

# TW2 SERIES

## Wall Mount Temperature Sensors



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.

### 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 Temperature 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

#### TEMPERATURE TRANSMITTER OPTION

Sensor Type	Solid state, integrated circuit or other thermistors
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, humidity 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, humidity or fan speed selectable Timeout override: Display timeout* Lockout override: Touchscreen/button lockout*

#### 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

## Flexible

Polarity insensitive, two-wire 4 to 20 mA or 3-wire 0-5/0-10 Vdc versions...flexible systems compatibility...save time in the field, stock fewer devices

## Easy to install

Large wiring terminals on baseplate and snap-on covers with security screw simplify installation and service

## Calibration-free

No calibration required

### APPLICATIONS

- Controlling HVAC systems for improved comfort & energy savings
- Museums, schools, printing shops, hospitals, data centers, & other locations that require temperature control
- Facilitating compliance with ASHRAE standards for environmental control and indoor air quality

#### OVERRIDE

Override Button	Display models feature a momentary-to-ground override button
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#### WIRING TERMINALS

Terminal Blocks	Screw terminals, 18-24 AWG
Screw Terminal Torque	0.2 N-m (2.0 in-lbf) max.

#### WARRANTY

Limited Warranty	5 years
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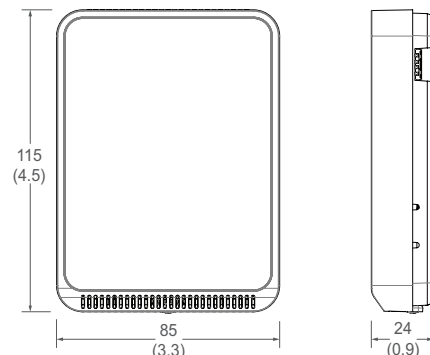
#### COMPLIANCE INFORMATION

Agency Approvals	UL 916, European conformance CE: EN61000-6-2, EN61000-6-3, EN61000 Series - industrial immunity EN 61326-1, FCC Part 15 Class B, REACH, RoHS, RCM (Australia), ICES-003 (Canada)
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\*DIP switch selectable.  
\*\* One setpoint type is selectable via DIP switch on display models only.

### DIMENSIONAL DRAWING



**USER INTERFACE TYPES**



Touchscreen



LCD with Buttons



Blank

**ORDERING INFORMATION**

User Interface      Output      Temperature  
 TW2      □      □      X      □

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

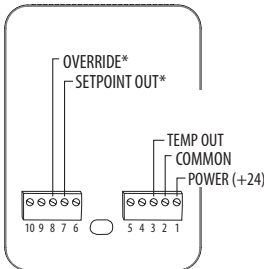
A = Analog output

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

Example:  
 TW2    T    A    X    A

**TW2X/TW2T DISPLAY MODELS WITH TEMP TRANSMITTER**

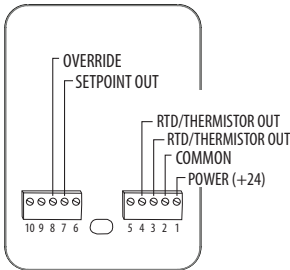
Wiring Diagram



\*TW2T models only.

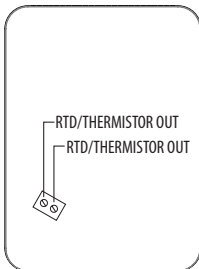
**TW2L/TW2T DISPLAY MODELS WITH RTD/THERMISTOR**

Wiring Diagram



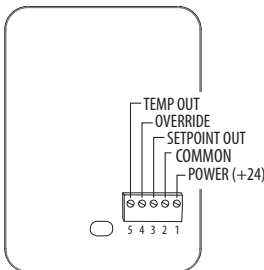
**TW2X WITH RTD/THERMISTOR**

Wiring Diagram



**TW2L WITH TEMP TRANSMITTER**

Wiring Diagram



**TABLE OF STANDARD RTD & THERMISTOR VALUES**

Class	Pt RTD	THERMISTOR		
	1000 Ohm	10k Type 2	10k Type 3	20k
Accuracy	±0.3°C 0.00385 curve	±1.0°C -50/150°C	±0.2°C 0/70°C	Consult Factory
Temp. Response*	PTC	NTC	NTC	NTC

\*PTC: Positive Temperature Coefficient    \*NTC: Negative Temperature Coefficient

**STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)**

°C	°F	1000 Ohm	10k Type 2	10k Type 3	20k NTC
-50	-58	803.06	692,700	454,910	1,267,600
-40	-40	842.71	344,700	245,089	643,800
-30	-22	882.22	180,100	137,307	342,000
-20	-4	921.60	98,320	79,729	189,080
-10	14	960.86	55,790	47,843	108,380
0	32	1,000.00	32,770	29,588	64,160
10	50	1,039.03	19,930	18,813	39,440
20	68	1,077.94	12,500	12,272	24,920
25	77	1,097.35	10,000	10,000	20,000
30	86	1,116.73	8,055	8,195	16,144
40	104	1,155.41	5,323	5,593	10,696
50	122	1,193.97	3,599	3,894	7,234
60	140	1,232.42	2,486	2,763	4,992
70	158	1,270.75	1,753	1,994	3,512
80	176	1,308.97	1,258	1,462	2,516
90	194	1,347.07	919	1,088	1,833
100	212	1,385.06	682	821	1,356
110	230	1,422.93	513	628	1,016
120	248	1,460.68	392	486	770
130	266	1,498.32	303	380	591
Sensor Codes		C	D	H	M

