

Installation and Maintenance Manual

IM 968-5

Group: **Controls**

Part Number: **IM 968**

Date: **April 2022**

MicroTech® III Chiller Unit Controller LonWorks® Communication Module

Models AGZ and AMZ Trailblazer® Air-cooled Scroll Chiller

Models AWS and AWV Pathfinder® Air-cooled Screw Chiller

Model ADS Air-cooled Global Screw Chiller

Model WME, B Vintage, Magnitude® Magnetic Bearing Centrifugal Chiller

Model WWV, Navigator® Water-cooled Screw Chiller



Introduction	3	Installation	8
Revision History	3	Installation and Mounting	8
Notice	3	Field Installation Kit	8
Reference Documents	3	Installing a new Communication Module	8
Limited Warranty	3	Replacing a Communication Module	9
Hazardous Information Messages	3	Commissioning and Configuration	10
Features	4	LONWORKS Network Addressing	10
Specifications	4	External Interface File (XIF) and NXE Files	10
Dimensions	4	Resource Files	10
Component Data	5	Commissioning	10
Service Pin	5	Configuration	10
Light Emitting Diodes (LEDs)	6	Enter Password	11
BSP LED	6	Set Receive Heartbeat	11
BUS LEDs	6	Parts and Service	13
LONWORKS Network Connector	6	Troubleshooting	13
Board-To-Board Connector	6	General	13
Neuron ID	6	Network Wiring and Connections	13
Transceiver	6	Network Performance	13
Bus Termination	7	Parts	13
Transmission Specifications	7		
Software Interface to Unit Controller	7		

© 2022 Daikin Applied, Minneapolis MN. All rights reserved throughout the world

Daikin Applied reserves the right to change any information contained herein without prior notice. The user is responsible for determining whether this product is appropriate for his or her application.

This manual contains information regarding the network integration system used with MicroTech III unit controllers on Daikin Applied chillers. It describes how to install or replace a LONWORKS communication module on a MicroTech III chiller unit controller. It also explains how to set network parameters and establish communication between the chiller and LONWORKS network.

Revision History

IM 968	Oct 2009	Initial release
IM 968-1	Mar 2012	Changed OMM 998 to OM 1051. Added Model AGZ-D Updated Daikin branding. Added step 1 to set unit switch=off before installing a new module. Added AGZ-E and AWV chiller models, Troubleshooting section, reference to LonMark 3.4 certification, spec table, dimensional data, new photos, BSP version, and formatting changes
IM 968-2	Jan 2017	Added AMZ chiller model to data tables, Reference Documents, and other associated references.
IM 968-3	Mar 2017	Added WME & WWV chiller models.
IM 968-4	Jan 2018	Changed Network Parameters table. Updated Figure 12.
IM 968-5	Apr 2022	

Reference Documents

Company	Number	Title	Source
Daikin Applied	IOM 1242	Pathfinder Model AWV Air Cooled Chiller Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOM 1206	Trailblazer® Model AGZ Air Cooled Chiller Installation, Operation and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOM 1207	Trailblazer® Model AGZ Air Cooled Chiller Installation, Operation and Maintenance Manual - Pump Package and Remote Evaporator	www.DaikinApplied.com
Daikin Applied	IOM 1243	Trailblazer Model AMZ Air Cooled Chiller Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOM 1264	Navigator Model WWV Water-cooled Chiller Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOM 1202 (Legacy)	Pathfinder® Model AWS Air Cooled Chiller Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	IOMM 1033-6 (Legacy)	Magnitude Model WME, B vintage Magnetic Bearing Centrifugal Chiller Installation, Operation, and Maintenance Manual	www.DaikinApplied.com
Daikin Applied	ED 15120	MicroTech III chiller unit controller Protocol Information, LONWORKS and LONWORKS Networks	www.DaikinApplied.com
LonMark Interoperability Association	078-0120-01G	LonMark® Layers 1-6 Interoperability Guidelines, Version 3.4	www.lonmark.org
LonMark Interoperability Association	078-0120-01G	LonMark Application Layer Interoperability Guidelines, Version 3.4	www.lonmark.org
LonMark Interoperability Association	8040_10	LonMark Functional Profile: Chiller, Version 1.0	www.lonmark.org
Echelon Corporation	078-0156-01G	LONWORKS FTT-10A Free Topology Transceiver Users Guide	www.echelon.com

Limited Warranty

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

Hazardous Information Messages

Recognize Safety Symbols, Words and Labels

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.

CAUTION

Cautions indicate potentially hazardous situations, which can result in personal injury or equipment damage if not avoided.

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

WARNING

Warnings indicate potentially hazardous situations, which can result in property damage, severe personal injury, or death if not avoided.

DANGER

Dangers indicate a hazardous situation which will result in death or serious injury if not avoided. Electric shock hazard. Can cause personal injury or equipment damage. This equipment must be properly grounded. Connections and service to the MicroTech III Unit Controller must be performed only by personnel knowledgeable in the operation of the equipment being controlled.

NOTICE

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense. Daikin disclaims any liability resulting from any interference or for the correction thereof.

The LONWORKS communication module connects the MicroTech III chiller unit controller to a building automation system (BAS). This interface enables the exchange of LONWORKS variables between the unit controller and a LONWORKS Operating Network or LON.

Features

- Integration into a building automation and control system via LONWORKS
- LonMark® 3.4 certified with conformance to the chiller functional profile
- Network controller (Neuron chip) handles the complete LONWORKS network protocol and user application
- Simple attachment to a MicroTech III chiller unit controller
- LEDs that indicate communication status and network activity
- Configurable using standard LONWORKS commissioning tools such as Echelon's® LonMaker® software
- Circuit board components enclosed in protective housing

Specifications

The following section provides a summary of technical data and conformance to agency listings.

General	
Dimensions	W × H × D: 1.77 × 4.33 × 2.95 in (45 × 110 × 75 mm)
Weight	3.0 oz (85 g)
Material	Base - plastic, pigeon-blue
	Housing - plastic, light-gray
Operating	
Temperature	-40 – 158°F (-40 – 70°C)
Humidity	<90% RH
Atmospheric pressure	Min. 10 psi (70kPa), corresponding to max. 9,842 ft (3,000 m) above sea level
Storage and Transportation	
Temperature	-40 – 158°F (-40 – 70°C)
Humidity	<95% RH
Atmospheric pressure	Min. 3.77 psi (26 kPa), corresponding to max. 32,808 ft (10,000 m) above sea level
Electrical	
Power	Supplied via unit controller DC 5 V (+5% / -5%), max. 80 mA
Network cable	LON interface: Plug-in terminals 2 wires, interchangeable
Bus connection/ Transceiver	Galvanically isolated, 78k baud TP/FT-10 transceiver Connection to Bus via the T1 port Terminal plug: 2-pin spring cage top entry
LONWORKS datamemory	56 kbyte flash memory for the user application
Additional Components	
Board-to-board connector	10-pin plug between communication module and unit controller
Agency Listings	
US	UL916, UL873
Canada	CSA C22.2M205
Europe	
EMC directive	2004/108/EC
Low-voltage directive	2006/95/EC
RoHS directive	2002/95/EC

Dimensions

Figure 1 and Figure 2 provide key dimensional data.

Figure 1: LONWORKS Communication Module Top View

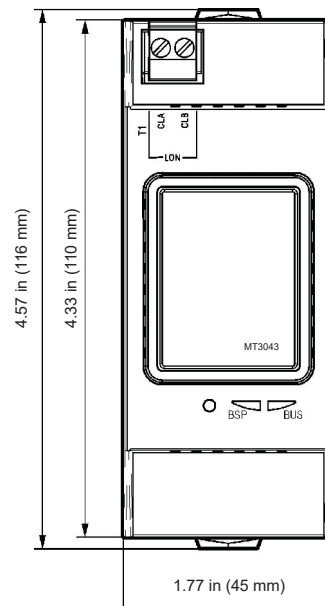
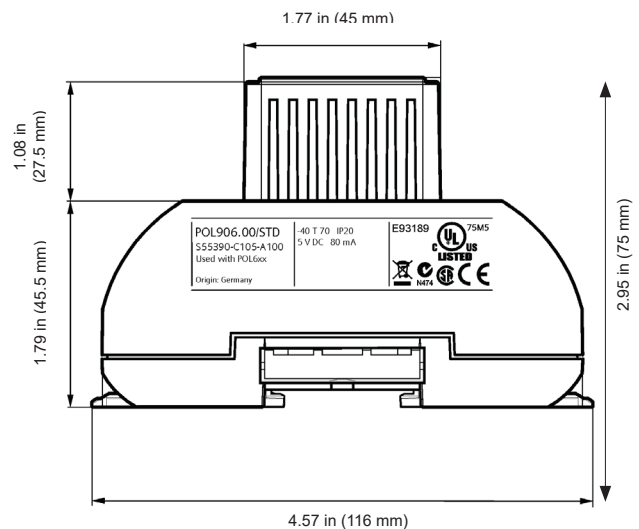


Figure 2: LONWORKS Communication Module Side View



Component Data

The LONWORKS communication module is a printed circuit board with a plastic enclosure. It connects directly to the left-hand side of the MicroTech III chiller unit controller as shown in [Figure 3](#). It may be possible that another module is also

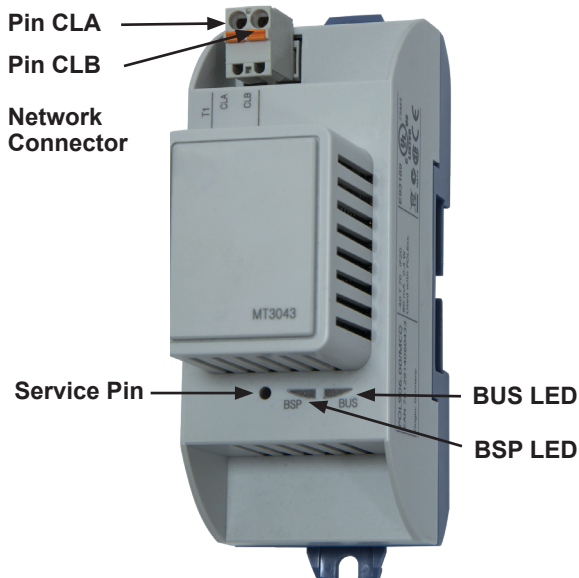
connected to the unit controller. In this case, the LONWORKS communication module simply attaches directly to the left side of the existing module instead of the unit controller.

Figure 3: LONWORKS Communication Module Attached to Unit Controller



[Figure 4](#) shows the important features of the LONWORKS communication module, which are described in the following section.

Figure 4: LONWORKS Communication Module - Main Features

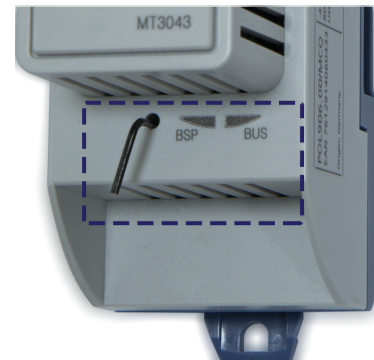


Service Pin

The service pin generates a service-pin message that contains the Neuron® ID and the program code identification of the node. The service pin message is used to commission the LONWORKS communication module by broadcasting it on the network ([Figure 4](#) and [Figure 5](#)).

The service pin button is located below the enclosure just left of the LEDs. The service pin is activated by inserting a small tool into the button. See [Commissioning](#) section for details.

Figure 5: Service Pin Detail



Light Emitting Diodes (LEDs)

The LONWORKS communication module has two LEDs that indicate communication activity and network status. These indicators are visible when the communication module is connected to the MicroTech III chiller unit controller and the unit is powered on (Figure 4).

BSP LED

The BSP LED indicates the communication state between the LONWORKS communication module and the unit controller (Table 1).

Table 1: BSP LED Activity

BSP LED Color	Description
Flashing that alternates between red and green	Board Support Package (BSP) firmware upgrade in progress.
Green	Communication is established between the communication module and the unit controller.
Yellow	The communication module is capable of communicating to the unit controller. However, communication is not established.
Flashing between red and yellow	Download the BSP firmware again. For BSP versions 9.26 and newer, the communication module enters a fail-safe mode ¹ after the initial BSP download is performed. However, two downloads are required.
Red flashing with 2Hz	BSP (firmware) error. ²
Red	Hardware error.

1. The fail-safe mode does not apply to communication modules with BSP versions older than 9.26.

2. In the event that this should occur, cycle power to the unit controller. Contact the Daikin Applied Controls Customer Support Group at 866-462-7829 for additional assistance if necessary.

BUS LEDs

The BUS LED indicates the communication status between the LONWORKS communication module and the network (Table 2).

Table 2: BUS LED Activity

BUS LED Color	Description
Green	The unit controller is capable of communicating to the network.
Yellow	The communication module is initializing.
Yellow flashing	The unit controller has not yet communicated with the network.
Red	Hardware error.

LONWORKS Network Connector

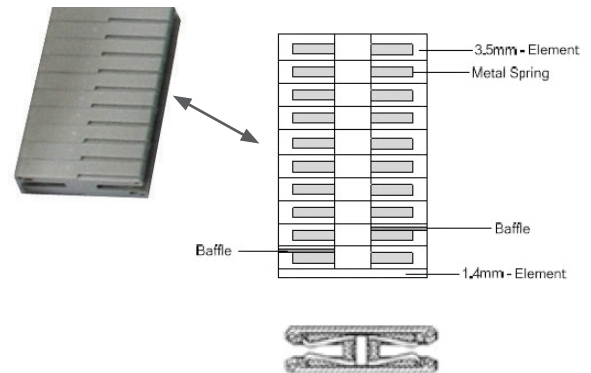
The network connector is the physical connection between the LONWORKS communication module and the FTT-10A bus. Two pins are used for this purpose as indicated below and shown in Figure 4.

Pin	Function
CLA	FTT-10A
CLB	FTT-10B

Board-To-Board Connector

The 10-pin board-to-board connector connects the MicroTech III chiller unit controller to the LONWORKS communication module (Figure 6 and Figure 8).

Figure 6: Board-to-Board Connector



Neuron ID

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

The Neuron ID is generally used only during initial installation or for diagnostic purposes. For normal network operation, a device address is used.

Transceiver

The LONWORKS communication module is equipped with an Echelon Free Topology Transceiver (FTT-10A) to enable network communication. The transceiver supports free network topology (including ring, star, and daisy-chain) using unshielded, twisted pair cable with polarity insensitive connections at each node. Free topology segments require termination for proper transmission performance.

Data transmission rate on the network is 78 kbps (baud).

Bus Termination

Bus termination resistors are used for properly terminating a network based on twisted pair cabling with attention to impedance.

NOTE: Refer to Echelon LONWORKS FTT-10A Transceiver User's Guide for details regarding acceptable configurations, cabling requirements, terminations, impedance, and other requirements (www.echelon.com).

Transmission Specifications

Component	Value
Network topology	Flexible Free Topology
Neuron chip processor	3150
Free Topology Transceiver (FTT-10A)	50051
Cable types	TIA Category 5 (recommended)
Maximum cable length	1476 ft (450 m) per segment (total of all lines)
Maximum node separation	820 ft (250 m)
Data transmission	Two-wire, half duplex
Data transmission rate	78 kbps (baud)
Bus terminator	Free topology: use one (1) 52.3 Ω bus terminator at the busiest point of the network Daisy chain or standard line (dual) topology: use two (2) 105 Ω bus terminators at the end of both network segments
Repeaters and routers	Repeaters and router are typically used when the entire cable length in a given segment exceeds 1476 ft (450 m) in a free topology or 2953 ft (900 m) in a line topology. Each trunk can have at maximum one physical repeater. Repeaters and routers may not be used in a ring topology. They must be placed before the network's ring port.

Software Interface to Unit Controller

The LONWORKS communication module software translates the Standard Network Variable Types (SNVTs) and Standard Network Configuration Parameter Types (SCPTs) used in the MicroTech III chiller unit controller into the variables and parameters used by the LONWORKS network. The software conforms to the LonMark 3.4 chiller profile. Refer to MicroTech III Chiller Unit Controller Protocol Document, ED 15120 for additional information (www.DaikinApplied.com).

Installation and Mounting

The following section describes how to field install a new LONWORKS communication module or replace an existing module on the MicroTech III chiller unit controller.

CAUTION

Electrostatic discharge hazard. Can cause equipment damage.

This equipment contains sensitive electronic components that may be damaged by electrostatic discharge from your hands. Before you handle a communication module, you need to touch a grounded object, such as the metal enclosure, in order to discharge the electrostatic potential from your body.

WARNING

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.

Field Installation Kit

The LONWORKS communication module field-installed kit ships with the following items:

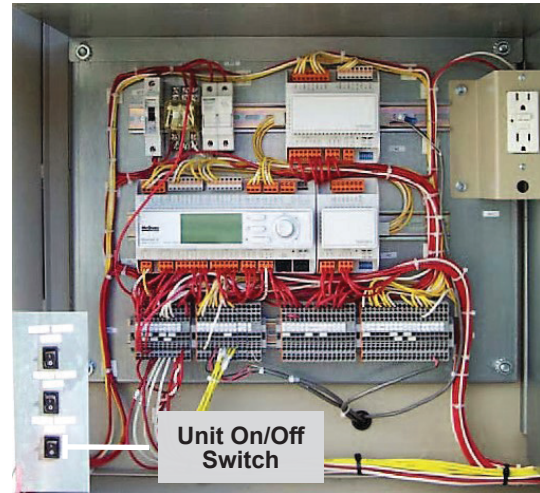
- The LONWORKS communication module
- Board-to-board connector - [Figure 6](#)
- This Manual (IM 968)

Installing a new Communication Module

Follow these steps to install a LONWORKS communication module on the unit controller. The communication module can be connected directly to the unit controller itself or to an existing module, if one is attached.

1. Set the Unit On/Off Switch to "Off" from inside the control panel of the unit. *This must be done prior to installing a new communication module.* See [Figure 7](#) for switch location.

Figure 7: Chiller Unit Controller On/Off Switch

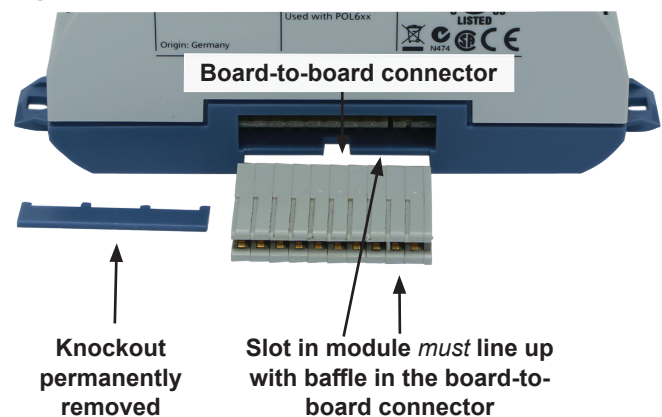


2. Remove power from the unit controller.
3. Carefully remove the blue plastic knockout strip on the far left end of the unit controller itself (or additional module, if present). [Figure 8](#) shows the knockout strip after it has been removed from the unit controller.

To prevent damage to the unit controller, insert a small flathead screwdriver or similar tool into the tab on the bottom of the unit controller and pull the screwdriver away from the controller.

4. Carefully remove the blue plastic knockout strip on the right side of the LONWORKS communication module.

Figure 8: Communication Module and Knockout



5. Insert the board-to-board connector into the LONWORKS communication module. Note that it only fits one way and that the baffles must line up with corresponding slots in LONWORKS communication module and the unit controller ([Figure 8](#) and [Figure 9](#)).

Figure 9: Communication Module with Board-to-Board Connector Inserted



6. Insert the other end of the board-to-board connector to the far-left side of the unit controller or other module, if attached.
7. Connect the LONWORKS communication module to the network by inserting a network cable into the communication module's network connector (Figure 4).
8. Apply power to the unit controller.

The unit controller automatically resets itself approximately 30 seconds after power has been applied to it. This reset is necessary so that the LONWORKS communication module can synchronize with the unit controller.

NOTE: There is a limit of three devices that can be attached to the left side of the unit controller.

9. Set the Unit On/Off Switch to "On" from inside the control panel of the unit.

Replacing a Communication Module

Follow these steps to remove an existing LONWORKS communication module from unit controller and replace it with a new module.

1. Set the Unit On/Off Switch to "Off" from inside the control panel of the unit. This must be done prior to replacing a communication module. See for switch location.
2. Remove power from the unit controller.
3. Locate the LONWORKS communication module to the left of the unit controller (Figure 3).
4. Gently pull the network cable connector from the LONWORKS communication module (Figure 4).
5. Grasp the LONWORKS communication module and carefully pull it from the unit controller (or from an adjacent module, if it is attached to one.)
6. Install the new LONWORKS communication module:
 - a. Carefully remove the blue plastic knockout strip on the right side of the LONWORKS communication module.
 - b. Insert the board-to-board connector into the LONWORKS communication module. Note that it only fits one way and that the baffles must line up with corresponding slots in the communication module and the unit controller (Figure 8 and Figure 9).
7. Insert the network cable connector into the LONWORKS communication module (Figure 4).
8. Apply power to the unit controller.

The unit controller automatically resets itself approximately 30 seconds after power has been applied to it. This reset is necessary so that the LONWORKS communication module can synchronize with the unit controller.

9. Set the Unit On/Off Switch to "On" from inside the control panel of the unit.

After the LONWORKS communication module has been installed, the MicroTech III chiller unit controller is ready for integration into a building automation system (BAS). The following section explains how the communication module, together with the unit controller, support LONWORKS network addressing requirements. It then provides instructions for commissioning and configuring the communication module.

LONWORKS Network Addressing

The LONWORKS communication module conforms to the network addressing rules as described in the LONWORKS FTT-10A Free Topology Transceiver Users Guide (www.echelon.com). According to the standard, all device addresses are defined at the time of network configuration. Device addresses have three parts:

1. The Domain ID - designates the domain. Devices must be in the same domain in order to communicate with each other.
2. The Subnet ID - specifies a collection of up to 127 devices that are on a single channel or a set of channels connected by repeaters. There may be up to 255 subnets in a domain.
3. The Node ID - identifies an individual device within the subnet.

A group is a logical collection of devices within a domain. Groups are assembled with regard to their physical location in the domain. There may be up to 256 groups in a domain. A group address is the address that identifies all devices of the group. There may be any number of devices in a group when unacknowledged messaging is used. Groups are limited to 64 devices if acknowledged messaging is used.

A broadcast address identifies all devices within a subnet or domain.

External Interface File (XIF) and NXE Files

The LONWORKS communication module conforms to LonMark guidelines. It is self-documenting so that any LONWORKS network management tool can be used for integration and configuration.

An external interface file (a specially formatted PC text file with the extension .XIF) is required, along with a LONWORKS network management tool, so the device can be designed and configured prior to installation.

The NXE file contains the application image that is downloaded into the LONWORKS communication module.

Resource Files

Resource files contain definitions of functional profiles, network variables types, configuration property types, and enumerations. Resource files are required for displaying Daikin Applied-specific variables that are not included in the standard device profile. The LONWORKS communication module uses the McQuayChiller (Scope 5) resource files.

The XIF, NXE, and Resource files are available at www.DaikinApplied.com or www.lonmark.org.

Commissioning

Follow these steps to commission the LONWORKS communication module:

1. Verify the communication module is attached properly to the unit controller.
2. Connect the twisted pair cable to the communication module's network connector pins CLA and CLB (Figure 4).
3. Download XIF, NXE, and Resource Files from either www.DaikinApplied.com or www.lonmark.org.
4. Use a LONWORKS network configuration tool, such as LonMaker®, to map the device Neuron ID to the domain/subnet/node logical addressing scheme when it creates the network image, the network address, and connection information.
5. Confirm that the BAS is ready to receive a network device broadcast message.
6. Press the service pin button. Do this by inserting the end of a 5/64" (2.0 mm) flathead screwdriver, Allen wrench, or similar tool with a narrow end, approximately 1.5 inches (3.8 cm) into the small hole to the left of the LEDs (Figure 5).

At this point, the initialization process begins. See Table 1 and Table 2 for descriptions of BSP and BUS LED activity. Once both LEDs turn a steady green, the module is capable of communicating between both the unit controller and the LONWORKS network.

NOTE: Always cycle power to the unit controller after 1) commissioning a device, 2) de-commissioning an existing device, and 3) subsequent re-commissioning of an existing device.

Configuration

There are certain parameters that can be configured using the unit controller keypad/display. These variables are described in Table 3. As a general rule, the LONWORKS communication module does not require configuration unless advised by the network administrator.

NOTE: Receive Heartbeat, Max Send Time, and Min Send Time are typical parameters that may need to be changed for your network. They should be modified on an as-needed basis. Maintain default values if possible.

The following steps describe how to set Receive Heartbeat for your network. The same procedure can also be applied to Max Send Time and Min Send Time.

Enter Password

1. If you have not already entered a password and are on the Main Menu, turn the circular knob on the unit controller (Figure 10) until Enter Password is highlighted from the menu list (Figure 11). If you have already entered a password, skip to Step 3.

2. Select Enter Password by pressing down on the circular knob.

NOTE: If you are not at the Main Menu and need to enter a password, press the Back button from any other menu screen until you reach the Main Menu and then follow steps 1-3.

3. Enter Password 5321 and then press Enter.

Figure 10: Unit Controller Main Features

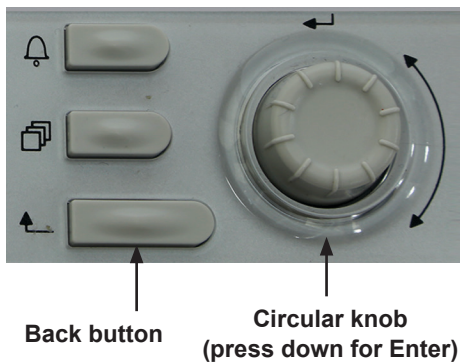
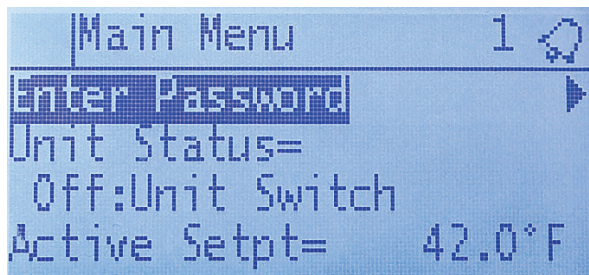


Figure 11: BACnet IP Setup Menu: Enter Password



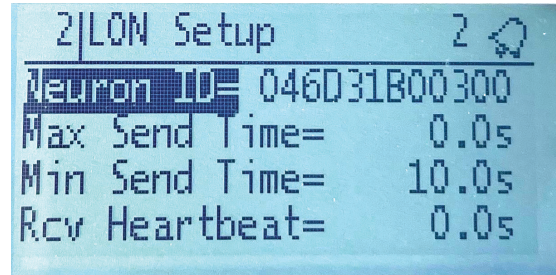
4. Scroll down to View/Set Unit and press Enter.
5. Navigate to the LON Setup menu on the unit controller keypad display (Figure 11).

Set Receive Heartbeat

1. Turn the circular knob clockwise to scroll down to RecHrtb. Press Enter and then modify as directed by the network integrator.
2. Navigate back to the LON Setup menu. Change any other parameters shown in Table 3 as necessary.

NOTE: Any changes to network settings are automatically saved.

Figure 12: LON Setup Menu



Refer to the MicroTech III Chiller Unit Controller Operation Manual (Reference Documents) for additional information on using the keypad/display to set parameters and defaults for unit setpoints. Protocol Document ED 15120 has comprehensive descriptions of all LONWORKS variables supported by the MicroTech III chiller unit controller (www.DaikinApplied.com).

Table 3 defines the network parameters of the LONWORKS communication module that are available on the Main Menu_

View/Set Unit_LON Setup menu of the unit controller keypad/display. Change parameters as required for your network.

TABLE 3: LONWORKS Network Parameters

Parameter	Range/Default	Description/Notes
Neuron ID	Variable Default: NA	Indicates the Neuron ID of the LONWORKS communication module.
Max Send Time	0 - 6553.5 seconds Default: 0 seconds	Maximum Send Time. Controls the maximum period of time that expires before certain network variables are transmitted. nciMaxSendTime can also be used to change these values ¹
Min Send Time	0 - 6553.5 seconds Default: 10 seconds	Minimum Send Time. Controls the minimum period of time that expires before certain network variables can be retransmitted. nciMinSendTime can also be used to change these values ¹
Rcv Heartbeat	0 - 6553.5 seconds Default: 0 seconds	Receive Heartbeat. Defines the maximum time that elapses after the last update to a specified network variable input before the unit starts to use default values. nciRCvHrtBt can also be used to change these values ¹
LON BSP ²	10.14 Default: NA	Board Support Package. Displays the version of firmware loaded in the LONWORKS communication module.
LON App Ver ²	Variable Chlr2* = Centrifugal chiller application Chlr1* = All other chiller types	LONWORKS application version. Displays the version of the chiller software application loaded in the LONWORKS communication module. The asterisk (*) indicates the revision number. This parameter remains blank until the communication module is commissioned.

1. Requires the use of LonMaker® or other LONWORKS configuration tool. See ED 15120 for details (www.DaikinApplied.com).

2. The LON BSP and software application version are read-only.

Troubleshooting

Follow these procedures if you are not able to communicate with the chiller via the network:

General

- Review the [Installation and Mounting](#) section of this document to confirm that all procedures were followed correctly.
- Review the [Commissioning](#) section of this document to confirm that all procedures were followed correctly.
- If the communication module is installed but LEDs are not active when the unit controller is powered up, remove the module and then follow the steps provided in the [Installing a new Communication Module](#) section. If the issue persists, replace the module.
- Verify that the LON Setup menu appears in the unit controller keypad/display. If it does not, follow this procedure:
 1. Set the Unit On/Off Switch to "Off" from inside the control panel of the unit.
 2. Remove power from the unit controller, wait 10 seconds, then re-power the chiller unit controller. Within 45 seconds, the unit controller should recognize the attached communication module, and will cycle power.
 3. Verify that the LON Setup menu now appears in the unit controller keypad/display.

Network Wiring and Connections

- Check for faulty cable connectors at the chiller LONWORKS communication module and throughout the network.
- Determine if there is a network ground fault.
- For network terminal connections, twist the wires together a minimum of three times.
- Use only approved cable. Do not use different wire types on the same bus.
- Follow the bus length limits for the cable type.
- Confirm that you have the correct transceiver.
- Make sure that the network trunk avoids strong sources of electromagnetic interference (EMI).
- Verify that the network trunk is not located near a DC load switch (relay).

Bus terminators

Errors from bus termination can have the following results:

- Signal level too low could indicate the wrong bus terminator or too many terminators.
- Signal level too high could indicate a high-level signal or signal reflections point due to a missing or wrong bus terminator, or that bus terminators are placed incorrectly.
 - Verify that the correct terminators are used based on your network topology.
 - Free topology should have a single 52.3 Ω bus terminator at busiest point of network.
 - Line topology should have two (2) 105 Ω bus terminators at both network ends.

Network Performance

- If network traffic is slow, communication is intermittent, or the trunk is experiencing "noise," it may be necessary to use a network protocol analyzer or oscilloscope to determine the source of poor performance.
- Confirm power is applied to the unit controller.

Contact the Daikin Applied Controls Customer Support Group at 866-462-7829 for additional assistance, if necessary.

Parts

Table 4: Replacement Parts List

Description	Part Number
MicroTech III LONWORKS communication module kit Kit includes: LONWORKS communication module, board-to-board connector, and IM 968	350147412
2-pin network connector plug (Figure 4)	193410302
10-pin board-to-board connector (Figure 6)	300047027

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787).



Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied Representative for warranty details. To find your local Daikin Applied Representative, go to www.DaikinApplied.com.

Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.