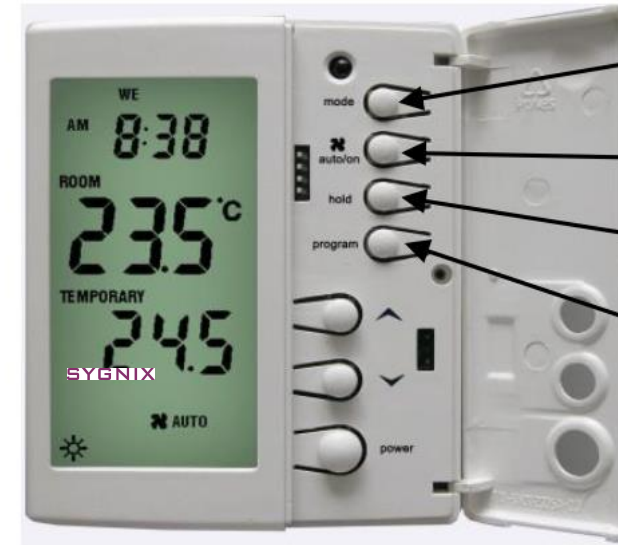# SYGNIX

Programable Thermostat Controller – Floating Point

Submittals and Technical Specifications

Electronic Fan Coil Thermostat – Floating Point Analog Heating / Cooling Output

Construction and Interface

cooling/heating/fan switch

auto / manual fan speed switch

temporary / continuous/ programming temperature switch

7-day Programming

Features and Application

◆ Programmable thermostat for Fan Coil Unit of air conditioning systems. It's designed to maintain your requested room temperature by 7-day program.

◆ Setting and operation easily by perfect buttons and large LCD. Provides a more comfortable and convenient living environment.

◆ Programmable control with 7-day of daily four time periods and four temperatures.

◆ Large LCD displays messages for quick and easy monitoring and operation such as temperature measurement, set point, fan and valve working status, clock and program, etc.

◆ For two floating control outputs, cooling/heating automatic changeover by preset dead zone

◆ Attractive turn-cover design, frequent using buttons on the surface of the cover for quick and easy operation. Programming buttons in the interior to eliminate accidental setting changes.

◆ Auto/ manual fan speed switch selectable.

◆ °F or °C temperature display selectable.

◆ Temporary / continuous/ programming temperature can be switched in temporary application.

◆ All setup are kept on after power failure.

Technical Data

|	
Power supply	24VAC
Power consumption	Ave. ≤ 3.8W
Outputs	Three thyristor outputs for 3-speed fan with each 0.5A max. load Four thyristor outputs for two floating valves with each 0.2A max. load
Sensor	NTC 5K @25℃

Technical Data

|	
Temperature Setting	Celsius or Fahrenheit
Temperature control range (for heat/ cool)	5~35℃ (41~95℉)
Accuracy	±0.5℃ (±1℉) @25℃
Programmability	One week/7-day programmable and up to four time periods and temperatures pre-set for each day
LCD Display	91mm(L)X46mm(W)
Buttons	On the surface: power/ increase/ decrease Inside: for programming
Housing	PC/ABS plastic material with IP30 protection class
Net weight	370g
Dimensions	110mm(L)×90mm(W)×25mm(H) +28.5mm(back bulge)
Mounting standard	Mounting on the wall, 2"×4"or 65mm×65mm box

Electrical Schematic
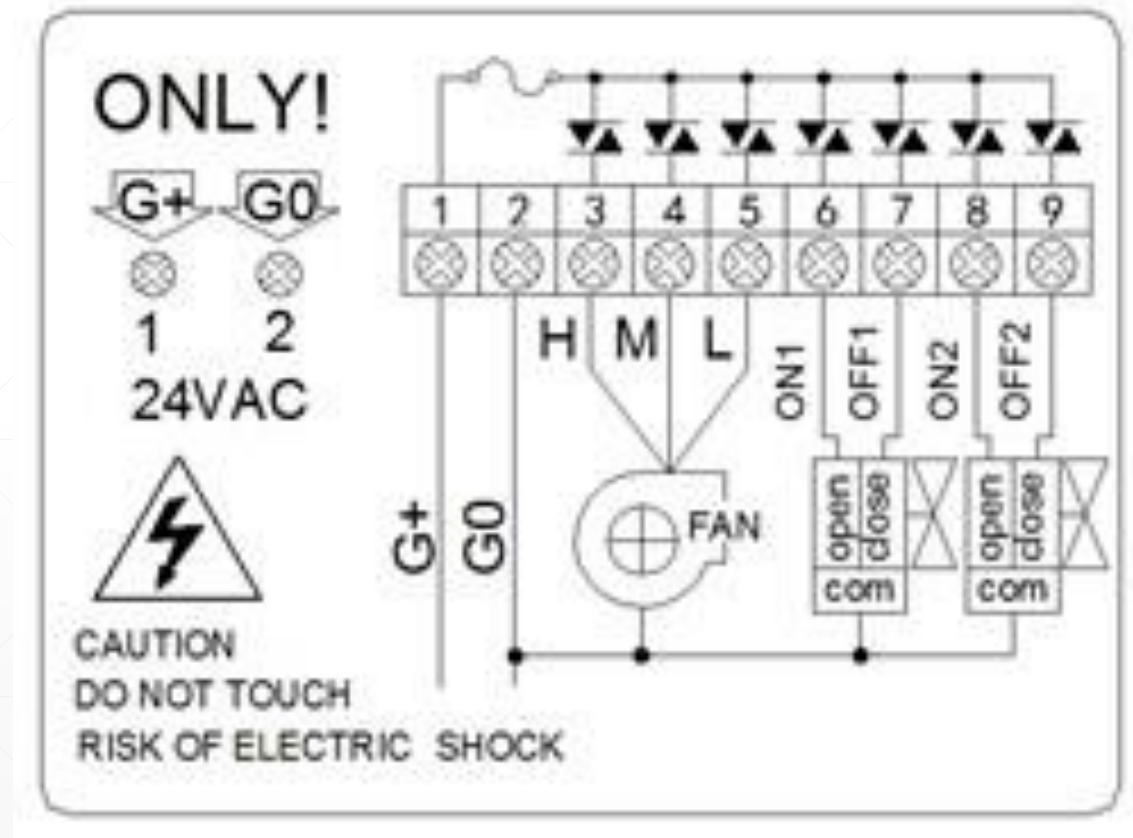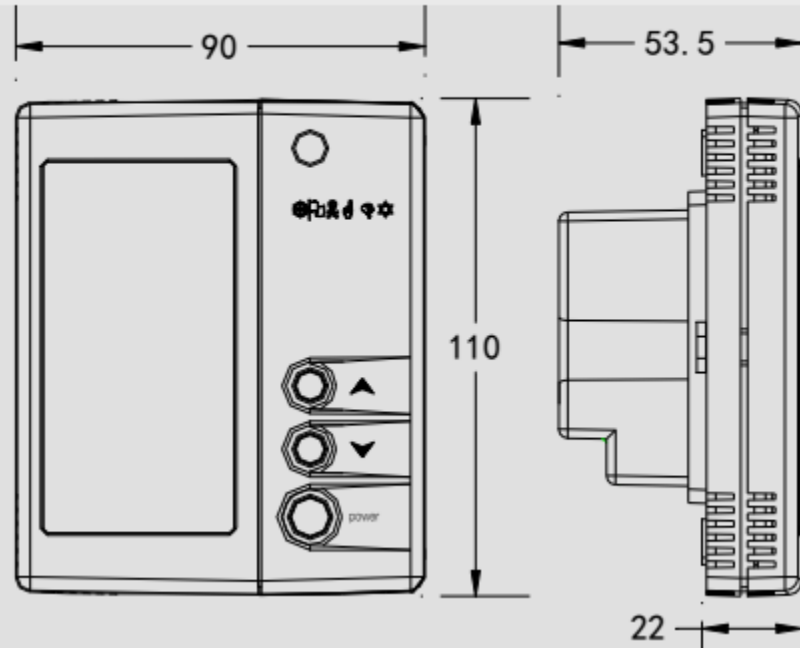
Dimensions and Mounting
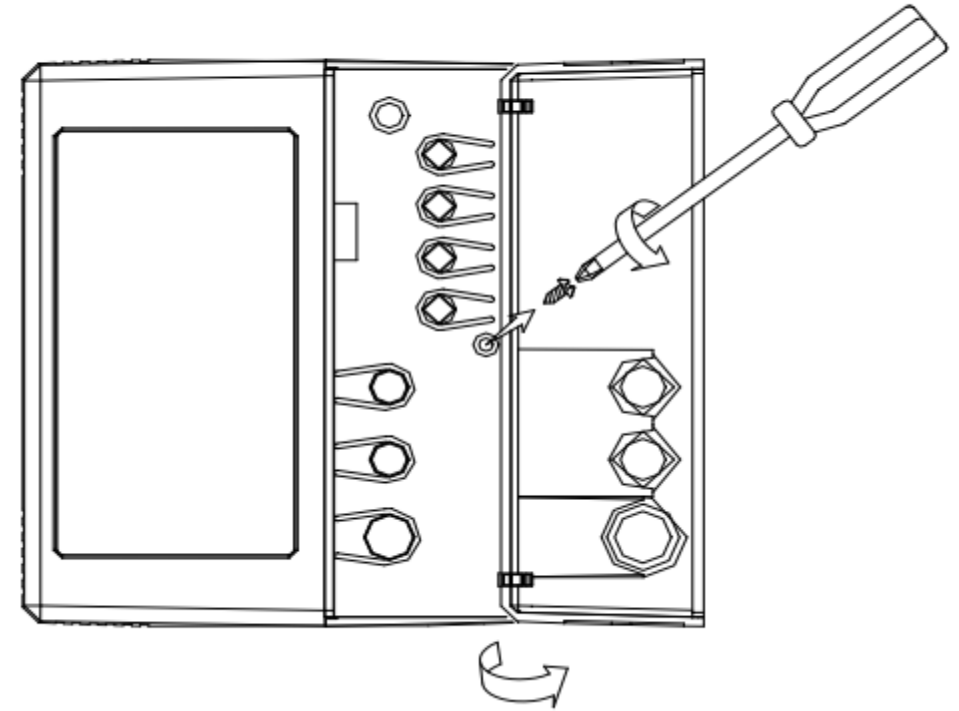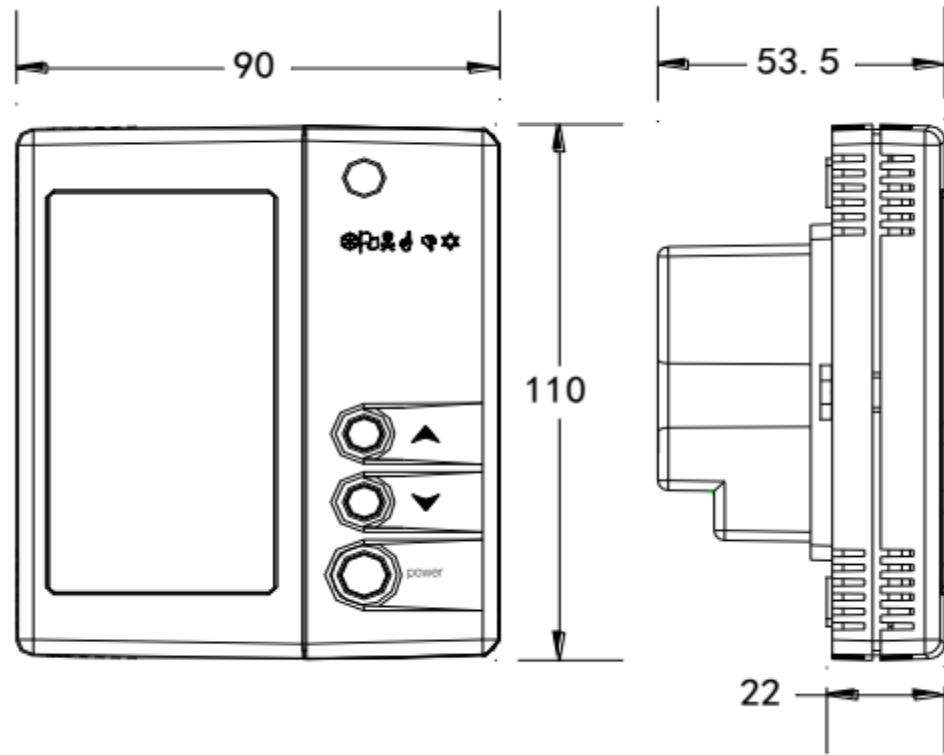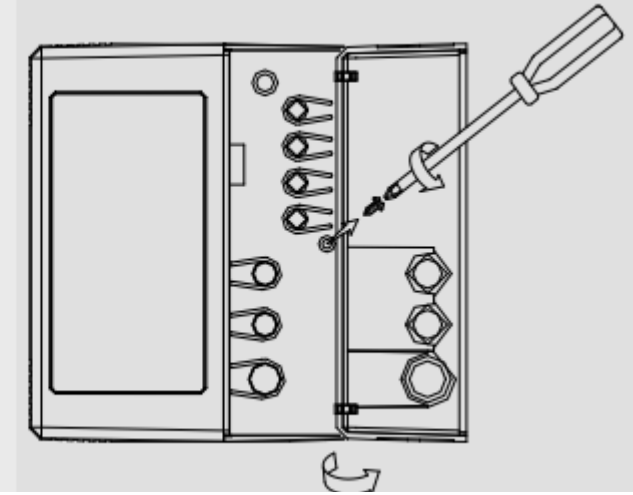
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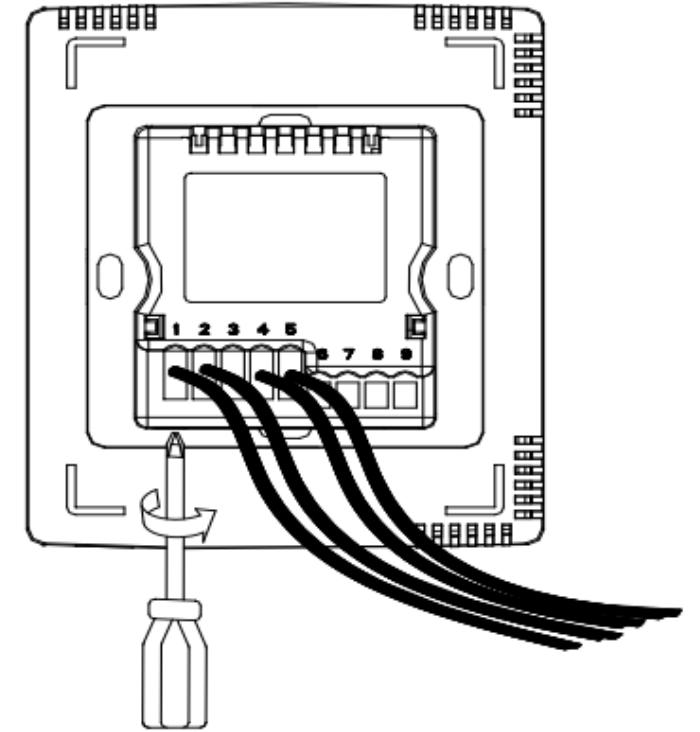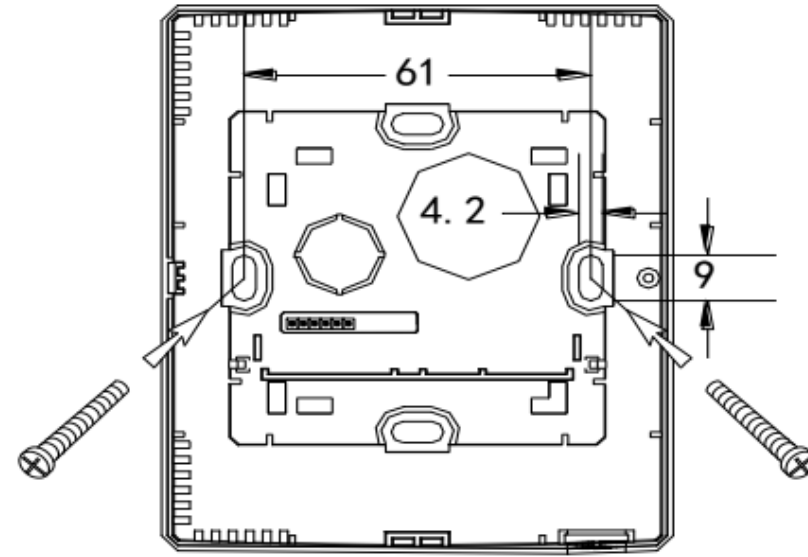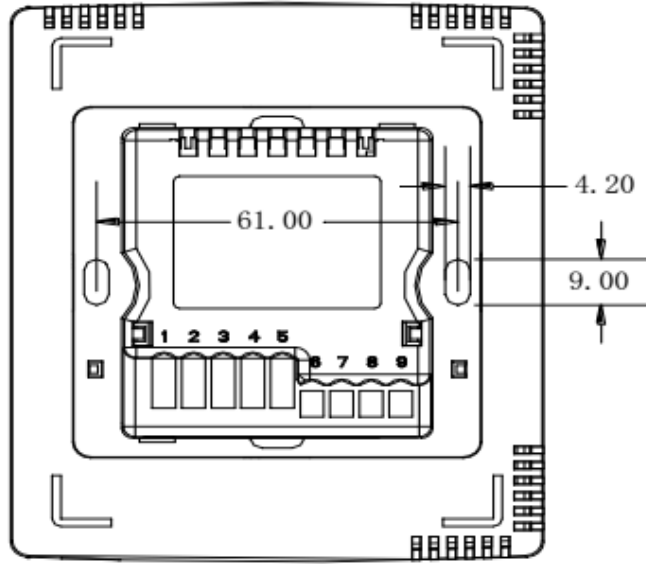
Installation

1. Dimensions (mm)

2. Uncover the cover of the thermostat and draw the screw by using a screwdriver。

3. Grasp the case and wall plate separately by two hands and lift the thermostat up the wall plate from the right side (away from LCD)
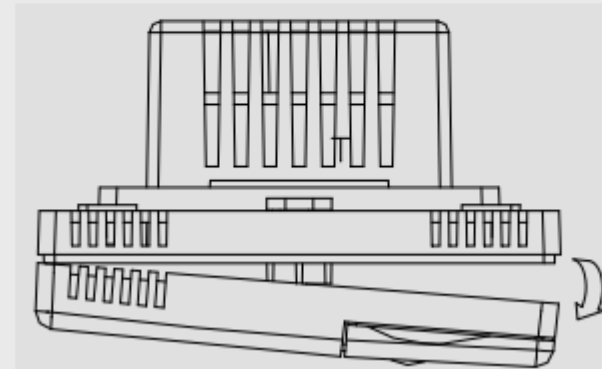
Installation

4. Lift the thermostat up and off the wall plate gently
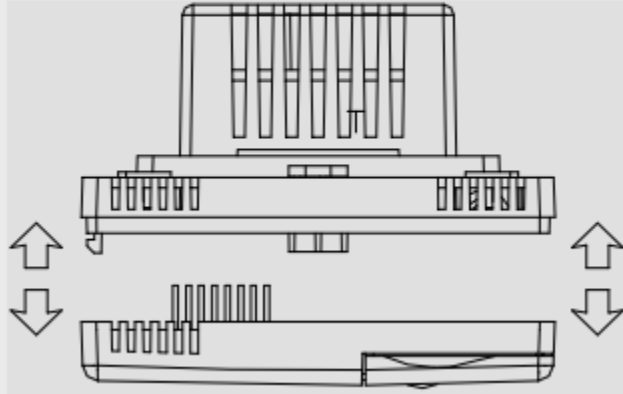
5. Make sure the wires thinner than 2.5 mm² to go through the holes in the wall plate. Then connect the wall plate to devices referring to wiring diagram. Make sure the connection is correct and fixed. (see fig. 8)
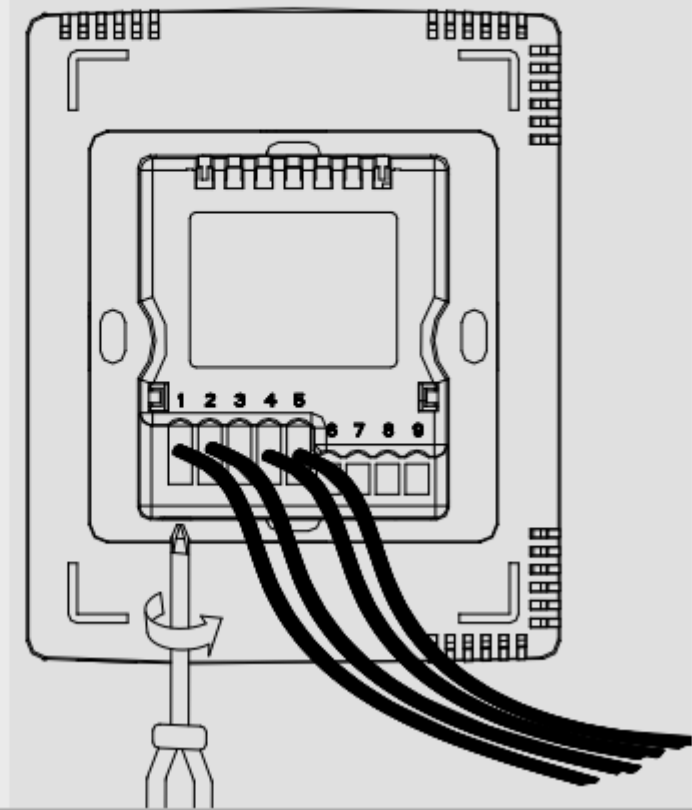
Installation

6. Mount the wall plate of the thermostat on the wall correctly. (For dimensions, see the following drawing: mm.)
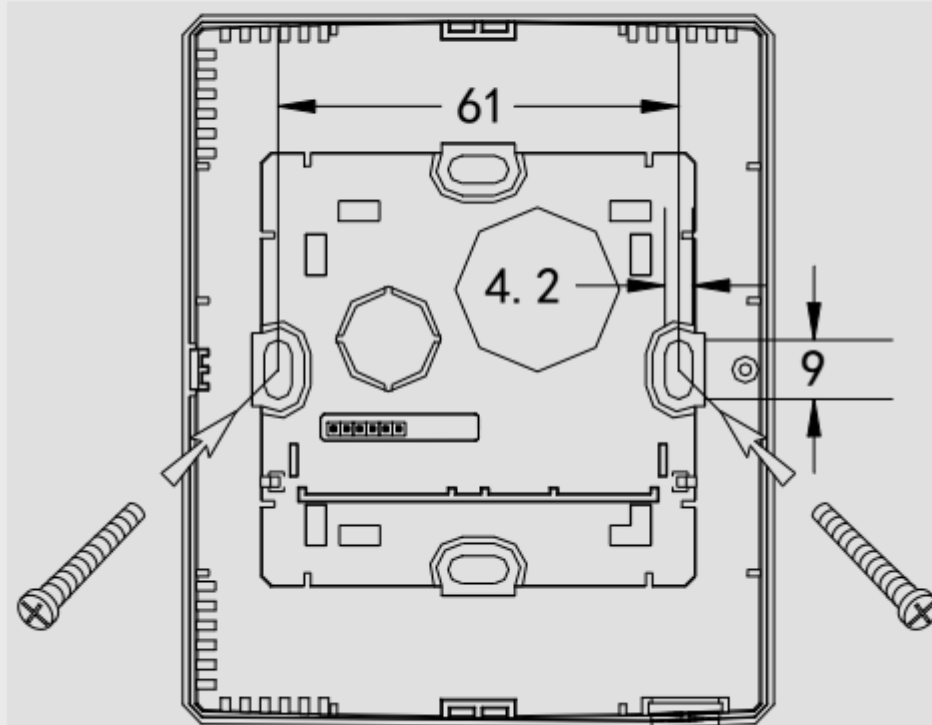
7. Mount the thermostat on the wall plate. Make sure all pins insert into the pinholes correctly.
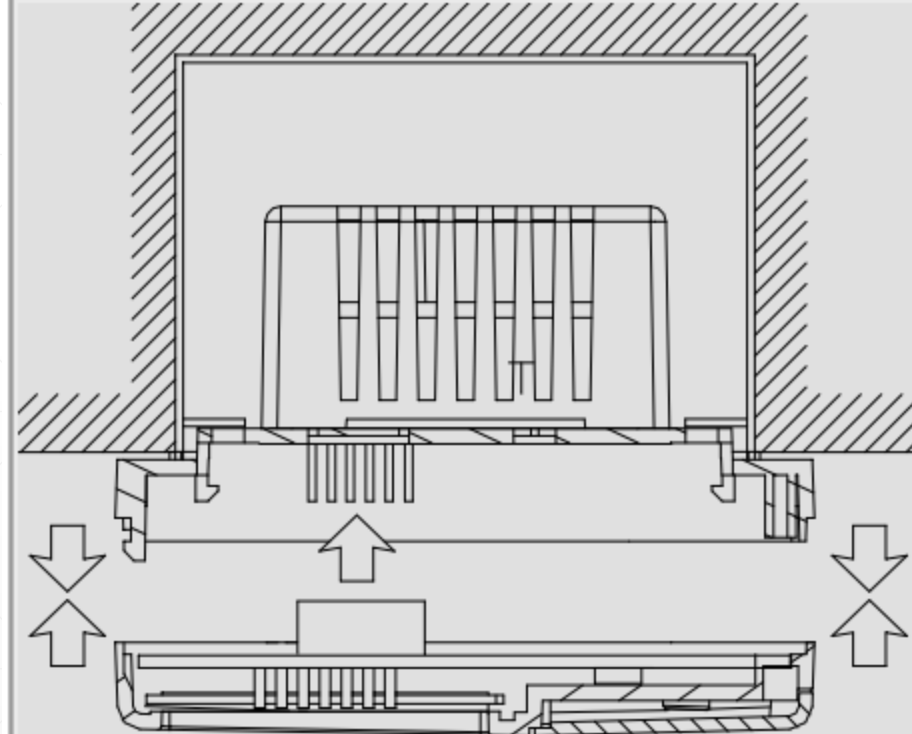
Keypad Interface
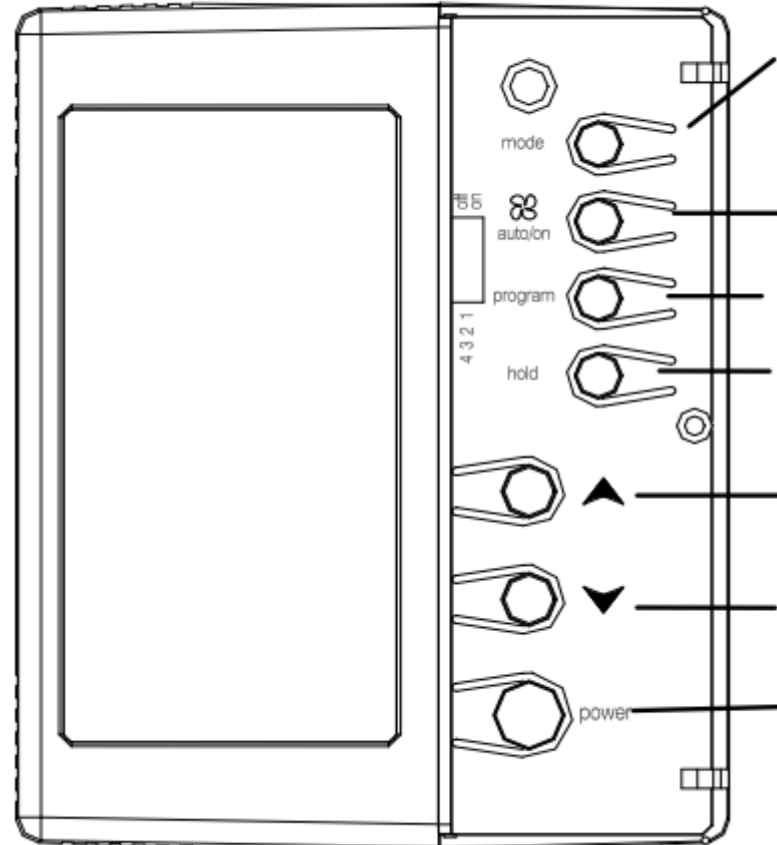
Item 10≤1,
Cool/ heat/ ventilation switch
Item 10≥2,
Auto heat / cool changeover

Fan on/ fan auto

Program

Switch program temp/
temporary temp/ hold temp

Increase

Decrease

Turn on/ off

Operating Interface

SYGNIX

11. LCD

MO TU WE TH FR SA SU —— Monday~Sunday

AM / Pm ——
AM **10:48** ⊕ —— Clock shows the time being set right now
PM —— Current time (hour, minutes)

When **ROOM** displays, the below line shows the real-time measured temperature
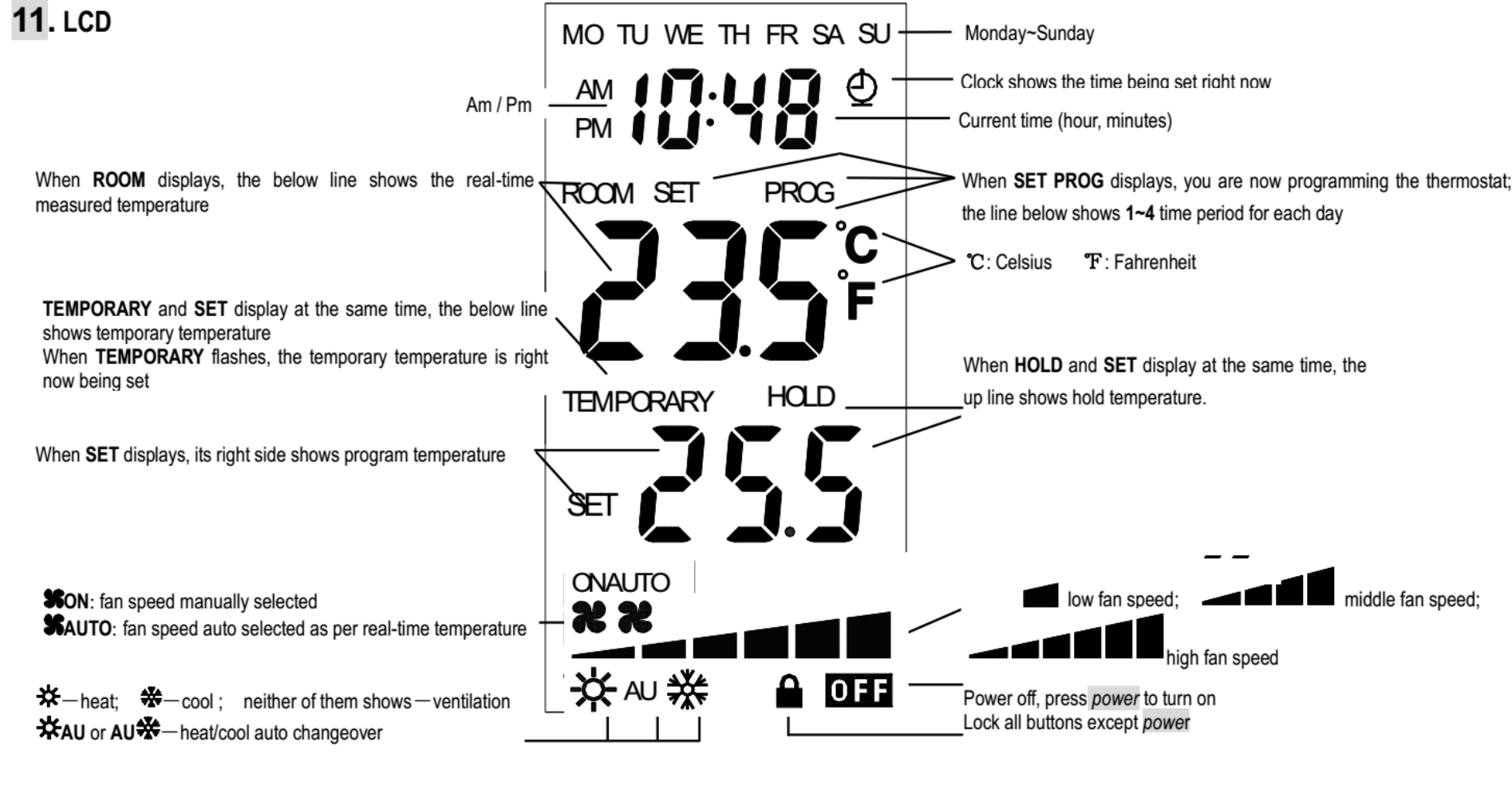
ROOM SET PROG —— When **SET PROG** displays, you are now programming the thermostat; the line below shows **1~4** time period for each day

23.5 ℃ ℉ —— ℃: Celsius   ℉: Fahrenheit

TEMPORARY and **SET** display at the same time, the below line shows temporary temperature
When **TEMPORARY** flashes, the temporary temperature is right now being set

When **HOLD** and **SET** display at the same time, the up line shows hold temperature.

TEMPORARY   HOLD

When **SET** displays, its right side shows program temperature

SET **25.5**

ONAUTO

✿**ON**: fan speed manually selected
✿**AUTO**: fan speed auto selected as per real-time temperature

☀ AU ❄   🔒 **OFF**

■ low fan speed;   ▰▰▰▰ middle fan speed;

▰▰▰▰▰ high fan speed

Power off, press *power* to turn on
Lock all buttons except *power*

✿—heat;   ❄—cool ;   neither of them shows —ventilation
✿**AU** or **AU**❄—heat/cool auto changeover

Operating Interface

1. Energize the thermostat, you'll see **OFF** displays on the bottom right of the LCD, which means the thermostat is turned off.

2. Press *power* for one second to turn on the thermostat. The first line of digits shows the current time, while middle line shows real time detected room temperature and the bottom line shows the program temperature for the current time period.

3. ▼▲: selection, adjustment of current set point. For example, adjust three set temperature including programmable temp, temporary temp and hold temp; select current week and adjust time, etc. Press▼and▲ for more than two seconds to adjust current set point rapidly. Press▼and▲at the same time for more than six seconds to lock/unlock the thermostat.

4. *mode*: to change working mode, including heat ☀ , cool ❄ and ventilation(when ❄ and ☀ both disappear)
   To switch working mode manually (Item 13≤1): press *mode* to switch heat—>cool—>ventilation.
   To switch working mode automatically (Item 13≥2): AU appears between ☀ and ❄ , switching heat and cool automatically. Press *mode* to change auto heat/cool to ventilation.

5. *auto/on*: to change ✿ fan working mode (two modes: auto fan and manual fan)
   Manual fan : adjusting fan speed manually, ✿**ON** and relevant wind strips display on the LCD. Low speed fan: ◀▬ , middle speed fan : ◀▬▬
   high speed fan : ◢▬▬▬
   Auto fan : Fan works or stops with heat/cool device of AC unit working and stopping. ✿ **AUTO** displays on the LCD.
   In the mode of heat/cool，press *auto/on* to select auto fan—>low speed fan—>middle speed fan—>high speed fan. When in ventilation mode, it is manual fan to be selected。

6. LOCK the keypad**:** lock all buttons except *power*. After locked, all buttons can't be used except *power*. For example, after you setting the programmable temp, temporary temp or hold temp, you could use the lock function to avoid unauthorized operation. Press ▼ and ▲ at the same time for more than six seconds
   until 🔒 display on the right bottom of LCD, which indicates lock function is effective. When locked, you can't do any operation except turning on/off the thermostat.

7. UNLOCK: when you need to change set point, you should unlock first. When 🔒 displays on the right bottom of LCD, it indicates the thermostat is in the locked mode. Press ▼ and ▲ at the same time for more than 6 seconds until 🔒 disappears to unlock.

8. Press *hold* to switch among program temperature/ temporary temperature/ hold temperature
   Program temperature: **SET** displays preset singly. Seven days one week, four program time periods corresponding different program temperature from day to night. See details in the section of PROGRAMMING THERMOSTAT
   Temporary temperature: **TEMPORARY** and **SET** display at the same time. When you don't want to keep programmed temperature in short time (such as a few hours), you should set temporary temperature to satisfy your need in short periods. The temporary temperature will be useless automatically when it enters the next program time period. For example, if you go home temporally during Monday to Friday these five working days, the set temperature of this time period may be make you feel uncomfortable, so you could press *hold* and ▼ or ▲to set the comfortable temporary temperature.
   Hold temperature: **HOLD** and **SET** at the same time

When you don't want to keep programmed temperature in a long time (dozens of hours or a few days), you could set hold temperature to satisfy your requirement in short period. This hold temperature is effective all the time until you cancel, then the thermostat will run the programmed temperature. Press *hold* to switch among temporary temp/ hold temp/ program temp. When you switch to temporary or hold temp, the temperature value flashes continuously on the bottom of LCD, then press ▼ or ▲ to adjust the temperature.

Note: During a power failure, all program settings will be remembered except temporary temp and hold temp set.

2

Operating Interface

PROGRAMMING THERMOSTAT (12Hours)---If you don't want to do special program to the thermostat，then it will work following Fig 1.

Fig 1. Preset time and temperature

Time periods	Monday ～ Sunday	
	Time	Temperature
First	AM 6：00	21℃/70℉
Second	AM 8：00	17℃/63℉
Third	PM 6：00	21℃/70℉
Forth	PM 10：00	17℃/63℉

Setting current time and week

Press *program* and *hold* simultaneously. **MO TU WE TH FR SA SU** will be displayed on the first line of the LCD, with ⏱ shows on the right side of the LCD. And the display will flash the hour. Press▲or▼until the current hour shows. Press *program* to confirm. Then the display will flash the minutes. Press▲or▼until the current minutes show. Press *program* to confirm. Then the display will flash one of **MO TU WE TH FR SA SU**. Press▲or▼to set the current day. Then press *program* and *hold* simultaneously again to confirm and then return to normal displaying mode.

Now Program Time Periods and Temperatures for Each Day of A Week (Take Monday for example)

1. First time period

Press *program* to enter week program mode.
a. Press and release *program*, the display will flash **MO** on the first line of the LCD. Press▲or▼until the desired day shows. Here we select **MO**.
b. Press *program*, digit **1** shows on the third line, which means that you can now set the starting time and also the program temperature for the first time period of the day.
c. The display will first flash the hour of the day. Press▲or▼until the desired hour shows. Press *program* to confirm.
d. Then the display will flash the minute. Press▲or▼until the desired minutes show. Press *program* to confirm.
e. Then the display will flash the setting temperature. Press▲or▼until your desired temperature shows. Press *program* to confirm and then move on to program the second time period of the day.

2. Second time period

You'll see digit **2** shows on the third line, which means that you can now set the starting time and also the program temperature for the second time period of the day.
Then repeat steps c-e during the first period programming and move on to program the third period of the day.

3. Third time period

You'll see digit **3** shows on the third line, which means that you can now set the starting time and also the program temperature for the third time period of the day.
Then repeat steps c-e during the first period programming and move on to program the third period of the day.

4. Forth time period

You'll see digit **4** shows on the third line, which means that you can now set the starting time and also the program temperature for the forth time period of the day.
Then repeat steps c-e during the first period programming. Then you'll see the display flashes **TU** on the first line. Press▲or▼until the desired day shows. Then repeat steps 1-4.

5. Exit from programming

a. Exit from a complete week program: when four time periods and the related temperatures are separately set for the entire week, press *program* to end program for the entire week and to return back normal operation.
b. Exit from an incomplete week program: press *hold* to exit an incomplete program. For example, when programming the first time period of Wednesday, you can press *hold* to return to normal operation. In this situation, the program before the first period of Wednesday has been confirmed, while time periods after it will maintain the settings before this lately program. That is, only when you finish the program for all four periods of a day, the program for this day can be confirmed.

PARAMETER SETUP INSTRUCTIONS (V.F06_141)

Open the cover, you can see four DIP switches (put them to the right hand to be ON, while the left hand to be OFF)
From up to down: DIP1, DIP2, DIP3, DIP4

DIP1	OFF—normal use; ON—parameters setup	Default: OFF
DIP2	OFF—Celsius; ON—Fahrenheit	Default: OFF
DIP3	Ineffective for the model	Default: OFF
DIP4	Ineffective for the model	Default: OFF
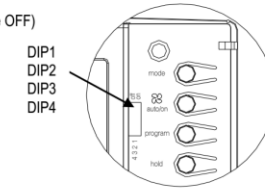
Below setup is just a draft, whole content will be finished after the thermostat is developed.

Put DIP 1 to ON, press power to turn on the thermostat and to set the following parameter items. *Hold* : switch items, ▼▲: adjustment
When **SET** appears on the LCD, it means that you are right now setting the parameters. **room** will show when you finish the settings.

Items	Parameter	Set range	Default
-1	Temperature modification	±3℃/±6℉	0.0
-2	Temperature differential to turn on the controlled valve (Ineffective when Item -2 is set to be 2)	0～5℃(0～10℉)	0.5℃(1℉)
-3	Fan speed switch sensitivity as per temperature fluctuation (Effective when fan auto mode is selected)	1～180 Smaller set-point corresponds with more rapid switch among low/ middle/ high fan speed	40
-4	Selection between fan stop or low speed fan when temperature measurement is higher than its set- point	0～3 0: fan stop when heat/cool 1: low speed fan when cool, but fan stop when heat 2: fan stop when cool, but low speed fan when heat 3: low speed fan when heat/cool	1
-5	Temperature differential when switch to heat automatically (Eeffective when Item 13≥2)	0～4℃(0～8℉) Example: Here we set this parameter as 1.5℃, and the program heating temperature is 25℃. So when measurement temperature <=(25-1.5) ℃, heating mode is on automatically.	1.5℃(3℉)
-6	Temperature differential when switch to heat automatically (Eeffective when Item 13≥2)	0～4℃(0～8℉) Example: Here we set this parameter as 1.5℃, and the program cooling temperature is 25℃. So when measurement temperature >=(25+1.5) ℃, cooling mode is on automatically.	1.5℃(3℉)
-7	Thermostat state when power again after any type of power failure	0～2 0: turn off when energized 1: turn on when energized 2: keep the same status before power failure	2
-10	Backlight and selection between auto heat/cool and manual heat/cool	0～3 0: manual heat/cool; backlight on when push a button 1: manual heat/cool; backlight on when power on 2: auto heat/cool; backlight on when push a button 3: auto heat/cool; backlight on when power on	0
-14	Clock set	Useful when test only, while ineffective for normal use	

Reset: Put DIP1 to ON and press *hold* for about 25 seconds until power off, then all the settings return back to factory default.

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