

# Ubiqui**STAT**

Commercial BACnet Controller



# Contents

- Introduction ..... 3
- Opening the UbiquiSTAT ..... 3
- Mounting the UbiquiSTAT ..... 3
- Powering the UbiquiSTAT ..... 3
- UbiquiSTAT Wiring Connections ..... 4
  - Active Terminations ..... 4
  - Power ..... 5
  - RS-485 Port ..... 5
  - Packaged Unit Terminations ..... 6
  - Time Clock Output ..... 6
  - Analog Outputs ..... 6
  - Digital Inputs ..... 7
  - Temperature Inputs ..... 7
  - Analog Inputs ..... 7
- Assembling the UbiquiSTAT ..... 8
- Touch Screen Interface ..... 8

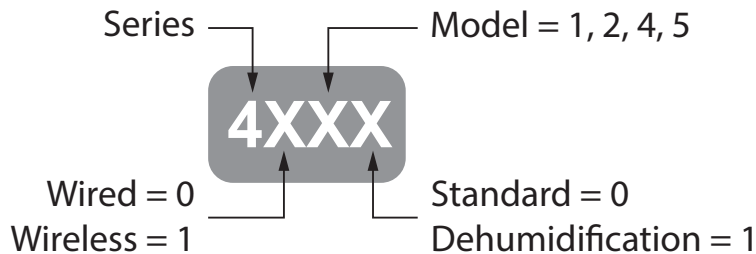
## Model Number Definitions – A Key to Understanding UbiquiSTAT Series Model Versions

TCS offers 16 different UbiquiSTAT versions based on four models: the US4010, US4020, US4040, and US4050 (refer to the [UbiquiSTAT Product Data](#) sheet for more information on the specific features of each model).

Each UbiquiSTAT series is represented by the following color icons:



Each model in the series is available in several versions which can include wireless capability and an on-board dehumidification sensor. These versions are identified in the color icons following the code below:



## Introduction

Congratulations on choosing the UbiquiSTAT™ room controller! The UbiquiSTAT series of controllers are feature rich, multifunction touchscreen devices providing extensive controls across a wide range of HVAC applications.

This manual covers all 16 variations of Ubiquistats including wired, wireless, and built-in dehumidification. It includes all the information necessary to install and wire your UbiquiSTAT room controller. It includes a breakdown of the input and output wiring for each type of connection.

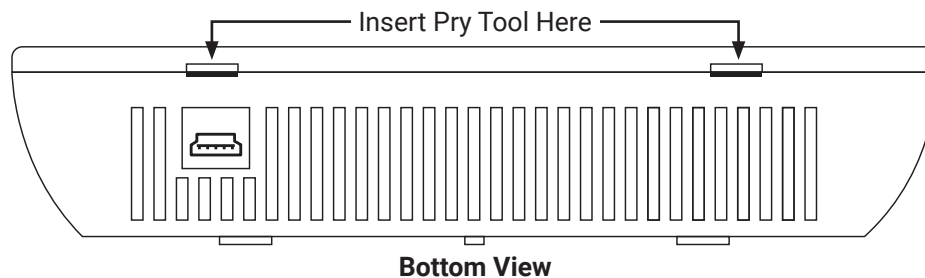
After installing your UbiquiSTAT, refer to the [UbiquiSTAT Quick Setup Guide](#) for instructions on the basic setup of the device. Refer to the [UbiquiSTAT Configuration Guide](#) for instructions on configuring the device, the communications network and other devices connected to this controller. Refer to the [UbiquiSTAT BACnet Explorer Guide](#) for advanced information on using the built-in BACnet Explorer to edit the device's BACnet programming objects directly.

If you have any questions regarding your UbiquiSTAT room controller, do not hesitate to contact TCS Technical Support at 800-288-9383, ext. 2. Our Technical Support Department hours are Monday – Friday, 7:00 a.m. to 7:00 p.m. (CST).

## Opening the UbiquiSTAT

The UbiquiSTAT consists of a base containing wiring terminal blocks and relays, and a front cover containing the touchscreen and all other circuitry. It is shipped unassembled. Each base and cover pair are serialized together; if you are installing multiple UbiquiSTATs, do **NOT** mix and match bases and covers.

To remove the UbiquiSTAT cover once assembled, insert a small plastic pry tool or flathead screwdriver between the front cover and base on the bottom of the thermostat. Carefully run the tool along the seam until the halves separate.



## Mounting the UbiquiSTAT

Mount the base of your UbiquiSTAT room controller on a vertical wall using two #6 sheet metal screws, either over a 2" x 4" or 4" x 4" junction box, or directly to the wall. For best results, select an interior wall that represents a normal room environment, at a height of about 48" from the floor. Mount the unit in a location which is accessible for adjusting settings.

For best temperature measurement accuracy, avoid areas that are exposed to direct sunlight, unusual heating or cooling sources, open doors and windows, unventilated locations, and hot or cold air from diffusers. If you are using a remote room sensor, mount it in the same manner.

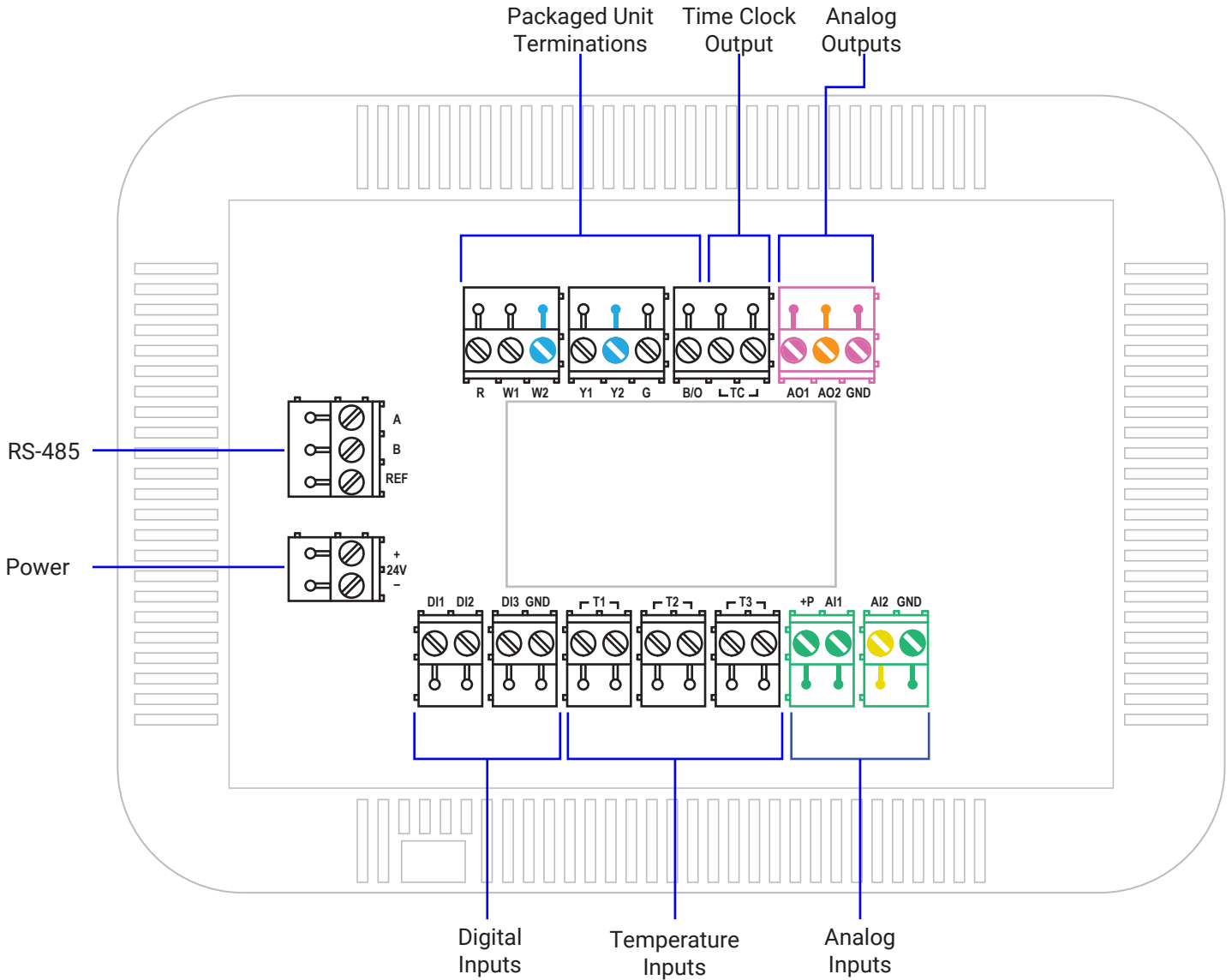
## Powering the UbiquiSTAT

The UbiquiSTAT is powered from 24 VAC +15%/-5% and draws up to 10VA. If wiring for communications, you must use dedicated power (transformer) to the unit. Several TCS controllers may be powered from the same transformer, provided the transformer has sufficient power and you maintain proper polarity. While the UbiquiSTAT may be powered from the HVAC unit controller, using a dedicated power source will avoid any potential ground loop issues between equipment transformers.

When the UbiquiSTAT is used as a stand-alone thermostat without communications, the equipment transformer may be used to power it. To do this, install a jumper between the "R" (Packaged Unit Terminations) and "+24" (Power) terminals. The "-24" (Power) terminal must then be connected to the common side of the equipment transformer.

## UbiquiSTAT Wiring Connections

The input/output terminals on the UbiquiSTAT utilize de-pluggable terminal blocks, with either two or three poles. Refer to the color-coded diagram below, which indicates which terminations are **active** on the various models.



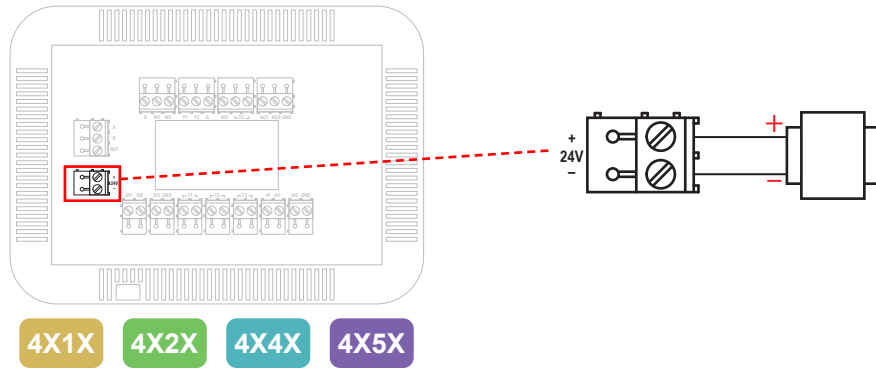
Active Terminations			
Black	=	4X1X	4X5X
Blue	=	4X2X	4X5X
Pink	=	4X1X	4X5X
Orange	=	4X1X	4X5X
Green	=	4X4X	4X5X
Yellow	=	4X5X	4X5X

# Installation

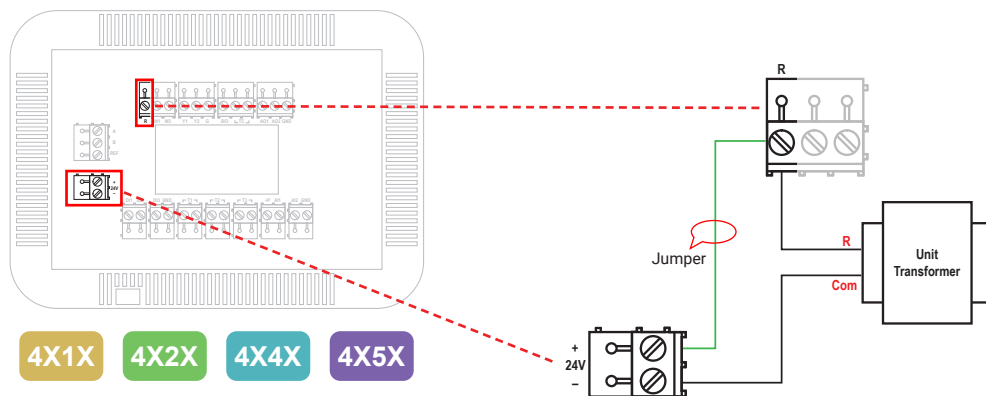
## Power

Connect the power source using 18AWG two-wire twisted, stranded copper wire.

**NOTE:** Do **not** connect to 120VAC. When multiple TCS/Basys Controls devices are using a single transformer, be sure to maintain the polarity of the power wiring. All TCS devices are half-wave rectified and have common return paths.

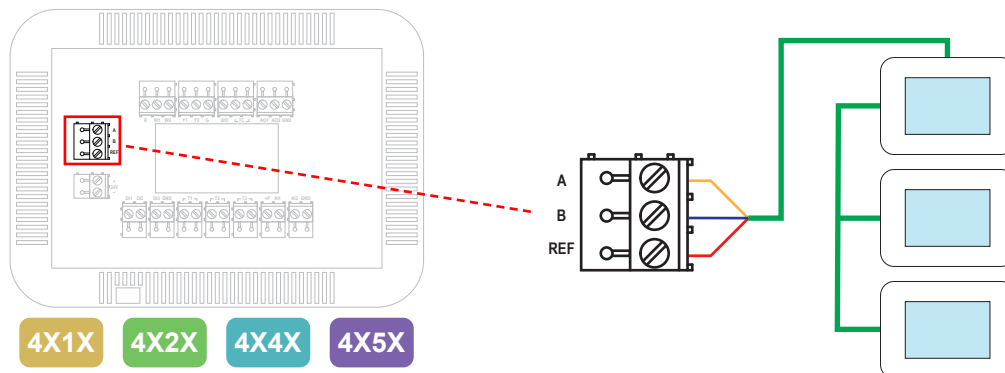


**Optional:** When used as a standalone thermostat with no communications, you can power the unit via the HVAC unit's transformer. To do this, install a jumper connecting the "R" and "+24" terminals. The "-24" terminal must then be connected to the common side of the unit transformer.



## RS-485 Port

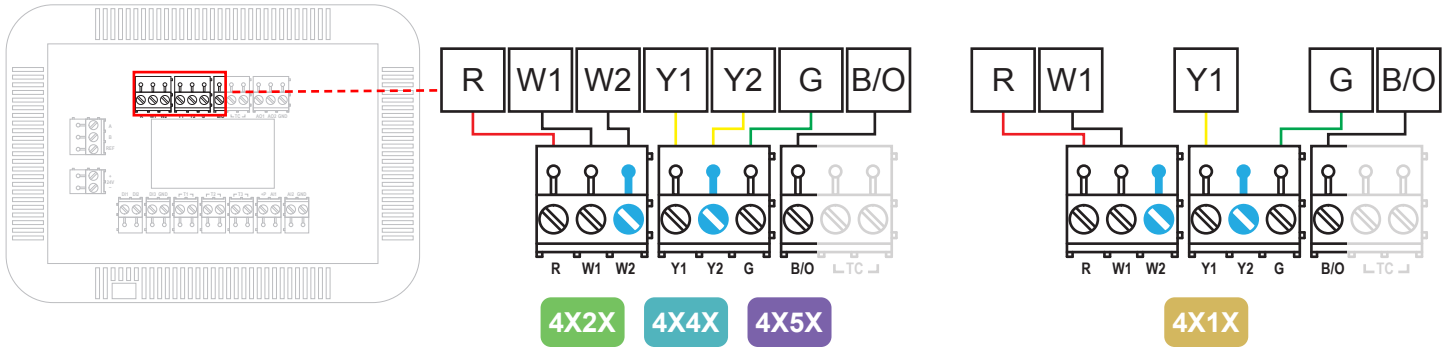
For communication wiring, use 22AWG three-wire twisted, stranded shielded copper wire. Must run separately.



# Installation

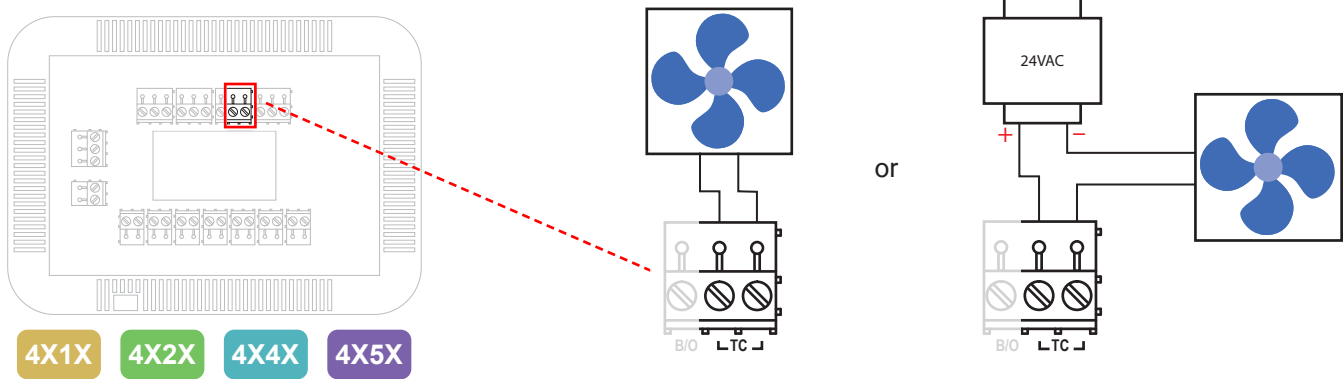
## Packaged Unit Terminations

Packaged unit signals may be up to 28VAC from the equipment terminations.



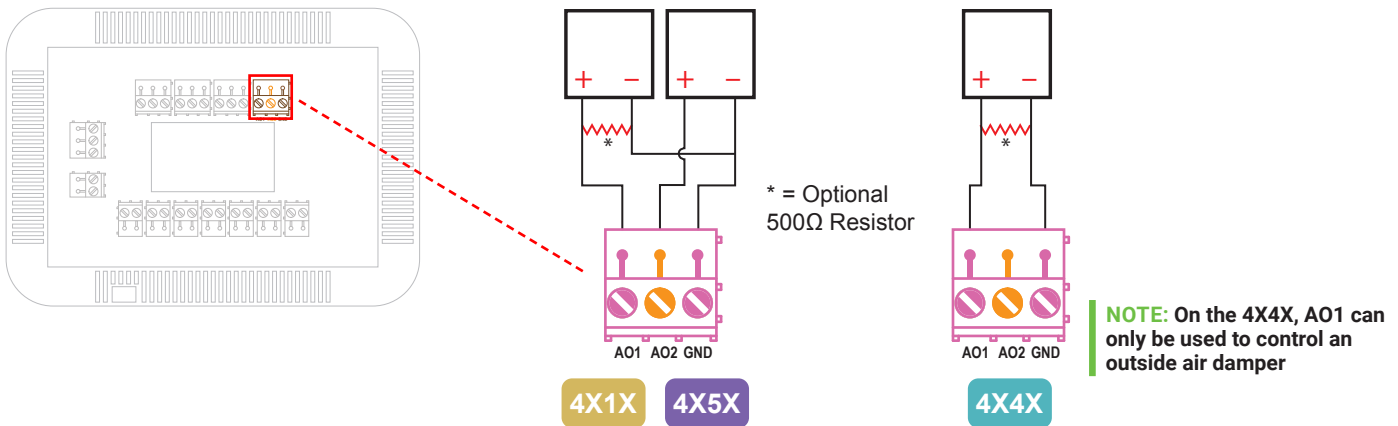
## Time Clock Output

The Time Clock Output is an unpowered, isolated pair of relay contacts. Connect an external device that operates with a schedule based on room occupancy, such as an outdoor air damper, exhaust fan, or a dehumidification/reheat unit. Use 18 – 22AWG two-wire twisted, stranded shielded or unshielded wire.



## Analog Outputs

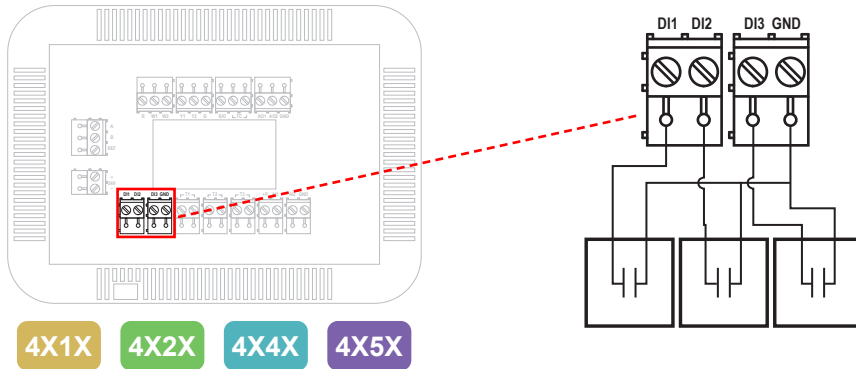
Connect 4 – 20mA, analog output devices using 18 – 22AWG two-wire twisted, stranded shielded or unshielded wire. Connected actuators, motors, or drives must be powered separately from the UbiquiSTAT. If you desire a voltage output, use an included 500Ω resistor.



# Installation

## Digital Inputs

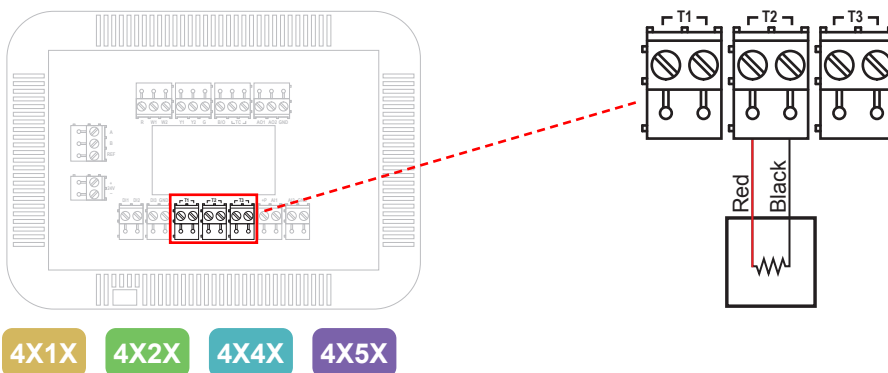
Digital inputs are used to receive status signals such as filter status, fan status, etc. Use unpowered dry contacts only with 18AWG two-wire twisted, stranded shielded or unshielded wire.



## Temperature Inputs

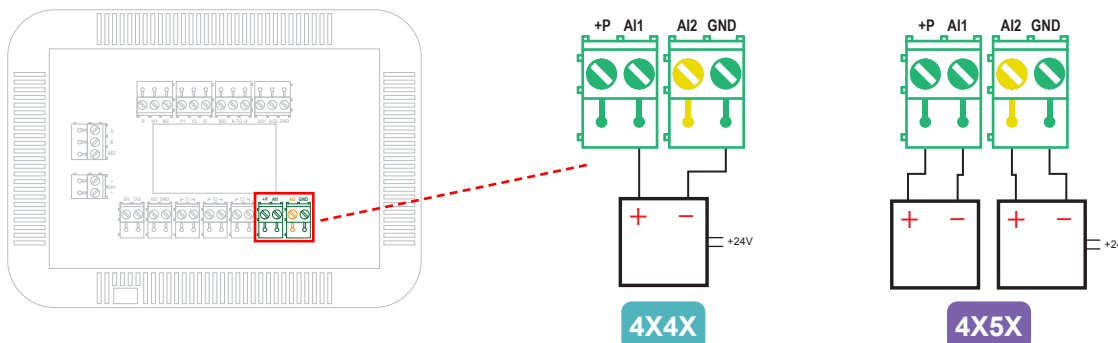
Connect 1000Ω PtRTD temperature sensor inputs (range of -40°F to 160°F) using 18AWG two-wire twisted, stranded shielded wire, maximum 250 ft. length. Sensors can be used for remote room temperature, discharge air temperature, outdoor air temperature or mixed air temperature. Sensor wires should be kept at least five feet from live voltage wiring.

**NOTE:** When using remote sensors, the unit may need to be calibrated. See the [UbiquiSTAT Configuration Guide](#) for more information.



## Analog Inputs

Connect 0 – 20mA or 4 – 20mA analog inputs using 18AWG two-wire twisted, stranded shielded wire. These inputs can be used for any current-based sensors such as CO<sub>2</sub> and humidity. Inputs can be two-wire or self-powered.



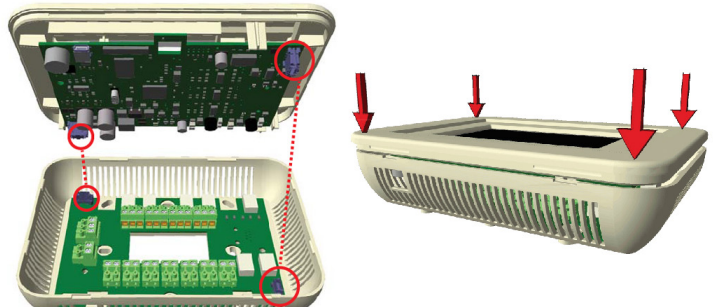
## Assembling the UbiquiSTAT

Before assembly, check that no wiring interferes with the cover, and no bare wires are exposed. Follow the instructions below. You can also refer to a video illustrating the assembly process by clicking [here](#).

**STEP 1** Match the orientation of the internal connectors. The top connector runs horizontally and the bottom connector runs vertically.

**STEP 2** Gently seat the front cover onto the base, checking the alignment on all four sides.

**STEP 3** Starting on the right side of the unit and using both hands, snap all four corners of the cover into place. **Do not force the cover onto the unit!** If it does not easily snap into place, check to make sure the internal connectors are properly aligned and reassemble the unit.



### NOTES:

#### If the screen does not light up:

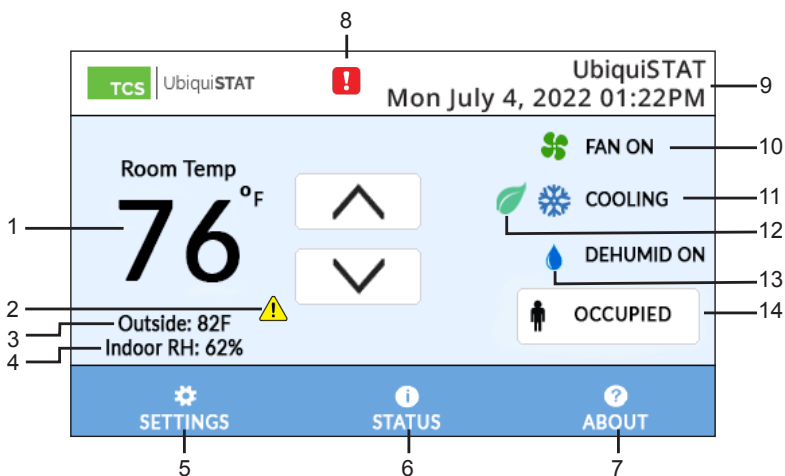
- Check that there is power to the base
- The internal connectors may not be fully engaged. Carefully remove the cover and reassemble

#### If the screen lights but relays or inputs/outputs are not working:

- The internal connectors may not be fully engaged. Carefully remove the cover and reassemble

## Touch Screen Interface

The home screen provides at-a-glance system information and basic user controls. The navigation automatically returns to the home screen and the display dims after 10 minutes of inactivity (no touches detected).



No.	Description (All models/versions unless otherwise indicated)
1	Room Temperature and Setpoints
2	DI Setpoint Setback Active Indicator
3	Information Text (from connected sensors)
4	Indoor Relative Humidity 4X11 4X21 4X41 4X51
5	Settings Menu
6	Status Screens
7	About Screen
8	Service Status Indicator
9	Display Banner (Device Name and Date/Time)
10	Fan Operation Indicator
11	System Status (Heating/Cooling)
12	Economizer Status 4X4X 4X5X
13	Dehumidification Status 4X11 4X21 4X41 4X51
14	Occupancy Status