WiFi FAQ, Setup and Troubleshooting Guide

FAQ

Do I need to connect my device to WiFi?

The device will function as a thermostat or snow melting control without connecting to the Internet. The benefits of connecting include:

- Remote access through the Watts Home mobile app
- Notifications through email or SMS text messages if there is a problem with the device or the equipment requires servicing
- Time is automatically set
- Weather and outdoor temperature is used to provide energy savings
- Automatic software updates

Is the Internet connection secure?

The tekmar device uses two layers of security:

1. WiFi WPA2 security inside your building's network.

2. TLS encryption to connect from the device to the Watts cloud computer servers. This is the same technology used to secure online banking and shopping.

All tekmar devices are independently security tested and the software is regularly updated to ensure it meets the latest security protocols and best practices.

The Watts Home mobile app uses these same two layers of security and uses Microsoft Active Directory to secure and validate your login account. In addition, Watts takes precautions to protect your personal information. Please read our privacy policy for more information.

Setup

How do I connect my device to WiFi?

The tekmar devices are compatible with 2.4 GHz version N compatible WiFi routers and access points. If only 5 GHz is available, then a 2.4 GHz channel will need to be setup. If this is the case, you will need to check the router configuration. Many routers have a label with instructions on how to access the configuration settings. If you require assistance, please contact your Internet Service Provider (ISP) or an IT professional.

1. On the WiFi Thermostat 561, 562, 563:
    Press Gear > WiFi > Tutorial

On the WiFi Snow Melting Control 670 & 671:
Press Settings > WiFi
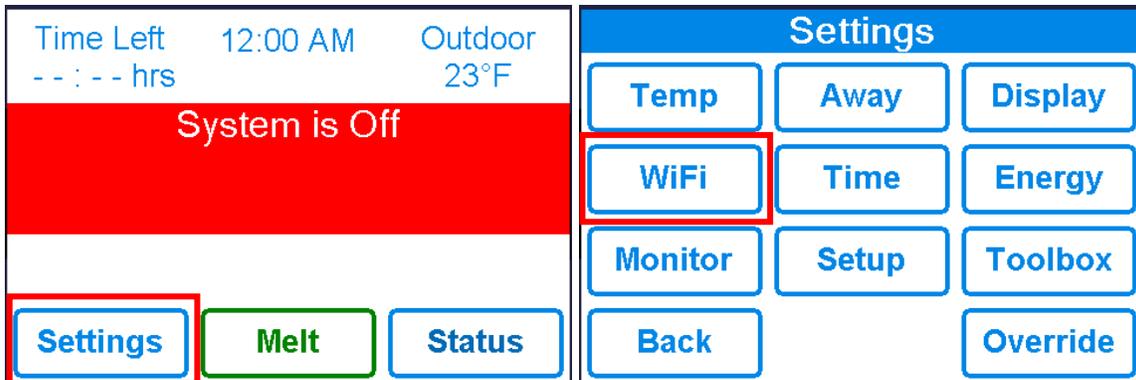
2. You will be asked to accept the Terms of Use agreement. If you decline, then the device is unable to connect to the connected services.
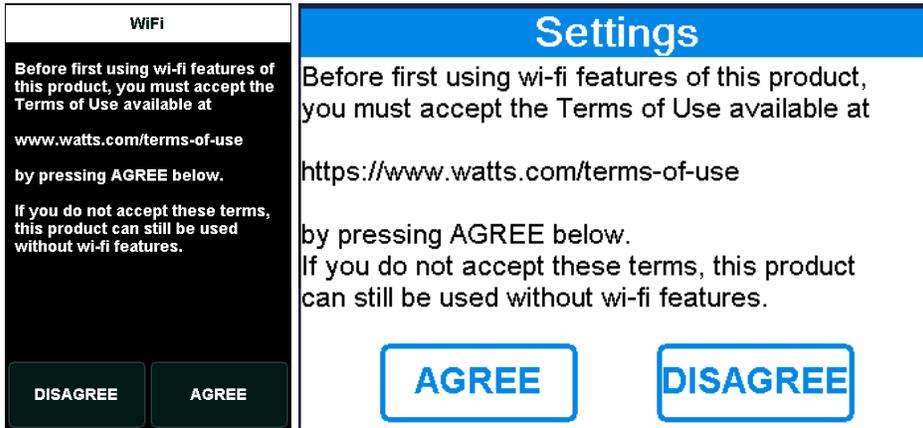
3. The device will show a list of available WiFi networks. Select the desired WiFi Network from the dropdown list. For WiFi networks with a hidden SSID, the SSID name can be manually entered.
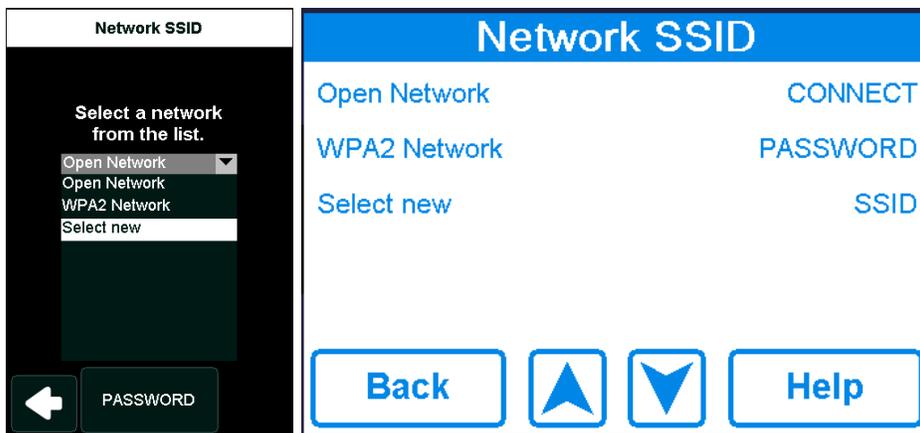
4. Enter the password for the selected WiFi network and press Connect. This step is not required for open WiFi networks. The password is limited to 32 characters, and can include upper and lower case letters, numbers, special characters, and spaces. Spaces count as a character.
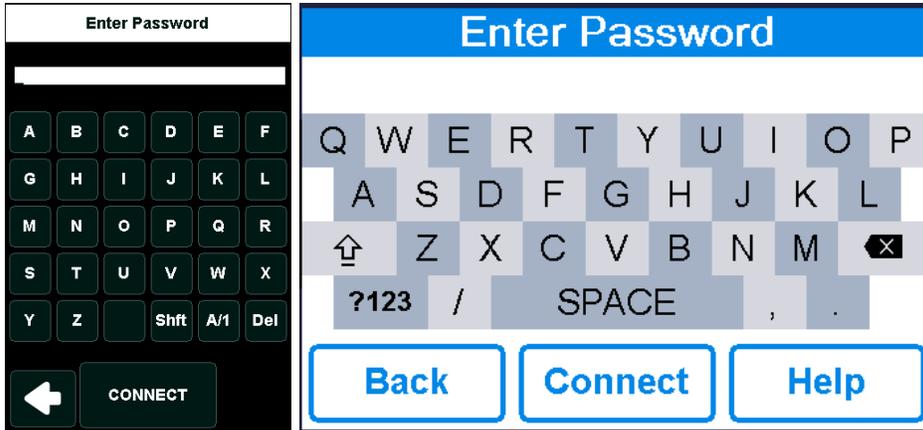
5. Wait for the device to show that it has successfully connected to the router and press ok.

6. When the device successfully connects to the Watts cloud servers, the thermostat will check for any available firmware updates. If a newer version is available, the device will automatically update to the latest version. This process may take several minutes to complete.
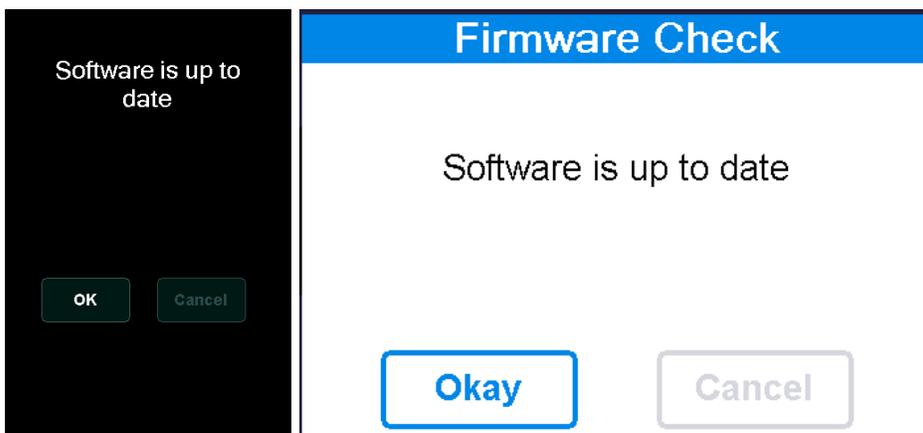
Troubleshooting

Troubleshooting WiFi and connectivity problems can be broken into 3 steps:

1. WiFi Connection to Router
2. Connection to Internet
3. Connection to Watts Cloud

Step 1 – WiFi Connection to Router

If the tekmar device is having difficulty connecting to WiFi, please follow these steps:

Check the WiFi network connection

To check the WiFi network connection information on the WiFi Thermostats 561, 562, 563:
Press Gear > WiFi > WiFi: On > Information button (circle with an i)
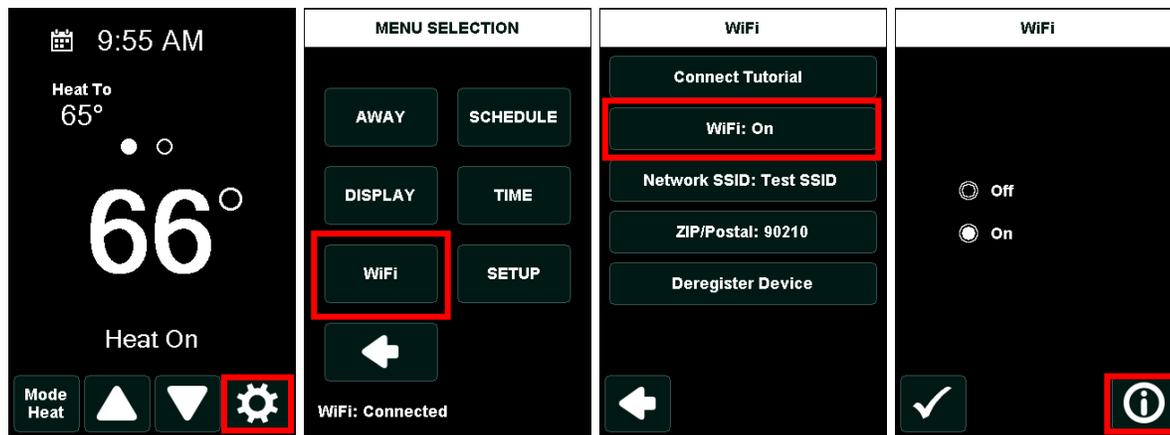
To check the WiFi network connection information on the WiFi Snow Melting Controls 670 and 671: Press Settings > WiFi > Help

Time Left --:--hrs 12:00 AM Outdoor 23°F	Settings	WiFi
System is Off	Temp / Away / Display	WIFI .... On
	WiFi / Time / Energy	Network SSID .... ---> Postal/Zip 22345
Settings / Melt / Status	Monitor / Setup / Toolbox Back / Override	Register Device Back / ▲ / ▼ / Help
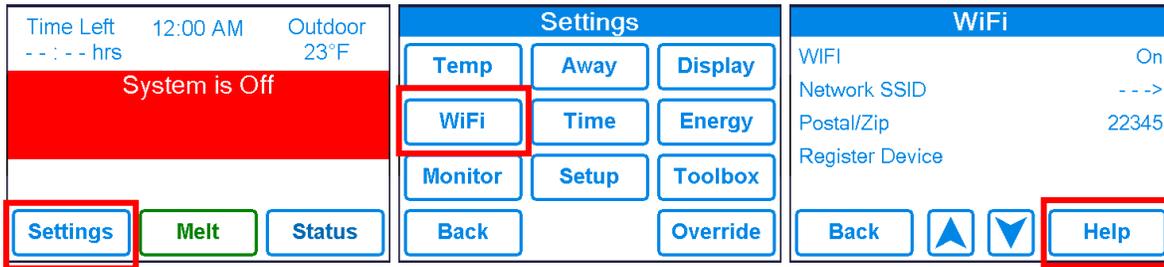
The screen will display the following information:

Parameters	Thermostat	Snow Melt Control
• IP address • Subnet mask • Gateway • MAC address • Signal strength • IoT connection status • Internet connection status • Device ID	**WiFi** **Enable or disable WiFi connectivity.** **IP Address: 192.168.0.23** **Subnet Mask: 255.255.255.0** **Gateway: 192.168.0.1** **MAC Address: 40:74:E0:D2:05:C8** **Signal Strength: 0 dB** **IoT: Connected** **Internet: Connected** **Id:04df5643-e5ba-5347-8a1f-8c95c b9230d7** ✓	**WiFi** IP Address: 192.168.0.23 Subnet Mask: 255.255.255.0 Gateway: 192.168.0.1 MAC Address: 40:74:E0:D2:05:C8 Signal Strength: 0 dB IoT: Connected Internet: Connected ID: caff620c-bed9-5a0e-8972-b8f648af09d8 **Back**

If the device reports that it is connected to the Internet, you may skip ahead to step 2; otherwise, please check the items below.

Power the device and router off and on

Connection issues may be the result of a problem with either the device, the router or an interaction between the two devices. Power off both devices and turning the power on may correct the issue.

a. First, power off the thermostat by removing the thermostat front from the wall mount. Snow melting controls can be powered off by using a power switch located in the mechanical room.

b. Second, disconnect power to the router. Leave both the router and tekmar device off for one minute, then power the router back on first.

c. Lastly, once the router is on and is connected to the internet, the thermostat front can be reinstalled to power on or the power to the snow melt control can be turned back on.

Check the signal strength

Check that the Internet is connected and that the signal strength is between -10 to -69 dB. A signal strength between -70 dB and -99 dB may have an unreliable connection to the router and the Watts cloud. The WiFi signal strength can be impacted by the number of nearby WiFi signals, and this can be improved by selecting to use automatic channels. You can also consider installing WiFi Extenders or WiFi Access Points closer to the device to provide better WiFi signal coverage within the building. Please contact an Internet Service Provider (ISP) or IT professional for assistance with installing these devices.

Check the password length and format

The password is limited to 32 characters, and can include upper and lower case letters, numbers, special characters, and spaces. Spaces count as a character.

Check for WPA2 security

There are several types of WiFi security protocols including WEP, WPA, WPA2, WPA2-Enterprise, and WPA3. The tekmar devices are compatible with Open and WPA2 security. Open WiFi offers no WiFi security and is not recommended. Connect your mobile phone to the WiFi network and check the WiFi settings to determine the type of WiFi security being used. If the WiFi network does not support WPA2 security, the router configuration may need to be changed or a second router can be added to create a new WiFi subnet that uses WPA2 security. If you require assistance, please contact your Internet Service Provider (ISP) or an IT professional.

Check the IP address

Check the device for an IP address, subnet mask and gateway address other than 0.0.0.0. The tekmar device relies on automatic addressing through a router's DHCP server. If the tekmar device has an address of 0.0.0.0, the DHCP server may be off or may have a limited number of IP addresses available. If you have a large number of WiFi devices, it's possible that all available IP addresses are in use. Please check your DHCP server configuration settings and DHCP routing table on the router. Many routers have a label with instructions on how to access the configuration settings. If you require assistance, please contact your Internet Service Provider (ISP) or an IT professional.

Check the WiFi network with your mobile phone

If the tekmar device is unable to connect to the router, check that the router is powered on and use your mobile phone to check that the WiFi network is available, the username and password are correct and your mobile phone web browser can connect to the Internet. If you experience problems connecting with your mobile phone, try powering the router off and then back on. Also confirm the WiFi password has not been recently changed.

Check if 2.4 GHz WiFi is available

If your mobile phone is able to connect to the router, check if the WiFi network is using 2.4 GHz. Mobile phones operate on both 2.4 and 5 GHz WiFi networks so if the WiFi network is available on your phone but not available on the device then the router may be setup for 5 GHz WiFi only. If this is the case, you will need to check the router configuration. Many routers have a label with instructions on how to access the configuration settings. If you require assistance, please contact your Internet Service Provider (ISP) or an IT professional.

Step 2 – Connection to Internet

If the WiFi network information screen shows the device is connected to the Internet, then proceed to step 3. If not connected to the Internet, please follow the steps below:

Setup a WiFi Hotspot on Your Mobile Phone
If the tekmar device will not connect to the Internet through the router, it is recommended to setup a temporary WiFi Hotspot on your mobile phone for troubleshooting purposes. This bypasses the router and allows you to test the device connection to the Internet. If the tekmar device connects to the Internet and Watts Cloud through the mobile phone hotspot, then the connectivity issue may be related to your firewall settings.

On an Apple Mobile Phone:

- Open your mobile phone's Settings

- From Settings select Personal Hotspot

- Select Allow Others to Join

On an Android Mobile Phone:

- Open your device's Settings

- Select Network & Internet

- Select Hotspot & Tethering

- Select WiFi hotspot and set to on

Once the hotspot is on, use the tekmar device's WiFi menu to select the hotspot's SSID name and enter the hotspot password.

If the device starts software update, please allow the update to finish.

Once the test is complete, the WiFi Hotspot can be turned off and you can re-try connection to the router's WiFi network.

Firewall

A firewall provides security to your Local Area Network (LAN) from the Internet. In basic setups the firewall is integrated as part of the router; however, advanced installations may include firewalls that are external to the router.

Check your firewall to make sure the following outbound ports are not blocked:

- Port 53
- Port 123
- Port 443
- Port 8883

Please make sure that the firewall is not blocking connections to the servers *.azure-devices.net. If you are unsure of the firewall configuration, please contact your Internet Service Provider (ISP) or an IT professional.

Firewalls may use number of advanced features including:

MAC Filtering

The firewall is able to keep list of known MAC addresses to allow or deny access to Internet. If MAC filtering is used, enter the MAC address displayed on the thermostat WiFi information screen or snow melting control WiFi Help screen into the firewall allow list and confirm that it is not on the denied list.

AP or Client IP Isolation

The firewall creates a virtual network for each IP address for privacy and security. If you require assistance with your firewall, please contact your Internet Service Provider (ISP) or an IT professional.

Contact tekmar for a Network Troubleshooting
Please contact the tekmar technical support team at tekmar.customerservice@wattswater.com or 1-800-438-3903 to conduct network testing using a 3rd party service called RouteThis. This tool provides troubleshooting of your WiFi network, router and connection to the Internet.

Step 3 – Connection to Watts Cloud

If the tekmar device shows Internet Connected and IoT Disconnected, the device is unable to connect to the Watts cloud servers. Please follow these steps:

Check the signal strength

Check that the Internet is connected and that the signal strength is between -10 to -69 dB. A signal strength between -70 dB and -99 dB may have an unreliable connection to the router and the Watts cloud. The WiFi signal strength can be impacted by the number of nearby WiFi signals, and this can be improved by selecting to use automatic channels. You can also consider installing WiFi Extenders or WiFi Access Points closer to the device to provide better WiFi signal coverage within the building. Please contact an Internet Service Provider (ISP) or IT professional for assistance with installing these devices.

Check for compatible software

To check the software version on the WiFi Thermostats 561, 562, 563:

Press Gear > Setup > Toolbox > SW Version
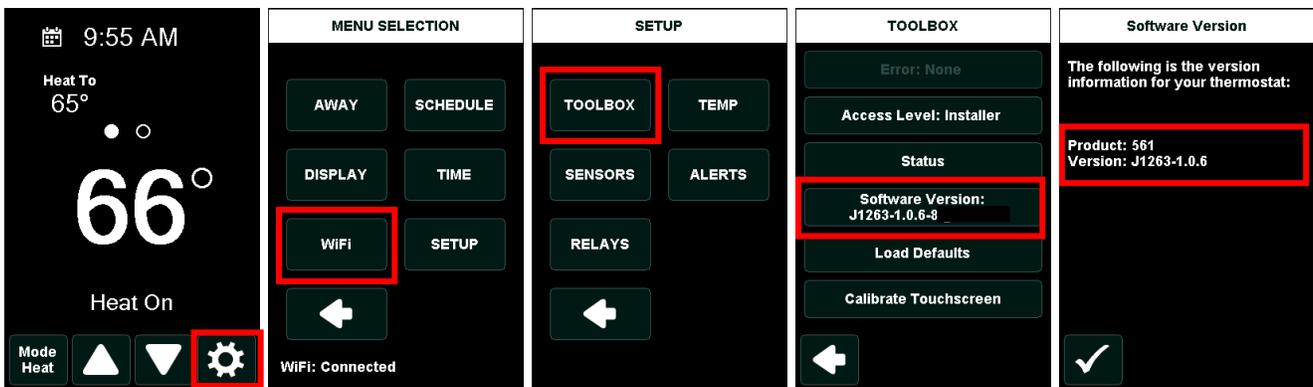
To check the software version on the WiFi Snow Melting Control 670, 671:

Press Settings > Toolbox > Type

NOTICE

tekmar changed cloud service providers in March 2020. Products manufactured in March 2020 or after will have a software version ending in three numbers such as 1.0.1. Product manufactured prior to March 2020 will have a software version ending in a letter ranging from A to Z. If your device has a software version ending with a letter, please contact tekmar technical support at tekmar.customerservice@wattswater.com or 1-800-438-3903 on how to upgrade your device.

Difficulty with registration

The tekmar device provides an 8-digit registration code when Internet and IoT is connected. In some cases, the registration button will appear greyed out even when connected. Please contact the tekmar technical support team at tekmar.customerservice@wattswater.com or 1-800-438-3903 with a photo of the device ID number. Our team can check on your device's connection status. To find the device ID number, please see Step 1.