

# ERVD-ERVB Series

## Energy Recovery Ventilator

### Service Manual

**220~240V/1/50Hz**



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## 1. Product Schedule

Model	Air volume	Net dimension	Net weight	Power supply
	(m <sup>3</sup> /h)	(L×W×H) (unit: mm)	(kg)	
ERVD010A3N-DCN020	200	866×655×264	23	220V-1Ph-50Hz
ERVD015A3N-DCN030	300	944×722×270	26	220V-1Ph-50Hz
ERVD020A3N-DCN040	400	944×927×270	31	220V-1Ph-50Hz
ERVD030A3N-DCN050	500	1038×1026×270	41	220V-1Ph-50Hz
ERVD050A3N-DCN080	800	1286×1006×388	62	220V-1Ph-50Hz
ERVD060A3N-DCN100	1000	1286×1256×388	79	220V-1Ph-50Hz
ERVB090A3N-DCN150	1500	1600×1270×540	163	380V-3Ph-50HZ
ERVB120A3N-DCN200	2000	1650×1470×540	182	380V-3Ph-50HZ

## 2. External appearance

ERVD- 020, 015, 020, 030, 050, 060



ERVB - 090, 120



## 3. Features

HRV (Heat Recovery Ventilator) employ advanced technique and technics, the heat exchanged core forming by special paper that be processed with chemical treatment, which could create the optimum result in temperature, humidity and cooling recovery.

High efficiency heat exchanged core: When air flow formed by exhaust air and outdoor air through the heat exchanged core in cross way, because of temperature difference in the two sides of flat partition board, the heat transmission is occurred. In summer, outdoor air acquire cooling from air exhaust to decrease environment temperature; In winter, outdoor air acquire heating from air exhaust to increase temperature, that is to say, it realizing the energy recovery during air exhaust process to exchange the heating in heat exchanged core to outdoor air.

- Energy saving

Fresh-air and exhaust air are crossed through the exchanger. Temperature exchange was happened in the heat recovery ventilator. Fresh-air can beget a great deal of energy from exhaust air.

Adopt centrifugal fan with lower power consumption and longer air supply distance; Easy control, operation friendly.

- High efficiency

Adopt high quality heat-exchange core which makes small air resistance.

Optional sprayer can increase heat-exchanger efficiency.

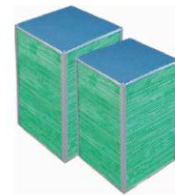
- Low noise

Add sound absorption material, quiet operation.

- Flexible multi control ways

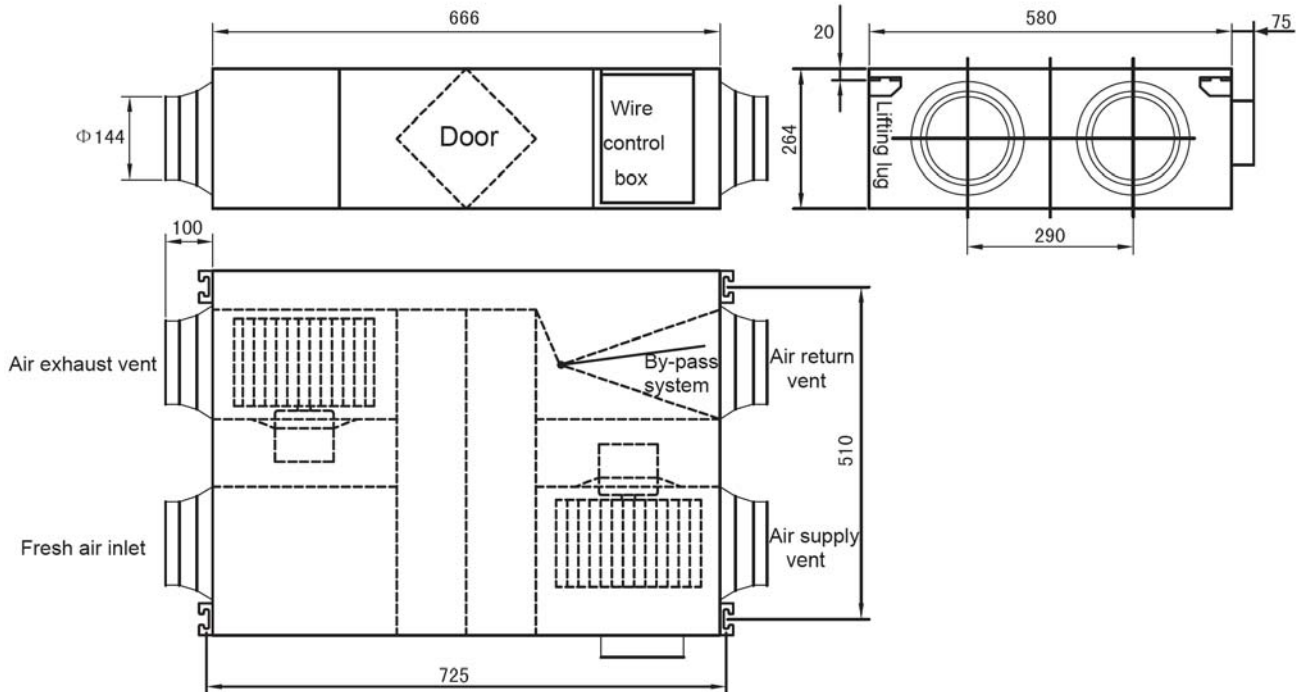
It can be controlled together with other indoor units.

- Compact design, easy installation and maintenance.

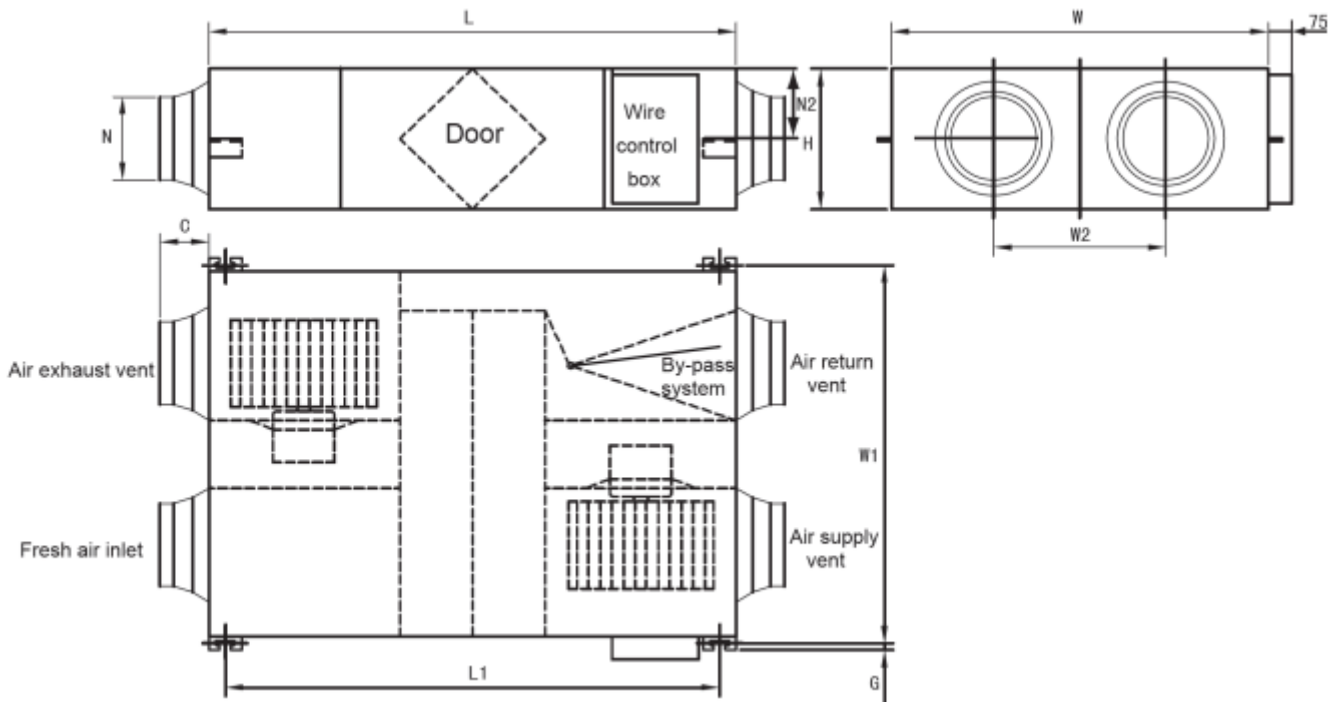


## 4. Dimensions

ERVD010

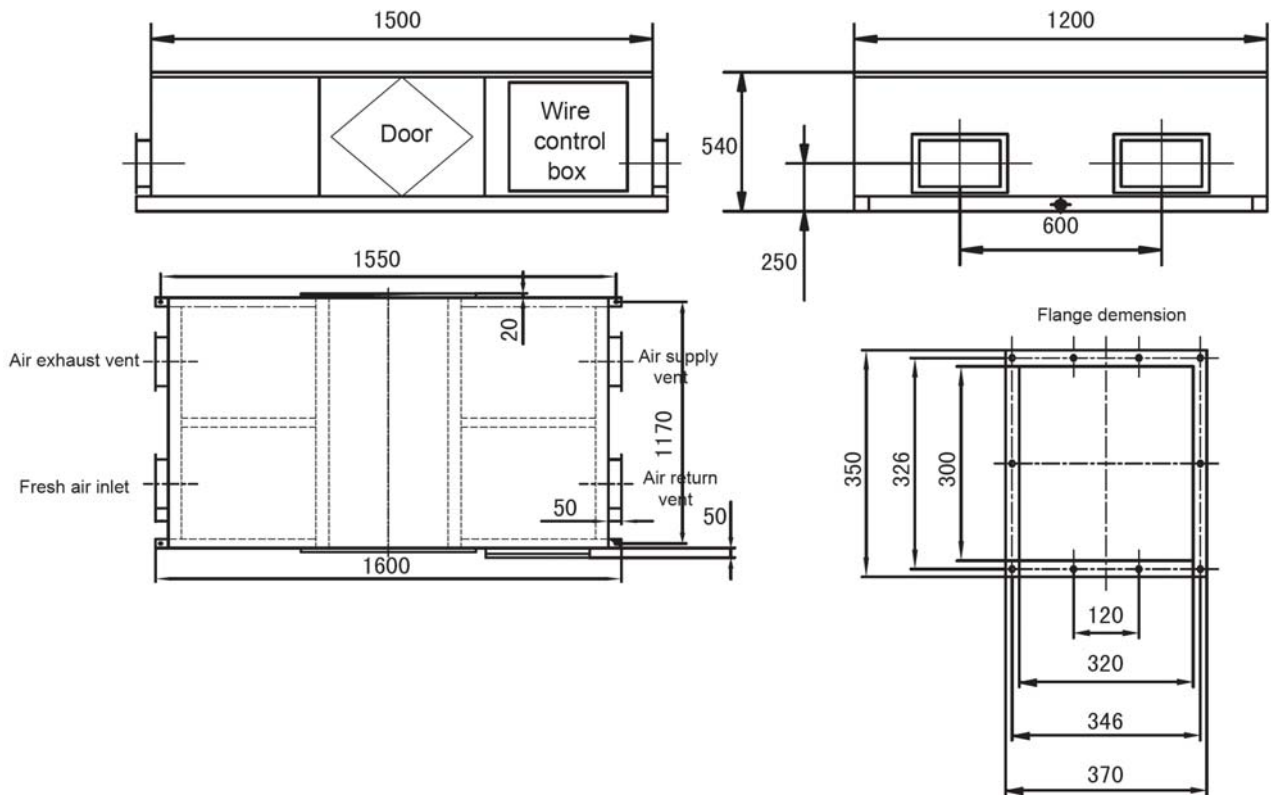


ERVD015, ERVD020, ERVD030, ERVD050, ERVD060

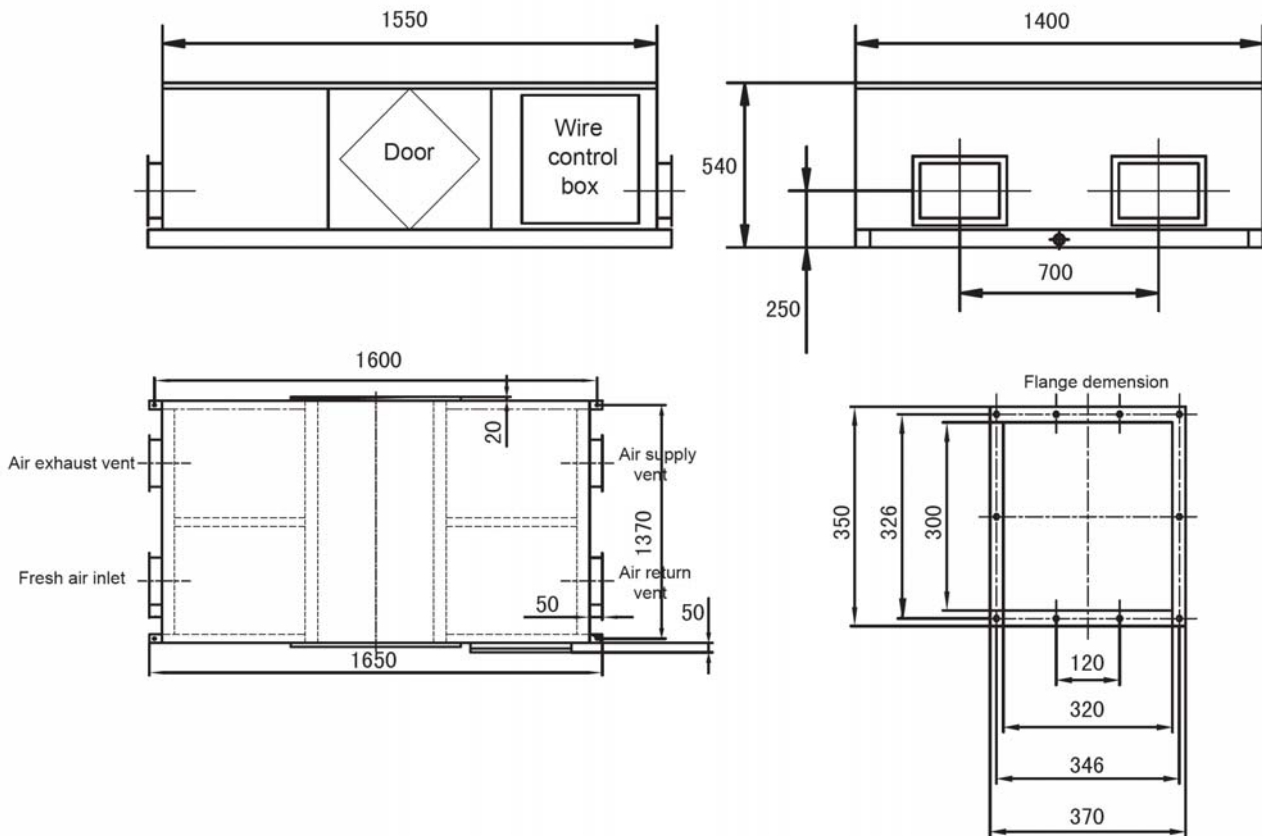


Model	L	L1	W	W1	W2	H	C	G	N	N2
ERVD015A3N	744	675	599	657	315	270	100	19	Φ144	111
ERVD020A3N	744	675	804	862	480	270	100	19	Φ144	111
ERVD030A3N	824	754	904	960	500	270	107	19	Φ194	111
ERVD050A3N	1116	1045	884	940	428	388	85	19	Φ242	170
ERVD060A3N	1116	1045	1134	1190	678	388	85	19	Φ242	170

ERVB090A3N-DCN150

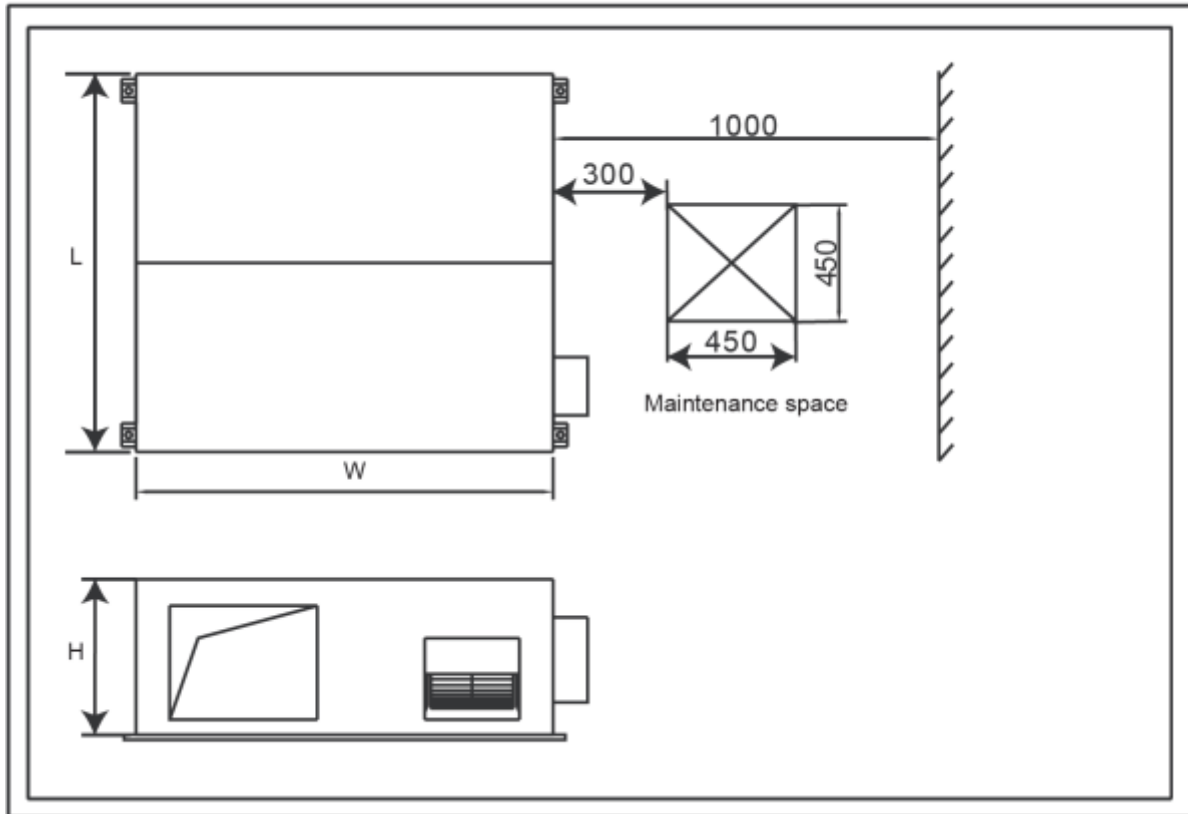


ERVB120A3N-DCN200



## 5. Maintenance Spaces

Unit: mm



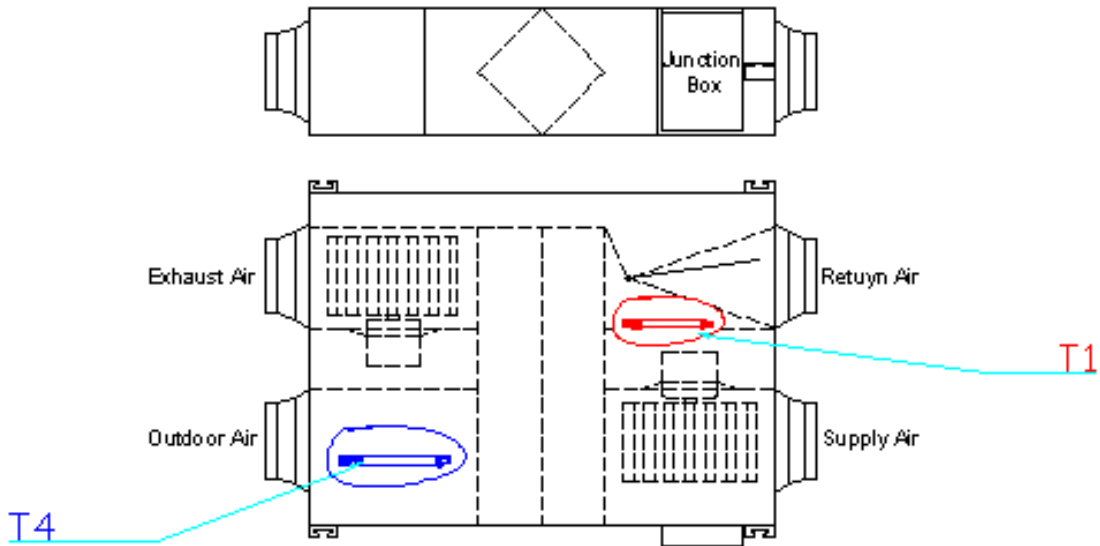
## 6. Troubleshooting

### 6.1 Lamp flashes

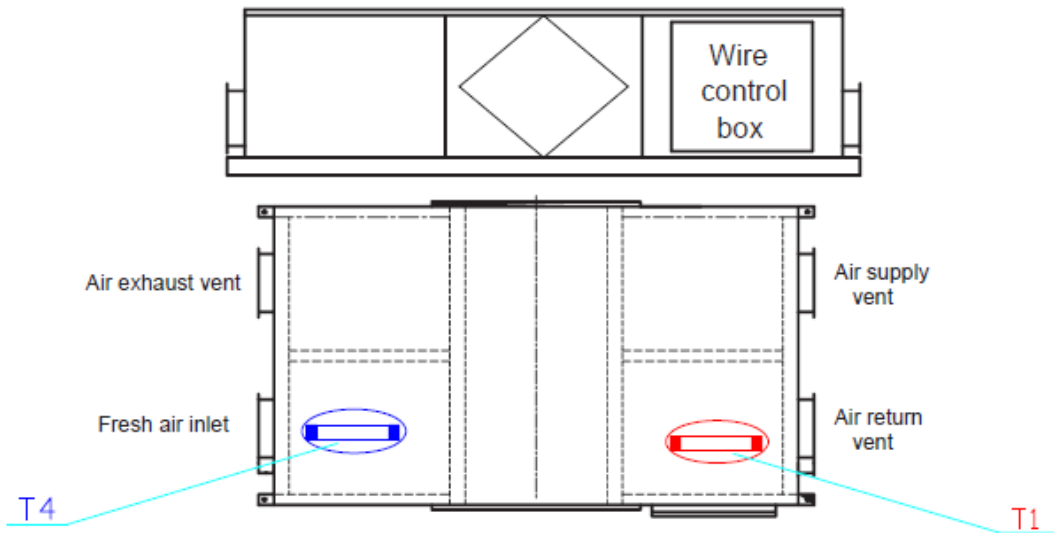
No.	Operation lamp	Timerlamp	Defrosting lamp	Alarmlamp	Explanation
1	★	○	○	○	T4 sensor error
2	★	★	○	○	T1 sensor error
3	★	○	★		Current protection
4	★	○	○	★	Phase absent, phase error

**Note:** ●: Light, ○: Extinguish, ☆: Slow flash, ★: Quick flash

ERVD010, ERVD015, ERVD020, ERVD030, ERVD050, ERVD060



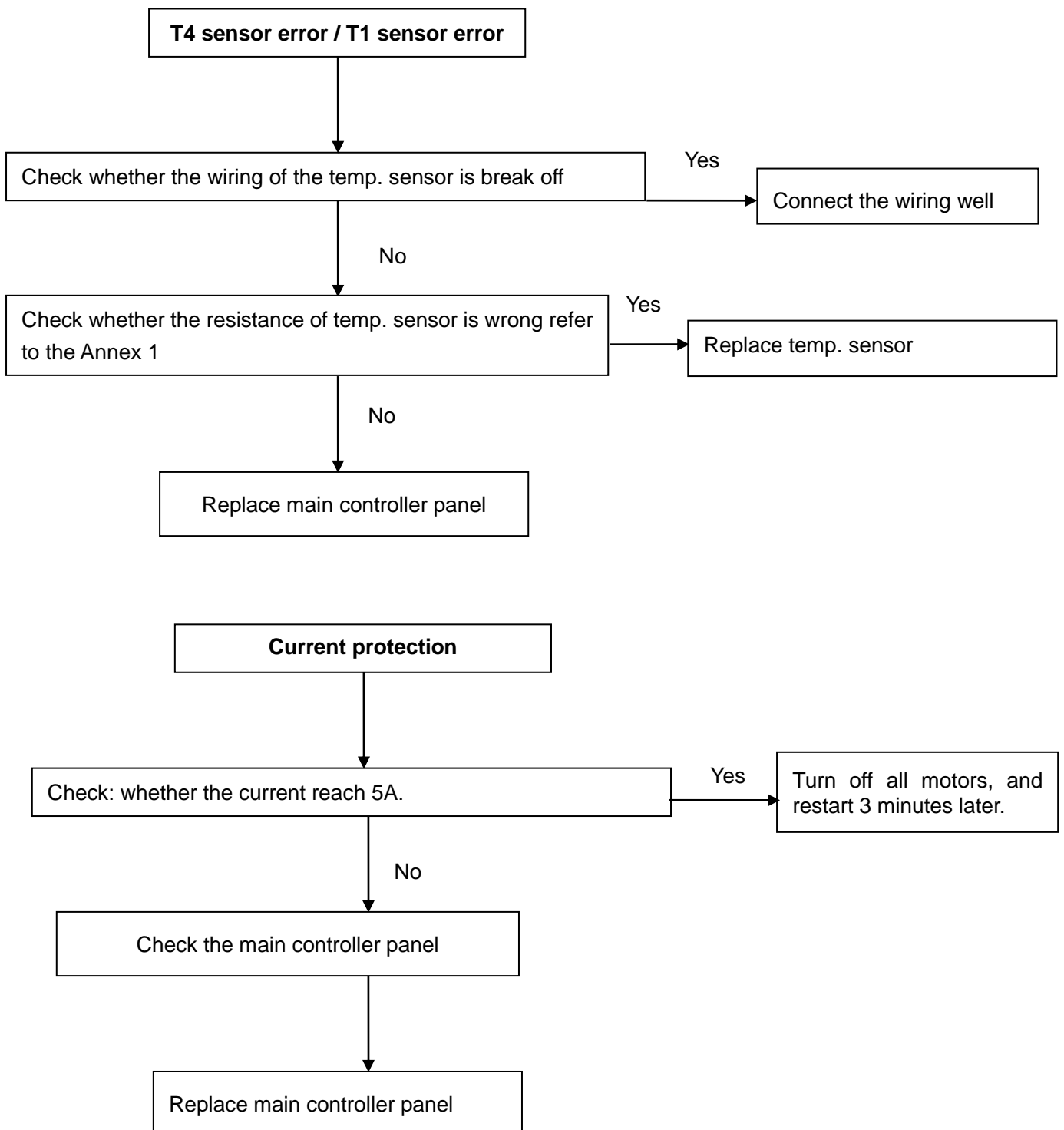
ERVB090, ERVB120



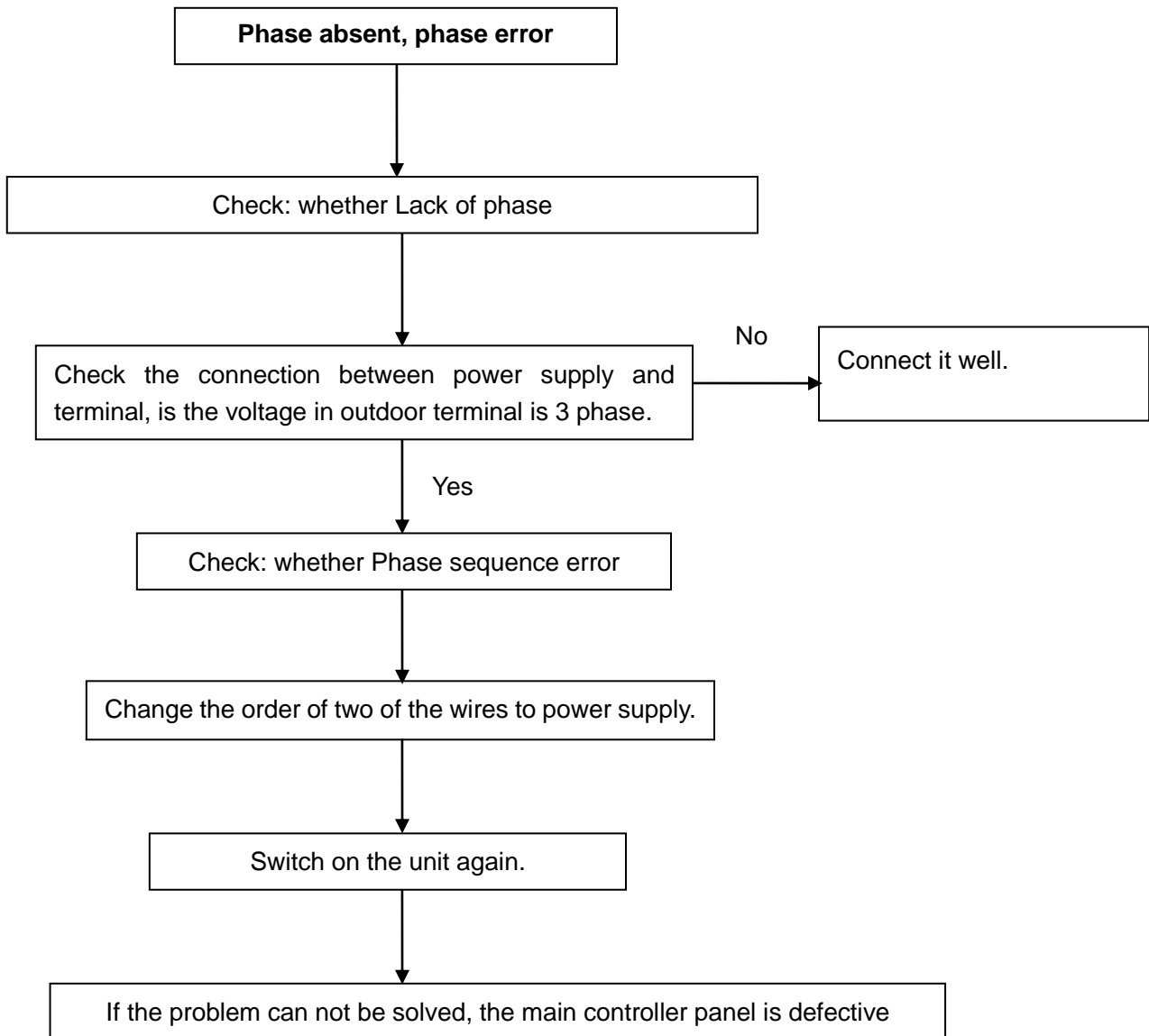
T1 temperature sensor: site at the return air cavity.

T4 temperature sensor: site at the outdoor air inlet cavity.

## 6.2 Troubleshooting



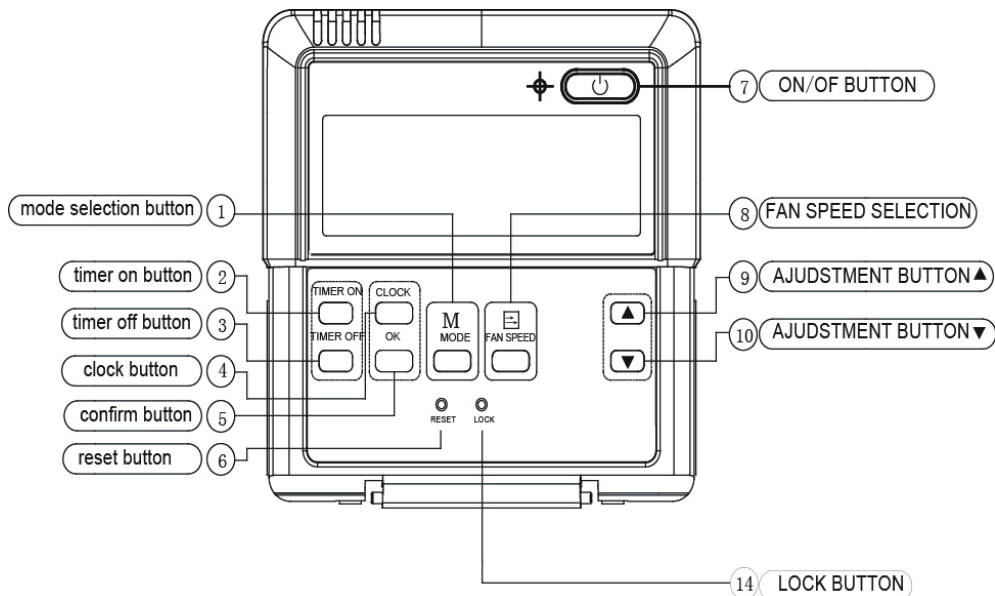




## 7. Maintenance

1. During new use stage, one should check the fan operation regularly.
2. The cleaning regulation for filter mesh depends on local environment. It could be clean by vacuum dirt exhauster or water, if heavy dust accumulates, it should use neutral detergent to clean it, and then dry it in shady and cool place for 20 to 30 minutes and replace it.
3. Clean the core at least 2 years a time by vacuum dirt exhauster to remove dust and foreign substance in the unit assemblies, do not touch the assemblies by exhauster and flush by water to avoid core damage.
4. Check the fan every half a year to maintain the well balance of it and check whether the axletree has loosed.

## 8. Controller



The basic operation conditions of wired controller are as follows:

1. The range of power supply voltage: the voltage input is 5V DC.
2. Ambient temperature range:  $-15^{\circ}\text{C} \sim +43^{\circ}\text{C}$ .
3. Ambient humidity range: RH40% ~ RH90%.
4. The safety certification of electric control should conform to GB4706.32-2004, GB/T7725-2004.

### 17.1 Name and functions of buttons on wired controller

#### 1 Mode selection button:

It is used to select mode, push the button one time, then the operation modes will change in turn as follows: AUTO→HEAT RECOVERY→EXHAUST→BYPASS→SUPPLY

#### 2 Timer on button:

Push the button to set TIMER ON, each time you push the button the time moves forward by 0.5 hours. When the set time is over 10 hours, each time you push the button the time moves forward by 1 hour. If want to cancel the TIMER ON, then adjust the time of TIMER ON as 0.0

#### 3 Timer off button:

Push the button to set TIMER OFF, each time you push the button the time moves forward by 0.5 hours. When the set time is over 10 hours, each time you push the button the time moves forward by 1 hour. If want to cancel the TIMER OFF, then adjust the time of TIMER OFF as 0.0

#### 4 CLOCK button:

Normally display the clock set currently (display 12:00 for the first electrifying or resetting). When push the button for 4 seconds, the hour part on the clock display flashes every 0.5 seconds, then push button ▲ and ▼ to adjust hour; Push the button CLOCK again, the minute part flashes every 0.5 seconds, then push and button to adjust minute. When set clock or alter clock setting, must push the confirm button to complete the setting.

#### 5 Confirm button:

The button is used at the state of CLOCK adjustment. After select the time, push the button to confirm then exit, the current clock will display.

#### 6 RESET button (hidden):

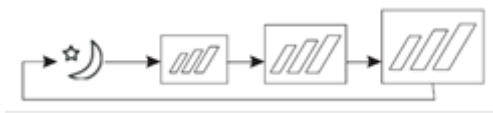
Use a small stick with a diameter of 1mm to push the RESET button to cancel the current settings and get into the condition of resetting

#### 7 ON/OFF button:

Push the button at the condition of OFF, the OPERATION lamp lights, and the wire controller enters into ON operation, simultaneously sends the information of operation mode set currently, temperature, fan speed, timer etc. Push the button at the condition of ON, the OPERATION lamp extinguishes simultaneously sends the OFF. If having set TIMER ON or TIMER OFF, the wire controller will cancel these settings before entering into OFF, close the concern indicator, and then send the OFF information.

#### 8 Fan speed selection button (FAN SPEED)

Select any one fan speed from "☾", "LOW", "MED", and "HIGH". Each time push the button, the fan speed will change in turn as follow.



**9 Adjustment button:**

The button is only for time adjustment. Push the ▲ button, time increases.

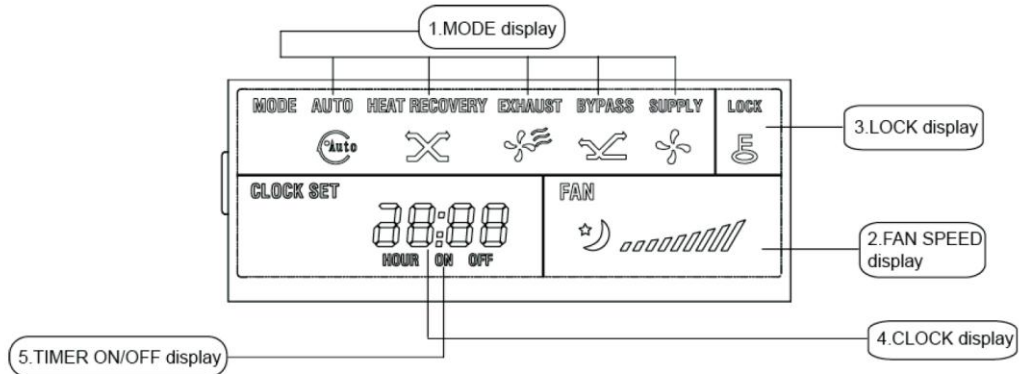
**10 Adjustment button:**

The button is only for time adjustment. Push the ▼ button, time decreases.

**11 LOCK button (hidden):**

Use a small stick with the diameter of 1mm to push the LOCK button to lock the current setting, push the button again then cancel the setting.

**17.2 Name and functions of LCD on wired controller**



**1 Mode select display (MODE):**

Press MODE button to select "AUTO", "HEAT RECOVERY", "EXHAUST", "BYPASS", or "SUPPLY" mode.

**2 Fan speed display (FAN SPEED)**

Press FAN SPEED to select fan speed from "☾", "LOW", "MED", and "HIGH".

NOTE: "☾" stand for fan working speed in sleep mode.

**3 Lock display**

Press LOCK to display the icon of LOCK. Press the button again then the icon of LOCK disappears. In the mode of LOCK, all the buttons are invalid except for LOCK button.

**4 CLOCK display**

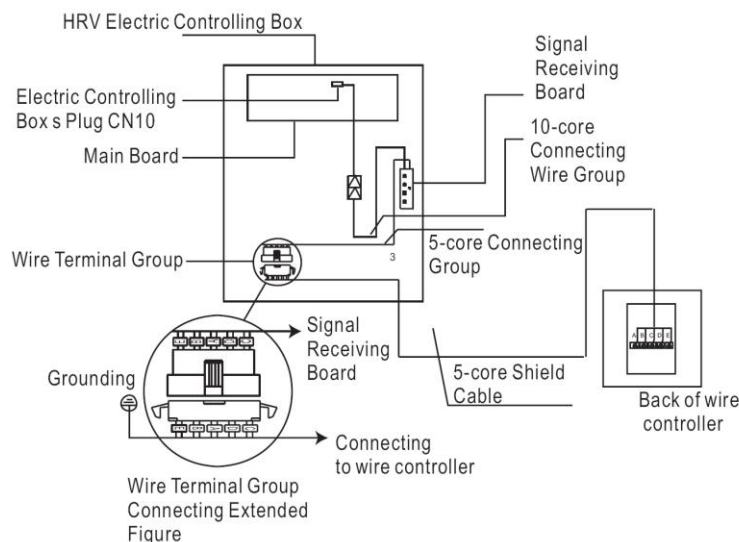
Usually display the clock set currently. Press the button CLOCK for 4 seconds, the HOUR part will flash, press button ▲ and ▼ to adjust HOUR. Press the button CLOCK again, the minute part flash, press button ▲ or ▼ to adjust MINUTE. After clock set or clock operation, it must press CONFIRM to complete the set.

**5 TIMER ON/OFF display:**




Display ON at the state of TIMER ON adjustment or after only set the TIMER ON; Display OFF at the state of TIMER OFF adjustment or after only set the TIMER OFF; Display ON/OFF if simultaneously set the mode of TIMER ON and TIMER OFF.

**17.3 Installation**

Connection method and the principle diagram show as follow:



## 9. Accessory

Name	Quantity	shape	Purpose
Installation and owner's manual	1		must be delivered to the customer
Butt-joint wire of wire control display panel (6 meters)	1		For connect wire control and display control box
HRV wire controller	1		For controlling HRV units

### Annex 1

#### Characteristic of temperature sensor

Temp. °C	Resistance KΩ	Temp. °C	Resistance KΩ	Temp. °C	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.830
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469



**OMEGA**  
ENVIRONMENTAL  
TECHNOLOGIES LLC.

17702 Mitchell North, #101  
Irvine, CA. 92614 .USA  
Tel: 714 795 2830  
Fax: 714 966 1646  
info@otecomega.com  
www.otecomega.com

**OTEC**<sup>TM</sup>  
AIR CONDITIONING

**Showroom & Technology Center**  
11380 Interchange Circle North  
Miramar, FL 33025 .USA  
Tel: 305 901 1270  
Fax: 954 212 8280  
info@otecvrf.com  
www.otecvrf.com

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