WIRELESS SERVICE TOOL APPLICATION, OPERATION & MAINTENANCE MANUAL

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WIRELESS SERVICE TOOL – AOM

Overview

Models: WST

OVERVIEW

The Wireless Service Tool (WST) is a gateway into the ClimateMaster water-source heat pump, iGate 2 Communicating (AWC) Thermostat, and Refrigeration Detection System (RDS). It provides the user access on a Wi-Fi enabled device for setup, troubleshooting, data logging, startup, and commissioning. The user can configure items such as airflow, heat pump options, configuration, pump or modulating valve operation, unit family, unit size etc.



- Power LED indicated the WST is powered
- 2. Modbus TX/RX LEDs indicate the WST is communcating with the WSHP
- Status LED indicates the WST is communicating with a Wi-Fi enabled device
- 4. Fault LED flashes every 5 seconds during normal status and fast flashes during an OTA update

Overview

ABOUT YOUR WIRELESS SERVICE TOOL

- Power supplied by the water source heat pump control or by a USB-C port
- 2.4Ghz Wi-Fi antenna
- WST is **NOT** water resistant.
- Can communicate with **ONE** Wi-Fi enabled device that is up to 20 feet from the WST

GENERAL OPERATING PARAMETERS:

The following are general operating parameters for the WST:

- **Operating Environment:** -40°F to 150°F (-40°C to 65°C) and up to 95% relative humidity, non-condensing
- **Storage Environment:** -40°F to 185°F (-40°C to 85°C) and up to 95% relative humidity, non-condensing

CONNECT THE WIRELESS SERVICE TOOL TO A WATER-SOURCE HEAT PUMP (WIRED)

If connecting to the port outside the unit located on the corner post (Figure 1), use harness part number 11B0100N79 (Figure 2).

- 1. Plug the green connector into the WST
- 2. Remove power from the WSHP
- 3. Plug the white connector into the port on the corner post of the WSHP
- 4. Power up the WSHP
- 5. The RX/TX LEDs on the WST illuminate indicating the WST is communicating with the unit control board

Figure 1: Service Tool Port



Figure 2: WSHP Service Port Connector (11B0100N79)



Figure 3: CXM2/DXM2.5 Connector (11B0100N80)



Connect the Wireless Service Tool

Models: WST

CONNECT THE WIRELESS SERVICE TOOL TO A CXM2/DXM2.5 (WIRED)

If connecting to the port located on the CXM2 or DXM2.5, use harness part number 11B0100N80 (Figure 3).

- 1. Disconnect power from the WSHP, remove the unit front access panel, and open the control panel
- 2. Plug the green connector into the WST
- 3. Plug the white connector into the communications port on the CXM2 or DXM2.5 per Figure 4.
- 4. Power on the WSHP
- 5. The RX/TX LEDs on the WST illuminate indicating the WST is communicating with the unit control board



Figure 4: CXM2 Connection to WST



Figure 5: DXM2.5 Connection to WST





Link a Wi-Fi Enabled Device

LINK A WI-FI ENABLED DEVICE TO THE WIRELESS SERVICE TOOL

Before you begin, ensure the RX/TX lights on the WST are flashing. Choose one of the following methods to access the WST web application:

NOTE: The WST Wi-Fi passcode is 12345678

- Automatic method: Using the camera on your Wi-Fi enabled device, scan the QR code on the back of the WST
- Manual method:
 - 1. Open the Wi-Fi settings on your device
 - 2. Find **WSTXXX** in available networks then select it

NAVIGATE TO THE WEB APP

- 1. The green status LED illuminates and remains solid indicating that the WST is communicating with your Wi-Fi enabled device
- 2. Open the browser on your Wi-Fi enabled device
- If the WST Web App does not display in the browser, enter the following address: service_tool.local

WIRELESS SERVICE TOOL - AOM

Use the Wireless Service Tool Web App with a WSHP

Models: WST

NAVIGATION

From the Home screen, select to access the menu. The following is a list of options that may display:

- Settings
- Diagnostics
- Fault History
- Reporting
- System Flow
- Manual Operation
- Refrigerant Detection System
- Tool Configuration
- Logging

iGate[®] 2 Thermostat (if using an AWC99U01 thermostat)

Figure 6: Home Screen

Wireless Service Tool

Devices Hanguility® Unit Settings > Diagnostics > Fault History > Reporting System Flow > X Manual Operation IGate® 2 Thermostat Settings > Refrigerant Detection System Diagnostics > Tool Configuration Logging

The product connected to the WST determines the options that display in the Home screen. For example, Refrigerant Detection System does not display in the WST Web App if an RDS is not detected. The following examples illustrate Home screen behavior based on the connected product.

Figure 7: Home Screen: Single Unit

品	Tranquility® Unit	~
	Settings	>
	Diagnostics	>
	Fault History	>
	Reporting	>
	System Flow	>
	X Manual Operation	

Figure 8: Home Screen: Dual Circuit WSHP

Tranquility® Unit - Second Circuit	\sim
Settings	>
Diagnostics	>
Fault History	>
Reporting	>
System Flow	>
X Manual Operation	
Tranquility® Unit	~
Settings	>
Diagnostics	>
Fault History	>
Reporting	>
System Flow	>
X Manual Operation	
Refrigerant Detection System	~
Diagnostics	>
Tool Configuration	

Logging

NOTE: In Leader/Follower applications, *Tranquility Unit* is the lead unit. *Tranquility Unit - Second Unit* is the follower unit.

Use the Wireless Service Tool Web App with a WSHP

Figure 9: Web App - Home Screen: Air Handler

Hanguility® Unit	>
Tranquility® Air Handler Unit	~
Settings	\sim
Unit Configuration	
Blower Configuration	
Diagnostics	~
Unit Control	
Blower	
Communicated Inputs	
Physical Inputs	
Outputs	
Refrigerant Detection System	~
Diagnostics	>
Tool Configuration	
Logging	

Settings

In the **Settings** menu, you can view the unit's Serial Number or view and modify the following:

- Unit Configuration
- Blower Configuration
- Loop Configuration
- Option Configuration
- Refrigerant Detection System

NOTE: Refer to the unit's Part Number and Model Nomenclature located in the unit IOM to determine the unit's correct configuration.

Figure 10: Settings

Devices			
Tranquility® Unit - Primary	~	Board Name	
Settings	~	DXM2	
Unit Configuration		Heat Pump Fami	ly
Blower Configuration		TRE	~
Loop Configuration		Blower Type	
Option Configuration		None	~
Refrigerant Detection Syste	Heat Pump Size		
Diagnostics	>	168	~
Fault History	>	Loop Configurat	ion
Reporting	>	None	~
System Flow	>	Serial Number	
X Manual Operation		123456789	

Use the Wireless Service Tool Web App with a WSHP

Models: WST

Diagnostics

In the **Diagnostics** menu, you can see the real-time status of the following:

- Blower
- Loop
- Compressor
- Control Serial Number
- Control Firmware Version
- Control Voltage
- Unit Control Lockout
- Refrigerant
- Communicated Input
- Physical Inputs
- Outputs
- S1 Dipswitch Bank
- S2 Dipswitch Bank (DXM2.5 only)
- S3 Dipswitch Bank (DXM2.5 only)
- Miscellaneous
- Refrigerant Detection System

Figure 11: Diagnostics

Tranquility® Unit - Primary	~	Status Data Refreshed: 9/12/2024 4:41:17 PI
Settings	>	
Diagnostics	~	Control Voltage 24.9 V
Unit Control	- 1	Firmware Version
Blower		2.01
Loop	- 1	Unit Control Lockout
Compressor	- 1	Normal
Refrigerant	- 1	
Communicated Inputs	- 1	
Physical Inputs	- 1	
Outputs	- 1	
S1 Dipswitch Bank	- 1	
S2 Dipswitch Bank	- 1	
S3 Dipswitch Bank	- 1	
Miscellaneous	- 1	
Refrigerant Detection System	c	
Fault History	>	
Reporting	>	
System Flow	>	
X Manual Operation		

Fault History

In **Fault History**, you can view the last five faults and the status of each parameter of the water-source heat pump at the time of the fault. If the WST is connected to a device that is in fault, a red banner with the name of the fault displays at the top of the WST Web App.

Figure 12: Fault History

Devices	
Tranquility® Unit - Primary	~
Settings	>
Diagnostics	>
Fault History	Y
Fault History 1	
Fault History 2	
Fault History 3	
Fault History 4	
Fault History 5	
Reporting	>
System Flow	>
X Manual Operation	
IGate® 2 Thermostat	~
Settings	>
Refrigerant Detection System	~
Diagnostics	>
Tool Configuration	
Logging	

Low air	coil pressure
Operatir	ng Mode
Cooling	Stage 2
Entry Da	ite
9/12/20	24 4:31:00 PM
Water C	oil Liquid Temperature
92.2 F	
Air Coil	Liquid Temperature
50.1 F	
Entering	Water Temperature
95.2 F	
Leaving	Water Temperature (Source
103.2 F	
Compre	ssor Discharge Temperature
195 F	
Control	Voltage
24.8 V	
Cool Set	tpoint Temperature
73 F	
Dehumi	dification Setpoint
65 %	

Reporting

In **Reporting > Startup Report**, you can view a complete Startup report.

Figure 13: Reporting

		Configuration			
Tranquility® Unit - Primary	~				
Settings	>	Loop - Source	e Side		
		Description	Value		
Diagnostics	>	Loop Option	No Configuration		
Fault History	>	Loop Control	Delta-T		
Reporting	~	Blower			
		Description	Value		
Startup Report		Heat Off Delay	60		
System Flow	>	Cool Off Delay	60		
X Manual Operation		DIP Switches			
		Description	Value		
		S1-1	On		
iGate® 2 Thermostat	~	S1-2	On		
		S1-3	On		
Settings	>	S1-4	On		
		S1-5	On		
Refrigerant Detection System	~	S1-6	On		
		S1-7	On		
Diagnostics	>	S1-8	On		
		S2-1	Off		
Tool Configuration		S2-2	On		
		S2-3	Off		
E Logging		S2-4	On		

WST Use the Wireless Service Tool Web App with a WSHP

System Flow

In **System Flow > System Flow Diagram**, you can view the complete refrigeration system and the real-time readings of all the sensors in the system.

Figure 14: System Flow > System Flow Diagram



Use the Wireless Service Tool Web App with a WSHP

Models: WST

Manual Operation

In **Manual Operation** you can enter Test Mode, adjust Target Airflow, and manually activate the water-source heat pump inputs.

Figure 15: Manual Operation

Tranquility® Unit - Primary	\sim		Refresh Data	Clear Fault His
Settings	>			
Diagnostics	>	I	Field Test Mode	
0		l	Disabled	~
Fault History	>			
Reporting	>			
System Flow	>			
X Manual Operation				
ool Configuration				
5				

Tool Configuration

In Tool Configuration, you can update the WST firmware and update the version of the WST Web Application.

Figure 16: Tool Configuration

Devices		
Tranquility® Unit - Primary Settings Diagnostics Fault History Reporting System Flow ★ Manual Operation	> > > > >	Current Web App Version: 1.00.00 Current WST Firmware Version: 0.01.01 Check for Update Connect to CLM server through local WiFi or hotspot to check recent firmware and
 Tool Configuration Logging 		web app version for updates Revert Web App Version Revert Firmware Version Revert Web build files to backup Revert Firmware files to backup

Use the Wireless Service Tool Web App with a WSHP

Logging

In **Logging** you can enable data logging and download the data log when the WST is used as a data-logging device. You can choose data points and the frequency at which the data is logged. Select **Check Capacity** to display the amount of time the WST can log data based on the number of data points and frequency of collection. Larger numbers of data points and shorter log frequency results in a shorter period of logging. Users must check capacity to start logging. While WST is logging data, normal functionality is paused.

You can download and save the log file on the device communicating with the WST. The file is named **history-export.csv** and is saved to the downloads folder on your Wi-Fi enabled device. The WST stores only the latest log file. When a new log is started, the last log file is no longer available on the WST.

Devices		Logging Status: Idle
Tranquility® Unit - Primary	\sim	Headers to include in the log
Settings	>	
Diagnostics	>	Tranquility® Unit - Primary 56 Change
Fault History	>	
Reporting	>	Log Frequency
System Flow	>	
X Manual Operation		30 seconds
Tool Configuration		Selected Headers: 56 Check Capacity
Logging		
		Log File: Download Delete
		Corrupted Log File: Download Delete

Figure 17: Logging

Update the Wireless Service Tool

Models: WST

UPDATE THE WST OVER-THE-AIR

Use the following steps to perform an over-the-air (OTA) update on the WST:

- 1. Connect to the WST using a Wi-Fi enabled device.
- 2. From the WST Web Application, select **Tool Configuration.**



3. Select **Check for Update**. A screen detailing the current versions of the Web App and WST Firmware displays. Note the **Current Web App Version** and **Current WST Firmware Version**.

Current Web App Version: 1.00.00	
Current WST Firmware Version: 0.01.01	
Check for Update	Upload Manual Update
Connect to CLM server through local WiFi or hotspot to check recent firmware and web app version for updates	Upload firmware and web app manually
Revert Web App Version	Revert Firmware Version
Revert Web build files to backup	Revert Firmware files to backup

4. Select Connect WiFi.



- 5. Enter your SSID (the name of your Wi-Fi network) and password then select **Connect.**
- After successfully connecting to Wi-Fi, reload the page then select **Check for Update.** A screen detailing the current versions of the Web App and WST Firmware displays.
- 7. Select Get Version Information.



8. After the WST retrieves the available version, select **Apply Firmware Update**.

WiFi connection status Connected	
Get Version Information	
Latest Web App Version 1.00.00	
Latest WST Firmware Version 0.01.03	
Apply Firmware Update	
Close	

 After the update is complete, the dialog screen activates (the dialog screen is no longer greyed out). Reload the page after the dialog screen activates.

Models: WST Update the Wireless Service Tool

 When the Web App is reloaded, select Tool Configuration > Check for Update to verify that the current firmware version of the WST is updated and matches the Latest WST Firmware Version.

Figure 18: Current Version

Current Web App Version: 1.00.00 Current WST Firmware Version: 0.01.03	
Check for Update	Upload Manual Update
Connect to CLM server through local WiFi or hotspot to check recent firmware and web app version for updates	Upload firmware and web app manually
Revert Web App Version	Revert Firmware Version
Revert Web build files to backup	Revert Firmware files to backup

Figure 19: Latest Version



WIRELESS SERVICE TOOL - AOM



Models: WST	Revision History	
Date	Section	Description
01/20/25	All	Created







A NIBE GROUP MEMBER

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