SMT-AZC

INSTALLATION / OPERATION MANUAL

INTRODUCTION

The SMT-AZC thermostat is designed to work with the Smart Temp 24Volt Zone Dampers

Please take time to read and understand this manual so that installation and testing is undertaken in an efficient and effective manner.

Although great care has been taken in the preparation of this manual, Smart Temp takes no responsibility for errors or omissions contained herein. It is the responsibility of the installer to ensure that this thermostat and the equipment connected to it operate in a safe and efficient manner.

Due to ongoing product improvement, Smart Temp reserves the right to change the specifications of the SMT-AZC without notice.

DISASSEMBLY

Insert a small coin in the release slot located on the bottom of the thermostat. Gently twist the coin to release the thermostat from the subbase. Avoid twisting the case, as this may stress the LCD and cause it to crack or bend the terminal pin connectors.
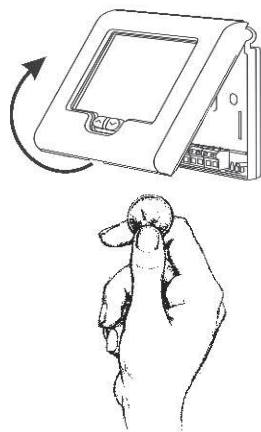
TERMINAL DESIGNATIONS

The SMT-AZC has dedicated screw terminals located on the subbase to facilitate ease of wiring to the actuator

SMT-AZC SUBBASE
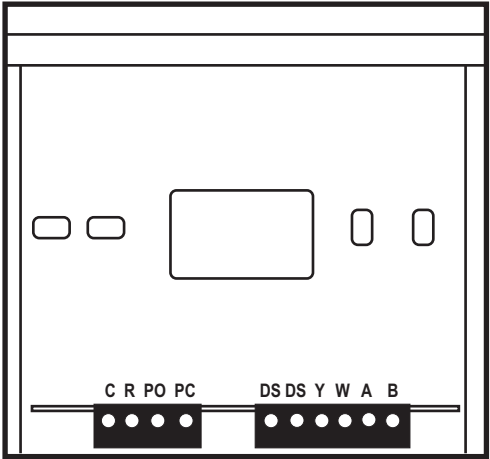
C	**24 Volt Common**
R	**24 Volt Hot**
PO	**Power Open**
PC	**Power Close**
DS	**Duct Sensor**
DS	**Duct Sensor**
Y	**Not Applicable in Aust**
W	**Not Applicable in Aust**
A	**Modbus**
B	**Modbus**

THERMOSTAT LOCATION

The SMT-AZC should be installed in a location that represents the ambient space temperature. Do not install the thermostat in an area where drafts are present, near the floor, behind doors or on an external wall. Avoid placing the thermostat in areas where the air movement is limited, affected by direct sunlight or other areas not typical of the temperature in the space.

MOUNTING THE SUBBASE

When mounting the SMT-AZC, be aware that drafts may travel down wall cavities and enter the back of the thermostat through the control wire hole in the wall. It is important to seal the hole to prevent any drafts that might affect the internal temperature sensor.
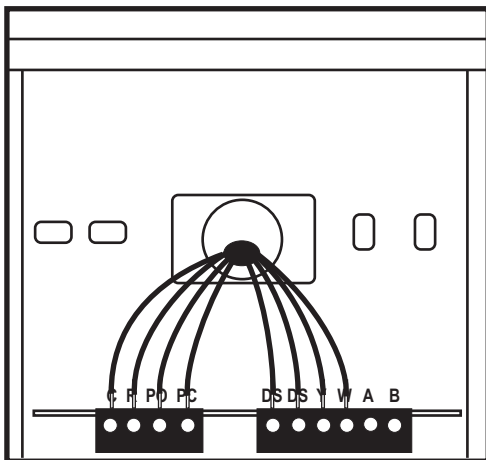
Pull the control wires through the large opening in the thermostat subbase then level and mount the subbase on the wall using the supplied anchors and screws. **Do not over-tighten the mounting screws as the subbase may warp causing improper seating of the thermostat connecting pins to the terminal blocks.** Use a properly sized screwdriver and land each wire to its dedicated terminal.

Do not over-tighten the terminal screws.
Check to see that all wires are landed correctly and dressed properly to prevent any shorts.

SWITCH FUNCTIONS

The SMT-AZC contains a set of dip switches numbered 1 through 8. Only dip switches 1, 2, 3 and 6 are active.
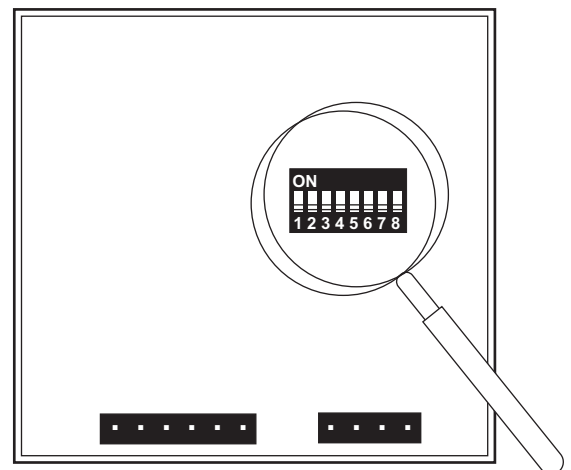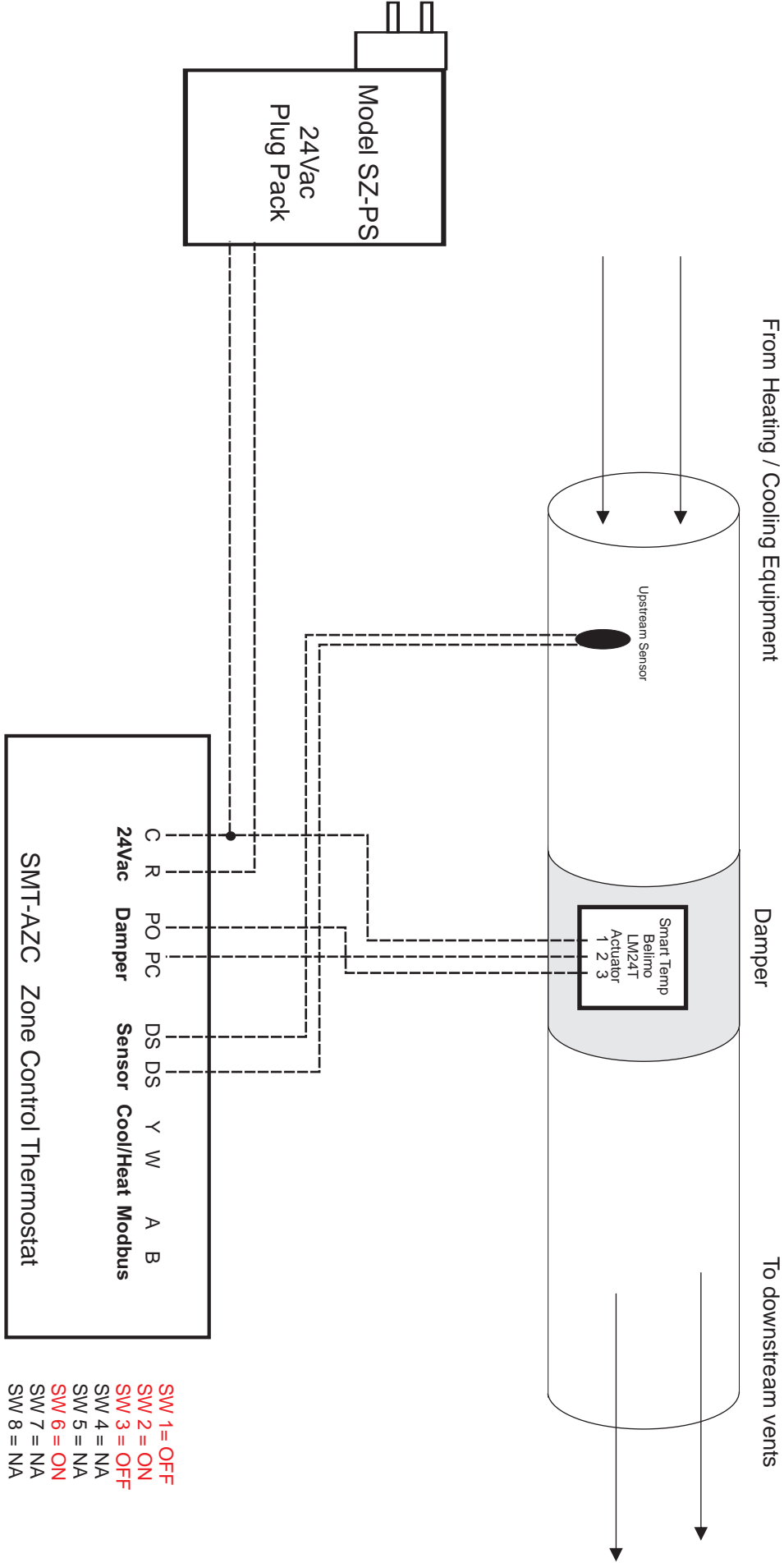

Switch 1 - Switch 1 is used to lock the thermostat after setup is completed. When the thermostat is locked (ON position) a padlock icon will show on the LCD. When locked, only setpoint changes and status functions can be accessed by the user. **Do not set Switch 1 in the ON position until all setup functions are completed.**

Switch 2 - Switch 2 is used to display the space temperature, duct temperature and setpoint in Celsius (ON position) or Fahrenheit (OFF position). Select Celsius or Fahrenheit before proceeding to the thermostat setup menu.
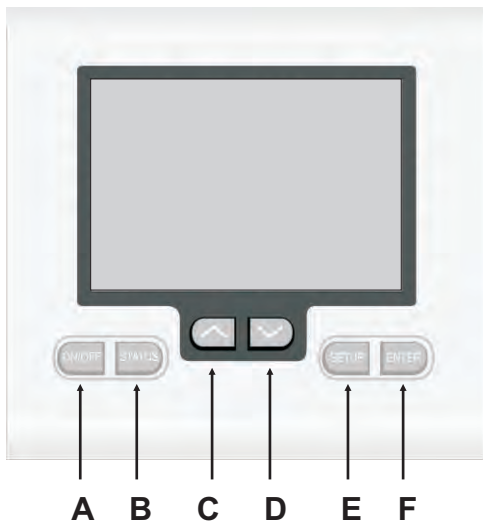
Switch 3 - Switch 3 is used to select two-position (ON position) or fully modulating (OFF position) damper control to best suit the specific application requirement.

Switch 6 - Must be ON for Australia

Ducting

From Heating / Cooling Equipment

Upstream Sensor

Damper

Smart Temp
Belimo
LM24T
Actuator
1 2 3

To downstream vents

Model SZ-PS
24Vac
Plug Pack

SMT-AZC   Zone Control Thermostat

24Vac   Damper   Sensor   Cool/Heat   Modbus

C   R   PO PC   DS DS   Y   W   A   B

SW 1= OFF
SW 2 = ON
SW 3 = OFF
SW 4 = NA
SW 5 = NA
SW 6 = ON
SW 7 = NA
SW 8 = NA

KEY FUNCTIONS

A = ON/OFF KEY - When the SMT-AZC is not locked, this key allows the thermostat to be turned ON or OFF. When in the OFF position, the damper is also driven closed.

B = STATUS KEY - Pressing the STATUS key displays the UNIT number, ZONE number, DUCT temperature and DAMPER position.

C and **D = UP** and **DOWN KEYS** - These keys are used to increase or decrease the setpoint as well as change thermostat setup values.

E = SETUP KEY - This key is used to toggle through the thermostat setup menu.

F = ENTER KEY - This key is used to enter changes as well as exit the setup menu.

ATTACHING THERMOSTAT TO THE SUBBASE
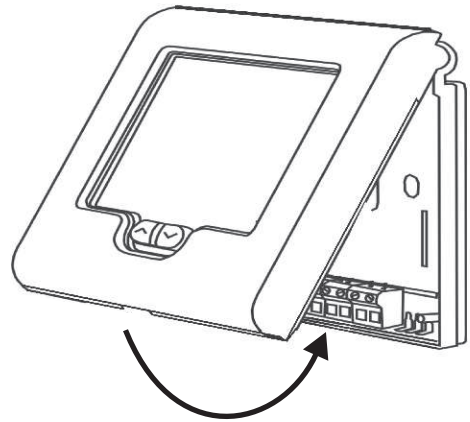
When attaching the thermostat to the subbase, first place the hinged access cover on by fitting the plastic molded pins into the grooves at the top of the thermostat. Carefully align the two standoffs located at the top of the thermostat with the slots in the top of the subbase. Allow the thermostat to swing downward and gently push until the connector pins are fully seated into the terminal blocks.

SETUP

FIGURE 1

Apply 24 Volts power to the thermostat. The LCD will momentarily display all icons. (Figure 1)

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ENTERING THE SETUP MENU
Press twice and hold the **SETUP** key until the word DAMPER appears on the LCD. (Figure 2)

FIGURE 2

SETTING THE MINIMUM DAMPER POSITION
Press the **SETUP** key again and the LCD will display the minimum damper position. The factory default is 10% which means the damper is driven 90% closed after a heating or cooling call is satisfied. Press the **UP** and **DOWN** keys to change the minimum damper position. Position may be adjusted in 10% increments. (Figure 3)
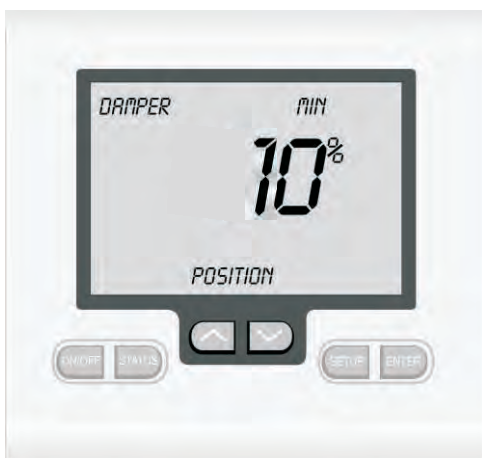
FIGURE 3

SETTING THE MAXIMUM DAMPER POSITION
Press the **SETUP** key again and the LCD will display the maximum damper position for heating and cooling. The factory default is 100% which means the damper can drive fully open with a call for heating or cooling. Position may be adjusted in 10% increments using the **UP** and **DOWN** keys. (Figure 4)

FIGURE 4

SETTING A UNIT NUMBER
Press the **SETUP** key again and the LCD will display the word UNIT. The factory default is 00. This number can be used to assign the SMT-AZC to a particular HVAC unit. Use the **UP** and **DOWN** keys to assign a UNIT number from 00 to 99. (Figure 5)

FIGURE 5

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SETTING A ZONE NUMBER

Press the **SETUP** key again and the LCD will display the word ZONE. The factory default is 00. This number can be used to identify each SMT-AZC thermostat Network or when used in multiple stand-alone applications. Use the **UP** and **DOWN** keys to assign a ZONE number from 00 to 99. (Figure 6)
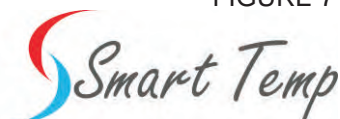
FIGURE 6

SETTING THE HEATING LIMIT

Press the **SETUP** key again and the LCD will display the heating limit. The factory default is 24° C. Press the **UP** and **DOWN** keys to change the heating limit setting. It is strongly recommended that the limit not be set above the factory default setting. (Figure 7)

FIGURE 7

SETTING THE COOLING LIMIT

Press the **SETUP** key again and the LCD will display the cooling limit. The factory default is 68° F. Press the **UP** and **DOWN** keys to change the cooling limit setting. It is strongly recommended that the limit not be set below the factory default setting. (Figure 8)

FIGURE 8

SETTING THE ACTUATOR SPEED

Press the **SETUP** key again and the LCD will display the actuator speed. The factory default is 90 seconds which is the time it takes the actuator to drive the damper blade fully open or fully closed. This is a critical step in the SMT-AZC setup since the thermostat can be used with a variety of 24 Volt actuators. If you are unsure of the actuator speed, place the actuator in the fully closed position and then apply 24 Volts to common and normally open. The time it takes to drive the damper blade fully open equals the actuator speed setting. (Figure 9)
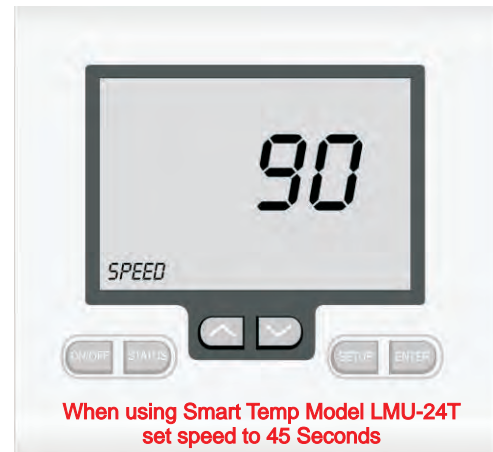
When using Smart Temp Model LMU-24T set speed to 45 Seconds

FIGURE 9

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SETTING THE MODBUS ADDRESS

Press the **SETUP** key again and the LCD will display the Modbus communications address. The factory default is 01. The SMT-AZC has integrated Modbus communications capability for remote monitoring and control.

For more information on Modus Communications, contact Smart Temp at (03) 9763 0094 or info@smarttemp.com.au (Figure 10)

FIGURE 10

TEMPERATURE CALIBRATION OFFSET

Press the **SETUP** key again and the LCD will display the temperature calibration offset. The factory default setting is 0. Typically, it is not necessary to adjust the temperature calibration offset as the SMT-AZC has been factory calibrated. If calibration is necessary, a high quality electronic digital thermometer must be used. Place the thermometer sensor probe next to the thermostat sensor and allow five minutes before comparing the temperature readings. Use the **UP** and **DOWN** keys to adjust the temperature calibration. The range is +/- 10° C. (Figure 11)

FIGURE 11

SENSOR LOCATION

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SAVING SETTINGS AND EXITING THE SETUP MENU

Press the **ENTER** key and the SMT-AZC will save the setup menu settings and exit the program. The LCD will display the space temperature along with other normal operating functions. To review the thermostat settings, simply press and hold the **SETUP** key until the setup menu is displayed and then toggle through the settings. Press the **ENTER** key to exit the setup menu. Remove the thermostat from the subbase and set Switch 1 in the ON position to lock the thermostat which will prevent setup changes from being made. When the thermostat is locked, a padlock icon will be displayed on the LCD. (Figure 12)

FIGURE 12

HELPFUL HINT

If it is necessary to exit the setup menu before all setup functions are completed, simply press the **ENTER** key and all settings will be saved.
To re-enter the setup menu, press and hold the **SETUP** key until the word DAMPER appears and then continue pressing the **SETUP** key to toggle through the functions to where you left off.

CHECKING THERMOSTAT STATUS POINTS

After the thermostat is locked and operational, its status functions can be checked by pressing the **STATUS** key twice and toggling through the following status points:

UNIT - Displays the HVAC unit number assigned to thermostat.

ZONE - Displays the thermostat zone number.

DUCT - Displays the duct temperature.

DAMPER - Displays the damper position in one degree increments.
(0% = fully closed and 100% = fully open)

THERMOSTAT OPERATION

The SMT-AZC is designed to provide accurate but simple temperature control for the user. When the thermostat is not calling, only the space temperature is displayed on the LCD along with the padlock icon that confirms the thermostat setup functions can not be changed. The user can use the **UP** and **DOWN** keys to change the thermostat setpoint within the setpoint limits and review the status points by pressing the **STATUS** key. (Figure 13)

FIGURE 13

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CHANGING THE SETPOINT

When the **UP** and **DOWN** keys are pressed, the thermostat will display the word SET. The setpoint then can be changed within the setpoint limits. (Figure 14)

FIGURE 14

ADVANCED FUNCTIONS

DAMPER POSITION OVERRIDE

The SMT-AZC has a damper position override feature to assist in air balancing and bypass damper setup. With the thermostat unlocked, press twice and hold the **SETUP** key until the word DAMPER appears on the LCD. (Figure 15)

FIGURE 15

OVERRIDE TO OPEN

Press the **UP** and **DOWN** keys until the word OPEN appears on the LCD and then press the **ENTER** key. The damper will drive open and remain in the open position until the override is cancelled. (Figure 16)

FIGURE 16

OVERRIDE TO CLOSE

Press the **UP** and **DOWN** keys until the word CLOSED appears on the LCD and press the **ENTER** key. The damper will drive closed and remain in the closed position until the override is cancelled. (Figure 17)

FIGURE 17

CANCELLING THE DAMPER OVERRIDE

In order for the SMT-AZC to control normal damper operation, the override must be cancelled. Press and hold the **SETUP** key until the word DAMPER OPEN or DAMPER CLOSE appears on the LCD. Use the **UP** or **DOWN** key until only the word DAMPER is displayed and then press the **ENTER** key. The thermostat will then resume normal operation. Figure 18)

FIGURE 18

SMT-AZC SPECIFICATIONS

Input Voltage	24 VAC 50/60 Hz
Relay Rating	24 VAC @ 1Amp per relay
Operating Temperature	23° F to 122° F
Operating RH	0-95% (non-condensing)
Size	4-7/16" W x 4-1/16" H x 7/8" D
LCD Display Size	2-3/4" W x 1-7/8" H
Temperature Sensor	10K NTC type 3
Accuracy	+/- 1° F @ 77° F
Display Resolution	1° F
Control Range	36° F to 96° F
Back Light	Blue EL (Electro Luminescent)
Back Light Life	3,000 hours to half brightness
Communications Protocol	Modbus
Approvals	FCC (Part 15) (Pending) C-tick
Warranty	3 Years

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