



**WARNING**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

**Failure to follow these instructions can result in death, serious injury or equipment damage.**

This product is intended for use in HVAC and building environmental control applications. It is not intended for direct medical monitoring of patients. Read and understand these instructions before installing this product. The installer is responsible for all applicable codes. If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this material.

# TW2 Analog Series

## Wall Mount Temperature Sensors

### Product Overview

The TW2 Series of temperature sensors for living space is a versatile sensor platform for use with BAS controllers designed to accept 4 to 20mA, 0 to 5Vdc or 0 to 10Vdc outputs. TW2 Series sensors are available with three user interface options: touchscreen, LCD with three buttons and blank.

### Product Identification

User Interface

TW2

T = Color touchscreen  
L = 3-button LCD display  
X = None

Output

A

A = Analog output

Temperature

X

A = Transmitter only  
C = 1000 PT RTD  
D = 10K T2 thermistor  
H = 10K T3 thermistor  
K = 10K curve G/11K shunt  
M = 20K NTC thermistor  
N = 1.8K TAC thermistor

### Specifications

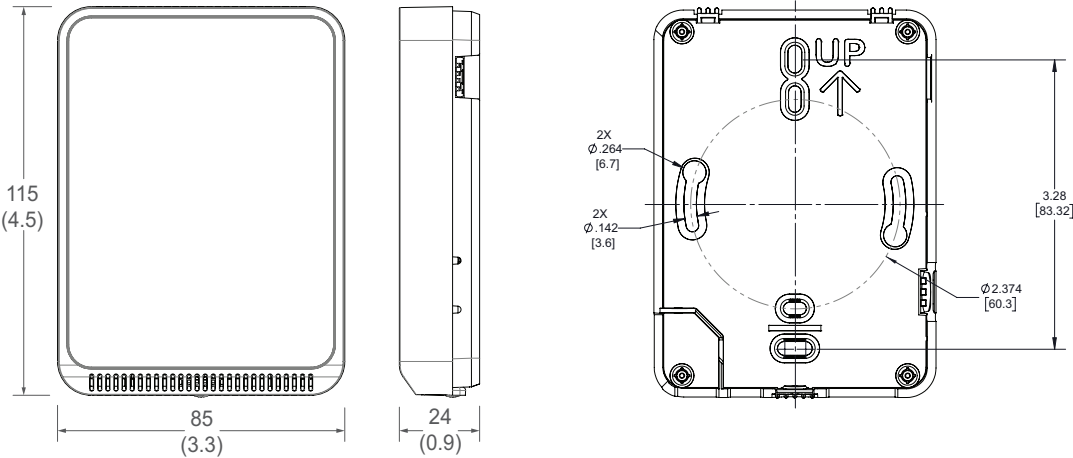
OPERATING ENVIRONMENT	
Input Power	Class 2; 20 to 30 Vdc, 24 Vac, 50 to 60 Hz
Analog Output	Selectable 4 to 20 mA, 0 to 5 V, 0 to 10 V
Operating Temp. Range	0 to 50 °C (32 to 122 °F)
Operating Humidity Range	0 to 95% RH non-condensing
Housing Material	High-impact ABS plastic
Terminal Block Torque	0.5 to 0.6 N-m (0.37 to 0.44 in-lbf)
IP Rating	IP 30
Mounting Location	For indoor use only. Not suitable for wet locations.
Surface Mount	The device can be surface mounted on Single Gang J-Box, British Standard and CE60 wall boxes
TEMPERATURE TRANSMITTER OPTION	
Sensor Type	Solid state, integrated circuit
Accuracy	±0.2 °C (±0.4 °F) typical
Resolution	0.1 °C (0.1 °F)
Range	0 to 50 °C (32 to 122 °F)
DISPLAY MODELS	
Touchscreen	61 mm (2.4 in), color, backlit, capacitive, 240x300 px Setpoint: 0-10Vdc. Temperature or fan speed selectable Timeout override: Display timeout* Lockout override: Touchscreen/button lockout*
LCD	52mm (2.05 in), segmented with 3 buttons Setpoint: 0-10Vdc. Temperature or fan speed selectable Timeout override: Display timeout* Lockout override: Touchscreen/button lockout*

Specifications (cont.)

SETPOINTS**	
Temperature Setpoint	0 to 10V output Scale: 10 to 35 °C (50 to 95 °F) / 0 to 50 °C (32 to 122 °F)
Fan Speed Setpoint	0 to 10V output Off 0V, Auto 1.5V, Low 3.3V, Med. 6.7V, High 10.0V
WIRING TERMINALS	
Terminal Blocks	Screw terminals, 18-24 AWG
Screw Terminal Torque	0.2 N-m (2.0 in-lbF) max.
OVERRIDE	
Override Button	Display models feature a momentary-to-ground override button
WARRANTY	
Limited Warranty	5 years
COMPLIANCE INFORMATION	
Agency Approvals	UL 916 European Conformance CE: EN 60730-1, EN 60730-2-9, EN 60730-2-13, EN 61000-6-2, EN 61000-6-3, EN 61000 Series - Industrial Immunity, EN 61326-1 FCC Part 15 Class B, REACH, RoHS, RCM (Australia), ICES-003 (Canada), UKCA (UK)

\*DIP switch selectable.  
\*\* One setpoint type is selectable via DIP switch on display models only.

Dimensions



Functions

The TW2 Series sensor measures the temperature in a room and provides analog outputs to a controller.

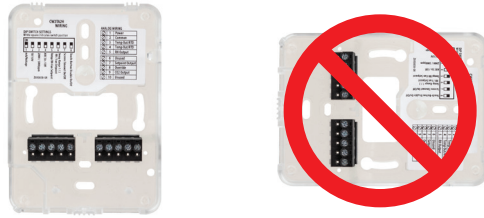
Installation

1. Remove the cover from the base at the bottom of the device.

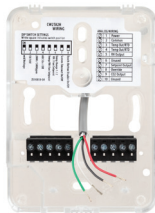


## Installation (cont.)

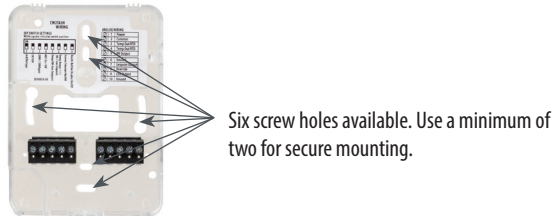
- Position the sensor base vertically on the wall 1.35 m (4.5 ft.) above the floor with the “UP” arrow facing upward. Locate away from windows, vents and other sources of draft. If possible, do not mount on an external wall, as this may cause inaccurate temperature readings.



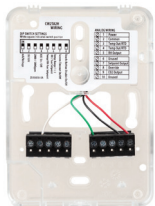
- Pull 18 or 22 AWG cable(s) through the hole in the backplate.



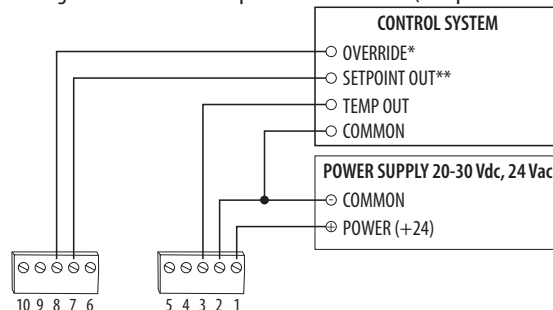
- Mount the backplate onto the wall using the screws provided.



Connect the wires to the screw terminals. Do not over-tighten the screws.



Wiring for models with temperature transmitter (except TW2LAXA):

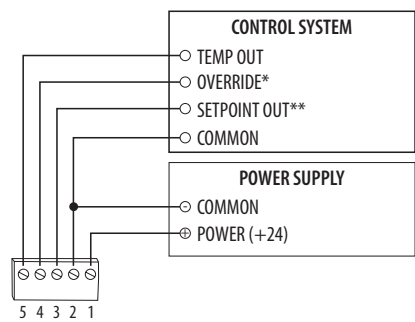


\* Momentary to ground.

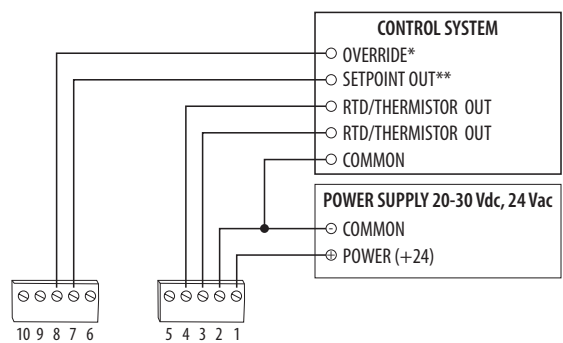
\*\* 0-10V DIP switch selectable for temperature, RH or fan speed (off, 0V, Auto 1.5V, Low 3.3V, Medium 6.7V or high 10.0V).

Installation (cont.)

Wiring for models with temperature transmitter (TW2LAXA only):

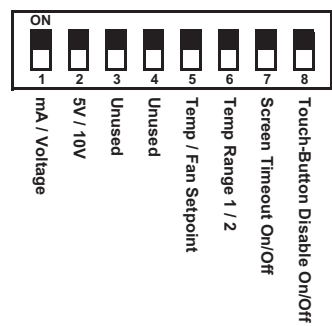


Wiring for models with RTD/thermistor:



\* Momentary to ground.  
\*\* 0-10V DIP switch selectable for temperature, RH or fan speed (off, 0V, Auto 1.5V, Low 3.3V, Medium 6.7V or high 10.0V).

Set the DIP switches.



Switch	Function	Description
1	Output mode	ON - 4-20mA output mode enabled OFF - Voltage output mode enabled
2	Voltage output range*	ON - 0-5V output range enabled OFF 0-10V output range enabled
3	Unused	Unused
4	Unused	Unused
5	Setpoint output type	ON - Temperature setpoint enabled (temp range selected on DIP switch 6) OFF - Fan Speed setpoint enabled

## Installation (cont.)

Switch	Function	Description
6	Setpoint output temperature range	Temperature setpoint (must be enabled on DIP switch 5) ON - Temp range 1, 50 to 95 °F (10 to 35 °C) enabled OFF - Temp range 2, 32 to 122 °F (0 to 50 °C) enabled
7	Display times out and turns off after 6-10 seconds of touchscreen/button press	ON - Display Timeout enabled OFF - Display Timeout disabled
8	Touchscreen touch functions and buttons are disabled	ON - Touchscreen touch/button functions disabled OFF - Touchscreen touch/button functions enabled

*\* Only used with voltage output mode enabled. Not applicable to setpoint output. Setpoint is 0-10V fixed.*

- With sensor base fully installed, align top of cover to mounting tabs on top of sensor base. Swing cover downward until it latches at the bottom.



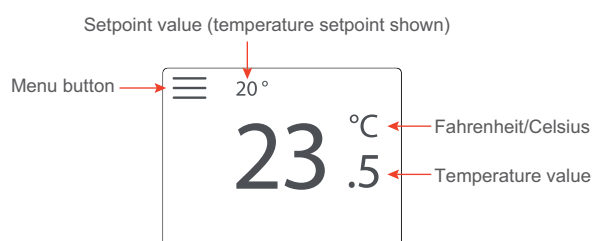
## Touchscreen Operation

- Install locking screw to secure cover in closed position.



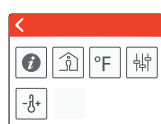
### Main Screen

The touchscreen user interface displays temperature sensor output values, setpoint value and menu button.

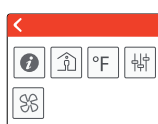


### Menu Screen

The menu screen opens when pressing the Menu button on the main screen. Integrator's submenu, occupancy/override, Fahrenheit/Celsius, settings and setpoint submenu (temp or fan, determined by DIP switch settings) are displayed on the menu screen.



Temperature setpoint  
DIP switch selected



Fan speed setpoint  
DIP switch selected

## Touchscreen Operation (cont.)

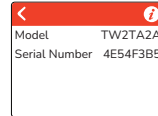
### Menu Button Functions



#### Integrator's Submenu

Press this icon to access the Integrator's menu.

#### Submenu Only



#### Occupied Override Button

Press this icon to provide momentary ground output to the controller

#### Single Press Only



Signals occupied/override call to controller.



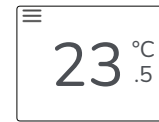
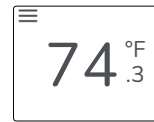
#### Fahrenheit/Celsius Switch

Press this icon to display either °C or °F.

#### Single Press Only



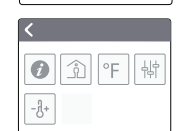
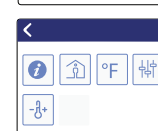
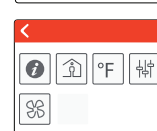
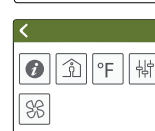
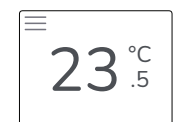
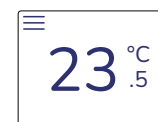
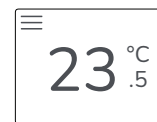
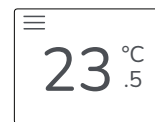
Changes units to Fahrenheit when pressed.  
Changes units to Celsius when pressed.



#### Settings

This icon provides the ability to change the color scheme of the display.

#### Submenu Only



#### Temp Setpoint Adjustment

Click this icon to access the setpoint change menu.  
Toggle the Temp Setpoint Display button to display or hide the setpoint value on the home screen.

#### Submenu Only



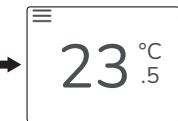
Temp Setpoint Display Button On



Setpoint



Temp Setpoint Display Button Off



#### Fan Speed

Click this icon to access the fan speed menu. Mutually exclusive with humidity and fan speed. Set by DIP switch.

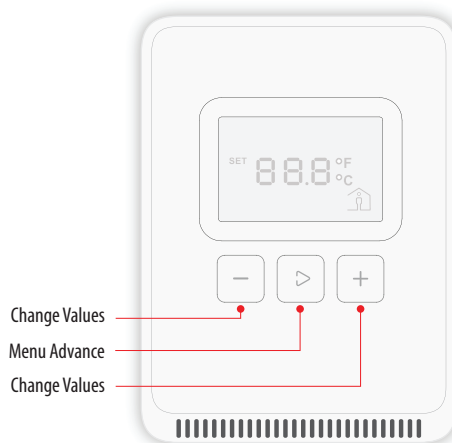
#### Submenu Only



Selected

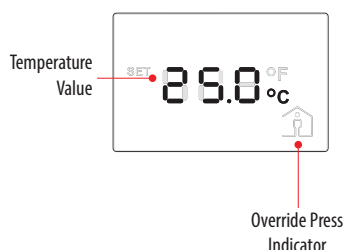
## LCD Display Operation

### Button Functions



### Display Icons

The main screen displays sensor values for temperature and Celsius/Fahrenheit.



## Setpoint Function

A single 0-10V setpoint (temperature or fan speed) can be selected via DIP switch.

### Temperature Setpoint Adjustment

Press the Menu Advance button



- + Adjusts setpoint up
- Adjusts setpoint down

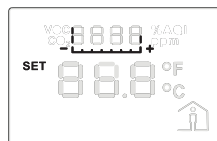


After adjustment, wait 6 seconds or press the Menu Advance button. Setpoint is accepted and main screen appears.

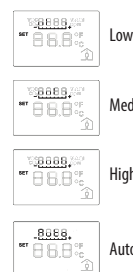
Note: Numeric information will flash while in Set mode.

### Fan Speed Setpoint Adjustment

Press the Menu Advance button



- + Adjusts setpoint up
- Adjusts setpoint down



Low

Medium

High

Auto

After adjustment, wait 6 seconds or press the Menu Advance button. Setpoint is accepted and the main screen appears.

Note: Fan speed scale flashes when in Set mode. Off setting is default.

Setpoint Function  
(cont.)

### Changing Celsius and Fahrenheit Scales

Press the Menu Advance button

SET 26.6 °F

+

Adjusts from °F to °C

-

Adjusts from °C to °F

After adjustment, wait 6 seconds or press the Menu Advance button to return to the main screen.

Note: °F or °C text will flash while in Set mode.

### Occupied/Override Button

Press and hold the Menu Advance button for 1 second

SET 88.8 °F

Override Press Indicator illuminates for 6 seconds.

China RoHS  
Compliance  
Information

### Environment-Friendly Use Period (EFUP) Table

部件名称	有害物质 - Hazardous Substances					
Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电子件 Electronic	X	O	O	O	O	O

本表格依据SJ/T11364的规定编制。

O: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。

(企业可在此处，根据实际情况对上表中打“X”的技术原因进行进一步说明。)

This table is made according to SJ/T 11364.

O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.

X: indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572

Z000057-0B