

# GREYSTONE ENERGY SYSTEMS INC

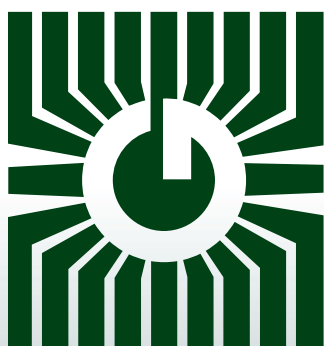
## ROOM TEMPERATURE SENSORS TSPC Series



### Precision temperature control/sensing

#### FEATURES:

- Precision Thermistor or RTD sensing elements
- LCD Display
- Setpoint Adjustment
- Optional Override, Fan Speed Switch and Communication Jack
- Custom laser etching available



*Peace of mind  
through reliable  
temperature monitoring*

GREYSTONE HAS AN **ISO 9001** REGISTERED QUALITY SYSTEM

**DESCRIPTION:**

The TSPC room temperature sensor with resistive setpoint control is available in an attractive wall mount enclosure and can be configured with various options. It is available with various curve-matched thermistors or RTD sensors to measure temperature.

A back-lit LCD displays room temperature, setpoint on demand and occupancy. Several operating parameters can be programmed using a keypad and on-board jumpers configure the °C/F display or disable the backlight.

Available options include a dry-contact override switch, a five position fan speed switch and a jack for a network connection.

**SPECIFICATIONS:**

Power Supply .....	24 Vac/dc $\pm 10\%$ (non-isolated half-wave rectified)
Consumption .....	20 mA max.
Operating Conditions .....	0 - 50°C (32 - 122°F), 0-95% RH non-condensing
Enclosure .....	White ABS - IP30 (NEMA 1)
	84 w x 119 h x 29 d mm (3.3" x 4.7" x 1.15")
Wiring Connections .....	Screw terminal block (14 to 22 AWG)

**Temperature Sensor**

Sensor.....	Several thermistors or RTD's available - See ordering information
Sensor Accuracy .....	Thermistors: $\pm 0.2^\circ\text{C}$ ( $\pm 0.36^\circ\text{F}$ ) @ $25^\circ\text{C}$ ( $77^\circ\text{F}$ ) Platinum RTD's: $\pm 0.3^\circ\text{C}$ ( $\pm 0.54^\circ\text{F}$ ) @ $0^\circ\text{C}$ ( $32^\circ\text{F}$ ) Nickel RTD's: $\pm 0.4^\circ\text{C}$ ( $\pm 0.72^\circ\text{F}$ ) @ $0^\circ\text{C}$ ( $32^\circ\text{F}$ )

**Setpoint Adjustment**

Type .....	Up/Down pushbuttons for $\pm 10$ resistive steps
Range .....	Several resistive ranges available - See ordering information
Midpoint .....	Programmable, 20-23 °C or 68-73 °F
LCD Increment .....	Setpoint step size is 0.5 °C or 1.0 °F
Action .....	Programmable, direct or reverse acting

**LCD Display**

Power Supply .....	12-24 Vdc/24 Vac $\pm 10\%$
Consumption @ 24 Vdc .....	13 mA w/o backlight, 23 mA w/ backlight
Protection .....	Reverse voltage protected
Display Range .....	0 - 35° C/32 - 95° F (Jumper selectable)
Display Resolution .....	0.1° C/F
Display Size .....	38.1 mm W x 16.5 mm H (1.5" x 0.65")
Digit Height .....	11.43 mm (0.45")
Symbols .....	°C, °F, OCC
Backlight .....	Enable or disable via jumper

**Manual Override**

Type .....	Front panel, momentary pushbutton
Ratings .....	50 mA @12 Vdc, N.O., SPST

**Occupied Input**

Signal type .....	Digital input, 0/5 Vdc standard, active low
Action .....	Causes "OCC" segment to light on LCD

**Communication Jacks**

Molex .....	4 Pin header to 4 pin terminal block. Requires HHTA - Hand Held Adapter
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**Fan Speed Switch**

Type .....	Side mounted, 5 position slide switch
Designators .....	Off, Auto, Low, Medium, High
Signal .....	2 wire, resistance output - 0, 2, 4, 6, 8 K $\Omega$ Custom ranges available, contact Greystone

# TSPC - ROOM TEMPERATURE SENSOR:

## PRODUCT ORDERING INFORMATION:

MODEL	Product Description
TSPC	Room Temperature Sensor w/ Setpoint Adjustment & LCD

CODE	Sensor
2	100 Ω Platinum, IEC 751, 385 Alpha, thin film
5	1801 Ω, NTC Thermistor, ±0.2 C
6	3000 Ω, NTC Thermistor, ±0.2 C
7	10,000 Ω, type 3, NTC Thermistor, ±0.2 C
8	2.252K Ω, NTC Thermistor, ±0.2 C
12	1000 Ω Platinum, IEC 751, 385 Alpha, thin film
13	1000 Ω Nickel, Class B, DIN 43760
14	10,000 Ω, type 3, NTC Thermistor, ±0.2 C c/w 11K shunt resistor
20	20,000 Ω, NTC Thermistor, ±0.2 C
24	10,000 Ω, type 2, NTC Thermistor, ±0.2 C

CODE	Resistance Output (Range 16-26°C in 0.5°C Increments or 60-80°F in 1°F Increments)
P	0 - 10,000 ohms
P1	20,000 - 30,000 ohms
P2	2000 - 3000 ohms
P3	0 - 20,000 ohms
P4	4000 - 2000 ohms
P5	0 - 2000 ohms
P6	8000.7 - 3107.3 ohms

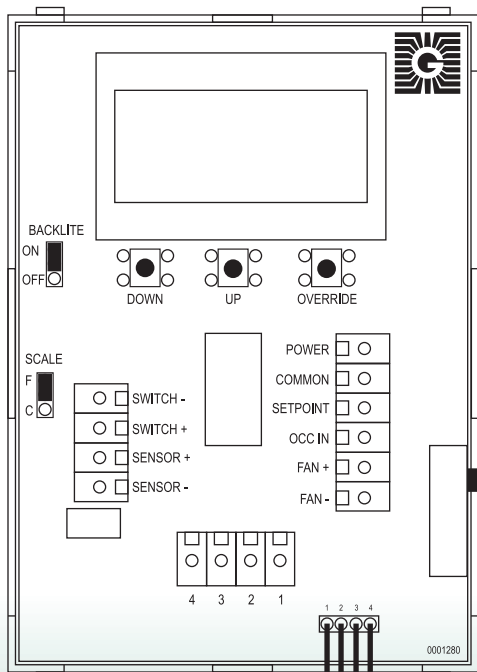
CODE	Options
E	4 Pin molex external jack for communications
S	Exposed override switch with LCD indication option (OCC)
F	5 position fan switch Off/Auto/Low/Med/High

TSPC	7	A	BS	-
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

**NOTE:** Due to the many possible configurations, special part numbers may be required, please contact Greystone for more information.

## PCB/WIRING INFORMATION



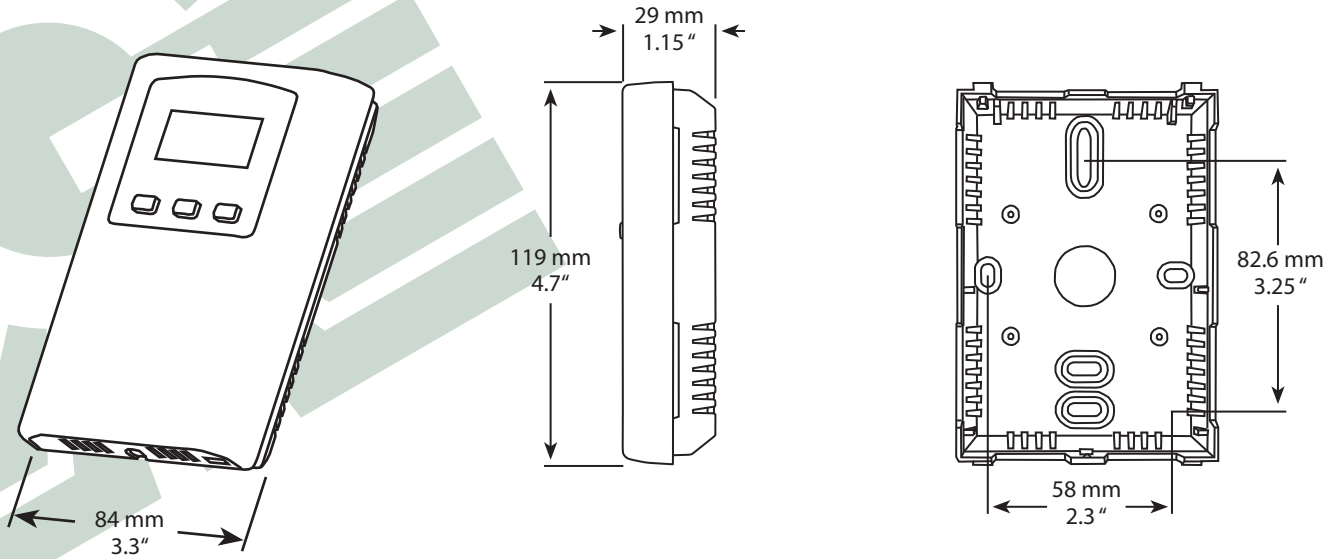
Terminal	Function
SWITCH -	GND or COMMON
SWITCH +	Digital output
SENSOR +	Resistance output
SENSOR -	GND or COMMON
POWER	Power input
COMMON	GND or COMMON
SETPOINT	Resistance Output
OCC IN	Vdc input (5 Vdc)
FAN +	Resistance output
FAN -	GND or COMMON
1	To External Jack PIN 1
2	To External Jack PIN 2
3	To External Jack PIN 3
4	To External Jack PIN 4

\* Some models do not have all these features

\*\*To save on number of connection wires, all GND or COMMON may be connected together.

\*\*\*Illustration shows standard wiring configuration. Custom configurations are available. Please contact Greystone.

**DIMENSIONS:**



**ACCESSORIES:**



**HHTA-XXX**

The HHTA - Handheld Adapter converts the Greystone standard 4 pin connector to the connector of choice such as a RJ12, phone jack. Several styles and configurations are available. Please contact Greystone.



**A35R**

A multi-purpose screw driver that includes a standard flat screwdriver and a 1/16" Allen key, and can be used on all Greystone wall sensors.



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**RoHS**  
COMPLIANT



*Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC/R sensors and transmitters for Building Automation Management Systems.*

*We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9001 certified, assuring our customers of consistent product reliability.*

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