ENGINEERING SUBMITTAL DATA

ED 19146

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LONWORKS® GATEWAY

CHILLER UNIT CONTROLLER

For Models AGZ-F and WMT

Safety Information

Hazard Identification Information

During all servicing operations, all instructions and recommendations, which appear in the installation and service instructions for the product, as well as on tags and labels fixed to the equipment and components and accompanying parts supplied separately, must be read, understood and followed.

- Apply all standard safety codes and practices.
- Wear safety glasses and gloves.
- Use the proper tools to move heavy objects. Move units carefully and set them down gently.

⚠ 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.

Limited Warranty

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

Revision History

Revision	Date	Release Notes
ED19146	01/2026	Initial Release

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	IM 1400	LONWORKS® Gateway for Chiller Unit Controller	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

Software Revision

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

Introduction

This document contains the information necessary to incorporate a Daikin Applied MicroTech® Chiller Unit Controller, subsequently called the Chiller Unit Controller, into a Building Automation System (BAS) using an MSA® FieldServer™ ProtoNode communication gateway, subsequently called the LONWORKS gateway. It lists all LONWORKS variables available to the LONWORKS network and the meaning of these variables.

A Building Automation System (BAS) can exchange LONWORKS variables with the unit controller through the LONWORKS gateway, which can be ordered with the chiller and factory mounted or can be ordered and field mounted at any time after the chiller is installed. This functionality also requires a BACnet® IP communication module be installed on the Chiller Unit Controller. The LONWORKS gateway communicates to the unit controller through the BACnet IP communication module connected to the unit controller. The LONWORKS BAS connection is made at the LONWORKS gateway.

The sequence of operation for a Chiller Unit Controller depends on the chiller model. Refer to the applicable unit Installation and Operation Manual for sequence of operation details, including keypad operation (www.DaikinApplied.com).

For technical support, please contact the Daikin Applied Controls Support Group at ctltechsupport@daikinapplied.com or (800) 432-1342.

Configuring the Unit Controller

The Chiller Unit Controller is ready to operate with the default values of the various pre-configured parameters. Default values may be changed at the unit controller keypad or via the network. Refer to the applicable unit Installation and Operation Manual (www.DaikinApplied.com).

Protocol Definitions

LONWORKS Networks

LONWORKS technology, developed by Echelon Corporation, is the basis for LonMark interoperable systems. LonMark International has developed standards for interoperable LonWorks technology systems. This technology is independent of the communications media.

LonMark® Certification

The LONWORKS gateway application is NOT LonMark certified. The LONWORKS gateway hardware is LonMark certified.

LONWORKS Variables

The LONWORKS gateway incorporates LONWORKS network variables to access unit data points. The gateway uses LONWORKS Standard Network Variable Types (SNVT). Some data points, network variable inputs (NVIs), can be read and written from the network and others, network variable outputs (NVOs), can only be read from the network. The LONWORKS gateway does NOT use the standard LONWORKS Chiller Functional Profile.

External Interface File (XIF)

LonMark guidelines specify exact documentation rules so proprietary software is not required to commission and configure LONWORKS devices. The LONWORKS gateway is self-documenting; a LONWORKS network management tool can obtain the information needed to connect, configure, and manage the device over the network. An External Interface File (XIF) is also available to allow any network tool to design and configure it prior to installation. The XIF file for the LONWORKS gateway is available on www.DaikinApplied.com.

Resource Files

Resource files contain definitions of functional profiles, network variable types, configuration property types, and enumerations. Resource files are required for displaying manufacturer-specific variables and enumerations that are not included in the standard LonMark resource files. The LONWORKS gateway uses standard LonMark network variable types and enumerations, so no manufacturer-specific resource files are necessary.

Network Topology, Addressing, and Commissioning

The LONWORKS gateway hardware supports LonMark standards for network design, wiring, addressing, and commissioning.

Refer to the LonMark Application Layer Interoperability Guidelines Version 3.4 and LonMark Layers 1-6 Interoperability Guidelines Version 3.4 (www.lonmark.org).

Data Point Summary

The Device Object contains other informative properties as shown in Table 1.

Table 1: Available Data Points

Data Point	AGZ-F	WMT
Active Capacity Limit Output	X	X
Active Setpoint	X	X
Actual Capacity	X	X
Alarm Digital Output	X	X
Fault Alarm Index	X	X
Problem Alarm Index	X	
Warning Alarm Index	X	X
Fault Alarm Module ID	X	X
Problem Alarm Module ID	X	
Warning Alarm Module ID	X	X
Fault Alarm Module Payload	X	X
Problem Alarm Module Payload	X	
Warning Alarm Module Payload	X	X
Fault Alarm Module Type	X	X
Problem Alarm Module Type	X	
Warning Alarm Module Type	X	X
Capacity Limit Setpoint - Network	X	X
Chiller Capacity Limited	X	X
Chiller Enable Output	X	X
Chiller Enable Setpoint - Network	X	X
Chiller Local/Network	X	X
Chiller Mode Output	X	X
Chiller Mode Setpoint - Network	X	X
Chiller On/Off	X	X
Chiller Status	X	X
Clear Alarm - Network	X	X
Compressor Current		X
Compressor Percent RLA		X
Compressor Power		X
Compressor Run Hours	X	X
Compressor Starts	X	X
Compressor Unavailable		X
Compressor Voltage		X
Condenser Entering Fluid Temperature		X
Condenser Flow Rate (Requires Field-Supplied Flow Meter)		X
Condenser Flow Switch Status		X
Condenser Leaving Fluid Temperature		X
Condenser Pump Run Hours		X
Condenser Pump Status		X
Condenser Refrigerant Pressure	X	X
Condenser Saturated Refrigerant Temperature	X	X
Cool Setpoint - Network	X	X
Discharge Refrigerant Pressure		X
Discharge Refrigerant Temperature	X	X
Discharge Saturated Refrigerant Temperature		X
Evaporator Entering Fluid Temperature	X	X
Evaporator Flow Rate (Requires Field-Supplied Flow Meter)		X
Evaporator Flow Switch Status	X	X
Evaporator Leaving Fluid Temperature	X	X
Evaporator Pump Run Hours	X	X
Evaporator Pump Status	X	X
Evaporator Refrigerant Pressure	X	X
Evaporator Saturated Refrigerant Temperature	X	X
Heat Setpoint - Network	X	
Ice Setpoint - Network	X	
Liquid Line Refrigerant Temperature		X
Outdoor Air Temperature	X	
Refrigerant Type	X	X
Run Enabled	X	X
Suction Refrigerant Pressure		X
Suction Refrigerant Temperature	X	X
Suction Saturated Refrigerant Temperature		X

LonWorks Network Variables

This section describes the data available to the BAS via the LONWORKS gateway. Each LONWORKS variable may or may not be available on the unit HMI. Table 2 and Table 3 contain the variables available to the LONWORKS network. The tables are organized by Network Variable Inputs and Network Variable Outputs. The parameters are listed alphabetically by data point name within each table.

Table 2: LONWORKS Network Variable Inputs (NVIs)

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Capacity Limit Setpoint - Network				
	nviCapLim_1	count_inc_f (52)	0 – 100% Default: 100%	Sets the maximum capacity level of the chiller. This level may be adjusted, but not above the factory- specified limit. The unit controller only uses this value if Control Source is set to BAS. Control Source can only be changed using the unit HMI. Available Modes can also be found on the HMI.
Chiller Enable Setpoint - Network				
	nviChlrEnabl_1	Switch (95)	0 = Disable 1 = Enable Default: 0 = Disabled	Disables or enables chiller operation over the network. Setting this variable to Enable does not start the chiller. It only allows the chiller to start if other operating conditions are satisfied. The unit controller only uses this value if Control Source is set to BAS. Control Source can only be changed using the unit HMI. Available Modes can also be found on the HMI.
Chiller Mode Setpoint - Network				
	nviMode_1	count (8)	1 = ICE 2 = COOL 3 = HEAT 4= COOL/HEAT RECOVERY Default: 2 = COOL	Changes the operating mode of the chiller and provides the ability for another node on the network to place a chiller in another mode. The unit controller only uses this value if Control Source is set to BAS. Control Source can only be changed using the unit HMI. Available Modes can also be found on the HMI.
Clear Alarm - Network				
	nviClearAlm_1	switch (95)	0 = Normal 1 = Clear Alarm Default = 0	Clears all active alarms. Many alarms are automatically clearing alarms. Refer to the respective chiller Installation, Operation and Maintenance Manual (IOM), available on www.DaikinApplied.com, for details on auto-clearing alarms. See LonWorks Alarm Management.
Cool Setpoint - Network				
	nviCoolSetpt_1	count_inc_f (52)	WMT: 36.0 - 80.0°F, 2.22 - 26.67°C AGZ-F: 14.9 - 70.0°F, -9.5 – 21.1°C Low limit = 39.9°F w/o glycol, 14.9°F w/ glycol Default = 44.0°F	Changes the Cooling setpoint from the network. It sets the temperature of the Leaving Chilled Fluid when the chiller is operating in the Cooling Mode. It cannot be set below the local Cool Setpoint. The unit controller only uses this value if Control Source is set to BAS. Control Source can only be changed using the unit HMI. Available Modes can also be found on the HMI.
Heat Setpoint - Network				
	nviHeatSetpt_1	count_inc_f (52)	AGZ-F: 36.0 – 140.0°F, 2.22 – 60.0°C	Changes the Heat setpoint from the network. It sets the temperature of the Leaving Chilled Fluid when the chiller is operating in the Heat Mode. The unit controller only uses this variable if the Control Source is set to “BAS” at the unit HMI.
Ice Setpoint - Network				
	nviIceSpt_1	count_inc_f (52)	AGZ-F: 14.9 – 39.9°F, -9.5 – 4.4°C Default = 24.98°F	Changes the Ice setpoint from the network. It sets the temperature of the Leaving Chilled Fluid when the chiller is operating in the Ice Mode. The unit controller only uses this variable if the Control Source is set to “BAS” at the unit HMI.

Table 3: LONWORKS Network Variable Outputs (NVOs)

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Active Capacity Limit Output				
	nvoCapLim_1	count_inc_f (52)	0 – 100% Default: NA	Measures of the ratio of operating capacity limit to full capacity expressed as a percentage. This value is the lowest of all limits specified by the operator, analog Demand Limit input, or Network Capacity Limit Setpoint.
Active Setpoint				
	nvoActSetpt_1	count_inc_f (52)	14.9 – 140.0°F, -9.5 – 60.0°C Default: NA	Indicates the current setpoint used to control the chiller. The setpoint that is used is based on the operating mode (Cool, Heat or Ice) of the chiller and any "LWT reset" functions that are in effect. See Chiller Mode Output and Chiller Mode Setpoint – Network. There are three possible network setpoints: Cool Setpoint – Network, Heat Setpoint – Network, and Ice Setpoint – Network. Refer to unit IOM for valid, model-specific setpoints and modes.
Actual Capacity				
	nvoActCap_1	count_inc_f (52)	0 – 100% Default: NA	Indicates the percent of maximum capacity the chiller is producing under the present operating conditions. At 100%, the chiller may be producing more or less than its nominal rating due to variations in operating conditions.
Alarm Digital Output				
	nvoAlarmDO_1	switch (95)	0 = No Alarm 1 = Alarm	Indicates whether an alarm condition has occurred. This variable must be polled for alarm indication.
Alarm Index				
Fault	nvoFaultAlm_1	count_inc_f (52)		See LONWORKS Alarm Indices section for additional information.
Problem	nvoProbAlm_1			
Warning	nvoWarnAlm_1			
Alarm Module ID				
Fault	nvoFltModID_1	count_inc_f (52)		See LONWORKS Alarm Module ID section for additional information.
Problem	nvoProbModID_1			
Warning	nvoWarnModID_1			
Alarm Module Payload				
Fault	nvoFltModPld_1	count_inc_f (52)		See LONWORKS Alarm Module Payload section for additional information.
Problem	nvoPrbModPld_1			
Warning	nvoWrnModPld_1			
Alarm Module Type				
Fault	nvoFltModTyp_1	count_inc_f (52)		See LONWORKS Alarm Module Type section for additional information.
Problem	nvoPrbModTyp_1			
Warning	nvoWrModTyp_1			
Chiller Capacity Limited				
	nvoChlrLim_1	switch (95)	0 = Not Limited 1 = Limited	Indicates whether conditions may exist that prevent the chiller from reaching full capacity.
Chiller Enable Output				
	nvoChlrEnabl_1	switch (95)	0 = Disable 1 = Enable	Indicates if operation of the chiller is disabled or enabled. The chiller is allowed to run if enabled and not allowed to run if disabled.

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Chiller Local/Network				
	nvoCtrlSrc_1	switch (95)	0 = Network 1 = Local	Indicates whether the chiller is in local control or allowed to be controlled remotely over the network. The value can only be changed locally from the unit controller keypad/ display. The values from the following variables are ignored in the chiller application if this variable is set to Local (1): • Chiller Enable Setpoint - Network • Chiller Mode Setpoint – Network • Cool Setpoint - Network • Capacity Limit Setpoint - Network • Clear Alarm Network • Heat Setpoint – Network • Ice Setpoint – Network
Chiller Mode Output				
	nvoMode_1	count (8)	1 = ICE 2 = COOL 3 = HEAT 4= COOL/HEAT RECOVERY Default: 2 = COOL	The current operating mode of the chiller.
Chiller On/Off				
	nvoOnOff_1	switch (95)	0 = Chiller Off 1 = Chiller On	The current state of the chiller.
Chiller Status				
	nvoUnitStat_1	count (8)	1 = OFF 2 = START 3 = RUN 4 = PRESHUTDOWN 5 = SERVICE	The unit status of the chiller.
Compressor Current				
Circuit 1, Compressor 1	nvoC1Cmp1Cur_1	count_inc_f (52)	Amp range varies by chiller model Default: NA	The average current of the compressor motor.
Circuit 1, Compressor 2	nvoC1Cmp2Cur_1			
Circuit 2, Compressor 1	nvoC2Cmp1Cur_1			
Circuit 2, Compressor 1	nvoC2Cmp2Cur_1			
Compressor Percent RLA				
Circuit 1, Compressor 1	nvoC1C1PtRLA_1	count_inc_f (52)	0-115% Default: 0	The current percent RLA of the compressor motor.
Circuit 1, Compressor 2	nvoC1C2PtRLA_1			
Circuit 2, Compressor 1	nvoC2C1PtRLA_1			
Circuit 2, Compressor 1	nvoC2C2PtRLA_1			

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Compressor Power				
Circuit 1, Compressor 1	nvoC1Cmp1KW_1	count_inc_f (52)	0-115% Default: 0	The current percent RLA of the compressor motor.
Circuit 1, Compressor 2	nvoC1Cmp2KW_1			
Circuit 2, Compressor 1	nvoC2Cmp1KW_1			
Circuit 2, Compressor 1	nvoC2Cmp2KW_1			
Compressor Run Hours				
Circuit 1, Compressor 1	nvoC1Cmp1Hrs_1	count_inc_f (52)	0 –999,999 Default: NA	The number of hours the compressor motor has been turned on.
Circuit 1, Compressor 2	nvoC1Cmp2Hrs_1			
Circuit 1, Compressor 3	nvoC1Cmp3Hrs_1			
Circuit 2, Compressor 1	nvoC2Cmp1Hrs_1			
Circuit 2, Compressor 2	nvoC2Cmp2Hrs_1			
Circuit 2, Compressor 3	nvoC2Cmp3Hrs_1			
Compressor Starts				
Circuit 1, Compressor 1	nvoC1Cmp1St_1	count_inc_f (52)	0 –999,999 Default: NA	The number of times the compressor motor has been started.
Circuit 1, Compressor 2	nvoC1Cmp2St_1			
Circuit 1, Compressor 3	nvoC1Cmp3St_1			
Circuit 2, Compressor 1	nvoC2Cmp1St_1			
Circuit 2, Compressor 2	nvoC2Cmp2St_1			
Circuit 2, Compressor 3	nvoC2Cmp3St_1			
Compressor Unavailable				
Circuit 1, Compressor 1	nvoC1C1Unavl_1	switch (95)	0 = Available 1 = Unavailable Default: NA	Indicates whether the compressor is available to run.
Circuit 1, Compressor 2	nvoC1C2Unavl_1			
Circuit 1, Compressor 3	nvoC1C3Unavl_1			
Circuit 2, Compressor 1	nvoC2C1Unavl_1			
Circuit 2, Compressor 2	nvoC2C2Unavl_1			
Circuit 2, Compressor 3	nvoC2C3Unavl_1			

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Compressor Voltage				
Circuit 1, Compressor 1	nvoC1Cmp1Vlt_1	count_inc_f (52)	0 – 15000 VAC Default: NA	The average voltage of the compressor motor.
Circuit 1, Compressor 2	nvoC1Cmp2Vlt_1			
Circuit 2, Compressor 1	nvoC2Cmp1Vlt_1			
Circuit 2, Compressor 2	nvoC2Cmp2Vlt_1			
Condenser Entering Fluid Temperature				
	nvoEntCndWTp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The current temperature of the fluid entering the condenser.
Condenser Flow Rate				
	nvoCndFlwRte_1	count_inc_f (52)	0-65,535 GPM 0-4134.6 L/S Default: NA	The current fluid flow rate for the condenser (Field-Supplied Flow Meter).
Condenser Flow Switch Status				
	nvoCndWFlwSw_1	switch (95)	0 = No Flow 1 = Flow	The status of the fluid flowing through the condenser.
Condenser Leaving Fluid Temperature				
	nvoLvgCndWTp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The current temperature of the fluid leaving the condenser.
Condenser Pump Run Hours				
Pump 1	nvoCndPmp1Hr_1	count_inc_f (52)	0 –999,999 Default: NA	The number of hours the pump motor has been turned on.
Pump 2	nvoCndPmp2Hr_1			
Condenser Pump Status				
Pump 1	nvoCndWPmp1_1	switch (95)	0 = Pump Off Request 1 = Pump On Request	Indicates if the pump has been commanded ON or OFF.
Pump 2	nvoCndWPmp2_1			
Condenser Refrigerant Pressure				
Circuit 1	nvoCndRefPr1_1	count_inc_f (52)	-14.5 to 43.51 Psi (R1233zd(E)) -100 to 300 kPa (R1233zd(E)) 0-700 Psi (R32) 0-4826 kPa (R32) Default: NA	Indicates the current condenser refrigerant pressure for the circuit.
Circuit 2	nvoCndRefPr2_1			
Condenser Saturated Refrigerant Temperature				
Circuit 1	nvoCdStRefT1_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	Indicates the current saturated refrigerant temperature of the condenser.
Circuit 2	nvoCdStRefT2_1			

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Discharge Refrigerant Pressure				
Circuit 1, Compressor 1	nvoC1Cp1DsPr_1	count_inc_f (52)	-14.5 to 43.51 Psi (R1233zd(E)) -100 to 300 kPa (R1233zd(E)) Default: NA	The current discharge refrigerant pressure for the compressor.
Circuit 1, Compressor 2	nvoC1Cp2DsPr_1			
Circuit 2, Compressor 1	nvoC2Cp1DsPr_1			
Circuit 2, Compressor 2	nvoC2Cp2DsPr_1			
Discharge Refrigerant Temperature				
Circuit 1, Compressor 1	nvoC1Cp1DsTp_1	count_inc_f (52)	-40 – 249.8°F -40 – 121°C Default: NA	Indicates the current discharge refrigerant temperature for the circuit or compressor. NOTE: On AGZ-F, there is a single sensor per circuit. The value is displayed for compressor 1.
Circuit 1, Compressor 2	nvoC1Cp2DsTp_1			
Circuit 2, Compressor 1	nvoC2Cp1DsTp_1			
Circuit 2, Compressor 2	nvoC2Cp2DsTp_1			
Discharge Saturated Refrigerant Temperature				
Circuit 1, Compressor 1	nvoC1Cp1DsST_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The current discharge saturated refrigerant temperature for the compressor.
Circuit 1, Compressor 2	nvoC1Cp2DsST_1			
Circuit 2, Compressor 1	nvoC2Cp1DsST_1			
Circuit 2, Compressor 2	nvoC2Cp2DsST_1			
Evaporator Entering Fluid Temperature				
	nvoEntChWTp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The temperature of the fluid entering the evaporator.
Evaporator Flow Rate				
	nvoEvapFlwRt_1	count_inc_f (52)	0-65,535 GPM 0-4134.6 L/S Default: NA	The current fluid flow rate for the evaporator (Field-Supplied Flow Meter).
Evaporator Flow Switch Status				
	nvoChWFlwSw_1	switch (95)	0 = No Flow 1 = Flow	The status of the fluid flowing through the evaporator.
Evaporator Pump Run Hours				
Pump 1	nvoEvpPmp1Hr_1	count_inc_f (52)	0 –999,999 Default: NA	The number of hours the pump motor has been turned on.
Pump 2	nvoEvpPmp2Hr_1			
Evaporator Pump Status				
Pump 1	nvoChWPmp1_1	switch (95)	0 = Pump Off Request 1 = Pump On Request	Indicates if the pump has been commanded ON or OFF.
Pump 2	nvoChWPmp2_1			

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Evaporator Refrigerant Pressure				
Circuit 1 Circuit 2	nvoEvpRefPr1_1 nvoEvpRefPr2_1	count_inc_f (52)	-14.5 to 21.76 Psi (R1233zd(E)) -100 to 150 kPa (R1233zd(E)) 0-350 Psi (R32) 0-2413 kPa (R32) Default: NA	Indicates the current evaporator refrigerant pressure for the circuit.
Evaporator Saturated Refrigerant Temperature				
Circuit 1 Circuit 2	nvoEvpStRfT1_1 nvoEvpStRfT2_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	Indicates the current saturated refrigerant temperature of the evaporator.
Liquid Line Refrigerant Temperature				
Circuit 1 Circuit 2	nvoC1LqLnTmp_1 nvoC2LqLnTmp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The current liquid line refrigerant temperature for the circuit.
Outdoor Air Temperature				
	nvoOutdrTmp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	Indicates the current outdoor air temperature.
Refrigerant Type				
	nvoRefrigTyp_1	count_inc_f (52)	1 = R22 2 = R134a 3 = R407c 4 = R410a 5 = R32 6 = R454C 7 = R513A 8 = R515B 9 = R1233zd(E) 10 = R1234ze(E)	Indicates the type of refrigerant used in the chiller.
Run Enabled				
	nvoRunEnbl_1	switch (95)	0 = Off 1 = Run Allowed Default: NA	The running command of the chiller. Run Enabled indicates the chiller can start if operating conditions are met.
Suction Refrigerant Pressure				
Circuit 1, Compressor 1 Circuit 1, Compressor 2 Circuit 2, Compressor 1 Circuit 2, Compressor 2	nvoC1Cp1ScPr_1 nvoC1Cp2ScPr_1 nvoC2Cp1ScPr_1 nvoC2Cp2ScPr_1	count_inc_f (52)	-14.5 to 21.76 Psi (R1233zd(E)) -100 to 150 kPa (R1233zd(E)) Default: NA	The current suction refrigerant pressure for the compressor.

Point Name	LonWorks Variable	SNVT Type (SNVT Index)	Range/Default (In Units)	Description
Suction Refrigerant Temperature				
Circuit 1, Compressor 1	nvoC1Cp1ScTp_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	Indicates the current suction refrigerant temperature for the circuit or compressor. NOTE: On AGZ-F, there is a single sensor per circuit.
Circuit 1, Compressor 2	nvoC1Cp2ScTp_1			
Circuit 2, Compressor 1	nvoC2Cp1ScTp_1			
Circuit 2, Compressor 2	nvoC2Cp2ScTp_1			
Circuit 1	nvoC1SucTmp_1			
Circuit 2	nvoC2SucTmp_1			
Suction Saturated Refrigerant Temperature				
Circuit 1, Compressor 1	nvoC1Cp1ScST_1	count_inc_f (52)	-40 – 230°F -40 – 110°C Default: NA	The current suction saturated refrigerant temperature for the compressor.
Circuit 1, Compressor 2	nvoC1Cp2ScST_1			
Circuit 2, Compressor 1	nvoC2Cp1ScST_1			
Circuit 2, Compressor 2	nvoC2Cp2ScST_1			

LONWORKS Alarm Management

Alarm Management

The Chiller Unit Controller has various ways of managing alarms, depending on the protocol. Using one of the mechanisms available, alarms can be recognized and acknowledged by alarm class and can be cleared from the network.

Alarm Classes

Alarms in the unit controller are divided into three classes: Faults, Problems, and Warnings. Fault alarms have the highest priority. Problem alarms have the next priority. Warning alarms have the lowest priority. The alarms within each class are not prioritized in any way. Refer to the Chiller Controller Operation Manual (www.DaikinApplied.com) for a thorough explanation of each alarm. See Table 4 for a list of available alarms by chiller model.

Fault Alarms

Fault alarms require an acknowledgement from the operator. These alarms indicate that the compressor or unit is shut down.

Problem Alarms

Problem alarms do not cause the compressor or unit to shut down but do limit operation of the chiller in some way.

Warning Alarms

A warning is annunciated whenever an abnormal condition exists which does not affect chiller operation.

Alarm Monitoring

The Chiller Unit Controller offers several alarm data points, which provide specific information for each possible chiller alarm. Each of these data points exists for each class of alarm: Faults, Problems, and Warnings. These data points are described below.

Alarm Index

The Alarm Index provides a unique index value for each alarm that can occur for the chiller. The index value identifies the basic information about the type of alarm that occurred. Monitoring only the Alarm Index is likely sufficient for many users. If additional information is desired, the Alarm Module Type, Alarm Module ID and Alarm Payload can also be monitored.

Alarm Module Type

The Alarm Module Type indicates the specific alarm module type, unit, compressor, VFD, etc., in alarm.

Alarm Module ID

The Alarm Module ID indicates the specific alarm module, compressor number, fan number, VFD number, etc., in alarm. Alarm Module ID does not apply for all alarms.

Alarm Module Payload

The Alarm Module Payload is typically used for hardware manufacturer alarm code information, such as VFD, MB, or ECM fan alarms. Alarm Module Payload does not apply for all alarms.

Table 4: Alarms by Chiller Model

Alarm Descriptions	AGZ-F	WMT
Bad demand limit input	X	
Bad setpoint override input	X	
Circuit Failed Pumpdown	X	
COMPRESSOR LOCKOUT - Number of Allowed Re-Starts Exceeded	X	
COMPRESSOR SHUTDOWN - Compressor VFD Fault		X
COMPRESSOR SHUTDOWN - Condenser Pressure High		X
COMPRESSOR SHUTDOWN - Condenser Pressure Sensor Fault	X	X
COMPRESSOR SHUTDOWN - Condenser Water Flow Loss		X
COMPRESSOR SHUTDOWN - Current Overload Trip or Motor Current High		X
COMPRESSOR SHUTDOWN - Discharge Pressure High		X
COMPRESSOR SHUTDOWN - Discharge Temperature High	X	X
COMPRESSOR SHUTDOWN - Discharge Temperature Sensor Fault	X	
COMPRESSOR SHUTDOWN - Evaporator Pressure Low		X
COMPRESSOR SHUTDOWN - Evaporator Pressure Sensor Fault	X	X
COMPRESSOR SHUTDOWN - High Condenser Pressure	X	
COMPRESSOR SHUTDOWN - IPS Over Temperature		X
COMPRESSOR SHUTDOWN - Low Evaporator Pressure	X	
COMPRESSOR SHUTDOWN - MBC Fault		X
COMPRESSOR SHUTDOWN - MBC Modbus Communication Fault		X
COMPRESSOR SHUTDOWN - Mechanical High Pressure Trip	X	
COMPRESSOR SHUTDOWN - Motor Protector Trip	X	

Alarm Descriptions	AGZ-F	WMT
COMPRESSOR SHUTDOWN - No Pressure Change After Start	X	
COMPRESSOR SHUTDOWN - Stator Temperature High		X
COMPRESSOR SHUTDOWN - Suction Pressure Low		X
COMPRESSOR SHUTDOWN - Suction Temperature Sensor Fault	X	
COMPRESSOR SHUTDOWN - VFD Enable Circuit Fault		X
COMPRESSOR SHUTDOWN - VFD Modbus Communication Fault		X
Condenser Entering Water Temperature Sensor Failure		X
Condenser Leaving Water Temperature Sensor Failure (STOP if Heat)		X
Controller board offline	X	X
DC Fan Fault	X	
Economizer Pressure Sensor Failure		X
Economizer Pressure Sensor Warning		X
Economizer Temperature Sensor Warning		X
Evap EXV Module Communications Fault	X	
Evaporator Entering Water Temperature Sensor Failure	X	X
Expansion Alarm – Fault		X
Expansion Alarm – Warning		X
External Event	X	
Low Suction SH	X	
Low Condenser Sat. Temperature	X	
Phase Voltage Monitor/Ground Fault Protection Alarm	X	
Power Loss While Running		X
PUMP #1 START ATTEMPTED - Evaporator Pump #2 Failure	X	X
PUMP #1 START ATTEMPTED - Condenser Pump #2 Failure		X
PUMP #2 START ATTEMPTED - Evaporator Pump #1 Failure	X	X
PUMP #2 START ATTEMPTED - Condenser Pump #1 Failure		X
START INHIBITED - Ambient Temperature Low	X	
Transformer Overtemperature Fault	X	
Transformer Temperature Sensor Error	X	
UNIT SHUTDOWN - Condenser Freeze Protect		X
UNIT SHUTDOWN - Evaporator Freeze Protect	X	X
UNIT SHUTDOWN - Evaporator Leaving Water Temperature Sensor Fault	X	X
UNIT SHUTDOWN - Evaporator Water Flow Loss	X	X
UNIT SHUTDOWN - Outside Air Temperature Sensor Fault	X	
UNIT STOP - External Alarm	X	

LONWORKS Alarm Indices

This section provides a comprehensive description of all LONWORKS alarm indices supported by the Chiller Unit Controller. Tables 5 – 7 display details for each of the three alarm types: Warnings, Problems, and Faults.

Table 5: Warning Alarm Indices

Variable	Description
nvoWarnAlm_1	This variable indicates the active warning alarm. The alarms are not ordered based on any priority. If multiple warning alarms are present at one time, this variable will be set to the alarm that has the highest alarm index. This variable is set to zero if no warning alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
1	Condenser Entering Water Temperature Sensor Failure
2	Evaporator Entering Water Temperature Sensor Failure
3	Liquid Line Refrigerant Temperature Sensor Failure
4	Condenser Leaving Water Temperature Sensor Failure (STOP if Heat)
8	Bad setpoint override input
9	Bad demand limit input
10	Power Loss While Running
12	Circuit Failed Pumpdown
13	External Event
24	Economizer Pressure Sensor Warning
25	Economizer Temperature Sensor Warning
63	Expansion Alarm – Warning

Table 6: Warning Alarm Indices

Variable	Description
nvoProbAlm_1	This variable indicates the active problem alarm. The alarms are not ordered based on any priority. If multiple problem alarms are present at one time, this variable will be set to the alarm that has the highest alarm index. This variable is set to zero if no problem alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
33	DC Fan Fault
65	START INHIBITED - Ambient Temperature Low
71	PUMP #2 START ATTEMPTED - Condenser Pump #1 Failure
72	PUMP #1 START ATTEMPTED - Condenser Pump #2 Failure
81	PUMP #2 START ATTEMPTED - Evaporator Pump #1 Failure
82	PUMP #1 START ATTEMPTED - Evaporator Pump #2 Failure
246	Transformer Temp Sensor Error

Table 7: Fault Alarm Indices

Variable	Description
nvoFaultAlm_1	This variable indicates the active fault alarm. The alarms are not ordered based on any priority. If multiple fault alarms are present at one time, this variable will be set to the alarm that has the highest alarm index. This variable is set to zero if no fault alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
8	Economizer Pressure Sensor Failure
32	Evap EXV Module Communications Fault
103	COMPRESSOR SHUTDOWN - Suction Pressure Low
104	COMPRESSOR SHUTDOWN - Discharge Pressure High
106	COMPRESSOR SHUTDOWN - Stator Temperature High
112	COMPRESSOR SHUTDOWN - MBC Fault
115	COMPRESSOR SHUTDOWN - VFD Enable Circuit Fault
116	COMPRESSOR SHUTDOWN - MBC Modbus Communication Fault
117	COMPRESSOR SHUTDOWN - VFD Modbus Communication Fault
120	COMPRESSOR SHUTDOWN - IPS Over Temperature
128	UNIT SHUTDOWN - Outside Air Temperature Sensor Fault
129	COMPRESSOR SHUTDOWN - Current Overload Trip or Motor Current High
133	COMPRESSOR SHUTDOWN - Motor Protector Trip
141 or 142	COMPRESSOR SHUTDOWN - Condenser Pressure Sensor Fault
143	COMPRESSOR SHUTDOWN - Condenser Water Flow Loss
144	COMPRESSOR SHUTDOWN - Condenser Pressure High
145	COMPRESSOR SHUTDOWN - High Condenser Pressure
147	COMPRESSOR SHUTDOWN - Discharge Temperature Sensor Fault
148	COMPRESSOR SHUTDOWN - Discharge Temperature High
150	UNIT SHUTDOWN - Evaporator Water Flow Loss
151	UNIT SHUTDOWN - Evaporator Freeze Protect
152	COMPRESSOR SHUTDOWN - Evaporator Pressure Low
153	COMPRESSOR SHUTDOWN - Low Evaporator Pressure
154 or 155	COMPRESSOR SHUTDOWN - Evaporator Pressure Sensor Fault
161	COMPRESSOR LOCKOUT - Number of Allowed Re-Starts Exceeded
162	UNIT SHUTDOWN - Evaporator Leaving Water Temperature Sensor Fault
166	COMPRESSOR SHUTDOWN - Mechanical High Pressure Trip
183	COMPRESSOR SHUTDOWN - Suction Temperature Sensor Fault
188	Controller board offline
189	COMPRESSOR SHUTDOWN - No Pressure Change After Start
194	UNIT STOP - External Alarm
199	COMPRESSOR SHUTDOWN - Compressor VFD Fault
219	Low Suction SH
220	Low Condenser Sat. Temperature
223	Expansion Alarm – Fault
228	Phase Voltage Monitor/Ground Fault Protection Alarm
233	UNIT SHUTDOWN - Condenser Freeze Protect
247	Transformer Overtemperature Fault

LONWORKS Alarm Module Types

This section provides a comprehensive description of all LONWORKS alarm module types supported by the Chiller Unit Controller. Tables 8 – 10 display details for each of the three alarm types: Warnings, Problems, and Faults.

Table 8: Warning Alarm Module Types

Variable	Description
nvoWrModTyp_1	This variable indicates the specific Alarm Module Type (unit, compressor, VFD, etc.) for the active Warning Alarm Index. This variable is set to zero if no warning alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
1	Unit
2	Compressor
3	Fans
4	cpCOe Expansion Module
5	Sensor
6	EXV
7	BAS Expansion Module
8	Circuit
9	Peripherals Modbus
10	VFD
11	MBC
12	IGV
13	Pump
14	Purge Unit
15	Harmonic Filter
100	PC

Table 9: Warning Alarm Module Types

Variable	Description
nvoPrbModTyp_1	This variable indicates the specific Alarm Module Type (unit, compressor, VFD, etc.) for the active Problem Alarm Index. This variable is set to zero if no problem alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
1	Unit
2	Compressor
3	Fans
4	cpCOe Expansion Module
5	Sensor
6	EXV
7	BAS Expansion Module
8	Circuit
9	Peripherals Modbus
10	VFD
11	MBC
12	IGV
13	Pump
14	Purge Unit
15	Harmonic Filter
100	PC

Table 10: Fault Alarm Module Types

Variable	Description
nvoFltModTyp_1	This variable indicates the specific Alarm Module Type (unit, compressor, VFD, etc.) for the active Fault Alarm Index. This variable is set to zero if no fault alarms are active.
Alarm Warning Index	**Alarm Description**
0	No Alarms
1	Unit
2	Compressor
3	Fans
4	cpCOe Expansion Module
5	Sensor
6	EXV
7	BAS Expansion Module
8	Circuit
9	Peripherals Modbus
10	VFD
11	MBC
12	IGV
13	Pump
14	Purge Unit
15	Harmonic Filter
100	PC

LONWORKS Alarm Module ID

This section provides a comprehensive description of all LONWORKS alarm module IDs supported by the Chiller Unit Controller. Tables 11 – 13 display details for each of the three alarm types: Warnings, Problems, and Faults.

Table 11: Warning Alarm Module ID

Variable	Description
nvoWarnModID_1	This variable indicates the specific Alarm Module ID (compressor number, fan number, VFD number, etc.) for the Alarm Module Type currently in alarm. This variable is set to zero if no warning alarms are active or if Alarm Module ID does not apply for the Alarm Module Type in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

Table 12: Problem Alarm Module ID

Variable	Description
nvoProbModID_1	This variable indicates the specific Alarm Module ID (compressor number, fan number, VFD number, etc.) for the Alarm Module Type currently in alarm. This variable is set to zero if no problem alarms are active or if Alarm Module ID does not apply for the Alarm Module Type in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

Table 13: Fault Alarm Module ID

Variable	Description
nvoFltModID_1	This variable indicates the specific Alarm Module ID (compressor number, fan number, VFD number, etc.) for the Alarm Module Type currently in alarm. This variable is set to zero if no fault alarms are active or if Alarm Module ID does not apply for the Alarm Module Type in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

LONWORKS Alarm Module Payload

This section provides a comprehensive description of all LONWORKS alarm module payloads supported by the Chiller Unit Controller. Tables 14 – 16 display details for each of the three alarm types: Warnings, Problems, and Faults.

Table 14: Warning Alarm Module Payload

Variable	Description
nvoWrnModPld_1	This variable indicates the specific Alarm Module Payload for the active warning alarm index. The Alarm Module Payload is typically used for hardware manufacturer alarm code information, such as VFD, MBC or ECM fan alarms. Please refer to the unit Installation, Operation and Maintenance Manual (IOM) for a list of model-specific payload values. This variable is set to zero if no warning alarms are active or if Alarm Module Payload does not apply for the Alarm Module Type and Alarm Module ID in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

Table 15: Problem Alarm Module Payload

Variable	Description
nvoPrbModPld_1	This variable indicates the specific Alarm Module Payload for the active problem alarm index. The Alarm Module Payload is typically used for hardware manufacturer alarm code information, such as VFD, MBC or ECM fan alarms. Please refer to the unit Installation, Operation and Maintenance Manual (IOM) for a list of model-specific payload values. This variable is set to zero if no problem alarms are active or if Alarm Module Payload does not apply for the Alarm Module Type and Alarm Module ID in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

Table 16: Fault Alarm Module Payload

Variable	Description
nvoFltModPld_1	This variable indicates the specific Alarm Module Payload for the active fault alarm index. The Alarm Module Payload is typically used for hardware manufacturer alarm code information, such as VFD, MBC or ECM fan alarms. Please refer to the unit Installation, Operation and Maintenance Manual (IOM) for a list of model-specific payload values. This variable is set to zero if no fault alarms are active or if Alarm Module Payload does not apply for the Alarm Module Type and Alarm Module ID in alarm (Unit-level alarms, for example).
Module ID Value	**Alarm Description**
0	No Alarms or Alarm Module ID does not apply for the Alarm Module Type
Any Non-Zero Value	The Alarm Module ID for the Alarm Module Type currently in alarm

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