Product Manual

TCS Basys Controls®

Version 1.2

SZ1022N/SZ1024N

Conventional Multistage Heating & Cooling/Heat Pump Thermostats

SUPERSTAT™ Communicating Thermostats

METASYS® COMPATIBLE PRODUCT

Description

The SZ1022N and SZ1024N are microprocessor-based programmable thermostats designed for conventional multistage heating-and-cooling and heat pump applications, respectively. Both the SZ1022N and SZ1024N feature a 7-day time clock.

Features

- Stand-alone or network operation
- Discharge air sensor input with high and low limits
- The SZ1022N offers up to three stages heating and two stages cooling, or two stages heating and three stages cooling, while the SZ1024N offers up to two compressor and two auxiliary heat stages
- Adjustable delay on powerup for soft starts
- P+I control option
- Smart Recovery
- No backup battery required
- Built-in HVAC equipment protection
- 32 character LCD display
- Six LEDs for status monitoring
- Remote room sensing capability
- User setpoint adjustment limits
- Local and remote override capability
- System and fan switching with access lockouts
- Auxiliary time clock output (economizers)
- Fan interlock safety option
- Filter service input and indication
- Equipment monitoring inputs and indication
- External time clock input
- Energy management input for setpoint shift.
- Access to programming or schedule may be locked out or limited with the use of an access code
- Fahrenheit or Celsius temperature display

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Mounting

The SZ1022N and SZ1024N are designed for wall mounting using two #6 sheet metal screws, either over a horizontally installed 2" x 4" junction box, or directly to block or drywall.

For best results, the thermostat should be mounted on an interior wall which reflects normal room environment, at a height of approximately five feet from the floor. Avoid areas exposed to direct sunlight, unusual heat sources, open doors and windows, or unventilated locations.

If using a remote room sensor, it should be mounted in the manner described above. The thermostat may be mounted in an area which is accessible for adjusting its settings.

Wiring

The SZ1022N and SZ1024N use standard terminal designations for wiring. See diagram below.

REMOTE SENSOR WIRING

Use 18 AWG shielded twisted-pair grounded at the sensor mounting location. Sensor wiring runs of up to 250 feet are attainable if properly shielded wire is used and the installation environment is free of electrical noise. Sensor wire should be kept at least five feet away from line voltage wiring.

The SZ1022N or SZ1024N accept two remote sensors. Consult the TS Series Temperature Sensor Submittal Data sheet for a complete listing of packaging and application styles. When using TCS/Basys Controls three-wire sensors, use the black and red leads and either clip or twist off the white lead. Make sure that the dip switches are set for the sensors you are using.

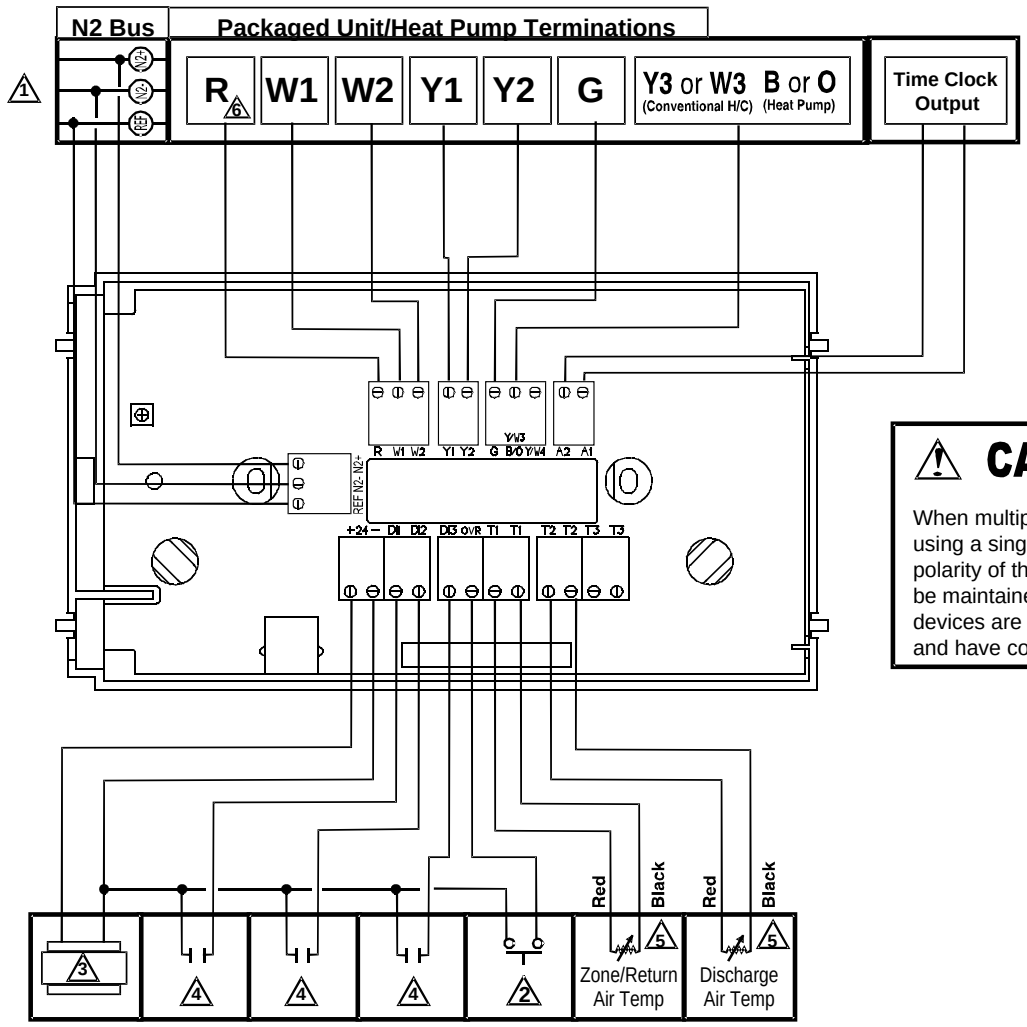
POWERING THE SZ1022N AND SZ1024N

The SZ1022N and SZ1024N are powered from 24 VAC +/- 20%.

Caution: Do not connect to 120 VAC.

If wiring for communications, dedicated power must be used to power the SZ1022N and SZ1024N. Several "S" Series thermostats may be powered from the same transformer, provided that the transformer has sufficient power. (SZ1020 Series thermostats require 8 VA @ 24 VAC.)

When the SZ1022N or SZ1024N are used as stand-alone thermostats without communications, the unit transformer may be used to power it. To do this, install a jumper between the "R" and "+24" terminals. The "24-" terminal must then be connected to the common side of the unit transformer.

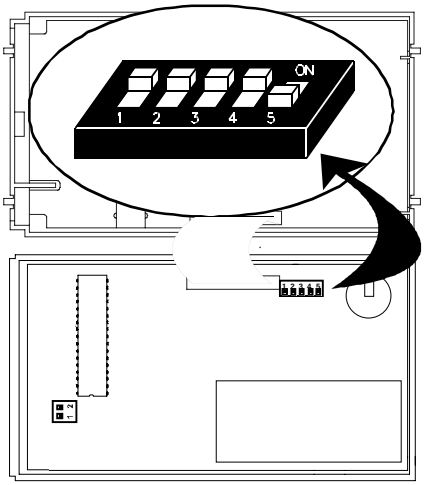


CAUTION

When multiple TCS devices are using a single transformer, the polarity of the power wiring must be maintained because all TCS devices are half-wave rectified and have common return paths.

1. For communication wiring, use twisted, shielded 18 AWG. Must be run separately
2. Dry momentary contact. Must not be powered.
3. 24 VAC transformer. See powering instructions.
4. Dry contact. Must not be powered.
5. Sensor input wiring 18 AWG, twisted, shielded pair.
6. Up to nominal 28 VAC from equipment transformer .

Setup

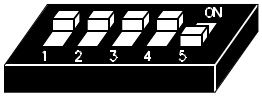


Note: If using remote sensor(s), the calibration may need to be adjusted. See "Checkout & Troubleshooting" section.

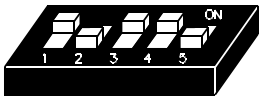
SENSOR SELECTION

The dipswitches in the cover (shown above connected with ribbon cable) as well as the program must be set when using remote room and/or discharge. Use the following guide to determine the dipswitch settings for your application.

Using built-in room sensor only. (This is the default setting.)

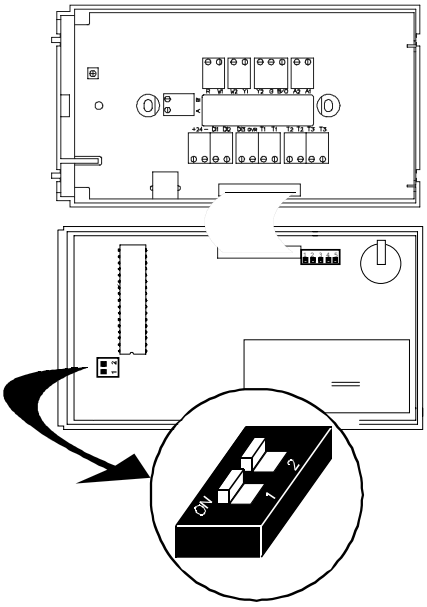


Using built-in room sensor with discharge air sensor.



Using remote room sensor only.

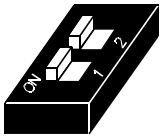
Using remote room sensor with discharge air sensor.



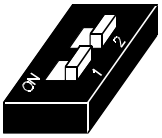
KEYPAD ACCESS

The dipswitches in the cover (shown above connected with ribbon cable) must be set in order to lock the user out of the program and/or to set the clock and schedule. Use the guide below to set these dipswitches for your application. Otherwise, user access may be limited with an access code set in programming. (The fan and system switches are enabled or disabled in programming only, and require no dipswitch placement.)

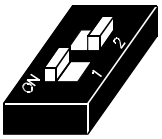
Keypad access to both programming and clock setup. (This is the default setting.)



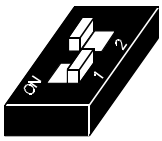
No keypad access to programming or clock setup.



Keypad access to programming only.



Keypad access to clock setup only.



Once the dipswitches have been set and you have confirmed that the sensors are reading correctly (and program and clock setup are finished, if locking out access with dipswitches), secure the cover to the base with the two set screws located at the top right and the left side to prevent tampering.

Programming

The SZ1022N and SZ1024N may be programmed through the display and keypad, or with a PC.

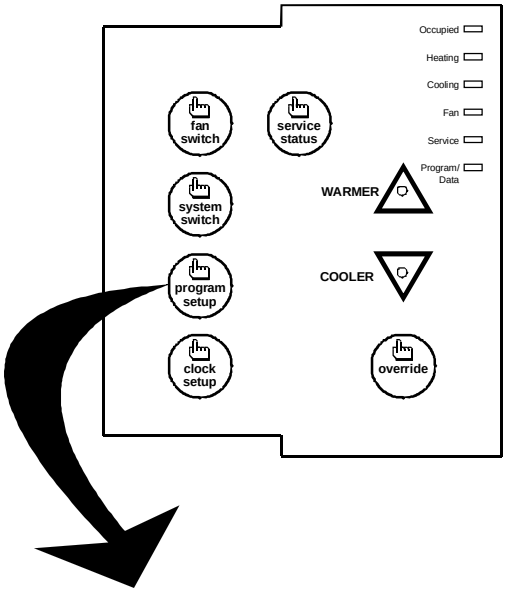
If programming with a PC, the following must be set through the keypad prior to programming:

- Address (step #3)
- Temperature scale (step #4)

For more information on programming through the PC, consult your software manual.

PROGRAMMING THROUGH THE KEYPAD

To access the programming screens, press the program setup button. To make changes, use the warmer and cooler keys. Access may be locked out with dipswitches, or an access code may be required.



1. MON 12:00 AM 72F
   program setup

Main Monitoring Screen. Press the program setup button to access the following screens.

2. ENTER ACCESS CODE 000
   program setup

Access Code Entry Screen. Will appear if access code is required for programming. Use 248 as the default. If the wrong code is entered, it will revert to the previous screen.

3. SET ADDRESS: 000
   program setup

Controller Address Screen. If using a PC to access the SZ1022N or SZ1024N, set a unique address from 1 to 255. *All controllers on a network must have a unique communications address.*

4. TEMPS SHOWN IN: FAHRENHEIT
   program setup

Display Type Screen. Choose between FAHRENHEIT and CELSIUS for temperature indication.

5. USER ACCESS TO SYSTEM MODE? YES
   program setup

System Access Screen. Choose whether or not to enable user's access to the system switch to set the system mode.

6. SET SYSTEM MODE: AUTO
   program setup

System Mode Screen. Choose from AUTO, HEAT, COOL, or OFF for your system mode. In the OFF mode, all outputs are off. (A fifth mode, EMERGENCY HEAT, is used on the SZ1024N.)

7. USER ACCESS TO FAN MODE? YES
   program setup

Fan Access Screen. Choose whether or not to enable the user's access to the fan switch to set the occupied fan mode.

8. SET OCCUPIED FAN MODE: ON
   program setup

Occupied Fan Mode Screen. Choose between ON (continuous), COOL (gas heat or no heat), or AUTO for your fan run times during the occupied modes. (COOL mode not available on the SZ1024N.)

9. SET UNOCCUPIED FAN MODE: AUTO
   program setup

Unoccupied Fan Mode Screen. Choose from AUTO or COOL for your fan run times in the unoccupied mode. (COOL mode not available on the SZ1024N.)

10. DISABLE AUTO FAN DELAYS: NO
    program setup

Auto Fan Delay Screen. Choose NO for normal operation. Choose YES to have the fan and heating or cooling go on and off at the same time.

11. OCCUPIED HEAT SETPOINT: 68F
    program setup

Occupied Heat Setpoint Screen. Set the occupied heat setpoint.

12. UNOCCUPIED HEAT SETPOINT: 60F
    program setup

Unoccupied Heat Setpoint Screen. Set the unoccupied heat setpoint.

13. OCCUPIED COOL SETPOINT: 72F

program setup

14. UNOCCUPIED COOL SETPOINT: 80F

program setup

15. LIMIT SETPOINT ADJUST +/-: 5F

program setup

16. SET OVERRIDE TIME: 180 MINUTES

program setup

Heat Pump Go to 17b.

Conventional H/C

17a. ENABLE SECOND STAGE HEAT? YES

program setup

18a. ENABLE SECOND STAGE COOL? YES

program setup

19a. ENABLE THIRD STAGE AS: COOL

program setup

20a. HEAT STAGE 1 OFFSET: 0F

program setup

21a. HEAT STAGE 1 DIFF: 1F

program setup

Occupied Cool Setpoint Screen. Set the occupied cool setpoint.

Unoccupied Cool Setpoint Screen. Set the unoccupied cool setpoint.

User Setpoint Limit Screen. Enter the number of degrees you want the user to be allowed to change the preset occupied setpoints up or down.

Override Time Screen. Enter the number of minutes (0 to 255) that the SZ1022N or SZ1024N will maintain occupied setpoints when overridden.

Second Stage Heat Screen. Choose whether the thermostat will control a second stage of heat. (Select NO if not using a second stage of heat.)

Second Stage Cool Screen. Choose whether the thermostat will control a second stage of cooling. (Select NO if not using a second stage of cooling.)

Third Stage Choice Screen. Choose from HEAT or COOL for your third stage or DISABLE. (Select DISABLE if not using a third stage of heat or cool.)

Heat Stage 1 Offset Screen. Enter an offset value for heat stage 1. First stage is normally 0 offset.

Heat Stage 1 Differential Screen. Enter a differential value for heat stage 1.

22a. HEAT STAGE 2 OFFSET: 1F

program setup

23a. HEAT STAGE 2 DIFF: 1F

program setup

24a. COOL STAGE 1 OFFSET: 0F

program setup

25a. COOL STAGE 1 DIFF: 1F

program setup

26a. COOL STAGE 2 OFFSET: 1F

program setup

27a. COOL STAGE 2 DIFF: 1F

program setup

28a. COOL STAGE 3 OFFSET: 2F

program setup

29a. COOL STAGE 3 DIFF: 2F

Go to # 30

17b. ENABLE SECOND STAGE COMP? YES

program setup

Heat Stage 2 Offset Screen. Enter an offset value for heat stage 2. This screen only appears if stage 2 is enabled.

Heat Stage 2 Differential Screen. Enter a differential value for heat stage 2. This screen only appears if stage 2 is enabled.

Cool Stage 1 Offset Screen. Enter an offset value for cool stage 1. First stage is normally 0 offset.

Cool Stage 1 Differential Screen. Enter a differential value for cool stage 1.

Cool Stage 2 Offset Screen. Enter an offset value for cool stage 2. This screen only appears if stage 2 is enabled.

Cool Stage 2 Differential Screen. Enter a differential value for cool stage 2. This screen only appears if stage 2 is enabled.

Stage 3 Offset Screen. Enter an offset value for stage 3. This screen only appears if stage 3 is enabled.

Stage 3 Differential Screen. Enter a differential value for stage 3. This screen only appears if stage 3 is enabled.

Second Stage Compressor Screen. Choose whether the thermostat will control a second stage compressor. (Select NO if not using a second stage compressor.)

18b. ENABLE STAGE 1 / AUX HEAT? YES

First Stage Auxiliary Heat Screen. Choose whether the thermostat will control a first stage of auxiliary heat. (Select NO if not using a first stage of auxiliary heat.)

program setup

19b. ENABLE STAGE 2 / AUX HEAT? YES

Second Stage Auxiliary Heat Screen. Choose whether the thermostat will control a second stage of auxiliary heat. (Select NO if not using a second stage of auxiliary heat.)

program setup

20b. COMP STAGE 1 / OFFSET: 0F

Compressor Stage 1 Offset Screen. Enter an offset value for compressor stage 1. First stage is normally 0 offset.

program setup

21b. COMP STAGE 1 / DIFF: 1F

Compressor Stage 1 Differential Screen. Enter a differential value for compressor stage 1.

program setup

22b. COMP STAGE 2 / OFFSET: 1F

Compressor Stage 2 Offset Screen. Enter an offset value for compressor stage 2. This screen only appears if compressor 2 is enabled.

program setup

23b. COMP STAGE 2 / DIFF: 1F

Compressor Stage 2 Differential Screen. Enter a differential value for compressor stage 2. This screen only appears if compressor stage 2 is enabled.

program setup

24b. AUX HEAT STAGE 1 / OFFSET: 3F

Auxiliary Heat Stage 1 Offset Screen. Enter an offset value for cool stage 1. This screen only appears if auxiliary heat stage 1 is enabled.

program setup

25b. AUX HEAT STAGE 1 / DIFF: 1F

Auxiliary Heat Stage 1 Differential Screen. Enter a differential value for auxiliary heat stage 1. This screen only appears if auxiliary heat stage 1 is enabled.

program setup

26b. AUX HEAT STAGE 2 / OFFSET: 4F

Auxiliary Heat Stage 2 Offset Screen. Enter an offset value for auxiliary heat stage 2. This screen only appears if auxiliary heat stage 2 is enabled.

program setup

27b. AUX HEAT STAGE 2 / DIFF: 2F

Auxiliary Heat Stage 2 Differential Screen. Enter a differential value for auxiliary heat stage 2. This screen only appears if auxiliary heat stage 2 is enabled.

program setup

28b. REVERSING VALVE / OUTPUT NO

Reversing Valve Output Screen. Enter whether the reversing valve output will be open (NO) or closed (NC) for cooling.

program setup

30. SET CONTROL / MODE: P+I

Control Mode Screen. Enter whether you want to control by temperature only (P) or add a time factor (P+I).

program setup

31. TIMECLOCK OUTPUT / OCCUPIED=CLOSED

Time Clock Output Screen. Choose whether the auxiliary output will be OPEN during occupied periods (and closed during unoccupied periods) or CLOSED during occupied periods (and open during unoccupied periods).

program setup

32. ENABLE DISCHARGE / AIR SENSOR? YES

Discharge Air Sensor Screen. Choose whether or not you are using a discharge air sensor function. To monitor only, select no. See setup instructions for dipswitch settings which must also be set.

program setup

33. DISCHARGE AIR / LOW LIMIT: 45F

Discharge Air Low Limit Screen. Enter a discharge air low limit value. This screen will not appear if the discharge air sensor function is disabled.

program setup

34. DISCHARGE AIR / HIGH LIMIT: 120F

Discharge Air High Limit Screen. Enter a discharge air high limit value. This screen will not appear if the discharge air sensor function is disabled.

program setup

35. DI1 USED FOR: / FAN PROVING

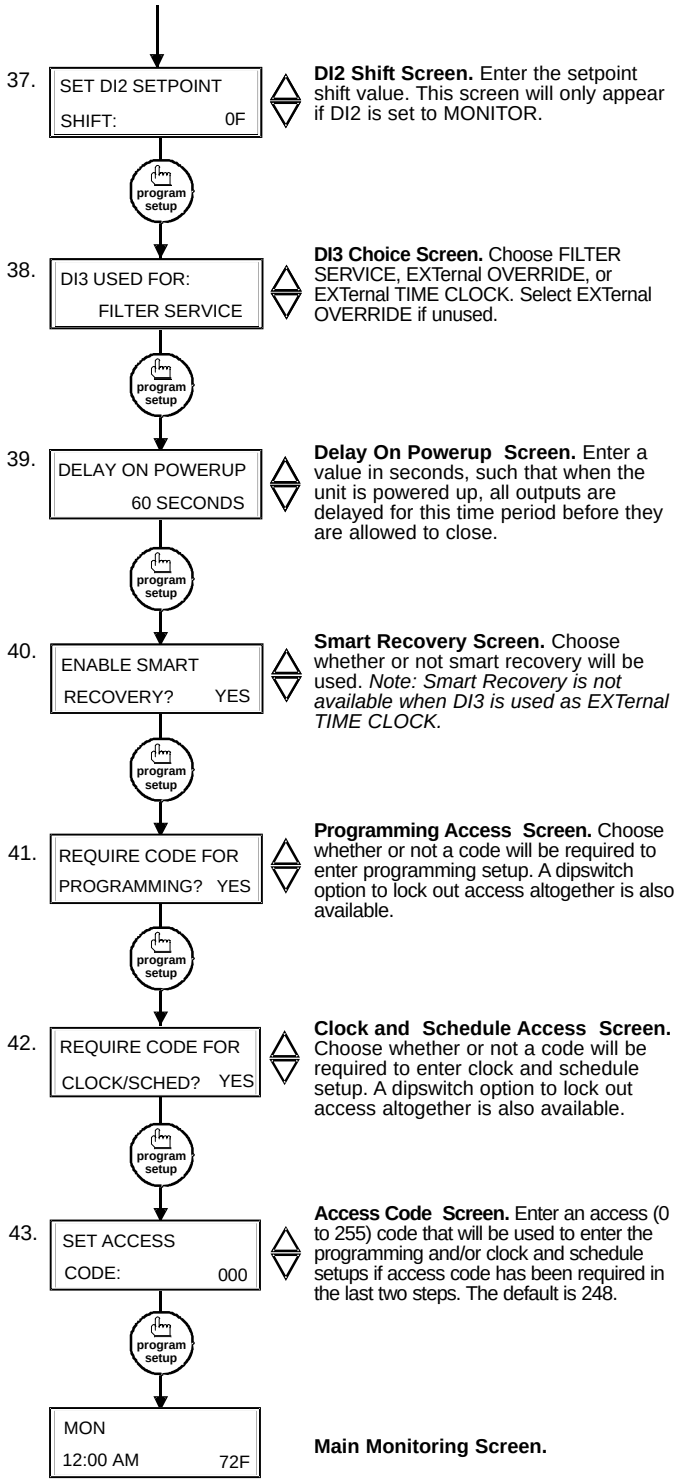
DI1 Choice Screen. Choose DI1 as FAN PROVING or a MONITOR point. Select MONITOR if unused.

program setup

36. DI2 USED FOR: / SERVICE

DI2 Choice Screen. Choose DI2 as SERVICE, COOL LOCKOUT, or MONITOR. Select MONITOR if unused.

program setup



DI2 Shift Screen. Enter the setpoint shift value. This screen will only appear if DI2 is set to MONITOR.

DI3 Choice Screen. Choose FILTER SERVICE, EXTernal OVERRIDE, or EXTernal TIME CLOCK. Select EXTernal OVERRIDE if unused.

Delay On Powerup Screen. Enter a value in seconds, such that when the unit is powered up, all outputs are delayed for this time period before they are allowed to close.

Smart Recovery Screen. Choose whether or not smart recovery will be used. *Note: Smart Recovery is not available when DI3 is used as EXTernal TIME CLOCK.*

Programming Access Screen. Choose whether or not a code will be required to enter programming setup. A dipswitch option to lock out access altogether is also available.

Clock and Schedule Access Screen. Choose whether or not a code will be required to enter clock and schedule setup. A dipswitch option to lock out access altogether is also available.

Access Code Screen. Enter an access (0 to 255) code that will be used to enter the programming and/or clock and schedule setups if access code has been required in the last two steps. The default is 248.

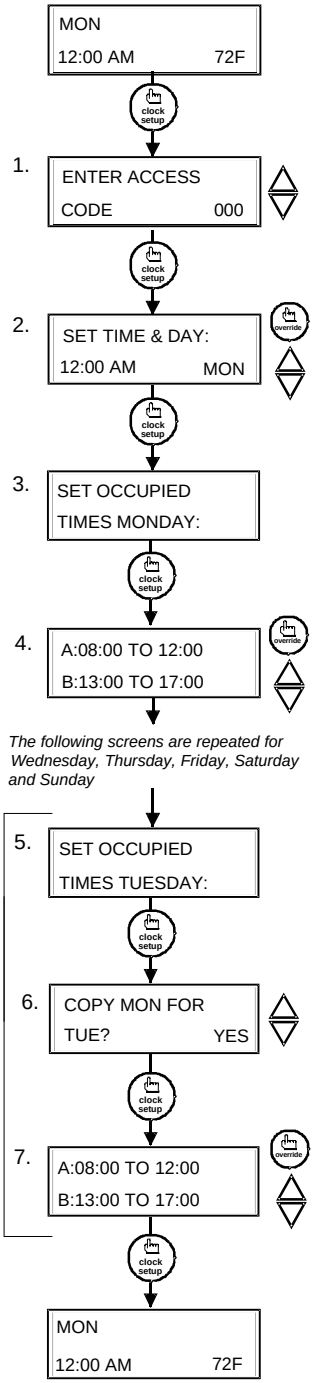
Main Monitoring Screen.

Setting Clock and Schedule

The SZ1022N and SZ1024N clock and schedule may be set through the display and keypad, or with a PC. For more information on programming through the PC, consult the software documentation.

SETTING CLOCK & SCHEDULE THROUGH THE KEYPAD

To access the clock and schedule screens, press the clock setup button. To make changes, use the warmer and cooler keys. For screens that have more than one field to set, use the override key to move to the next field. Access may be locked out with dipswitches, or an access code may be required.



Main Monitoring Screen. Press the clock setup button to access the following screens.

Access Code Entry Screen. May appear if access code is required for setting clock and schedules. Use 248 as the default. If the wrong code is entered, it will revert to the previous screen.

Time and Day Screen. Set the hour, minutes, AM or PM, and day of the week.

Schedule Announcement Screen. Announces the next screen.

Occupied Times Screen. Set hours and minutes of start and end times for up to two occupied periods.

Schedule Announcement Screen. Announces the next screen.

Copy Schedule Screen. Indicate whether or not to use the same schedule that was used for the previous day. If the same schedule is used, the following screen is not displayed.

Occupied Times Screen. Set hours or minutes of start and end times for up to two occupied periods.

Main Monitoring Screen.

Operation

UNOCCUPIED SETBACK

The SZ1022N and SZ1024N operate in either an occupied or unoccupied mode. During the occupied mode, the occupied heating and cooling setpoints will be maintained, and the fan will operate according to its occupied setting. During the unoccupied mode, the unoccupied heating and cooling setpoints will be maintained, and the fan will operate according to its unoccupied setting. The occupied LED will be lit when the unit is operating in the occupied mode.

The occupied schedule may be set utilizing the internal time clock or DI3 may be used with an external time clock, whereas when DI3 is closed, the unit is in the occupied mode. The Smart Recovery function is disabled when DI3 is used for external time clock.

OVERRIDE

A timed override is available on the face or through momentary contacts. The amount of time the unit will be overridden is set from 0 to 255 minutes in the programming. This override only activates when the thermostat is operating in the unoccupied mode. Both the software and the service button allows you to view the time remaining in the override mode. If the occupant desires to return the thermostat to unoccupied operation before that time interval is up, they may press the button on the face or the momentary contact again.

Continuous override is available through the DI3 contact or the software. If DI3 is set to external override, the unit will be in the occupied mode whenever the DI3 contact is closed. When using this option, the timed override may still be activated.

The software allows you to override the thermostat by putting the override parameter into the remote mode, and thus disabling the timed override.

SETBACK AND OVERRIDE APPLICATIONS

In most applications, it is desired to maintain a regular schedule, and allow timed override with the button on the face or with a remote momentary contact.

To allow a regular schedule, and also automatically override with the use of occupancy or light sensor, set DI3 to override and set it up so that the contact is closed when you want the override.

For applications where a room might not be used on a regular schedule, such as conference rooms, set DI3 to time clock and close the contact when you want the room occupied, such as with a switch or wind-up timer. If each occupancy period is about the same, (theaters, meetings) another option is to set the DI3 to time clock, and use the timed override button to put the unit in occupied mode.

To make the unit always occupied, set DI3 to time clock and short the DI3 terminal to ground.

DISCHARGE AIR TEMPERATURE SENSING

The SZ1022N and SZ1024N accept a remote discharge air sensor (TS1002) for monitoring purposes. (See setup instructions for dipswitch placement for this option.)

Choose YES in programming screen #32 only if you are using a discharge air sensor and you want to enable the discharge air temperature high and low limit functions. If NO is chosen, the discharge air is still monitored.

When the function is enabled, a HIGH LIMIT and LOW LIMIT are entered in steps #33 and #34. If the HIGH LIMIT is reached, the fan and heating stages will be turned off and will remain off until the discharge air temperature falls 3° below that limit. If the LOW LIMIT is reached, the fan and cooling stages will be turned off and will remain off until the discharge air rises 3° above that limit. When either limit is reached, the service LED will be on until normal operation resumes.

The discharge air span is 0 to 150 °F (-17.8 to 65.6 °C).

FAN PROVING

The SZ1022N and SZ1024N allow DI1 to be set for fan proving to protect equipment on fan failure. To utilize this, input a pressure or current switch which tells when the fan is running. If the thermostat closes its fan contact, and the DI1 is not closed after thirty seconds, the system will go to OFF, disabling all outputs, the fan LED will turn off, and the service LED will be lit until the system is manually reset by switching the system to a mode other than OFF.

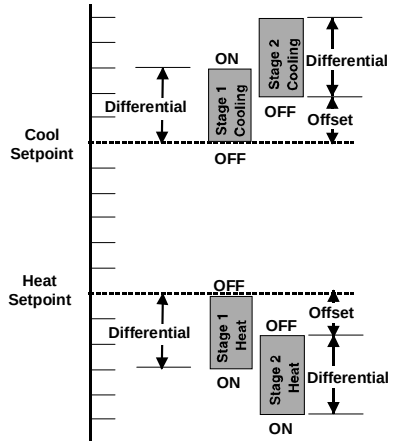
DI2 SETPOINT SHIFT

The SZ1022N and SZ1024N allow DI2 to be set for setpoint shift for energy demand setback. This is enabled by setting DI2 to the MONITOR mode. A digital contact that closes when setback is needed should be wired into DI2. You may specify a number of degrees such that, when the thermostat is operating in the occupied mode, and DI2 is closed, the heating setpoint will be lowered this number of degrees, and the cooling setpoint will be raised this number of degrees. The fan will continue to operate according to its occupied setting. If you are using DI2 as monitor for another purpose, make sure to set this value to zero.

STAGE OUTPUT PARAMETERS

The SZ1022N will control up to two stages each of heating and cooling, with a fifth stage that may be assigned as a third stage for either. The SZ1024N will control up to two compressor stages, and up to two stages of auxiliary heat. It is recommended that all unused stages be disabled.

For each stage, you may specify an offset and a differential value. This allows you to adjust the operation of the thermostat to fit your equipment to the building load. The offset value is the amount away from the setpoint a stage will turn off. By assigning a stage a value other than zero, you "anticipate" that the residual heat or cooling in the duct or the other stages will bring the temperature back to setpoint. In most cases, the first stage is set to zero. The differential value



is the difference between the on and off points. This value depends on the load and on the equipment size. If the equipment is large for the load, you may want to make this value as high as 5 to prevent equipment cycling. If the equipment is small compared to the load, or if tight control is desired, you may want to make this value as low as 1.

The fact that the stages are configurable allows unused stages to be set to activate physical alarms if desired.

The SZ1022N and SZ1024N also have a P+I option. Without enabling this option, stages turn on and off based on temperature vs. setpoint alone, as described above. By enabling this option, you allow a time factor to be added. This is useful when you are forced to have a large differential due to equipment size. At times when the building load is low, the temperature could potentially sit a few degrees off setpoint for some time. With the time factor added, the thermostat would compensate for this, turning on the equipment even though the temperature had not reached the limits described above.

DI2 COOL LOCKOUT

DI2 may be set as cool lockout for operation with economizers. An outdoor temperature switch may be wired in such that when DI2 is closed, the second and third stages of cooling are disabled.

SMART RECOVERY

"Smart Recovery" may be enabled to insure occupant comfort while saving money. It takes the building load into consideration and ramps the setpoint when going from the unoccupied mode to the occupied mode. At the beginning of the occupied mode, the occupied setpoint will be reached, many times without the need for the second stage to come on. This feature is automatically disabled when DI3 is set to external time clock.

AUXILIARY OUTPUT

An auxiliary relay output is available to output a signal based on the occupancy status. It is commonly used with an economizer minimum position control, or to signal an outdoor air damper to open in occupied times in lieu of an economizer. It may also be used for lighting or hot water heaters. Keep in mind that although it is an isolated relay (separate common terminal), it is rated at 2A@24 VAC. For loads that exceed this, use an external relay. It may be set to be open (N.O.) or closed (N.C.) when the thermostat is operating in the occupied mode, and will be the opposite during the unoccupied mode.

BUILT-IN DELAYS

The SZ1022N and SZ1024N have delays built into the programming sequences to protect equipment. The fan has a minimum on and off time of 30 seconds. When the fan is in AUTO or COOL mode, it will come on 30 seconds before the heating or cooling stages are allowed to sequence on, and remain on for 30 seconds after the heating or cooling stages sequence off. Each stage has a minimum on and off time of two minutes. There is a minimum of two minutes between when one stage turns on until the next stage is allowed to turn on, as well as when one stage turns off until the next stage is allowed to turn off.

DELAY ON POWERUP

The SZ1022N and SZ1024N have an adjustable delay on powerup. When several thermostats are used at one location, and the power goes out, most thermostats turn all of the units back on at the same time on regain of power, creating a peak. The thermostat allows you to set a value, in seconds, where no outputs are allowed to turn on for that length of time on powerup. Setting each unit to a different delay allows you to soft start your system, and thus prevent this peak.

Checkout & Troubleshooting

CHECKOUT

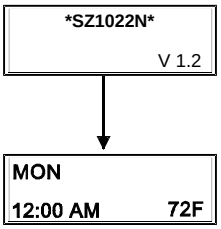
Note: The fan has a minimum on and off time of 30 seconds. The heating and cooling stages have a minimum on and off time of 2 minutes.

You may verify the status of heating and cooling stages and fan in monitoring screens 5, 6, and 7, which are accessed by pressing the SERVICE STATUS button.

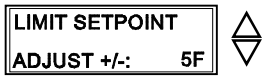
1. Verify all wiring prior to powering the thermostat.
2. Turn power on. The thermostat will display a momentary screen with the model number , and then the main monitoring screen with the time, day, and current temperature.

3.Press the PROGRAM SETUP button until you reach the screen # 15 which allows you to set the occupant setpoint adjustment limits. Change this to +/-20°F (11.1°C). Press the PROGRAM SETUP button once more to store the change. Then press the SERVICE STATUS button once to exit the programming.

4. Press the FAN SWITCH button to access the fan mode and change the mode to AUTO. Press the FAN SWITCH button once more to store the change. Press the SYSTEM SWITCH button to access the system mode and change the mode to AUTO. Press the SYSTEM SWITCH button once more to store the change.



5. Verify that the thermostat is operating in the occupied mode by making sure that the top LED is lit. If not, press the OVERRIDE button. The LED should light up.



6. Take note of the current temperature reading. Press the WARMER (up) button. The setpoint adjustment screen should now be showing. Press the WARMER button until the heating setpoint is greater than the current temperature by at least five degrees. The fan will come on. The heating stage(s) will sequence on after 30 seconds.
7. Press the cooler (down) button until the heating setpoint is one degree less than the current temperature. The heating stage(s) will sequence off. The fan will turn off 30 seconds after the last heating stage.
8. Press the cooler button until the cooling setpoint is less than the current temperature by at least five degrees. The fan will come on. The cooling stage(s) will sequence on after 30 seconds.
9. Press the warmer button until the cooling setpoint is greater than the current temperature by one degree. The cooling stage(s) will sequence off. The fan will turn off 30 seconds after the last cooling stage.
10. Go back to programming step #15 and set the setpoint adjust limit back to the desired value. Make any other changes in programming, clock, and schedule. Set the fan and system modes to their desired settings.
11. IF using remote sensors, verify that the reading is correct. If not, see *Wrong Temperature Display* in "Troubleshooting" section.

TROUBLESHOOTING

No Display

Check for 24 VAC on terminals "+24" and "-24". Check the cable connecting the cover to the base for a good connection.

Fan Does Not Come On

The fan is on whenever the fan LED is on. If the fan should be on, but the fan LED is off, check the fan and system switch modes, and the unoccupied fan mode in programming. If the fan is off but the fan LED is on, check wiring. Short terminals "R" to "G" and see if the fan comes on. This is a check for a mechanical relay failure.

Heating or Cooling Does Not Come On

At least one stage of heating is on whenever the heating LED is on, and at least one stage of cooling is on whenever the cooling LED is on. If heating or cooling should be on but the heating or cooling LED is off, check the fan and system switch modes. Also, check the heating and cooling setpoints, offsets and differentials, and the room temperature to be sure heating or cooling should be on. If using outdoor air heating and cooling lockouts, or discharge air high and low limits, check their values to be sure heating or cooling is allowed. If heating or cooling is off, but the corresponding LED is on, check the wiring. Short terminals "R" to "W1", "W2", "Y1", "Y2", or "B/O" and see if the heating or cooling comes on. This is a check for a mechanical relay failure.

Wrong Temperature Display

If any of the temperatures is reading slightly high or low, there are two adjustment pots located in the cover to adjust them. "T1" is for the room temperature and "T2" is for the discharge air temperature. If the temperature is at a minimum or maximum reading, check the sensor dipswitch positions. (See setup instructions.) Check for wiring problems (opens or shorts). A remote 1000 Ω sensor should read 1080 to 1090 Ω at room temperature. The built-in sensor should read 108 to 109 Ω at room temperature.

Service LED is On

If the service LED is on, it may be for monitoring purposes or it may indicate a critical problem. The first monitoring screen accessed by pressing the service status button will display why the light is on.

Outputs Will Not Shut Off

First check the room temperature and the setpoints and determine whether the output should be on. There are delays and minimum on and off times for the fan and heating and cooling stages. Also, check the service status menus to verify that the outputs are on. Turning the system to "off" will instantly turn all outputs off. The thermostat can be reset by pressing the system switch button and the service status button simultaneously.

SERVICE SCREENS

Continually pressing the service status button allows more extensive monitoring. The screens are shown at right.

LED Description

Six LEDs on the face allow the occupant to view the current operating status of the thermostat.

OCCUPIED

This LED will be lit whenever the unit is operating in the occupied mode.

HEATING

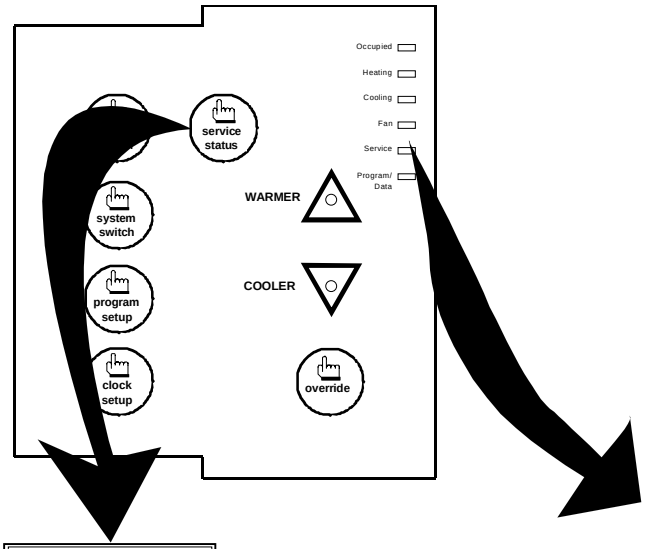
This LED will be lit when any heat output is closed.

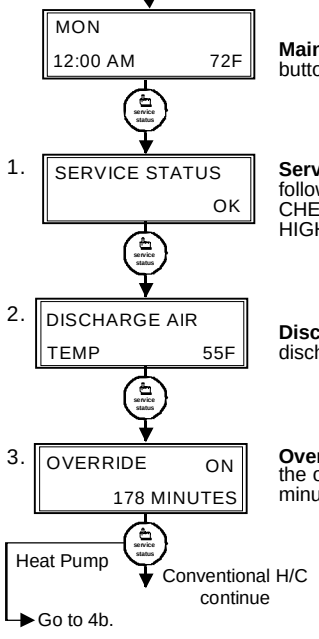
COOLING

This LED will be lit when any cooling output is closed.

FAN

This LED will be lit when the fan output is closed.



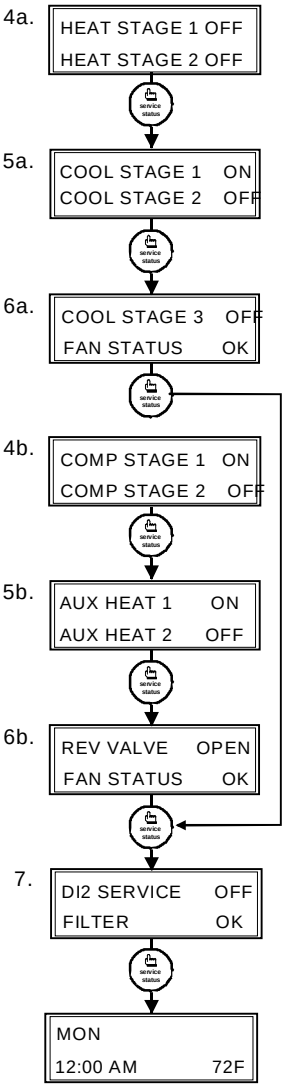


Main Monitoring Screen. Press the service button to access the following screens.

Service Screen. This message may be followed by any or all of the following: CHECK FILTER, CHECK FAN, DISCHARGE HIGH, DISCHARGE LOW, or CHECK DI2.

Discharge Air Temperature Screen. Shows discharge air temperature if sensor is used.

Override Status Screen. Shows whether the override is active and if so, how many minutes remaining.



Heat Stages Status Screen. Shows the status of the first and second stages of heating.

Cool Stages Status Screen. Shows the status of the first and second stages of cooling.

Third Stage and DI1 Status Screen. Shows the status of the third stage and the status of the fan interlock if DI1 is set for fan interlock.

Compressor Stages Status Screen. Shows the status of the first and second stage compressors.

Auxiliary Heat Stages Status Screen. Shows the status of the first and second stages auxiliary heat.

Reversing Valve and DI1 Status Screen. Shows the position of the reversing valve as either heat or cool and the status of the fan interlock or DI1.

DI2 and DI3 Status Screen. Shows the cool lockout into DI2 or DI2 status and filter status or DI3 status.

Main Monitoring Screen.

SERVICE

This LED will be lit when the high or low discharge air limit has been reached, when the fan interlock has indicated failure, or when the filter service or service input are closed.

PROGRAM/DATA

This LED will be lit when the thermostat is within the programming or clock setup menus. It will blink when the unit is being accessed by a PC.

Additional monitoring is available by continually pressing the service key.

Limiting Occupant Access

SETPOINT ADJUSTMENT

The occupant may temporarily change the occupied heating and cooling setpoints +/- 5°F by factory default. This setpoint change will remain until the end of the current occupied period, at which time the program reverts to the setpoints defined in programming. To change the range of adjustment allowed, see programming step #15.

OVERRIDE

The occupant has the ability to put the unit into occupied mode by pressing the override button on the front. By factory default, the unit will remain in the occupied mode for 180 minutes. This value may be changed from 0 to 255 minutes in programming step #16.

FAN SWITCHING

The option to allow the occupant to change the occupied fan mode is allowed by factory default. To lock out access to fan switching, see programming step #7.

SYSTEM SWITCHING

The option to allow the occupant to change the system mode is allowed by factory default. To lock out access to system switching, see programming step #5.

SETTING CLOCK & SCHEDULE

The ability to set the clock and schedule is allowed by factory default. An access code may be required as set in programming step #42, or access may be denied altogether using dipswitches described in the setup section.

PROGRAMMING

The ability to program control parameters is allowed by factory default. An access code may be required as set in programming step # 41, or access may be denied altogether using dipswitches described in the setup section.

POINT MAPPING TABLES

SZ1022N .....Pages 13 -15
SZ1024N .....Pages 16 -18

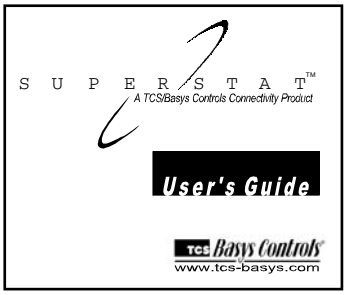
TCS/Basys Controls Technical Support

800-288-9383

User's Guide

Inside the hinged door of the thermostat is the Superstat™ User's Guide. This guide is designed to assist the installer in explaining to the end user how to operate their new thermostat, as well as serve as a handy future reference for the end user.

We recommend that the installer fill out pages 1, 5, 7 and 8 (where applicable) and explain to the user how the thermostat operates, what settings may be changed, and how the time clock schedules are used.



Pointmap Table for SZ1022N *(See page 16 for Pointmap Table for SZ1024N)*

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
ADI	1	#	DI2 control mode	0=cool lockout 1=monitor 2=service	See Setup (page 8).
ADI	2	#	DI3 control mode	0=filter service 1=external override 2=external time clock	See Setup (page 7).
ADI	3	#	Occupied Fan mode	0=on, 1=cool, 2=auto	Fan Switch button on keypad.
ADI	4	#	System mode	0=off,1=auto,2=heat 3=cool	System Switch button on keypad.
ADI	5	Day	Internal time clock day	0-6, mon to sunday	Day of Week.
ADI	6	Hours	Internal time clock hours	0-23	0-11 (AM), 12-23 (PM).
ADI	7	DegF (C)	Setpoint adjust limit from keypad	0-50 (0-28)	Limits keypad adjustment of occupied heating and cooling setpoints. See note 5.
ADI	8	DegF	Differential for cool stage 1	0-50	
ADI	9	DegF	Offset for cool stage 1	0-50	
ADI	10	DegF	Differential for cool stage 2	0-50	
ADI	11	DegF	Offset for cool stage 2	0-50	
ADI	12	DegF	Differential for heat stage 1	0-50	
ADI	13	DegF	Offset for heat stage 1	0-50	
ADI	14	DegF	Differential for heat stage 2	0-50	
ADI	15	DegF	Offset for heat stage 2	0-50	
ADI	16	DegF	Differential for stage 3	0-50	Stage 3 can do either Heating or Cooling.
ADI	17	DegF	Offset for stage 3	0-50	
ADI	18	DegF	Setpoint shift value	0-50	When DI2 is selected Monitor, this is number of degrees that the occupied cooling setpoint is shifted up and the heating setpoint is shifted down.
ADI	19	Seconds	Internal time clock second	0-59	
ADI	20	Minutes	Internal time clock minute	0-59	
ADI	21	DegF (C)	Occupied heating setpoint	40-90 (4-32)	Occupied heating setpoint must be less than occupied cooling setpoint.
ADI	22	DegF (C)	Unoccupied heating setpoint	40-90 (4-32)	Unoccupied heating setpoint must be less than unoccupied cooling setpoint.
ADI	23	DegF (C)	Occupied cooling setpoint	40-90 (4-32)	
ADI	24	DegF (C)	Unoccupied cooling setpoint	40-90 (4-32)	
ADI	25	DegF (C)	Room temperature	40-90 (4-32)	Read only. See Note 5.
ADI	26	DegF (C)	Discharge air low limit	0-150 (-18-65)	Discharge air high limit must be greater than discharge air low limit.
ADI	27	DegF (C)	Discharge air high limit	0-150 (-18-65)	
ADI	28	DegF (C)	Discharge air temperature	0-150 (-18-65)	Read only.
ADI	29	Minutes	Override period	0-255	Unoccupied override time allowed.
ADI	30	Seconds	Power on delay time	0-255	Time before control begins on powerup.
ADI	31	Minutes	Remaining override time	0-255	Read Only. Time remaining before the override period expires.
ADI	32	DegF (C)	Current user setpoint adjust	-50-50, (28-28)	Read Only. + or - amount the occupied setpoint has been adjusted from actual settings. (See Note 5.)
ADI	33	Minutes	Monday Occupied start time for schedule A	0-1440	There are two occupied and two un-occupied time periods allowed per day.
ADI	34	Minutes	Monday Occupied end time for schedule A	0-1440	All times are measured in minutes from midnight.
ADI	35	Minutes	Monday Occupied start time for schedule B	0-1440	
ADI	36	Minutes	Monday Occupied end time for schedule B	0-1440	
ADI	37		Tuesday	0-1440	
ADI	38		Tuesday	0-1440	
ADI	39		Tuesday	0-1440	

Pointmap Table for SZ1022N (continued)

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
ADI	40		Tuesday	0-1440	
ADI	41		Wednesday	0-1440	
ADI	42		Wednesday	0-1440	
ADI	43		Wednesday	0-1440	
ADI	44		Wednesday	0-1440	
ADI	45		Thursday	0-1440	
ADI	46		Thursday	0-1440	
ADI	47		Thursday	0-1440	
ADI	48		Thursday	0-1440	
ADI	49		Friday	0-1440	
ADI	50		Friday	0-1440	
ADI	51		Friday	0-1440	
ADI	52		Friday	0-1440	
ADI	53		Saturday	0-1440	
ADI	54		Saturday	0-1440	
ADI	55		Saturday	0-1440	
ADI	56		Saturday	0-1440	
ADI	57		Sunday	0-1440	
ADI	58		Sunday	0-1440	
ADI	59		Sunday	0-1440	
ADI	60		Sunday	0-1440	
BD	1		DI1 control mode	0=fan proving, 1=Monitor	See “Operation” (page 8).
BD	2		Unocc fan mode	0=cool, 1= auto	Not accessible with Fan Switch button.
BD	3		Enable occupied fan switch	0 = No, 1=Yes	Enables Fan Switch button.
BD	4		Enable system switch	0 = No, 1=Yes	Enables System Switch button.
BD	5		Use of discharge air sensor	0 = No, 1=Yes	Always monitored, enables discharge air function.
BD	6		Enable smart recovery routine	0 = No, 1=Yes	4° per hour setpoint ramp prior to occupancy for both heating and cooling.
BD	7		Require access code for programming?	0 = No, 1=Yes	Programming access from keypad.
BD	8		Require access code for clock/schedule?	0 = No, 1=Yes	Clock/Schedule access from keypad.
BD	9		Enable cool stage 2	0=disable, 1=enable	Disable unused stages (recommended).
BD	10		Enable heat stage 2	0=disable, 1=enable	
BD	11		Enable stage 3	0=disable, 1=enable	
BD	12		Stage 3 action	0=cool, 1=heat	Stage 3 can be either heating or cooling.
BD	13		Time clock relay output	0=Normally Open 1=Normally Closed	State of relay output during occupied period.
BD	14		Control mode	0=Proportional	Stages turned on and off using offsets and differentials only.
				1=Prop. + Integral	Stages turned on and off using offsets and differentials + a time factor.
BD	15		DI1 source	0=local contact	Local means read by or controlled by Thermostat.
				1=remote request	Remote means the state of the input or output is controlled only by computer.
BD	16		DI2 source	0=local contact 1=remote request	
BD	17		DI3 source	0=local contact 1=remote request	
BD	18		Override function source	0=local keypad 1=remote request	
BD	19		Fan relay source	0=local mode 1=remote request	
BD	20		Remote DI1 request	0=off, 1=on	When selected to be Remote, turns input or output on and off.

Pointmap Table for SZ1022N (continued)

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
BD	21		Remote DI2 request	0=off, 1=on	
BD	22		Remote DI3 request	0=off, 1=on	
BD	23		Remote override request	0=off, 1=on	This is a permanent override.
BD	24		Remote Fan request	0=off, 1=on	
BD	25		Heat stage 1 relay status	0=off, 1=on	Read only.
BD	26		Heat stage 2 relay status	0=off, 1=on	Read Only
BD	27		Cool stage 1 relay status	0=off, 1=on	Read only.
BD	28		Cool stage 2 relay status	0=off, 1=on	Read only.
BD	29		Fan relay status	0=off, 1=on	Read only.
BD	30		Stage 3 relay status	0=off, 1=on	Read only.
BD	31		Time clock relay status	0=off, 1=on	Read only.
BD	32		DI1 status	0=off, 1=on	Read only.
BD	33		DI2 status	0=off, 1=on	Read only.
BD	34		DI3 status	0=off, 1=on	Read only.
BD	35		Override status	0=off, 1=on	Read only.
BD	36		Device's occupied status	0=Occupied 1=Unoccupied	Read only.
BD	37		Service status	0=OK, 1= fail	Read only. See Note 1.
BD	38		Fan interlock status	0= OK, 1= Fan interlock fail	Read only. DI1 Fan Proving.
BD	39		Filter service status	0=OK, 1=Check filter	Read only. DI3 Filter Status.
BD	40		Discharge air high limit	0=OK, 1= Above high limit	Read only. Discharge air function.
BD	41		Discharge air low limit	0=OK, 1= Below low limit	Read only. Discharge air function.
BD	42		DI2 service status	0=OK, 1= Check DI2	Read only. DI2 Service.

NOTE 1: The Service status point represents general Check status. If this is point is 1, the user can find out the actual failing condition by polling point 38 to 42. If this point is 0, points 38 to 42 will also be 0.

NOTE 2: All of the ADI and BD points support the override function. The value overridden will be stored permanently, so the status attribute will never have any override active status. Because none of these points support the override release function, the controller will acknowledge the override release function but never release the value. The controller will respond with NAK error N10 if the value for the override command is outside the limits for that point. Points that are Read Only can not be overridden. The controller will acknowledge the override command, but the actual change will never happen.

NOTE 3: All of the points in this map can be adjusted through the keypad except Read Only points and BD points 15 through 24. In the case of loss of communications for 15 minutes (i.e., if the controller is not addressed for 15 minutes), the controller will revert BD points 15 through 24 to zero value (make them all local requests).

NOTE 4: Communications are disabled when programming mode or clock/schedule mode is entered via the keypad. Entering programming mode via the keypad can be disabled.

NOTE 5: If the temperature in programming step #4 is set to be displayed in degrees Fahrenheit, the values of ADI 7, ADI 21 through ADI 28 and ADI 32 will be Fahrenheit values. If the temperature is set to be displayed in degrees Celsius, these ADI values will be in Celsius.

Pointmap Table for SZ1024N *(See page 13 for Pointmap Table for SZ1022N)*

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
ADI	1	#	DI2 control mode	0=cool lockout 1=monitor 2=service	See "Setup" (page 8).
ADI	2	#	DI3 control mode	0=filter service 1=external override 2=external timeclock	See "Setup" (page 7).
ADI	3	#	System mode	0=off,1=auto, 3=cool, 2=heat 4=emergency heat	"System Switch" button on keypad.
ADI	4	Day	Internal time clock "day"	0-6, mon to sunday	Day of Week.
ADI	5	Hours	Internal time clock "hours"	0-23	0-11 (AM), 12-23 (PM).
ADI	6	DegF (C)	Setpoint adjust limit from keypad	0-50 (0-28)	Limits keypad adjustment of occupied heating and cooling setpoints. (See Note 5.)
ADI	7	DegF	Differential for compressor 1	0-50	
ADI	8	DegF	Offset for compressor 1	0-50	
ADI	9	DegF	Differential for compressor 2	0-50	
ADI	10	DegF	Offset for compressor 2	0-50	
ADI	11	DegF	Diff. for auxiliary heat 1	0-50	
ADI	12	DegF	Offset for auxiliary heat 1	0-50	
ADI	13	DegF	Diff. for auxiliary heat 2	0-50	
ADI	14	DegF	Offset for auxiliary heat 2	0-50	
ADI	15	DegF	Setpoint shift value	0-50	When DI2 is selected "Monitor", this is number of degrees that the occupied cooling setpoint is shifted up and the heating setpoint is shifted down.
ADI	16	Seconds	Internal time clock "second"	0-59	
ADI	17	Minutes	Internal time clock "minute"	0-59	
ADI	18	DegF (C)	Occupied heating setpoint	40-90 (4-32)	Occupied heating setpoint must be less than occupied cooling setpoint.
ADI	19	DegF (C)	Unoccupied heating setpoint	40-90 (4-32)	Unoccupied heating setpoint must be less than unoccupied cooling setpoint.
ADI	20	DegF (C)	Occupied cooling setpoint	40-90 (4-32)	
ADI	21	DegF (C)	Unoccupied cooling setpoint	40-90 (4-32)	
ADI	22	DegF (C)	Room temperature	40-90 (4-32)	Read only. See Note 5.
ADI	23	DegF (C)	Discharge air low limit	0-150 (-18-65)	Discharge air high limit must be greater than discharge air low limit.
ADI	24	DegF (C)	Discharge air high limit	0-150 (-18-65)	
ADI	25	DegF (C)	Discharge air temperature	0-150 (-18-65)	Read only.
ADI	26	Minutes	Override period	0-255	Unoccupied override time allowed.
ADI	27	Seconds	Power on delay time	0-255	Time before control begins on powerup.
ADI	28	Minutes	Remaining override time	0-255	Read Only. Time remaining before the override period expires.
ADI	29	DegF (C)	Current user setpoint adjust	-50-50 (-28-28)	Read Only. + or - amount the occupied setpoint has been adjusted from actual settings. (See Note 5.)
ADI	30	Minutes	Monday Occupied start time for schedule A	0-1440	There are two occupied and two un-occupied time periods allowed per day.
ADI	31	Minutes	Monday Occupied end time for schedule A	0-1440	All times are measured in minutes from midnight.
ADI	32	Minutes	Monday Occupied start time for schedule B	0-1440	
ADI	33	Minutes	Monday Occupied end time for schedule B	0-1440	
ADI	34		Tuesday	0-1440	
ADI	35		Tuesday	0-1440	
ADI	36		Tuesday	0-1440	
ADI	37		Tuesday	0-1440	
ADI	38		Wednesday	0-1440	
ADI	39		Wednesday	0-1440	
ADI	40		Wednesday	0-1440	

Pointmap Table for SZ1024N (continued)

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
ADI	41		Wednesday	0-1440	
ADI	42		Thursday	0-1440	
ADI	43		Thursday	0-1440	
ADI	44		Thursday	0-1440	
ADI	45		Thursday	0-1440	
ADI	46		Friday	0-1440	
ADI	47		Friday	0-1440	
ADI	48		Friday	0-1440	
ADI	49		Friday	0-1440	
ADI	50		Saturday	0-1440	
ADI	51		Saturday	0-1440	
ADI	52		Saturday	0-1440	
ADI	53		Saturday	0-1440	
ADI	54		Sunday	0-1440	
ADI	55		Sunday	0-1440	
ADI	56		Sunday	0-1440	
ADI	57		Sunday	0-1440	
BD	1		DI1 control mode	0=fan proving, 1=Monitor	See "Operation" (page 8).
BD	2		Occ fan mode	0=On, 1= Auto	"Fan Switch" button on key pad
BD	3		Enable occupied fan switch	0 = No, 1=Yes	Enables "Fan Switch" button.
BD	4		Enable system switch	0 = No, 1=Yes	Enables "System Switch" button.
BD	5		Use of discharge air sensor	0 = No, 1=Yes	Always monitored, enables discharge air function.
BD	6		Enable smart recovery routine	0 = No, 1=Yes	4° per hour setpoint ramp prior to occupancy for both heating and cooling.
BD	7		Require access code for programming?	0 = No, 1=Yes	Programming access from keypad.
BD	8		Require access code for clock/schedule?	0 = No, 1=Yes	Clock/Schedule access from keypad.
BD	9		Enable compressor 2	0=disable, 1=enable	Disable unused stages (recommended).
BD	10		Enable auxiliary heat 1	0=disable, 1=enable	
BD	11		Enable auxiliary heat 2	0=disable, 1=enable	
BD	12		Reverse valve action for cooling	0=Normally Open 1=Normally Closed	State of relay output during occupied period.
BD	13		Time clock relay output	0=Normally Open 1=Normally Closed	State of relay output during occupied period.
BD	14		Control mode	0=Proportional	Stages turned on and off using offsets and differentials only.
				1=Prop. + Integral	Stages turned on and off using offsets and differentials + a time factor.
BD	15		DI1 source	0=local contact	"Local" means read by or controlled by Thermostat.
				1=remote request	"Remote" means the state of the input or output is controlled only by computer.
BD	16		DI2 source	0=local contact 1=remote request	
BD	17		DI3 source	0=local contact 1=remote request	
BD	18		Override function source	0=local keypad 1=remote request	
BD	19		Fan relay source	0=local mode 1=remote request	
BD	20		Remote DI1 request	0=off, 1=on	When selected to be "Remote", turns input or output on and off.
BD	21		Remote DI2 request	0=off, 1=on	
BD	22		Remote DI3 request	0=off, 1=on	
BD	23		Remote override request	0=off, 1=on	This is a permanent override.
BD	24		Remote Fan request	0=off, 1=on	

Pointmap Table for SZ1024N (continued)

NPT	NPA	UNITS	POINT DESCRIPTION	RANGE/VALUE	ADDITIONAL NOTES
BD	25		Aux heat 1 relay status	0=off, 1=on	Read only.
BD	26		Aux heat 2 relay status	0=off, 1=on	Read Only
BD	27		Compressor 1 relay status	0=off, 1=on	Read only.
BD	28		Compressor 2 relay status	0=off, 1=on	Read only.
BD	29		Fan relay status	0=off, 1=on	Read only.
BD	30		Reverse valve relay status	0=off, 1=on	Read only.
BD	31		Timeclock relay status	0=off, 1=on	Read only.
BD	32		DI1 status	0=off, 1=on	Read only.
BD	33		DI2 status	0=off, 1=on	Read only.
BD	34		DI3 status	0=off, 1=on	Read only.
BD	35		Override status	0=off, 1=on	Read only.
BD	36		Device's occupied status	0=Occupied 1=Unoccupied	Read only.
BD	37		Service status	0=OK, 1= fail	Read only. See Note 1.
BD	38		Fan interlock status	0= OK, 1= Fan interlock fail	Read only. DI1 Fan Proving.
BD	39		Filter service status	0=OK, 1=check Filter	Read only. DI3 Filter Status.
BD	40		Discharge air high limit	0=OK, 1= Above high limit	Read only. Discharge air function.
BD	41		Discharge air low limit	0=OK, 1= Below low limit	Read only. Discharge air function.
BD	42		DI2 service status	0=OK, 1= Check DI2	Read only. DI2 Service.

NOTE 1: The Service status point represents general Check status, if this is point is 1, then by polling point 38 to 42, the user can find out actual failing condition. If this point is 0 then points 38 to 42 will be also 0.

NOTE 2: All of the ADI and BD points support the override function. The value overridden will be stored permanently, so the status attribute will never have any override active status. Because none of these points support the override release function, the controller will acknowledge the override release function but never release the value. The controller will respond with NAK error N10 if the value for the override command is outside the limits for that point. Points that are "Read Only" can not be overridden. The controller will acknowledge the override command, but the actual change will never happen.

NOTE 3: All of the points in this map can be adjusted through the keypad except: “Read Only” points and BD points 15 through 24. In the case of loss of communications for 15 minutes (i.e., if the controller is not addressed for 15 minutes), the controller will revert BD points 15 to 24 to zero value (make them all local requests).

NOTE 4: Communications are disabled when programming mode or clock/schedule mode is entered via the key pad. Entering programming mode via the keypad can be disabled.

NOTE 5: If the temperature in programming step #4 is set to be displayed in degrees Fahrenheit, the values of ADI 6, ADI 18 through ADI 25 and ADI 29 will be Fahrenheit values. If the temperature is set to be displayed in degrees Celsius, these ADI values will be in Celsius.