TZT-701 Thermostat

User Manual

Congratulations on the purchase of your new Air Conditioning System!

The thermostat has been designed by Smart Temp Australia P/L for temperzone ltd. to be an attractive, reliable and easy to use thermostat. Although it looks similar to one of the standard Smart Temp thermostats, the TZT-701 is a re-engineered version of Smart Temp's standard product. As such, the TZT-701 has unique features which are only available in this model. It is also only available through temperzone sales outlets.

Please take the time to read and understand the relevant sections of these instructions so that you derive maximum benefit from the many capabilities offered by this thermostat.

Important – READ THIS FIRST

The TZT-701 thermostat has been designed to be a flexible and powerful Air Conditioning controller with many innovative functions and capabilities.

This manual provides information on all operational features offered by this thermostat. Some features may not be utilised on your particular installation.

Therefore, please use the index provided. Read the sections of this manual relevant to your installation and disregard functions or features that are not applicable.

Contents

Introduction

temperzone's TZT-701 thermostat is able to manage your comfort levels in a number of ways. Your installer should have programmed your TZT-701 thermostat to specifically suit the unit it is controlling and the requirements of the building.

If after reviewing this manual, you consider there are features or functions that you consider desirable, which are not activated on your thermostat, please contact your installer or an authorised temperzone service agent for advice on adding these functions.

To assist with the clarity of the manual, it has been divided into the following 5 main sections.

- **Common Functions**.
  This part of the "User Manual" explains the functions available regardless of the thermostat mode set by the installer .

- **Residential Programmable Mode**.
  This section of the manual explains how to use the TZT-701 when installed in a home or apartment. It contains information on programming the thermostat, using zone control (if installed), and how to get the most from your air conditioning system.

- **Commercial Programmable Mode**.
  When using the TZT-701 thermostat in a commercial building special functions are available. Capabilities such as afterhours run timers, outside air economy control and other commercial air conditioning management capabilities are detailed in this section.

- **Manual Mode (can be used in either residential or commercial buildings)**.
  Often programming or fully automatic air conditioning control is not required. In these circumstances the installer will have set the TZT-701 thermostat for manual mode. This mode is the easiest mode to use the air conditioning system in, but it will not automatically turn the A/C system off (or change the set temperature) at the end of the day.

- **Advanced functions**.
  Your air conditioning system has some advanced control and energy management features. This part of the manual explains these capabilities to help you better understand why your air conditioning system and TZT-701 thermostat is behaving the way it is.

Common Functions

Selecting Heating, Cooling and Auto Modes.

With each tap of the MODE button the TZT-701 thermostat will cycle through Heating only mode, Cooling Only mode, Auto mode and Fan only (ventilation) modes. These modes are described in more detail below.

Please Note: To suit your air conditioning system type, either the Heating or Cooling function <u>may</u> have been disabled.

Heat Only Mode - The TZT-701 thermostat will activate Heating when the room temperature falls below the Heat set point temperature by 0.5°C. In Heat-Only mode the TZT-701 thermostat will NOT bring on Cooling regardless of the room temperature and set point. In Heat-Only mode, only the word "Heat" will be displayed in the LCD. When your air conditioning system is actively heating, the word "Heat" in the LCD will change to the word "Heating". If "Heat" is flashing in the LCD, the TZT-701 is waiting for its anti-rapid cycle delay to expire prior to starting "Heating".

Cool Only Mode - The TZT-701 thermostat will activate Cooling when the room temperature rises above the Cool set point temperature by 0.5°C. In Cool-Only mode the TZT-701 thermostat will NOT bring on Heating regardless of the room temperature and set point. In Cool-Only mode, only the word "Cool" will be displayed in the LCD. When your air conditioning system is actively cooling, the word "Cool" in the LCD will change to the word "Cooling". If the word "Cool" is flashing in the LCD the TZT-701 is waiting for its anti-rapid cycle delay to expire prior to starting "Cooling".

Auto Change-Over Mode - The TZT-701 thermostat will commence "Heating" if the room temperature falls below the Heat set point by 0.5°C. Conversely "Cooling" will commence if the room temperature rises above the Cool set point by 0.5°C.
Auto Change-Over mode is indicated by both the words "Heat" & "Cool" in the LCD. If the word "Heat" or "Cool" is flashing in the LCD the TZT-701 is waiting for its anti-rapid cycle delay to expire prior to starting the air conditioning system.

Fan Only. If Fan-Only is selected the TZT-701 thermostat will turn on the Indoor fan for continuous operation. The TZT-701 thermostat will not activate heating or cooling regardless of the room or set point temperature(s). If Fan-Only is chosen the words "Heat" or "Cool" are <u>NOT</u> shown in the LCD. In Fan Only mode the fan will operate 100% of the time. Fan-Only mode is typically used for ventilation purposes. Each press of the FAN button will step through the available fan speeds.

Fan Control Logic

Auto Fan Mode

If Auto Fan mode has been selected by pressing the "FAN" button the indoor fan will turn on when the heating or cooling turns on, and off again once the heating or cooling turns off. To prevent cool drafts occurring when the heating first starts, the fan may delay starting for a brief period to permit your air conditioning system to pre-warm. To conserve energy your fan may continue to run for a short while after the heating or cooling has stopped.

Fan On Mode

By selecting "Fan On" or continuous fan mode on the TZT-701 thermostat, the indoor fan will operate continuously whilst heating or cooling between the "Start" or "Wake" programs and the "Stop" or "Sleep" programs. The fan will turn on and off as required with heating and cooling outside of those programmed events, if your TZT-701 is set as a Programmable thermostat.

Please Note – Your installer may have activated some of the advanced indoor fan management capabilities of the TZT-701 thermostat that work in partnership with the Fan On Mode. This may result in the fan operating differently than described above. If you find this un-desirable, please contact your authorised temperzone service agent for advice on altering the function.

Fan Speeds

Single Fan Speed

If your air conditioning system has only one Indoor fan speed, the words "High", "Med" or "Low" will be absent from the TZT-701 Wall Control display, as shown in the picture to the left.

Press the FAN button to select either "Fan On mode" or "Auto Fan mode" as described above.

Three Fan Speed

If your air conditioning system has 3 fan speeds, the TZT-701 thermostat will indicate each fan speed in the position shown in the picture to the left.

Pressing the FAN button will step the selected fan speed through "Low", then "Med(ium)", then "High" and finally "Auto" fan speed, (indicated by all three fan speeds being shown on the LCD). If "Auto" fan speed has been selected the TZT-701 thermostat will indicate the fan speed it has chosen for the best performance by flashing the appropriate speed related word in the LCD.

Press and hold the Fan button for 3 seconds to toggle between Auto fan (where the fan turns on and off with heating and cooling) and Fan On, where the fan will run continuously most of the time (as set by the system installer).

Please Note: If zoning is enabled. To protect the Air Conditioning ducting and other components the installer may have selected the high fan speed to be locked out if only one zone is on.

The LCD Explained
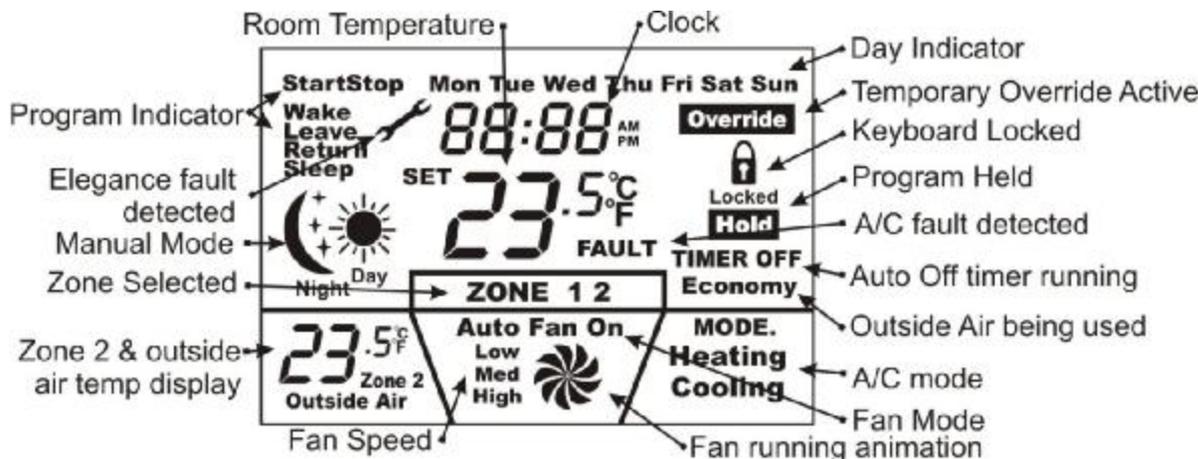
Program Event Indicator.

If "Wake", "Leave", "Return" or "Sleep" are shown, your TZT-701 thermostat is set as a programmable thermostat. This mode of operation is perfect for those living a structured **residential** lifestyle. This is fully automatic mode where the occupant pre-programs the home temperatures for 24 hours per day, 7 days per week. This is explained later on page 8 of this manual.

2 Program Event Indicator.

2 Event programming is typically used in **commercial** buildings where the Air conditioning is normally turns on in the morning, maintains a single temperature all day, then switches off at the end of the day (or maintains a more economical overnight temperature). The words "Start Stop" on the LCD indicate this mode is set. This function is described on page 10 of this manual.

Manual Mode Indicator.
These words (or the lack of any programming information such as "Start"& "Stop", or "Wake" "Leave" "Return" & "Sleep") indicate the TZT-701 thermostat is in "Manual Mode". This mode is perfect for those who have a less structured lifestyle. Your TZT-701 thermostat may be set to provide two separate set points, offering a Day temperature and a separate Night temperature to be set, and easily swapped between the two as needed. Alternatively, a single heating and cooling set point may be provided. In this case the day & night symbols will not be shown. This function is described in more detail on page 12 of this manual.

Clock.
The clock displays the time. This time is used by the TZT-701 thermostat in Programmable mode (2 or 4 events) to set the start/stop or program events so it is important that the clock is set correctly. The Clock is NOT used by the TZT-701 thermostat in manual mode – it simply displays the time. See programming on pages 8 & 10 for details about setting the clock.

Day Indicator.
As with the clock described above, the TZT-701 thermostat relies on having the correct day set for its programming functions to be accurate. See programming on pages 8 & 10 for details about setting the clock and day display.

Room / Set Temperature.
This portion of the LCD displays the current room temperature. (Note this temperature may or may not be measured at the location of the TZT-701 wall controller). In programming mode the current SET (or desired) room temperature is displayed in this location. The temperature is display in either degree Celsius or degrees Fahrenheit as set by the installer.

Outdoor / Zone Temperature.
This part of the display requires optional sensors to be installed to enable this function. Both the second control zone temperature and or outdoor temperature can be displayed.

System Mode Indicator.
This part of the LCD provides information on the Air Conditioning System control mode. The TZT-701 thermostat is capable of controlling heating only, cooling only or both heating and cooling systems together. If heating only mode is selected the word "Heat" is displayed. If cooling only mode is selected the word "Cool" is displayed. Auto season changeover mode is indicated by the words " Heat & Cool" both being displayed.

If the TZT-701 requires warmed air, the word "Heating" will be displayed. If the room needs to be cooled, the word "Cooling" will be displayed. If the Word "Heat" or "Cool" is slowly blinking the TZT-701 is waiting for a safety delay time to expire in order to to protect the A/C system. When the blinking stops the cycle requested will commence.

Fan Running Animation.
A small animation of a fan revolving will be displayed whenever the air conditioning system fan is running. Note" all segments of the fan animation icon are shown in the picture on page 5. In reality, when the TZT-701 thermostat is running normally, only the parts of the LCD necessary to provide the fan running animation will be displayed.

Fan Speed Indicator.
The TZT-701 thermostat can control up to three speeds of indoor fan if the installer has enabled this function. The manually selected fan speed is shown. Auto fan speed is shown by the three words "Low", "Med" & "High" in the LCD at one time. The automatically selected fan speed will flash.

Fan Mode Indicator.
The TZT-701 thermostat can turn the indoor fan On & Off in a number of ways depending on whether the TZT-701 thermostat is used in commercial or residential mode, or whether the TZT-701 thermostat is heating or cooling. This is displayed as "AUTO FAN" or "FAN ON" mode. Pages 4 and 5 detail these functions.

Keyboard Lock Indicator.
The Padlock symbol will flash to indicate that parts of the keyboard are locked or the temperature control range is limited preventing changes to the thermostat settings. The TZT-701 thermostat has multiple levels of keyboard lock for both manual and programmable modes. See page 14 of the manual for more information on this function.

Active Zone Indicator.
"Zoning" allows you to split your heating and or cooling system into 2 separate temperature controlled areas or "Zones". Each can have their own temperature sensor (Optional Zone 2 sensor required). If zoning is enabled the Word "ZONE" and the numbers "1" and or "2" will be shown in the LCD. If the optional Zone 2 sensor has been installed, the second zone temperature will also be displayed and temperature control for that zone is provided. Refer to page 14 of this manual for more details.

Economy Mode Indictor.
If the outside air temperature is suitable, the TZT-701 thermostat will use the cooler outside air (rather than the warmer inside air) to supplement the cooling capacity of your Air Conditioning system. If the outside air is very cool, then the TZT-701 thermostat may decide to stop the A/C system completely and only use this cooler outside air to cool the building. This reduces running costs while improving the indoor air quality. The TZT-701 thermostat will inform you that it is using outside air by showing the word "Economy" on the LCD. See page 13 for more detail on this feature.

Auto Stop timer. (Manual Mode only) After Hours Run Timer (Commercial Mode Only)
The word "Timer" will be displayed whenever a TZT-701 thermostat timer function is active. The TZT-701 thermostat has a number of inbuilt timer functions that use this part of the display depending on which mode or installer function has been set. Whenever the words "TIMER" or "TIMER OFF" is displayed the TZT-701 thermostat is performing a timing function relevant to your mode of operation. These functions are described throughout this manual in the various mode-specific sections.

Current Program Overridden.
The TZT-701 thermostat LCD will display this word when the TZT-701 thermostat pre set program has been temporarily overridden. See page 9 and 12 for more details of this capability.

A/C Fault Indicator.
The TZT-701 thermostat is capable of monitoring the safety of your air conditioning system, or an external device critical to the safe and correct operation of your air conditioner. If a fault is detected all heating and cooling calls are suspended to further protect the air conditioning system and the indoor fan may be locked to LOW speed (Installer set function). The TZT-701 thermostat can be turned OFF if required by pressing and holding the On/Off button for 2 seconds. If this symbol frequently turns on and off regularly or is displayed permanently then you will need to contact your air conditioning installer to check your system and reset any faults that have been detected.

TZT-701 Thermostat Fault Indicator.
As well as monitoring the status of the air conditioning system, the TZT-701 thermostat also monitors its own health. The "Spanner" symbol will show on the LCD to inform you that an internal fault has been detected. When a fault is detected all heating and cooling calls are suspended to protect the system from harm and to prevent run away heating or cooling conditions occurring. The indoor fan is locked to LOW speed to maintain a minimum level of ventilation during this fault condition. Depending on the fault you may or may not be able to turn your TZT-701 thermostat OFF with the On/Off Button. If this symbol is displayed on and off regularly or is displayed permanently you will need to contact your Air Conditioning installer to check your system and reset any faults that may have developed.

Residential Programmable Mode

Your residential programmable thermostat is able to be programmed by you, to automatically control the desired home heating and cooling temperatures.

4 times per day, 7 days per week a separate heating and/or cooling temperature can be programmed into the thermostat. When the programmed time arrives your thermostat will automatically use the programmed desired heating and cooling temperature to automatically control your home air conditioning system. These programmed temperatures will remain active until the next pre-programmed event arrives or until you override these temperatures manually.

The Buttons Explained

On/Off – (Zone Select if function installed)
Quickly press the On/Off button to turn the TZT-701 thermostat On. To turn the TZT-701 thermostat OFF, **press & hold** this button for 2 seconds until the word "OFF" is displayed on the LCD. If the Zoning function is enabled (see Zone Control on page 13), tap the On/Off button to cycle between Zone 1 only, Zone 2 only, and then both Zones.

Mode
Tap this button to cycle the TZT-701 thermostat through the available modes, Heat only, Cool only, Fan Only, or Auto season change over mode. See page 4 for more information on Modes.

Up (p)
Use this button to increase the desired room temperature for the heating or cooling modes, or increase a "value" in programming modes. Also used to force override of the pre-programmed temperatures and temporarily replace them with a new temperature.

Down (q)
Use this button to decrease the desired room temperature for heating or cooling modes, or decrease a "value" in programming modes. Also used to force override of the pre-programmed temperatures and temporarily replace them with a new temperature.

Clock
Tap the clock button to begin the setting process. Press and hold for 2 seconds to begin programming your daily events.

Fan
Single Speed Fan -. Tap this button to cycle between Continuous fan (Fan ON) and Auto Fan.
Three Speed Fan – Tap this button to cycle between Low, Medium, High & Auto Fan speeds.
Press and hold this button for 5 seconds to toggle between Continuous fan (Fan ON) and Auto Fan.

Setting The Clock

The TZT-701 thermostat is fitted with a real time clock. It is <u>essential</u> that the clock time and day are set accurately if you want your programmed events to start on time.

To set the clock, tap the clock button. The LCD will show the Hours Digit flashing. Use the up (p) or down (q) button to adjust the hours to the correct time (note the AM / PM symbol) Tap the clock button again and now the minute's digits will flash. Adjust this value using the up (p) or down (q) button to show the correct minute. Tap the Clock button again and now the week day flashes, again use the up (p) or down (q) button to set this value to the correct day of the week. Tap the clock button again to exit the clock set function. Your clock is now set.

Programming Your 4 Daily Events

The TZT-701 is an individual 7-day programmable thermostat. For each day of the week you are able to have 4 time schedules or programmed events. For clarity these events are conveniently named "Wake", "Leave", "Return" & "Sleep".

The "Wake" event may be used to set the temperatures of your home that you would like to wake up to.
The "Leave" event is typically used to set the temperatures you wish your home to maintain whilst you are away at work.
The "Return" event is often used to set the temperature you wish to be greeted with upon returning home at the end of the day.
The "Sleep" event can be used to set a comfortable and energy efficient temperature while you sleep.

You are permitted to have every event occur at a different time of the day and set a different heating and cooling set temperature for each of the 4 events. You are able to set a heating set point temperature between Heating OFF and 38 degrees Celsius. You are able to set a cooling temperature between zero degrees Celsius and Cooling OFF.

Programming your TZT-701 thermostat or setting these daily events is no more complicated than setting the clock as described previously. The same buttons are used in the same sequence, using the Clock button to advance to the next step, and the up (p) or down (q) buttons to make changes. The LCD shows only relevant information for the event being adjusted thus reducing possible errors that may be caused by having confusing information displayed on the LCD.

To enter the program mode, press and hold the Clock button for 5 seconds. The display will change to show the Day "Monday" flashing. Using the up (p) or down (q) buttons adjust the day to the day you wish to start programming an event or to the day you wish to edit an existing event.

Tap the clock button to advance to the next step, The LCD will show the word "Wake" with the hour's digit flashes. Using the up (p) or down (q) buttons adjust the hours to the time you wish the "Wake" event to commence for the currently selected day. Tap the Clock button again, now the minute's digits flashes. Using the up (p) or down (q) buttons set the minute to the time you wish the "Wake" event to commence.

Tap the Clock button again. If the TZT-701 thermostat has been set by the installer to control the optional climate zoning AND if the option to program the zones has been set by the installer, you will now have the ability to set which zones you require to be ON during the wake event. Using the up (p) or down (q) buttons set the zones you wish to be ON for the "Wake" event.

If the installer has set the Zone option "OFF", this step is skipped by the TZT-701 during the programming sequence.

Tap the Clock button again, now the word "Heat" (if heating mode is enabled by the installer) and a temperature value is shown in the LCD, using the up (p) or down (q) buttons set the desired Heating temperature for the "Wake" event. Tap the Clock button again, now the word "Cool" (if cooling mode is enabled by the installer) and a temperature value is shown in the LCD, using the up (p) or down (q) buttons set the desired Cooling temperature for the Wake event.

NOTE: there must be a minimum of 1 deg C difference between heating and cooling set points. The heating temperature must be at least 1 deg C lower than the cooling set temperature. If you set the heating or cooling set point closer than this minimum value, the TZT-701 thermostat will automatically "push" the other set point away to maintain this minimum value.

Tap the Clock button again and the Day previously selected will be shown along with the word "Leave". The Hour digit will flash indicating that this value can now be adjusted with the up (p) or down (q) buttons. Set the hour to the time you wish the "Leave" event to commence.

Continue to tap the Clock button to advance you through the "Leave" "Minute", then "Leave" Zone (if enabled) "Leave" Heating (if enabled) and "Leave" cooling (if enabled) temperatures. Again by continuing to tap the Clock button you will advance to through the "Return" program and then "Sleep" programs for the day you have chosen to program.

Taping the Clock button again the LCD will now show the word "COPY".

You now have TWO options

Option 1 - Continue programming as above.
Simply continue to tap the Clock Button as you have been to advance to the next day, "Tuesday" in this example "Wake", "Leave", "Return", "Sleep" then Wednesday, Thursday etc, following the same simple steps previously explained, …. OR ….

Option 2 - Copy Program – To copy the values you have just set to other days of the week.

Rather than taping the Clock button now, tap the up (p) or down (q) buttons to "TAG" each additional day you wish to copy the currently set days program to. When you have finished "Tagging" the days you desire press the Clock button to initiate the copy process. The word "Copy" will flash briefly to confirm the copy process and your current days values will be copied to the days selected. Normal programming will resume at the next day to be programmed.

Programming the Zones (If Enabled)

Your TZT-701 thermostat can automatically change the Active Zones at pre set times (if enabled by the installer). For example, this feature permits the TZT-701 thermostat to automatically switch the bedroom zone ON when the "Sleep" event starts, or to automatically switch the unoccupied upstairs zone OFF during the day. This has the benefit of reducing energy costs while still maintaining a comfortable living environment in the occupied areas of your home. Naturally, these settings can be overridden at any time by tapping the on/off button to manually select active zones as described on page 14 of this manual.

Temporary Temperature Override

This permits a temporary change to your event temperatures, just for today and only until the next programmed event starts. For example, you may have guests visiting that would like it a little warmer or cooler than you would normally have the thermostat set, or you may find yourself at home when normally you would be away from your home, possibly a sick day for example.

Simply press and hold the up (p) or down (q) buttons for 3 seconds. The TZT-701 thermostat display will change to show the word "SET", and the active set point for the current mode. (Heating, Cooling or Auto modes) as you hold the up (p) or down (q) buttons the current set point will change.

If Auto mode is selected, after adjusting the Heat set point wait without touching a button for 3 seconds for the TZT-701 thermostat display to change to show "Cool" and "SET" and your current set cooling temperature. If desired change this value with the up (p) or down (q) buttons. Again wait for 3 seconds to exit the temporary overridden programmed mode. The LCD will now show "Override" and your new temporary setting will be in use until the next programmed event change occurs.

Should you need to cancel a temporary override, simply press and hold the up (p) **AND** (q) buttons for a few seconds. The word "Override" will disappear from the LCD and your pre-programmed settings will be restored.

Default Program

	Wake			Leave			Return			Sleep		
Monday	7:00am	Heating	18	8:30am	Heating	10	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Tuesday	7:00am	Heating	18	8:30am	Heating	10	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Wednesday	7:00am	Heating	18	8:30am	Heating	10	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Thursday	7:00am	Heating	18	8:30am	Heating	10	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Friday	7:00am	Heating	18	8:30am	Heating	10	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Saturday	8:00am	Heating	18	8:30am	Heating	18	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30
Sunday	8:00am	Heating	18	8:30am	Heating	18	5:00pm	Heating	20	10:00pm	Heating	12
		Cooling	25		Cooling	30		Cooling	25		Cooling	30

Commercial Programmable Mode

Your commercial programmable thermostat is able to be programmed by you, to automatically control the desired office heating and cooling temperatures.

2 times per day, 7 days per week a separate heating and/or cooling temperature can be programmed by you into the thermostat. When the programmed time arrives your thermostat will automatically use the programmed desired heating and cooling temperature to automatically control your office air conditioning system. These programmed temperatures will remain active until the next pre-programmed time arrives or until you override these temperatures manually or until you activate the 2 hour after hour run timer.

The Buttons Explained

On/Off – After hours Override (or Zone Select if function is installed)
Quickly press the On/Off button to turn the TZT-701 thermostat On where it will run your temperature control program. To turn the TZT-701 thermostat OFF, **press & hold** this button for 2 seconds until the word "OFF" is displayed in the LCD.
If zoning is enabled - Tap the On/Off button to cycle between Zone 1 only, Zone 2 only then both zones.
If zoning is disabled - Tap this button to toggle the "2-hour", after hours run timer on or off.

Mode
Tap this button to cycle the TZT-701 thermostat through the available modes, Heat only, Cool only, Fan Only, or Auto change over mode. See 4 of this manual for more information on Modes.

Up (p)
Use this button to increase the desired room temperature for the heating or cooling modes, or increase a "value" in programming modes. Also used to force override the pre-programmed temperatures and temporarily replace them with a new set temperature.

Down (q)
Use this button to decrease the desired room temperature for heating or cooling modes, or decrease a "value" in programming modes. Also used to force override the pre-programmed temperatures and temporarily replace them with a new set temperature.

Clock
Tap the clock button to begin setting the clock. Press and hold the button for 2 seconds to begin programming your daily events.

Fan
Single Speed Fan -. Tap this button to cycle between Continuous Fan (Fan ON) and Auto Fan.
Three Speed Fan – Tap this button to cycle between Low, Medium, High & Auto Fan speeds.
Press and hold this button for 5 seconds to toggle between Continuous Fan (Fan ON) and Auto Fan.

Setting The Clock

Your TZT-701 thermostat is fitted with a real time clock. It is <u>essential</u> that the clock time and day are set accurately if you want your programmed events to start on time.

To set the clock, tap the clock button. The LCD will show the Hours Digit flashing. Use the up (p) or down (q) button to adjust the hours to the correct time (note the AM / PM symbol) Tap the clock button again and now the minute's digits will flash. Adjust this value using the up (p) or down (q) button to show the correct minute. Tap the Clock button again and now the week day flashes, again use up (p) or down (q) button to set this value to the correct day of the week. Tap the clock button again to exit the clock set function.

Programming Your 2 Daily Events

The TZT-701 thermostat is an individual 7-day programmable thermostat. For each day of the week you are able to have 2 time schedules or programmed events occur. These events are named "Start" and "Stop". The "Start" event sets the time you wish your Air Conditioning to start at the beginning of the day. You can program heating and cooling temperature set points corresponding to the start event.

The "Stop" event is used to set the heating and cooling temperatures at the end of the working day. The programmable options include "OFF", or simply set a more economical temperature than your "Start" temperature to prevent your office over-heating or becoming to cool at during the night.

You can have the Start and Stop events occur at a different time each day along with different heating and cooling set temperatures for each event. The standard heating set point temperature range is between "OFF" and 30°C in 0.5°C steps. You are able to set a cooling set point temperature between 15°C and 36.5°C, and then "OFF".

Programming your TZT-701 thermostat or setting these daily events is no more complicated than setting the clock as described previously. The same buttons are used in the same sequence. Use the Clock button to advance to the next step, and the up (p) or down (q) buttons to make changes.

To enter the program mode, press and hold the Clock button for 5 seconds. The display will change and the Day "Monday" will flash. Using the up (p) or down (q) buttons adjust the day to the day you wish to start programming or to the day you wish to edit an existing program.

Tap the clock button to advance to the next step, The LCD will show the word "Start" with the hour's digit flashing. Use the up (p) or down (q) buttons to adjust the **hours** to the time you wish the "Start" event to occur for the day selected. Tap the Clock button again. Now the minute's digits flashes. Use the up (p) or down (q) buttons to set the **minutes** to the time you wish the "Start" event to commence.

Tap the Clock button again. If the option to program the zones has been enabled by the installer, you now have the ability to set which zones you require ON during the "Start" event. Using the up (p) or down (q) buttons, set the desired zones.

If the installer has set to the Program Zone option "OFF" this step is skipped by the TZT-701 thermostat during the programming sequence.

Tap the Clock button again, now the word "Heat" (if heating was enabled by the installer) and a temperature value is shown in the LCD. Use the up (p) or down (q) buttons to set the Heating temperature for the "Start" event. Tap the Clock button again. Now the word "Cool" (if cooling was enabled by the installer) and a temperature value is shown in the LCD. Use the up (p) or down (q) buttons to set the desired Cooling temperature for the "Start" event.

NOTE: there must be a minimum of 1 deg C difference between heating and cooling set points. The heating temperature must be at least 1 deg C lower than the cooling set temperature. If you set the heating or cooling set point closer than this minimum value, the TZT-701 thermostat will automatically "push" the other set point away to maintain this minimum value.

Tap the Clock button again and the day previously selected will be shown along with the word "Stop". The Hour digit will flash indicating that this value can now be adjusted with the up (p) or down (q) buttons. Set the hour to the time you wish the "STOP" event to occur. Continue to tap the Clock button to advance through the "Stop" "Minute", then "Stop" Zone (if enabled) "Stop" Heating (if enabled) and "Stop" cooling (if enabled) temperatures.

Tap the Clock button again, and the LCD will show the word "COPY".

You now have TWO options

Option 1 - Continue Programming as above.
Simply continue to tap the Clock Button as you have been to advance to the next day, "Tuesday" in this example "Start" & "Stop", then Wednesday, Thursday etc, following the same simple steps previously explained…. OR

Option 2 - Copy Program – To copy the values you have just set to other days of the week.
Rather than taping the Clock button now, tap the up (p) or down (q) buttons to "TAG" each additional day you wish to copy the currently set "day-long" program to. When you have finished "Tagging" the days you desire, press the Clock button to initiate the copy process. The word "Copy" will flash briefly to confirm the copy process and your current day's values will be copied to the days selected. Normal programming will resume at the next day to be programmed.

E Tip.
On days when the office will be unoccupied, set the "START" and "STOP" programs to occur at the same time of day, say 8:00am for example. This way, if "FAN ON" mode has been selected, the fan will not start.

After-Hours Run Timer

Note - If zoning has been used in your office, the after hours run timer function is automatically disabled.

A useful feature of your thermostat is it's "After-Hours" run timer. Use this timer when you find yourself working outside of the normal office hours. Tapping the On/Off button will initiate the after hours run timer function. The TZT-701 thermostat will then temporarily substitute that day's "Stop" program temperatures with that day's "Start" program temperatures but **only for a timed two-hour period**. While the after-hours run timer is operating the word "Timer" will flash on the LCD.

This function makes it simple to return the office temperature to a comfortable working level without the fear of forgetting to turn the air conditioning system off when you leave.

E Tip.
To take advantage of the after hour timer function on days when the office is normally not open, program the "Start" event (at 8:00am for example) with your normal " occupied" heating and cooling set temperatures. Set the "Stop" event for the exact same time. Set temperatures to your normal "Stop" values, "Off" for example. The TZT-701 will move straight to the "Stop" event and not run the air conditioer, but it will have a temperature in memory ready for use by the after hours run timer.

For an office that is <u>NOT</u> open on a weekend an example of a Saturday and Sunday program is given below.

Day	Time	Suggested Heat set point	Suggested Cool set point
Saturday Start	8:00 am	Heat set = 22c	Cool Set = 25c
Saturday Stop	8:00 am	Heat Set = OFF	Cool Set = OFF
Sunday Start	8:00 am	Heat set = 22c	Cool Set = 25c
Sunday Stop	8:00 am	Heat Set = OFF	Cool Set = OFF

Temporary Temperature Override

Your TZT-701 thermostat has been provided with a temporary program override function. This permits you to temporarily change your programmed event temperatures, just for today and only until the next programmed event starts.

Simply press and hold the up (p) or down (q) buttons for 3 seconds. The TZT-701 thermostat display will change to show the word "SET", and the active set point for the current mode. (heating, cooling or auto) as you hold the up (p) or down (q) buttons the current set point will change.

If Auto mode is selected, after adjusting the Heat set point wait without touching a button for 3 seconds for the TZT-701 thermostat display to change to show "Cool" and "SET" and your current set cooling temperature. If desired change this value with the up (p) or down (q) buttons. Again wait for 3 seconds to exit the temporary overridden programmed mode. The LCD will now show "Override" and your new temporary setting will be in use until the next programmed event change occurs.

Should you need to cancel a temporary override, simply press and hold the up (p) <u>**AND**</u> (q) buttons for a few seconds. The word "Override" will disappear from the LCD and your pre-programmed settings will be restored.

Programming the Zones (if enabled)

Note - If zoning has been enabled, the after hours run timer function is disabled.

Your TZT-701 thermostat can automatically change the Active Zones at pre set times (if enabled by the installer). For example, this feature permits the TZT-701 thermostat to automatically switch the bedroom zone ON when the "Sleep" event starts, or to automatically switch the unoccupied upstairs zone OFF during the day. This has the benefit of reducing energy costs while still maintaining a comfortable living environment in the occupied areas of your home. Naturally, these settings can be overridden at any time by tapping the on/off button to manually select active zones as described on page 14 of this manual.

Manual Mode

Quite often automatic time clock control of your air conditioning system is not required. In these instances your installer will have set your TZT-701 thermostat to manual mode.

Manual mode provides the easiest form of climate control for your home or office. Simply turn the TZT-701 thermostat on or off as required and set your desired temperatures. These set temperatures will then remain active until you decide to set a new value.

The Buttons Explained

On/Off (or Zone Select if function is installed)
Quickly press the On/Off button to turn the TZT-701 thermostat On. To turn the TZT-701 thermostat OFF, **press & hold** this button for 2 seconds until the word "OFF" is displayed in the LCD. Tap the On/Off button to cycle between Zone 1 only, Zone 2 only, then both zones (if zoning is enabled).

Mode
Tap this button to cycle the TZT-701 thermostat through the available modes, Heat only, Cool only, Fan Only (ventilation mode) or Auto season change over mode. See page 4 of this manual for more information on Modes.

Up (p)
Use this button to increase the desired room temperature for the heating or cooling modes, or increase a "value" in programming modes. Also used to force override the pre-programmed temperatures and temporarily replace them with a new set temperature.

Down (q)
Use this button to decrease the desired room temperature for heating or cooling modes, or decrease a "value" in programming modes. Also used to force override the pre-programmed temperatures and temporarily replace them with a new set temperature.

Clock
Tap the clock button to select day or night mode (if fitted). Press and hold for 2 seconds to set your TZT-701 clock.

Fan
Single Speed Fan -. Tap this button to cycle between Continuous fan (Fan ON) and Auto Fan.
Three Speed Fan – Tap this button to cycle between Low, Medium, High & Auto Fan speeds.
Press and hold this button for 5 seconds to toggle between Continuous fan (Fan ON) and Auto Fan.

Setting The Clock – Manual Mode

In Manual mode, the real time clock simply provides a display of the current day and time. It does not control the thermostat. To set the clock, **press & hold** the clock button for 5 seconds. The LCD will show the Hours Digit flashing. Use the up (p) or down (q) button to adjust the hours to the correct time (note the AM / PM symbol) Tap the clock button and now the minutes digits will flash. Adjust this value using the up (p) or down (q) button to show the correct minute. Tap the Clock button again and now the weekday flashes. Again use up (p) or down (q) button to set this value to the correct day of the week. Tap the clock button again to exit the clock set function.

Day / Night Set points (if Active)

The TZT-701 thermostat has either a single adjustable set temperature or a separate Day heating & cooling set temperature and Night heating & cooling set temperature. If active, switching between Day & Night Modes is achieved by taping the clock button. The Day heating and cooling set points are active when the "Sun" symbol is shown on the LCD. The Night heating and cooling set points are active when the "Stars & Moon" symbol is shown on the LCD

To adjust the heating and cooling set points first select the day or night mode (if active) by tapping the clock button. Press and hold the up (p) or down (q) button for a few seconds. The LCD will change and show the word "SET" and the current mode (heating, cooling or auto) set temperature. Press the up (p) or down (q) to adjust this value to the desired temperature. If Auto mode is selected, after the heating set point is adjusted, wait a few seconds without touching a button and the thermostat display will change to show the cooling set point. Using the up (p) or down (q) button, adjust the set point to your desired value. After a few seconds the thermostat display will return to normal and your new set temperatures will take effect.

Timer Mode

In some applications, the TZT-701 thermostat "Auto OFF" timer feature may be activated by the installer. When this function has been activated the word(s) "TIMER" or "TIMER OFF" will appear in the LCD. This function is ideal when a room is not often used and where you want to ensure the air conditioning system is not left running when the room is unoccupied.

When active, the TZT-701 thermostat will automatically turn off after a pre-programmed period of time. To provide warning of the pending shutting down, one hour before the A/C system is about to turn off, the words "TIMER" will flash in the LCD. Once the time period has expired the TZT-701 thermostat automatically turns off the air conditioning system. If required, pressing the On/Off button will reset the timer and the heating or cooling will restart for the set period of time.

Should you wish you can turn the TZT-701 thermostat off at any time by pressing and holding the On/Off button for 2 seconds.

Advanced Functions

Outdoor Air Temperature Display

If the optional Outdoor Air sensor is fitted, the reading is shown in the bottom left hand corner of the LCD. If "Zoning" is also enabled AND the Zone 2 sensor fitted, the LCD will alternate between "Outside Air" and "Zone 2" temperatures every 5 secs.

Outside Air Economy Function (If Fitted)

To further improve the energy efficiency of a suitably configured air conditioning system, the TZT-701 can use outside air for cooling. If cooling is required and the outside air is cool enough, the outside air can be drawn in. If outside air is being used, the word "Economy" will flash on the LCD. The air conditioner's compressor **may** also run if the cooling set point is not achieved.

Note, this function cannot be used in conjunction with the Zone Control Function.

Zone Control (if fitted)

If zoning is enabled the word "Zone" and either "1", "2," or "1 2" (indicating both zones) will be shown.To select which zone(s) you wish to be controlled, simply tap the On/Off button to toggle between zone 1, Zone 2 or both zones

If the optional Zone 2 Temperature sensor has been installed, the second zone temperature will also be shown in the LCD.

Some homes or offices require temperature control in two separate areas, a living and sleeping zone for example. If your TZT-701 thermostat shows the word "ZONE" then the Zoning function is active. You may also have information on the temperature in the second zone (if the optional second zone temperature sensor has been installed).

If you have the Zoning function active on your TZT-701 thermostat and the Zone-2 temperature sensor is fitted, then your desired temperature will be maintained in both zones of your home or office.

The TZT-701 thermostat will automatically open and close "dampers" (motorised valves that regulate the flow of air in the ducting that carry the warmed or cooled air from the Air Conditioning system to the various areas of the home or office) as well as controlling the Air Conditioning system to direct air to the appropriate area of the home or office.

This capability not only improves the comfort in the home or office (especially in two story buildings or difficult to temperature regulate areas), it dramatically reduces the energy costs by only operating Air Conditioning system in the areas (or zones) that require it. This function eliminates the over heating or over cooling effects of some air-conditioning controllers.

Note, this function cannot be used in conjunction with the Outside Air Economy Function.

Changing Active Zones.

Simply tapping the On/Off button while the TZT-701 thermostat is switched on will cycle the TZT-701 thermostat between Zone 1 only operation, Zone 2 only, then both Zones operating. When a zone is calling for warmed or cooled air, it is directed to that particular zone in order to maintain the desired temperature. If the optional Zone-2 temperature sensor has been installed, the Zone-2 temperature is measured and controlled to the set point. The Zone-2 temperature is also displayed on the LCD.

Please note.
The TZT-701 thermostat will maintain a minimum of one open zone at all times. To protect the air conditioning system and ducting you cannot turn both zones off at the same time.

Key Board Lock / Function Lock

Many of the features or functions of the TZT-701 can be locked by the owner or installer to prevent un-authorised tampering. When any locked function is attempted to be accessed, your TZT-701 will flash the padlock symbol to inform you that the function or control limit has been reached.

Fan Speed Management

As touched upon in this manual, fan speed management is a critical component of effective air conditioning control. The fan is directly responsible for the air movement through your air conditioning system and home/office and has a significant impact on how efficiently your air conditioning system operates.

The TZT-701 monitors components within your air conditioning system and based on that information controls the speed of the Air Conditioner's fan. When in the "Auto" Fan mode, the speed is not exclusively controlled by room temperature relative to the set point. Other factors are used as well. This of course does lead to fan speed variation, which can on occasions be irritating. If so, you have the option to fix the fan speed, but be aware that this may solve the noise issue but lead to less than ideal air distribution. There is no right or wrong setting. It is up to the user to determine what works best in their particular situation.

Optimised Start

Optimised Start mode permits the TZT-701 thermostat to automatically calculate the most optimum time to start your air conditioning system so that your programmed set point temperature is reached <u>AT</u> the program start time.

Your A/C system will therefore turn on before the scheduled event so that the set temperature is achieved at the scheduled event time, not after it. This is an "Installer configured" feature. If you believe it would be of benefit to your situation, contact your installer to have this facility enabled.

Troubleshooting

Symptom	Suspected Fault	Suggested remedy
Spanner icon on in LCD	Internal TZT-701 thermostat Fault detected. Communication loss between main PCB and wall controller should be strongly suspected.	Call temperzone service
Word "FAULT" shown on LCD	A/C fault detected	Call temperzone service
Temperature display seems inaccurate	Air from the wall cavity may be leaking into the rear of the thermostat / sensor enclosure.	Plug holes in wall with tape to prevent leaks
	External heat or cool source such as lamps, televisions or drafts from open doors affecting the accuracy of sensor.	Move lamps, vents or other sources of abnormal temperature away from sensors
	Sensor calibration may setting are incorrect	Call temperzone service for information on calibrating the air temperature sensor
Cannot enter heat or cool modes	TZT-701 thermostat set for Heating or cooling only modes	Heating or cooling mode not available on your air conditioning system
Fan sometimes stops and starts intermittently while heating is running	This may not be a fault. You air conditioning system may be running a de-ice maintenance function. The indoor fan is turned off during these events to prevent drafts being felt inside the building	If this occurs to often, an air conditioning fault may have occurred. Contact temperzone for information on this event
Fan speed changes frequently	This may not be a fault	Your TZT-701 is choosing the most energy efficient fan speed for the current conditions. Try selecting a speed manually with the fan button.
Fan On mode keeps the fan running 24 hours a day when in program mode, or the fan stops shortly after heating stops.	This is not a fault.	Your TZT-701 advanced fan management program has been customised by your installer.
Wall controller has no display	Check air conditioning main fuse	Reset home A/C fuse Call temperzone service
	Faulty Wiring, fuse or TZT-701	Call temperzone service
Heating, Cooling or Air Conditioning System seems to runs all night.	Heating and or cooling temperatures set for typical day time temperatures.	Set a lower heat temperature and/or a higher cooling temperature. Review manual on setting temperatures
	Fan set to Fan ON mode	Change fan mode to Auto
Heating or cooling system seems to start before the scheduled start time	Optimised Start function may be on. This is an installer set function. See optimised start on page 14 above	Call temperzone service for information on turning this function off if required.
Some buttons do not appear to operate	Key board lock is on. See page 14 for more information on this function.	This is not a fault. Buttons or functions may be locked to prevent unauthorised tampering

Specifications

Input Voltage .... 24VAC / 240VAC (fused) selectable
Operating Temperature .... 0-50°C (32 to 122F)
Operating RH .... 0-95% (non condensing)
Size .... 113 x 103 x 23mm
Display Size .... 74 x 55mm
Temp Sensors .... 10K NTC type 3
Accuracy .... +/- 0.3° C @ 21 C
Display resolution .... 0.1 deg C
Control Range .... Off to 38c
Outside Air temp display range .... -8 ~ +60c
Back light .... Blue EL
Optimised Start method .... Time to Start Vs Temp Differential method
Communications Protocol.............................. Native RS485 - 150M max run with 4 core screened cable.
Warm Start .... Indoor Coil > 33°C.
Fan run-on in Heat cycle............................... Until Indoor Coil < 27°C (Default value. Adjustable by Installer)
Fan speeds.. Based on evaporator coil temperature
Economy function .... Available. See page 5 of Installer Manual for details
Approvals .... CE, C-tick

Warranty Information

This product is warranted to be free from manufacturing defects for a period of between 1 and 5 years from the date of sale.

The exact warranty period depends on the product the thermostat was fitted to, or whether it was sold separately, and any other conditions of sale at the time, hence the "period" variation stated above. Should a warranty claim be necessary, contact your supplier or your nearest temperzone office for return instructions, prior to sending any suspected faulty components.

Warranty is – "Return-to-Base". The freight cost to temperzone is the responsibility of the sender. temperzone (or our approved agent) will repair or replace the faulty item(s) at our discretion. Faults not warrantable will be charged a service fee.

Exclusions
This warranty does not include incidental or consequential damage that may result from using this equipment. Nor does this warranty cover abuse, rain or moisture damage or using this equipment outside of the quoted specifications.

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This product has been manufactured by Smart Temp Australia with exclusive customised firmware for temperzone ltd.
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This product is Patent Pending.