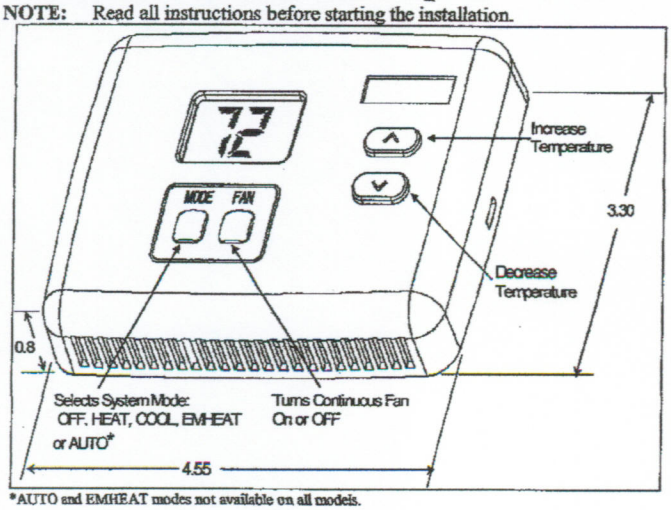
P/N 997-010070-7 Rev B

CLIMATEMASTER®

ATM21U01, ATA11U01 & ATA22U01 Heat Cool/Heat Pump Thermostats Installation and Start-up Instructions

NOTE: Read all instructions before starting the installation.



*AUTO and EMHEAT modes not available on all models.

SAFETY CONSIDERATIONS

Improper wiring or installation may damage thermostat. Wiring must conform to local and national electrical codes.

> **WARNING:** Before installing thermostat, turn off all power to unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

INTRODUCTION

The thermostat is a wall mounted, low-voltage thermostat which maintains room temperature by controlling the operation of a heating and air conditioning system. Batteries are not required; temperature and mode settings are preserved with the power off.

INSTALLATION CONSIDERATIONS

The thermostat requires no batteries. The heat pump thermostat is not a power stealing device and MUST have both R and C connected.

INSTALLATION

I. THERMOSTAT LOCATION

Thermostat should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

Thermostat should NOT be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature-radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air grilles.
- In areas with poor air circulation, such as behind a door or in an alcove.

II. INSTALL THERMOSTAT

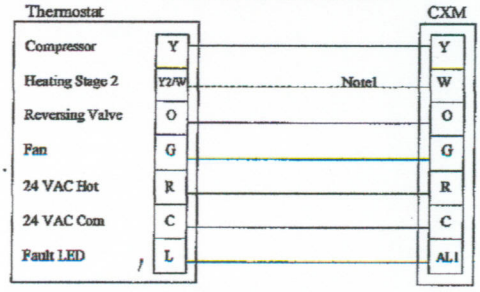
1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
   A. Remove existing thermostat from wall.
   B. Disconnect wires from existing thermostat, one at a time. Be careful not to allow wires to fall back into the wall.
   C. As each wire is disconnected, record wire color and terminal marking.
   D. Discard or recycle old thermostat.
   NOTE: Mercury is a hazardous waste and MUST be disposed of properly.
3. Separate the front and back pieces of plastic.
4. Route thermostat wires through hole in back piece of plastic. Level plastic against wall (for aesthetic value only - thermostat need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked. (Note: Mounting holes on thermostat are designed to fit on a horizontal J-box).
6. Secure back plastic to wall with 2 anchors and screws provided making sure all wires extend through hole in plastic.
7. Connect wires to proper terminal of the connector block in the front plastic.
8. Push any excess wire back into wall. Excess wire inside the thermostat plastic case can interfere with proper air flow across the temperature sensor. Seal hole in wall to prevent air leaks. Leaks can affect operation.
9. Snap front and back pieces of plastic together.
10. Turn on power to the unit.

On power up, the LCD readout will display HP (Heat Pump) for models ATM21U01, or ATA22U01 and HC (Heat Cool) for ATA11U01.

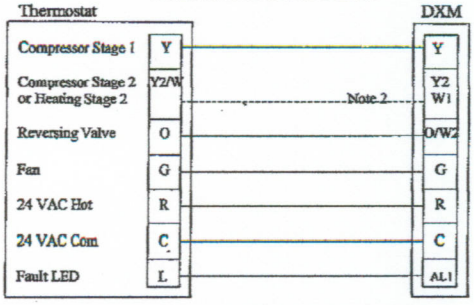
WIRING DIAGRAMS

All excess wire should be pushed back into the wall as far as possible. Excess wire inside the thermostat plastic case may interfere with the air flow across the temperature sensor.

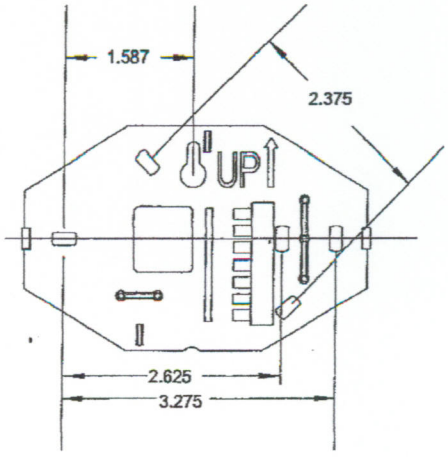
Connection to CXM control



Connection to DXM control



Note 1: Optional connection for Heating Stage 2 operation. Thermostat "Y2" option must be configured as "Y2 = Off". ATA11U01 is single stage only (no "Y2" terminal).
Note 2: Connect "W/Y2" thermostat output to "Y2" on the DXM if thermostat "Y2" option is configured as "Y2 = On" and the desired operation is for 2 stages of compressor with no electric heat. Connect "W/Y2" thermostat output to "W1" on the DXM if thermostat "Y2" option is configured as "Y2 = Off" and the desired operation is for 1 stage of compressor with electric heat for Heating stage 2.



III SET THERMOSTAT CONFIGURATION (*NOT* all options available on all models)

While in configuration mode, TWELVE option choices can be made:

- **A** Anticipator Value Adjustment
- **d** Display temperature Fahrenheit/Celsius Selection
- **Fn** Fan on with W (Emergency Heat)
- **r** Reversing Valve on with Clg or Htg. *(ATA22U01 ONLY)*
- **oF.** Offset Adjustment for Room Temperature
- **Y2** Set Y2 on for two stage heat pump *(ATA22U01 ONLY)*
- **AS** Auto change over selected *(NOT on ATA21U01)*
- **db** Dead band setting for auto Temperature settings *(NOT on ATA21U01)*
- **EF** Extended fan operation with Y
- **dt** Display Temperature of set point
- **Cr** Cycle Rate, Cycles per hour
- **SS** Safety Settings

TO ENTER THE CONFIGURATION MODE:

Press and hold the FAN button for approximately 10 sec until room temperature disappears and the display reads "A

NOTE: If the FAN button is pressed again or if no button is pressed for 2 minutes, the thermostat will exit the configuration mode and return to normal operation. To re-enter the configuration mode, the FAN button must be pressed and held for 10 sec. again.

IN CONFIGURATION MODE, THE FOLLOWING OPTIONS ARE AVAILABLE:

A. ANTICIPATOR - Value Adjustment

This adjustment controls the sensitivity and cycle rate of the thermostat. Higher numbers decrease the sensitivity and slow the cycle rate. Lower numbers increase the sensitivity and increase cycle rate. However, a limiting feature will not allow more equipment cycles per hour than is set in Cr, regardless of setting. Values can range from 1 to 3. Factory default setting is 2. This default selection will provide optimum performance in nearly all installations. Try it first. Do not change setting unless there is evidence of need to do so. Unlike conventional anticipators, this setting is not determined by current draw. There is no need to measure, know, or compensate for current.

TO ADJUST:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display A
3. Press MODE button once to display current value.
4. Use up and down buttons to move between values.
5. Press MODE button to return to A. Up and down buttons now move between option choices A, d-, etc. or press FAN to exit configuration mode.

d. FAHRENHEIT/CELSIUS Selection

This selection operates the thermostat in either Fahrenheit or Celsius.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display d
3. Press MODE button once to display current selection of F or C.
4. Use up and down buttons to change between F and C.
5. Press MODE button to return to d. Up and down buttons now move between option choices ; or press FAN button to exit configuration mode.

Fn G (FAN) ON WITH W (HEAT) Selection

This selection determines whether the G (fan) output is to be ON or OFF when the W (furnace or strip heat) output is ON. Most furnaces and fan coils manage their own blowers and do not require a separate G signal. For these applications, select OFF. Some auxiliary heaters require a separate G signal to turn on the blower. In this case, select ON. The factory default is OFF.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display Fn-
3. Press MODE button once to display current selection of ON or OFF.
4. Use up and down buttons to change between ON and OFF.
5. Press MODE button to return to 4-. UP and DOWN buttons now move between option choices; or press FAN button to exit configuration mode.

r. O (RVS) On with Heat or Cool Selection *(ATA22U01 ONLY)*

This selection is only available on heat pump thermostats. This selection determines whether the reversing value is energized in heating or cooling. The factory default is "C" for energized in cooling.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display r
3. Press MODE button once to display current selection of 'H' for energized in heating or 'C' for energized in cooling.
4. Use up and down buttons to change between 'H' and 'C'.
5. Press MODE button to return to r. UP and DOWN buttons now move between option choices; or press FAN button to exit configuration mode.

oF. ROOM TEMPERATURE OFFSET ADJUST Selection

The selected number is the number of degrees, plus or minus, which will be added to the actual temperature. The numbers can range between -5 and 5. Factory default is 0. This adjusted value will be used as actual temperature for both display and control action. The effect is that a positive number selection will make the room temperature lower, and vice versa. The thermostat is calibrated within an accuracy of plus or minus 2 degrees when shipped from the factory; this adjustment will provide the best accuracy when set to 0.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use UP and DOWN buttons to display oF.
3. Press MODE button once to display offset value.
4. Use UP and DOWN buttons to select a value between -5 and 5.
5. Press MODE button to return to oF. UP and DOWN buttons now move between option choices; or press FAN button to exit configuration Mode.

Y2. Y2 or W output. (Single or Two Stage Heat Pump) *((ATA22U01 ONLY)*

This selection allows the Y2/W output to be selected as Second Stage compressor output (Y2=On) or Heating Stage 2 with electric heat output (Y2=Off). If Y2= On, then Y2/W will turn on when there is a demand for second stage compressor, whether heating or cooling. If Y2= Off, then Y2/W will turn on when there is a demand for second stage heating.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display Y2
3. Press MODE button once to display current selection of OF or On.
4. Use up and down buttons to change.
5. Press MODE button to return to Y2. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

AS. Auto Change over select (Not application for model ATM21U01)

This selection allows the thermostat to be configured as Auto changeover or manual changeover. When in Manual changeover mode (AS=Off), the "Auto" icon on the display will NOT be an available option.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display aS
3. Press MODE button once to display current selection of OF or On.
4. Use up and down buttons to change.
5. Press MODE button to return to aS. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

db. Dead band Set for AUTO Mode (Not application for model ATM21U01)

This selection selects the minimum difference between the heating setpoint and the cooling setpoint. This will be used when the thermostat is configured for Auto changeover mode.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display db
3. Press MODE button once to display current selection 1 to 4.
4. Use up and down buttons to change.
5. Press MODE button to return to db. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

EF. Extended fan operation with Y selection

This selection enables extended fan operation when Y turns off. The fan will run for 90 seconds after Y turns off.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display EF
3. Press MODE button once to display current selection of OF or On.
4. Use up and down buttons to change.
5. Press MODE button to return to EF. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

dT. Display Temperature

If dt=On, then the actual room temperature is displayed. If dt=Off, then the temperature setpoint is displayed.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display dT
3. Press MODE button once to display current selection of OF or On.
4. Use up and down buttons to change.
5. Press MODE button to return to dT. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

Cr. Cycle Rate Selection

This selection selects the cycle rate maximum in cycles per hour.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display Cr
3. Press MODE button once to display current selection 3 to 6.
4. Use up and down buttons to change.
5. Press MODE button to return to Cr. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

SS. Safety SetPoint Selection

This selection enables or disables the safety setpoint limits feature. If SS = On, then if the room Temperature goes beyond the Safety Setpoint limits (50F for heating and 90F for Cooling), then the Heat Pump will run even if the thermostat is in the OFF mode. If SS= Off, then the heat pump will not run in the above situation.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display SS
3. Press MODE button once to display current selection of OF or On.
4. Use up and down buttons to change.
5. Press MODE button to return to SS. Up and down buttons now move between option choices or press FAN button to exit configuration mode.

IV. CHECK THERMOSTAT OPERATION

1. Fan Operation

A. Press FAN button, starting fan operation. Fan annunciator turns on.
B. Press FAN button, stopping fan operation. Fan annunciator turns off.

2. Heating Operation

A. Press and Release MODE button until HEAT is displayed.
B. Press up button until LCD readout reads 10 degrèes above room temperature. Heating system should begin to operate within 5 minutes and the HEAT icon will flash.
C. If there is a Demand for Second Stage Heat the second stage will turn on after a delay and the HEAT icon will flash faster.

3. Cooling Operation

A. Press and Release MODE button until COOL is displayed
B. Press down button until LCD readout reads 10 degrees below room temperature. Cooling system should begin to operate within 5 minutes and the COOL icon will flash.
C. If the install mode option is set to Y2=ON, the second stage COOL will come on after a delay and the COOL icon will flash faster.

4. Auto Change Over Operation

A. Press and Release MODE button until AUTO is displayed
B. Press DOWN button. LCD readout reads The set temperature and the mode set. Press the MODE button to switch between AUTO HEAT and AUTO COOL settings and use the UP and DOWN buttons to select the temperature setting. The LCD will display SET and The COOL or HEAT label for the setting being changed. The AUTO COOL temperature MUST be set above the AUTO HEAT setting to keep the system from cycling between HEAT and COOL. The degree of difference depends on the setting in the Install mode. The thermostat will automatically make this adjustment.

Emergency Heating Operation

A. Press and Release MODE button until EMHEAT is displayed.
B. Press up button until LCD readout reads 10 degrees above room temperature. Heating system should begin to operate within 5 minutes and the EMHEAT icon will flash.

V. THERMOSTAT OPERATION

1. TEMPERATURE DISPLAY

The thermostat will display room temperature or setpoint, depending on the Install mode option selected. When the UP or DOWN button is pressed, the setpoint will always be displayed. The word SET appears when these buttons are pressed and the current set point is displayed. In Auto change mode, the mode being set (HEAT or COOL) will also appear. If no buttons are pressed for 5 seconds, the display will change back to show room temperature.

2. TIMEGUARD TIMER

A 3-minute timeguard is built into the thermostat immediately upon power up, and any time the compressor turns off. The compressor will not turn on until the timeguard has expired. Pressing UP and FAN buttons simultaneously will override the timeguard for 1 cycle.

3. CYCLE TIMER

In normal heating and cooling operation the thermostat will not allow more equipment cycles per hour than is set in the Install mode.(3 - 11) Both the Y and Y2/W outputs have a timer that starts counting down when the output is turned on. The next cycle can not start until the timer is satisfied. However, pressing UP and FAN buttons simultaneously or changing the set point will override the timer for 1 cycle.

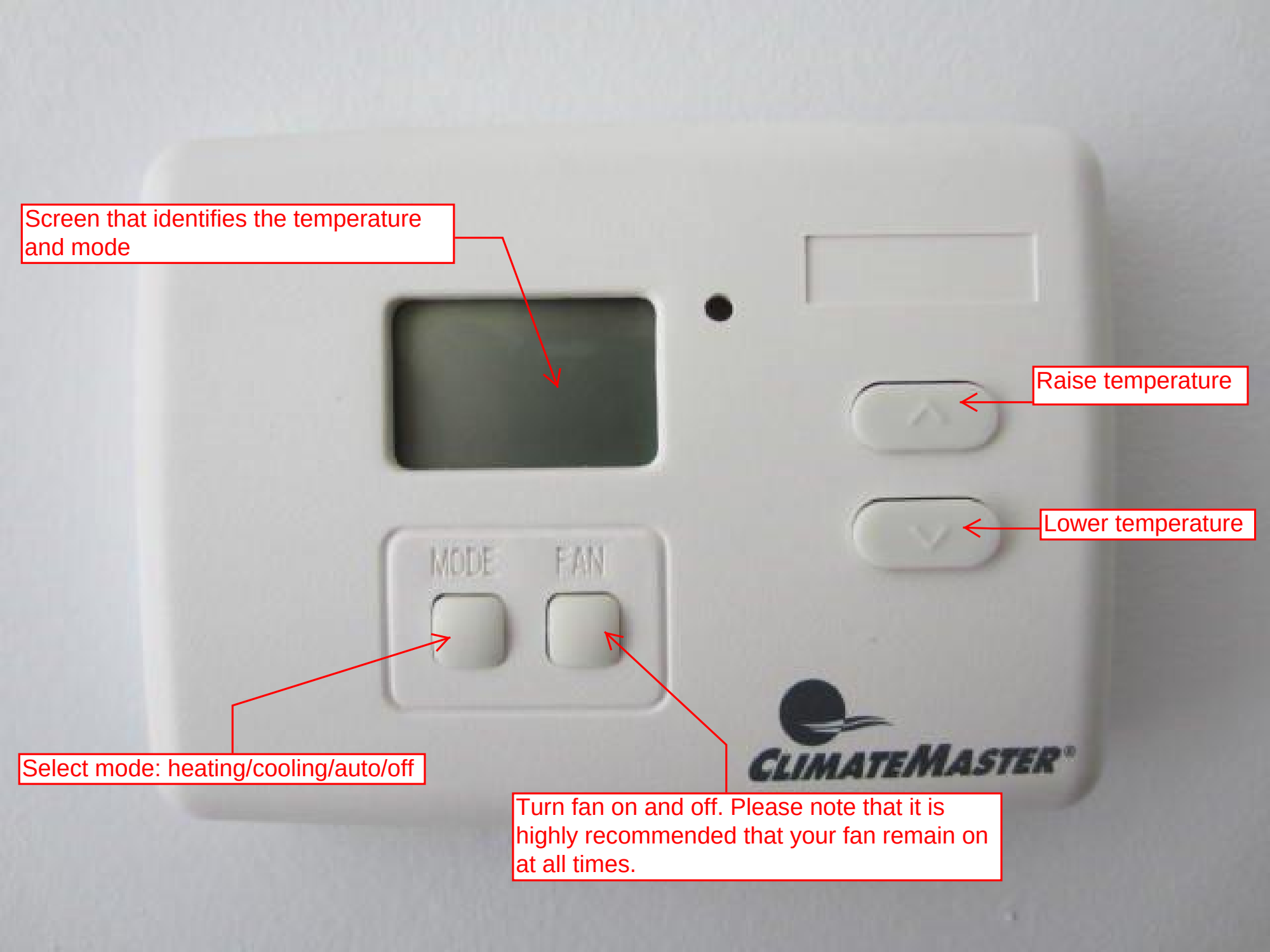
4. MINIMUM ON TIMER

Once the equipment has turned on, it will remain on for a minimum of 2 minutes regardless of demand unless there is a change in set point, or a change in mode.

5. ERROR MESSAGES

E4 will be displayed if the thermostat has an internal memory failure. If E4 appears, replace the thermostat.

- - (two dashes) will be displayed if the temperature cannot properly read the room temperature. If - - appears, replace the thermostat.


Screen that identifies the temperature and mode
Raise temperature
Lower temperature
MODE
FAN
CLIMATEMASTER®
Select mode: heating/cooling/auto/off
Turn fan on and off. Please note that it is highly recommended that your fan remain on at all times.