

SST-x-P Series Digital Thermostats

SST-x-P series are elegant programmable thermostats with a large clear LCD screen. The thermostats are operated with five high quality buttons. The SST range is available with a range of models to suit most heating applications.

The SST thermostats can be extensively applied for residential, industrial and commercial environment. The thermostats have switching rating of up to 16A 230V making them suitable for both wet systems and electrical heating systems.

Depending on the model, the thermostats can operate using internal or external sensor and can have an additional high limit floor sensor. The SST-x-P series thermostats have 5+2/7 day time programme.

The SST range has RS485 communication capability making them ideal for multi-zone and for high energy efficiency applications.



Features

- 24VAC or 230VAC Power Supply
- Large Digital Display with Bright Back-Light
- Flush Mounted for Sophisticated Look
- Switching rating up to 16A 230V
- 5+2/7 Day Time Programme
- Celcius / Fahrenheit Display
- Low Temperature Protection
- Unique Lockable Keypad
- Advanced comfort functionality
- Sleep function for step by step energy reduction
- RS-485 Modbus Communication Network
- All temperature readings and settings available via Network

Model Type	Model	Description
	SST-A24-P302	Programmable Thermostat, 24Vac, Floor Sensor
	SST-A24-P304	Programmable Thermostat, 24Vac, Internal/External Sensor
	SST-A24-P306	Programmable Thermostat, 24Vac, Internal/External and Floor Sensor
	SST-A230-P302	Programmable Thermostat, 230Vac, Floor Sensor
	SST-A230-P304	Programmable Thermostat, 230Vac, Internal/External Sensor
	SST-A230-P306	Programmable Thermostat, 230Vac, Internal/External and Floor Sensor
	SST-RB-01	Flying Lead Floor Temperature Sensor
	SST-RC02	Infrared Remote Control for the Room Thermostats
	TEFM-NTC100K	Flush Mounted NTC100k Temperature Sensor
Technical Data	Power Supply	A24 Models: AC24V \pm 10%, DC24V A230 Models: AC230V \pm 10% 50/60Hz
	Power Consumption	< 1W
	Switching Voltage	AC220V \pm 10% 16A SPST N/O (Resistive Load)
	Output Signal	ON/OFF
	Measurement Range	5..95°C
	Accuracy	0.5°C/F
	Working Temperature	0..70°C
	Sensor Characteristics	NTC100kOhm
	Setpoint Range	5 to 95°C/F
	Terminals	Max 2.5 mm ² (min 0.5mm ²)
	Communication	RS485 Modbus RTU, up to 32 devices (logical address range 1..32)
	Modbus Settings	9600 baud, 8 Data Bits, None Parity, 1 Stop Bit (Parity None from Nov '09)
	Color	White with Glass Panel

Housing	ABS Flame Retardant
Mounting	Flush Mounting (wall mounting using a separate box)
Dimensions	W86 x H86 x D14.5 mm

Environmental Conditions	Operating Temp	0..+50°C
	Humidity Limits	0..95% rH non-condensing
	Storage Temp	-20..+50°C, Humidity <95% rH
	Environmental Standards	IEC721-3-3, Climatic Conditions Class 3K5 EN 60730

Operating Instructions

Unit On/Off

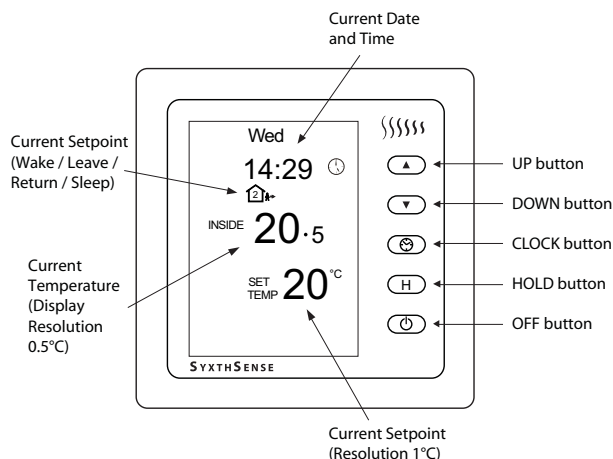
Press OFF button to turn ON or OFF the thermostat.

Temperature Setting

When the thermostat is ON, press UP or DOWN buttons to set the desired temperature. If the temperature is set at "- -", the thermostat is disabled.

Manual Temperature Override

When the thermostat is ON, press the button H to display the HOLD icon. The thermostat is overridden ON at the current setpoint until the override has been cancelled. In this mode the thermostat will not follow the time programme. The HOLD button is a quick way to freeze the current setpoint.



Thermostat Switching Times and Setpoints Configuration

SETTING THERMOSTAT TIME

When the thermostat is ON, press the CLOCK button until Clock Icon and Weekday flashes. Then press UP or DOWN buttons to set the weekday.

Press CLOCK button again to set the hours (time). The hours will flash. Press UP or DOWN buttons to set the desired hour.

Press CLOCK button again to set the minutes (time). The minutes will flash. Press UP or DOWN buttons to set the desired minutes.

SETTING SWITCHING TIMES AND SETPOINTS

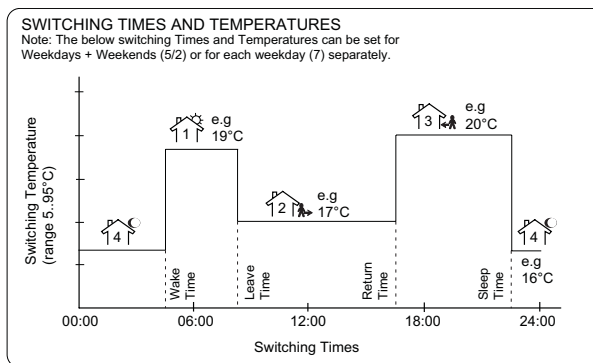
Continue after setting the time. Press the CLOCK button again. The first switching time for the weekdays flashes (the house ICON with number one inside indicates first switching time). Press UP or DOWN buttons to select the desired switching time. Then press CLOCK button again. Now the required temperature setpoint flashes. Press UP and DOWN buttons to set the desired temperature setting.

Continue the same procedure for the second, third and fourth weekday switching times and setpoints.

After setting the weekday switching points, the weekend dates (SAT, SUN) are displayed and the first switching time for the weekend flashes (the house ICON with number one inside indicates first switching time). Press UP or DOWN buttons to select the desired switching time. Then press CLOCK button again. Now the required temperature setpoint flashes. Press UP and DOWN buttons to set the desired temperature setting.

Continue the same procedure for the second, third and fourth weekend switching times and setpoints.

By pressing the CLOCK icon, the swithing times and setpoints for each weekday can be set individually should this be required. If not required wait until the thermostat display times out or press H button to return immediately to normal operation.



Keypad Lock Function

Simultaneously press UP and DOWN buttons for 10 seconds to lock the thermostat. The LOCK icon is displayed on the thermostat. In this mode it is not possible to adjust the temperatures or setpoints. It is possible to switch the thermostat OFF.

To unlock the thermostat, press UP and DOWN buttons again simultaneously for 10 seconds. The LOCK icon on the thermostat disappears.

Thermostat ON/OFF Timer (with Remote Control only)

When this function has been set via remote control, the TIMER icon is displayed together with the counting down time.

Error Display

When errors occur on the thermostat, the ERROR icon is displayed together with error code. The following list describes the error codes.

- 1 =Internal Temperature Sensor Error
- 2 =External Temperature Sensor Error (if required change the sensor selection under the advanced configuration options)
- 3 = Floor Temperature Sensor Error
- 10 = Internal Data Storage Display

Communication Display

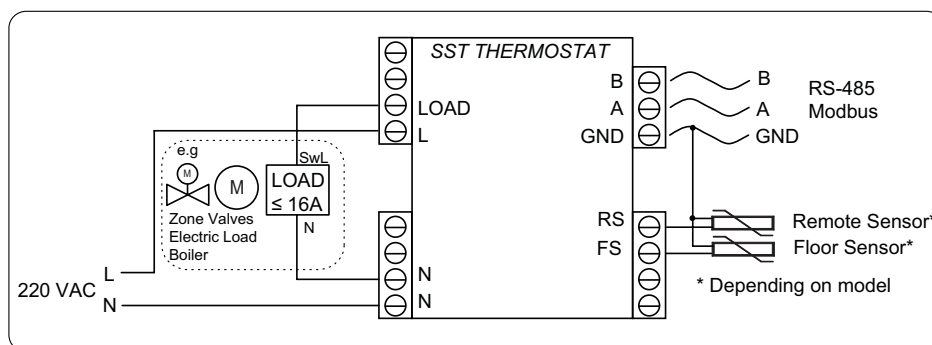
When the COMMUNICATION icon is displayed, the thermostat is communicating with the network master.

Low Temperature Protection

The thermostats has low temperature protection feature. If the measured temperature drops below the frost setpoint (default 7°C), the thermostat relay is switched ON even if the thermostat has been turned off from the ON/OFF button.

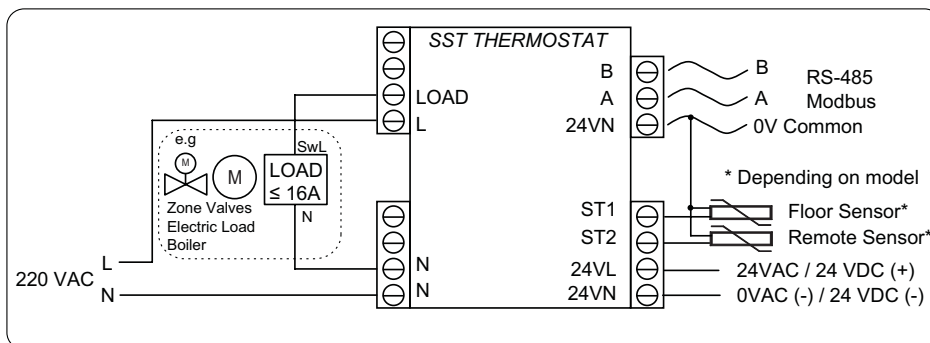
The Low Temperature Protection feature can be disabled in the Advanced Configuration Parameters.

Wiring Details (230VAC Versions)



WARNING: The electrical wiring is to be carried out by qualified electricians and is required to comply with the local wiring and electrical regulations.

Wiring Details (24VAC Versions)



The electrical wiring is to be carried out by qualified electricians and is required to comply with the local wiring and electrical regulations.

Advanced Parameter Settings

Advanced parameter settings are used to re-configure the SST Thermostat operation. Exact settings available depend on the model.

To enter the configuration mode, switch the thermostat OFF (from OFF button). Then press the HOLD ("H") button continuously up to 10 seconds to display the first of the configuration parameters. To adjust the setting press UP or DOWN button until the required setting is displayed.

To advance to the next parameter press HOLD ("H") button again. Continue until all required parameters have been set. At any time the configuration can be exited by pressing the OFF button, and the normal operation resumes.

WARNING: Use care when changing the advanced configuration parameters as these affect the operation of the thermostat.

Parameter	Parameter Description	Available Settings	Default
1	Thermostat Operation when power is Applied	0 - Thermostat OFF when power is applied 1 - Thermostat ON when power is applied 2 - Retain last status when power is applied	2
2	Keypad Lock Status	0 - Function is disabled 1 - Temperature adjustment available only 2 - ON/OFF button workable only 3 - All buttons locked	2
3	Sensor Selection	0 - External temperature sensor 1 - Internal temperature sensor 2 - Internal sensor is used for normal control. The remote sensor connections (RS and 0V) are used as a volt free contact to override the SST Mode of control. Open Contact = OFF, Closed Contact = ON (for more information see external override section)	1
4	Unit Selection	0 - Celcius display enabled 1 - Fahrenheit display enabled (when changed the calibration and all switching temperature settings return to default values)	0
5	Temperature Sensor Reading Adjust	When viewing parameter 5 on the SST, the current room temperature is shown. The user may then adjust this reading by using UP/DOWN keys to match the user preference (0.5°C steps). The maximum effect on the sensor is +/-10°C. Example: SST Reading = 21°C, Handheld Thermometer Reading 23.5°C. Parameter 5 must be accessed and UP arrow keyed until the display shows 23.5°C. Press the ON key to store/show the new reading. The SST will display 23.5°C as the temperature in the room has not changed during the setup. NOTE: Changes to the parameter 5 will be applied to all sensor inputs on the SST being adjusted.	N/A
6	Lowest Setpoint Allowed	5..95 (The value of the lowest setpoint that a user can program into the SST. Any setpoint attempted to be lower than this setting will be returned to this value.)	5

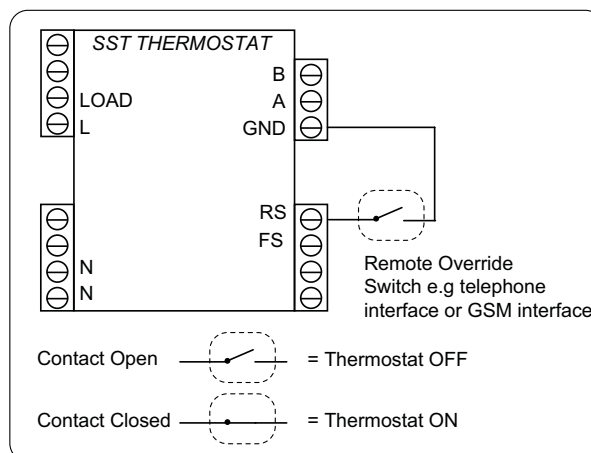
Parameter	Parameter Description	Available Settings	Default
7	Highest Setpoint Allowed	5..95 (The value of the highest setpoint that a user can program into the SST. Any setpoint attempted to be higher than this setting will be returned to this value)	35
8	Temperature Control Hysteresis	1, 2 or 3 Degrees	1
9	Low Temperature Protection	0 - Disabled 1 - Enabled (when thermostat is turned off)	1
10	Low Temperature Protection Ranges	Celsius: 5..17°C Fahrenheit: 41..63°F	7
11	Network Address (Modbus Slave)	1..32	1
12	Sleep Mode	0 - Disabled 1 - Enabled (when enabled each day's setpoint in the last period is gradually reduced by one degree per hour, for more information see sleep mode section)	1
13	Floor Sensor Limit Temperature	Adjustable between 5..95°. If adjusted above 95°, the LCD displays "--" and the floor temperature limit will be disabled	28
14	12/24 Hour Time Mode	0 - 24 Hour Time Display 1 - 12 Hour Time Display	0
15	Four Switching Period Default Settings	0 - No Operation 1 - Return to Default Settings	07:00 20/68 09:00 16/61 16:00 20/68 23:00 16/61

External On/Off Override (e.g. telephone interface)

If an external sensor is not in use an advanced setting can be activated to override the SST thermostat remotely on/off. This can be used, for example, with a telephone or mobile text message interface for remote heating switching. (SyxthSense part nos ITPF-221 and ITPR-321).

To activate this function configure the Advanced Parameter No. 3 to a setting 2.

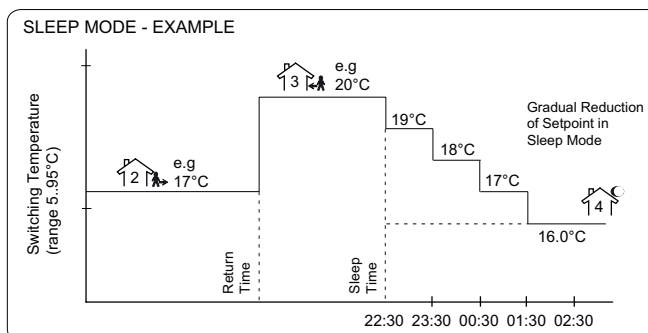
If the unit is remotely overridden OFF, the unit can be locally overridden ON by pressing OFF button. Note: The thermostat needs to detect close to open transition to switch again off remotely.



Sleep Mode

The sleep mode provides maximum comfort by gradually reducing the heating system setpoint until it reaches the Sleep Mode setpoint. The Sleep mode is activated by configuring the Advanced Parameter No. 12 to a setting 1.

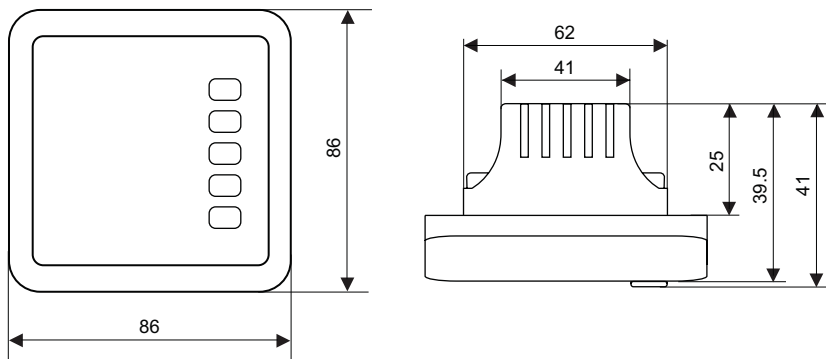
In the sleep mode the setpoint is reduced one degree per hour until the Sleep setpoint (Setpoint 4) has been achieved.



Dimensions

Please find the below diagrams for the thermostat dimensions. The dimensions are in millimetres. The mounting hole center points are 60 mm apart.

NOTE: A 35mm deep wall box is recommended.

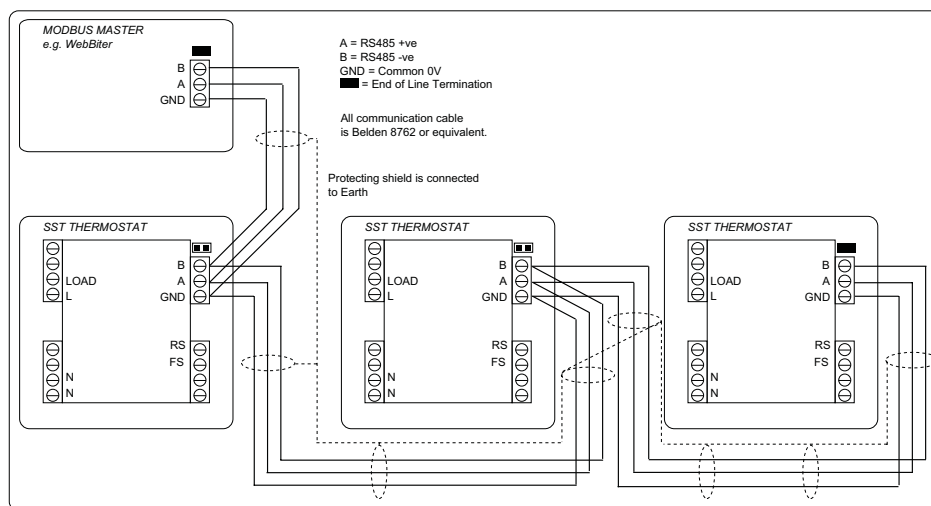


Networking

A maximum of 32 SST devices can be connected onto a single Modbus network. For more about available Modbus communication parameters please refer to the **SST Modbus Communication Manual**.

Please observe the following networking wiring precautions:-

- Max. Cable Length 1000 meters.
- LAN termination jumpers must be fitted to each device at the end of network
- Use Belden 8762 cable. Same for remote sensors.



Box Contents

The SST thermostat box contains the following:-

- 1 off SST Thermostat shipped with anti-static film over LCD screen
- 1 off Network termination jumper (only used when SSTs are connected on a communication network)
- 2 off 25 x M3.5mm fixing screws

Notes: In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice. The consumer is guaranteed against any lack of conformity for 24 months from the time of delivery, according to the European Directive 1999/44/EC. The full text of guarantee is available on request from the seller.