User Manual

Many thanks for your selection of our products
and services, and also for your trust
and support to us.

■ **Instruction Manual**

for WH611WW/RF/MRF; WH612WW/RF; WH614WW/RF Thermostat

● **Features:**

1. Heating / Cooling control;
2. Programmable function of 24 time sections per day and 7-day per week;
3. 3 sets of permanent programs (2 sets of factory setting program and 1 set of self-setting program);
4. Pre-cooling or pre-heating function in automatic program;
5. Backlight display (at 220V);
6. The temperature difference adjustable between off and on;
7. Allowable to calibrate the temperature display;
8. Allowable to connect the external temperature sensor. Outdoor temperature display provided(WH611WW/WH612WW/WH614WW);
9. Display adjustable between room temperature, outdoor temperature and preset temperature;
10. Fan speed adjustable automatically or manually to control of no fan(WH611 WW/RF), single-speed fan(WH612WW/RF) or three-speed fan (WH614WW/RF);
11. Display adjustable between ℃ and ℉;
12. Allowable to keep user settings after power shutdown;
13. Antifreeze (or energy-saving) when turn off;
14. Allowable to set the highest temperature of heating and the lowest temperature of cooling.

15. Three transmission modes for selection, i.e. wired, wireless or multi-channel transmission.
16. Multiple fault detection and display functions.
17. Energy-consumption display function
18. Allowed for wired / wireless installation in standard box (WH611 WW, WH612WW, WH614WW), or allowed to install on battery seat for wireless transmitting (WH611RF/MRF, WH612RF, WH614RF).

● **Applicable Standards:**

EN60730-1 and its revisions
EN60730-2-7
EN60730-2-9

● **Compliant with the following EU directives:**

EU B.T.73/23/EEC Directive
EU E.M.C.89/336/EEC Directive and 93/68/EEC Revision

● **Product Specifications:**

Power: 220V AC ($\pm$10%) 50Hz / two LR6 1.5V alkaline batteries
Range of temperature adjustment: 5$\div$35℃/39$\div$95℉
Range of temperature display: 0$\div$40℃/32$\div$104℉
Temperature test frequency: Every minute
Display accuracy: 0.1℃/1℉
Probe sensor: NTC(100K) 1%
Protection level: IP20
Output Convertible: relay

Contact capacity: 3A/250V(WH611WW, WH612WW/RF, WH614WW/RF);
16A/250V (WH611RF); 5 A/250V(WH611MRF)

Insulating condition: Normal environment

Working environment temperature: -18÷50℃/0÷122℉

Running program: Set per 1 week as a cycle

Software level: A

LCD display

Minimum allowable time for increase / decrease in program setting: 1 hour

Frequency: 433 MHz (WH611 RF/MRF)

Wireless transmission distance: Indoor 16 / 50m; outdoor 200m
(WH611RF/MRF, WH612RF, WH614RF)

Size(mm): 77H*120W*14D

Installation: Installed in standard box or on battery seat

● **Model Illuminate**

For Exemple: **WH611RF**

WH-- stand for the symbol of thermostat

61-- stand for figure

1-- stand for the number of relay. (**1**: heating or cooling; **2**: can control one fan;
4: can control 3 fans.)

RF-- stand for the way of communication. (**WW**: wired; **RF**: wireless;
MRF: wireless and more channels)

● **Scope of Control Applications:**

1. Control of family air-condition and
central air-condition;

2. Control of wall-mounted boiler;

3. Control of Thermal Actuator or electromagnetic valve;

4. Control of water pump;

5. Control of fan coil;

6. Ventilation control.

■ **Definition of Icons on LCD Display: Fig. 1**

88.8   Temperature display

    Maximum temperature

    Medium temperature

    Minimum temperature

OUTDOOR   Outdoor temperature

88:88   Display of current time

fig. 1

① 1234567   Display of weekday, The current weekday will be marked with a square.

    ☼   Heating state

    ❄   Cooling state

    ۞   Programmed energy-consuming state

COPY   Copy icon

SET   "Set" icon

▭   Low battery power

⊛   Single-speed fan running

⊛+1   Three-speed fan running at low speed

⊛+2   Three-speed fan running at medium speed

⊛+3   Three-speed fan running at high speed

⊛+A   Fan under auto run

- **Working State Column:**
  Totaled 6 icons (3 functional icons and 3 set icons)

AUTO Auto Run   🖎 Manual Run

AUTO + ▦ Self-setting program Run   ⁂ Antifreeze Run

Set Icon

SET Set Icon   SET + ▦ Program Setting

SET + ▮ Temperature Setting   SET + ⏱ Date / Time Setting

SET + ☼ 或 ❄ Set the winter or summer mode

Definition of Keys:

⏻ On/Off   OK Run Mode Selection or Confirmation for Program Setting

⚡ Fan   ▲ Increase

SET Set   ▼ Decrease

- **Alarm Display:**

00.0℃ Flash: Actual room temperature lower than 0℃

45.0℃ Flash: Actual room temperature higher than 45℃

E0.1: Temperature probe(NTC) disconnected

■ Run Mode

1. Factory Preset Mode:

In this case, the icon displayed on working state column is AUTO

- **Factory preset program:**

Monday to Friday:

00:00--06:00 Economic temperature

06:00--08:00 Comfortable temperature

08:00--18:00 Empty room temperature

(Factory preset mode 2: Economic temperature)

18:00--22:00 Comfortable temperature

22:00--24:00 Economic temperature

Saturday and Sunday

00:00--06:00 Economic temperature

06:00--22:00 Comfortable temperature

22:00--24:00 Economic temperature

Note: Under heating mode, the comfortable temperature is high temperature, the economic temperature is medium temperature and the empty room temperature is the lowest one. This is contrary to the cooling mode, that is, the comfortable temperature is the lowest temperature, the economic temperature is medium temperature and the empty room temperature is the highest temperature.

Display of Energy Consumption

The double ring ☼ on the lower right represents energy consumption that is controlled by program in each time section. The double solid-line frame represents the maximum energy consumption at the highest temperature under heating mode and the lowest temperature under cooling mode. The single solid-line frame and one empty frame represents the medium energy consumption at the economic temperature under heating and cooling mode. The double empty frame represents the minimum energy consumption at the lowest temperature under heating control and at the highest temperature under cooling control.

User Defined Mode

In event of user defined program, the icon displayed on working state column will be AUTO and ▦ .

In the user defined program, the time and temperature for each time section is set by the user under auto setting mode.

3、✎ Manuel Mode：

In this case, the icon displayed on working state column is ✎ .

The thermostat controls the temperature at a constant temperature mode, the default temperature in the heating mode is 20℃, and the default temperature in the cooling mode is 26℃. The temperature can be adjusted with ▲ key or ▼ key .

4、❅ Antifreeze Mode：

In this case, the icon displayed on working state column is ❅

The thermostat only controls the system to be operated at the state of preventing the ambient temperature from dropping below the antifreeze temperature to have been set in order to make the equipment and pipes free from freezing. This temperature is set in the mode of 🌡 , and the default valve is 5℃.

5. Switch between Run Modes

For heating control, you may press ○Κ to switch the run modes between: factory preset mode, user defined mode, manual mode and antifreeze mode.

For cooling control, you may press ○Κ to switch the run modes between: factory preset mode, user defined mode and manual mode.

6. Fan Control

Single-speed fan: By touching the fan key slightly, the fan will switch between three levels: Auto / Manual Fan On / Manual Fan Off, or switch according to the range in the Engineering Setting Sheet.

Three-speed Fan: By touching the key slightly, the fan will switch between

five levels: Auto/High Speed/Medium Speed/Low Speed/Manual Off, or select according to the key range in the Engineering Setting Sheet.

■ **How to Set**

During setting, the thermostat is temporarily under disconnected state, in which case the icon ☼ or ❄ will not be displayed. After setting or if no operation of any key in 60 seconds, the thermostat will turn into run state and then activate the control switch according to the resul t of comparison between room temperature and preset temperature.

1. Set the Winter and Summer Mode

A. Press SET key. The screen will display SET and the icon ☼ or ❄ will blink.

B. Press ▲ or ▼ to select. Press OK to confirm and end the Winter/Summer setting. Long hold down OK to exit the Winter / Summer setting and resume to the run mode before setting.

2. ⏲ Date / Time Setting

Set the current date (weekday), hour and minute.

A. Press SET key. The screen will display SET and the working state column will display clock icon ⏲ .

B. When the frame displaying the present date starts flashing, press ▲ key or ▼ key to adjust the present weekday, and press OK to confirm, and then turn to next setting.

C. Then the number representing the hour flashes, press ▲ key or ▼ key to adjust the present hour, and press OK key to confirm, and then turn to next setting.

D. Then the number representing the minute flashes, press ▲ key or ▼ key to adjust the present minute, and press OK key to confirm, and then turn to next setting.

E. Return to the first setting step.

F. Setting of end time: Hold down ○K to exit the time setting and resume to the run mode before access.

3. 🌡 Temperature Setting

Set the Maximum temperature, Medium temperature and Minimum temperature.

A. Press SET key. The screen will display SET and the working state column will display temperature icon 🌡.

B. In this case, the temperature icon 🌡 will be displayed on the left side of temperature digit, while the temperature digit will blink. Press ▲ or ▼ to adjust the highest temperature of control (This temperature is comfortable temperature for heating control and empty room temperature for cooling control). Press ○K to confirm and turn to next setting.

C. In this case, the economic temperature icon 🌡 representing the medium temperature will be displayed on the left side of temperature digit, while the temperature digit will blink. Press ▲ or ▼ to adjust the value of economic temperature. Press ○K to confirm and turn to next setting.

D. In this case, the low temperature icon 🌡 will be displayed, while the temperature digit will blink. Press ▲ or ▼ to adjust the value of lowest temperature (This temperature is empty room temperature for heating control and comfortable temperature for cooling control). Press ○K to confirm and turn to next setting.

E. Return to the setting in the first step.

F. End the temperature setting, as "F" in the Date / Time setting.

Range of Temperature Setting:

Setting range of lowest temperature 🌡 : 5∼35℃. The default value is 5℃ for

heating control and 22℃ for cooling control. (Under heating control, what is adjusted is the lowest temperature of heating control. Under cooling control, what is adjusted is the lowest temperature of cooling control. These two temperature values will be separately stored for separate control. The same for the adjustment of medium temperature and high temperature below).

Setting range of economic temperature 🌡 : 5～35℃. The recommended default value is 18℃ for heating control and 24℃ for cooling control.

Setting range of highest temperature 🌡 : 5～35℃. The default value is 20℃ for heating control and 28℃ for cooling control.

The temperature setting will resume to default value after power shutdown.

4. Setting of User Defined Program

Set the control temperature in 7 days and each time section from user-defined program

A. Press SET key. The screen will display SET and the working state column will display program icon ▦ .

B. In this case, the icon and number indicating the weekday will blink. Press ▲ or ▼ to adjust the date. Press OK to confirm and turn to next setting.

C. Then, the icon from 0:00 to 1:00 and the preset temperature state icon (i.e. the icon on the left siude of the temperature digit) will start to blink. Press ▲ or ▼ to select the temperature state and press OK to confirm. The temperature state display in the following one hour will be fully changed to the selected temperature state (For heating control, the comfortable temperature is represented by double solid frame, the economic temperature is represented by single solid frame and one single empty frame, and the antifreeze temperature is represented by double empty frame.

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For cooling control, the comfortable temperature is represented by double solid frame, the economic temperature is represented by single solid frame and one single empty frame, and the empty room temperature is represented by double empty frame). Meanwhile, it turns to setting of the temperature in next hour.

D. Repeat the above steps until completing the setting of temperature state in 24 hours. Then, return to date selection. Under the program setting state for each hour, you may short press ❖ key to return the setting for last hour, and long press ❖ key to exit the temperature setting for remaining time and directly enter into date selection again. The temperature for unset part remains to be the default temperature or the preset temperature before.

E. The date icon will start to blink again, entering into a new setting cycle for some day.

F. End the program setting: You may long hold down ○K key to exit the program setting and enter directly into user defined run mode. In the working state display area, the icon AUTO and ▦ will be displayed.

Copy One-day Program

After entering a day program you can copy this into another day to save time when creating a weekly program: For example, if you want to copy the program of Monday to Thursday, the methods are as follows:

A. Select the program for Monday: On the state , press ▲ key or ▼ key The outer frame for Monday flashes to select Monday and press SET key for 3 seconds until the word COPY appears on the screen

B. Copy to Thursday: While pressing SET key constantly, press ▲ key or ▼ key at vthe same time and select to Thursday, then release ▲ key or ▼ key then release SET key to finish the copying and the word COPY disappears At this time the Thursday cursor flashes the setting of the day can be continued through ▲ or ▼ key as well as the ○K key.

C. Copying for other days, please repeat from the Step A to B.

5. Switch between Three Setting Modes:

You may press SET key to switch between three setting modes, i.e. date / time setting, temperature setting and auto program setting.

6. Switch from Setting Mode to Run Mode

After completing the setting, you may long hold down OK to switch the thermostat to run state. If no operation of any key within 60 seconds under any setting state, the thermostat will automatically resume to the run mode before this setting.

7. Temporary Change of Temperature

Both at AUTO mode and at AUTO and ▬▬ mode, you can temporarily change the temperature at a program period.

For example: You have set the program already the comfort temperature is 20℃ between 9:00~18:00, but you want to lower the temperature to 18℃ at 10:00 then you set the temperature to 18℃. This setting will not exist forever, it will remain until 18:00 when the program period is ended. At the program running mode, set the required temperature directly through ▲ key or ▼ key, the number representing the temperature will flash, and your adjusted temperature will be displayed. Without any adjustment in 5 seconds, The number representing the temperature will stop flashing and continuously to display the present room temperature. The thermostat will recover to automatic mode at the following program temperature changes.

8.External Temperature Probe (Optional)

After connecting external temperature probe, please make corresponding setting in the engineering setting number 8.

English

9. Code Match Setting (Only used for RF /MRF model)

WH611 RF Model: Press the receiver key, so that the receiver indicator will blink. If the transmitter is energized, turn off the transmitter LCD and then hold down ▲ and ▼ keys simultaneously until the indicator stops blinking. In this case, the code matching is finished. (Note: If no code matching signal is received during 1 minute when the indicator keeps blinking, this indicator will turn dark and the code matching will be stopped. Pressing the key again, the thermostat will again enter into code matching state).

WH611 MRF Model: Press the receiver key, so that the indicator will blink in "one flash and one stop". The thermostat will enter into the 1st channel code matching state. The code matching operation is same as that under WH611 RF model. After completing the code matching, press the key again to start the 2nd channel code matching, in which case the indicator will blink in "two flashes after one stop". The thermostat then enters into code matching state. After completing the code matching, press the key again to start the 3rd channel code matching, in which case the indicator will blink in "three flashes after one stop". The code matching is then started. Likewise, press the key for the fourth time to start the 4th channel code matching, in which case the indicator will blink in "four flashes and one stop".

10. Fault Display:

When the room temperature is lower than 0℃, the LCD will blink in 00.0℃. When the room temperature is higher than 0℃, the LCD will resume automatically to normal display.

When the room temperature is higher than 45℃, the LCD will blink in 45.0℃. When the room temperature is lower than 45.0℃, the LCD will resume automatically to normal display.

Upon disconnection of the temperature sensor, the display will blink in E0.1, in which case you shall check and eliminate the fault.

11. Engineering Setting

If long holding down Set key for 5 seconds under OFF state, the screen will display SET. The place where the time is displayed will show the setting number, while the place where the temperature is displayed will show the set parameters. Press ▲ or ▼ to change the parameter setting, and long hold down OK to change the setting number. You may hold down Set key for 5 seconds to exit the setting of engineering parameters. If no operation of any key within 60 seconds, it will save and exit, then return to Off state.

English

Setting Number	Notes on Numbering	Adjustable Range of Knob	Three-digit Display where temperature is displayed (The value to be set will blink)		Remarks
1	Temperature difference from stop to restart or cycles per hour	Temperature difference from stop to restart: 0.2℃	00.2		
		Temperature difference from stop to restart: 0.5℃	00.5		
		Temperature difference from stop to restart: 1.0℃	01.0		
		Temperature difference from stop to restart: 1.5℃ (default)	01.5		
		Temperature difference from stop to restart: 2.0℃	02.0		
		Temperature difference from stop to restart: 2.5℃	02.5		
		Temperature difference from stop to restart: 3.0℃	03.0		
		Temperature difference from stop to restart: 3.5℃	03.5		
		Temperature difference from stop to restart: 4.0℃	04.0		
		1 On/Off per hour	101		
		2 On/Off per hour	102		
		3 On/Off per hour	103		
		4 On/Off per hour	104		
		5 On/Off per hour	105		
		6 On/Off per hour	106		
		7 On/Off per hour	107		
		8 On/Off per hour	108		
		9 On/Off per hour	109		
		10 On/Off per hour	110		
		11 On/Off per hour	111		
		12 On/Off per hour	112		
2	Set the state after turning off the screen	Disconnected (default)	No display for the first two digits	0	
		Connected	No display for the first two digits	1	
		Energy-saving State	No display for the first two digits	2	
3	Temperature compensation	Adjustable from −3 to +3℃, by 0.5℃ for each increase or decrease (default: 0)	Directly display the compensation temperature value "+" or "-" in ℃ or "F" icon.		
4	Fan selection	No fan (default)	0 displayed on the 2nd digit	0	
		Note 0: In this case, the fan key has no control function for the fan. The fan will be controlled by thermostat.	1 displayed on the 2nd digit	0 Single-speed auto run	
		Note 1: In this case, the fan key can only be used to select the start or stop of the fan (No auto run)	1 displayed on the 2nd digit	1 single-speed, manual start / manual start of fan	
			1 displayed on the 2nd digit	2 manual start, manual stop, auto	
		Note 0: In this case, the fan key has no control function for the fan. The fan will be controlled by thermostat automatically.	2 displayed on the 2nd digit	0 Auto Run	
		Note 1: The fan key can only be for manual selection from low, medium and high speed or manual stop.	2 displayed on the 2nd digit	1 Manual selection of low, medium, high speed and manual stop of fan	

			2 displayed on the 2ⁿᵈ digit	2 Manual selection of low, medium, high speed and stop ,auto fan	
(icon)	Switch between ℃ and ℉	Display in ℃ (default)	No display for the first two digits	0	(icon)
		Display in ℉	No display for the first two digits	1	
(icon)	Temperature display	Display of room temperature (default)	No display for the first two digits	0	(icon)
		Display of preset temperature ("Set" indicator is bright)	No display for the first two digits	1	
		Use external temperature sensor to replace the internal temperature sensor for display and control	No display for the first two digits	2	
		In every 10 seconds, the room temperature will be displayed in the first 8 seconds and the preset temperature will be displayed in the last 2 seconds (In this case, the 'Set' indicator will turn bright).	No display for the first two digits	3	
		In every 10 seconds, the room temperature will be displayed in the first 8 seconds and the outdoor temperature will be displayed in the last 2 seconds (In this case, the "Outdoor" indicator will turn bright).	No display for the first two digits	4	
(icon)	Selection between two auto programs	Factory preset auto mode 1: Antifreeze temperature at 8:00 ─ 18:00 from Monday to Friday (default)	No display for the first two digits	0	(icon)
		Factory preset auto mode 2: Economic temperature at 8:00 ─ 18:00 from Monday to Friday (default)	No display for the first two digits	1	
(icon)	Keypad (When you set locking any key of the thermostat, the colon at the middle of time display will stop flashing)	Keypad not activated (default)	No display for the first two digits	0	(icon)
		Lock SET and Fan key	No display for the first two digits	1	
		Lock all key except On/Off key	No display for the first two digits	2	
(icon)	Highest temperature of heating	10─35℃ (Adjustable by 0.5℃), default 35℃	Display of setting temperature		(icon)
(icon)	Lowest temperature of cooling	10─35℃ (Adjustable by 0.5℃), default 10℃	Display of setting temperature		(icon)
(icon)	Selection of program state	Program set in factory	No display for the first two digits	0	(icon)
		Program set by customer (Default)	No display for thᵉ first two digits	1	

■ Fault Repair

Problem	Possible Cause	How to Repair
The thermostat does not work.	1. Not connected to power supply.	1.86 Box: Connect to 220VAC power supply. Battery seat: Check if the battery contact is in good condition. Enter into engineering setting and select the setting of number 11 to right mode
The heating system cannot be started.	2. If the system is under heating control. 3. If the preset temperature is higher than the temperature currently on display.	2. View the setting method 1 and select heating control mode. 3. Adjust the preset temperature higher.
The cooling system cannot be started.	4. If the system is under cooling control. 5. If the preset temperature is lower than the temperature currently on display.	4. View the setting method 1 and select cooling control mode. 5. Adjust the preset temperature lower.
The fan does not run.	6. If the fan is under auto mode. 7. If the heating or cooling is working.	6. Enter into engineering setting and change the fan working mode of number 4 7. Run the system under heating or cooling mode.
The mode switch doe not work.	8. Check if the keypad is locked. 9. Check if the unit is stopped.	8.Enter engineering setting and change the keypad lock mode of number 8. 9.Start the unit.
The fan switch does not work.	10. If the fan is under auto mode. 11. If the heating or cooling is working.	10. Enter into engineering setting and change the fan working mode of number 8 11. Run the system under heating or cooling mode.
The Up, Down and OK key does not work.	12. If the fan is under auto mode. 13. If the heating or cooling is working.	12. Enter into engineering setting and change the fan working mode of number 8 13. Run the system under heating or cooling mode.
The room temperature displayed on the screen is not compliant with the actual temperature.	14. If the equipment is under run state. 15. If set to temperature calibration.	14. If the equipment is running, indicating that the temperature is in the process of heating / cooling. The two temperatures will be equal when the equipment finishs operation. 15. Enter into engineering setting and change the temperature compensation setting of number 4.

Cautions on Installation and Use

1. To prevent the thermostat display from a high fluctuation, special treatment has been made to the program. Therefore, it is normal that the thermostat cannot immediately display the sudden change of temperature.

2. The thermostat installed in standard 86 box shall be placed 1.5m above the ground.

3. For the thermostat installed in standard 86 box or wireless thermostat with battery seat, take care not to install it to the wall corner, door / window side or behind the door or in such unheated area as exterior wall. Avoid hot / cold air duct, radiator, flue or thermal pipe.

4. If the wireless thermostat with battery seat is placed at a position where the air ventilation is poor, the temperature displayed on the thermostat might be inconsisten to the indoor average temperature.

5. Only the professional technicians are permitted to open the transmitting and receiving box of the thermostat for installation. When installing the power supply, make sure that the power cable is well insulated.

6. To install the receiving box, please install the base plate firstly and then connect the power and signal wire correctly before installing the upper cover and fix it. The thermostat is unrepairable product. The user shall not open the internal circuit board.

7. Before installing the thermostat, make sure that the system is disconnected. The maximum voltage of the system shall meet the requirements specified in the Instruction Manual (Max. AC Voltage: 250V).

■ Wring Illustration

1. Wiring Terminals

S/N	Wiring Terminal	Remarks
1	N	AC Neutral
2	L	AC Live
3	COM	Public terminal of relay
4	NO	Normally-open point
5	NC	Normally-closed point
6	LF	Active connection of low-speed fan, or active connection of single-speed fan
7	MF	Active connection of medium-speed fan
8	HF	Active connection of high-speed fan
9	RS	External temperature sensor
10	Rs	External temperature sensor

2. Symbol Illustration

Symbol	Illustration	Symbol	Illustration
B	Boiler	P	Water Pump
O	Temperature Probe	F	Fan
V	Thermal Actuator or Air Conditioner Valve		

English

■ Ontrol illustration

Fig.2

OPEN
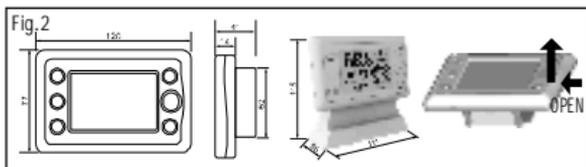
Fig. 2:
Dimensional Diagram
Length, Width, Thickness,
Installing Size
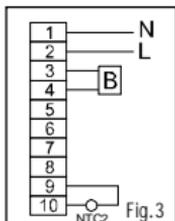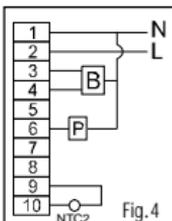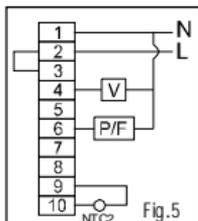
Fig. 3:
Control of Wall-mounted
Boiler for WH611WW model

Fig. 4:
Control of Wall-mounted
Boiler + External Water
Pump for WH612WW model

Fig. 5:
Control of Air Conditioner
Valve + Single-speed Fan /
Control of Thermal Actuator
+ External Water Pump
(WH612WW)

Fig. 6:
Control of Air Conditioner
Valve + Three-speed Fan
(WH614WW)
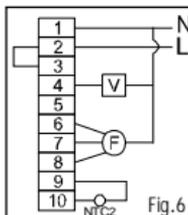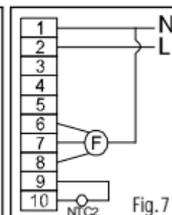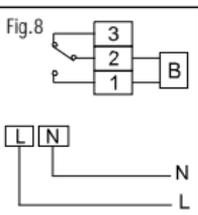
Fig. 7:
Control of Three-speed Fan
(WH614WW)

Fig. 8:
Control of Wall-mounted
Boiler for WH611RF mode

Fig. 9:
Control Thermal Actuator or
Air Conditioner Valve for
WH611RF model
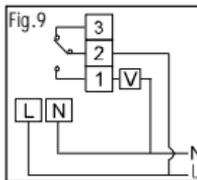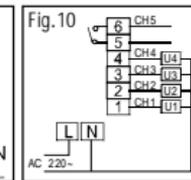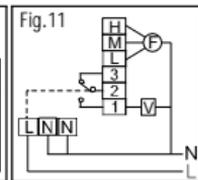
Fig. 10:
Control of Ground Heating
with Wireless 4-channel for
WH611MRF model

Fig.11:
Control of Air Conditioner
Valve + Single-speed Fan/
Three-speed Fan for WH612RF
model and WH614RF model.

Fig.3

Fig.4

Fig.5

Fig.6

Fig.7

Fig.8

Fig.9

Fig.10

Fig.11