Immediate display, spot check
E44	T4 sensor error	Immediate display, spot check
E45	T5 sensor error	Immediate display, spot check
E5	Voltage protection error	After continuing 10 minutes Indoor unit displays, spot check available

E6	ODU DC fan error	After continuing 10 minutes Indoor unit displays, spot check available
EE	Water level alarm error	Immediate display, spot check
EH	TL sensor error	Immediate display, spot check
Eb	E6 error occurs six times in one hour, requiring power failure recovery	Immediate display, spot check
EF	PFC feedback resistance failure	After continuing 10 minutes Indoor unit displays, spot check available
PL	Heat sink TF high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
P1	High pressure protection	After continuing 10 minutes Indoor unit displays, spot check available
P2	Low pressure protection	After continuing 10 minutes Indoor unit displays, spot check available
P3	Input current protection	After continuing 10 minutes Indoor unit displays, spot check available
P4	Discharge temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
P5	Outdoor condenser T3 high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
PE	Evaporator T2 high temperature protection	After continuing 10 minutes Indoor unit displays, spot check available
L0	Module protection is triggered	After continuing 10 minutes Indoor unit displays, spot check available
L1	DC bus low voltage protection	After continuing 10 minutes Indoor unit displays, spot check available
L2	DC bus high voltage protection	After continuing 10 minutes Indoor unit displays, spot check available
L4	MCE error	After continuing 10 minutes Indoor unit displays, spot check available
L5	Zero speed protection	After continuing 10 minutes Indoor unit displays, spot check available
L7	Phase loss	After continuing 10 minutes Indoor unit displays, spot check available
L8	Protection when the previous and next speed change is > 15Hz	After continuing 10 minutes Indoor unit displays, spot check available
L9	Protection for a difference of > 15Hz between the set speed and operating speed	After continuing 10 minutes Indoor unit displays, spot check available
F1	Detected DC bus voltage (PN voltage) < 200VDC for 5S after power-on	After continuing 10 minutes Indoor unit displays, spot check available
P8	Typhoon protection	After continuing 10 minutes Indoor unit displays, spot check available
EP	Ambient temperature less than or equal to 10°C in cooling mode	After continuing 10 minutes Indoor unit displays, spot check available
Ed	ODU error	/

2. Spot check query function (Press the button on the display board to spot check the system parameters)

IECS018(24)J3A-DWG053(71)

Sequence number	Spot check parameter contents	Remarks
01	Indoor unit T1 temperature	Actual value, temperature accurate to 0.5 °C
02	Indoor unit T2 temperature	Actual value, temperature accurate to 0.5 °C
03	Outdoor unit T3 temperature	Actual value, temperature accurate to 0.5 °C
04	Outdoor unit T4 temperature	Actual value, temperature accurate to 0.5 °C
05	Outdoor unit TP temperature	Actual value, it can display three digits such as 101 °C
06	Outdoor unit IPM temperature	Actual value, temperature accurate to 0.5 °C
07	Current compressor target frequency	Actual value
08	Current compressor operating frequency	Actual value
09	Current operating wind speed of internal fan	Actual value×10
10	Current operating wind speed of external fan	Actual value×10
11	Opening of electronic expansion valve of outdoor unit	No electronic expansion valve, it shows "0"
12	Voltage	Actual value
13	current	Actual value
14	Indoor unit program version number	
15	Indoor unit EEPROM parameter program version number	
16	Machine model	
17	the last fault code	No fault display "--"
18	the last but one fault code	No fault display "--"
19	the last but two fault code	No fault display "--"
20	nd	End

IECS031(36,42,48)J3A-DWG090(105,120,140)

Sequence number	Spot check parameter contents	Remarks
1	Operation mode	(0 - standby; 1 - air supply; 2 - refrigeration; 3 - heating; 4 - forced refrigeration; 6 - dehumidification)
2	Operating wind speed and level	(0-shutdown; 2-low wind; 3-mid wind; 4-high wind)
3	The number of HP of indoor unit's capacity	
4	Total capacity demand of indoor unit	
5	Capability requirements after outdoor unit modification	
6	Ts setting temperature	The actual value
7	T1 indoor temperature	The actual value
8	T2 or T2B temperature	The actual value (Heating display T2, other display T2B)
9	T3 pipe temperature	The actual value
10	T4 environment temperature	The actual value
11	T5 discharge temperature	The actual value
12	TF Module temperature	The actual value
13	TL Temperature of refrigerant radiation pipe	Refrigerant radiation pipe
14	The opening of Electronic expansion valve	The actual value×8
15	Actual current value	

16	Compressor current value	
17	Actual voltage	The actual value
18	DC Bus Voltage	The actual value
19	Machine model	
20	Network address of indoor unit(0—63)	
21	Address of outdoor unit in centralized control system (reserved)	0-7 is valid
22	Indoor unit program version number	
23	Outdoor unit program version number	
24	The last fault or protection code	If not exist, display “E-”
25	Display”—“	
26	Indoor unit SN code reading	

11.2 Fault and troubleshooting

Fault	Cause	Solution
Starting failure	Power failure	Wait for the power supply to be restored.
	Power switch is off	Turn on the power
	The fuse of the power switch is blown.	Replace the burnt fuse.
	The time set for the timed power-on has not arrived.	Replace the batteries.
	The batteries of the remote controller are exhausted.	Wait or cancel the setting.
There is air blowing, but the cooling/heating effect is poor.	The temperature setting is inappropriate.	Set the temperature properly. Increase or decrease the temperature. Read Operating Methods for details.
	The air inlet or outlet of the IDU or ODU is blocked	Remove the obstacles.
	Doors and windows are open.	Close the doors and windows.
There is air blowing, but the unit cannot supply cold or hot air.	The air inlet or outlet of the IDU or ODU is blocked.	Remove the obstacles and perform the operation again.
	Compressor 3-minute protection	Wait.
	The temperature setting is inappropriate.	Set the temperature properly.

1. Specifications

Table 1.1: ICHD009, 012, 018, 024 specifications

kW			2.6	3.5	5.3	7.1
Model name			ICHD009J0A	ICHD012J0A	ICHD018J0A	ICHD024J0A
Power supply		V/Ph/Hz	220-240/1/50			
Cooling	Power input	W	649(210~1350)	1159(240~1460)	1602(370~2380)	2115(520~2890)
	Power input (Maximum)	W	1620	1900	2800	3500
Heating	Power input	W	859(190~1250)	1209(230~1570)	1902(390~2490)	2615(460~3310)
	Power input (Maximum)	W	1900	1720	2700	3800
Compressor	Type		KSK103D53UFZ		KSN140D21UFZ	ATM240D57UMT
	Quantity		1		1	1
	Oil type		ESTER OIL VG74			
	Start-up method		soft start			
Fan	Type		WZDK20-38G-W	WZDK56-38G-W	WZDK80-38G-W(A)	WZDK170-38G-1
	Motor type		DC motor			
	Quantity		1			
	Motor output	kW	0.02		0.056	0.08
	Static pressure	Pa	/			
	Airflow rate	m ³ /h	1718	1718	2283	3715
	Drive type		External Drive			
Refrigerant	Type		R410A			
	Factory charge	g	800	800	1450	1600
Throttle type	\		Throttle valve throttling			
Pipe connections	Liquid pipe	mm	Φ6.4			
	Gas pipe	mm	Φ9.5		Φ12.7	Φ15.9
Sound pressure level		dB(A)	50		54	55
Net dimensions (W×H×D)		mm	722×555×260		795×555×287	910×712×345
Packed dimensions (W×H×D)		mm	845×610×390		915×610×420	1045×800×485
Net weight		kg	25	25.5	33.5	47
Gross weight		kg	28	28.5	36.5	52
Ambient temp. operation range	Cooling	°C	10~55			
	Heating	°C	-15~24			

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

Table 1.2: ICHD031, 036, 042, 048 specifications

kW			9.0	10.5	12	14
Model name			ICHD031J0A	ICHD036J0A	ICHD042J0A	ICHD048J0A
Power supply		V/Ph/Hz	220-240/1/50			
Cooling	Power input	W	3060(670~3480)	3109 (529-3909)	4559(529~5009)	5809(1200~6100)
	Power input (Maximum)	W	4700	4609	5469	7000
Heating	Power input	W	2900(650~3570)	3009 (509-4009)	3909(509~4009)	4909(1000~5200)
	Power input (Maximum)	W	4700	4520	4520	5420
Compressor	Type		Rotary DC Inverter	ATM240D57UMT		ATF400D64UMTC
	Quantity		1	1	1	1
	Oil type		ESTER OIL VG74			
	Start-up method		DC Inverter Starting	Soft Start		
Fan	Type		WZDK80-38G-W(A)	WZDK170-38G-1		
	Motor type		DC motor			
	Quantity		1	1	1	1
	Motor output	kW	0.08	0.17		
	Static pressure	Pa	/	/		
	Airflow rate	m ³ /h	3692	5086		
	Drive type		Built-in Drive			
Refrigerant	Type		R410A			
	Factory charge	g	2000	3000	3000	3200
Throttle type	\		Piston	Throttle valve throttling		
Pipe connections	Liquid pipe	mm	Φ9.5	Φ9.5		
	Gas pipe	mm	Φ15.9	Φ15.9		
Sound pressure level		dB(A)	55	59		
Net dimensions (W×H×D)		mm	910×712×345	950×840×360		
Packed dimensions (W×H×D)		mm	1045×800×485	1025×860×510		
Net weight		kg	51	68	68	78.5
Gross weight		kg	56	76.5	76.5	87
Ambient temp. operation range	Cooling	°C	10~55			
	Heating	°C	-15~24			

Note:

4. The design implementation standard of this unit is GB/T 18836-2017.
5. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
6. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

Table 1.3: ICHD060 specifications

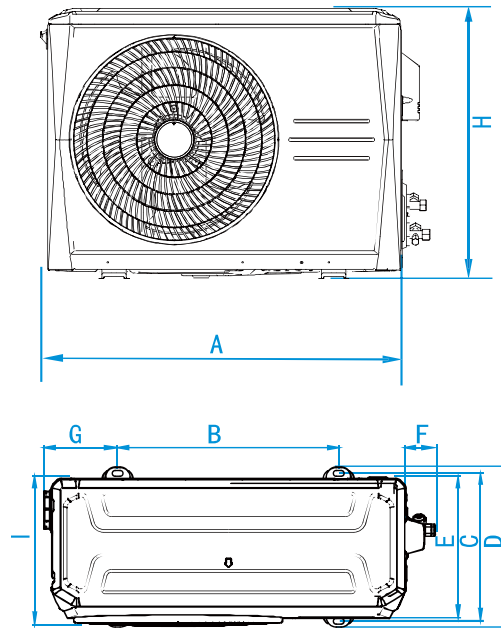
kW			16
Model name			ICHD060J0A
Power supply		V/Ph/Hz	220-240/1/50
Cooling	Power input	W	6600(1340~6600)
	Power input (Maximum)	W	7465
Heating	Power input	W	5800(1120~5800)
	Power input (Maximum)	W	7465
Compressor	Type		Rotary DC Inverter
	Quantity		1
	Oil type		ESTER OIL VG74
	Start-up method		DC Inverter Starting
Fan	Type		WZDK170-38G-1
	Motor type		DC motor
	Quantity		1
	Motor output	kW	0.17
	Static pressure	Pa	/
	Airflow rate	m ³ /h	5086
	Drive type		Built-in Drive
Refrigerant	Type		R410A
	Factory charge	g	3800
Throttle type		\	Piston
Pipe connections	Liquid pipe	mm	Φ9.5
	Gas pipe	mm	Φ15.9
Sound pressure level		dB(A)	60
Net dimensions (W×H×D)		mm	1040×865×410
Packed dimensions (W×H×D)		mm	1120×890×560
Net weight		kg	91
Gross weight		kg	101
Ambient temp. operation range	Cooling	°C	10~55
	Heating	°C	-15~24

Note:

1. The design implementation standard of this unit is GB/T 18836-2017.
2. The parameters in the table are the nominal values tested under the rated working conditions specified in GB/T 18836-2017, and actual operating parameters will vary with the working conditions.
3. The above parameters may change due to product improvement. Please refer to the nameplate parameters of the product.

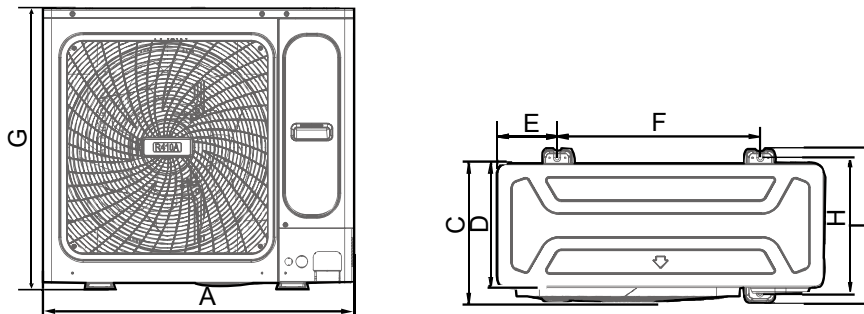
2. Dimension (Unit: mm)

ICHD009J0A-DMG026 / ICHD012J0A-DMG035 / ICHD018J0A-DMG053 / ICHD024J0A-DMG071



Model	A	B	C	D	E	F	G	H	I
9	722	453	302	327	260	50	135	555	300
12/18	795	514	340	365	287	50	125	555	330
24	910	663	403	427	345	55	120	712	390

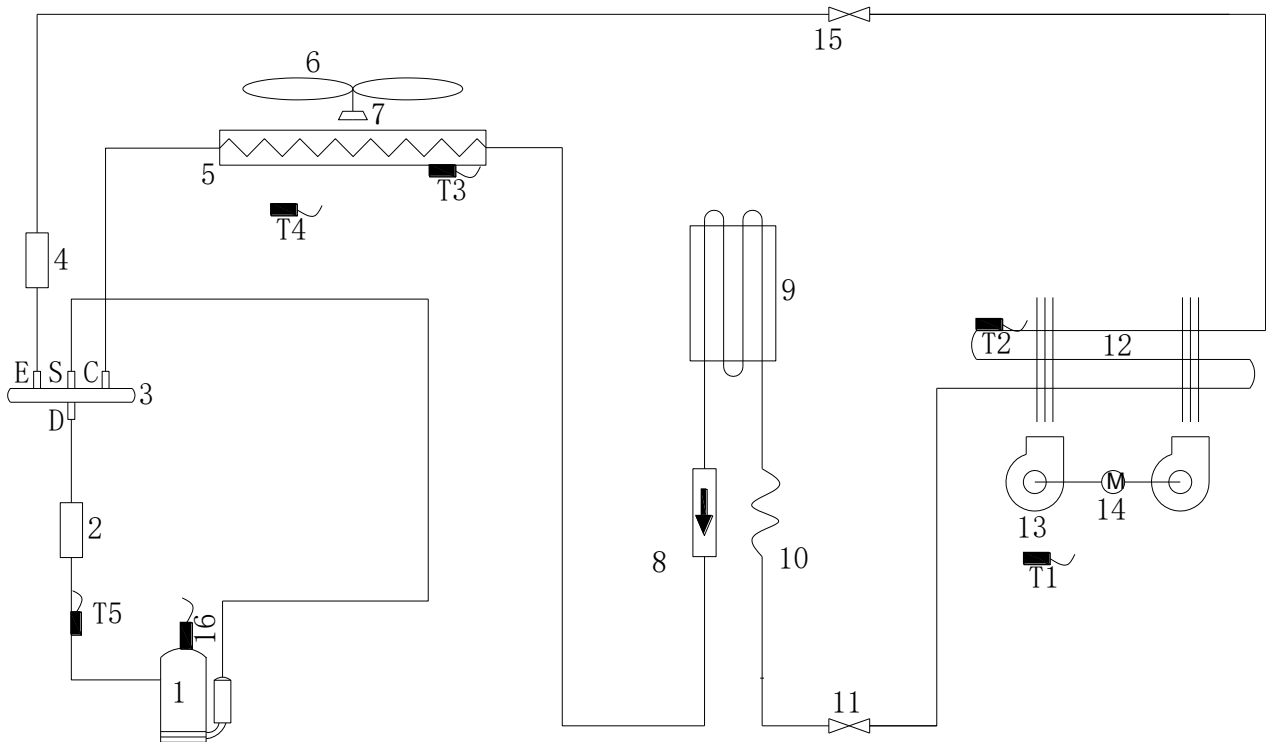
ICHD031J0A-DMG090 / ICHD036J0A-DMG105 / ICHD042J0A-DMG120 / ICHD048J0A-DMG140 / ICHD060J0A-DMG160



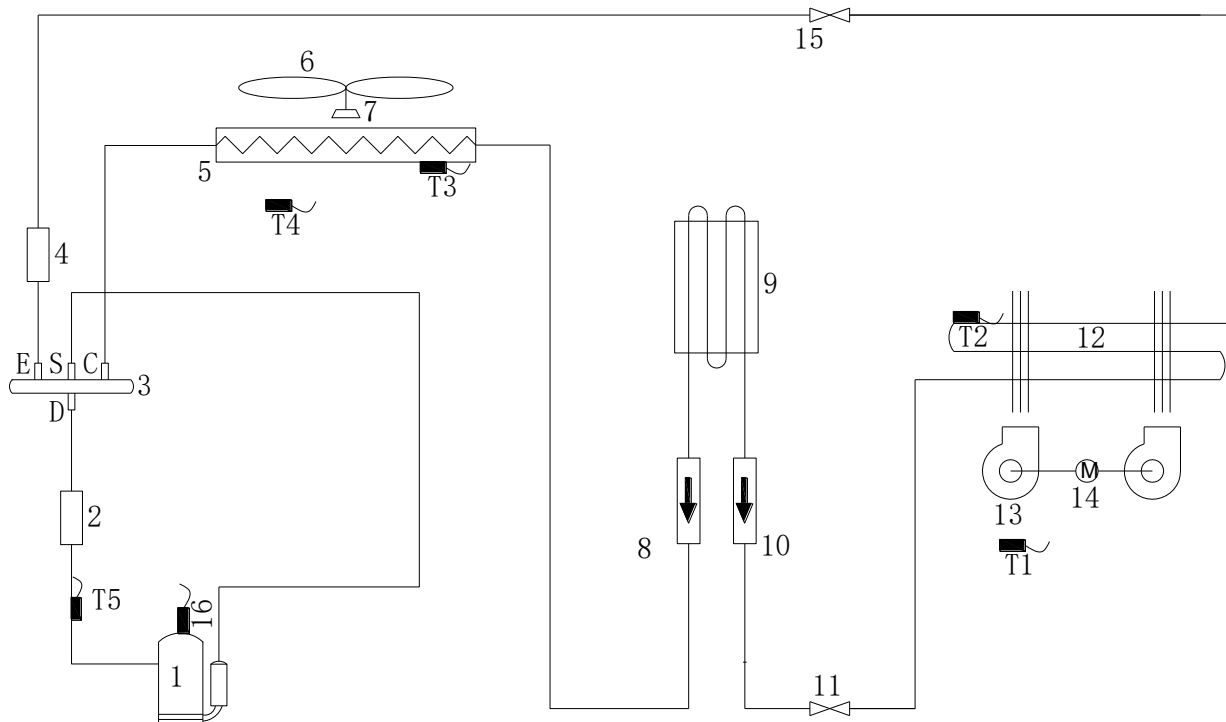
Model	A	C	D	E	F	G	H	I
31	910	390	345	120	663	712	403	427
36/42/48	950	406	360	175	590	840	390	440
60	1040	452	410	191	656	865	463	523

3. Refrigerant circuit

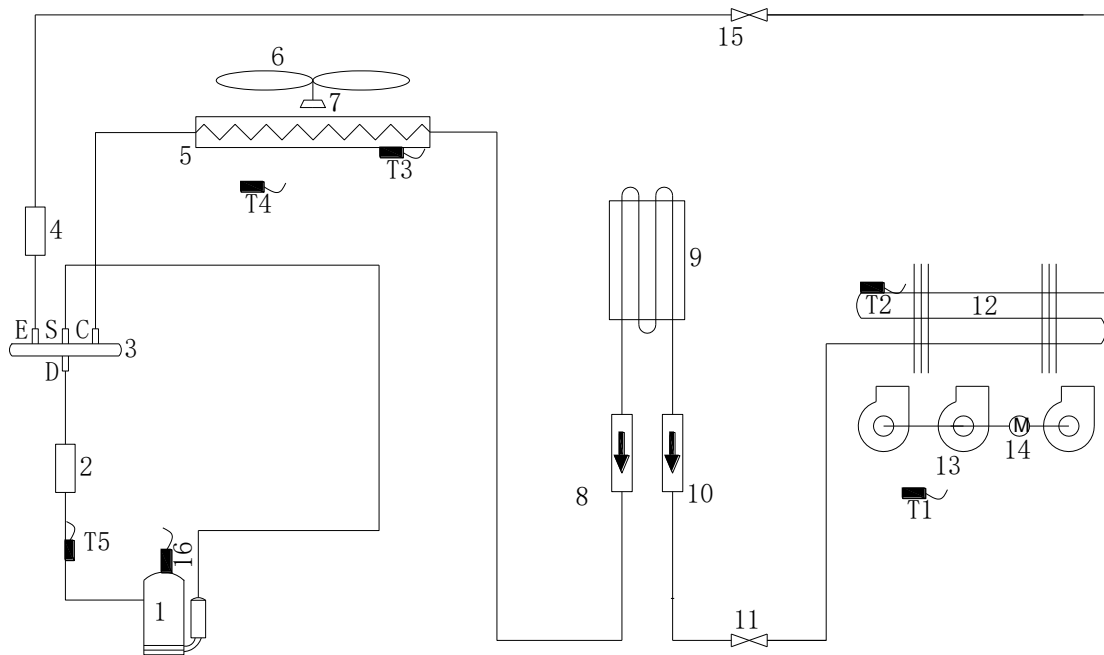
ICHD009J0A-DMG026 / ICHD012J0A-DMG035



1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Throttling capillary
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor

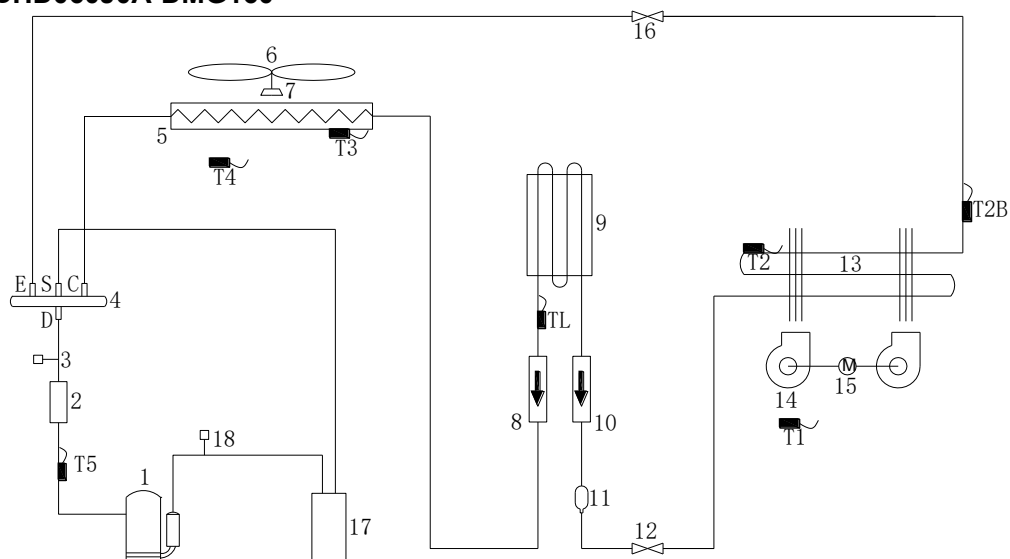


1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor



1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Stop valve (liquid side)
12	Evaporator
13	Outdoor unit wind wheel
14	Indoor unit motor
15	Stop valve (gas side)
16	Temperature control switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor

ICHD031J0A-DMG090 / ICHD036J0A-DMG105 / ICHD042J0A-DMG120 / ICHD048J0A-DMG140 / ICHD060J0A-DMG160

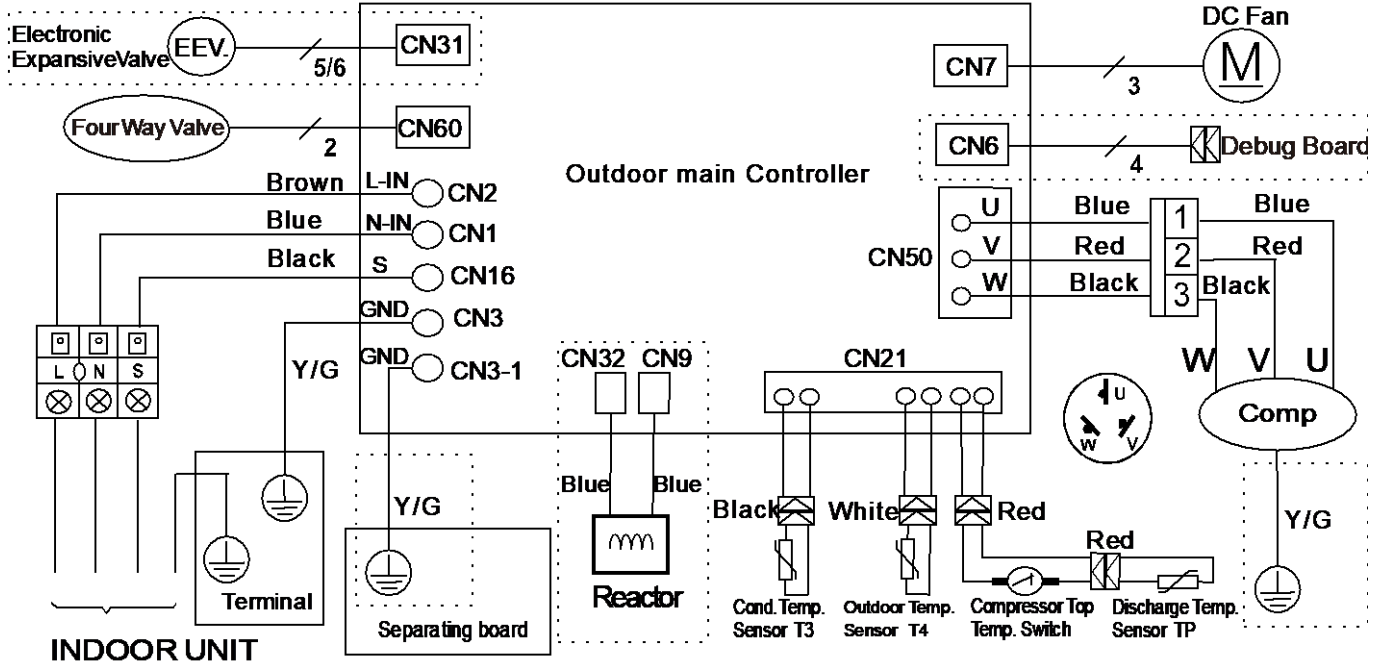


1	Compressor
2	Silencer
3	Four-way reversing valve
4	Silencer
5	Condenser
6	Fan blade
7	Motor
8	Heating spool
9	Refrigerant cooling module
10	Refrigeration spool
11	Filter
12	Stop valve (liquid side)
13	Evaporator
14	Outdoor unit wind wheel
15	Indoor unit motor
16	Stop valve (gas side)
17	Gas liquid separator
18	Low voltage switch
T1	Indoor temperature sensor
T2	Temperature sensor in the middle of evaporator
T2B	Evaporator outlet temperature sensor
T3	Condenser outlet temperature sensor
T4	Outdoor temperature sensor
T5	Exhaust temperature sensor
TL	Temperature sensor of refrigerant cooling pipe

4. Wiring Diagrams

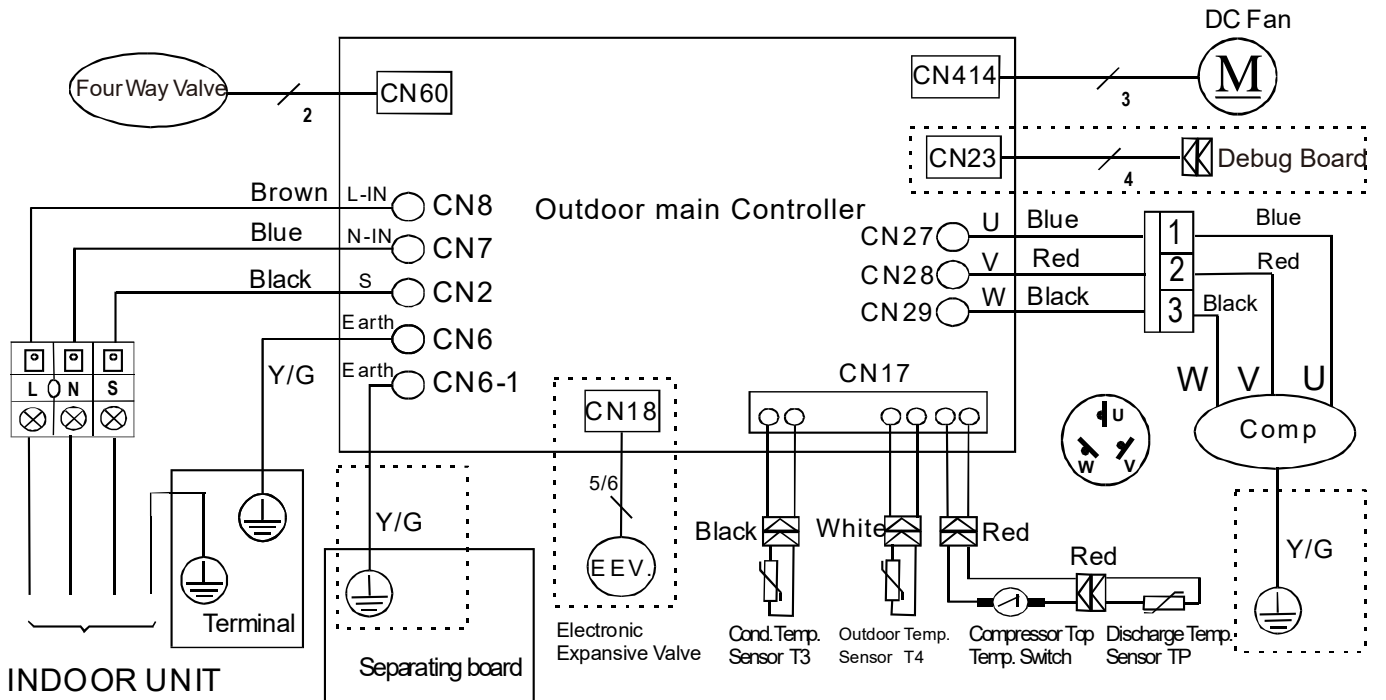
ICHD009J0A-DMG026 / ICHD012J0A-DMG035

Outdoor wire diagram

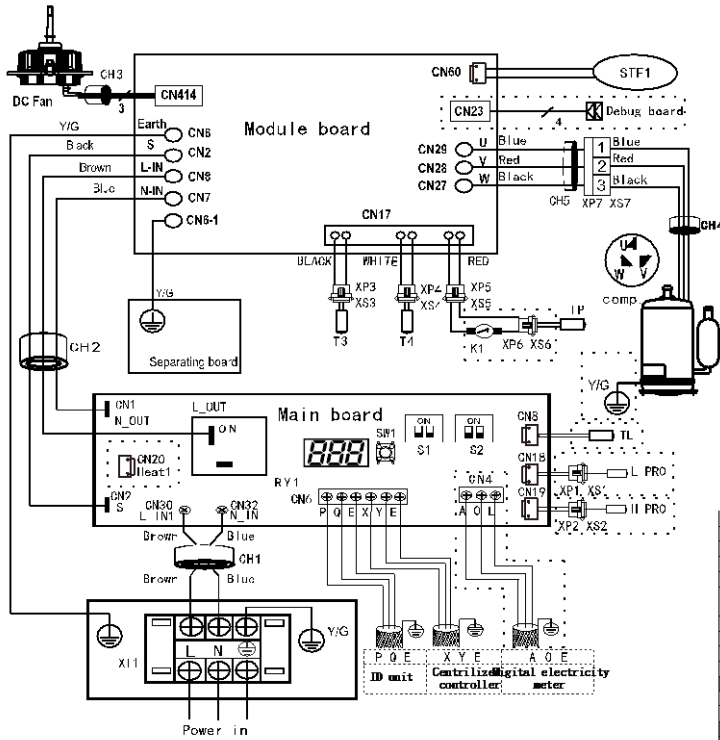


ICHD018J0A-DMG053 / ICHD024J0A-DMG071

Outdoor wire diagram



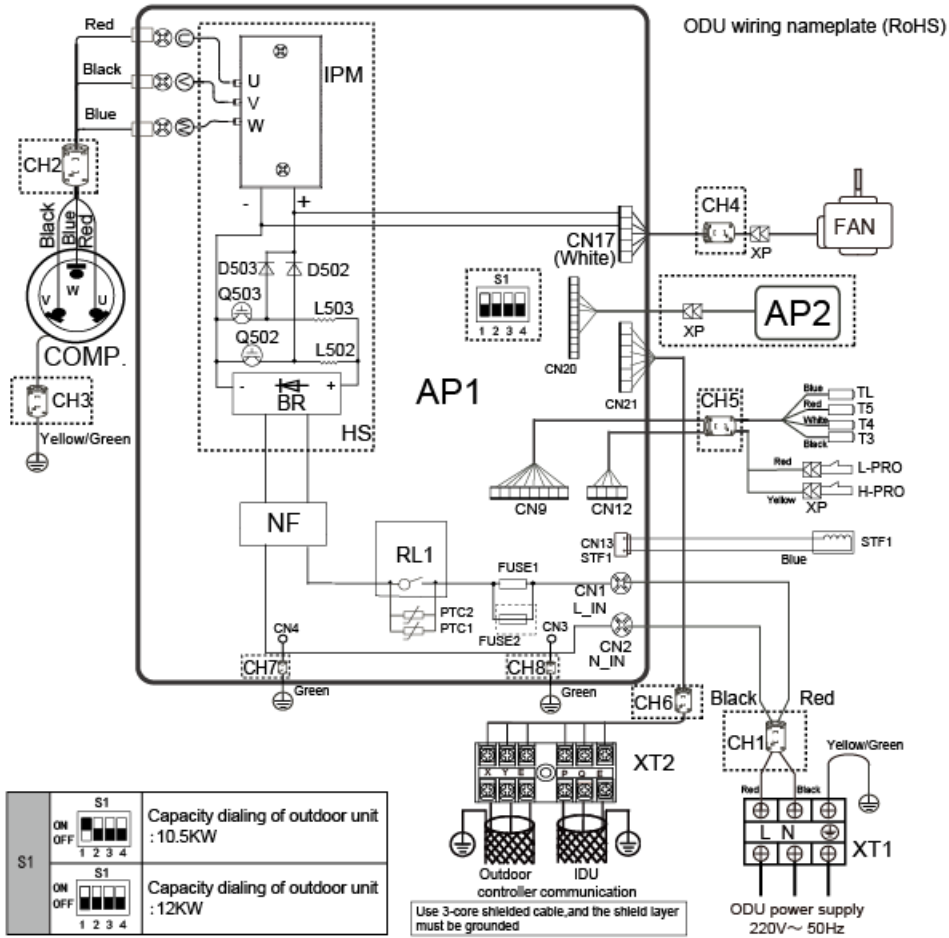
Outdoor wiring diagrams



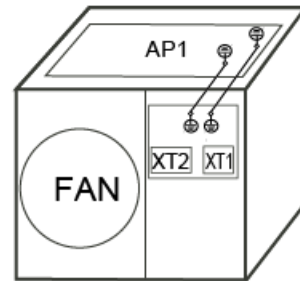
CODE	NAME	CODE	NAME
CHL-CH5	Magnetic ring	RY1	Relay
COMP.	Compressor	STF1	Four way valve
RT	Compressor top thermostat	TP	Outdoor discharge temperature sensor
DCFN	DC fan	TL	Heat exchanger temperature sensor
H-PRO	High pressure on/off switch	X11	Three way terminal
L-PRO	Low pressure on/off switch	T4	Outdoor ambient temperature sensor
XP1-XP7	Intermediate connector	T3	Outdoor heat exchanger temperature sensor

Error Code	
E2	Module board stop abnormally
E2	Communication error between indoor and outdoor unit
E43	Outdoor heat exchanger temperature sensor (T3) error or
E44	Outdoor ambient temperature sensor (T4) error
E45	Discharge temperature sensor error
E5	Input voltage protection
E6	DC fan protection
E9	EEPROM mismatch
E.9.	Compressor parameters mismatch
Eh	Eh errors occur more than six times in an hour
EP	PC error (reserved)
EP	Cooling ambient temperature is below 10 degrees Celsius
ED	Communication error between main board and module board
HF	Indoor mismatch error
HM	LO errors occur three times in an hour
LO	IPM module protection
L1	DC bus low voltage protection
L2	DC bus high voltage protection
LA	WE error (reserved)
LS	Zero speed protection
L7	Phase sequence error
LA	Compressor overcurrent protection
LC	Compressor current sampling circuit error (reserved)
LH	Compressor startup error (reserved)
PL	Radiator surface high temperature protection
PI	System high voltage protection (reserved)
P3	Overcurrent protection
P4	Discharge temperature protection
P5	Outdoor heat exchanger temperature(T3) protection
PR	Tripscan protection
PT	Indoor unit evaporator temperature protection

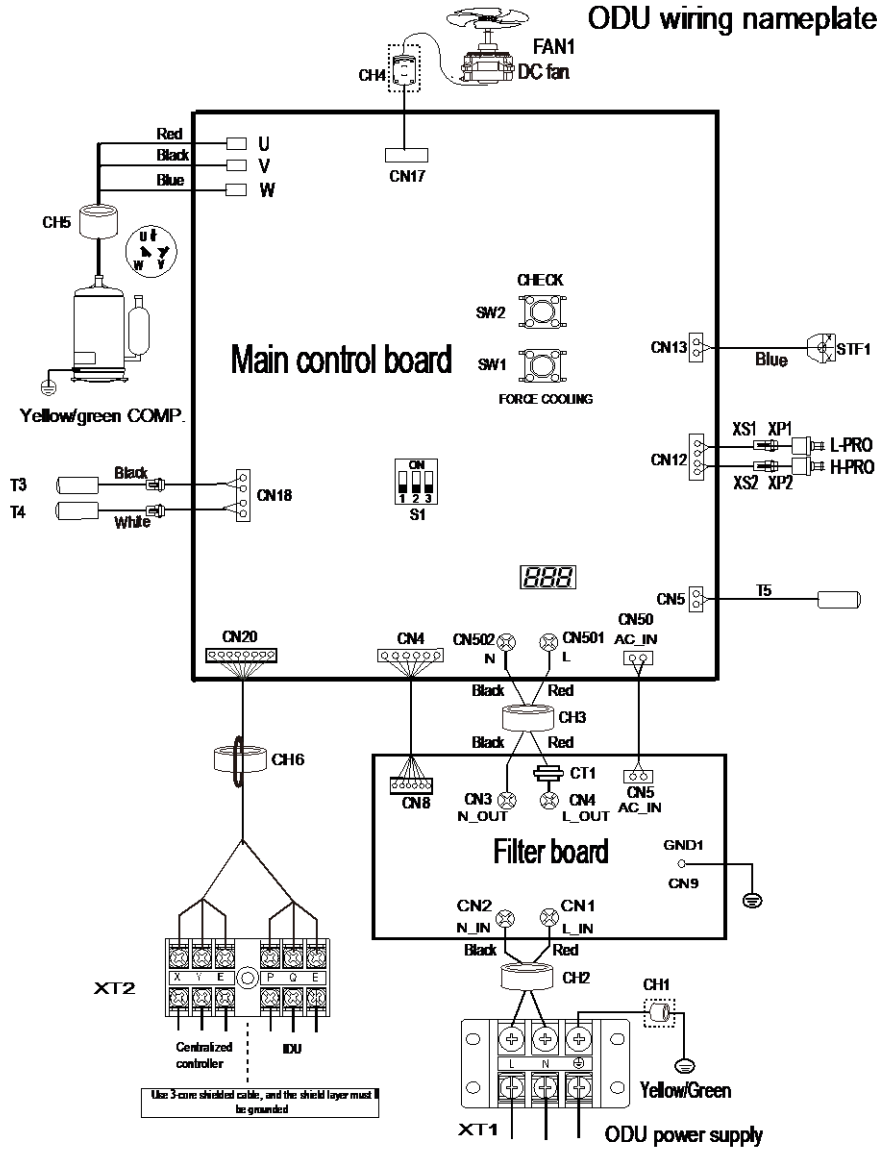
NO.	Remarks
normal display	Operating frequency
1	1 Operating mode
2	2 Operating fan speed and level
3	3 Total capacity requirement of indoor unit
4	4 Total corrected capacity requirement of outdoor unit
5	5 Main heat exchanger pipe (T3) temperature (°C)
6	6 Outdoor ambient (T4) temperature (°C)
7	7 Outdoor discharge (TP) temperature sensor
8	8 Medium temperature
9	9 TL Heat exchanger temperature sensor
10	10 Input current value
11	11 Input voltage value
12	12 DC voltage value
13	13 T2/T3 average temperature
14	14 Model index
15	15 System address
16	16 Progress version number
17	17 Last error or protection code
18	18 Display



Component code	Name	Component code	Name
BR	Rectifier bridge stacking	RL1	Main relay
CH1-CH8	Magnetic ring	STF1	4-way valve
COMP.	Compressor	T3	Outdoor condenser temperature sensor
D502,D503	Fast recovery diode	T4	Outdoor ambient temperature sensor
AP2	Spot check module	T5	Discharge temperature sensor
FAN	DC fan	TL	Refrigerant radiator temperature sensor
FUSE1-FUSE2	Fuse	AP1	Main control board
HS	Radiator	XT1	3-slot power supply terminal
H-PRO	High pressure protection switch	XT2	6-slot power supply terminal
L-PRO	Low pressure protection switch	XP,XS	Connecting terminal
L502,L503	PFC inductance	Q502,Q503	IGBT
IPM	Inverter module	NF	Filter assembly



ODU wiring nameplate



Error code	Error or protection definition
HF	IDU mismatching error
E9	ODU EEPROM error
E.9	Wrong compressor model in EPROM
H0	Communication error between main control board and IR341
E43	T3 sensor error
E44	T4 sensor error
E45	T5 sensor error
E5	Voltage protection error
E6	ODU DC fan error
PF	Electronic lock error
E2	IDU communication error
Eb	E6 error occurs six times in one hour, requiring power failure recovery
EF	PFC feedback resistance failure
PL	Heat sink/TF high temperature protection
P1	High pressure protection
P2	Low pressure protection
P3	Input current protection
P4	Discharge temperature protection
P5	Outdoor condenser/T3 high temperature protection
PE	Evaporator/T2 high temperature protection
L0	IPM protection
L1	DC bus low voltage protection
L2	DC bus high voltage protection
L4	MCE error
L5	Zero speed protection
L7	Phase loss
L8	Protection when the previous and next speed change is > 15 Hz
L9	Protection for a difference of > 15 Hz between the set speed and operating speed
H4	L (L0/L1) error occurs three times in one hour, reporting H4, and this error is not recoverable
F1	Detected DC bus voltage (P/N voltage) < 200 VDC for 1 SS after power-on
P8	Typhoon protection
EP	Ambient temperature less than or equal to 10°C in I cooling mode

SW2 spot check description:

No.	Displayed contents	Remarks
1	Operating mode	(0—Standby; 2—Out; 3—Heat; 4—Forced cool)
2	Operating fan speed	(0—Fan off)
3	Total IDU capacity requirement	
4	Capacity requirement for the modified ODU	
5	T3 tube temperature	Actual value
6	T4 ambient temperature	Actual value
7	T5 discharge temperature	Actual value
8	T1 module temperature	Actual value
9	Revised	
10	DC bus current value	Actual value
11	Actual voltage value	
12	DC bus voltage check	Actual value
13	T2 or T2B average temperature	Actual value
14	Model	
15	ODU address in the centralized control system	Valid at 0-7
16	Program version No.	
17	Last error or protection code	"m" displayed if not available
18	Display	

SW1		Press SW1 to enter the forced cooling function; press SW1 again to exit the forced cooling function.
SW2		Spot check button
S1		Forced implementation of old IDU protocol, valid at ON. Automatically adapting to IDU protocol, valid at OFF (default)

Component code	Description
XT1	3-slot power supply terminal
XT2	Communication Switching Board
CH1-CH6	Magnetic ring
COMP.	Compressor
CT1	AC current transformer
FAN1	DC fan
H-PRO	High pressure protection switch
L-PRO	Low pressure protection switch
STIF1	4-way valve
T3	Outdoor condenser temperature sensor
T4	Outdoor ambient temperature sensor
T5	Discharge temperature sensor

5. Electric Characteristics

Model	Power Supply ¹							Compressor		OFM	
Capacity	Hz	Volts	Min.volts	Max.volts	MCA ²	TOCA ³	MFA ⁴	MSC ⁵	RLA ⁶	kW	FLA
ICHD009-DMG026	50	220-240	198	264	8.8	10	16	/	5.6	0.02	0.6
ICHD012-DMG035	50	220-240	198	264	8.8	10	16	/	5.8	0.02	0.6
ICHD018-DMG053	50	220-240	198	264	12.9	14.5	20	/	7.85	0.05	0.71
ICHD024-DMG071	50	220-240	198	264	17.5	20	25	/	8.85	0.08	1.0
ICHD031-DMG090	50	220-240	198	264	23	25	32	/	11.8	0.08	1.0
ICHD036-DMG105	50	220-240	198	264	27	28.5	32	/	14.5	0.17	1.53
ICHD042-DMG120	50	220-240	198	264	27	28.5	32	/	23	0.17	1.53
ICHD048-DMG140	50	220-240	198	264	32	35.2	40	/	27.5	0.17	1.53
ICHD060-DMG160	50	220-240	198	264	33	35	40	/	27.1	0.17	1.53

Abbreviations:

MCA: Minimum Circuit Amps; TOCA: Total Over-current Amps; MFA: Maximum Fuse Amps; MSC: Maximum Starting Current (A); RLA: Rated Load Amps; FLA: Full Load Amps

Notes:

1. Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits. Maximum allowable voltage variation between phases is 2%.

2. Select wire size based on the value of MCA.

TOCA indicates the total overcurrent amps value of each OC set.

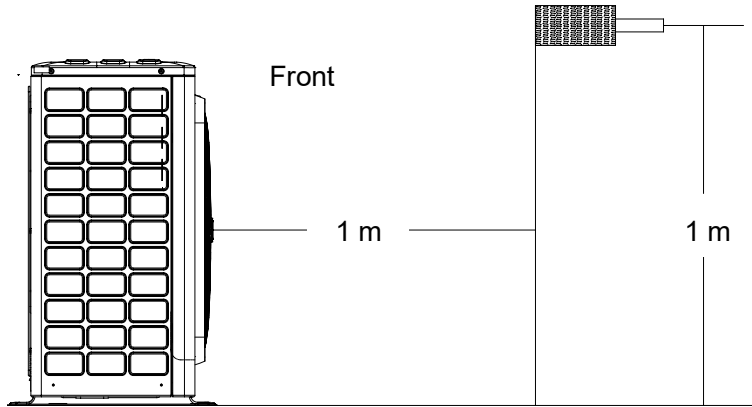
MFA is used to select overcurrent circuit breakers and residual-current circuit breakers.

MSC indicates the maximum current on compressor start-up in amps.

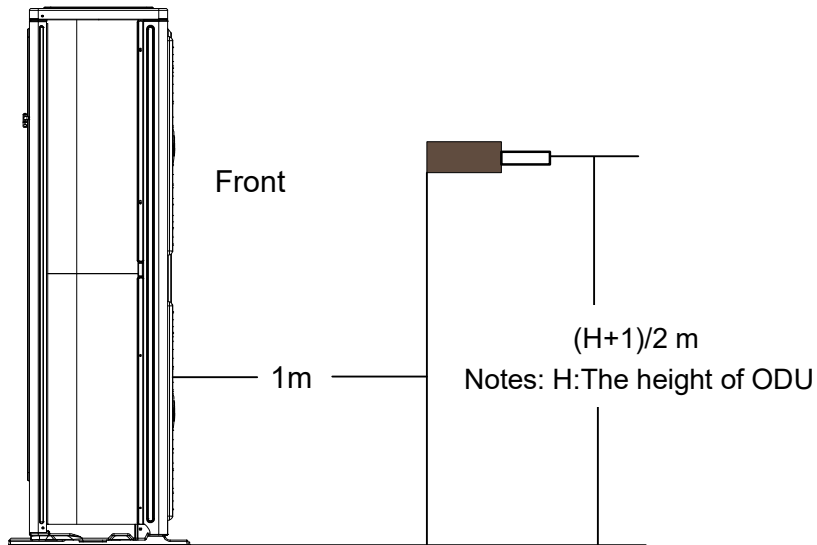
RLA is based on the following conditions: indoor temperature 27°C DB, 19°C WB; outdoor temperature 35°C DB.

6. Sound Levels

ICHD009, 012, 018, 024, 031, 036, 042, 048



ICHD060



Unit Number	Model	Noise Level (dB(A))
1	ICHD009J0A-DMG026	50
2	ICHD012J0A-DMG035	50
3	ICHD018J0A-DMG053	54
4	ICHD024J0A-DMG071	55
5	ICHD031J0A-DMG090	55
6	ICHD036J0A-DMG105	59
7	ICHD042J0A-DMG120	59
8	ICHD048J0A-DMG140	59
9	ICHD060J0A-DMG160	60

7. Accessories

Accessory name of outdoor unit	Qty.	Purpose
Seal ring	1	For drainage of ODU
Water outlet joint	1	



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