Equipment Touch (EQT1-5)

Installation and Setup Guide

 • Catalog No. 11-808-950-01 • 8/1/2024

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Important changes are listed in **Document revision history** at the end of this document.

Contents

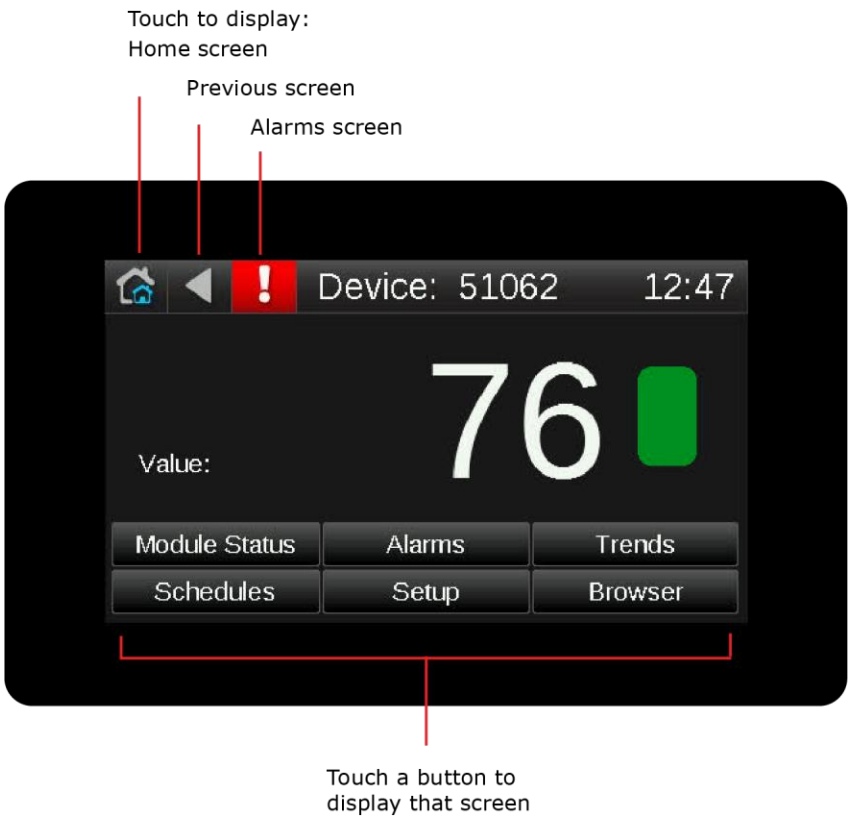
What is the Equipment Touch?

The Equipment Touch is a touchscreen device with a 5.0 in. color LCD display that you connect to the Rnet port of one of the following controllers to view or change its property values, schedule equipment, view trends and alarms, and more, without having to access the system's server.

- i-Vu® Open Router
- i-Vu® Open Link
- AppController
- Fan Coil Open
- MPC Open XP
- RTU Open
- TruVu contollers
- UC Open
- UC Open XP
- UPC Open*
- Unit Vent Open
- VAV Zone Single Duct
- VAV Zone Fan Terminal
- VVT Bypass
- VVT Zone
- WSHP Open
- W2W Open

NOTE Requires controller driver v6-00-082 or later.

* The Equipment Touch does not support the following microblocks in a UPC Open controller:
Carrier Schedule
Carrier Binary Point
Carrier Binary Value
Carrier Zone Setpoint for Integration



You wire the Equipment Touch to the controller's Rnet port. The Equipment Touch must be powered by an external power source. The Rnet can have one Equipment Touch, plus ZS sensors and/or a Wireless Adapter that communicates with wireless sensors.

NOTE The Equipment Touch cannot share the Rnet with SPT Sensors or a TruVu™ ET Display.

You can install and run the Equipment Touch with only its built-in system screens, or you can create a customized touchscreen file in ViewBuilder. This requires that you:

1 Create customs screens in ViewBuilder, and then save the touchscreen (.touch) file. See "Working with touchscreens" in ViewBuilder Help.

2 In the i-Vu® interface, right-click the controller and select **Driver Properties** to attach the touchscreen file.

3 Download **All Content** to the controller. See "Downloading to controllers" in i-Vu® Help.

Specifications

Power	24 Vac (±15%), 5 VA, 50–60 Hz, Class 2 external power supply 12–24 Vdc **NOTE** The Equipment Touch cannot be powered by the controller's Rnet port.
Display	5.0 in. capacitive touchscreen (Wide VGA, 800 x 480 pixels)
Enclosure	PC+ABS plastic with glass screen
Ports	• EIA-485 based serial port for Rnet communication • USB-C host port
Microcontroller	32-bit
Memory	• 32 MB Flash memory to store program code and screen file • 16 MB RAM to store variable data and LCD data • 8 KB Serial EEPROM to store non-volatile configuration data • 1.6 MB maximum file size
Real-time clock	A 365-day real time clock/calendar chip. The time and date will be maintained for a minimum of 72 hours after loss of power (at room temperature).
Temperature sensor	Range: -4.0°F to 140°F (-20°C to 60°C) Accuracy over 30.0°F to 100°F: ±1.0°F (±0.55°C) Accuracy over full range: ±2.0°F (±1.1°C) Resolution: 0.2°F (0.1°C)
Humidity sensor	Range: 0 to 100% RH Accuracy over 20 to 80% RH: ±3.0% RH Accuracy over full range: ±5.0% RH Resolution: 0.05% RH
Environmental operating range	32ºF to 104ºF (0ºC to 40ºC), 10–90% RH, non-condensing
Mounting	Wall or panel mounting within the building interior.
Overall dimensions	Width: 5.30 in. (13.47 cm) Height: 3.70 in. (9.41 cm) Depth: 0.79 in. (1.99 cm)

Backplate dimensions	Width: 4.20 in. (10.67 cm) Height: 3.59 in. (9.11 cm)
Weight	8 oz. (0.23 kg)
Listed by	UL-60730 (PAZX); CE; 47 CFR FCC Part 15, Subpart B; ANSI C63.4: 2014; ICES-003, Issue 7; ICES-GEN, Issue 2
Device identification	The Equipment Touch's box contains a label with the product name and the serial number that begins with **EQC**. Remove the front of the Equipment Touch and turn it over to see the serial number on a label attached to the control board.

Equipment Touch screens

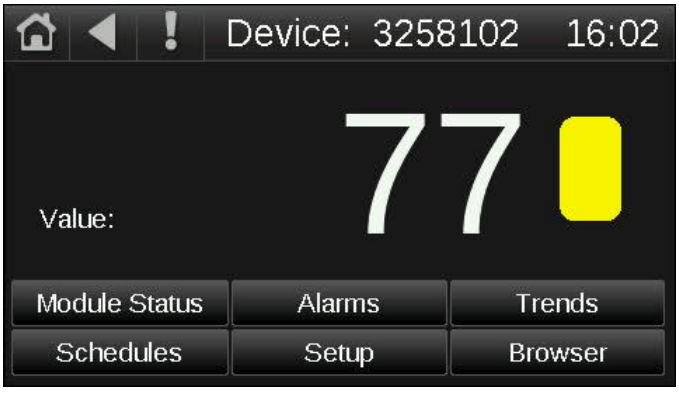
The Equipment Touch will display the system screens below as well as custom-designed screens.

Screen name	Description
Standby	If included in the touchscreen file, a custom screen that displays when the Equipment Touch has had no user activity for the time specified on the **Inactivity Timeout** screen. The **Standby** screen is not interactive, and as soon as you touch the screen, the **Home** screen displays. If the touchscreen file does not include a Standby screen, the Home screen displays after a period of inactivity.
Home	A custom screen for the Equipment Touch.

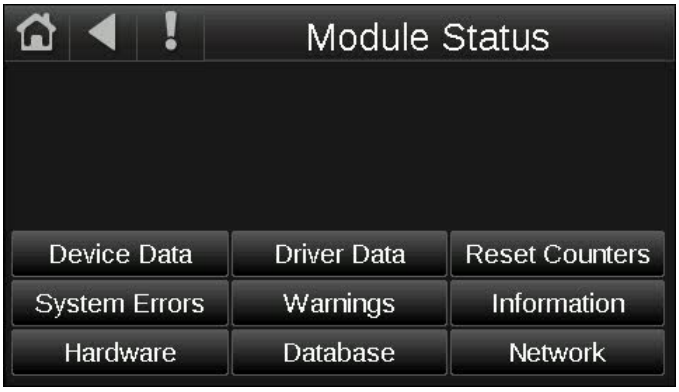
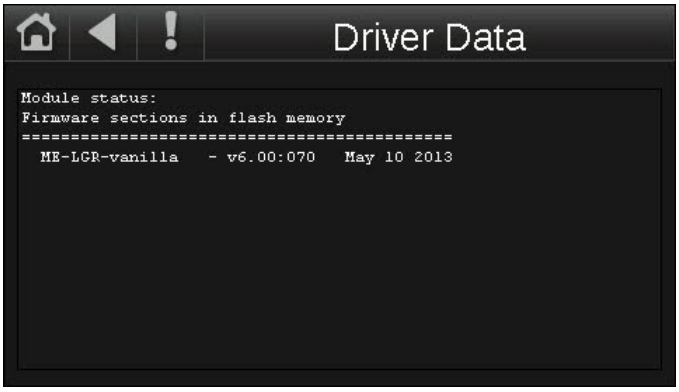
<table>
<tr><th>Screen name</th><th>Description</th></tr>
<tr><td>Login</td><td>

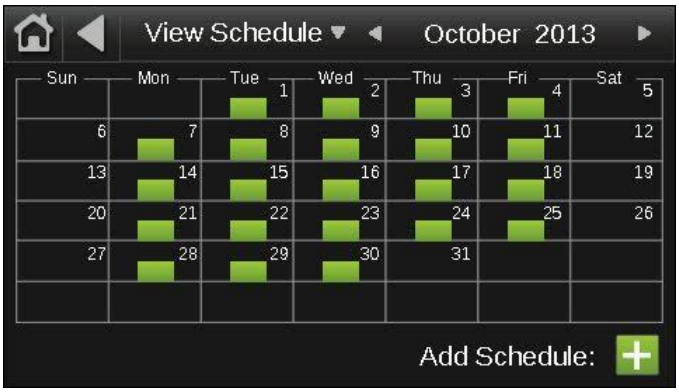

Displays if the screen you selected requires a password. Enter your password, then touch Done.
Each screen is programmed with one of the following password levels:
<table>
<tr><th>A screen requiring this password level...</th><th>Can be accessed by...</th></tr>
<tr><td>User</td><td>A user logged in with the User, Admin, or Factory password</td></tr>
<tr><td>Admin</td><td>A user logged in with the Admin or Factory password</td></tr>
<tr><td>Factory</td><td>A user logged in with the Factory password</td></tr>
<tr><td>No password</td><td>Anyone</td></tr>
</table>
NOTES

The default password for a new Equipment Touch is admin.
You can change passwords on the Touchscreen Setup (page 20) > Passwords screen.
You log out on the Setup screen.

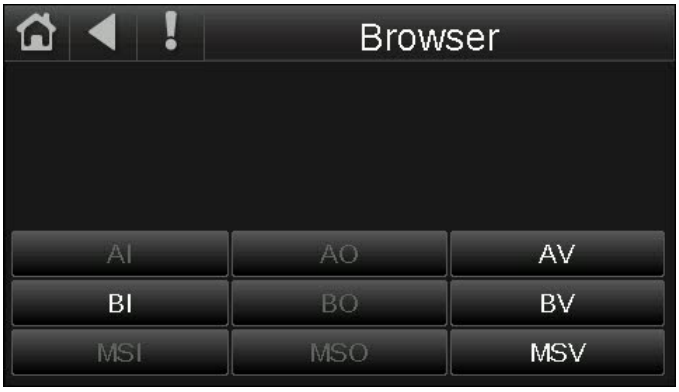
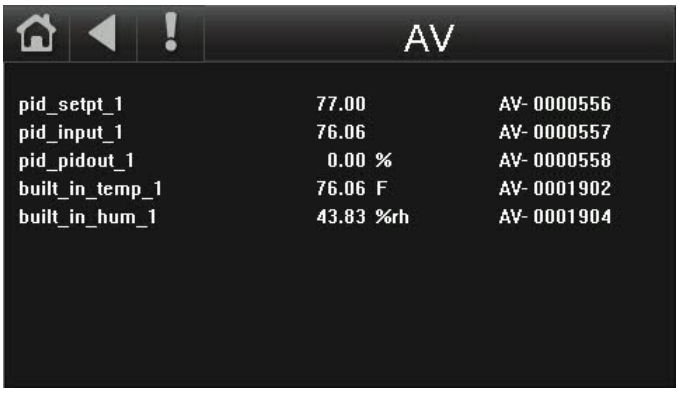
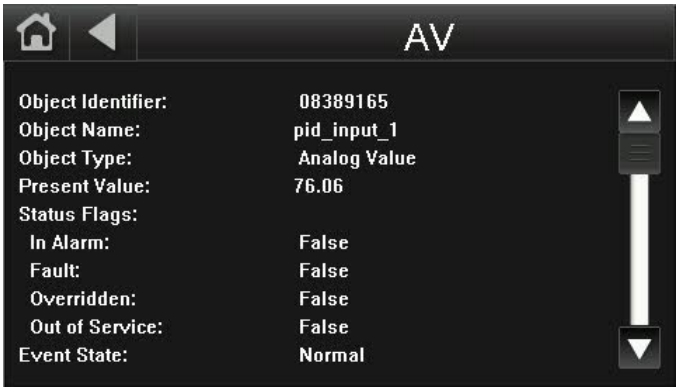
</td></tr>
<tr><td>System</td><td>


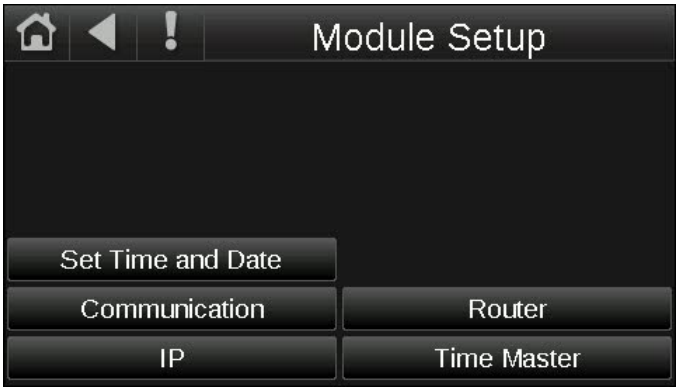
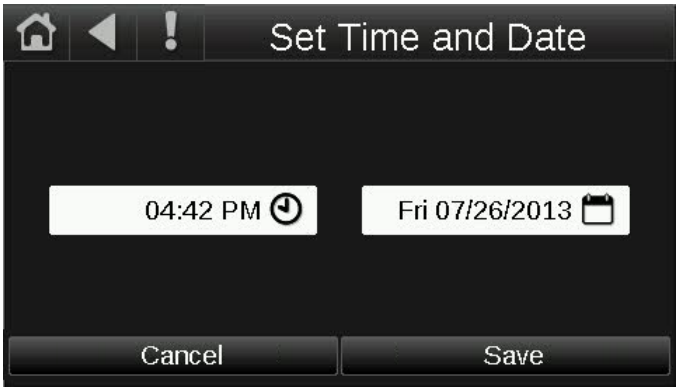
Displays the BACnet device instance number, the controller's time, temperature read from the controller's prime variable, and zone color. Touch a button to jump to the Module Status, Alarms, Trends, Schedules, Setup, or Browser screen.
</td></tr>
</table>

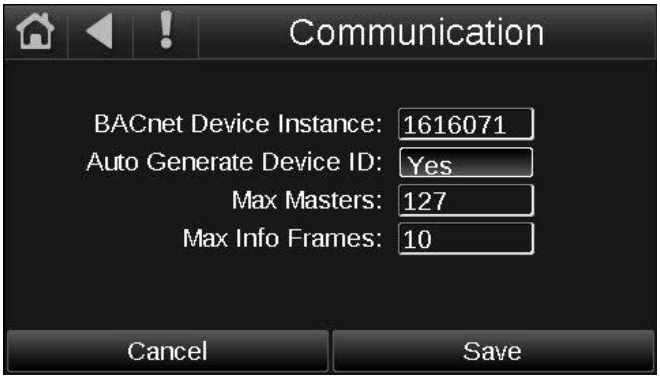
Screen name	Description
Module Status	 Touch a button to see one of the following sections of a Module Status report: **Device Data**, **Driver Data**, **Reset Counters**, **System Errors**, **Warnings**, **Information**, **Hardware, Database**, **Network**. For example, the screens below show examples of the Driver Data and Reset Counters information.  

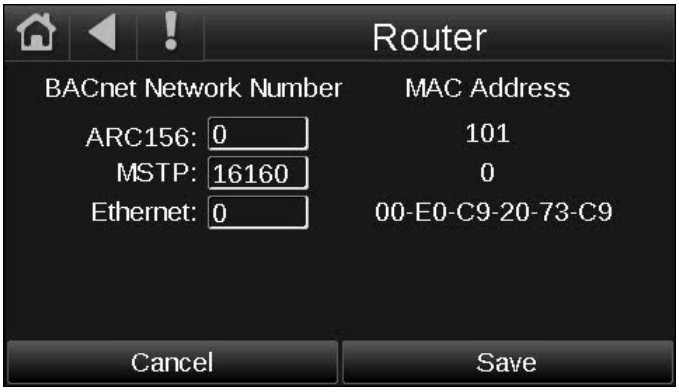
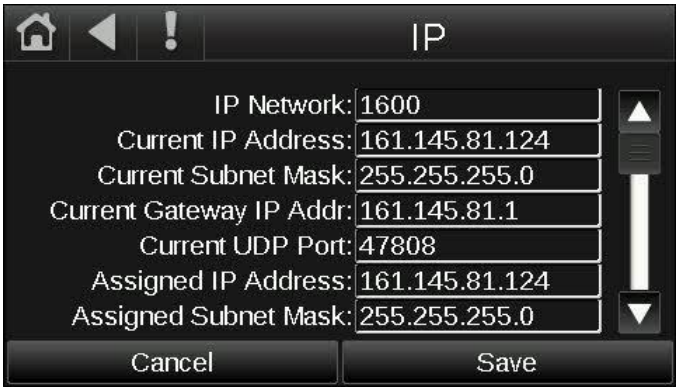
Screen name	Description
Alarms	 Lets you view alarms from the controller. See "Viewing alarms" in the *Equipment Touch User Guide*.
Trends	 Lets you view trends for points that have trending enabled. See "Viewing trends" in the *Equipment Touch User Guide*.
Schedules	 Lets you view, add, edit, or delete BACnet schedules in the controller. See "Setting up schedules" in the *Equipment Touch User Guide*.

Screen name	Description
Setup	 Touch a button to jump to the **Module Setup**, **Touchscreen Setup**, or **Login** screen.

Screen name	Description
Browser	 Touch a button to see that type of BACnet objects found in the controller. Each screen shows a list of network-visible BACnet objects with BACnet Object Name, Current Value, and BACnet Object Instance number. Below is an example of AV BACnet objects in a controller.  Touch an object in the above screen to see the details shown below. 

Screen name	Description
Module Setup	 Touch a button to jump to the **Set Time and Date**, **Communication**, **Router**, **IP**, or **Time Master** screen. **NOTE** A yellow value on a Module Setup screen indicates the value has been changed.
Set Time and Date	 Touch the time or date field to edit it.

Screen name	Description
Communication	 Lets you edit the information below for the controller. Touch a field to tap in new information. **BACnet Device Instance** number **Auto Generate Device ID**–Enter No or Yes You can edit the following fields that pertain to the controller's MS/TP network: **Max Masters** - Set this to the highest MAC address (up to 127) on the MS/TP network. If you later add a device with a higher address, you must change this field to that new address. **Max Info Frames** - Specifies the maximum number of information messages a controller may transmit before it must pass the token to the next controller. **CAUTION** Increasing this number allows the controller to transmit more messages while it has the token, but it also increases the overall time it takes for the token to pass through the network. • For a router, set this value to a high number such as 200. • In non-router controllers, use the following formula to calculate this value: [2 - (devices * (.002 + (80/baud))] / [(600/baud) * devices] = Max Info Frames For example, if the network has 15 devices at 19200 baud, Max Info Frames would be 4. **NOTE** You may need to increase the result of the formula for controllers that need to communicate many values to other devices.

Screen name	Description
Router	 Lets you view or edit the router's ARC156 or MS/TP network number. Touch a field to tap in the new number on the keypad. **NOTE** BACnet Ethernet network support will be added in a future release.
IP	 Lets you view or edit network addresses and the UDP Port. Touch a field to tap in the new number on the keypad.

Screen name	Description
Time Master	 If the system does not have a front-end, you should designate a controller to be the BACnet Time Master. If a controller will be the BACnet Time Master, this screen lets you configure how it sends time synchronization broadcasts. **Time Sync Mode** - Tap in the number below that represents your selection: • **0 = No Broadcast** - The controller does not act as Time Master. • **1 = Local Broadcast** - If it does not already exist, a BACnet address with network number and MAC address length both set to zero is added to the controller's **Time Synchronization Recipients** list found on the driver's **Device** page in the i-Vu® interface. The controller then sends time broadcasts only to controllers on its ARCnet or MS/TP network. • **2 = Global Broadcast** - If it does not already exist, a global address with network number set to 65535 and MAC address length set to zero is added to the controller's **Time Synchronization Recipients** list found on the driver's **Device** page in the i-Vu® interface. The controller then sends time broadcasts to all its connected networks. **Time Sync Interval** - Enter how often local or global time broadcast should be sent (1-9999 minutes). If **Time Sync Interval** is set to zero, no time sync messages are sent. **NOTE** If the controller looks through its Time Synchronization Recipient List and finds an entry with MAC address length set to zero and network number set to 65535, the controller's BACnet Time Master mode is set for Global Broadcast. If there is no global broadcast entry in the recipient list, the controller then looks for a local broadcast address (MAC address length set to zero and network number set to zero or to the same network number as the module's). If such an entry is found, the BACnet Time Master mode is set for Local Broadcast. Otherwise, the mode defaults to Disabled/None.
Touchscreen Setup	Lets you *edit the touchscreen setting*s (page 20).

Wiring and mounting the Equipment Touch

CAUTION If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Mounting

The Equipment Touch must be mounted within the building interior. You can mount the Equipment Touch:

- In a panel with the controller or on the panel door
- On a wall up to 500 feet from the controller

Wiring

The Equipment Touch requires an external 24 Vac power source.

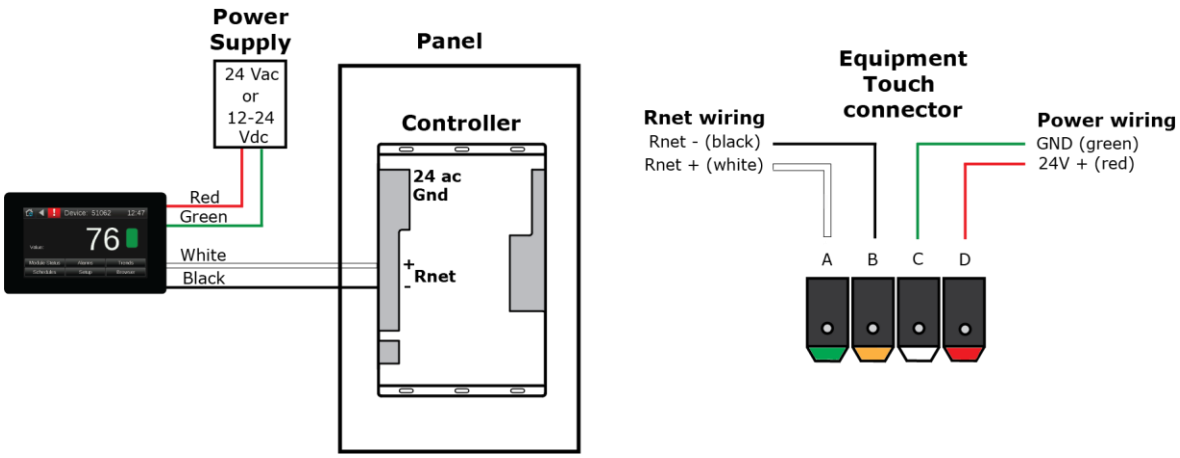
WARNING Do not share power between the Carrier controller's 24 Vac transformer and an external 24 Vdc power supply unless both devices are half-wave.

CAUTION The Equipment Touch can share a power supply with the Carrier controller as long as you:

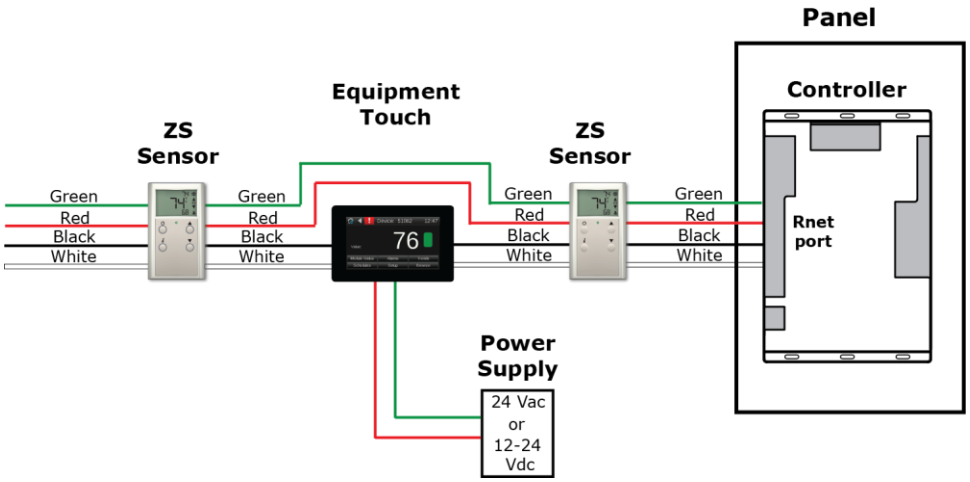
- Maintain the same polarity.
- Use the power supply only for Carrier controllers.

See:
Wiring specifications (page 14)
To wire and mount the Equipment Touch (page 15)

- Wire the Equipment Touch directly to the controller's Rnet port as shown below.



- Wire the Equipment Touch in a daisy-chain configuration with other Rnet devices as shown below.



NOTE You do not need to set an address for the Equipment Touch.

Wiring specifications

Power wiring

2-conductor wire 18 AWG for distances up to 100 feet. All transformer secondaries must be grounded. Wiring connections must be in accordance with NEC and local codes.

Rnet wiring

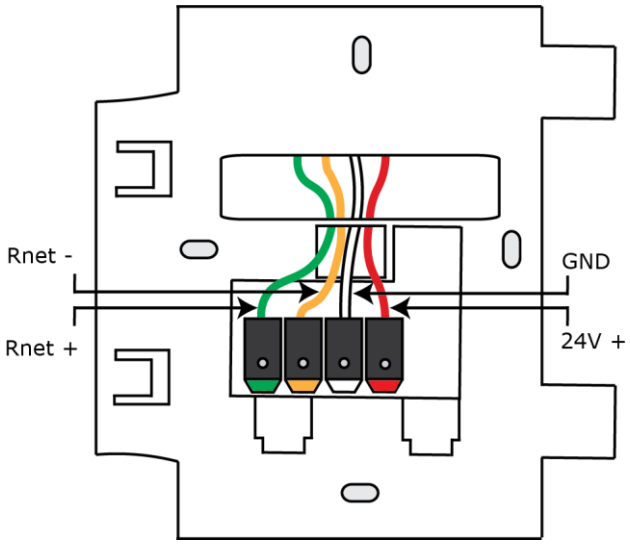
NOTE If you wire the Equipment Touch directly to the controller's Rnet port, you can use a 2-conductor cable instead of the standard 4-conductor Rnet cable.

Description	4-conductor, shielded or unshielded, CMP, plenum rated cable
Conductor	22 AWG (7x0096) bare copper
Maximum length	500 feet (152 meters)
Insulation	Low-smoke PVC (or equivalent)
Color Code	Black, white, green, red
Shielding	If shielded, Aluminum/Mylar shield (100% coverage) with TC drain wire
UL temperature rating	32–167°F (0–75°C)
Voltage	300 Vac, power limited
Listing	UL: NEC CL2P, or better

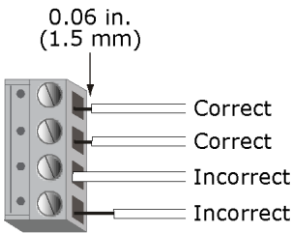
To wire and mount the Equipment Touch

1. Remove the backplate from the Equipment Touch. While firmly pressing the 2 tabs on top of the Equipment Touch, pull on the backplate with your index finger until the backplate releases from the Equipment Touch.
2. Pull the power and communication wiring through the hole in the center of the backplate. See figure in step 5.
3. If wiring 1 cable to the Equipment Touch, cut the shield wire off at the outer jacket, then wrap the cable with tape at the outer jacket to cover the end of the shield wire.

   If wiring 2 cables in a daisy-chain configuration, twist together the shield wires, then wrap the shield wires with tape.
4. Strip about 0.25 inch (0.6 cm) insulation from the end of each wire.
5. Connect wiring to the Equipment Touch as shown below:



CAUTION Allow no more than 0.06 inch (1.5 mm) bare communication wire to protrude. If bare communication wire contacts the cable's foil shield, shield wire, or a metal surface other than the terminal block, the device may not communicate correctly.



6 Attach the backplate to the wall or panel. If mounting in or on a panel:

a) Drill two 3/16 inch (4.8 mm) pilot holes in the panel.

b) Attach backplate using pan head 6-32 x 3/8" to l/2" long machine screws. Do not overtighten screws to prevent damage to plastic housing.
RECOMMENDATION Use Loctite 220 on screw threads if the Equipment Touch will be subject to vibration.

7 Attach the Equipment Touch to the backplate:

a) Place the bottom of the Equipment Touch onto the backplate by aligning the 2 slots on the Equipment Touch with the tabs on the backplate.

b) Push the Equipment Touch onto the backplate until the tabs at the top of the Equipment Touch snap onto the backplate.

CAUTION Be careful to avoid bending the connecting pins when attaching the Equipment Touch onto the backplate.

8 Turn off the controller's power.

9 Connect power wiring to a 24 Vac or 12–24 Vdc power supply.

10 Turn on the controller's power.

To set up scheduling functionality

You can define BACnet schedules for each time clock microblock in the controller's control program(s).

To allow a user to create schedules on the Equipment Touch:

1 In the i-Vu® or Field Assistant tree, right-click the controller, and then select **Driver Properties**.

2 On the **Settings** tab, scroll down to **TouchScreen Control** and verify that **TouchScreen Schedule Edit Enable** is checked.

CAUTION If scheduling will be done in the i-Vu® interface, you should disable scheduling in the Equipment Touch so that they do not overwrite each other's schedules. To disable scheduling, uncheck **TouchScreen Schedule Edit Enable**.

Using the Equipment Touch's temperature and humidity sensors to control equipment

To set up the sensors on the Equipment Touch

Go to **Setup** > **Touchscreen Setup** > **Sensor Setup**.

On this screen, you can:

- **Disable transmission of the temperature and humidity**—See NOTE below.
- **Set an offset**—Enter a correct temperature/humidity value to create an offset for all future values.

NOTES

- The **Deg F** and **Deg C** setting is determined by the controller's control program.
- Remote Temperature Sensors are not currently supported.

To use the temperature or humidity value in a control program

1 In Snap, place a BACnet Analog Value Parameter microblock 

in your control program.

2 Enable the **Network Visible** field.

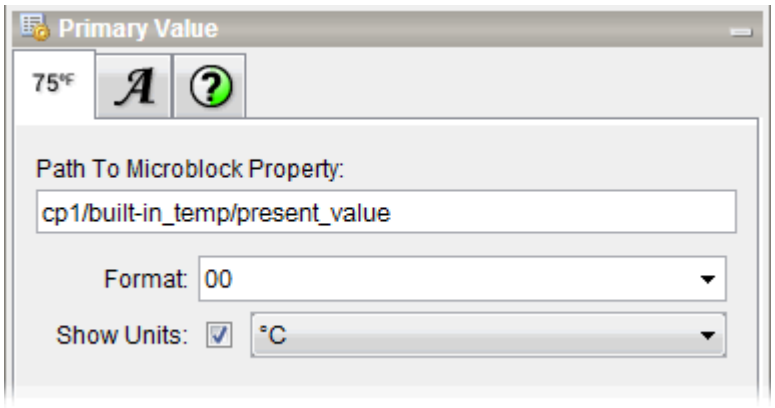
3 In the **Object Instance** field, select **Use specific value**, then enter one of the following:

1902 for Temperature
1904 for Humidity

NOTE By default, the Equipment Touch transmits its temperature value (av: 1902, writes every 1 minute) and relative humidity value (av: 1904, writes every 5 minutes). If the 1902 or 1904 object instance numbers are to be used in a different manner, you can turn off the transmission of the temperature and humidity values. See *To edit touchscreen settings* (page 20).

To display the temperature or humidity value on a custom screen

In ViewBuilder, add a Primary Value or Number control to the screen, and then set the **Path To Microblock Property** to <control program instance>/<AV mb reference name>/present_value.



NOTE The Units setting (°F or °C) affects only what you see in ViewBuilder, not the primary value shown on the Equipment Touch.

To edit touchscreen settings

1 On the **System View** screen, touch **Setup** > **Touchscreen Setup**.

2 Touch a button to jump to one of the following screens:

Screen	Description
About	Displays information about the touchscreen firmware.
Inactivity Timeout	Lets you define how long the Equipment Touch can have no activity before returning to the Standby screen and logging out the user. Set to 0 to deactivate this feature.
Sensor Setup	Lets you set up the Equipment Touch's temperature and humidity sensors. See Using Equipment Touch's temperature and humidity sensors to control equipment.
Clean Screen	Displays a one-minute countdown timer so that you can clean fingerprints from the display window without touching something that would affect equipment operation.
Reload Firmware	Erases the current firmware so that you can load new firmware through the USB-C port. See To update the Equipment Touch's firmware.
Language	 English, German, Portuguese, Simplified Chinese, French, Italian, Korean, Spanish, Japanese, Traditional Chinese, Swedish, Thai, Russian If optional languages were defined when the touchscreen file was created, this screen lets you select which language to use for Equipment Touch system screens. If custom screens were included in the touchscreen file, they will display in the language that they were created in.
Passwords	Lets you change the User or Admin password, if allowed. **NOTE** The default password is **admin**.

To update the Equipment Touch's firmware

The Equipment Touch has a USB-C port on the right side that allows you to update the device's firmware from a USB flash drive. You must use either a USB-C compatible flash drive or use a USB-A to USB-C adapter to connect a USB-A flash drive.

PREREQUISITE The USB flash drive must be formatted as FAT, FAT16, or FAT32. To verify, right-click the flash drive in Windows Explorer, then select **Properties**. **File system** should show **FAT**xx. If **File system** shows NTFS or anything else, you must reformat the drive. Right-click the flash drive, then select **Format**. In the **File system** field, select **FAT (Default)**, then click **Start**.

CAUTION Follow the steps below in order. If you select **Reload Firmware** (step 3) on the display before you insert the USB drive (step 2), the touchscreen will become inoperable.

To update the firmware:

1. Create a folder on the flash drive called **Touch**, then put the ETxxxxxx.hex file in the folder.
2. Plug the flash drive into the Equipment Touch's USB-C port.
3. From the System screen, touch **Setup** > **Touchscreen Setup** > **Reload Firmware**.
4. A warning message appears. Touch **Yes** to continue.
5. The following series of messages appear:
   Erasing application download area...
   Reading Firmware Image from USB
   Valid application image found, preparing firmware update...
   Erasing application execution area...
   Programming application image...

   If the file failed to download, verify that you have placed the file correctly in step 1.
6. When the Home screen appears, remove the flash drive.

To update ViewBuilder files

When using a native 4-inch file with the 5-inch version of the Equipment Touch, the display is not full size and contains a black border around the screen. To fill the screen to full size, you must update your 4-inch touch files to accommodate the 5-inch Equipment Touch device.

NOTE 5-inch touch files are only compatible with the 5-inch Equipment Touch device. 4-inch touch files that you have updated to 5-inch files cannot be viewed on a 4-inch device.

1. Launch ViewBuilder.
2. Open the .touch file that was originally created for the 4 inch version of the Equipment Touch.

   TIP Upon opening the file, the bottom of the ViewBuilder window displays which device the file is associated with.
3. Click **File** > **Upgrade (4" to 5" display)**.
4. Save the file. Repeat this process for each file to update.

Resetting the Equipment Touch

You can create a reset.dat file and put it on a USB flash drive to reset some of the Equipment Touch's functionality. You must use either a USB-C compatible flash drive or use a USB-A to USB-C adapter to connect a USB-A flash drive.

PREREQUISITE The USB flash drive must be formatted as FAT, FAT16, or FAT32. To verify, right-click the flash drive in Windows Explorer, then select **Properties**. **File system** should show **FAT**xx. If **File system** shows NTFS or anything else, you must reformat the drive. Right-click the flash drive, then select **Format**. In the **File system** field, select **FAT (Default)**, then click **Start**.

1. Insert the USB flash drive into your computer.
2. Create a folder on the flash drive named **Touch**.
3. In a text editor such as Notepad, start a new file.
4. In the file, type a function number from the table below.
5. Save the file to the flash drive's **Touch** folder with the name **reset.dat**.
6. For the second function 01 in the table below, copy any updated firmware .hex file into the **Touch** folder.
7. Insert the flash drive into the USB-C port on the right side of the Equipment Touch.
8. Cycle power to the Equipment Touch.

If...	Then you should...	Function number
You cannot get to the **Touchscreen Setup** screen	Restart the firmware	01
You need to quickly update the firmware on several Equipment Touch devices	Reload the firmware—place the new firmware in the **Touch** folder with the reset.dat file.	01
• You want to carry your Equipment Touch from site to site • Your Equipment Touch has a unrecoverable error	Reset factory defaults	04

Compliance

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1 This device may not cause harmful interference.

2 This device must accept any interference received, including interference that may cause undesired operation.

NOTE This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with this document, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CAUTION Any modifications made to this device that are not approved by Carrier will void the authority granted to the user by the FCC to operate this equipment.

CE and UKCA Compliance

WARNING This is a Class B product. In a light industrial environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Industry Canada Compliance

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Document revision history

Important changes to this document are listed below. Minor changes such as typographical or formatting errors are not listed.

Date	Topic	Change description	Code*
8/1/24	Wiring and mounting the Equipment Touch	Added caution note regarding sharing power	X-TS-JC-J
	To update ViewBuilder files	Clarified compatibility between files and devices	AO-PM-RD-E

* For internal use only