Multi-VRF Mini Centralized Controller

Use Instruction

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Please carefully read this instruction before installation and use.

User Notices

☆ Functions must be selected by the personnel who perform the installation with the requirements of users before using this Mini Centralized Controller.

☆ Wired controller matched with indoor unit must be removed if the controller of such indoor unit is set to be Mini Centralized Controller.

☆ Ensure unified power supply for each indoor unit.

☆ Never install the Mini Centralized Controller in the place with water leakage or under sunlight directly.

☆ Shielding twisted pair line must be adopted as signal line or wiring (communication line) once the unit is installed in the place where there is electromagnetic interference.

☆ Make sure the communication wire is connected with correct port to avoid malfunction.

☆ Never knock, throw or frequently disassemble the Mini Centralized Controller.

☆ Never operate the Mini Centralized Controller with wet hand.

Contents

1. Brief Introduction to Mini Centralized Controller

Region monitoring control and region wired control are the two main control functions for Mini Centralized Controller.

Region monitoring controller can monitor or control 16 indoor units of a group for inquiry and single or centralized control.

Region wired controller can replace 1-16 selected wired controllers to uniformly set or control the indoor units.

Refer to Fig.1.1, Fig.1.2 about the Sketch map to the relationship among the Mini Centralized Controllers, region monitoring controller and region wired controller.

Mini Centralized Controller → **Project Debugging Setting**

- 00 Function mode
  Initial state
- 01 Function mode
  Region monitoring controller
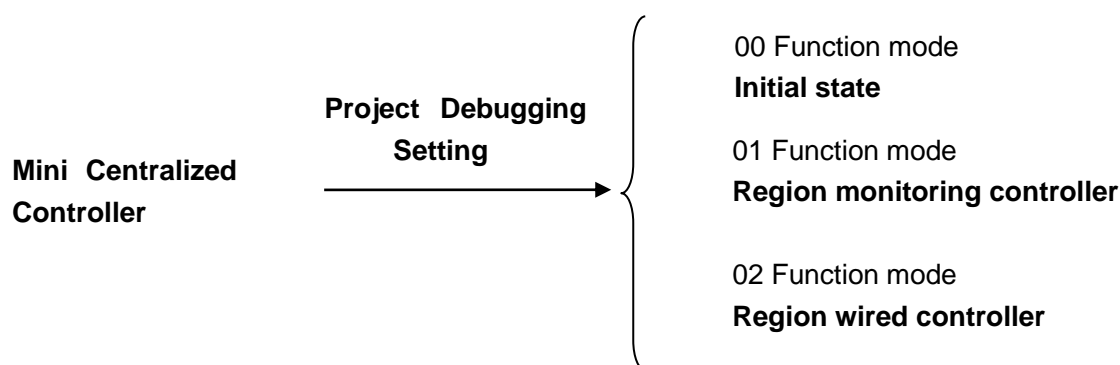- 02 Function mode
  Region wired controller

Fig.1.1

Before using, the controller functions must be selected by the personnel who performance the installation with the requirements of users. Please refer to **Project Debugging Setting** section for the details.

Note: If the controller is set to be region wired controller, the wired controller of the selected indoor unit must be removed.

The Mini Centralized Controller can be matched with long-distance monitor. As a region monitoring controller, its control is subject to that of the long-distance monitor. In the same group, one of the Mini Centralized Controllers can be used as region monitoring controller and matches one or more region wired controller which replace(s) one or more wired controller, in which case, the region monitoring controller can also monitor or control the region wired controller.
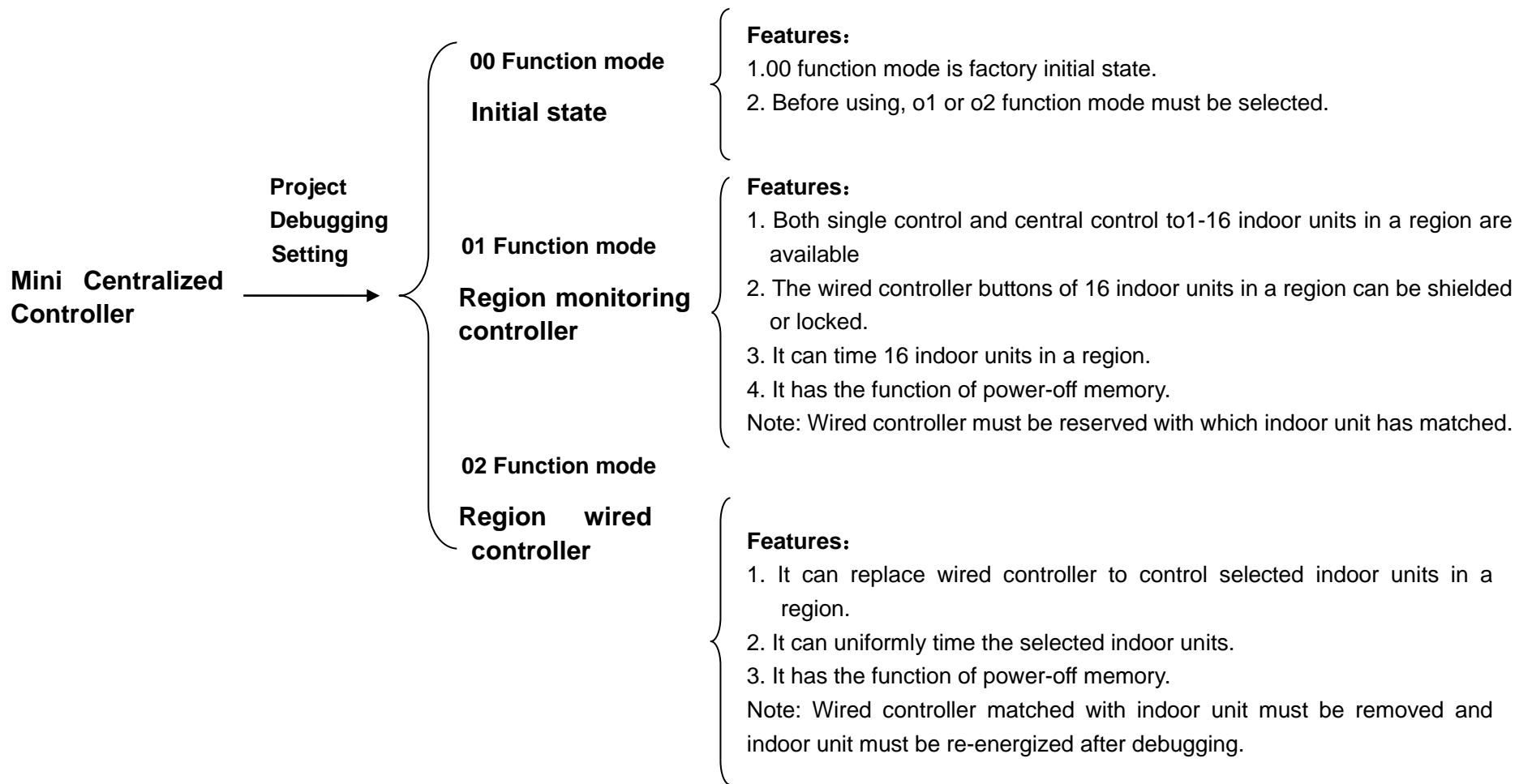
Mini Centralized Controller → **Project Debugging Setting**

00 Function mode

Initial state

Features：

1.00 function mode is factory initial state.

2. Before using, o1 or o2 function mode must be selected.

01 Function mode

Region monitoring controller

Features：

1. Both single control and central control to1-16 indoor units in a region are available

2. The wired controller buttons of 16 indoor units in a region can be shielded or locked.

3. It can time 16 indoor units in a region.

4. It has the function of power-off memory.

Note: Wired controller must be reserved with which indoor unit has matched.

02 Function mode

Region wired controller

Features：

1. It can replace wired controller to control selected indoor units in a region.

2. It can uniformly time the selected indoor units.

3. It has the function of power-off memory.

Note: Wired controller matched with indoor unit must be removed and indoor unit must be re-energized after debugging.

Fig.1.2 Sketch map to the relation among the Mini Centralized Controller, region monitoring controller and region wired controller

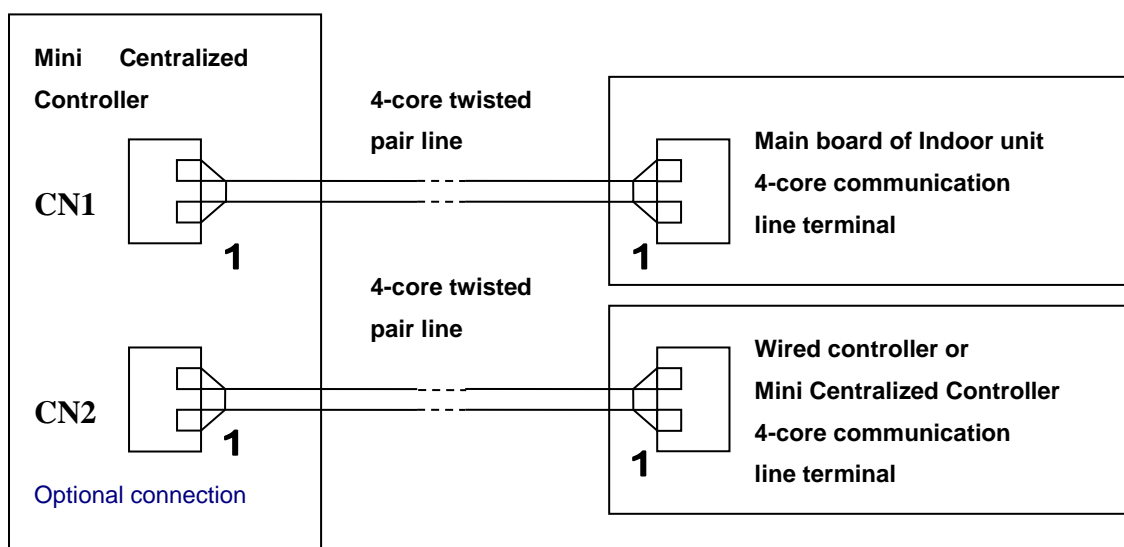# 2. Installation of Mini Centralized Controller

2.1 Connection of power cords or communication lines

Insert the 4-core twisted pair line to wired controller, if which is with the indoor unit, into Mini Centralized Controller wiring terminal CN1 (or CN2), and then connect the other wiring terminal CN2 (or CN1) with the main board of indoor unit.

If there is no wired controller with indoor unit, introduce a 4-core twisted pair line to indoor unit main board and connect it with Mini Centralized Controller wiring terminal CN1 (or CN2).

Note：Any main board of the indoor unit controlled by the Mini Centralized Controller can be connected. If the Mini Centralized Controller is used as a region wired controller, wired controller with the indoor unit must be removed.

Fig2.1 Power cords and communication lines for Mini Centralized Controller

Mini Centralized Controller

4-core twisted pair line

CN1

1

Main board of Indoor unit
4-core communication line terminal

1

4-core twisted pair line

CN2

1

Optional connection

Wired controller or
Mini Centralized Controller
4-core communication line terminal

1

Before installation and connection, make sure the power supply is off. After installation and connection, check the connection result again to prevent loose or short.

There are 4 connection lines (included in the 4-core twisted pair line) to the controller, from the "1" of CN1 or CN2 to the upper they respectively are: Ground line (GND), communication line A (A), communication line B(B) and power cord (+12 v).

⚠ **Note:**

During following connection of wirings, pay special attention to them to avoid malfunction to units for electromagnetic interference.

1. Keep the signal lines or wirings (communication) of Mini Centralized Controller or wired controller at least 20 cm from the power cords or connecting lines between indoors and outdoors to prevent abnormal communication.

2. Shielding twisted pair line must be adopted as signal line or wiring (communication) once the unit is installed in the place where there is serious electromagnetic interference.

2.2 Installation of Mini Centralized Controller
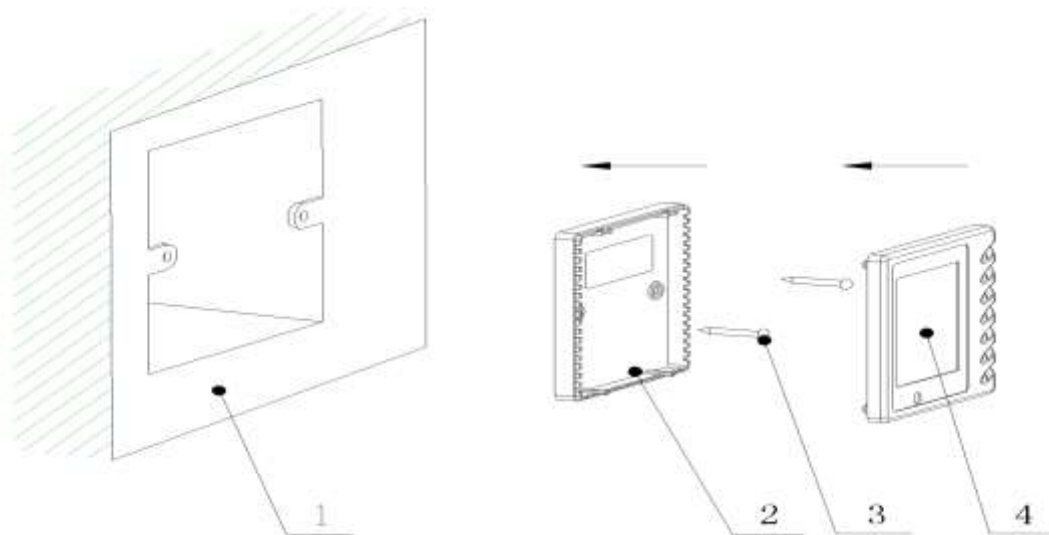
Fig. 2.2 Installation of Mini Centralized Controller

NO.	1	2	3	4
Name	Wall-box	Controller soleplate	ScrewsM4X25	Controller panel

Note: 1. Firstly cut off the power supply for buried heavy-current line in the wall-mounting hole. Hot-line work is forbidden during installation.

2．Pull out the 4-core twisted pair line in the wall-mounting hole, and then make it through the rectangular hole at the back of the controller soleplate.

3. Fasten the controller soleplate in wall mounting holes with M4X25 screws.

4．At last, insert the 4-core twisted pair line which has been through the hole into the slot in the controller and then buckle the controller panel and controller soleplate.
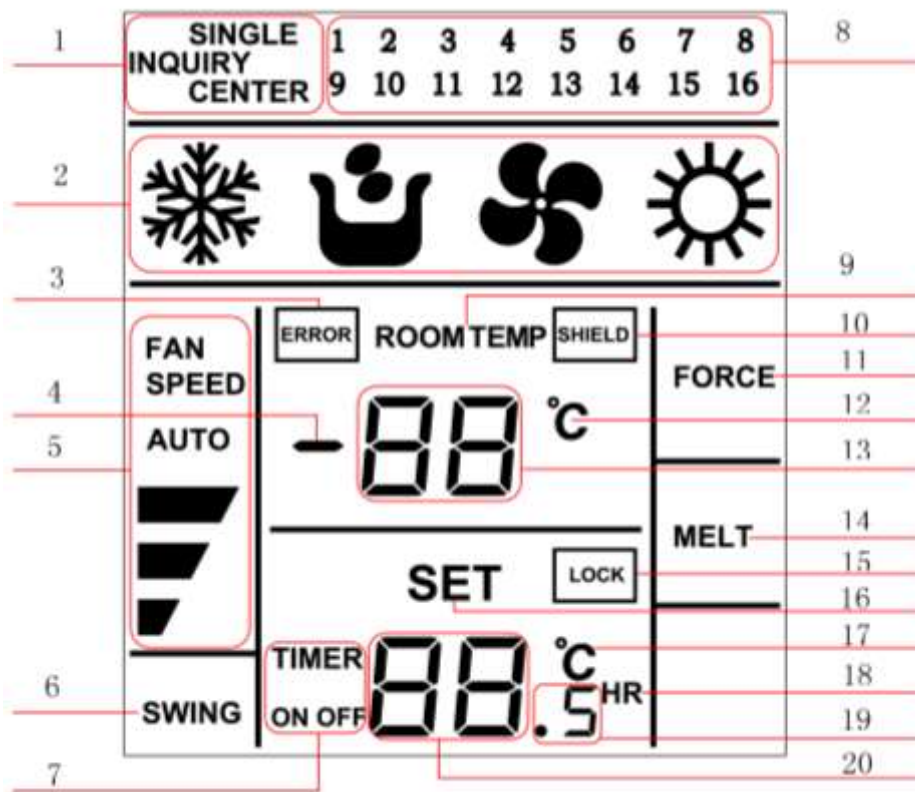
3. Display Part

3.1 LCD display of Mini Centralized Controller (Fig.3.1)
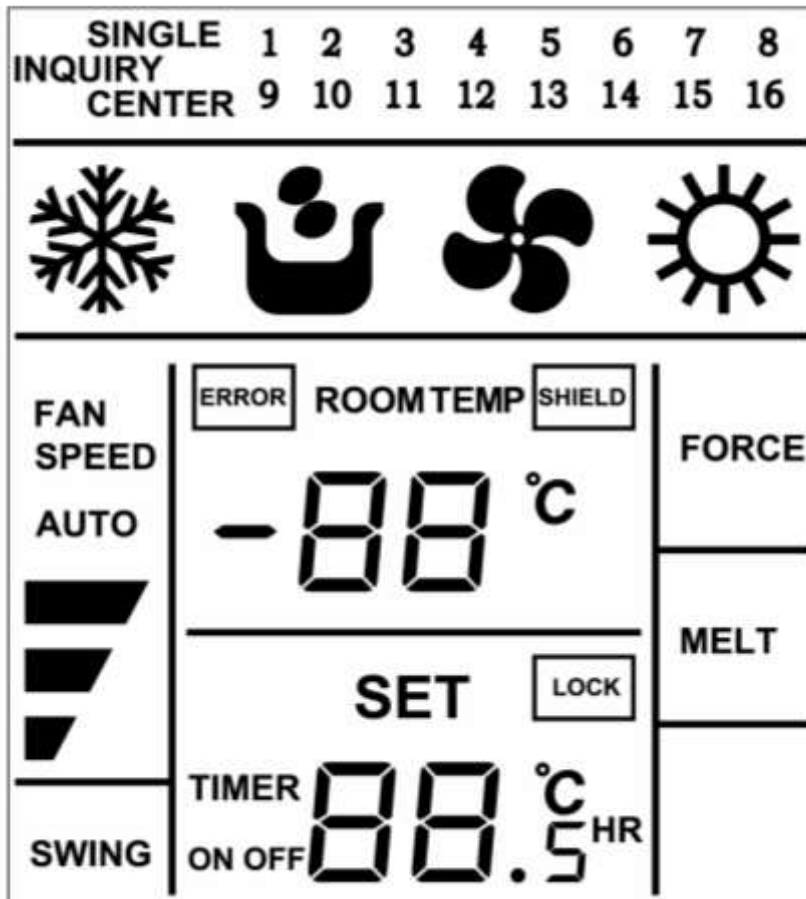
（Fig.3.1）

3.2 Introduction to LCD display of Mini Centralized Controller (Fig.3.2, Table 3.1)

（Fig.3.2）

No.	Display name	Instruction to display
1	Control mode	Inquiry state, "INQUIRY" is displayed. Single control state,"SINGLE" is displayed. Centralized control state, "CENTER" is displayed.
2	Running mode	Each indoor unit running mode is displayed.
3	Error	"ERROR" is displayed during any malfunction to indoor or outdoor unit in a group.
4	—	"— " is displayed when there is no malfunction to selected indoor unit and the ambient temp. is below zero.
5	Fan speed display	Hi, mid, low or auto speed of indoor fan is displayed.
6	Swing	Swing running of indoor unit is displayed.
7	Timer	"TIMER ON/OFF" is displayed when setting timer or inquiring timer state.

8	No. of indoor unit	Under inquiry state, No. of online indoor units are displayed and No. of selected indoor unit will blink. Under single control state, only No. of selected indoor unit is displayed. Under centralized state, No. of all online indoor units are displayed.
9	Room temp.	"ROOMTEMP" is displayed for no malfunction, but isn't for malfunction.
10	Shield	Centralized controller A. Under inquiry state," SHIELD" will be displayed when selected indoor unit is shielded. B. Under control state," SHIELD" will be displayed during setting or giving the shield order. Region wired controller:" SHIELD" will be displayed when selected units are shielded during long-distance monitoring.
11	Force	"FORCE" is displayed when indoor unit is forced to run.
12	℃ (room temp.)	" ℃" is displayed when there is no malfunction.
13	Room temp. or error code	Room temp. value is displayed during no malfunction to selected indoor or outdoor unit. Error code is displayed during malfunction to selected indoor or outdoor unit.
14	Melt	"Melt" is displayed during defrosting.
15	Lock	Region monitoring controller A: Inquiry state: "LOCK" is displayed when selected indoor unit is locked. B: Control state: "LOCK" is displayed during setting or giving the lock order. Region wired controller: "LOCK" is displayed when selected unit is locked in long-distance monitoring.

16	Set	"SET" blinks when the unit is on and commanded. "SET" is displayed when the unit is on without command.
17	℃ (set temp.)	Set temp. value is displayed when the selected indoor unit is on and not in timer inquiry or setting status.
18	HR (hour)	"HR" is displayed during timer inquiry or setting.
19	.5	".5" is displayed when the timer time value includes 0.5 hr and the unit is during timer inquiry or setting.
20	Setting temp. and timer time	During timer inquiry, integer of setting time of timer is displayed. During timer setting, integer of setting time of timer is displayed. Set temp. value is displayed when the unit is not during timer inquiry or setting.

Note: 1. Contents in the double quotation marks indicate the display in LCD. Following part is the same to it.

2. Online indoor units to Mini Centralized Controller indicate that in a region. Following part is the same to it.

3. No signal control function for region wired controller, and "SINGLE" won't be displayed either.

（Table 3.1）

4. Buttons of Mini Centralized Controller

4.1 Screen print drawing
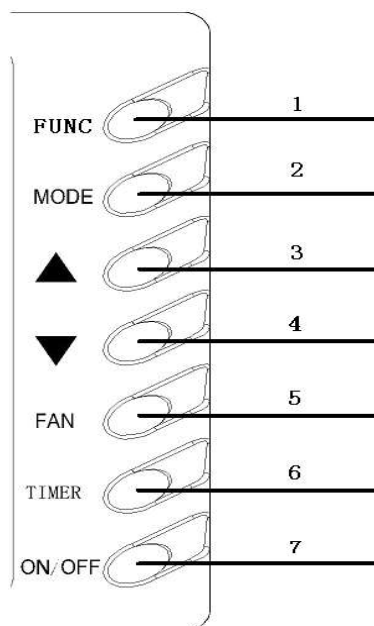
（Fig.4.1）

4.2 Instruction to functions of buttons (Table 4.1)
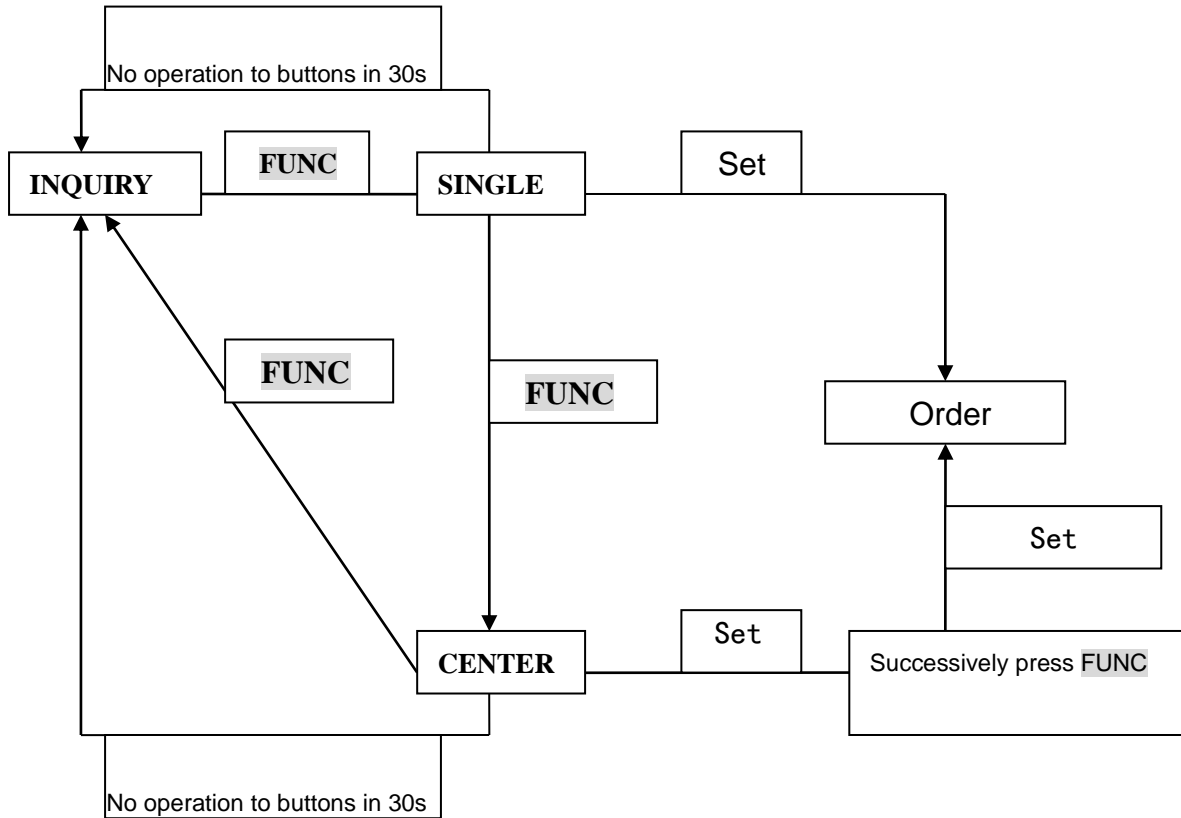
No.	Name	Function
1	FUNC (FUNCTION)	A. Switch the control mode of inquiry/single/ central control. B. In central control status, give the central order by successively pressing FUNC button.
2	MODE	Set cooling/heating/fan/dry mode for indoor unit
3	▲	A. Inquiry status: cycle, increase or decrease No. of indoor units to easily inquire the status of each indoor unit.
4	▼	B. Single/Central control status: set running temp. of indoor unit, maximum is 30℃ and minimum is 16℃. C. Timer setting status: increase or decrease the timer on/off time, maximum is 24hr and minimum is 0.
5	FAN	A. Set the indoor fan speed of hi/mid/low/auto. B. Successively press FAN button to set on/off swing.
6	TIMER	A.　Under single/central control mode, set on /off timer of selected indoor unit B.　Under inquiry status, inquire the timer setting of the indoor unit with current address.
7	ON/OFF	Set ON/OFF of the indoor unit.
2MODE and 7 ON/OFF	Lock	Under single/central control, press MODE and ON/OFF buttons simultaneously to start/ stop the lock of operation to buttons of wired controller for selected indoor units.
2MODE and 6 TIMER	Shield mode	Under single/central control, press MODE and TIMER simultaneously to start/ stop the shield of operation to MODE button of wired controller for selected indoor unit.
4 ▼and 6 TIMER	Shielding Temp.	Under single/central control, press ▼ and TIMER simultaneously to start/ stop the shield of operation to Temp button of wired

		controller for selected indoor unit.
7 ON/OFF and 6 TIMER	Shielding ON/OFF	Under single/central control, press ON/OFF and TIMER simultaneously to start/ stop the shield of operation to ON/OFF button of wired controller for selected indoor unit.
2 MODE and 3 ▲	Memory mode	Refer to **power-off memory function** about the details.
4 ▼and 7 ON/OFF	Selection of function	A. Check the control mode of region monitoring controller / region wired controller B. Set the control mode of region monitoring controller / region wired controller

Note: 1.The characters with gray back ground indicate buttons. Following part is the same to it.
     2. The time of single press of the button is more than 3s, which means successively-press.
     3. There isn't the function that the region wired controller shields other indoor wired
         controller.		

（Table 4.1）

5. Flowchart for Control (Fig.5.1)

5.1 Flowchart for control of region monitoring controller

```
┌──────────────────────────────────────────┐
│  No operation to buttons in 30s           │
│                                           │
▼                                           │
┌──────────┐   ┌──────┐   ┌──────────┐   ┌──────┐
│ INQUIRY  │   │ FUNC │   │  SINGLE  │   │ Set  │
└──────────┘   └──────┘   └──────────┘   └──────┘
```

No operation to buttons in 30s

INQUIRY   FUNC   SINGLE   Set

FUNC

FUNC

Order

Set

CENTER   Set   Successively press FUNC

No operation to buttons in 30s

（Fig.5.1）

5.2 Flowchart for control of region wired controller (Fig.5.2)

INQUIRY   FUNC   CENTRAL   Set   Order

No operation to buttons in 30s

（Fig.5.2）

11
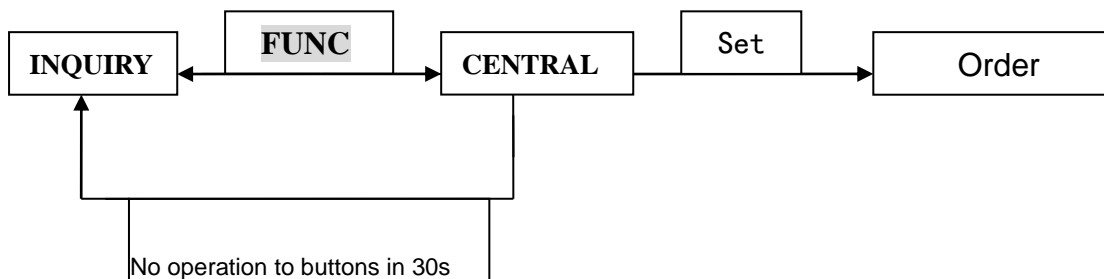
6. Inquiry and Control Methods to Indoor Unit

Under inquiry status, the running mode displayed for indoor unit: mode, room temp. , fan speed, swing, melt, force. If there is malfunction to selected indoor unit, error code will be displayed; if malfunction to any other indoor unit," ERROR" will be displayed. Under control status, selected indoor unit can be controlled by: mode, set temp, fan speed, swing, shield, lock, and timer.

Press FUNC button to circularly switch inquiry, single and central control.

6.1 Running mode inquiry for indoor unit

Press FUNC button into inquiry status, "INQUIRY" will be displayed, in which case, if the indoor unit number hasn't been chosen, the minimum number of indoor unit will blink, and its running mode, set temp, shield or lock status will also be displayed; if Press▲ or ▼ button to circularly switch the indoor unit numbers, the selected number will blink.

Timer inquiry: If press TIMER button once, timer on, timer off and set temp will be displayed according to the following sequence:

```
┌───────────┐      ┌───────────┐      ┌───────────┐
│ TIMER/ON  │ ───▶ │ TIMER/OFF │ ───▶ │ SET TEMP  │
└───────────┘      └───────────┘      └───────────┘
      ▲                                      │
      └──────────────────────────────────────┘
```
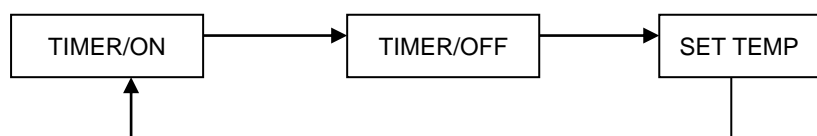
Under inquiry status, press TIMER button into inquiry for timer on, and repress it for timer off.

Under inquiry for timer off, press TIMER button and return to inquiry for set temp.

Note: Timer inquiry here indicates the inquiry of that whether on /off timer of Mini Centralized Controller for indoor unit is set or not, which doesn't relate to timer time.

If "ERROR" is displayed, it indicates malfunction to indoor unit in the group, get detailed error code by inquiring detailed indoor unit to confirm the error type and ask professionals for help.

Graphic example for inquiry status:
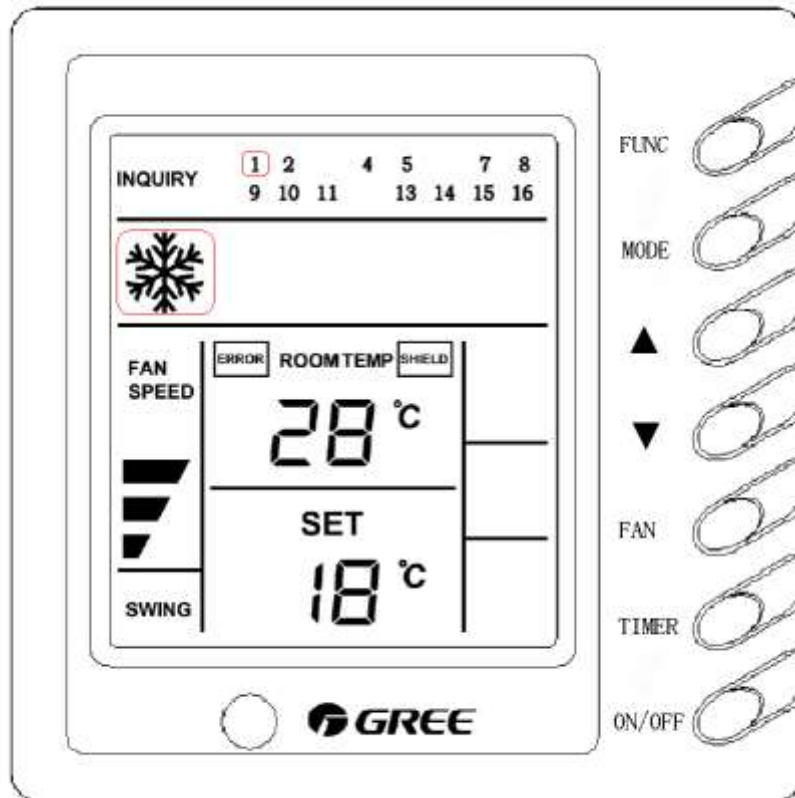
（Fig.6.1.1）

This figure indicates the inquiry for running mode of NO.1 indoor unit, and there are malfunctions to online indoor units. NO.1 indoor unit is in cooling mode, hi. Fan speed, swing ,28 ℃ indoor temp,18℃ set temp, and MODE button of wired controller is shielded.

Note: ☐ indicates the characters or icon in it is blinking. Following part is the same to it.
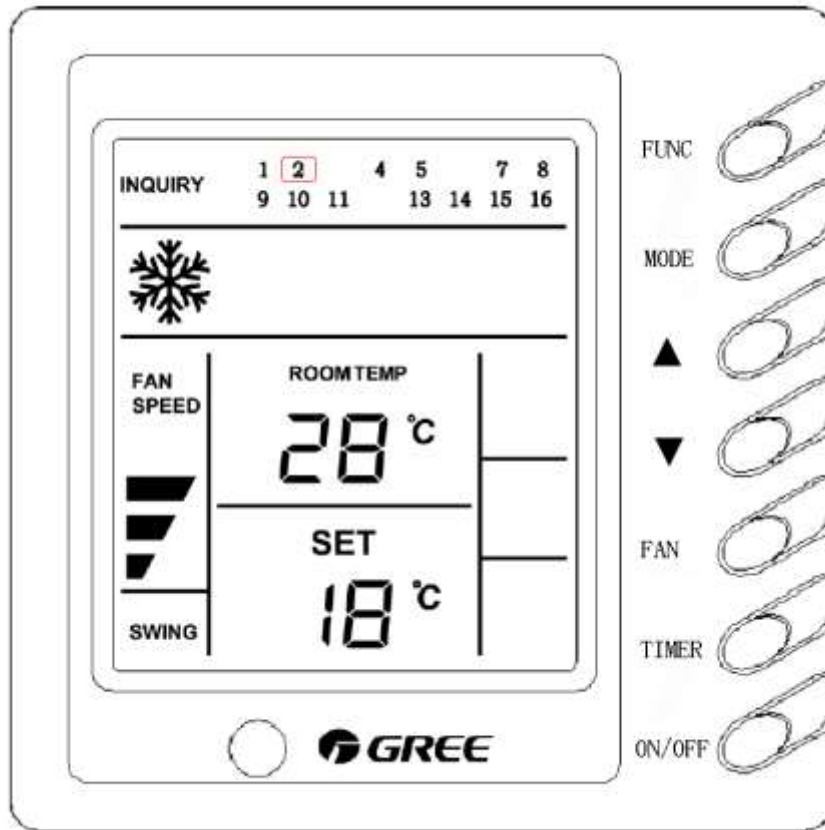
（Fig.6.1.2）

This figure indicates the inquiry for running mode of NO.2 indoor unit, and all online indoor units are normal. NO.2 indoor unit is in cooling mode, hi. Fan speed, swing ,28 ℃ indoor temp,18℃ set temp.
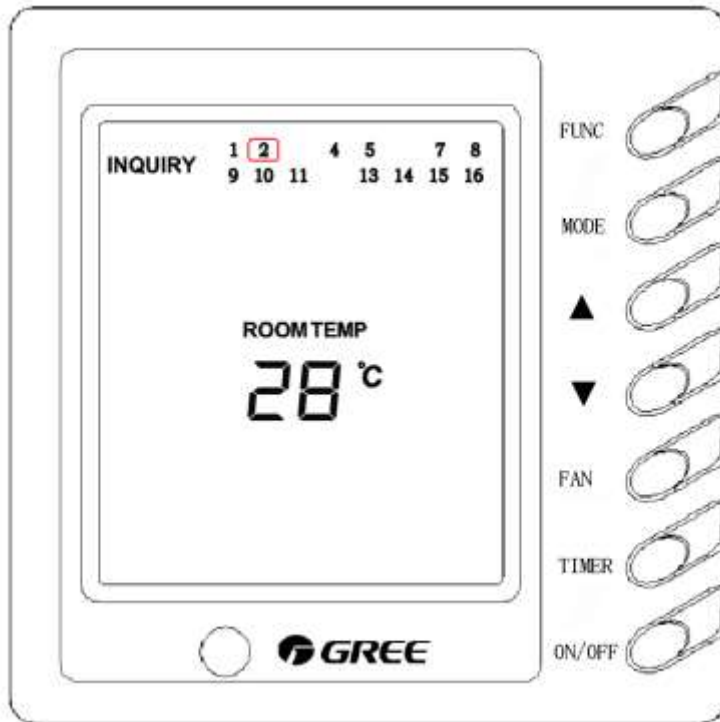
（Fig.6.1.3）

This figure indicates the inquiry for NO.2 indoor unit which is off with 28℃ indoor temp.
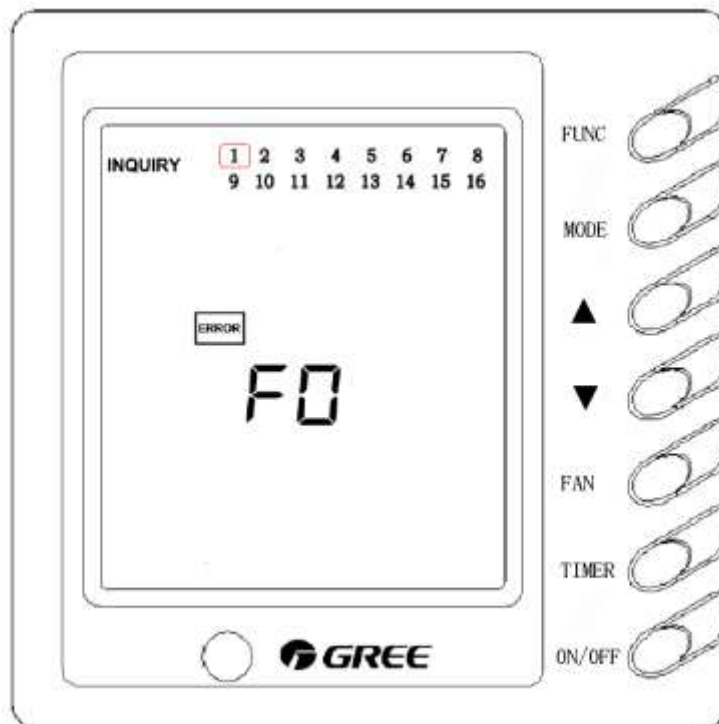
（Fig.6.1.4）

This figure indicates the inquiry for NO.1 indoor unit which is off with the indoor ambient temp malfunction.

Malfunction code of indoor/outdoor unit (Table.6.1):

Malfunction	Code
High-pressure protection	E1
Anti-low temperature	E2
Low-pressure protection	E3
High-temperature exhaust	E4
Overload protection	E5
Communication mal.	E6
Mode conflict	E7
Water-full protection	E9
Indoor ambient temp. sensor mal.	F0
Indoor inlet pipe temp. sensor mal.	F1
Indoor middle temp. sensor mal.	F2
Indoor outlet pipe temp. sensor mal.	F3
Outdoor ambient temp. sensor mal.	F4
Outdoor inlet pipe temp. sensor mal.	F5
Outdoor middle temp. sensor mal.	F6
Outdoor outlet pipe temp. sensor mal.	F7
Exhaust temp. sensor2 (fixed) mal.	F8
Exhaust temp. sensor2 (digital) mal.	F9
Oil temp. sensor2 (fixed) mal.	FA
Oil temperature sensor2 (digital) mal.	Fb
High--pressure valve mal.	Fc
Low-pressure valve mal.	Fd
Auxiliary-heat relay mal.	EH

（Table 6.1）

6.2 Single/Central control

6.2.1 Single control

Single control is effective if the controller is set to be region monitoring controller, or else it is ineffective. Operation procedure is as follow:

In inquiry status, press ▼ or ▲ button to select desired indoor unit.

① Press FUNC button into single control to set the running mode of indoor unit and give control order to the unit. Setting contents: mode, fan speed, temp., timer, shield and so on.

② Repress FUNC button to cancel single control.

Note: It indicates giving control order to selected indoor unit that "SET" blinks in the LCD.

Graphic example for single control:
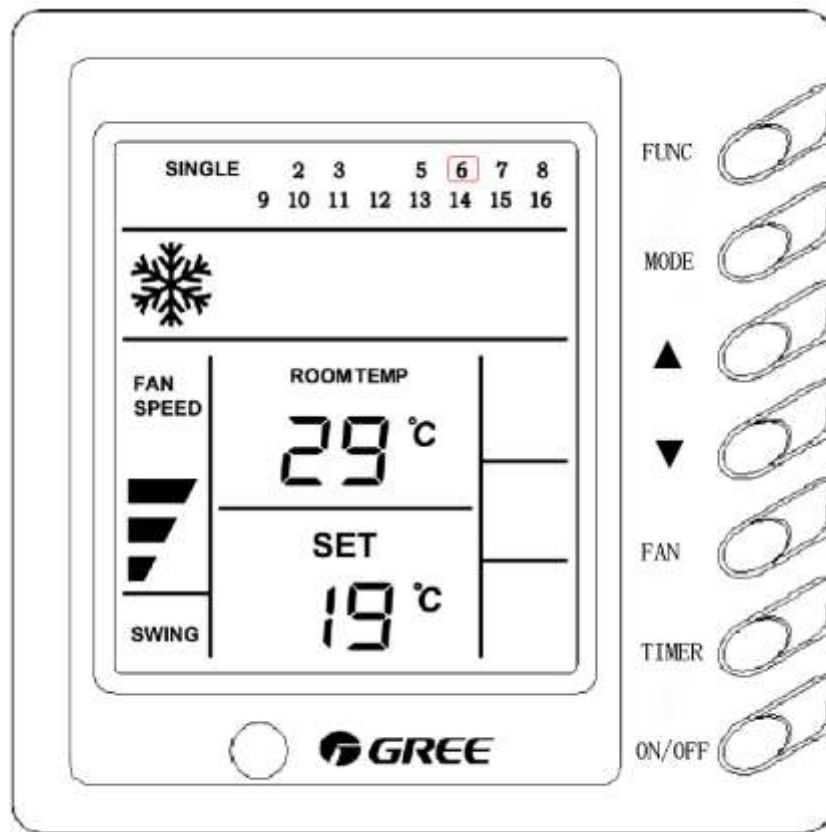
（Fig.6.2.1）

This figure indicates the single control to No. 6 indoor unit, whose running state is: cooling, swing,

hi. fan speed and 19℃ set temp.
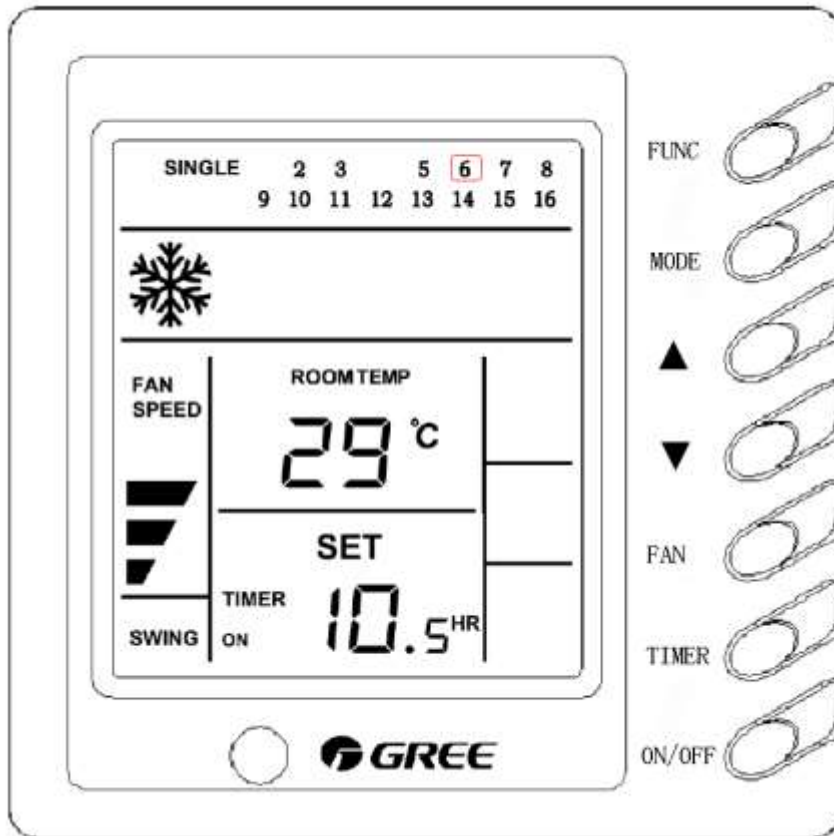
（Fig.6.2.2）

This figure indicates the single control to No. 6 indoor unit, whose running state is: cooling, swing, hi. fan speed and 10.5 hr for timer on, in which case, press TIMER button to set timer off ,then repress it to set temp.

6.2.2 Central control

Both of region monitoring controller and region wired controller possess the function of central control. As a region monitoring controller, it can concentratively control all online indoor units; as a region wired controller, it can concentratively control selected indoor units in this region. Operation procedure is as follow:

Region monitoring controller:

In inquiry status, press FUNC button into single control, and repress it into central control:

   ① Set the running mode of indoor unit: mode, fan speed, temp, timer, shield and so on.

② After setting them, successively press FUNC button to give central control order.

③ Repress FUNC button to cancel this function,

Region wired controller:

① In inquiry status, press FUNC button into central control:

② Press FUNC button into central control to set the running mode of indoor unit and give control order to the unit. Setting contents: mode, fan speed, temp., timer, shield and so on except lock and shield.

③Repress FUNC button to inquiry status.

Graphic example for central control:
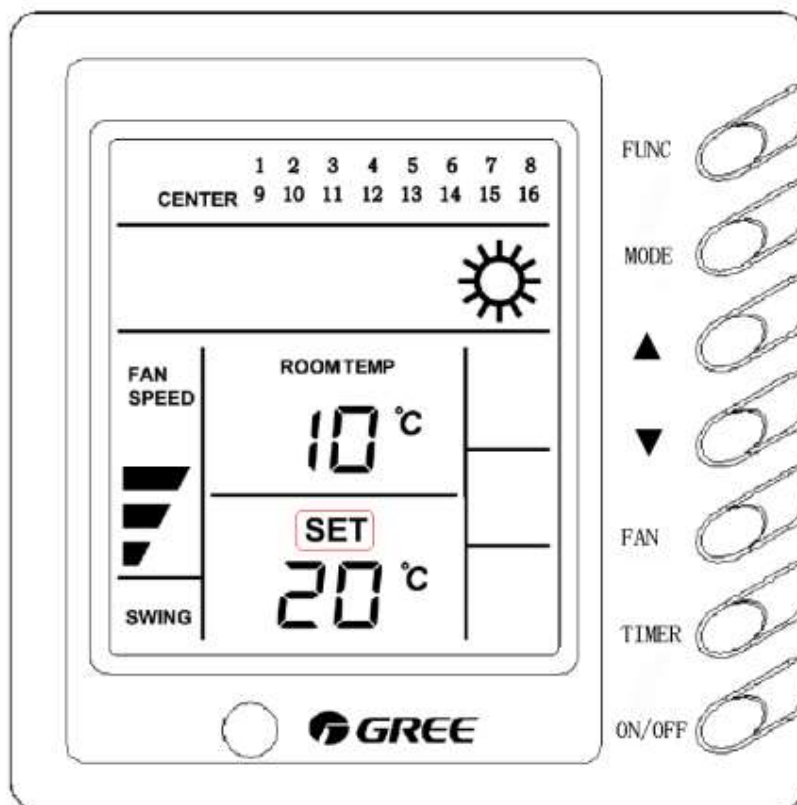
（Fig.6.2.3）

This figure indicates central control to all online indoor units, whose running states are: heating, swing, hi. fan speed and 20℃ set temp.
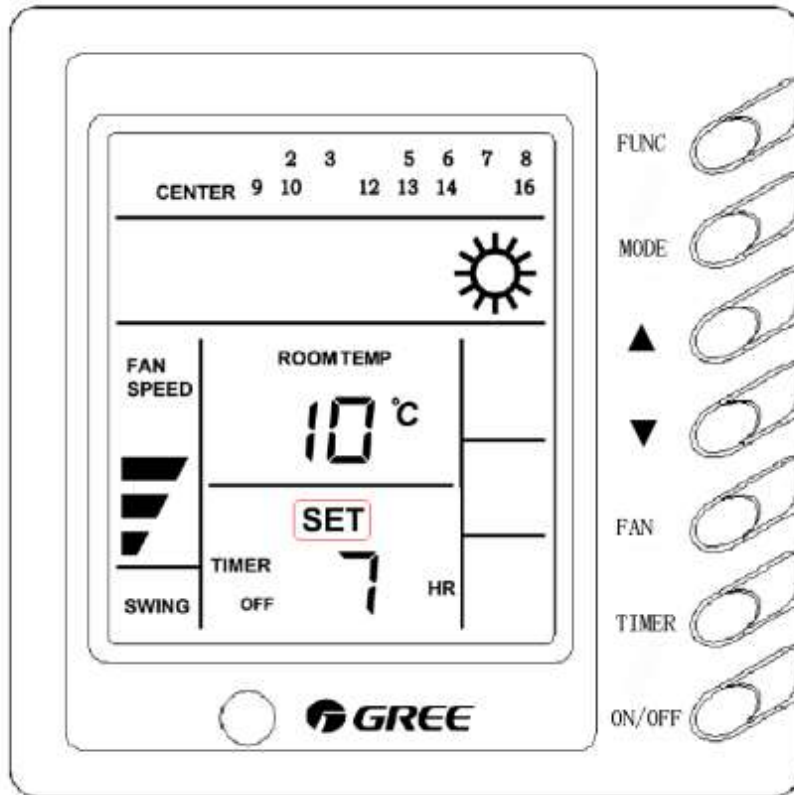
（Fig.6.2.4）

This figure indicates central control to all online indoor units, whose running states are: heating, swing, hi. fan speed and 7 hr for timer off, in which case, repress TIMER button to setting temp status.

6.3 Control setting

6.3.1 Running mode setting

If press MODE button once, the operation mode will change as the below sequence:
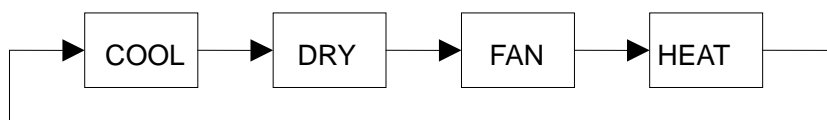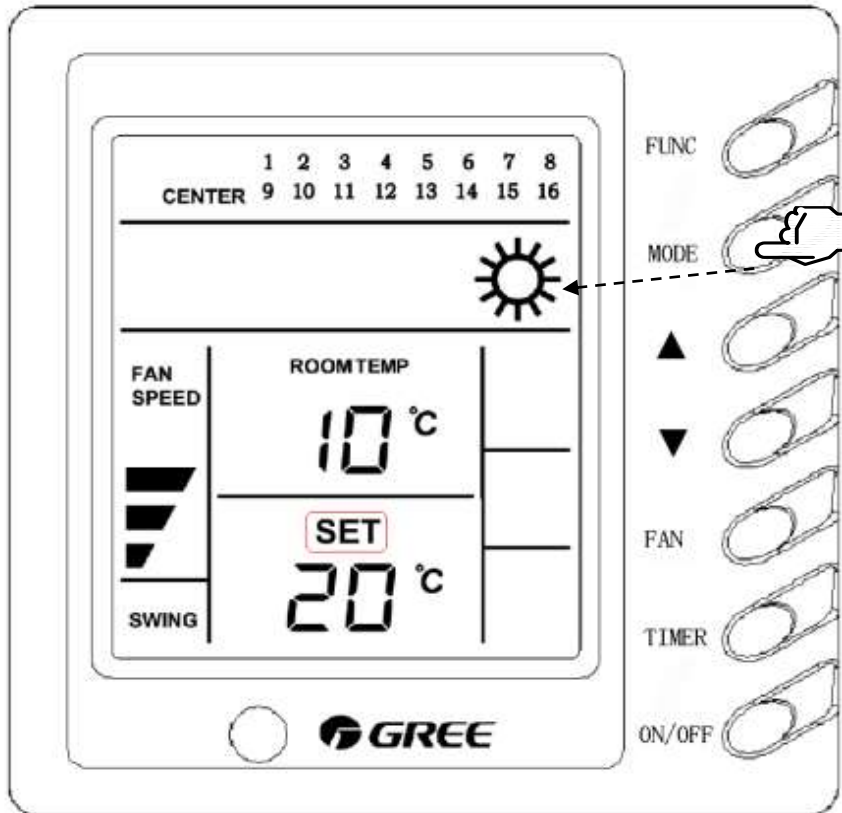
（Fig.6.3.1）

6.3.2 Temp adjustment

Press ▲ button to increase set temp.

Press ▼ button to decrease set temp.

If press ▲ or ▼ for 2s, the temp will increase or decrease by 1℃ every 0.5s.

In each mode, the range of temp setting is16℃～30℃.
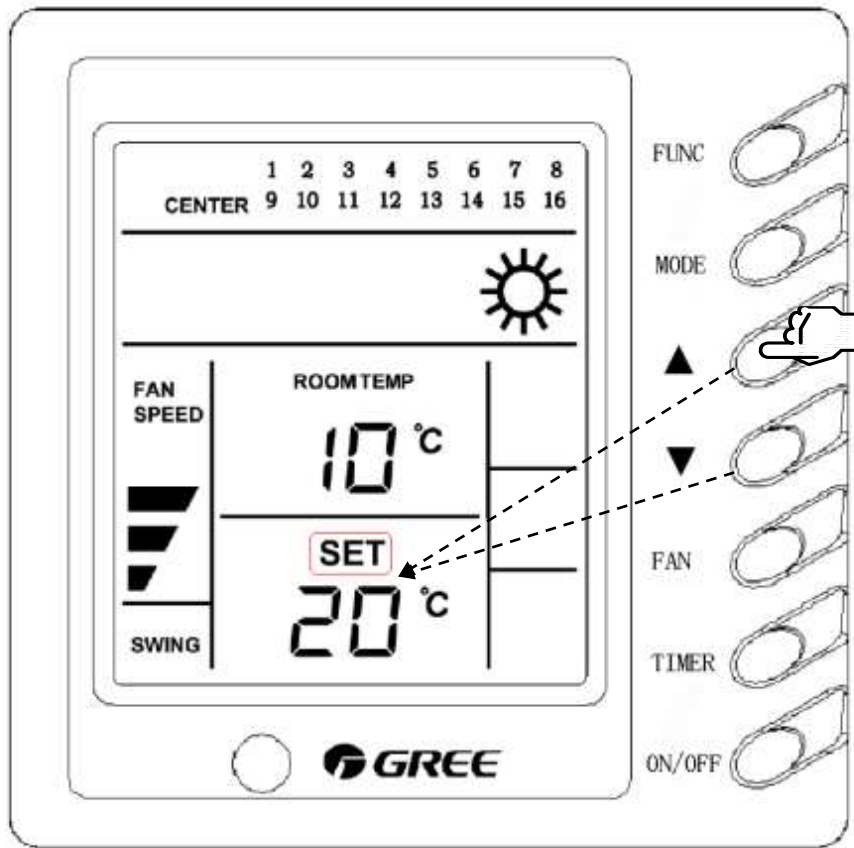
（Fig.6.3.2）

6.3.3 Fan speed control

If press FAN button once, the fan speed will change as the below sequence:

AUTO → LOW → MID → HI
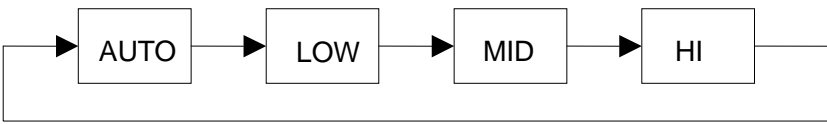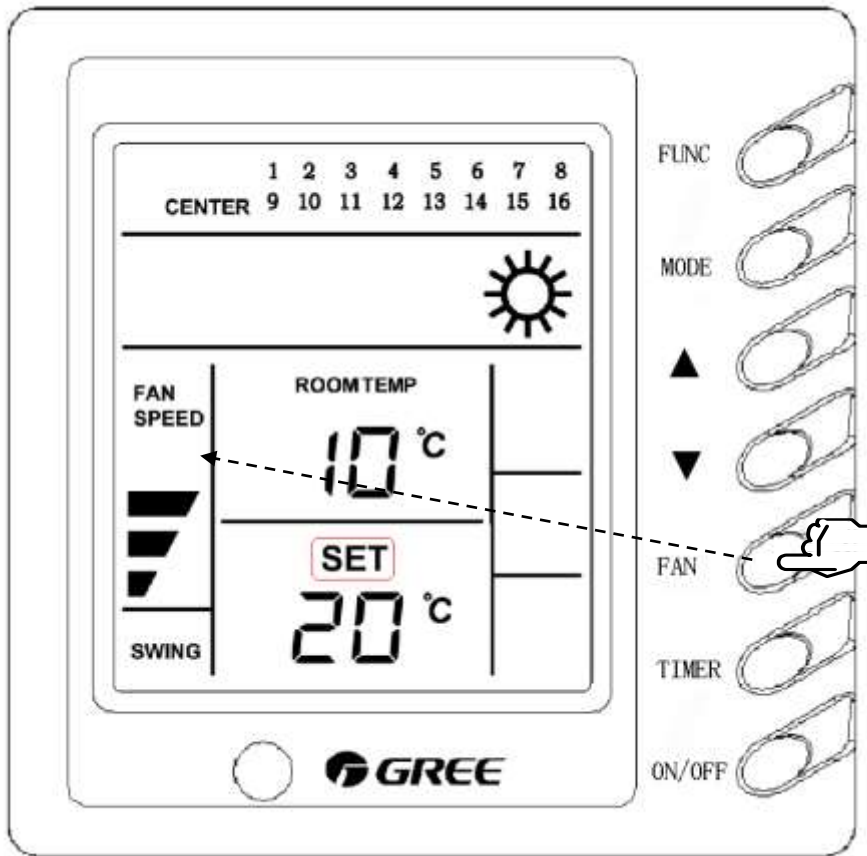
（Fig.6.3.3）

6.3.4 Swing setting

If successively press FAN button once, the swing control will change as the below sequence:

```
 ┌─────────┐          ┌─────────┐
 │  SWING  │ ───────► │ NO SWING│
 └─────────┘          └─────────┘
      ▲                    │
      └────────────────────┘
```
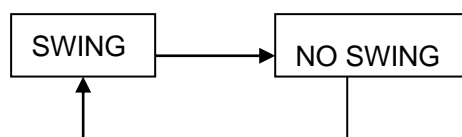
Note: Successively press indicates the time of pressing the button is more than 3s.
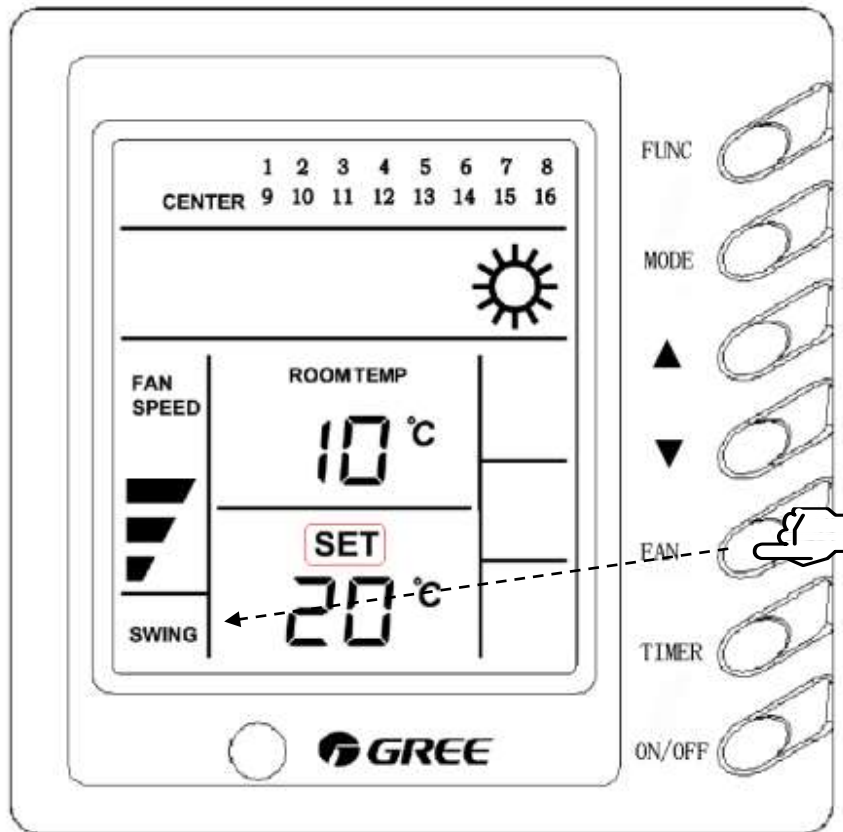
（Fig.6.3.4）

6.3.5 Timer setting

If press TIMER button once, TIMER /ON, TIMER/OFF and SET TEMP will change as the below sequence:

TIMER /ON ⟶ TIMER/OFF ⟶ SET TEMP
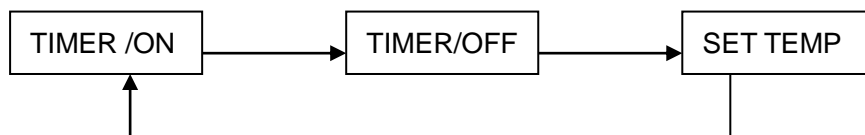
Switch TIMER /ON setting and TIMER/OFF setting by pressing TIMER button. Press ▲ or ▼ button to set the timer time by 0.5-hour interval, maximum: 24hr. If press ▲ or ▼ for 2s, the timer time will increase or decrease by 0.5 hr in every 0.5s.
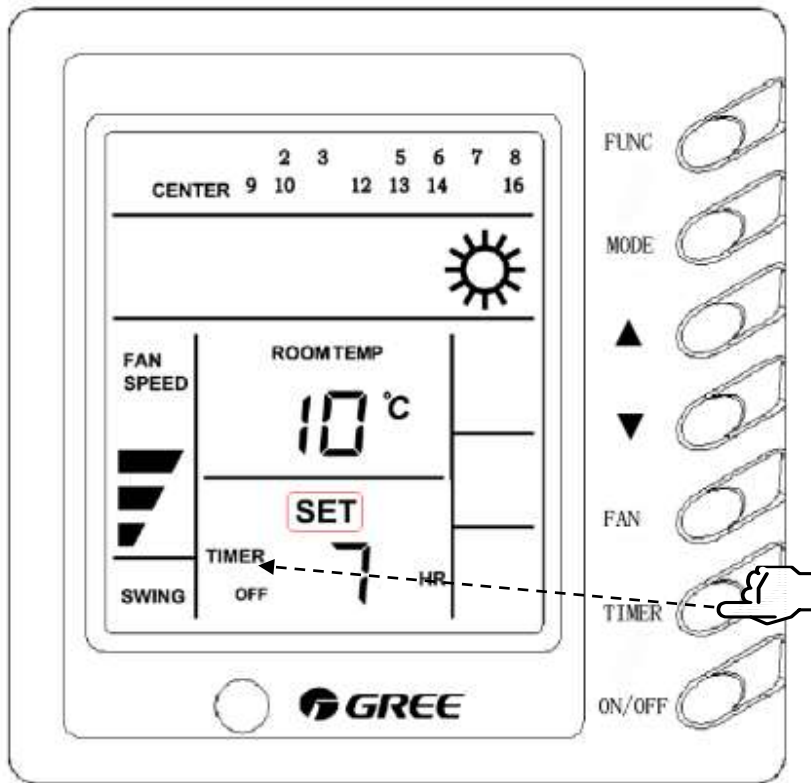
（Fig.6.3.5）
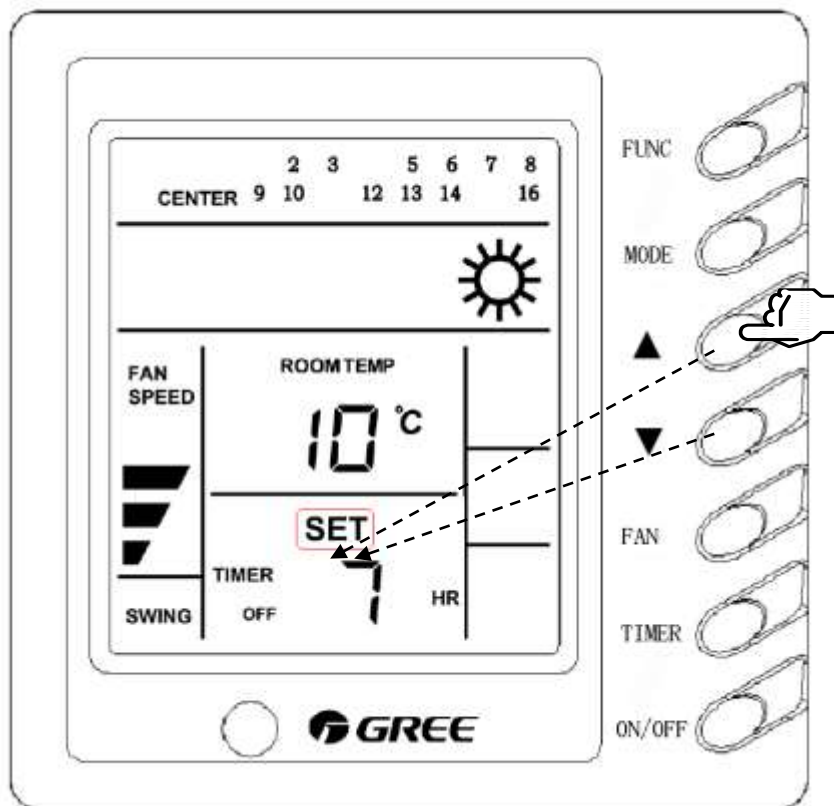
（Fig.6.3.6）

6.3.6 Shield and lock

If Mini Centralized Controller is used as region monitoring controller, the functions of shield and lock are effective, which can be set under single control or central control.

1.Shielding ON/OFF: press ON/OFF and TIMER simultaneously to start / stop the shield of operation to ON/OFF button of wired controller for indoor unit." SHIELD" is displayed during shielding and "ON/OFF" will blink when the unit is on. Refer to Fig. 6.3.7

2. Shielding MODE: press MODE and TIMER simultaneously to start/ stop the shield of operation to MODE button of wired controller for indoor unit. " SHIELD" is displayed during shielding and mode icon will blink when the unit is on. Refer to Fig. 6.3.8

3. Shielding TEMP: press ▼ and TIMER simultaneously to start/ stop the shield of operation to TEMP button of wired controller for indoor unit. " SHIELD" is displayed during shielding and "℃" will blink when the unit is on. Refer to Fig. 6.3.9

4. Lock: press MODE and ON/OFF simultaneously to start/ stop the lock of operation to all buttons of wired controller for indoor unit. "LOCK" is displayed during locking. Refer to Fig.6.3.10.

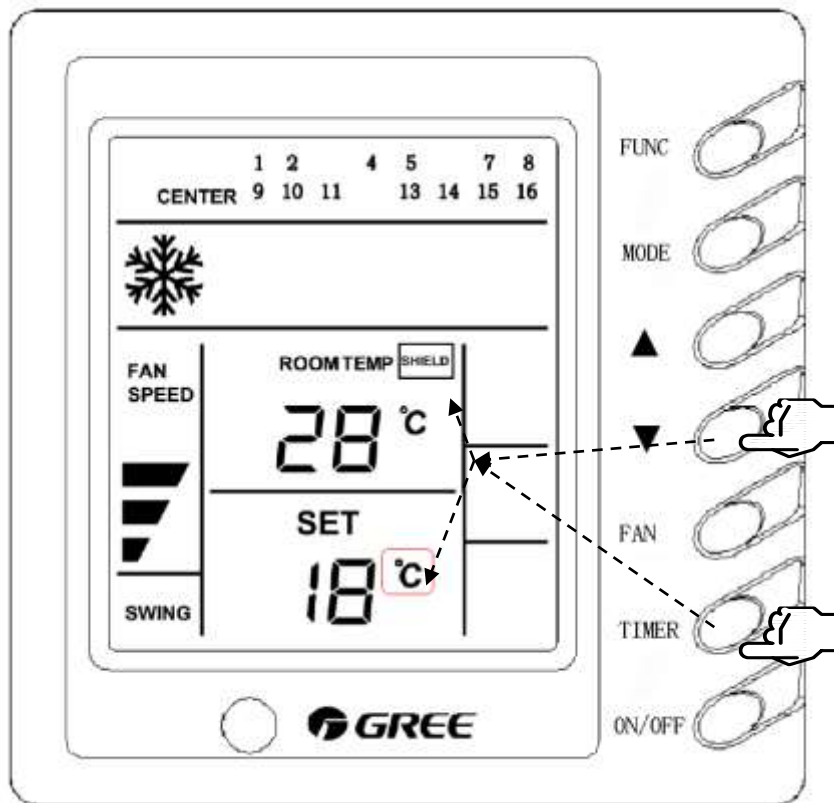Note: If lock function is effective, meanwhile, shield function is ineffective.
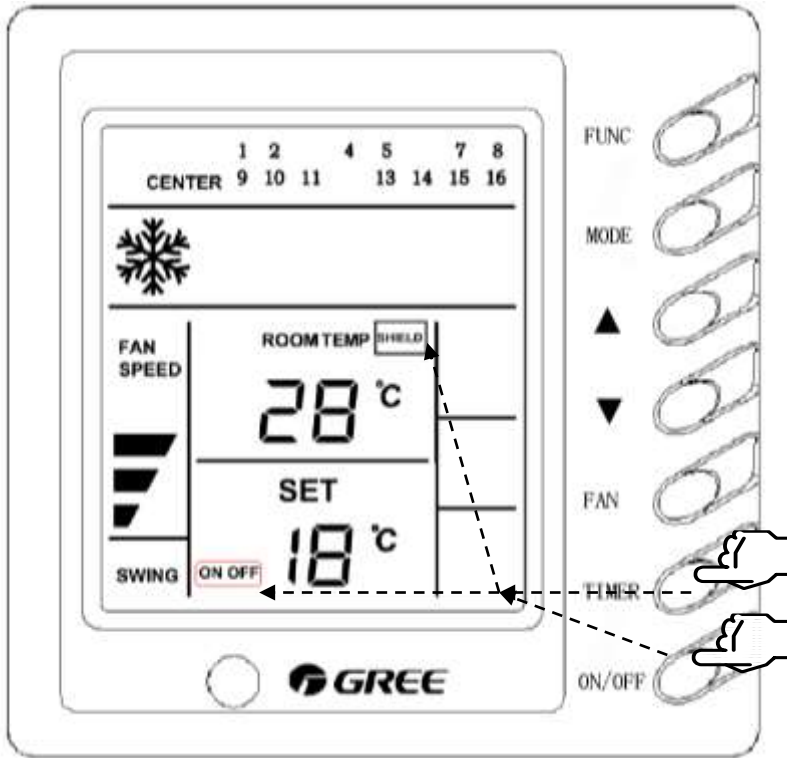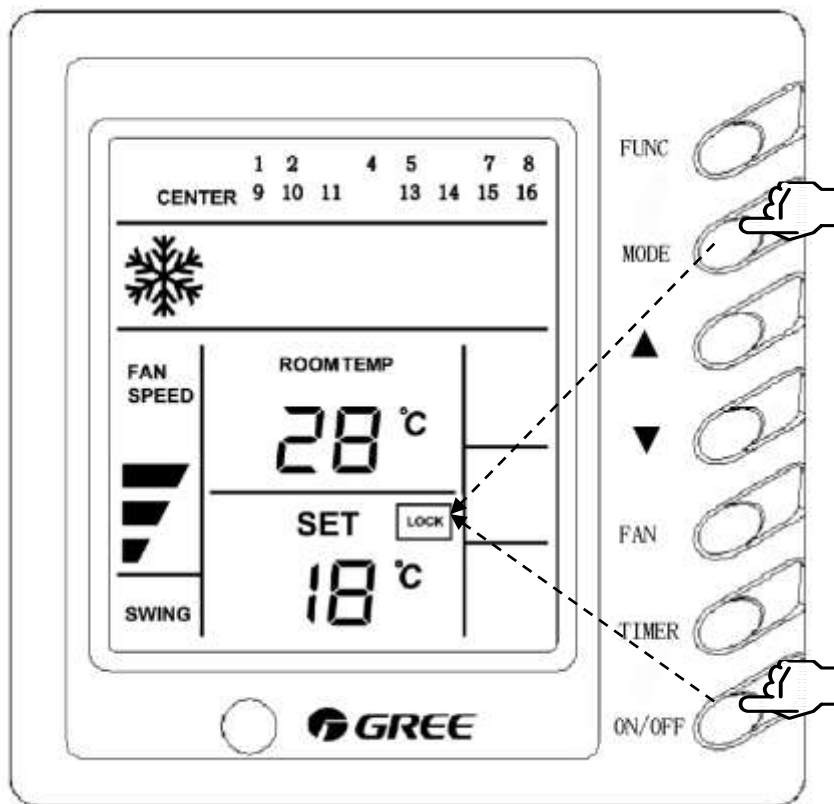
（Fig.6.3.7）

Shielding ON/OFF
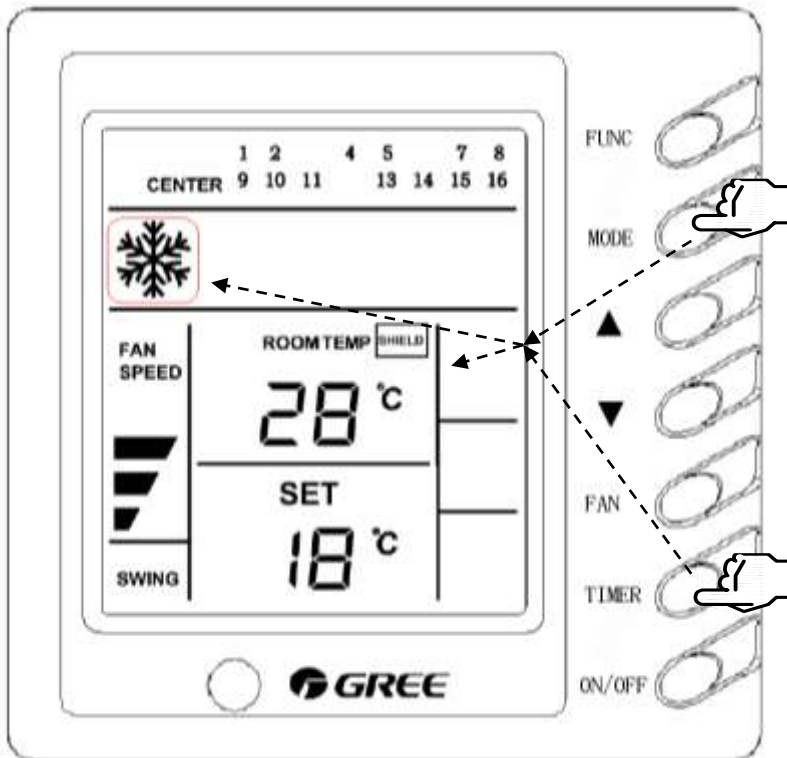
（Fig.6.3.8）

Shielding MODE

（Fig.6.3.9）

Shielding TEMP

（Fig.6.3.10）

Lock setting

6.4 Power-off memory function

Mini Centralized Controller has the function of memorizing setting status of each indoor unit before power off. Once re-energized, the Mini Centralized Controller will recover the indoor unit into former running status through giving memorial setting orders , such as ON/OFF, MODE, SET TEMP, FAN SPEED and SWING (as well as LOCK and SHIELD for region monitoring controller),   to the indoor units in a group or region.

There are 3 ways of memory for Mini Centralized Controller ——"00", "01" and "02"

"00" is default status, which indicates the controller will auto recover the indoor unit into the running status before power off when re-energized.

"01" indicates that when re-energized the controller will memorize the running status of indoor unit before power off and force the indoor unit off. If the function of shielding or locking ON/OFF is set before power off, the unit will be auto recovered into former running status when re-energized, i.e. as the memory way of "00"

  "02" indicates that power-off memory is ineffective.

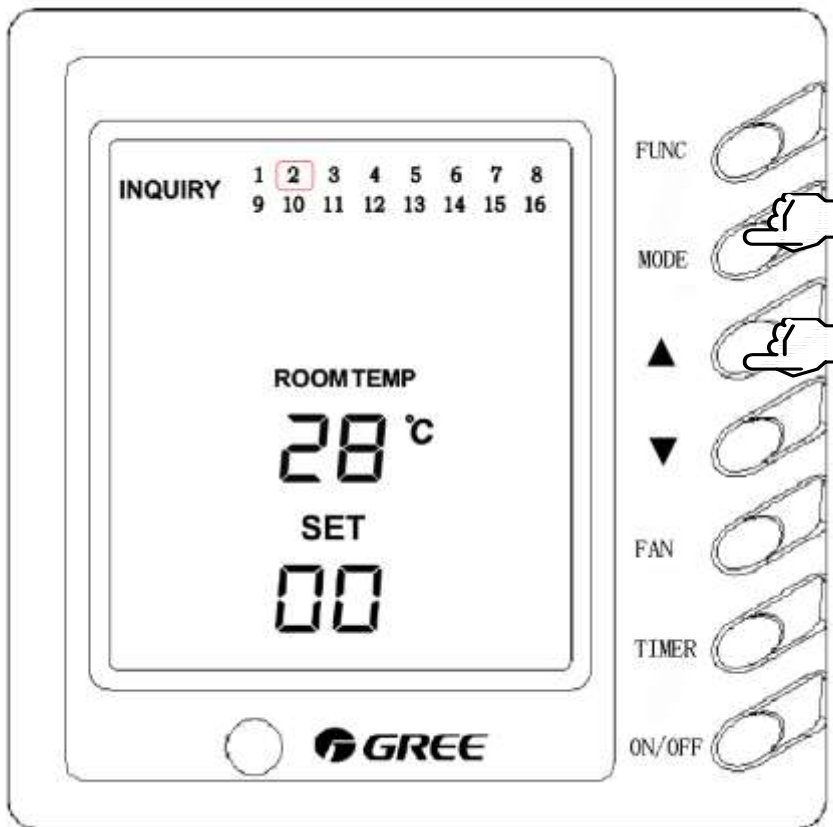Button operation to select memory way (as shown in Fig. 6.4.1, Fig. 6.4.2, Fig. 6.4.3)

1. In inquiry status, press MODE+▲ for 1s, the memory ways will be displayed in the region of SET TEM of LCD——"00 / 01 / 02"

2.If successively press MODE+▲ for 5s, the Mini Centralized Controller will switch the memory way as below sequence:

```
┌──────┐      ┌──────┐      ┌──────┐
│  00  │ ───▶ │  01  │ ───▶ │  02  │
└──────┘      └──────┘      └──────┘
    ▲                           │
    └───────────────────────────┘
```
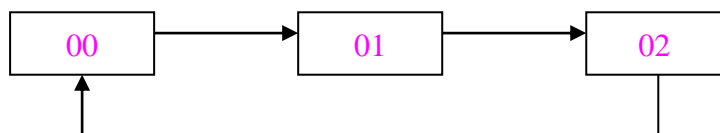
The memory ways will still be displayed for 5s after stopping pressing the buttons, and then inquiry status will return.

Graphic examples for selecting memory ways

INQUIRY 1 [2] 3 4 5 6 7 8
9 10 11 12 13 14 15 16

ROOM TEMP

28 ℃

SET

00

FUNC
MODE
▲
▼
FAN
TIMER
ON/OFF

GREE

（Fig.6.4.1）

This figure indicates that the controller will auto recover the indoor unit into the running status before power off when re-energized.
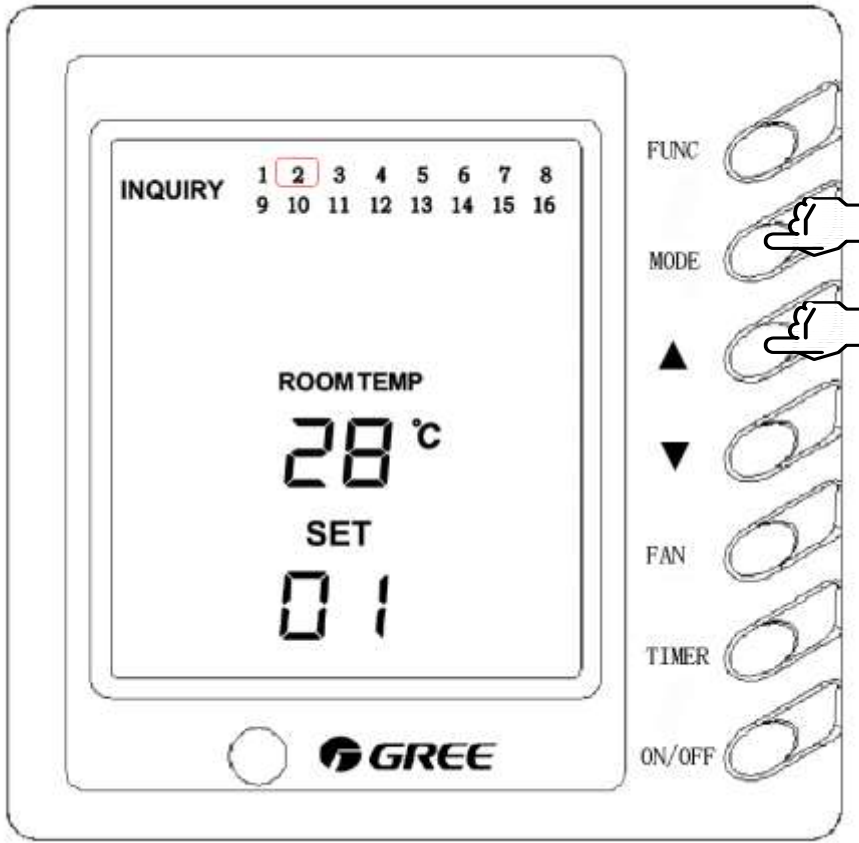
（Fig.6.4.2）

"01" indicates that when re-energized the controller will memorize the running status of indoor unit before power off and force the indoor unit off.
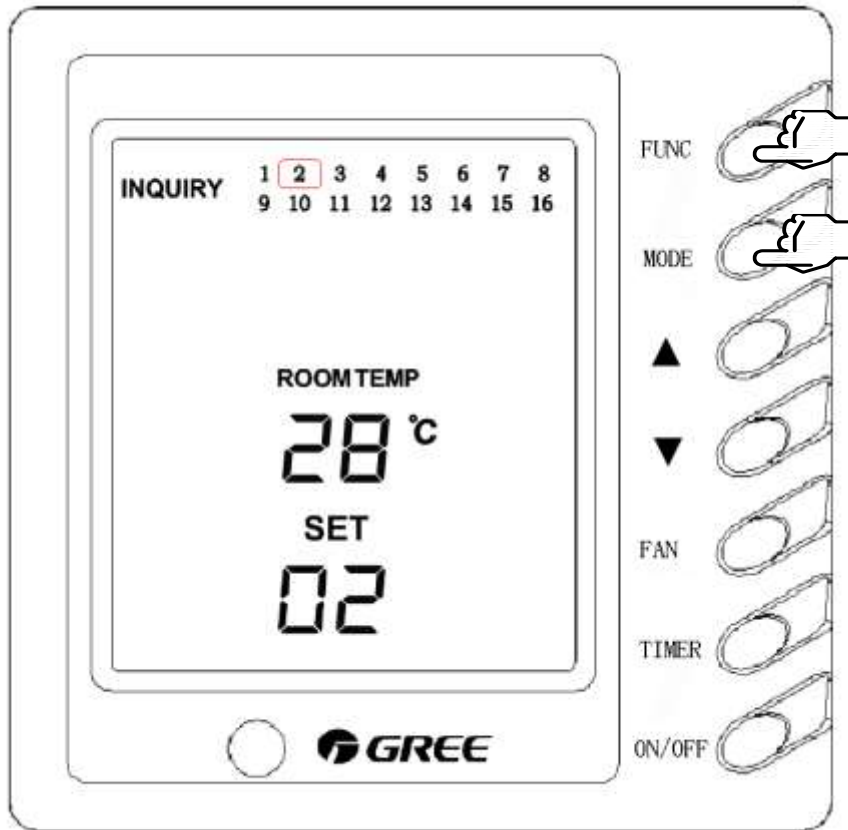
"02" indicates that power-off memory is ineffective.

7. Project Debugging Setting to Mini Centralized Controller

7.1 Selection of controller function

For two functions of Mini Centralized Controller, the region monitoring controller and region wired controller, the user must select desired function before using.
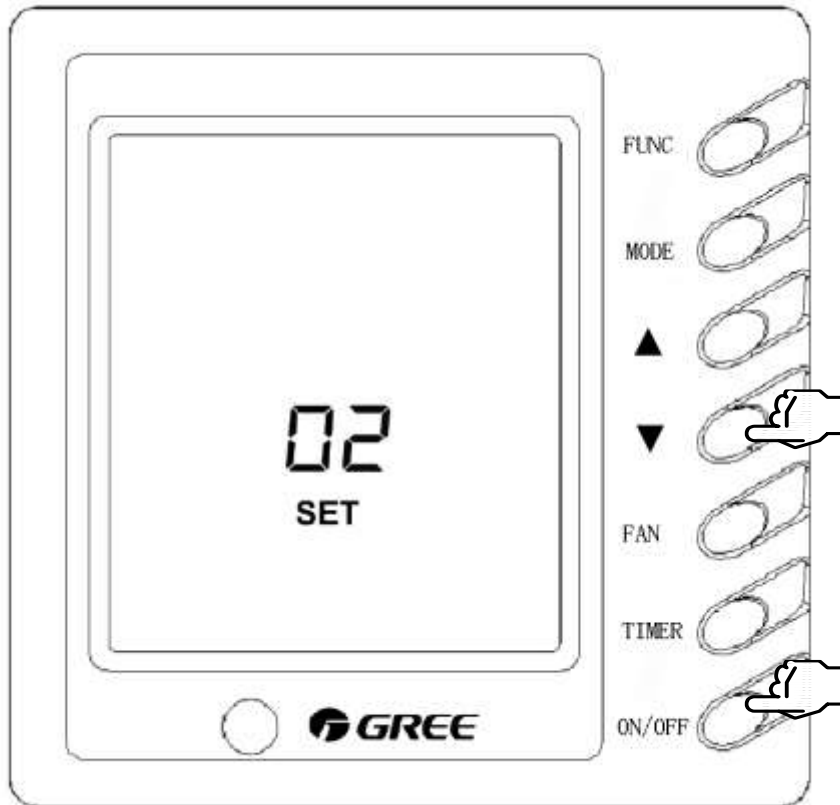
There are 3 functions for selection——"00","01" and "02",as shown in Fig. 7.1,7.2,7.3.
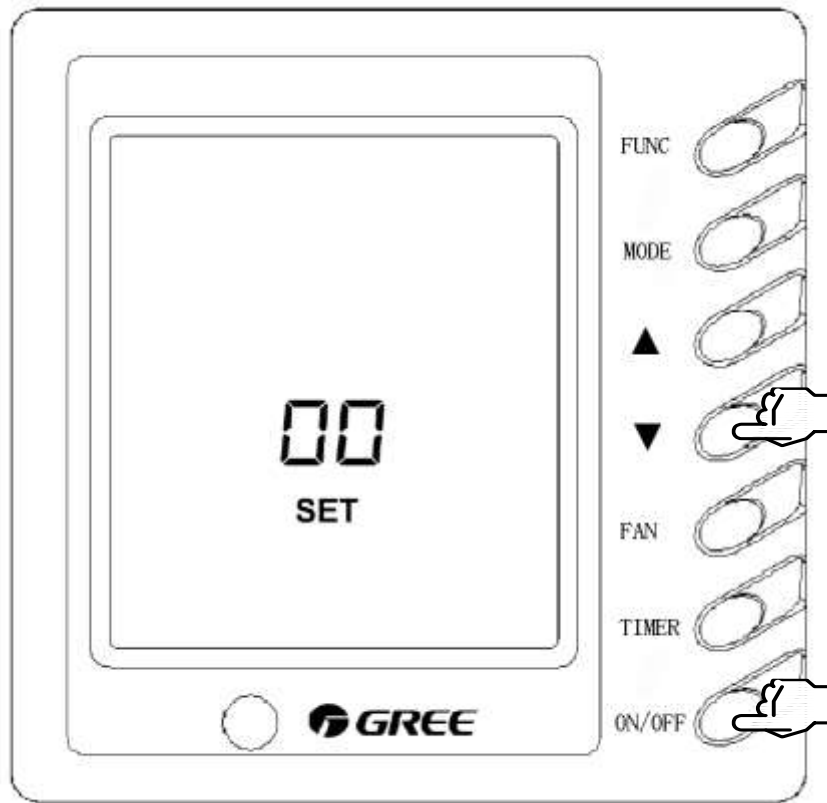
（Fig.7.1）
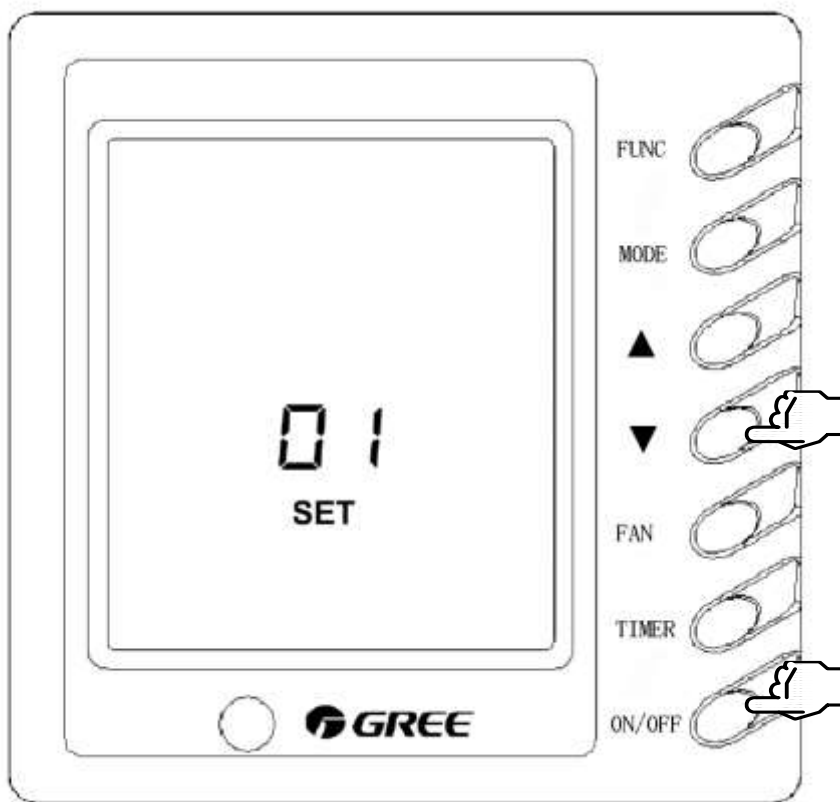
（Fig.7.2）

（Fig.7.3）

　"00" indicates the Mini Centralized Controller is in factory initial state without function setting. If energized, the controller will display "00" at "ROOM TEMP", in which case, it is ineffective to indoor unit.

　"01" indicates the Mini Centralized Controller is set to be **region monitoring controller**, which will perform normal control in 10s.

　"02" indicates the Mini Centralized Controller is set to be **region wired controller**, in which case, desired indoor units No. need to be selected and wired controller matched with indoor unit must be removed to ensure normal working. The selection of indoor units is exactly introduced in next section 7.2.

Operation to function selection

　1. Press ▼+ON/OFF for 1s, function codes will be displayed at "ROOM TEMP" in LCD-----"00 / 01 / 02"

　2. Press ▼+ON/OFF for 5s to set or switch the function of controller. After power on, short-circuit the two pads of CLR on controller PCB, which will make the state return to initial state "00".

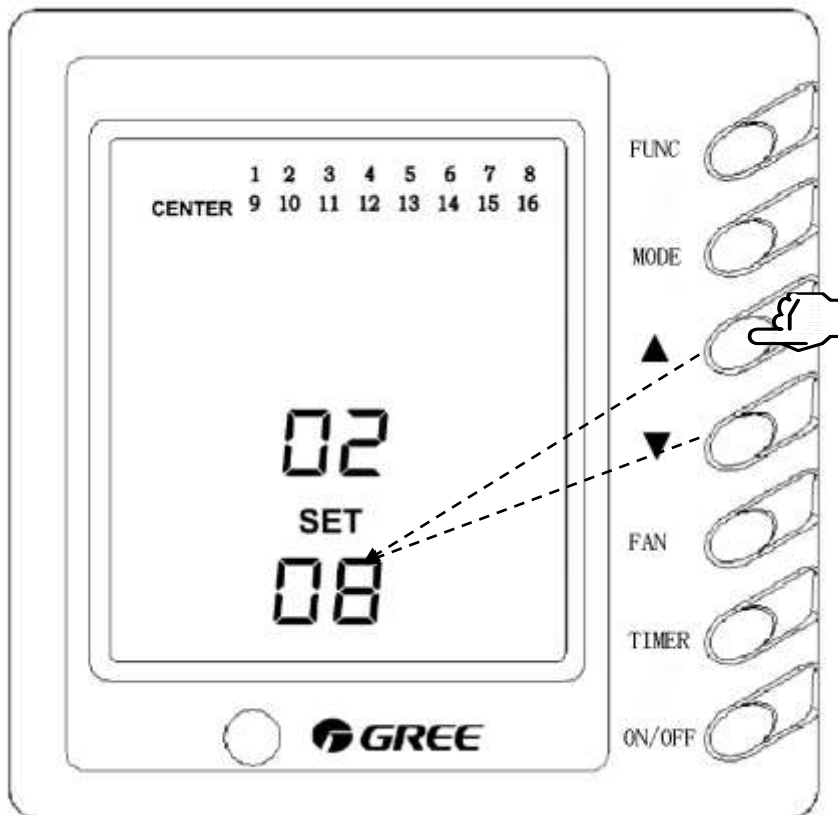The change of switching the function is as follow:
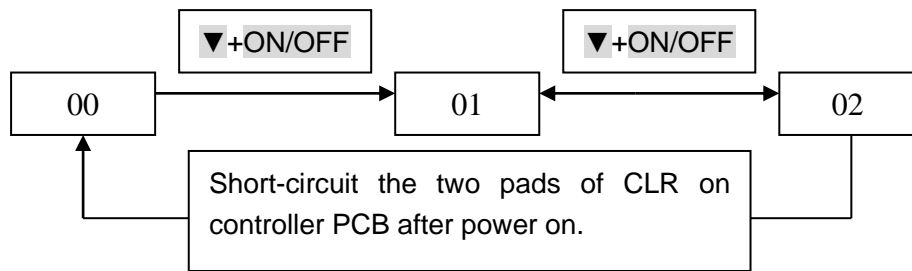
7.2 Selection of indoor units

Desired indoor units need to be selected when the controller is set to be region wired controller, so selected indoor units addresses must be accordant with their actual ones; furthermore, two or more Mini Centralized Controllers in the same group can not co- control one indoor unit ,i.e. one indoor unit just can be controlled by only Mini Centralized Controller. Selection of indoor units is as follow:
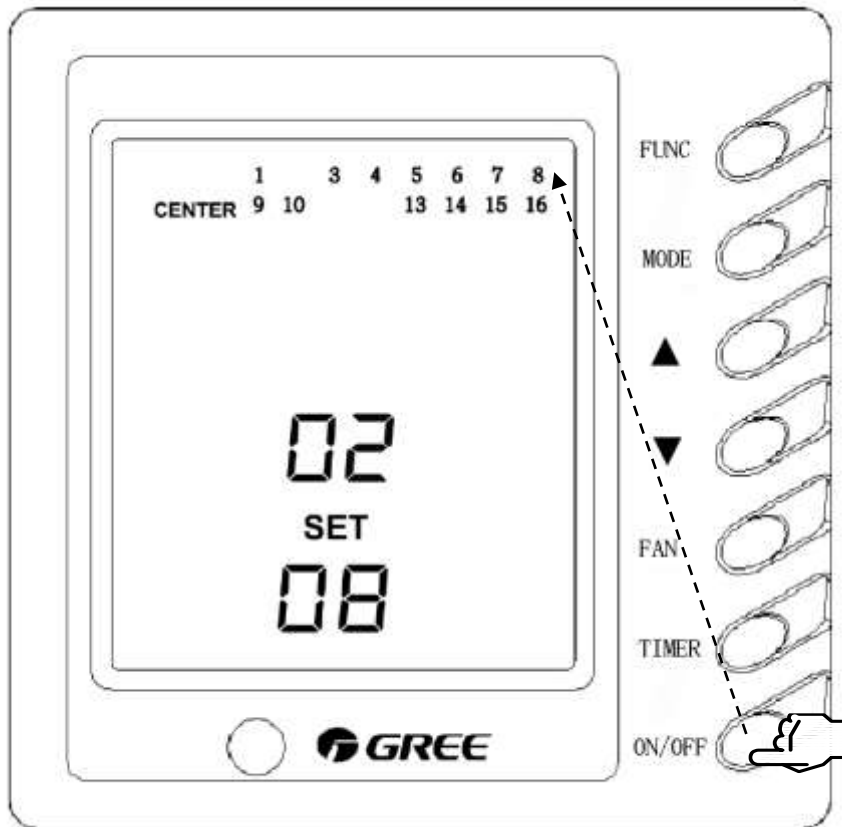
1. Switch the controller function to "02", and then enter into selection interface 10s later, as shown in Fig. 7.3, 7.4.

2. Press ▲ or ▼ to switch the indoor No. Refer to Fig. 7.5

3. Press ON/OFF to select/cancel indoor unit No. Refer to Fig. 7.6

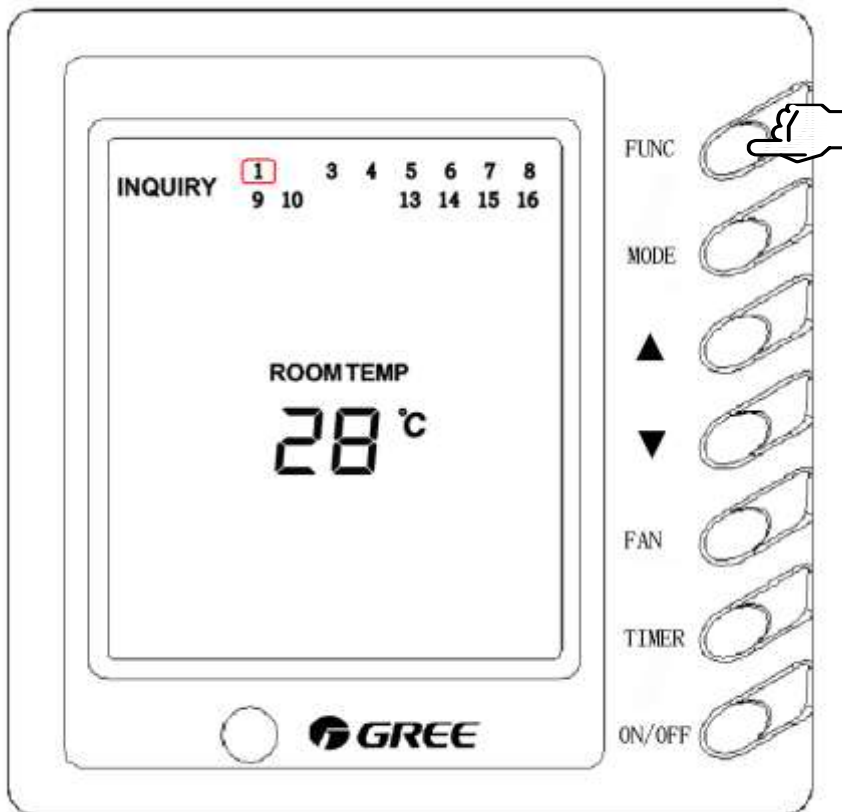4. After selection, press FUNC into normal working state. Refer to Fig. 7.7
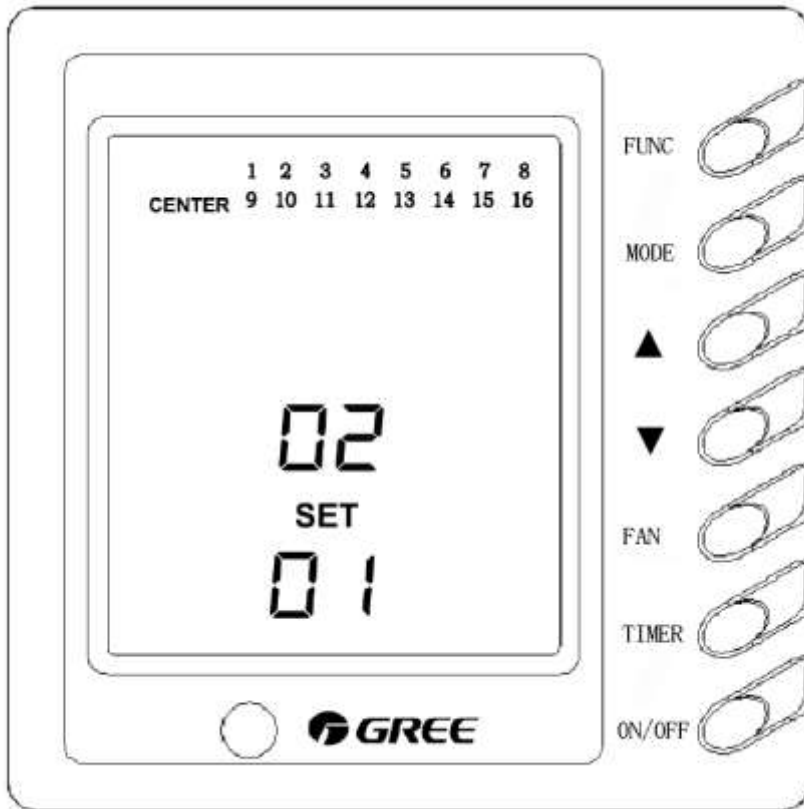
（Fig.7.4）

（Fig.7.5）

（Fig.7.6）

（Fig.7.7）

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