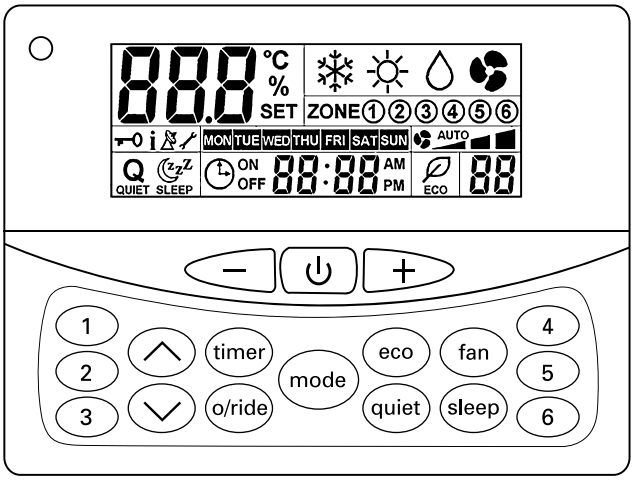
SAT-3

Room Temperature Controller



USER'S OPERATING INSTRUCTIONS

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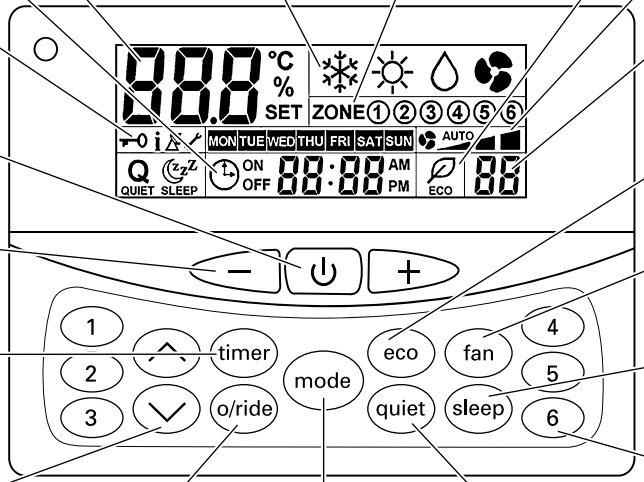
INTRODUCTION

Your temperzone air conditioner is supplied with a SAT-3 room temperature controller. This controller has been designed to maintain a high level of comfort for room occupants. Emphasis has been placed on providing controls that are easy to use. Use of the Auto and Timer function settings allows you “to set it and forget it”.

FEATURES SUMMARY

- Cool, Cool Dry and Fan modes.
- Heat, Auto and Auto Dry modes (Reverse Cycle Systems only).
- Eco mode for improved economy operation.
- Quiet mode.
- Colour coded LCD Backlight indicates operating mode.
- Auto/High/Medium/Low fan speed selection with fan on operation available in non-zoned systems.
- Temperature setting range from 15°C to 30°C (installer configurable) in 0.5°C steps.
- Room temperature display.
- Real time clock.
- 7 day basic programmable timer with two daily programs for two start/stop sessions per day.
- 7 day advanced programmable timer with 4 daily programs for temperature setting, fan settings, and operating mode.
- Override function enables user to override the programmed times for immediate operation of the air conditioner.
- Battery backup maintains the SAT-3’s time clock.
- Non-volatile memory retains the SAT-3’s control data and user programs.
- In the event of a power failure, when power is restored, the SAT-3 will automatically restart using the last settings.
- Key lock function prevents unauthorized personnel from changing the settings of SAT-3.
- Sleep function.
- Up to Six Zone control (option) with independent set points, airflow and operating mode settings for each zone.
- Zone systems may use a second SAT-3 controller to display and adjust the system status.
- Internal buzzer for power on.



Temperature display

Clock and timer display

Key lock, installer mode, communications indicator and service indicator display

On / Off button
Press once to start operation.
Press again to stop operation.

Room temperature setting buttons

Timer button
Press to start operation from programmed timers.
Press again to cancel operation from the programmed timers.

Time setting buttons
Press to navigate clock and timer setting functions.

Operating mode display

Zone display

Economy mode display

Fan setting display

Override setting time or Error display code

Economy button
Press once to select Economy mode.
Press again to cancel Economy mode.

Fan speed button
Press to select between fan speeds.

Sleep button
Press once to select Sleep mode.
Press again to cancel Sleep mode.

Zone buttons (1 to 6)
Press to display zone settings and temperature.
Press again to toggle the zone between active and inactive.

Override button
Press to override the programmed timer.
Press again to increase the duration of override up to a maximum of 3 hours.

Mode button
Press to select operating mode.

Quiet button
Press once to select Quiet mode.
Press again to cancel Quiet mode.

OPERATION

On/Off

Start

When the air conditioner is turned off, press the ⏻ button. The backlight and the system are turned on.

Override

When the programmed timer is active, 🕒 is displayed. To turn 'on' the air conditioner outside any pre-set 'off' times, press the o/ride button one or more times; refer page 14 for details.

Stop

When the air conditioner is turned on, press the ⏻ button to turn the system off.

Zone Operation

Start and stop the air conditioner with the ⏻ button. Press any numbered zone button once to bring up that zone's settings and again to toggle the zone on or off. A minimum of one zone will remain on while the SAT-3 remains operating.

Room Temperature Adjustment

Normally the SAT-3 display will show the current room temperature (not the preset temperature). For zoned systems press the zone key before adjusting the zone set point. Set the temperature of your choice by pressing the − or + buttons. The preset temperature will appear. Each push will change the temperature by 0.5°C. Temperature can be set within the range 15°C – 30°C (depending on installer configuration).

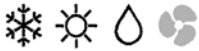
If your air conditioning system is zoned, then each zone set temperature must be within 2°C of the Zone 1 set temperature (depending on the installed configuration).

In Fan Only mode (refer page 9), the set temperature cannot be set.

Operating Mode Selection

For zoned systems press the zone key before adjusting the zone operating mode. Press the (mode) button to switch operation between Cool Dry, Cool, Heat, Auto Dry, Auto and fan Only operating modes.

The display shows which mode is selected.

Cool Dry – If the room temperature is too warm, the air conditioner cools the room until it reaches the set temperature and the air-conditioner acts to remove additional moisture from the air.	
Cool – If the room temperature is too warm, the air conditioner cools the room until it reaches the set temperature.	
Heat – If the room temperature is too cool, the air conditioner warms the room until it reaches the set temperature (reverse cycle systems only).	
Auto Dry – The air conditioner will automatically cool or heat the room until it reaches the set temperature (reverse cycle systems only). When the air conditioner cools it acts to remove additional moisture from the air.	
Auto – The air conditioner will automatically cool or heat the room until it reaches the set temperature (reverse cycle systems only).	
Fan Only – Use this mode to circulate the room air without changing the temperature, to give a perception of cooling. In zoned systems, if the air conditioner is acting to control the temperature in other zones the supplied air may be cooled or heated by the air conditioner.	

Swing – If your air conditioner is an 'underceiling' type with motorised air flow deflecting louvre, then this louvre can be activated, or deactivated by pressing the (mode) and (fan) buttons together for 3 seconds.

Fan Speed Selection

Zone Systems
In zoned installations the fan settings control the airflow on a zone by zone basis. The air conditioner's fan and dampers are regulated to control the required airflow into each zone to achieve and maintain the zone's set temperature. As the set temperature for the zone is achieved the airflow into that zone is reduced below the airflow level set at the SAT-3 but it will never increase above the airflow set by the SAT-3.

If Fan Only mode is selected the airflow is maintained at the selected level regardless of zone temperature.

Press the Zone key before adjusting the zone airflow.

Press (fan) to select Low, Medium, High or Auto air flow. Auto is not available in Fan Only mode.

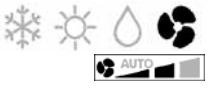
Low zone air flow	
Medium zone air flow	
High zone air flow	
Auto zone air flow	

The default display of the SAT-3 shows the current operating fan setting – low, medium or high.

Non-Zoned Systems

Three speed fan:

Press (fan) button to change the fan operation between:

Low fan speed, fan continuously on	
Medium fan speed, fan continuously on	
High fan speed, fan continuously on	

Auto fan speed, fan continuously on	
Low speed, fan off when set point reached	
Medium speed, fan off when set point reached	
High speed, fan off when set point reached	
Auto fan speed, fan off when set point reached	

When auto fan speed is selected the controller will automatically choose the fan speed and the display will show which fan speed is chosen by the controller.

Fan off when set point reached is not selectable with Fan Only mode.

Single speed fan:

Pressing (fan) button toggles the fan between fan on and fan off at set point modes.

Single speed fan, fan on mode	
Single speed fan, fan off when set point reached	

TIME FUNCTIONS

Setting the Clock

Press and hold ^ or v for 3 seconds to start adjusting the clock. The clock symbol will start to flash as well as the currently selected day of the week.

Subsequent presses of ^ or v move the flashing item from the day of the week to hours to minutes and back in round robin fashion.

Press − or + to select the correct time and day of the week. If the − or + button is held down for longer than 2 seconds then the time will change more rapidly.

To complete setting the clock wait 15 seconds without pressing any buttons, the display will revert to normal and the clock will continue from the new time.

Starting and stopping the Timer

Press the timer button timer to start and stop the timer functions. Once started the timer program controls the on and off time of the air conditioner. The advanced timer function additionally controls the set temperature, operating mode and airflow settings.

Programming the Timer functions

The timer may be configured by your installer as either a basic on/off timer (default) or an Advanced timer controlling: mode, temperature, fan settings and, in zone systems, active zones. When the basic timer is in operation the mode, temperature and fan settings can be adjusted. When the advanced timer is in operation these settings are fixed by the timer program.

To start programming the timer function press and hold down timer for 3 seconds.

The clock symbol and **MON** will start to flash. Also shown (not flashing) are the **ON** icon and a number **1** (in the bottom right digit of the display).

Use or to select the item to adjust (eg choose Days – Event – Hour – Minute – room or zone conditions). The SAT-3 indicates which item is currently selected by slowly flashing the item on and off.

Use and to adjust the item itself (eg choose Monday – Tuesday – Wednesday - ...).

To confirm and save the new timer settings at any time press . The SAT-3 will save the settings and return to normal operation. Also, if no buttons are pressed for longer than 20 seconds the timer settings are automatically saved and the SAT-3 returns to normal operation.

To cancel programming the timer at any time press . Any changes made will be discarded and the SAT-3 returns to normal operation.

Day selection

Use and to select the day(s) for which to adjust the timer setting. Options are each day individually, Monday to Friday inclusive, Saturday and Sunday and All the days of the week.

Event selection

Use and to select the event to adjust.
The basic timer has the following events: ON 1, OFF 1, ON 2, OFF 2
The advanced timer has the following events: ON 1, OFF 1, ON 2, OFF 2, ON 3, OFF 3, ON 4, OFF 4

Event time setting

The time for each event can be adjusted with the and keys.

Zone selection
This is applicable to zoned systems with the advanced timer only.

Initially the enabled zones blink. Press a zone key to enter the settings for that zone. If the zone was not enabled it is enabled when its key is pressed. The selected zone number will blink. Pressing the zone key again will disable the zone.

Further zones can be set by pressing the corresponding zone keys.

Room / Zone settings
This is applicable to advanced timer only.

Press the − and + keys to adjust the zone or room set point.

Press the mode key to adjust the operating mode for the zone or room.

Press the fan key to adjust the airflow settings for the zone or room.

Sleep Function

Press the sleep button to activate the sleep option. When sleep mode is on the symbol SLEEP is shown.

Sleep mode can be used in conjunction with all operating modes except Fan Only.

Sleep mode automatically switches off when the system is turned off or the operating mode is changed.

This option saves energy by gradually altering the heating and cooling set temperatures over a two hour period. The heating set point is decreased by 3 degrees after 2 hours, the cooling set point is increased by 2 degrees after 2 hours.

ZONE CONTROL (OPTION)

If your air conditioning installation has zones installed (i.e. dampers), mode, set point and airflow can be set for each zone.

Press the zone button once to adjust the settings for that zone. The set point, mode and airflow are adjusted as described in the Operation section (starting on page 7).

Press the zone button again to toggle the zone on or off.

Settings can be applied to a group of zones simultaneously by pressing and holding the mode button for 4 seconds. After 4 seconds the indicators for the installed zones begin to flash. Zones can be removed from the group by pressing the corresponding zone buttons. Mode, set temperature and airflow can be adjusted as described in the Operating section and applied to the selected group of zones.

KEY LOCK

This feature prevents the control from being tampered with by children or unauthorized persons.

To activate or de-activate key lock mode hold down the buttons mode and 1 together for 3 seconds. When key lock mode is active the symbol will be shown on the display.

When key lock is active only the buttons for on/off ⏻ and override o/ride are active. All other key presses are ignored.

OVERRIDE

The override function can be used to turn the air conditioner on when the unit would normally be off as controlled by the programmable time clock. If the unit is already on by the timer function then the override function can be used to keep the unit on longer. If the timer function is not used then pressing the override button has no effect.

Repeatedly pressing the o/ride button allows the unit to run for a fixed length of time, with the length of the override period as follows:
1 hour – 2 hours – 3 hours – off (round robin).

When the override function is active the digits in the bottom-right corner will show: .

To see how much override time duration remains press the o/ride button. The remaining duration of the override period is then shown on the clock for 5 seconds, after which the display returns to show the time of day.

To cancel the override function press and hold the o/ride button for 3 seconds.

BUZZER

The buzzer beeps in response to power on.

BACKLIGHT

The backlight colour changes according to the operating mode selected.

Operating Mode	Backlight Colour
Cool	Blue
Heat	Red
Ventilate	Green

If the mode setting is adjusted or a zone is selected the backlight indicates the set mode.

Set Mode	Backlight Colour
Cool	Blue
Heat	Red
Auto	Blue White
Ventilate	Green

If the unit is on the backlight will turn off 30 seconds after the last button press. The backlight is inactive when the unit is off.

ECONOMY MODE (ECO)

Press the (eco) button to switch Economy mode on or off. Economy mode can be used in conjunction with all operating modes except Fan Only. When Economy mode is on the symbol ECO is shown.

The affect economy mode can have depends on the configuration of the air conditioning system the SAT-3 is connected to. Where possible, economy mode refines system operation to minimise electricity consumption.

Economy mode may be enabled or disabled by your installer.

Economy Mode with Zoned Systems
When Economy mode is selected, Zone systems decrease or increase the heating / cooling set temperatures by 1.5°C respectively. This results in the compressor running less often. When cooling is required, the Indoor fan runs at low speed while the compressor is not running. This provides the low-energy, natural-cooling effect of air movement but with active cooling available should the room temperature become too far from the set temperature.

QUIET MODE

When quiet mode is selected the air conditioner operates the outdoor unit more quietly during cooling operation.

Quiet mode can be enabled or disabled by your installer.

Use of Quiet mode can result in a small drop in efficiency.

CLONE SAT-3

Zone systems may use a second SAT-3 controller to provide a convenient control of the air conditioner from a location away from zone 1.

Day to day operation of the second thermostat is identical to operation with the first thermostat and changes made to either SAT-3 are updated on the other SAT-3.

Timer functions may only be programmed on the master SAT-3. The default temperature display of the second SAT-3 may be configured by your installer to display the zone 1 temperature or the local temperature.

TROUBLESHOOTING

Air Conditioner Doesn't Operate

1. Check there is power to the air conditioner. There is no power if the SAT-3's screen is blank.
2. Check the SAT-3 is on, i.e. the LCD display shows the operating mode and fan setting.
3. Check if the timer symbol is displayed. If so, check that you are in the 'switch on' period, or alter the timer settings (refer to page 11). You can use the Override button to operate the air conditioner outside any preset time (refer to page 14).

Reduced Cooling or Heating from normal

1. Check the SAT-3 is not in the SLEEP mode (refer to page 13).
2. Check to see if the air filter (if any) requires cleaning.
3. Check if any doors or windows are opened.
4. Check that there are no obstacles in front of the outdoor unit.
5. Check that Eco mode is not selected.

No Cooling or Heating

1. Check that the correct operating mode has been selected (Auto, Cool, Heat but not ventilate).
2. The preset temperature may have been set too high or too low.
3. If the operating mode or set temperature has just been adjusted wait for 20 minutes as a delay is enforced between cooling and heating operations to prevent rapid cycling.

Not Starting and Stopping at Programmed Times

1. Check the clock is set to the correct time and adjusted for Day Light Savings or Summer time.
2. Check the timer has been correctly programmed.

Can't change Temperature, Mode or Fan settings

1. Check to see if key lock symbol is displayed. Refer to page 14 for unlocking procedure.
2. Check that the Advanced timer is not operating (refer to page 11).

Loss of Settings

If the SAT-3 fails to retain the correct time and day settings when the power supply is off then the battery requires replacement.

The battery is located at the rear of the SAT-3. Separate the controller body from the wall mounting plate by loosening the screw attaching both pieces as pictured below.

Remove and replace the battery with a lithium CR1220 cell battery.

Keypad Will Not Respond

1. Check to see if key lock symbol 🔑0 is displayed. Refer to page 16 for unlocking procedure.
2. Check that the Advanced timer is not operating (refer to page 12).

SAT-3 TROUBLE CODES

The SAT-3 may display the following trouble codes in the bottom right 2 digits. Trouble codes other than A1 should be referred to you installer or service technician. If trouble code A1 persists for more than a week it should be referred to your installer or service technician.

A1	Damper calibration has not completed, Zone systems only. This code will disappear when the SAT-3 has calibrated the dampers. Damper calibration is performed when the system is powered off with the ⏻ button.
A2	Damper calibration failed, Zone systems only. This indicates a fault with the damper wiring, damper motor or incorrect zone setup settings.
A3	No communications between zone controller and outdoor controller, Zone systems only. The zone controller is not correctly connected to the outdoor unit controller or the communications settings of the zone controller do not match the outdoor unit.
t1	SAT-3 internal temperature sensor fault. The SAT-3 is configured to use its internal temperature sensor, but it is faulty.
t2	SAT-3 external temperature sensor fault. The SAT-3 is configured to use its an external temperature sensor, but it is faulty.
t3	No communications with SAT-3 The SAT-3 may not be correctly wired to the unit controller in a non-zoned system or the zone controller in a zoned system. Or the communications settings of the SAT-3 may not match the settings of the unit controller or zone controller.

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