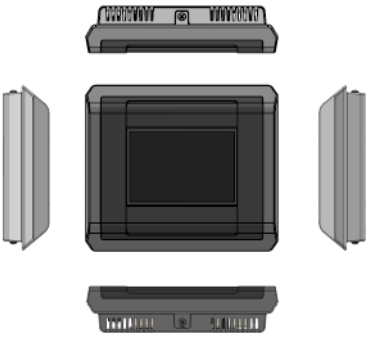
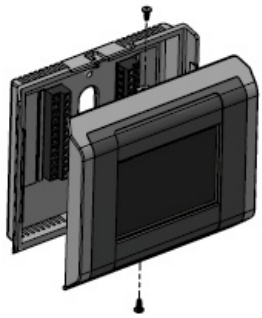
Programmable Touchscreen Thermostat Setup in E2 and Site Supervisor

Quick Start Guide

The Emerson Programmable Touchscreen Thermostat *(P/N 810-1600)* is a configurable device intended for light commercial applications. The thermostat is a communicating, intelligent sensor and controller combination with built-in temperature and humidity sensors used to control systems such as conventional Rooftop Units (RTU) and Heat Pumps (HP). The thermostat communicates over a Modbus RTU network that easily integrates with a building management system (BMS). For more information, download the full user manual *(P/N 026-1739)* here:
https://climate.emerson.com/documents/026-1739-emerson-programmable-touchscreen-thermostat-installation-operation-manual-en-5390496.pdf





Thermostat Installation and Mounting

To open the thermostat enclosure, grip the top and the bottom edge of the front part of the device and pull straight. A certain physical resistance is normal from the 24x contacts pins (terminal strips and terminal blocks) that have to be separated during the operation.

To close the thermostat enclosure, make sure to align the top and the bottom tabs between the front part and the baseplate, and then push the front part firmly toward the wall. Again, some force is required to mate both parts.
Note that both top and bottom securing screws are optional and normally not installed on the units.
To fix the baseplate on a wall, pass the wires through the opening of the baseplate, and use either 2x self-taping screws and dry-wall anchors, or regular 6-32 machine screws to attach on a standard single-gang electrical junction box (2" x 4").

CAUTION! Do not over-tighten the screws when attaching the baseplate on a wall as physical damage may occur.
Keep the thermostat housing and vents clean and free of any debris to avoid malfunction of the device.

The thermostat should be mounted:

> About 5 ft (1.5 m) from the floor.
> On a part of wall without hidden pipes or ductwork.
> In a room that operating limits are within 32°F to 122°F (0°C to 50°C).
> In a room that humidity operating range is within 0% to 95% relative humidity, non-condensing.

The thermostat should not be mounted:

> Nearby a window, on an outside wall, or next to a door leading to the outside.
> Where exposed to direct light and heat from any heat source, such as a lamp, the sun, a fireplace, or any heating element which may cause a false reading (temperature measurement offset).
> Nearby a direct airflow from supply registers (air vent or duct outlet).
> In areas and locations with poor air circulation such as behind a door.

Thermostat Wiring and Connections

Once the baseplate is affixed on the wall, proceed with the wiring connections to the terminal block.

Thermostat Power		Thermostat Communication	
R	24VAC Power Supply	B+	RS-485 + Signal
Rc	24VAC Power Supply for Y1, Y2	A-	RS-485 - Signal
C	24VAC Power Supply Common	GND	Ground Reference for DC signals

Thermostat Power and Communication Matrix

2H / 2C System with 1 Transformer		2H / 2C System with 2 Transformers		Heat Pump Systems	
R	24VAC Power Supply	R	24VAC Power Supply	R	24VAC Power Supply
Rc	24VAC Power Supply for Y1, Y2	Rc	24VAC Power Supply for Y1, Y2	Rc	24VAC Power Supply for Y1, Y2
C	24VAC Power Supply Common	C	24VAC Power Supply Common	C	24VAC Power Supply Common
Y1	Cool Stage 1, relay output	Y1	Cool Stage 1, relay output	Y1	*Cool Stage 1, relay output
Y2	Cool Stage 2, relay output	Y2	Cool Stage 2, relay output	Y2	*Cool Stage 2, relay output
W1	Heat Stage 1, relay output	W1	Heat Stage 1, relay output	O/B	Reversing Valve, relay output
W2	Heat Stage 2, relay output	W2	Heat Stage 2, relay output	G	Fan Control, relay output
G	Fan Control, relay output	G	Fan Control, relay output		

*Shorting Jumper

*Shorting Jumper

Wiring and Connections

**For systems with only one stage, the second stage terminals (Y2, W2) can be left floating open.*

E2

New Installation and Uploading of Touch_TStat Description File to E2

The Programmable Touchscreen Thermostat *(P/N 810-1600)* requires adding a description file *(P/N 527-0729)* to E2. Contact Customer Service to obtain this information: *Solutions.CustomerService@Emerson.com*

NOTE: Ultrasite32 *Software must be installed to perform a description file upload.*

1. Connect to E2 using UltraSite32 (refer to the *UltraSite32 Manual P/N 026-1002*).
2. Launch the UltraSite program and log in.
3. Double-click to UltraSite to view **Directory Level** and **Site Level**.
4. Right-click on **Site Level** and click **Connect**.
5. Double-click on **Site Level** and locate the E2 Unit where the ***Touch T-Stat.dsc*** will be installed.
6. Right-click on the unit and select **Upload Description File**.
7. Click **Browse** and select the appropriate description (*.dsc) file for **Touch T-Stat.dsc** from the computer and click **Open**.
8. Click **Upload**. A window will display that the description file was successfully imported. Click **OK**. The description (*dsc) file should appear in the list.
9. Once completed, disconnect from the E2 and reboot the E2 controller - either manually with the toggle switch or remotely through Terminal Mode.

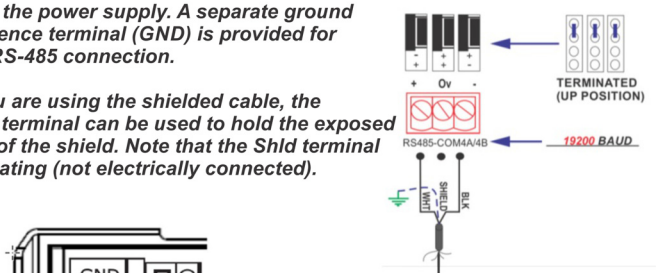
NOTE: DO NOT omit the step of rebooting the controller.

Device and COM Port Setup in E2

Modbus Device Setup

The RS-485 line of the transmitter is isolated from the power supply. A separate ground reference terminal (GND) is provided for the RS-485 connection.

If you are using the shielded cable, the Shld terminal can be used to hold the exposed part of the shield. Note that the Shld terminal is floating (not electrically connected).



Thermostat	E2
B+	+
A-	-

E2 COM Port Setup

1. Log into the E2 by pressing Log In/Out
2. Press Menu then 7 &, 3 #, and 1 ! to access General controller Info.
3. Press F2 twice to move to **C3: Serial** tab.
4. Press the  to select the Com Port that the device is wired to (**COM2**, **COM4** or **COM6**).
5. Press F4 for **LOOK UP** and select **MODBUS-1**, **MODBUS-2** or **MODBUS-3**.
6. Press Enter to set configuration.
7. Set the MODBUS connection as follows:
   - Press F4 to select options and press Enter to set the configuration.
     > **Com Baud**: 19.2 Kbaud
     > **Com Data Size**: 8
     > **Com Parity**: None
     > **Com Port Stop Bits**: 1
   - Press Enter to set the configuration.
8. Press  to save changes.
9. Press  to return to the **Home** screen.

Installing the Thermostat in E2

Installing the Thermostat Application

1. Press Menu, &7, &7, @2 to enter **Connected I/O Boards and Controllers**.
2. Press F2 once to move to **C3: ECT** tab. Highlight the application **Tch T-Stat** and enter the desired number of devices under **Quantity** up to **6**.

Commissioning the Thermostat

1. Press Menu, &7, &7, !1 to enter the **Network Summary** screen.
2. Highlight the **Tch T-Stat001** to be commissioned by pressing the down arrow and then F4
3. A window with **Select Network** appears on the screen, select the Modbus number where you configured the device and press Enter.
4. Select the address for the device and press Enter. Default for the device is **1**.
5. A window will appear. Press Enter and a confirmation will show **MODBUS Device Address is set**.

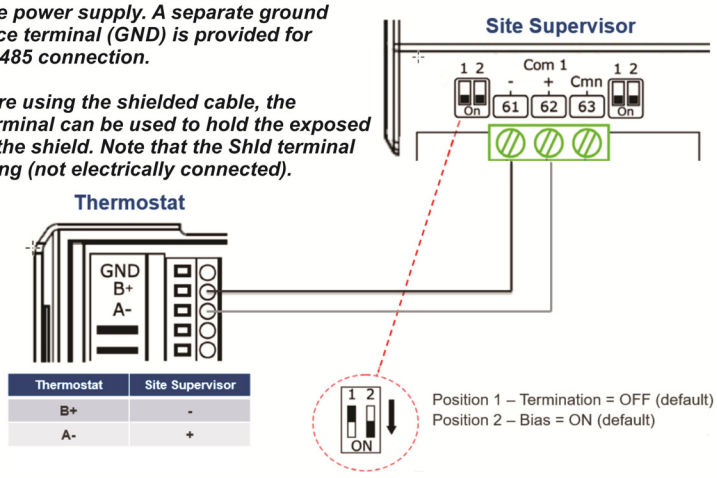
Site Supervisor

Device and COM Port Setup in Site Supervisor

Modbus Device Setup

The RS-485 line of the transmitter is isolated from the power supply. A separate ground reference terminal (GND) is provided for the RS-485 connection.

If you are using the shielded cable, the Shld terminal can be used to hold the exposed part of the shield. Note that the Shld terminal is floating (not electrically connected).



NOTE: The polarity of the MODBUS connection between Site Supervisor and Touchscreen Thermostat is reversed.

Site Supervisor COM Port Setup

1. Click the Settings icon (the gear) and select **General System Properties**.
2. Select the Com Port the device is wired to **(Com Port 1 - 4)**.
3. Select the available Modbus **(Modbus-01 - Modbus-04)**.
4. Set the Modbus connection as follows:
   > **Com Port Baud:** 19.2 Kbaud
   > **Com Port data size:** 8
   > **Com Port Parity:** None
   > **Com Port Stop Bits:** 1
5. Click **Save** to save the changes

Installing the Thermostat in Site Supervisor

Installing the Thermostat Application

1. Click the **Control Inventory** icon (the box) 
2. Expand the **HVAC** category and go to the **Add Control** drop-down list and select **Touch T-Stat**.

Commissioning the Thermostat

1. Click the **Port ID** drop-down list to select Modbus assigned to the Com Port selected.
2. Click the **Address** drop-down list to select the Modbus Address (default address is 1).
3. Click the **Association** drop-down list to select the **HVACZone** to associate with the thermostat.
4. Click **Update** to save settings.
5. Wait a few seconds and the device should appear **Online**.
6. Click the name of the application to view the Status Screen.

Scan the QR code to download the full user manual P/N 026-1739