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INSTALLATION AND OPERATION MANUAL

Ducted fan coil units

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English

FWB

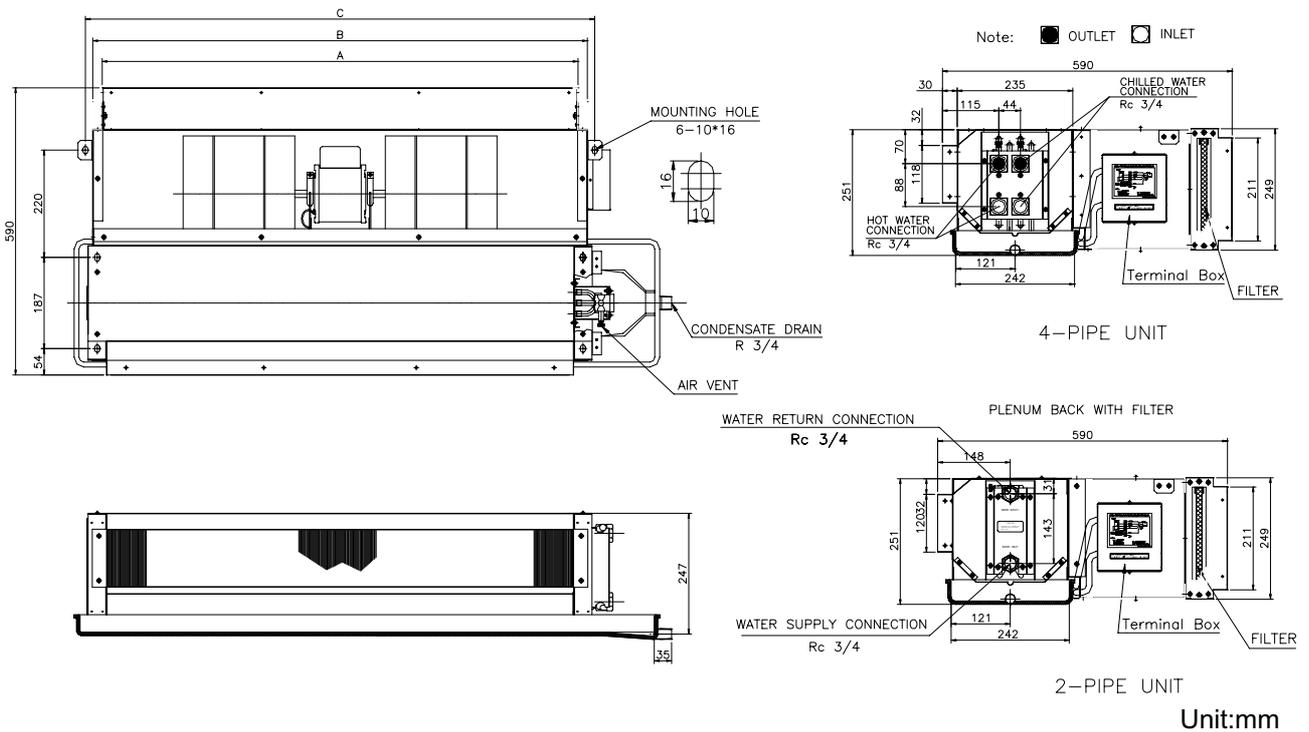


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OUTLINE AND DIMENSIONS

MODEL FWB		02JT	03JT	04/05 JT	06JT	07JT	09JT	10/11 JT
		02JF	03JF	04JF	06JF	07JF	08JF	10JF
A	mm	467	637	767	967	1217	1317	1577
B	mm	505	675	805	1005	1255	1355	1615
C	mm	535	705	835	1035	1285	1385	1645



SAFETY PRECAUTION

WARNING

- Installation and maintenance should be performed by qualified persons who are familiar with local code and regulation, and experienced with this type of appliance.
- All field wiring must be installed in accordance with the national wiring regulation.
- Ensure that the rated voltage of the unit corresponds to that of the name plate before commencing wiring work according to the wiring diagram.
- The unit must be GROUNDED to prevent possible hazard due to insulation failure.
- All electrical wiring must not touch the water piping or any moving parts of the fan motors.
- Confirm that the unit has been switched OFF before installing or servicing the unit.
- Risk of electric shock, can cause injury or death. Disconnect all remain electric power supplies before servicing.
- DO NOT pull out the power cord when the power is ON. This may cause serious electrical shocks which may result in the fire hazards.
- Keep the indoor and outdoor units, power cable and transmission wiring, at least 1m from TVs and radios, to prevent distorted pictures and static. {Depending on the type and source of the electrical waves, static may be heard even when more than 1m away}.

CAUTION

Please take note of the following important points when installing.

- **Ensure that the drainage piping is connected properly.**
 If the drainage piping is not connected properly, it may cause water leakage which will dampen the furniture.
- **Sharp edges and coil surfaces are potential locations which may cause injury hazards. Avoid from being in contact with these places.**
- Tightening torque should not be too high when connecting water pipes, in order to avoid brass deformation or water-leakage by torsion split.
- Water coil not used during winter season shall be drained, or anti-freezing solution shall be added to the water circuit to avoid freezing.
- **Before turning off the power supply set the remote controller's ON/OFF switch to the "OFF" position to prevent the nuisance tripping of the unit.** If this is not done, the unit's fans will start turning automatically when power resumes, posing a hazard to service personnel or the user.
- **Ensure the color of wires of the outdoor unit and the terminal markings are same to the indoors respectively.**
- **IMPORTANT: DO NOT INSTALL OR USE THE AIR CONDITIONER UNIT IN A LAUNDRY ROOM.**

NOTICE

Disposal requirements

Your air conditioning product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the air conditioning system, treatment of the refrigerant, of oil and of other parts must be done by a qualified installer in accordance with relevant local and national legislation. Air conditioners must be treated at a specialized treatment facility for re-use, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

Batteries must be removed from the remote controller and disposed of separately in accordance with relevant local and national legislation.



General features and technical data

Their quiet operation, compact dimensions and particularly low height, make units ideal for false ceiling installation even in vintage buildings with narrow ceiling spaces. Units are standard supplied with sound proofed suction plenum, air filter and extra-long drain pan. Centrifugal fans, with forwards curved blades, are statically and dynamically balanced and moved by single-phase motor with three speeds (standard) plus one (optional).

The availability of 2&4 pipe versions, the possibility to change connection side on field and accessories like electronic thermostat and water on/off valves, provides the maximum flexibility and ease of installation.

MODELS FWB (2 PIPES)			02JT	03JT	04JT	05JT	06JT	07JT	08JT	09JT	10JT	11JT
Nominal Air Flow	S.High	m³/h	331	548	715	667	982	1241	1238	1323	1837	1695
	High	m³/h	262	428	431	428	757	945	950	1066	1463	1341
	Medium	m³/h	219	357	323	325	596	756	764	882	1171	1210
	Low	m³/h	187	304	248	255	476	628	633	733	946	1093
External static pressure		Pa	30									
Power Input		W	41	61	76	73	106	144	140	157	201	203
Cooling capacity	Total capacity	kW	2.18	3.10	4.13	4.59	5.79	6.42	7.56	8.55	9.84	10.66
	Sensible capacity	kW	1.38	2.27	2.94	3.08	4.22	5.21	5.54	6.08	7.65	7.82
Heating capacity		kW	2.94	4.32	5.71	5.92	7.69	9.15	10.09	11.52	13.73	14.13
Water flow	Cooling	l/h	386	549	739	803	1022	1109	1338	1523	1764	1910
Water pressure drop	Cooling	kPa	11	8	16	11	31	13	8	10	22	17
	Heating	kPa	9	7	13	9	26	11	7	9	19	14
Fan	Type	Direct driven centrifugal fan (forward-curved blades); hot-galvanised steel										
	Fan Speed	4 steps:super high, high, medium, low										
	Quantity	1	1	2	2	2	3	3	3	4	4	
Motor	Type	Single phase capacitor running										
Air filter		Washable Nylon in 8mm Aluminium frame										
Power supply	V / Ph / Hz	220-240 / 1 / 50										

Rating Conditions:

The nominal air flow, power input and capacity test is under the power supply of 220V/1Ph/50Hz.

Nominal Air Flow: with plenum and filter, no water supply, ambient air temperature between 10 and 30°C

Power input: S.High fan speed

Cooling capacity: 7/12°C inlet/outlet water temperature, 27°C DB/19°C WB air temperature, S.High fan speed

Heating capacity: 50°C inlet water temperature, 20°C DB inlet air temperature, water flow rate same as for the cooling test, S.High fan speed

Heating capacity for additional heat exchanger: 70°C inlet water temperature, water temperature decrease 10°C , 20°C DB inlet air temperature, S.High fan speed

MODELS FWB (4 PIPES)			02JF	03JF	04JF	06JF	07JF	08JF	10JF
Nominal Air Flow	S.High	m³/h	327	526	684	944	1200	1379	1738
	High	m³/h	220	424	437	747	898	1112	1385
	Medium	m³/h	218	350	326	597	737	920	1115
	Low	m³/h	184	301	251	489	599	777	916
External static pressure		Pa	30						
Power Input		W	40	58	74	103	141	160	200
Cooling capacity	Total capacity	kW	2.18	3.10	4.09	5.70	6.41	7.40	9.59
	Sensible capacity	kW	1.36	2.22	2.85	4.16	5.05	5.84	7.60
Heating capacity	3 Rows	kW	2.86	4.37	5.44	7.66	9.31	10.59	13.32
	Add Heat.Ex,1Row	kW	3.07	4.48	5.69	7.66	9.50	10.74	13.15
Water flow	Cooling	l/h	386	530	724	986	1138	1296	1660
	Add. Heat exch.	l/h	269	391	493	663	820	924	1142
Water pressure drop	Cooling	kPa	11	8	16	30	9	12	19
	Heating	kPa	9	7	13	24	8	10	16
	Add. Heat exch.	kPa	11	25	42	82	25	31	50
Fan	Type	Direct driven centrifugal fan (forward-curved blades); hot-galvanised steel							
	Fan Speed	4 steps:super high, high, medium, low							
	Quantity	1	1	2	2	3	3	4	
Motor	Type	Single phase capacitor running							
Air filter		Washable Nylon in 8mm Aluminium frame							
Power supply	V /Ph / Hz	220-240 / 1 / 50							

Rating Conditions:

The nominal air flow, power input and capacity test is under the power supply of 220V/1Ph/50Hz.

Nominal Air Flow: with plenum and filter, no water supply, ambient air temperature between 10 and 30°C

Power input: S.High fan speed

Cooling capacity: 7/12°C inlet/outlet water temperature, 27°C DB/19°C WB air temperature, S.High fan speed

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Operating limits

OPERATING LIMITS	
Maximum water-side pressure	16 bar
Minimum entering water temperature	3°C
Maximum entering water temperature	95°C
Minimum air inlet temperature	5°C
Maximum air inlet temperature	43°C
Power supply	220-240V/ 1Ph / 50Hz

INSTALLATION

RECEIVING

All units leaving the factory have been inspected to ensure the shipment of high quality products and reasonable means are utilized to properly pack the fan coil units to protect them in transit.

Carefully inspect all shipments immediately upon delivery. When damage is visible, note this fact on the carrier's freight bill and request that the carrier send a representative to inspect the damage. This may be done by telephone or in person, but should always be confirmed in writing.

The shipment should be unpacked in the presence of the agent so that the damage or loss can be determined. The carrier's agent will make an inspection report and a copy will be given to the consignee for forwarding to the carrier with a formal claim.

LOCATION

Before installation, please check the following:

1. There must be enough space for unit installation and maintenance. Please refer to the outline and dimensions and fig.1 for the minimum distance between the unit and obstacle.
2. In case of installation in free blow, the unit must be installed at a minimum height of 2.5m to avoid contact with the appliance.
3. Please ensure enough space for piping connection and electrical wiring.
4. Please make sure that the hanging rods can support weight of the unit.

INSTALLATION

1. The unit is designed for concealed ceiling installation.
2. There are holes on the top of the unit for hanging. Please refer to Fig.1, Fig.2 and Fig.3.
3. Make sure that the top of the unit is level.

INSULATION

1. The insulation design and materials should be complying with local and national codes and regulations.
2. Chilled water pipes and all parts on the pipes should be insulated.
3. It is also necessary to insulate the air duct.

Fig. 1

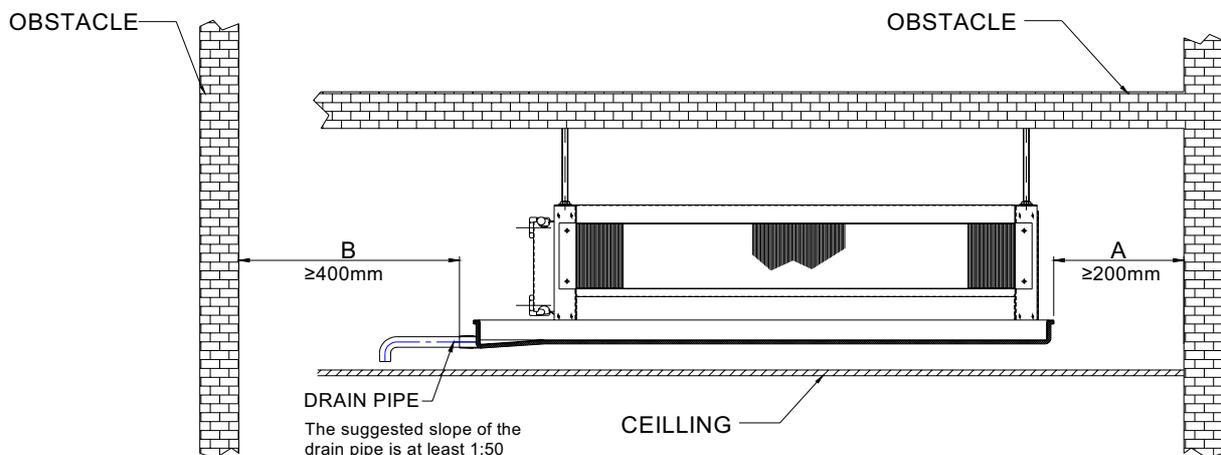


Fig. 2 WITH AND WITHOUT PLENUM FORM:

NOTE:

Dimension M and N was determined by air duct design, air duct should be fire-proof, refer to concerned country national and local regulations. Circulatory air pressure drop should be approximately equal to the External Static Pressure.

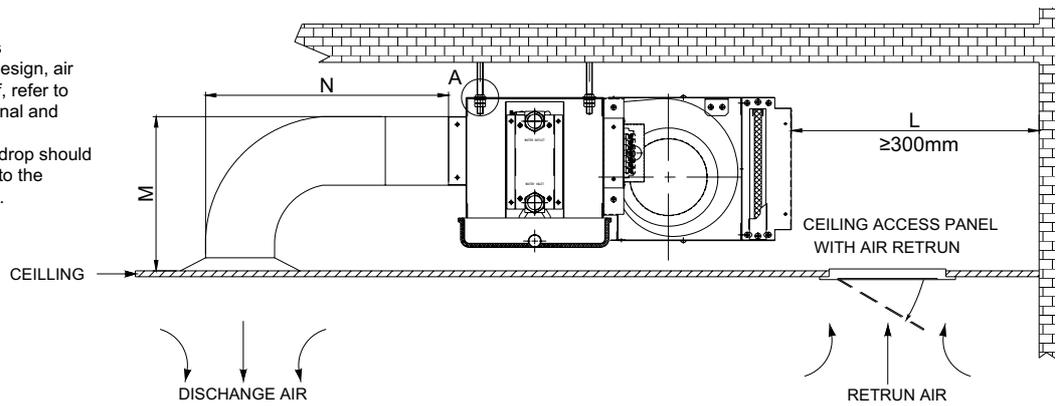
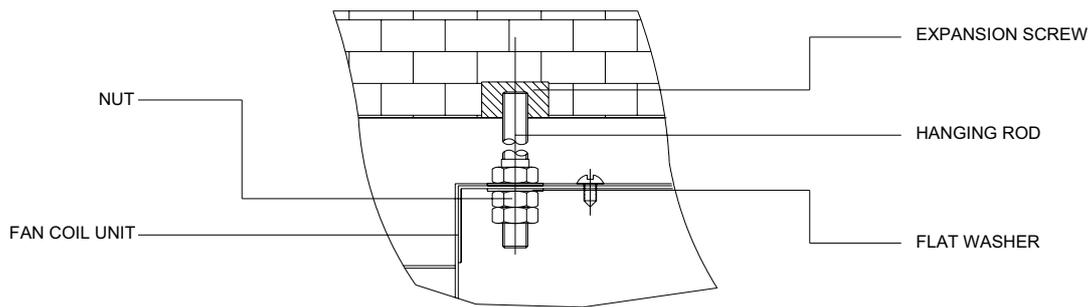


Fig.3 DETAIL A:



Detail A

AIR DUCT CONNECTION

1. Circulatory air pressure drop should be within External Static Pressure.
2. Galvanized steel air ducts are suitable.
3. Make sure there is no leak of air.
4. Air duct should be fire-proof, refer to concerned country national and local regulations.

PIPE CONNECTION

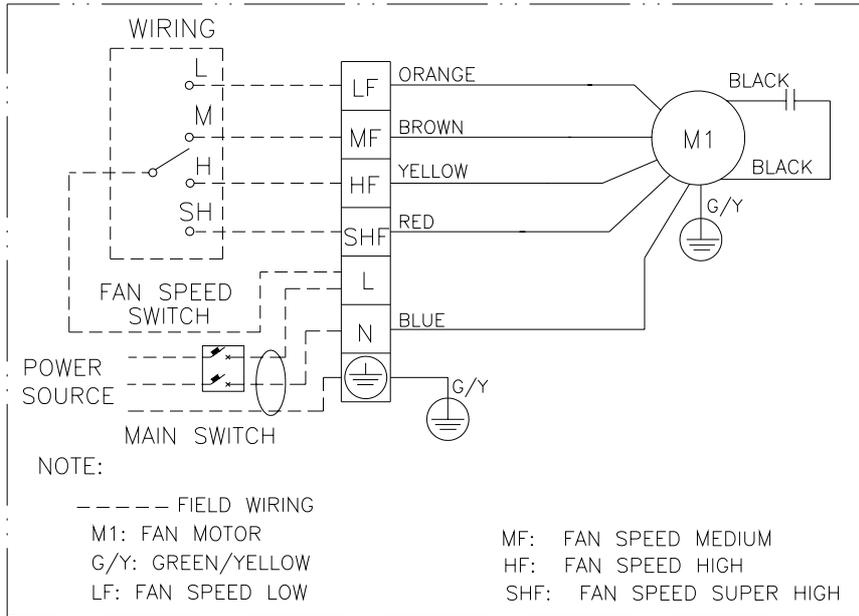
1. Using suitable fittings as water pipe connections with reference to the outline and dimensions.
2. The water inlet is on the bottom while outlet on top.
3. The connection must be concealed with rubberized fabric to avoid leakage.
4. Drain pipe can be PVC or steel.
5. Tightening torque should not be too high when connecting water pipes, in order to avoid brass deformation or water-leakage by torsion split.
6. The suggested slope of the drain pipe is at least 1:50.

WIRING

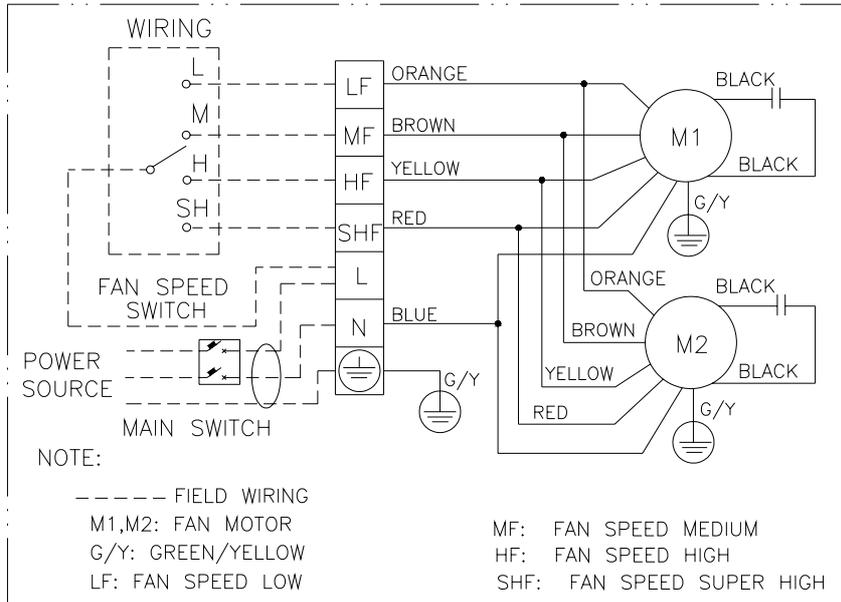
1. Wiring connection must be done according to the wiring diagram on the unit.
2. The unit must be GROUNDED well.
3. An appropriate strain relief device must be used to attach the power wires to the terminal box.
4. A 7/8" hole is designed on the terminal box for field installation of the strain relief device.
5. Field wiring must be complied with the national security regulations.
6. A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with the relevant local and national legislation.

ELECTRICAL WIRING CONNECTION

MODELS	FWB 02J~06J T/F
	2 PIPES & 4 PIPES



MODELS	FWB 07J~11J T/F
	2 PIPES & 4 PIPES



Model	FWB	
Voltage range**	220V-240V/1Ph/50Hz	
Recommended fuse*	A	2
Power supply cable size*	mm ²	1.5
Number of conductors	3	

* These values are for information only. They should be checked and selected to comply with local and national codes and regulations. They are also subject to the type of installation and size of conductors.

** The appropriate voltage range should be checked with label data on the unit. A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation

VALVES KIT FEATURES

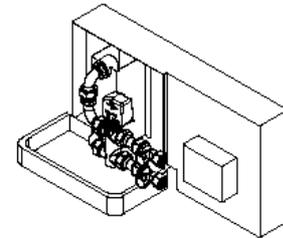
The 3-way motorized ON/OFF valve kit, connected to the Daikin controllers, permits to set the room temperature by cutting off the water flow to the heat exchanger.

The kit is available in various fittings for all FWB units, both for 2-pipe and for 4-pipe systems.

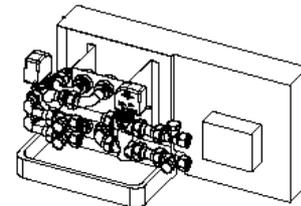
The KIT Consist Of

- **3-way valve body with 4 connections** with built-in by-pass made of brass, maximum working pressure 16 bar.
- **Electro thermal actuator** having the following specifications:
 - power supply: 220-240 V,
 - activation: ON/OFF,
 - total opening time: 4 minutes.
- **Hydraulic kit** for the installation of the valve on the heat exchanger, complete with 2 regulating valves for adjusting the water flow and for closing the water circuit when performing maintenance to the unit.
- **Bushing** for routing the cables of the actuator inside the unit.

Thermal insulation to prevent condensation on the valve kit when it operates in cooling mode (only the valve of the standard heat exchanger can work in cooling mode).



Valve Kit for 2-Pipe system



Valve Kit for 4-Pipe system

The flow resistance of the connecting valve/hydraulic kit assembly is obtained from the following formula:

$$\Delta P_w = (Q_w / K_v)^2$$

Where:

ΔP_w is the flow resistance expressed in kg/cm²

Q_w is the water flow rate expressed in m³/h

K_v is the flow rate identified in the table

Valve	K_v Direct Passage	K_v By-Pass
1/2"	1.7	1.2
3/4"	2.8	1.8

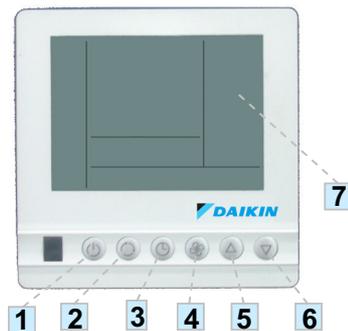
CONTROL FEATURES

ELECTRONIC THERMOSTAT EC8100A + REMOTE CONTROL RC8100A

Location	Wall Mounted
Parameters	On/Off
	Temperature
	Fan Speed
	Auto Fan Speed selection
	Date / Time setting
	Mode
Main Functions	Selectable Temperature Operation range: 16-30°C
	Automatic re-start with memory settings
	Heating/Cooling change-over based on system control input
	Auto-diagnosis
	Automatic On/Off setting for each day in a week
	Air sensor control
	2 or 3 ways Valves with ON/OFF control
	Remote control – max. distance: 2.5 meters

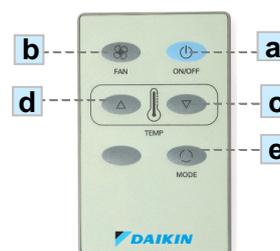
ELECTRONIC THERMOSTAT EC8100A

- 1 On/Off key
- 2 Heating/Cooling mode key
- 3 Clock/Timer setting
- 4 Fan Speed selection key (HIGH/MEDIUM/LOW/AUTO)
- 5 Temperature up key
- 6 Temperature down key
- 7 Back-light LCD Display



REMOTE CONTROL RC8100A

- a On/Off key
- b Fan Speed selection key (HIGH/MEDIUM/LOW/AUTO)
- c Temperature up key
- d Temperature down key
- e Heating/Cooling mode key



SERVICE AND MAINTENANCE

For safety reasons, before carrying out any maintenance or cleaning operation, turn off the unit and cut the voltage by turning the line switch to OFF.

Maintenance

The maintenance operations for the FWB air conditioner and hot-air heating units are limited to the periodic cleaning of the air filter and the heat exchanger, and the checking of the working efficiency of the condensate discharge.

Only skilled personnel may perform the maintenance.

Pay utmost attention during the maintenance operations: accidentally coming into contact with some of the metallic parts might cause injuries, therefore use safety work gloves.

Every time the units are started after a long idle period, make sure that air is NOT present in the heat exchanger.

The motor is maintenance-free since it is equipped with self lubricating bearings.

Cleaning the air filter

Cut voltage to the unit by turning the line switch to OFF.

For cleaning the air filter proceed as follows:

Access the equipment through the inspection panel and remove the air filter by unscrewing the fixing knobs.

Wash the filter with lukewarm water or, for dry powders, with compressed air.

Reassemble the filter after having it dried up.

Cleaning the heat exchanger

It is advisable to check the condition of the heat exchanger before the start of the summer season. Also check if the fins are not clogged by impurities.

To access the heat exchanger, remove the drain pan and the drain guide. Upon having accessed the heat exchanger, clean with compressed air or low pressure steam, without damaging the fins of the heat exchanger.

Before operating it in the summer, check the condensate discharges regularly.

Trouble shooting

If the unit does not work properly, first check the points reported in the table below before requesting service.

If the problem cannot be solved, contact your dealer or service centre.

Symptom 1: The unit does not run at all

POSSIBLE CAUSES	CORRECTIVE ACTION
Power failure	Restore power
The automatic circuit breaker tripped	Contact service centre
The switch is on Off position	Turn On the unit, select On

Symptom 2: Poor cooling or heating performance

POSSIBLE CAUSES	CORRECTIVE ACTION
Dirty or clogged air filter	Clean the air filter
Obstacle near the air inlet or outlet	Remove the obstacle
Air inside the heat exchanger	Contact the installer
Doors and windows are open	Close doors and windows
The unit is running at low speed	Select medium or high fan speed

Symptom 3: The unit leaks

POSSIBLE CAUSES	CORRECTIVE ACTION
The unit is not installed with the correct inclination	Contact the installer
The condensate discharge is clogged	Contact the installer

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