INSTALLATION, OPERATION & MAINTENANCE

IM 1400

FEBRUARY 2026

LONWORKS® GATEWAY

CHILLERS UNIT CONTROLLER FOR AGZ-F AND WMT

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Safety Information

This manual contains information regarding the MSA® FieldServer™ ProtoNode gateway used with the MicroTech® Chiller Unit Controller to provide LONWORKS® connectivity to a Building Automation System (BAS). It describes how to install or replace the gateway components on the MicroTech Chiller Unit Controller, subsequently referred to as the Chiller Unit Controller or unit controller.

NOTICE

Installation and maintenance are to be performed only by licensed, if required by local codes and regulations, or qualified personnel who are familiar with local codes and regulations and are experienced with this type of equipment.

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to service, pressurizing, de-pressuring, or powering down the unit. Failure to follow this warning exactly can result in serious injury or death. Disconnect electrical power before servicing the equipment. More than one disconnect may be required to denergize the unit. Be sure to read and understand the installation, operation, and service instructions within this manual.

⚠ WARNING

Electric shock hazard. Improper handling of this equipment can cause personal injury or equipment damage. This equipment must be properly grounded. Connections to and service of the MicroTech control panel must be performed only by personnel that are knowledgeable in the operation of the equipment being controlled.

⚠ WARNING

Polyolester Oil, commonly known as POE oil is a synthetic oil used in many refrigeration systems, and may be present in this Daikin Applied product. POE oil, if ever in contact with PVC/CPVC, will coat the inside wall of PVC/CPVC pipe causing environmental stress fractures. Although there is no PVC/CPVC piping in this product, please keep this in mind when selecting piping materials for your application, as system failure and property damage could result. Refer to the pipe manufacturer's recommendations to determine suitable applications of the pipe.

⚠ CAUTION

Static sensitive components. A static discharge while handling electronic circuit boards can cause damage to the components. Discharge any static electrical charge by touching the bare metal inside the control panel before performing any service work. Never unplug any cables, circuit board terminal blocks, or power plugs while power is applied to the panel.

NOTICE

QUEBEC DISCLOSURE REGARDING AVAILABILITY OF REPLACEMENT PARTS, REPAIR SERVICES AND INFORMATION FOR MAINTENANCE AND REPAIR: Daikin Applied Americas Inc. (Daikin Applied) does not guarantee the availability of (1) replacement parts; (2) repair services; and (3) information necessary to maintain or repair products, within the meaning of section 39.1 of the Consumer Protection Act, CQLR, c P-40.1 and section 79.18 of the Regulation respecting the application of the Consumer Protection Act, CQLR, c P-40.1, r. 3.

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Hazard Identification

The following symbols and labels are used throughout this manual to indicate immediate or potential hazards. It is the owner and installer's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of property damage and/or product damage, serious personal injury, or death. Improper installation, operation and maintenance can void the warranty.

⚠ DANGER

Danger indicates a hazardous situation, which will result in death or serious injury if not avoided.

⚠ WARNING

Warning indicates a potentially hazardous situations, which can result in property damage, personal injury, or death if not avoided.

⚠ CAUTION

Caution indicates a potentially hazardous situations, which can result in minor injury or equipment damage if not avoided.

NOTICE

Notice indicates practices not related to physical injury.

Introduction

The MSA® FieldServer™ ProtoNode communication gateway, subsequently called the LONWORKS gateway, connects the Chiller Unit Controller to a Building Automation System (BAS) using the LONWORKS protocol. This gateway interface enables the exchange of LONWORKS variables between the unit controller and a LONWORKS Operating Network or LON. The LONWORKS communication gateway communicates to the unit controller through a BACnet IP communication module installed on the unit controller. For information regarding the BACnet IP module, see document IM 1283 (available from www.DaikinApplied.com).

Features

- Integration into a building automation and control system via LONWORKS
- Vendor specific configuration files
- Easy configuration of gateway communication settings through a built-in web configuration GUI
- BTL listed and LonMark certified hardware
- Multiple Diagnostic LEDs

Specifications

The following section provides a summary of technical data and approvals.

General	
Dimensions	4.5 in. L x 3.2 in. W x 1.6 in. H (11.5 x 8.3 x 4.1 cm)
Weight	0.4 lbs (0.2 kg)
Operating	
Temperature	-4 to 158°F (-20 to 70)
Humidity	5-90% RH (non-condensing)
Electrical	
Power	9-30VDC or 12-24VAC
Current Draw	12VDC/VAC - 260mA (Maximum) 24VDC/VAC - 140mA (Maximum) 30VDC - 115mA (Maximum)
Connections	One 6-pin Phoenix connector with: Port (+ / - / gnd) Power port (+ / - / Frame-gnd) One Ethernet 10/100 BaseT port One FTT-10 LONWORKS port
Surge Suppression	EN61000-4-2 ESD EN61000-4-3 EMC EN61000-4-4 EFT
Approval	
FCC Part 15 certified, UL 62368-1, CAN/CSA C22.2 No. 62368-1, IEC 62368-1, EN IEC 62368-1, DNP 3.0 and Modbus conformance tested, BTL marked, LonMark certified, WEEE compliant, REACH compliant, RoHS compliant, CSA 205 approved, UKCA and CE compliant, ODVA conformant, CAN ICES-003 (B)/ NMB-003(B)	

Reference Documents

Company	Number	Title	Source
Daikin Applied	IOM 1359	Air-Cooled Scroll Chiller Model AGZ, Vintage F Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOM 1297	Magnetic Bearing Oil-Free Centrifugal Chiller Model WMT Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IM 1283	MicroTech® Chiller Unit Controller BACnet® IP, BACnet MS/ TP®, and Modbus® Communication Module	www.DaikinApplied.com
Daikin Applied	ED 19146	MicroTech® Chiller Unit Controller Protocol Information used on chiller models AGZ-F and WMT	www.DaikinApplied.com
LonMark® International	078-0120-01G	LonMark Application Layer Interoperability Guidelines, Version 3.4	www.lonmark.org
LonMark® International	078-0120-01G	LonMark Layers 1–6 Interoperability Guidelines, Version 3.4	www.lonmark.org
MSA® Safety, Inc.	T18610	MSA® FieldServer™ ProtoNode Start-up Guide	www.MSAsafety.com

Revision History

Revision	Release Date	Notes
IM 1400	12/2025	Initial Release

Software Revision

This document supports the following versions of the standard chiller unit controller application and all subsequent versions until otherwise indicated. However, if the unit software is of a later version, some of the information in this document may not completely describe the application.

Chiller Model	Chiller Application Software Version	Chiller HMI Software Version
Trailblazer Model AGZ, F-Vintage Air-Cooled Chiller	1.1.3 Software Package	
Magnitude Model WMT Magnetic Bearing Centrifugal Chiller		

Limited Warranty

Consult your local Daikin Applied Representative for warranty details. To find your local Daikin Applied Representative, go to www.DaikinApplied.com.

Dimensions

Figure 1: Gateway Top View

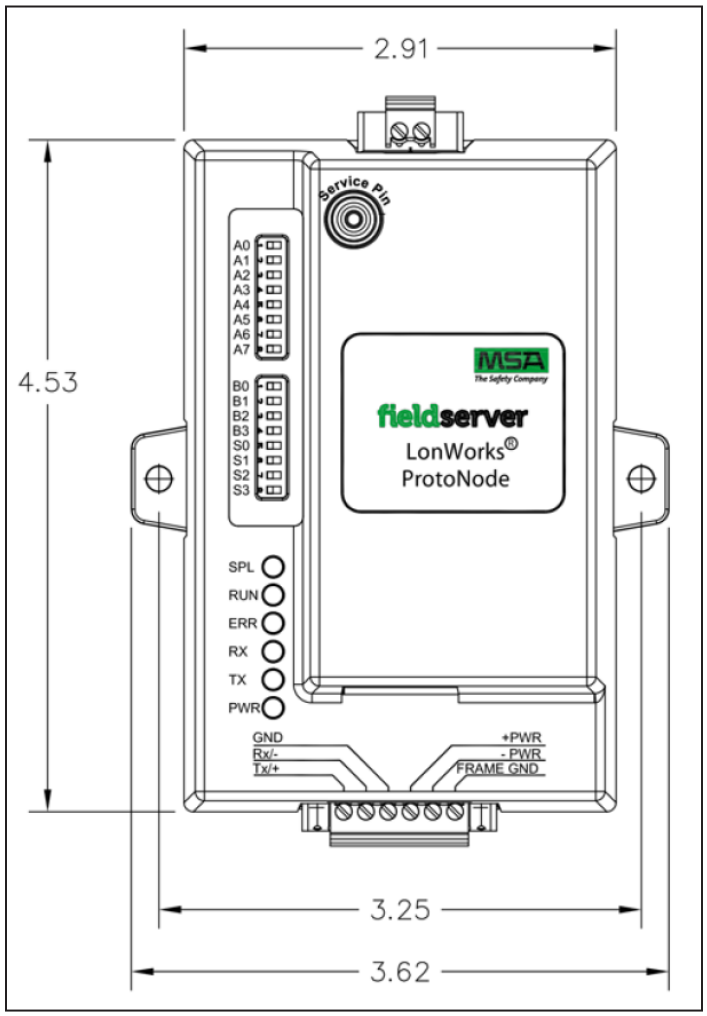
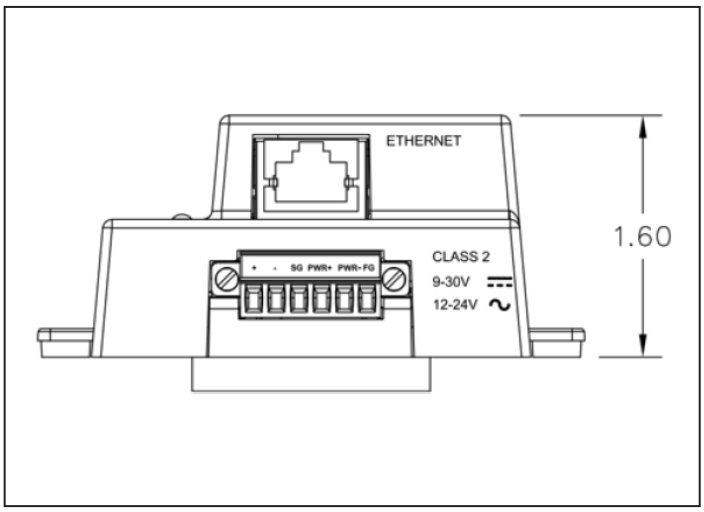


Figure 2: Gateway Bottom View



Component Data

The LONWORKS gateway is a is a printed circuit board contained within a plastic enclosure. The LONWORKS communication gateway communicates to the unit controller through a BACnet IP communication module installed on the unit controller (Figure 3 and Figure 4). For complete instructions on installing the required BACnet IP module, see document IM 1283 (available from www.DaikinApplied.com). This document contains fundamental instructions for installing and configuring the BACnet IP communication module.

Figure 3: AGZ-F BACnet Module Location

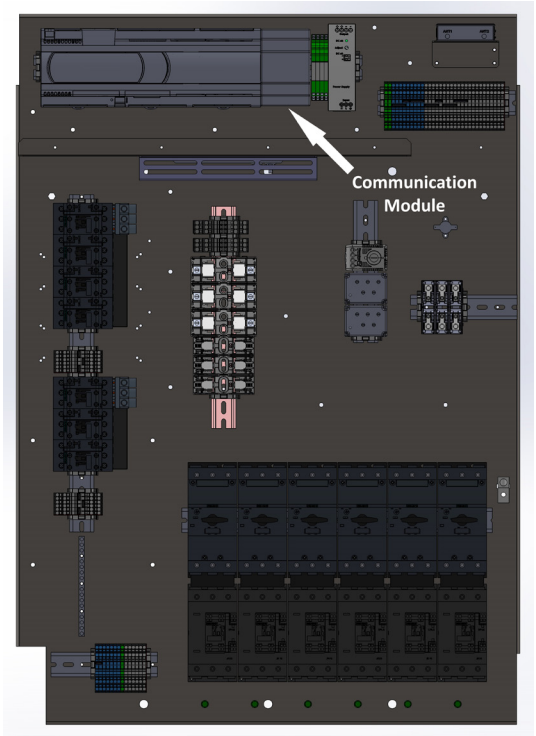


Figure 4: WMT BACnet Module Location

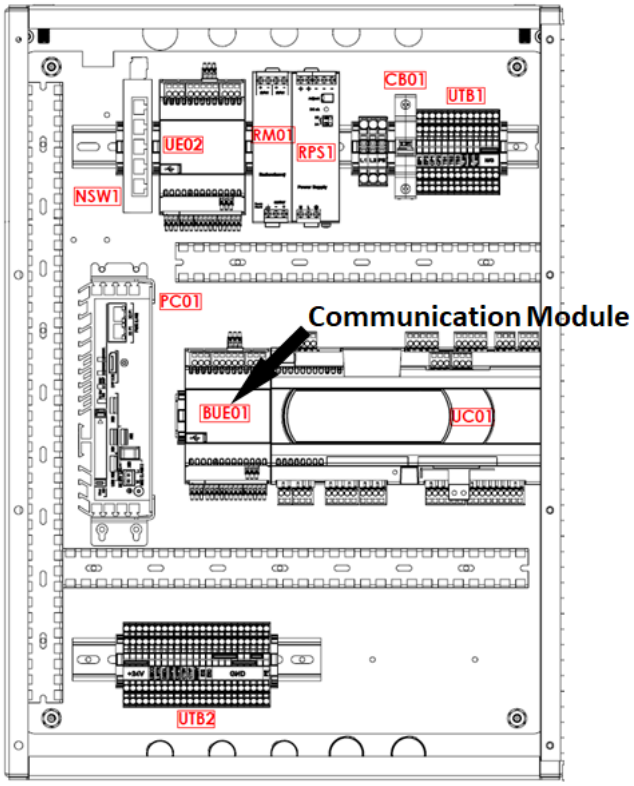
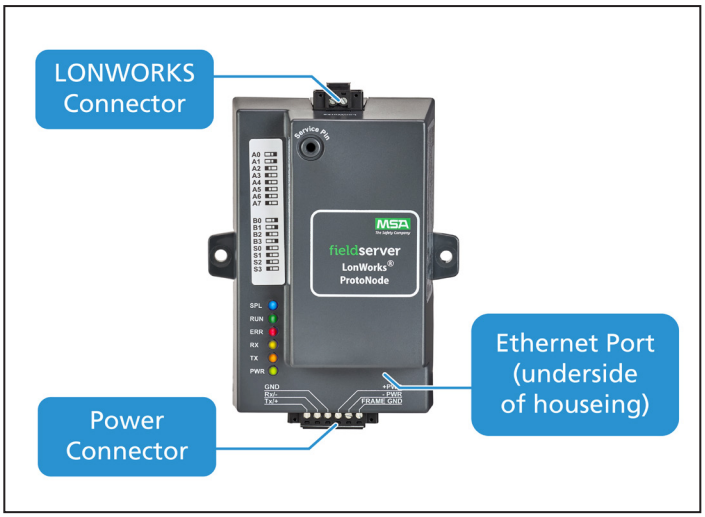


Figure 5 shows the important features of the LONWORKS Gateway, which are described in the following sections.

Figure 5: LONWORKS Gateway - Main Features



LONWORKS Network Connector

The network connector is the physical connection between the LONWORKS gateway and the FTT-10A bus. Two pins are used for this purpose as shown in Figure 5. LONWORKS has no polarity.

Power Connector

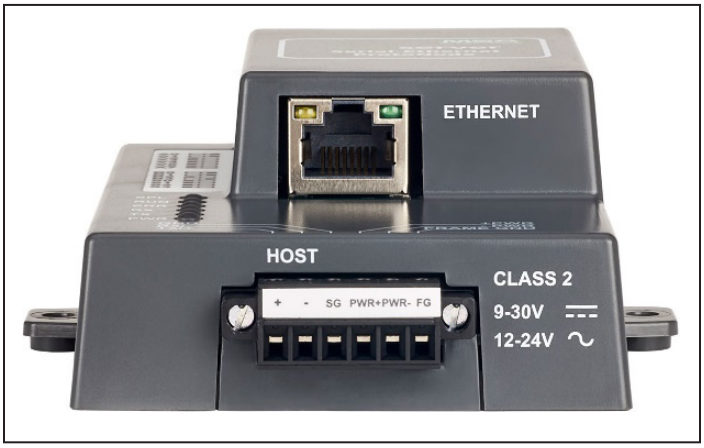
The LONWORKS gateway accepts either 9-30VDC or 12-24 VAC on pins 4 and 5. If using an AC power supply, connect Line to pin 4 and Neutral to pin 5. If using DC power, connect Positive (+) to pin 4 and Negative (-) to pin 5. When using either AC or DC power, Frame Ground (Pin 6) should be connected to ground (see "Wiring the LONWORKS Gateway" on page 11 for more details).

Power	Pin #	Label
Power In (+)	4	+PWR
Power In (-)	5	-PWR
Frame Ground	6	FRAME GND

Ethernet Port

The RJ-45 Ethernet Port (Figure 6) is used to communicate with the BACnet IP module on the unit controller. It is also used to connect to a PC for gateway configuration. See "Wiring the LONWORKS Gateway" on page 11 for more details

Figure 6: Gateway Ethernet Port



Service Pin

The service pin generates a service-pin message containing the Neuron® ID and the program code identification of the LONWORKS gateway. The service pin message is used to commission the LONWORKS communication module by broadcasting it on the network. To activate the service pin, insert a small screwdriver into the Service Pin slot on the gateway, then tilt toward the LONWORKS port.

Neuron ID

The basis of the LONWORKS gateway is an Echelon Neuron integrated circuit (Neuron chip). Every Neuron chip has a unique 48-bit Neuron ID or physical address. The Neuron ID is used to address the device on the LONWORKS network.

Diagnostic LEDs

Diagnostic LEDs are provided to indicate gateway status and to help in troubleshooting. The table below describes the function of these LEDs.

Tag	Description
SPL	LED remains lit until the gateway is commissioned on the LonWorks network.
RUN	LED starts flashing within 30 seconds after power-up indicating normal gateway operation.
ERR	LED will turn on steady to indicate a system error on the unit.
RX	Not used for LonWorks.
TX	Not used for LonWorks.
PWR	LED is on steady when the gateway is powered.

Installation and Wiring

The following sections describe how to field install and wire a new LONWORKS gateway or replace an existing gateway. It also describes the basic process of installing and wiring the BACnet IP communication module on the Chiller Unit Controller. Once these components are installed and wired, they must be configured (see “Device Configuration” on page 14).

⚠ CAUTION

Static sensitive components. Can cause equipment damage. Discharge any static electrical charge by touching the bare metal inside the control panel before performing any service work. Never unplug cables, circuit board terminal blocks, or power plugs while power is applied to the panel

⚠ DANGER

Electric shock hazard. Can cause personal injury or equipment damage. This equipment must be properly grounded. Only personnel knowledgeable in the operation of the equipment being controlled must perform connections and service to the unit controller.

Prior to installing the LONWORKS gateway and BACnet IP Communication Module, disable the chiller, then remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.

Field Installation Kit

The LONWORKS gateway field installation kit ships with the following items: LONWORKS gateway and all necessary connectors, self-tapping sheet metal screws, DIN Rail and DIN Rail Stops, Ethernet patch cable, and wires for powering the LONWORKS gateway.

Additionally, if there is no existing BACnet IP module on the unit, the field-installed kit will contain the following: BACnet IP Communication Module with all necessary connectors, wires for powering the BACnet IP Communication Module, and wires for connecting the BACnet IP Communication Module to the Chiller Unit Controller.

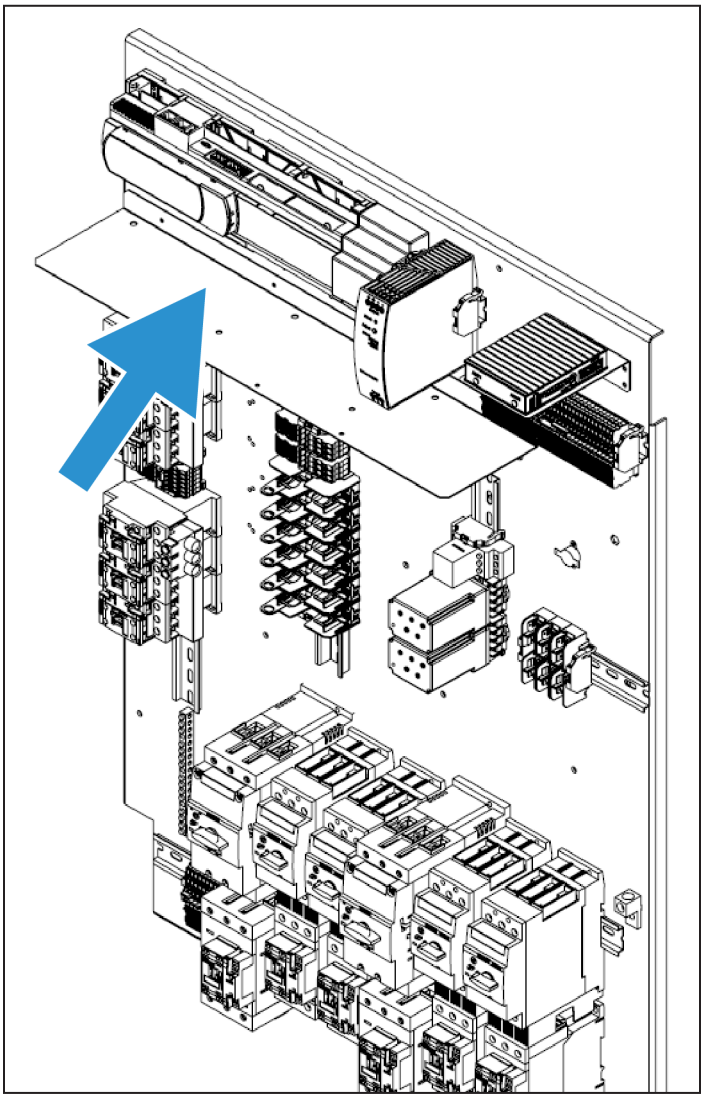
Tools Required

- 2.5 mm precision slotted screwdriver
- #1 slotted screwdriver
- Wire stripping and cutting pliers
- Cordless drill/driver
- Drill bit set (suitable for use on metal)
- Nut driver set

Installing a New LONWORKS Gateway

For an AGZ-F chiller, the LONWORKS gateway is installed on top of the voltage separator within the control panel (Figure 7). The gateway is mounted to the provided section of DIN rail, which is installed on the voltage separator.

Figure 7: LONWORKS Gateway Location - AGZ-F



To install the LONWORKS gateway using DIN rail, complete the following steps:

1. Disable the chiller by setting the Unit On/Off Switch to “OFF” from the control box door.
2. Remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Hold the supplied section of DIN rail against the voltage separator and mark the pilot hole locations for the mounting screws. Figure 8 shows the recommended installation

location along with expected wire routing.

4. Drill the pilot holes in the voltage separator, being sure to remove any metal fragments from the panel.
5. Using the self-tapping sheet metal screws, secure the DIN rail section to the voltage separator.
6. Install the gateway to the DIN rail by first hooking the top of the DIN rail bracket (Figure 9) then gently pressing downward to hook the bottom of the bracket. The DIN rail bracket should firmly snap in place.
7. Secure DIN rail stops to the DIN rail on either side of the LONWORKS gateway

NOTICE

Due to space constraints on the DIN rail, it may be necessary to snap off the surface mounting tabs on each side of the gateway.

Figure 8: Installation and Wire Routing

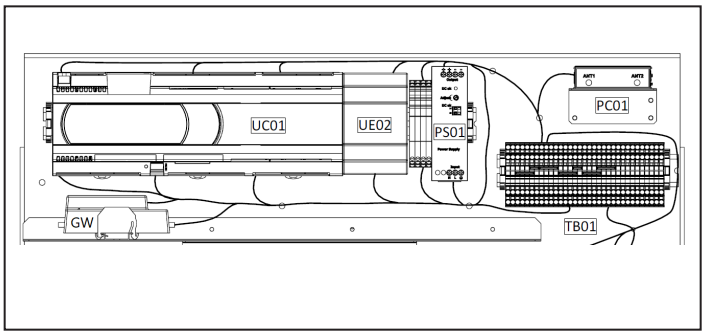
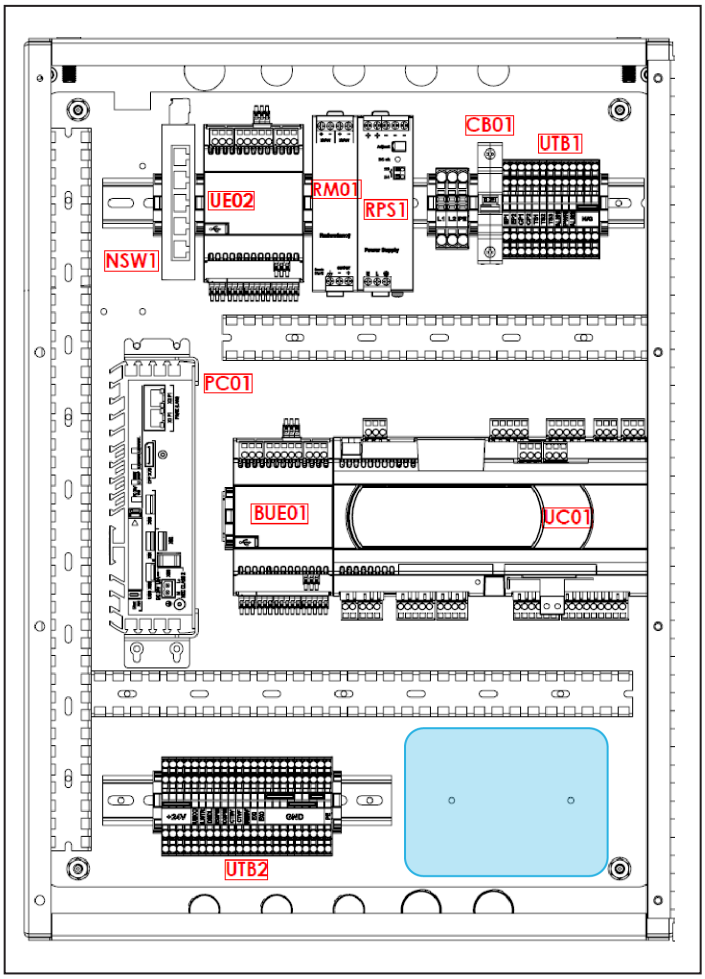


Figure 9: DIN Rail Bracket Installed

For a WMT chiller, the LONWORKS gateway can be installed directly to the control panel backplane using the surface mounting tabs on each side of the gateway. If using this mounting method, the pre-installed DIN rail bracket must be removed from the back of the gateway prior to mounting the gateway. The gateway should be mounted in the available space in the lower right corner of the control panel backplane (shaded area of Figure 10).

Figure 10: LONWORKS Gateway Location – WMT



To install the LONWORKS gateway directly to the backplane, complete the following steps:

1. Disable the chiller by setting the Unit On/Off Switch to “OFF” from inside the control panel of the unit.
2. Remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Determine where to place the gateway within the available space on the backplane, being sure to allow room for wiring. The gateway may be oriented horizontally or vertically, whichever works best for the application.
4. Hold the gateway against the backplane and mark the pilot hole locations for the mounting tabs.
5. Drill the pilot holes in the backplane, being sure to remove any metal fragments from the panel.
6. Using the provided self-tapping sheet metal screws, secure the LONWORKS gateway to the backplane.

Alternatively, the LONWORKS gateway can be mounted using the provided DIN rail. To install the LONWORKS gateway using DIN rail, complete the following steps:

1. Disable the chiller by setting the Unit On/Off Switch to "OFF" from inside the control panel of the unit.
2. Remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Determine where to place the gateway within the available space on the backplane, being sure to allow room for wiring. The gateway may be oriented horizontally or vertically, whichever works best for the application.
4. Hold the DIN rail against the backplane and mark the pilot hole locations.
5. Drill the pilot holes in the backplane, being sure to remove any metal fragments from the panel.
6. Using the self-tapping sheet metal screws, secure the DIN rail section to the backplane.
7. Install the gateway to the DIN rail by first hooking the top of the DIN rail bracket (Figure 9) then gently pressing downward to hook the bottom of the bracket. The DIN rail bracket should firmly snap in place.
8. Secure DIN rail stops to the DIN rail on either side of the LONWORKS gateway

NOTICE

Due to space constraints on the DIN rail, it may be necessary to snap off the surface mounting tabs on each side of the gateway.

Installing the BACnet IP Communication Module

For an AGZ-F chiller, depending on unit options, there may be an existing BACnet IP communication module installed in the unit control panel that is used only for I/O. In this case, there is no new BACnet hardware to install, however, BACnet IP communication must be enabled. This process is described in "Configuring the BACnet IP Communication Module" on page 17.

If there is no existing BACnet IP communication module installed in the unit control panel, the communication module must be added. The following steps are required to complete the installation:

1. Ensure the Unit On/Off Switch is still in the "OFF" position.
2. Ensure power is removed at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Install the new BACnet IP communication module to the right of the unit controller by gently pressing it onto the DIN rail until the connector tabs snap into place (see Figure 3 for location).
4. Connect all power and communication wiring to the module (see "Wiring the BACnet IP Communication Module" on page 13 for more details).

For installation of a BACnet IP communication module on a WMT chiller, the existing unit I/O-only module must be replaced. The following steps are required to complete the installation:

1. Disable the chiller by setting the Unit On/Off Switch to "OFF" from inside the control panel of the unit.
2. Remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Carefully disconnect and label all pre-terminated plugs prior to removing the existing I/O module.
4. Remove the I/O-only module from the DIN rail by lifting the connector tabs on the back of the module using a slotted screwdriver.
5. Install the BACnet IP communication module in the same location by gently pressing it onto the DIN rail until the connector tabs snap into place.
6. Reconnect all labeled, pre-terminated plugs to the corresponding ports on the BACnet IP communication module.
7. Connect all communication wiring to the module (see "Wiring the BACnet IP Communication Module" on page 13 for more details).

Replacing a LONWORKS Gateway

The following steps are required to complete the replacement of an existing LONWORKS gateway:

1. Disable the chiller by setting the Unit On/Off Switch to "OFF" from inside the control panel of the unit.
2. Remove power from the unit at either the unit disconnect switch or panel disconnect. Follow all applicable lockout/tagout procedures and verify power is absent before completing the installation. Only repower the unit once all electrical connections are finalized.
3. Carefully disconnect and label all pre-terminated plugs prior to removing the existing LONWORKS gateway.
4. Remove the existing gateway from the DIN rail or backplane (depending on installation method).

NOTICE

To remove the gateway from DIN rail, press gently downward on the gateway, then pull the gateway away from the DIN rail.

5. Install the replacement LONWORKS gateway using the instructions provided in Installing a New LONWORKS Gateway.
6. Reconnect all labeled, pre-terminated plugs to the corresponding ports on the replacement gateway.
7. Repower the unit.
8. Enable the chiller by setting the Unit On/Off Switch to "ON".

Wiring the LONWORKS Gateway

For an AGZ-F chiller, the LONWORKS gateway is wired to 24VDC in the unit control panel at terminal strip TB01 (field verify 24VDC control panel connections on unit as-built schematics). To complete the power wiring:

1. Ensure power is still removed from the chiller.
2. Cut (2) 22-inch sections of wire from the 6' length of provided 18 AWG wire (yellow insulation), then strip ¼" of insulation from both ends of each section.
3. Strip ¼" of insulation from both ends of the supplied 18 AWG ground wire (green insulation).
4. Select a section of yellow wire and connect one end to the +PWR terminal on the gateway (Figure 11) and the other end to an available terminal on TB01 24V in the unit control panel (Figure 12).
5. Select the other section of yellow wire and connect one end to the -PWR terminal on the gateway (Figure 11) and the other to an available terminal on TB01 24N in the unit control panel (Figure 12).
6. Connect one end of the supplied ground (green) wire to the FRAME GND terminal on the gateway (Figure 11) and the other to an available terminal on TB01 GND1 in the unit control panel (Figure 12).

Figure 11: LONWORKS Gateway 24VDC Connections

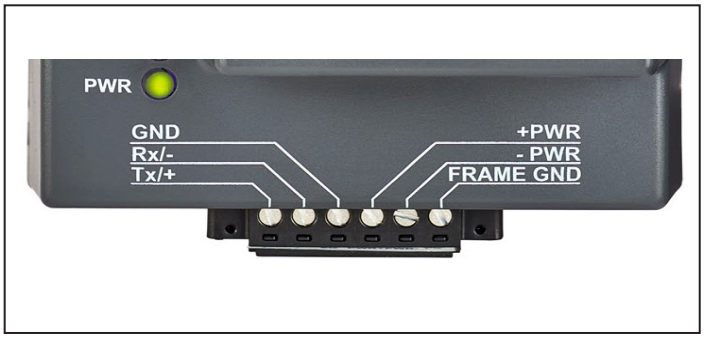
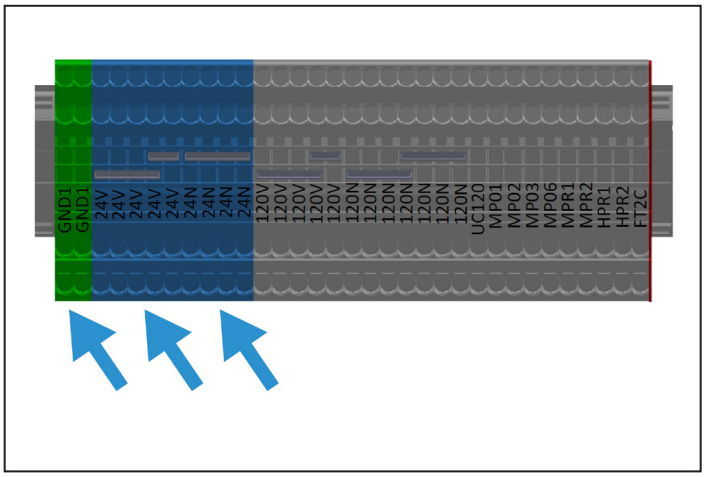


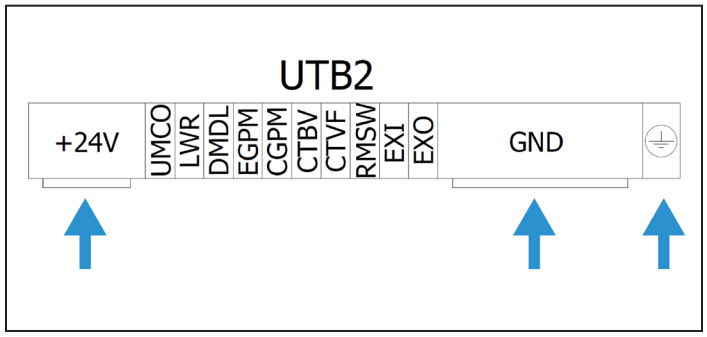
Figure 12: AGZ-F TB01 24VDC Connections



For a WMT chiller, the LONWORKS gateway is wired to 24VDC in the unit control panel at terminal strip UTB2 (field verify 24VDC control panel connections on unit as-built schematics). To complete the power wiring:

1. Ensure power is still removed from the chiller.
2. Cut (2) 22-inch sections of wire from the 6' length of provided 18 AWG wire (yellow insulation), then strip ¼" of insulation from both ends of each section.
3. Strip ¼" of insulation from both ends of the supplied 18 AWG ground wire (green insulation).
4. Select a section of yellow wire and connect one end to the +PWR terminal on the gateway (Figure 11) and the other end to an available terminal on UTB2 +24V in the unit control panel (Figure 13).
5. Select the other section of yellow wire and connect one end to the -PWR terminal on the gateway (Figure 11) and the other end to an available terminal on UTB2 GND in the unit control panel (Figure 13).
6. Connect one end of the supplied ground (green) wire to the FRAME GND terminal on the gateway (Figure 11) and the other to an available terminal on UTB2 Earth Ground in the unit control panel (Figure 13).

Figure 13: WMT UTB2 24VDC Connections

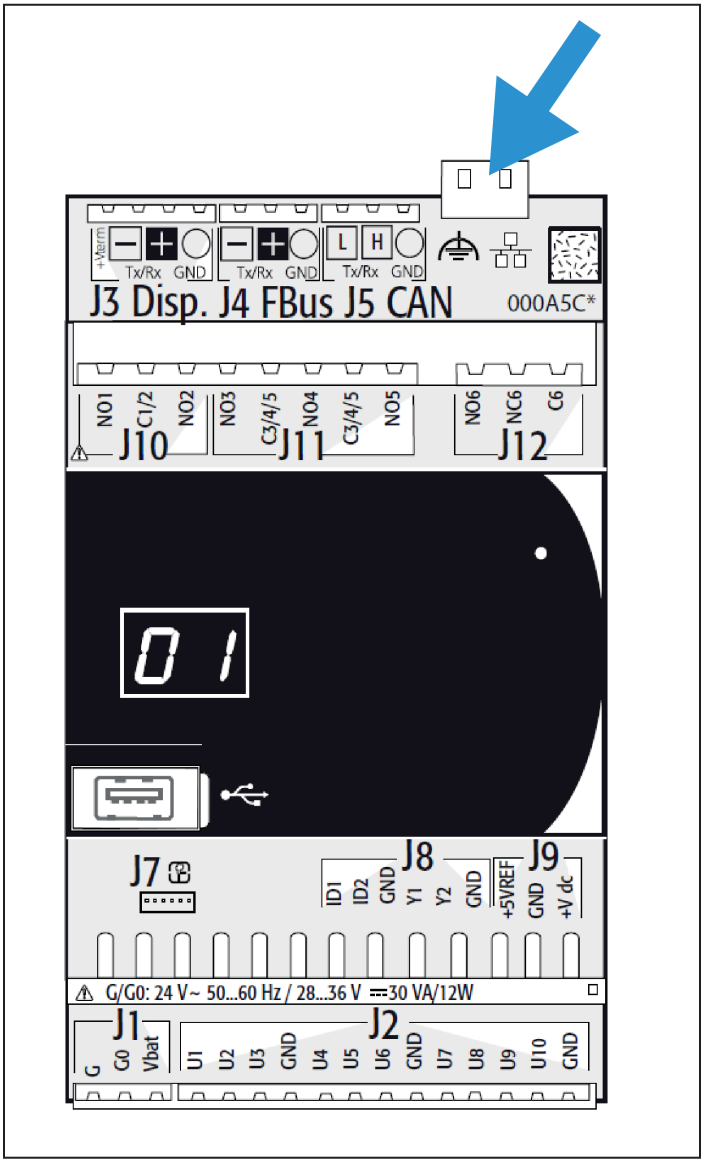


For both AGZ-F and WMT chillers, the LONWORKS gateway is connected to the BACnet IP communication module using the provided Ethernet patch cable. To complete the connection:

1. Ensure power is still removed from the chiller.
2. Insert one end of the Ethernet patch cable into the Ethernet port on the gateway (Figure 14).
3. Insert the other end of the Ethernet patch cable into the Ethernet port on the BACnet IP module (Figure 15).

Figure 14: LONWORKS Gateway Ethernet Port

Figure 15: BACnet IP Communication Module Ethernet Port Location

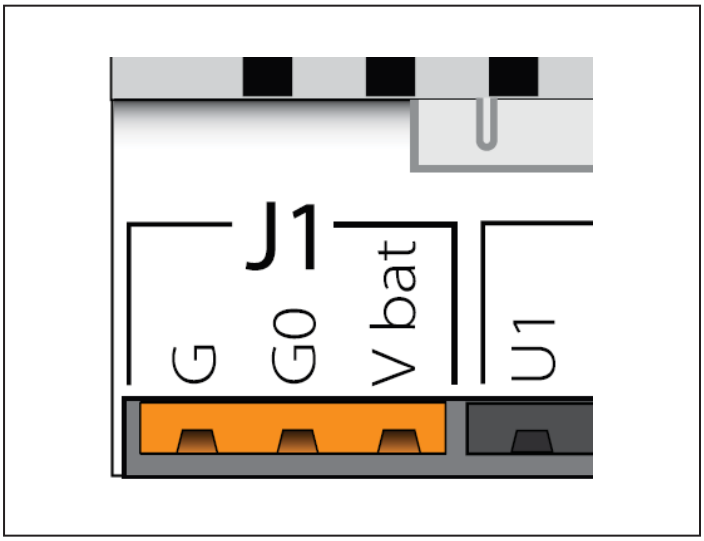


Wiring the BACnet IP Communication Module

For an AGZ-F chiller, if a new BACnet IP communication module was added in the unit control panel, the communication module must be powered. The following steps are required to complete the power wiring:

1. Ensure power is still removed from the chiller.
2. Cut (2) 18-inch sections of wire from the 6' length of provided 18 AWG wire (yellow insulation), then strip ¼" of insulation from both ends of each section.
3. Select a section of yellow wire and connect one end to the J1 G terminal on the BACnet IP module (Figure 16) and the other end to an available terminal on TB01 24V in the unit control panel (Figure 12).
4. Select the other section of yellow wire and connect one end to the J1 G0 terminal on the BACnet IP module (Figure 16) and the other end to an available terminal on TB01 24N in the unit control panel (Figure 12).

Figure 16: BACnet IP Module 24VDC Connections



For a WMT chiller, the existing power connection should have been completed while installing the BACnet IP communication module (refer to "Installing the BACnet IP Communication Module" on page 10).

For an AGZ-F chiller, if a new BACnet IP communication module was added in the unit control panel, the communication module must be connected to the unit controller. The following steps are required to complete the communication wiring between the unit controller and BACnet IP module:

1. Ensure power is still removed from the chiller.
2. Cut (1) 18-inch section from the 3' length of provided 4-conductor cable (grey jacket).
3. Remove ¾" of the jacket from each end of the cable, then strip 3/8" of insulation from both ends of the blue and white conductors.
4. On both ends of the cable, cut off the red, black, and drain conductors at the jacket (these are not used).
5. Connect the blue conductor from one end of the cable to the Positive (+) terminal on the J4 FBus Port of the BACnet IP communication module (Figure 17) and connect the blue conductor from the other end of the cable to the Positive (+) terminal on the J11 pLAN Port of the unit controller (Figure 18).
6. Connect the white conductor from one end of the cable to the Negative (-) terminal on the J4 FBus Port of the BACnet IP communication module (Figure 17) and connect the white conductor from the other end of the cable to the Negative (-) terminal on the J11 pLAN Port of the unit controller (Figure 18).

Figure 17: BACnet IP module

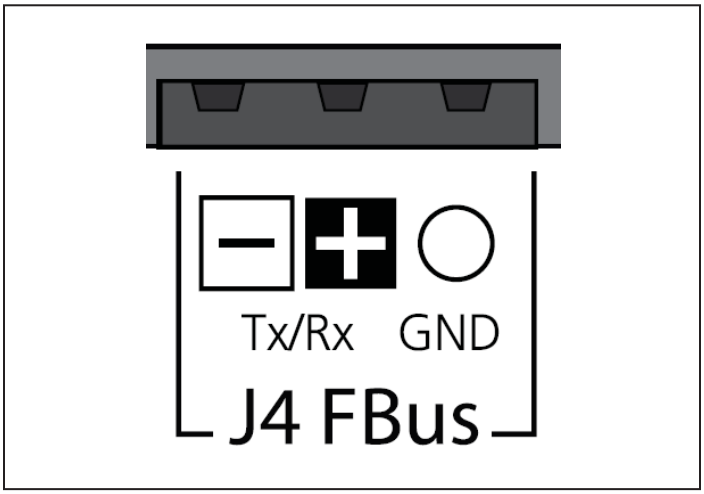
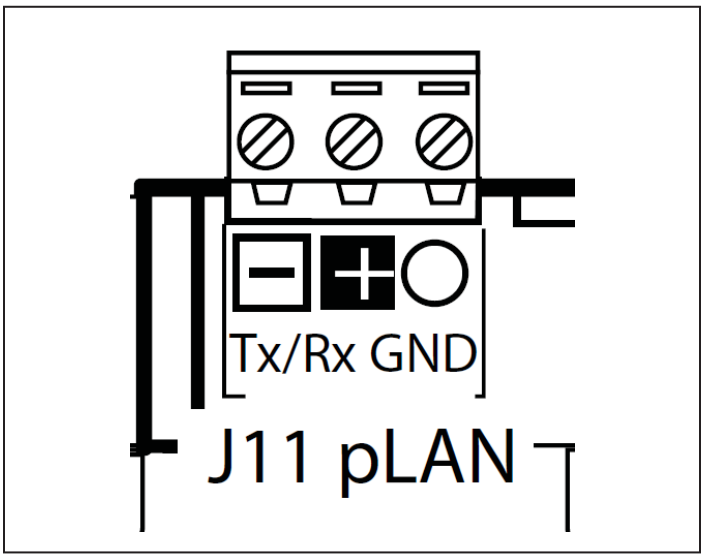


Figure 18: J11 pLAN Port (Unit Controller)



Device Configuration

The following sections describe how to configure the LONWORKS gateway. It also describes how to configure the BACnet IP communication module on the unit controller.

Configuring the LONWORKS Gateway

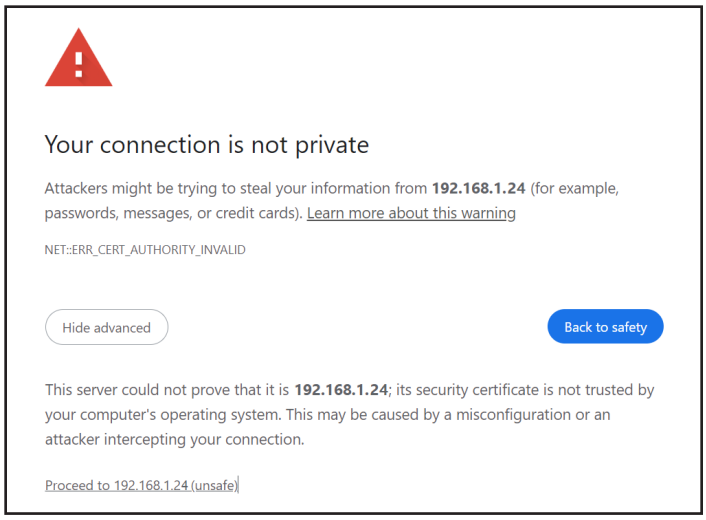
For the LONWORKS gateway to properly communicate to the BACnet IP module on the Chiller Unit Controller, the gateway must be configured. This is done through a web interface within the gateway. To access the web interface, the user's PC must be on the same subnet and have a compatible IP address. The default IP address for the gateway is192.168.1.24 with a Subnet Mask of 255.255.255.0. To configure the PC, complete the following steps (Windows 10 or newer):

1. Click the Search field in the Windows taskbar and type, "Control Panel".
2. Click the Control Panel icon, then click "Network and Sharing Center".
3. From the left side of the window, click "Change Adapter settings".
4. Right-click on the "Local Area Connection," then click the "Properties" command.
5. From the list of connections, select "Internet Protocol Version 4 (TCP/IPv4)," then click "Properties".
6. Select "Use the Following IP Address".
7. Enter an IP address compatible with the LONWORKS gateway default IP address, such as 192.168.1.25.
8. Enter the Subnet Mask as "255.255.255.0".
9. Click the "OK" button to close the Internet Protocol Version 4 (TCP/IPv4) window, then close the "Local Area Connection Properties" window.

Once the PC is configured, the web interface can be accessed to complete the gateway configuration. To configure the gateway, complete the following steps:

1. Temporarily remove the Ethernet cable from the BACnet IP communication module and plug it into the PC's Ethernet port. This provides the necessary Ethernet connection to the LonWorks gateway.
2. Open a web browser on the PC and enter the gateway's IP address of 192.168.1.24.
3. If connecting to the LONWORKS gateway for the first time, the IP address is likely to appear as untrusted. From the 'Your connection is not private' pop-up select "Advanced" (Figure 19), then Click "Proceed to 192.168.1.24 (unsafe)."

Figure 19: Your Connection Is Not Private



4. At the Login screen (Figure 20), enter the username "admin," then enter the unique default password found on the sticker on the right side of the gateway (Figure 21) and click Log In.

Figure 20: Gateway Login Screen

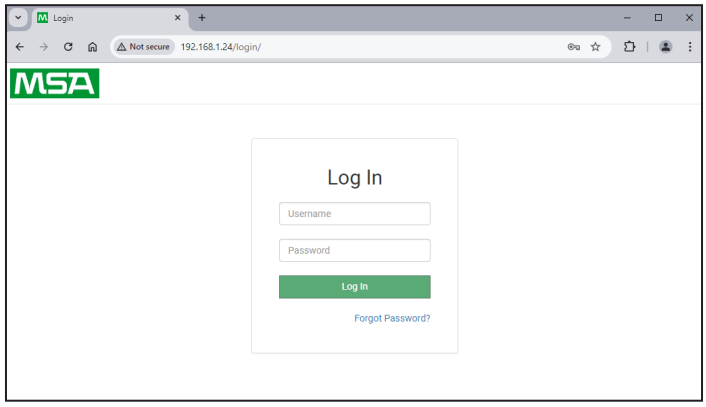
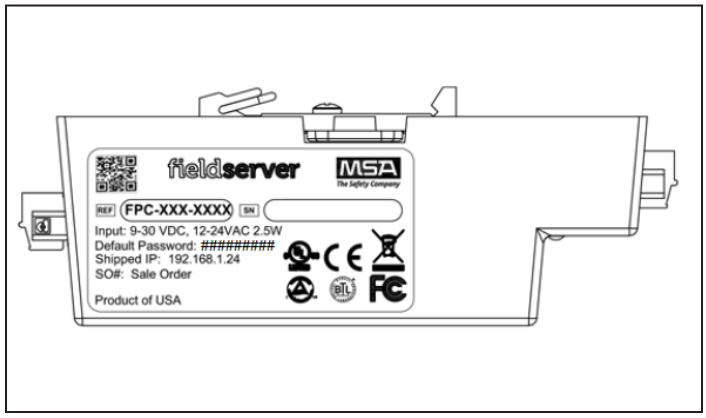
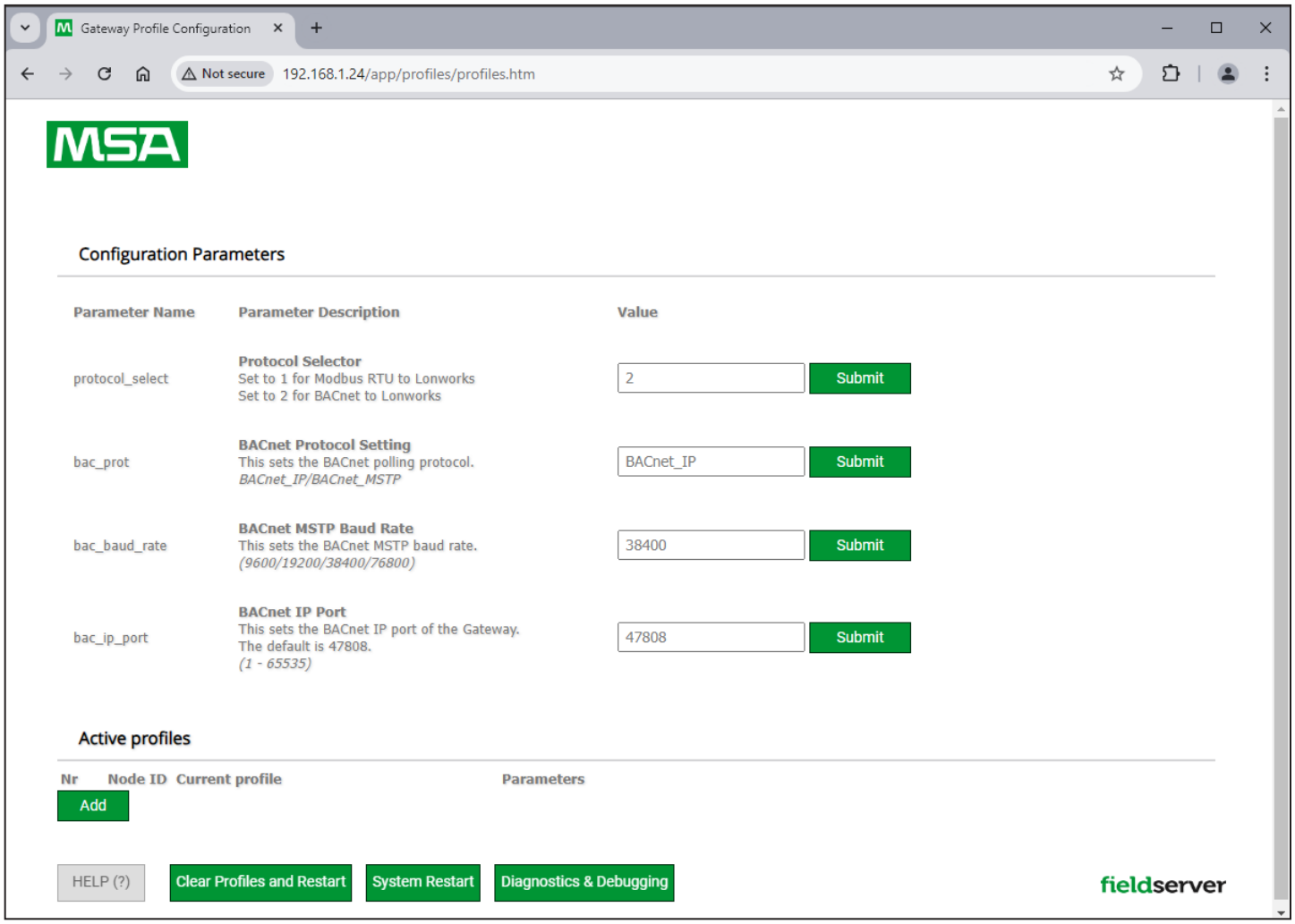


Figure 21: Gateway Password



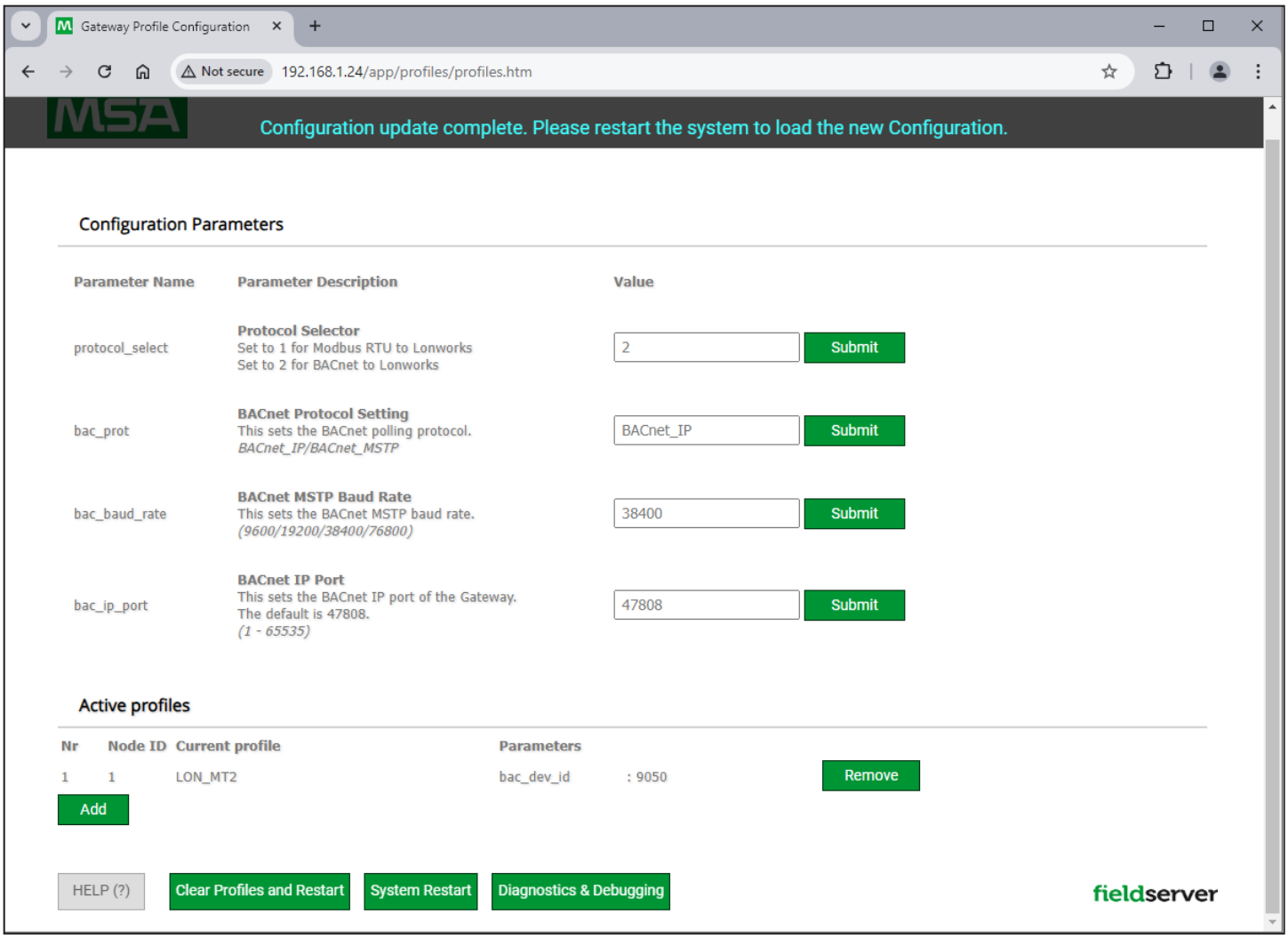
5. After a successful login, the "Gateway Profile Configuration" screen appears (Figure 22).

Figure 22: Gateway Profile Configuration



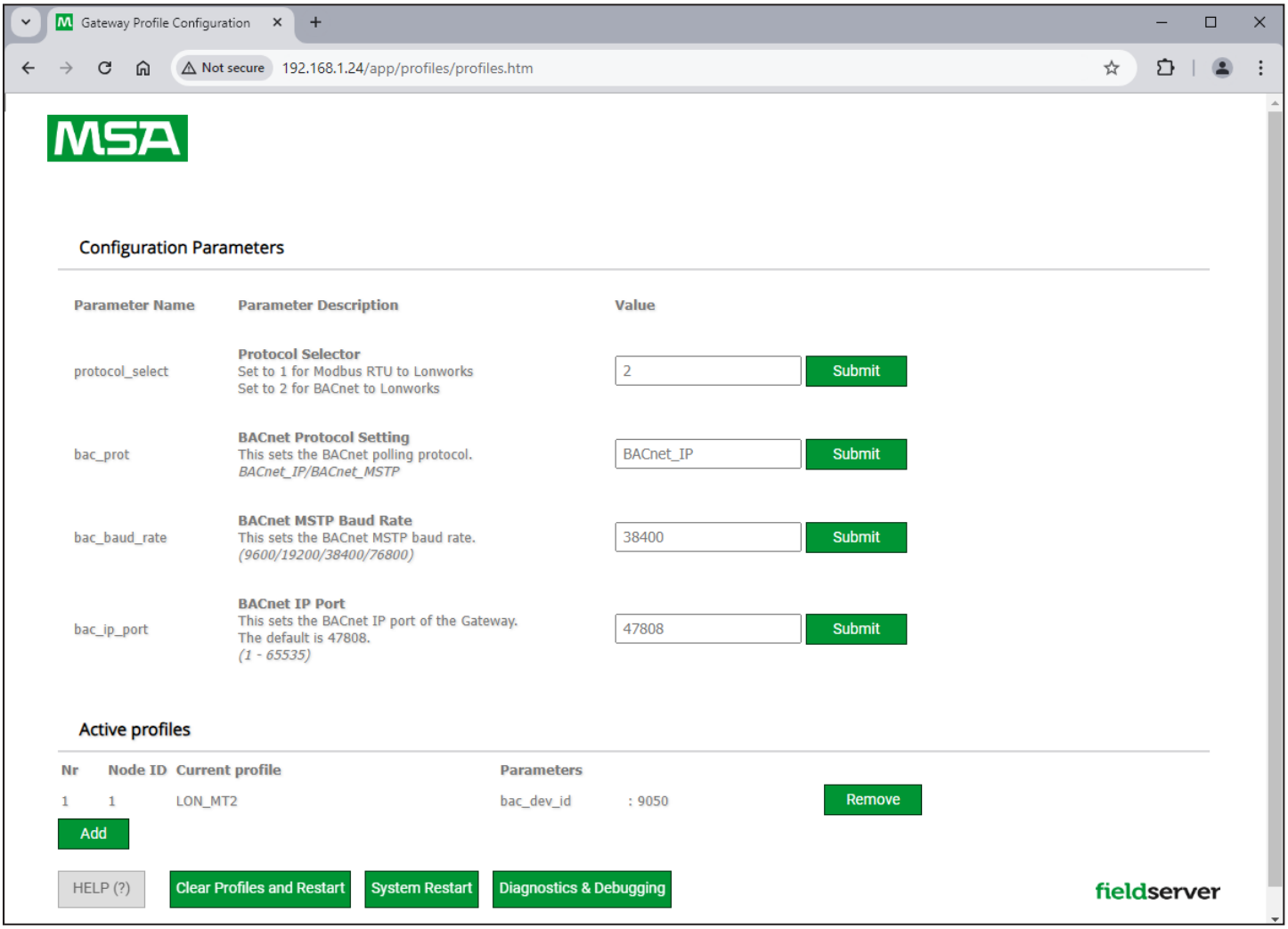
6. Under “Configuration Parameters,” enter the following settings:
   a. For “Protocol Selector” value, enter “2” (BACnet to Lonworks), then click the “Submit” button
   b. Once the web interface indicates a system restart is needed, click the “System Restart” button at the bottom of the screen and wait for the restart to finish
   c. Once the gateway has restarted, enter “BACnet_IP” for the “BACnet Protocol Setting,” then click the “Submit” button
   d. The web interface will again indicate a system restart is needed. Click the “System Restart” button at the bottom of the screen and wait for the restart to finish.
7. Under “Active profiles,” click the “Add” button, the enter/select the following settings:
   a. For “Node ID” value, enter “1”
   b. For “Current profile,” select “LON_MT2”
   c. For “bac_dev_id” (under “Parameters”), enter “9050”
   d. Then, click “Submit”
8. Once the profile is created, the web interface screen may indicate the need for a restart (Figure 23). Click the “System Restart” button at the bottom of the page.

Figure 23: Restart Needed



9. After the gateway restarts, the “Gateway Profile Configuration” screen should display the values shown in Figure 24.
10. If the values match, the gateway configuration is complete. Close the browser, then disconnect the Ethernet cable from the PC and reattach it to the Ethernet port on the BACnet IP module.
11. If the values do not match, repeat the previous steps to complete the gateway configuration until successful.

Figure 24: Correct Gateway Configuration



Configuring the BACnet IP Communication Module

The instructions in the next sections provide the necessary information to configure the BACnet IP module used to provide data to the LONWORKS gateway. A complete installation manual for the BACnet IP communication module, IM 1283, is available at www.DaikinApplied.com.

BACnet IP Configuration (AGZ-F)

Below is a preview of the configuration procedure, followed by detailed instructions for each step.

1. Disable the chiller.
2. Navigate to the BAS Configuration screen.
3. Set BAS Module Connected parameter.
4. Cycle power to the control panel.
5. Set BAS Protocol, Settings (Device Instance, IP Address, IP Gateway, and IP Subnet Mask), and Units.
6. Cycle power to the control panel.
7. Navigate to the Commission screen.
8. Set Control Source.
9. Enable the chiller.

The BACnet communication module is configured using the HMI on the chiller. Table 1 describes the available BACnet IP network parameters used to establish communication between the unit controller and the LONWORKS gateway. Below are detailed instructions for each step in the configuration process.

Disable the Chiller

1. Set the Unit Switch on the front of the unit control panel to the “OFF” position. When placed in the OFF position while the chiller is running, the Unit Switch will shut down the chiller in a controlled sequence and will stop each compressor that is running.

Set BAS Module Connection

1. From the chiller HMI, select the “Menu” icon (Figure 25).
2. From the Menu, select the “Configuration” icon (Figure 26). A keypad prompt will appear to enter a password. Key in the Manager level password of 2526. Press “OK” when all digits are entered.
3. From the Configuration screen, select the “BAS Configuration” icon (Figure 27).
4. Verify that “BAS Module Connected” is set to “Yes”. If it is not (Figure 28), proceed to step 5. If it is, proceed to “Set BAS Protocol, Settings, and Units” on page 19.
5. Select the “BAS Module Connected” parameter.
6. From the drop-down list, select “Yes,” then press “OK”.
7. Once the BAS Module Connected parameter is set to “Yes” (Figure 29), power must be cycled to the unit control panel to apply the changes.
8. After the unit control panel is repowered, proceed to Set BAS Protocol, Settings, and Units.

Figure 25: Menu Icon

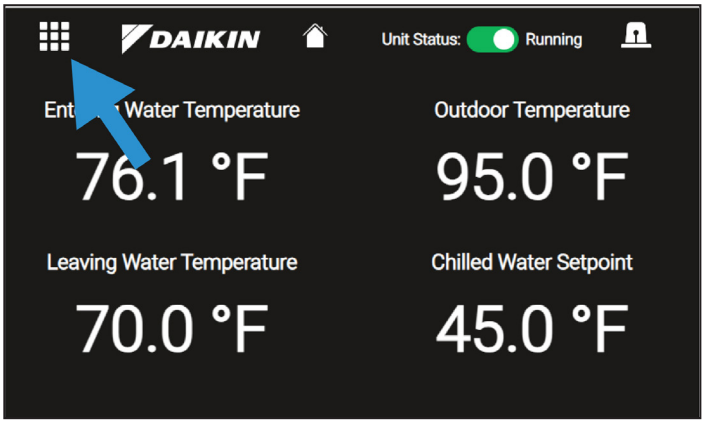


Figure 26: Configuration Icon

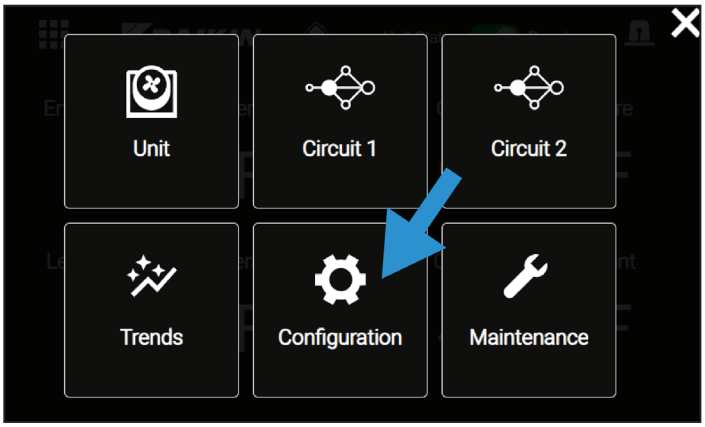


Figure 27: BAS Configuration Icon

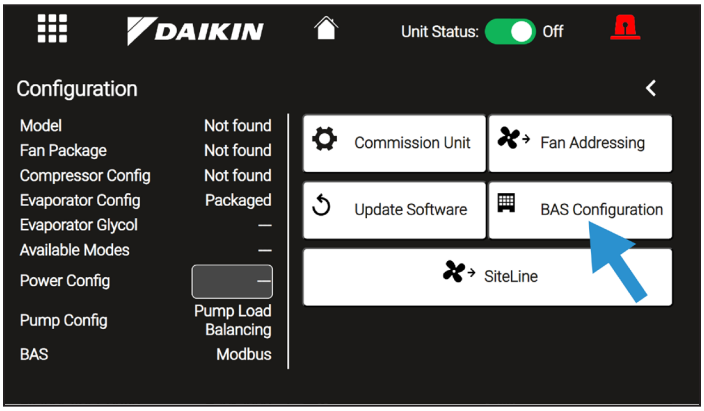


Figure 28: BAS Module Not Connected

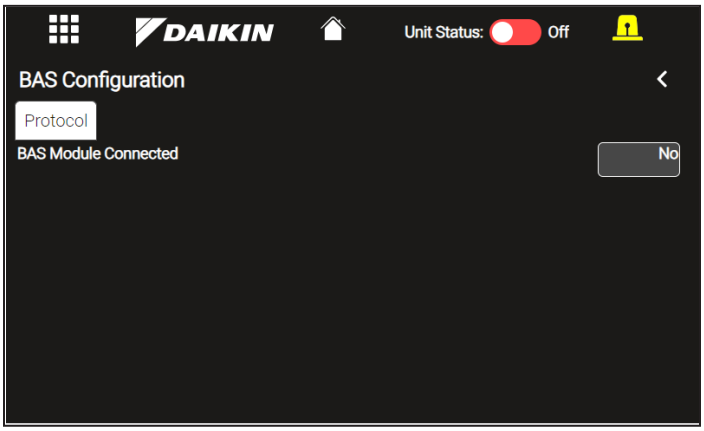
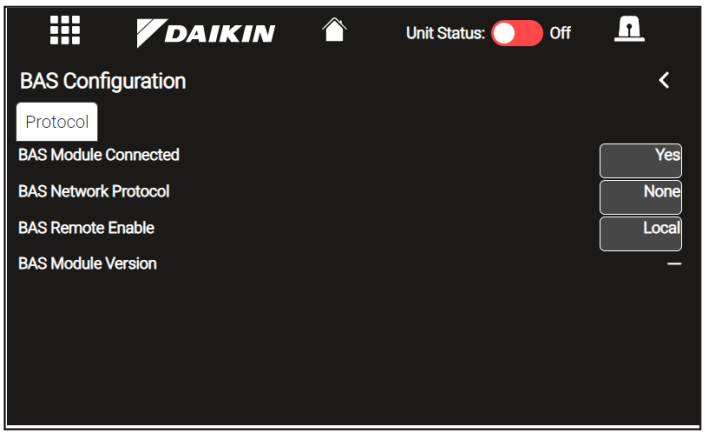


Figure 29: BAS Module Connected



Set BAS Protocol, Settings, and Units

1. From the “Protocol” tab of the BAS Configuration screen, select the “BAS Network Protocol” parameter.
2. A keypad prompt will appear to enter a password. Key in the Manager level password of 2526. Press “OK” when all digits are entered.
3. If necessary, press the “BAS Network Protocol” parameter again.
4. From the pop-up window, select “BACnet IP” (Figure 30). This sets the protocol to BACnet IP and enables the additional associated parameters on the “Settings” tab (for a complete list of all parameters, see Table 1).
5. If needed, select the “BAS Measurement Units” parameter and set to English, then press “OK”.
6. From the BAS Configuration screen, select the “Settings” tab.
7. If needed, select the “Device Instance” parameter, and set to 9050, then press “OK”.
8. If needed, select the “UDP Port” parameter and set to 47808, then press “OK”.
9. If needed, select the “DHCP Enable” parameter and set to Disabled, then press “OK”.
10. If needed, select the “IP Address” parameter, and set to 192.168.1.10, then press “OK”
11. If needed, select the “IP Gateway” parameter, and set to 192.168.1.1, then press “OK”
12. If needed, select the “IP Mask” parameter, and set to 255.255.255.0, then press “OK”
13. All necessary BACnet IP communication parameters should now be configured (Figure 31).
14. Cycle power to the unit control panel.
15. Proceed to “Set Control Source” on page 20.

Figure 30: BACnet IP Selected

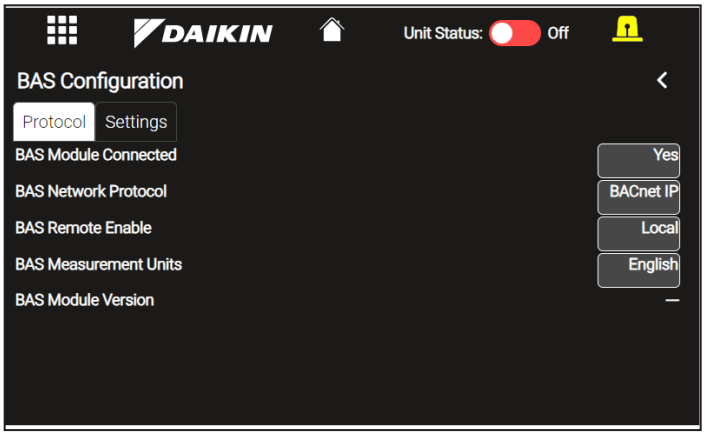
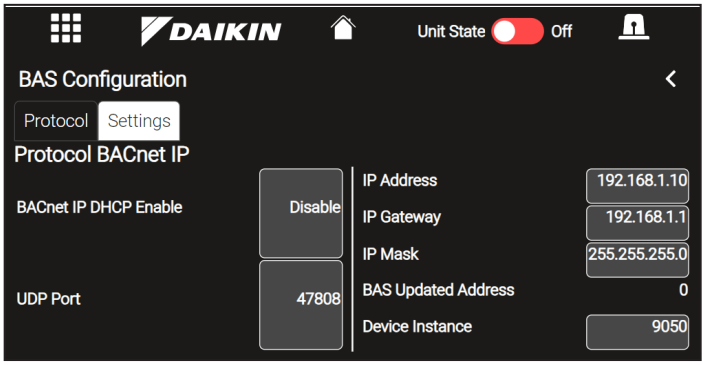


Table 1: BACnet IP Parameters

Parameter	Range/Default	Description
BAS Network Protocol	BACnet IP, BACnet MS/TP, Modbus, None Default: None	Sets the type of BAS communication protocol supported. Set this to **BACnet IP** for communication to the LONWORKS gateway.
BAS Measurement Units	English or Metric (SI) Default: English	Sets the Units of Measure that will be broadcast to the BAS. Set this to **English** (default) for communication to the LONWORKS gateway.
Device Instance	0 – 4194302 Default: 9050	Device Instance of the BACnet communication module. Set this to **9050** (default) for communication to the LONWORKS gateway.
UDP Port	Default: 47808 (BAC0 hex)	User Datagram Protocol. Set this to **47808** (default) for communication to the LONWORKS gateway.
IP Address	If DHCP is enabled, Address automatically assigned by network Default: 192.168.1.10	IP Address of the BACnet communication module. Set this to **192.168.1.10** (default) for communication to the LONWORKS gateway.
IP Gateway	If DHCP is enabled, Address automatically assigned by network Default: 192.168.1.1	Gateway Address of the BACnet communication module. Set this to **192.168.1.1** (default) for communication to the LONWORKS gateway.

Parameter	Range/Default	Description
IP Mask	If DHCP is enabled, Address automatically assigned by network Default: 255.255.255.0	Subnet Mask of the BACnet communication module. Set this to **255.255.255.0** (default) for communication to the LONWORKS gateway.
DHCP Enable	Default: Disabled	Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to automatically assign an IP Address. Set this to **Disabled** for communication to the LONWORKS gateway.

Figure 31: Chiller BACnet IP Settings Configured



Set Control Source

The “Control Source” parameter on the HMI determines the method used for controlling the chiller through the BAS. The available options are: Remote Switch, Local (OITS), and BAS. “Remote Switch” is used when hard-wired signals from a BAS will enable the chiller, provide leaving water setpoint reset and capacity limiting, and switch the chiller mode between cool and ice. “Local” is used when the chiller will only be controlled by the onboard HMI. “BAS” is used when a command from the BAS will enable the chiller, provide leaving water setpoint reset and capacity limiting, switch the chiller mode between cool and ice, and clear alarms. Table 2 provides a summary of chiller control with all possible settings of the “Control Source” parameter:

Table 2: Control Source Settings

Control Source = BAS	Control Source = Local or Remote Switch
Chiller will use BACnet/Modbus/LON Enable command, and will use Cool Setpoint, Ice Setpoint, Mode Setpoint, Capacity Limit Setpoint and Clear Alarm values written from BAS	Chiller will ignore BACnet/Modbus/LON Enable command, and will ignore Cool Setpoint, Ice Setpoint, Mode Setpoint, Capacity Limit Setpoint and Clear Alarm values written from BAS

1. From the Menu, select the “Unit” icon. (Figure 32).
2. On the Unit screen, select the “Setpoints” icon.
3. From the “Local” tab of the Setpoints screen, select the “Control Source” parameter. If prompted, enter the Manager level password of 2526. Press “OK” when all digits are entered.
4. If necessary, select the “Control Source” parameter again.
5. If a BAS will enable the chiller, provide setpoints, and clear alarms through LonWorks, select “BAS” from the drop-down list, then press “OK” (Figure 33).
6. Proceed to “Enable the Chiller” on page 21.

Figure 32: Unit Icon

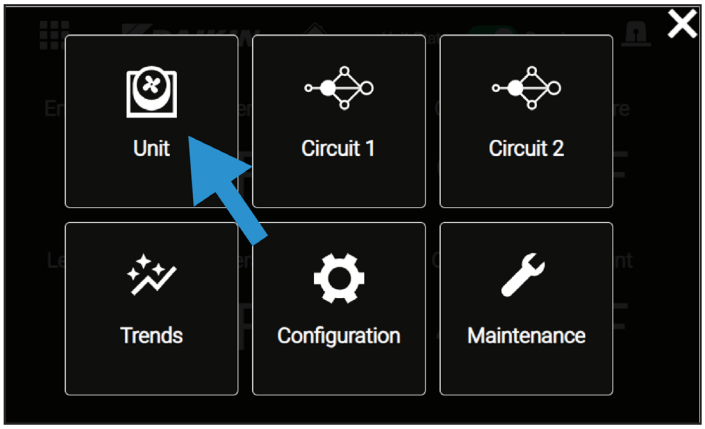
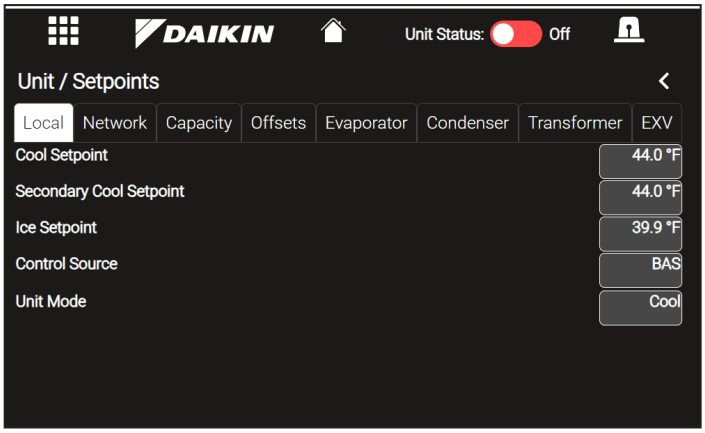


Figure 33: Control Source Parameter – BAS Selected



Enable the Chiller

Once all configuration is complete, the unit can be re-enabled.

1. Set the Unit Switch on the front of the unit control panel to the “ON” position. When placed in the ON position, the chiller is allowed to run based on its current enable/disable command.

BACnet IP Configuration (WMT)

Below is a preview of the configuration procedure, followed by detailed instructions for each step.

1. Disable the chiller.
2. Navigate to the Interface menu of the Settings screen.
3. Set BAS Module Connected parameter.
4. Cycle power to the control panel.
5. Set BAS Protocol, Settings (Device Instance, IP Address, IP Gateway, and IP Subnet Mask), and Units.
6. Cycle power to the control panel.
7. Navigate to the Modes menu of the Settings screen.
8. Set the Control Source.
9. Enable the chiller.

The BACnet communication module is configured using the HMI on the chiller. Table 3 describes the available BACnet IP network parameters used to establish communication between the unit controller and the LONWORKS gateway. Below are detailed instructions for each step in the configuration process.

Disable the Chiller

1. Set the Unit Switch to the “OFF” position. When placed in the OFF position while the chiller is running, the Unit Switch will shut down the chiller in a controlled sequence and will stop each compressor that is running.

Set BAS Module Connection

1. From the chiller HMI, select the “Settings” icon. This displays the Settings screen of the HMI. It is not necessary to have entered the password at this point.
2. From the Settings screen, select the “Interface” tab.
3. Under “BAS Protocol,” verify that “BAS Module Connected” is set to “Yes”. If it is not (Figure 34), proceed to step 4. If it is, proceed to “Set BAS Protocol, Settings, and Units” on page 21.
4. Select the “BAS Module Connected” parameter. A keypad prompt will appear to enter a password. Key in the Manager level password of 2001. Press “Enter” when all digits are entered. Note - there is a small delay between pressing the keypad and recording the entry. Be sure that an asterisk appears in the window before pressing the next number.
5. From the drop-down list, select “Yes” for the BAS Module Connected parameter.
6. Once the BAS Module Connected parameter is set to “Yes” (Figure 35), power must be cycled to the unit control panel to apply the changes.
7. After the unit control panel is repowered, proceed to “Set BAS Protocol, Settings, and Units” on page 21

Figure 34: BAS Module Not Connected

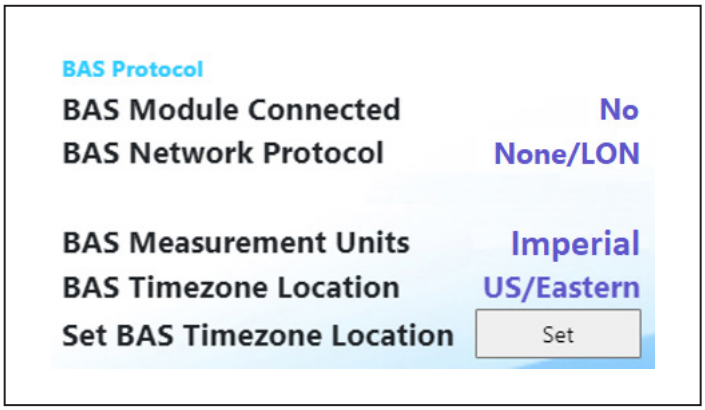
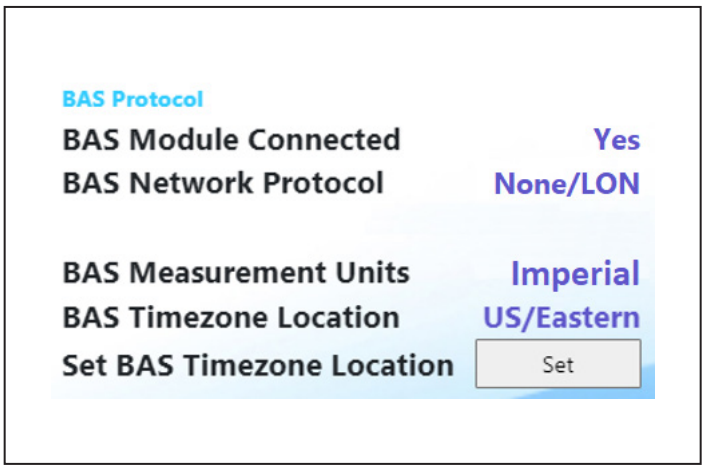


Figure 35: BAS Module Connected



Set BAS Protocol, Settings, and Units

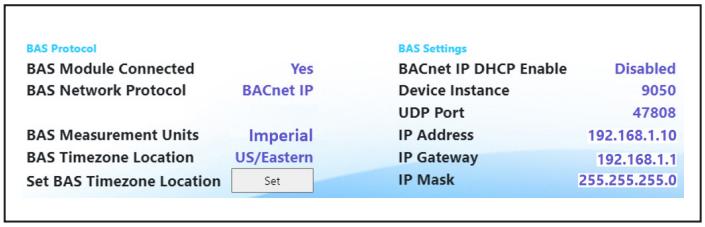
1. Under “BAS Protocol,” select the “BAS Network Protocol” parameter. A keypad prompt will appear to enter a password. Key in the Manager level password of 2001. Press “Enter” when all digits are entered. Note - there is a small delay between pressing the keypad and recording the entry. Be sure that an asterisk appears in the window before pressing the next number.
2. From the pop-up window, select “BACnet IP” then click Save. This sets the protocol to BACnet IP and enables the additional associated parameters on the “Interface” screen (for a complete list of all parameters, see Table 3).
3. If needed, select the “BAS Measurement Units” parameter under “BAS Protocol” and set to Imperial, then press “Save”.
4. If needed, select the “DHCP Enable” parameter under “BAS Settings” and set to Disabled, then press “Save”.

5. If needed, select the “Device Instance” parameter under “BAS Settings”. Using the keypad, enter 9050. Once all digits are entered, press the “Enter” button.
6. If needed, select the “UDP Port” parameter under “BAS Settings”. Using the keypad, enter 47808. Once all digits are entered, press the “Enter” button.
7. If needed, select the “IP Address” parameter under “BAS Settings”. Using the keypad, enter 192.168.1.10. Once all digits are entered, press the “Enter” button.
8. If needed, select the “IP Gateway” parameter under “BAS Settings”. Using the keypad, enter 192.168.1.1. Once all digits are entered, press the “Enter” button.
9. If needed, select the “IP Mask” parameter under “BAS Settings”. Using the keypad, enter 255.255.255.0. Once all digits are entered, press the “Enter” button.
10. All necessary BACnet IP communication parameters should now be configured (Figure 36).
11. Cycle power to the unit control panel.
12. Proceed to “Set Control Source” on page 23.

Table 3: BACnet IP Parameters

Parameter	Range/Default	Description
BAS Network Protocol	BACnet IP, BACnet MS/TP, Modbus, None Default: None	Sets the type of BAS communication protocol supported. Set this to **BACnet IP** for communication to the LONWORKS gateway.
BAS Measurement Units	Imperial or Metric (SI) Default: Imperial	Sets the Units of Measure that will be broadcast to the BAS. Set this to **Imperial** (default) for communication to the LONWORKS gateway.
BACnet IP DHCP Enable	Enabled or Disabled Default: Disabled	Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to automatically assign an IP Address. Set this to **Disabled** for communication to the LONWORKS gateway.
Device Instance	0 – 4194302 Default: 9050	Device Instance of the BACnet communication module. Set this to **9050** (default) for communication to the LONWORKS gateway.
UDP Port	Default: 47808 (BAC0 hex)	User Datagram Protocol. Set this to **47808** (default) for communication to the LONWORKS gateway.
IP Address	If DHCP is enabled, Address automatically assigned by network Default: 192.168.1.10	IP Address of the BACnet communication module. Set this to **192.168.1.10** (default) for communication to the LONWORKS gateway.
IP Gateway	If DHCP is enabled, Address automatically assigned by network Default: 192.168.1.1	Gateway Address of the BACnet communication module. Set this to **192.168.1.1** (default) for communication to the LONWORKS gateway.
IP Mask	If DHCP is enabled, Address automatically assigned by network Default: 255.255.255.0	Subnet Mask of the BACnet communication module. Set this to **255.255.255.0** (default) for communication to the LONWORKS gateway.

Figure 36: BACnet IP Module Configured



Set Control Source

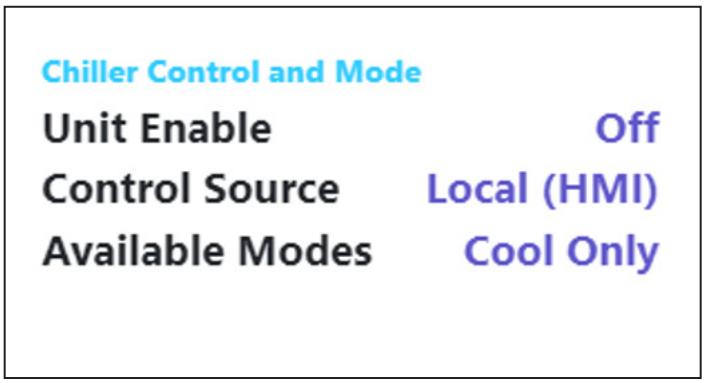
The “Control Source” parameter on the HMI determines the method used for controlling the chiller through the BAS. The available options are: Remote Switch, Local (HMI), and BAS. “Remote Switch” is used when hard-wired signals from a BAS will enable the chiller, provide leaving water setpoint reset and capacity limiting, and switch the chiller mode between cool and ice. “Local” is used when the chiller will only be controlled by the onboard HMI. “BAS” is used when a command from the BAS will enable the chiller, provide leaving water setpoint reset and capacity limiting, switch the chiller mode, and clear alarms. Table 4 provides a summary of chiller control with all possible settings of the “Control Source” parameter:

Table 4: Control Source Settings

Control Source = BAS	Control Source = Local or Remote Switch
Chiller will use BACnet/Modbus/LON Enable command, and will use Cool Setpoint, Ice Setpoint, Mode Setpoint, Capacity Limit Setpoint and Clear Alarm values written from BAS	Chiller will ignore BACnet/Modbus/LON Enable command, and will ignore Cool Setpoint, Ice Setpoint, Mode Setpoint, Capacity Limit Setpoint and Clear Alarm values written from BAS

1. From the “Settings” screen on the HMI, select the “Modes” tab.
2. Locate the “Control Source” parameter under the “Chiller Control and Mode” category (Figure 37).
3. Select the “Control Source” parameter.
4. If the keypad appears, key in the Operator-level password of 100, then press “Enter” when all digits are entered
5. If a BAS will use BACnet commands to enable the chiller, provide a leaving water setpoint and capacity limiting, switch the chiller mode, and clear alarms, select “BAS” from the drop-down list.
6. Proceed to “Enable the Chiller”

Figure 37: Control Source Parameter



Enable the Chiller

Once all configuration is complete, the unit can be re-enabled.

1. Set the Unit Switch to the “ON” position. When placed in the ON position, the chiller is allowed to run based on its current enable/disable command.

Troubleshooting

The following procedures can be used to troubleshoot issues with a LONWORKS integration to the Chiller Unit Controller.

Table 5: Troubleshooting Procedures for Chiller Unit Controller Integration

Symptom	Protocol	Action
No communication between BAS and LONWORKS gateway	LONWORKS	Verify the network FTT-10A trunk is connected to both pins of the LONWORKS connector on the gateway Confirm the gateway is powered by ensuring the PWR LED is on steady
No communication between LONWORKS gateway and BACnet IP module (this would likely appear as all LONWORKS variables reading a value of zero at the BAS)	LONWORKS/BACnet IP	Confirm the Ethernet patch cable is firmly seated in the RJ-45 Ethernet port on both the BACnet IP module and the LONWORKS gateway Verify the LONWORKS gateway is configured per the instructions provided in section Configuring the LONWORKS Gateway within this document Verify the BACnet IP module is configured per the instructions provided in section Configuring the BACnet IP Communication Module within this document
Cannot Enable/Disable the chiller through the BAS network	LONWORKS	Confirm the Control Source parameter on the HMI is set to BAS Confirm the Unit Switch on the front of the unit control panel is set to the “ON” position
Cannot set Cool Setpoint, Mode Setpoint, Capacity Limit Setpoint, or Clear Alarms through the BAS network	LONWORKS	Confirm the Control Source parameter on the HMI is set to BAS

Please contact the Daikin Applied Controls Support Group at ctltechsupport@daikinapplied.com or (800) 432-1342 for additional assistance.

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