



LGACP V2.1 DRIVER USER MANUAL

powered by
niagara⁴
framework

PROPRIETARY DATA NOTICE

This document, as well as all reports, illustrations, data, information, and other materials are the property of LG Electronics U.S.A., Inc., and are disclosed by LG Electronics U.S.A., Inc., only in confidence.

⊗ ***Do not throw away, destroy, or lose this manual.***

**Please read carefully and store in a safe place for future reference.
Content familiarity required for proper installation.**

The instructions included in this manual must be followed to prevent product malfunction, property damage, injury, or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage.

For more technical materials such as submittals, engineering databooks, and catalogs, visit www.lghvac.com.

For continual product development, LG Electronics U.S.A., Inc., reserves the right to change specifications without notice.

©LG Electronics U.S.A., Inc.

This document, as well as all reports, illustrations, data, information, and other materials are the property of LG Electronics U.S.A., Inc.

CONTENTS

Confidentiality and Trademark Information.....4

Certifications.....5

Compliance And Approvals.....6

LGAP v2.1 Driver7

 Introduction7

 Section 1: Installation8

 Section 2: LGAP driver v1.5 quality improvements and enhancements applied to this release.....9

 Section 3: New features in LGAP v2.1.....10



CONFIDENTIALITY AND TRADEMARK INFORMATION

Tridium, Inc.

3951 Westerre Parkway, Suite 350

Richmond, Virginia 23233

U.S.A.

Confidentiality

The information contained in this document is confidential information of Tridium, Inc., a Delaware corporation ("Tridium"). Such information and the software described herein, is furnished under a license agreement, and may be used only in accordance with that agreement.

The information contained in this document is provided solely for use by Tridium employees, licensees, and system owners; and, except as permitted under the below copyright notice, is not to be released to, or reproduced for, anyone else.

While every effort has been made to assure the accuracy of this document, Tridium is not responsible for damages of any kind, including without limitation consequential damages, arising from the application of the information contained herein. Information and specifications published here are current as of the date of this publication and are subject to change without notice. The latest product specifications can be found by contacting our corporate headquarters, Richmond, Virginia.

Trademark notice

BACnet and ASHRAE are registered trademarks of American Society of Heating, Refrigerating and Air-Conditioning Engineers. Microsoft, Excel, Internet Explorer, Windows, Windows Vista, Windows Server, and SQL Server are registered trademarks of Microsoft Corporation. Oracle and Java are registered trademarks of Oracle and/or its affiliates. Mozilla and Firefox are trademarks of the Mozilla Foundation. Echelon, LON, LonMark, LonTalk, and LonWorks are registered trademarks of Echelon Corporation. Tridium, JACE, Niagara Framework, and Sedona Framework are registered trademarks, and Workbench are trademarks of Tridium Inc. All other product names and services mentioned in this publication that are known to be trademarks, registered trademarks, or service marks are the property of their respective owners.

Copyright and patent notice

This document may be copied by parties who are authorized to distribute Tridium products in connection with distribution of those products, subject to the contracts that authorize such distribution. It may not otherwise, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form without prior written consent from Tridium, Inc.

Copyright © 2020 Tridium, Inc. All rights reserved.

The product(s) described herein may be covered by one or more U.S. or foreign patents of Tridium.



CERTIFICATIONS

The MultiSITE VM3 controller has the following agency listings, compliances, and certifications:

UL-916, Energy Management Equipment - Edition 4

FCC Part 15, Class B - Federal Communications Commission, with FCC Part 15, Subpart C - WiFi

ICES-003, Class B - Industry Canada Interference-Causing Equipment Standard

RoHS 2 (Restriction of Hazardous Substances), Directive 2011/65/EU



CE Declaration of Conformity (Council Directive 004-108-EC)



ACMA, complies with the requirements of the relevant ACMA Standards. This document covers mounting and wiring of the following products.

COMPLIANCE AND APPROVALS

Federal Communications Commission (FCC)

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Department of Communications (DOC)

This device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Approved Antenna Listing

- ANT-DB1-RAF-RPS

Transmitter Module Listing

- Contains Transmitter Module FCC ID: W98-12977
- Contains Transmitter Module IC: 8339A-12977

To comply with FCC and Industry Canada RF exposure limits for general population /uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.



LGAP V2.1 DRIVER

Introduction

This document is expected to serve as a quick user guide to upgrade to v2.1

Scope and Target Audience

This document is intended to serve as a quick guide for an experienced LG Niagara Systems Integrator and Controls Engineer to install the LGAP v2.1 driver into Niagara 4.10 commissioned controllers.




Pre-requisites

Upgrading LGAP driver to v2.1 requires that you are running at least Niagara 4.9 v2.0 driver on lgacp-rt and lgacp-ux jar files pertaining version v4.9.0.198.18.33

Section 1: Installation

1. Obtain a copy of LG's MultiSITE Supervisor 4.10 installer from your authorized representative.
2. Save the LGAP v2.1 Jar files into Modules folder of your MultiSITE Supervisor 4.10 install as shown below.

\\.\ > Niagara > Niagara-4.10.2.52 > modules

Name	Date modified	Type	Size
 lgcontrols-rt.jar	8/11/2023 2:23 PM	Zulu jar file	47 KB
 lgacp-ux.jar	8/11/2023 2:09 PM	Zulu jar file	4,118 KB
 lgacp-rt.jar	8/11/2023 2:09 PM	Zulu jar file	274 KB

3. Close Niagara 4.10 workbench and re-launch.
4. Commission the controller to current Niagara version.
5. Watch the commission finish and station restart.

Section 2: LGAP driver v1.5 quality improvements and enhancements applied to this release




1. Improved reliability logics to the v2.0 codebase to improve the write effectiveness issued from VM3/CM Central Controller
 - 1.1. Resend logic improvement in the driver for IDU 1Set and 2Set modes.
 - 1.2. Resend logic improvement in the driver for AWHP device.
 - 1.3. Ability to re-write certain 2Set setting temperature and range setpoints upon station restart.
 - 1.4. Some Monitoring points go 0 during poll cycle on IDUs – Under some conditions, when a null value is issued to some writable points, a 0 was seen on the writable as well as Monitoring point. This undesirable behavior has been addressed in this release.
 - 1.5. Cleaned up log messages in the Application Director by removing preceding ffff entries to the actual Hexadecimal byte value.
 - 1.6. Applied fix for issue where several ODU points spike such as pipein temperature, pipeout temperature spike to an out of range value and then return to normal.
 - 1.7. Auto_heat and Auto_cool ModeSetting switching – In some sites ModeSetting point switches by itself when TempLock setting is On and the system is running 2Set. It thinks setpoint changed by something else even though TempLock is already ON. This is because when 2Set setpoint change, the effective setpoint SetpointSetting(M) part of Cmd0 also changes. With temp lock ON, the driver mistakenly realizes someone has changed the SetpointSetting and hence undesirably sends a Cmd0 control request. This is causing the system to go to Auto_cool even though it was running Auto_heat before. V1.5 fix for this is now ported over to v2.1.
 - 1.8. Applied v1.5 fix for LockSetting changing from Prohibit to Permit on some IDU FW
 - 1.9. Ported over v1.5 support for all 4types of AWHP in this release including Single_AWHP, Heating_Only_AWHP, WHU(MT) and Cascade(HT). Each AWHP product type is automatically detected by the driver and allows the user to only adjust the correct range for both AirWaterSetpointSetting and HotWaterSetting both on workbench and UX. On the UX, support is included to only allow correct values when the user clicks on Up and Down adjustment button for each product type.

Section 3: New features in LGAP v2.1

1. WATER5 additional points now supported in the driver. These points are available in the driver both on Workbench and UX. Corresponding BACnet export added as well.




Heat source water in
HEAT CANCEL EEV temperature
HEAT CANCEL EEV

- 1.1. Resultant exported objects should look something like below. Summary of newly exported BACnet objects applicable to WATER5 with device id='0' is shown below and an illustrative table follows.

 HeatSourceWaterIn\$28M\$29	ODU_00_slaveDevice3_HeatSourceWaterIn(M)	Analog Input	1346	186.6°F {ok}	{ok}	no
 HeatCancelEEVTemp\$28M\$29	ODU_00_slaveDevice3_HeatCancelEEVTemp(M)	Analog Input	1347	232.9°F {ok}	{ok}	no
 HeatCancelEEV\$28M\$29	ODU_00_slaveDevice3_HeatCancelEEV(M)	Analog Input	1348	80.0 {ok}	{ok}	no

Target Name	ODU Device Address	Bacnet ObjectType	Base InstanceNumber	Final InstanceNumber
HeatSourceWaterIn\$28M\$29	X	AI	1346	x1346
HeatCancelEEVTemp\$28M\$29	X	AI	1347	x1347
HeatCancelEEV\$28M\$29	x	AI	1348	x1348

- 1.2. Summary of newly exported LON objects applicable to WATER5 with device id='0' is shown below and an illustrative table follows.

 nvoHeatSourceWaterIn_ODU_00	186.6°F {ok} @ 16
 nvoHeatCancelEEVTemp_ODU_00	232.9°F {ok} @ 16
 nvoHeatCancelEEV_ODU_00	80.0 {ok} @ 16

Target Name	ODU Device Address
nvoHeatSourceWaterIn_ODU_xx	xx
nvoHeatCancelEEVTemp_ODU_xx	xx
nvoHeatCancelEEV_ODU_xx	xx

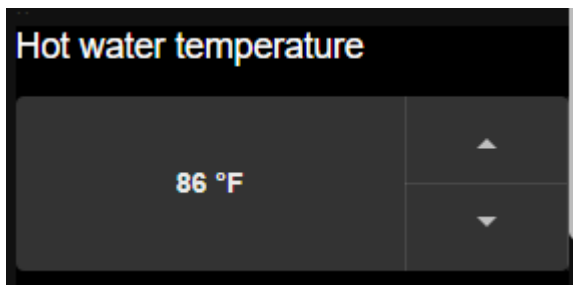
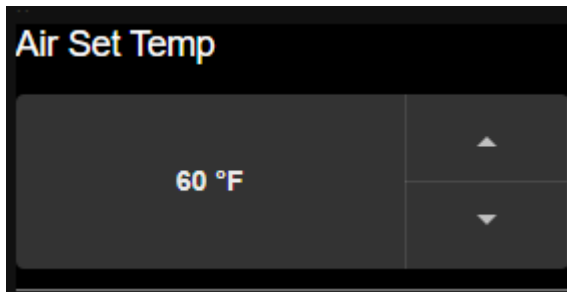
1.3 On the UX, these points can be seen in the Cycle Monitoring View as shown below.

ODU Unit Type	Super_Water5	High Pressure	2761	Inv1 Input Current	0.0	Inv1 Dc Link Voltage	0.0
PI220v	OFF	Air Temp	88.2 °F	Main 2 Eev Pulse	0	Heat Waterout Temp	232.9 °F
Heat Source Water In Temp.	186.6 °F	Control Step	0.0	Operation Mode	Heat	VF Valve Output	0
Outdoor EEV	1920	Inv1 Oil Sensor	Detect Oil	Unit Has Error	0.0	Heat Cancel EEV	80.0
Inverter1 Comp Freq	75	Suction Temp	59.5 °F	Low Pressure	843		
MICOM Ver.	21.22	Subcool Outlet Temp	63.9 °F	Inv1 Capacity	4.4 horsepower		
VF Valve Lower Limit	0	Heat Cancel EEV Temp.	232.9 °F	Liquid Pipe Temp	68.2 °F		

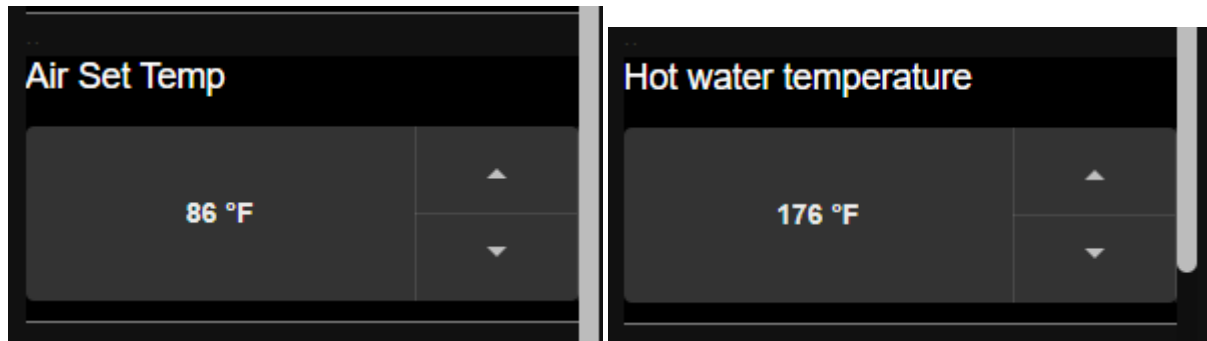
2. Support for Medium Temp and High Temp Hydro kit applications and other AWHP types such as SingleOnly_Awhp and Heating_Only_Awhp. AWHP driver and UX has been modified to support the extended setpoint ranges for some applications automatically based on the detected product type.

2.1.Single_Awhp

- 2.1.1. When the HeatSource is AIR for a SINGLE_AWHP product, then, the lower adjustment limit is as shown below.

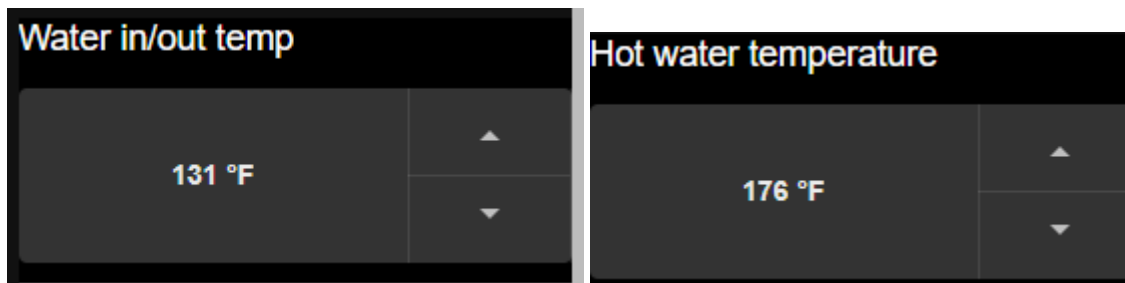


- 2.1.2. When the HeatSource is AIR for a SINGLE_AWHP product, then, the upper adjustment limit is as shown below.



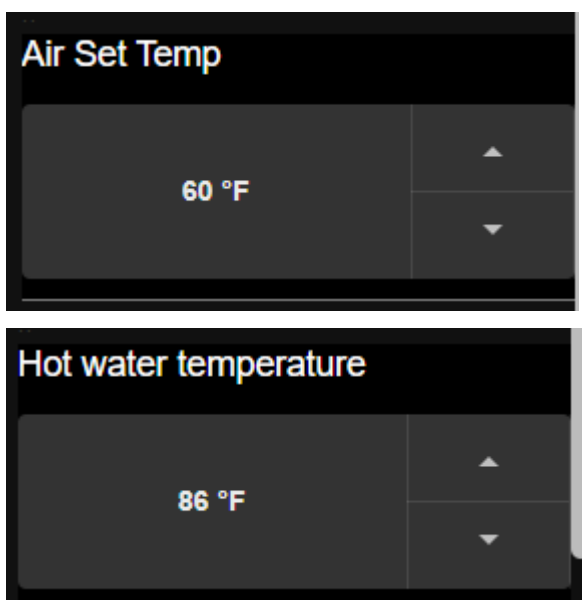
- 2.1.3. When the HeatSource is WATER for a SINGLE_AWHP, then, the lower adjustment limit is as shown below.

2.1.4. When the HeatSource is WATER for SINGLE_Awhp, then, the upper adjustment limit is as shown below.

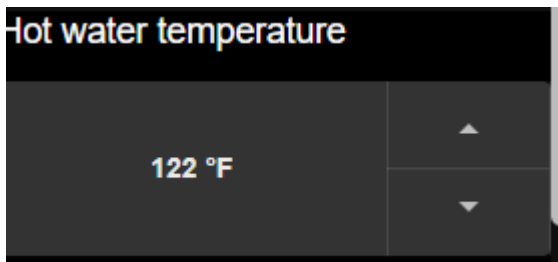
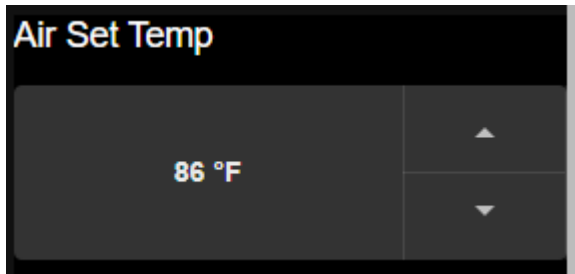


2.2 WHU

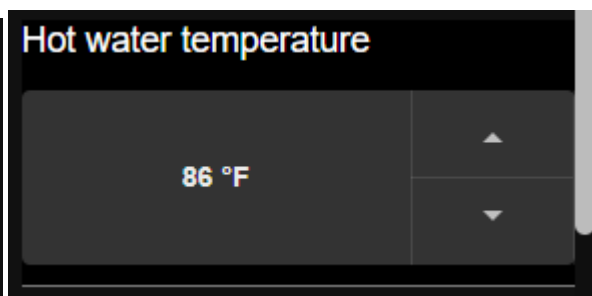
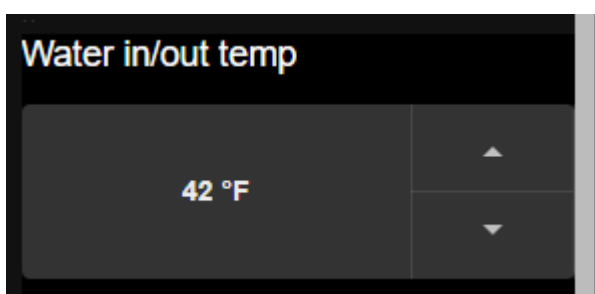
2.2.1 When the HeatSource is AIR for WHU, the lower adjustment limit is as shown below.



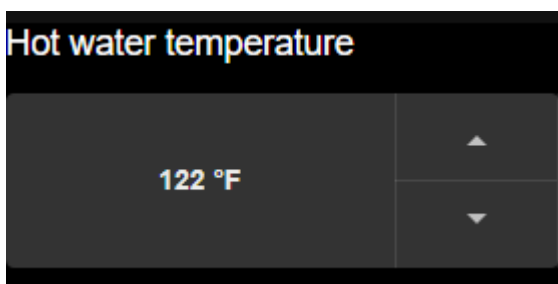
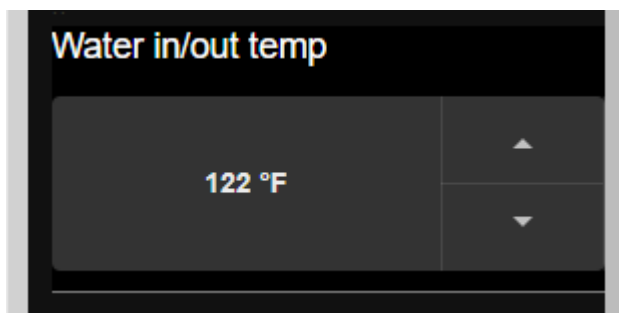
2.2.1 When the HeatSource is AIR for WHU, the upper adjustment limit is as shown below.



2.2.2 When the HeatSource is WATER for WHU, the lower adjustment limit is as shown below.

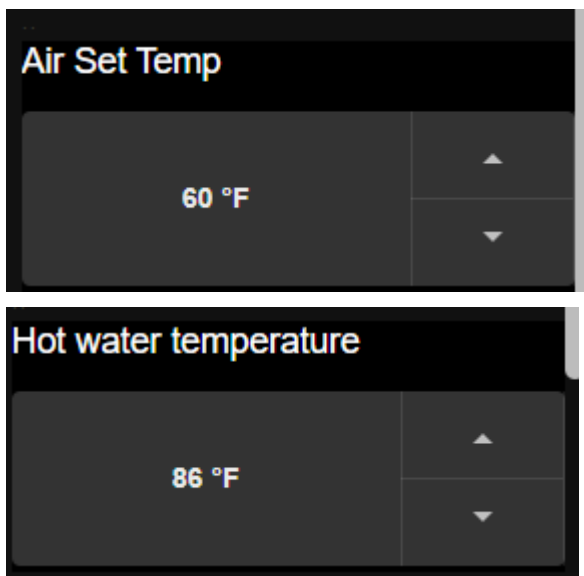


2.2.3 When the HeatSource is WATER for WHU, the upper adjustment limit is as shown below.

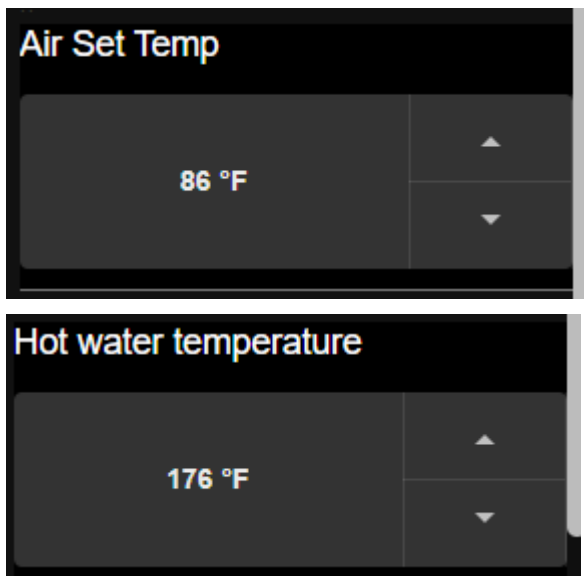


2.3 Cascade

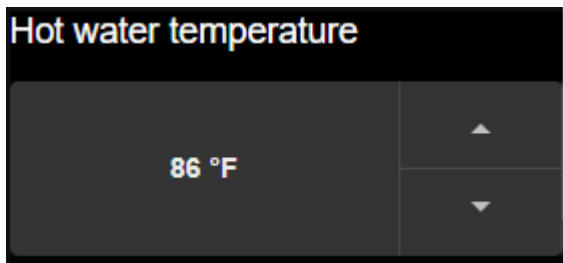
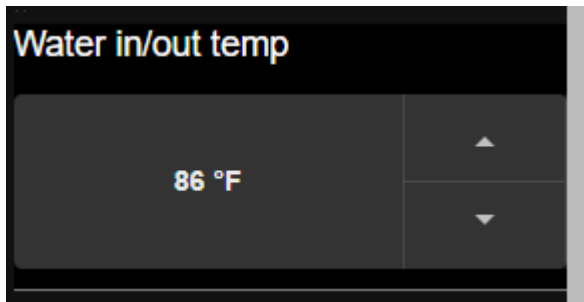
2.3.1 When the HeatSource is AIR for Cascade(HighTemp), the lower adjustment is as shown below.



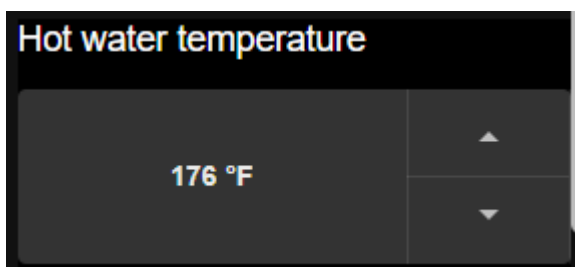
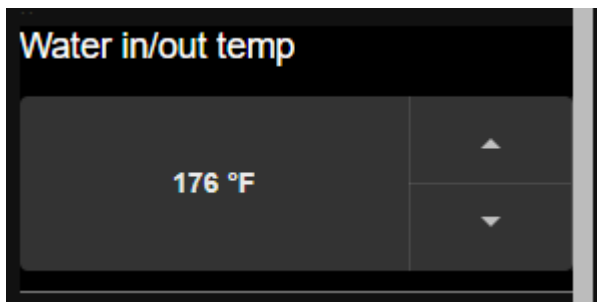
2.3.2 When the HeatSource is AIR for Cascade(HighTemp), the upper adjustment limit is as shown below.



2.3.3 When the HeatSource is WATER for Cascade(HighTemp), the lower adjustment limit is as shown below.

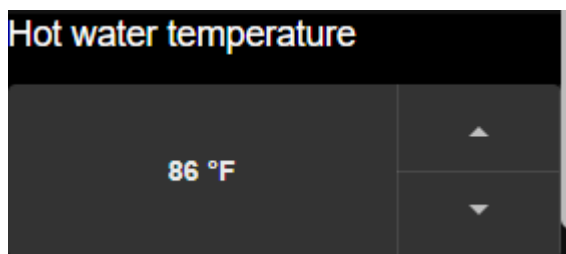
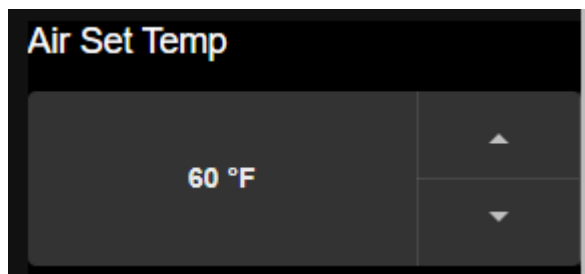


2.3.4 When the HeatSource is WATER for a Cascade(HighTemp), the upper adjustment limit is as shown below.

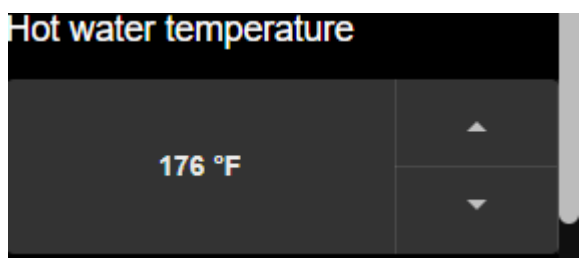
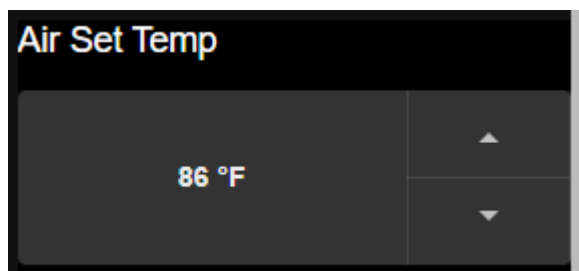


2.4 Heat_Only_Awhp

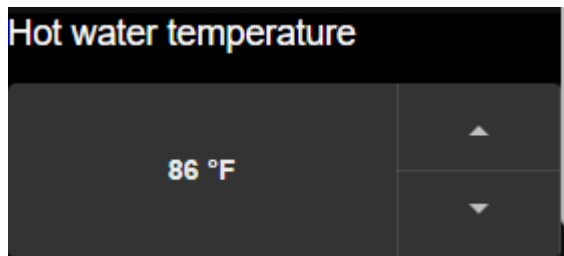
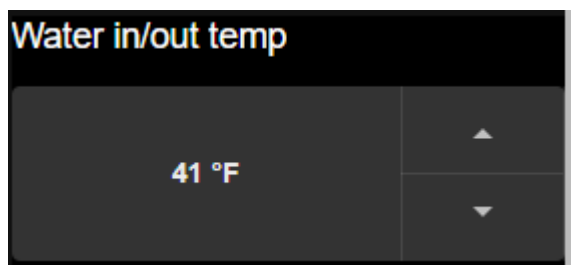
2.4.1 When the HeatSource is AIR for a Heat_Only_Awhp, the lower adjustment limit is as shown below.



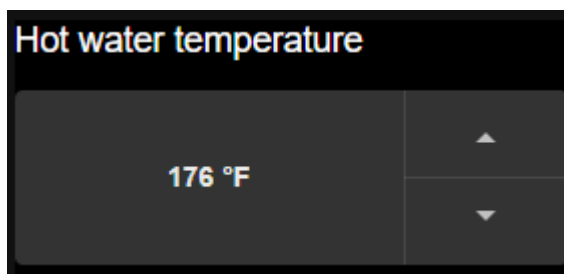
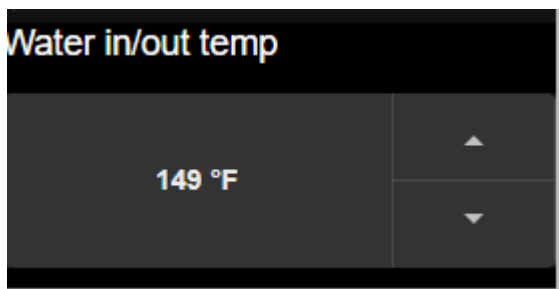
2.4.2 When the HeatSource is AIR for a Heat_Only_Awhp, the upper adjustment limit is as shown below.



2.4.3 When the HeatSource is WATER for a Heat_Only_Awhp, the lower adjustment limit is as shown below.



2.4.4 When the HeatSource is WATER for Heat_Only_Awhp, the upper adjustment limit is as shown below.



LG Customer Information Center, Commercial Products

1-888-865-3026 USA

Follow the prompts for commercial A/C products and parts.



LG Electronics, U.S.A., Inc.
Air Conditioning Technologies
4300 North Point Parkway
Alpharetta, Georgia 30022
www.lghvac.com

New Issue: UM_LGACP_V2.1_12_23