DAIKIN APPLIED EUROPE S.p.A.

# BAS integration guide

## Modbus protocol

**Doc. Name:**
D-EIGOC00203-22_01EN_EWYT-B

**Product Name:**
EWYT-B

**Control software name:**
NASH_HP

CE

# Table of contents

# 1. Introduction

This document contains information to incorporate a MicroTech® III and Microtech 4 Unit Controllers into a building automation system (BAS) via Modbus communication protocols.

Microtech III and Microtech 4 are suitable for network integration. Data points accessible from a Modbus network are made available to a BAS provided that the proper communication module (Microtech III and Microtech 4) or the corresponding software option (Microtech 4) are installed / acrivated.

Modbus terms are not defined. Refer to the standard Modbus specifications for definitions and details about the protocol.

# 2. About this document

## 2.1 Revision History

| Version | Date | Software Version | Description |
|---|---|---|---|
| D-EIGOC00203-22EN_EWYT-B | 08/03/2022 | NASH_HP 1.08.A | First Edition<br>Revision of address for Collective Housing<br>Added Variable Primary Flow |
| D-EIGOC00207-23EN_EWYT-B | 25/09/2023 | NASH_HP_2.00.B | Added Evaporator Fixed Speed Setpoint in Variable Primary Flow.<br>Added Performance Monitoring data. |

## 2.2 Notice



## 2.3 Before starting

**Application range**

This document refers to the following components:

| | |
|---|---|
| Microtech III | Controller |
| Microtech 4 | Controller |
| POL902.00/STD | Modbus MSTP module |

**Users**

Users of this document are intended to be:

- Modbus systems integrators
- Service Technicians
- Plant Engineers
- Sales staff

**Conventions**

Microtech III e Microtech 4 further in this document and when proper will be referred to as “Microtech”

**Abbreviation**

| | |
|---|---|
| BSP | **B**oard **S**upport **P**ackage (operating system) |

**References**

- Siemens Building Technologies - CB1J3960en - **Modbus** communication, slave mode
- Siemens Building Technologies - CB1Q3934en - Climatix™ **Modbus** communication modules POL902.00
- The Modbus Organization - www.modbus.org

# 3. Safety information

Only personnel qualified in accordance with IEC (International Electrotechnical Commission) recommendations may be permitted access to electrical components. It is particularly recommended that all sources of electricity to the unit be shut off before any work is begun. Shut off main power supply at the main circuit breaker or isolator.

**IMPORTANT: This equipment uses and emits electromagnetic signals. Tests have shown that the equipment conforms to all applicable codes with respect to electromagnetic compatibility.**

| | |
|---|---|
|  | ***RISK OF ELECTROCUTION: Even when the main circuit breaker or isolator is switched off, certain circuits may still be energized, since they may be connected to a separate power source.*** |
|  | ***RISK OF BURNS: Electrical currents cause components to get hot either temporarily or permanently. Handle power cable, electrical cables and conduits, terminal box covers and motor frames with great care.*** |

| | | |
|---|---|---|
| **Field of application** |  | Use Modbus communication module only for control and monitoring functions in ventilation, air conditioning and refrigeration plants. |
| **Intended use** |  | Trouble-free and safe product operation of the above products presupposes transport, storage, mounting, installation, and commissioning as intended as well as careful operation. |
| **Electrical installation** |  | Fuses, switches, wiring and grounding must comply with local safety regulations for electrical installations. |
| **Wiring** |  | When wiring, strictly separate AC 230 V mains voltage from AC 24 V safety extralow voltage (SELV) to protect against electrical shock! |
| **Commissioning and maintenance** |  | Only qualified staff trained accordingly may prepare for use, commission, and maintain Modbus communication modules.<br><br>Maintenance of Modbus communication modules generally only means regular cleaning. We recommend removing dust and dirt from system components installed in the control panels during standard service. |
| **Faults** |  | Only authorized staff may diagnose and correct faults and recommission the plant. This applies to working within the panel as well (e.g. testing or changing fuses). |
| **Storage and transport** |  | Refer to the environmental conditions specified in the respective data sheets for storage and transport. If in doubt, contact your supplier. |
| **Disposal** |  | Devices contain electrical and electronic components; do not dispose of them in household garbage. Observe all local and applicable laws. |

# 4. Commission this unit in a Modbus network

## 4.1 General information

**Unit controller is a Microtech III or a POL638**

Microtech III controller can be integrated in a Modbus network provided that it is equipped with the proper communication module. See “Communication modules” section below in this page.

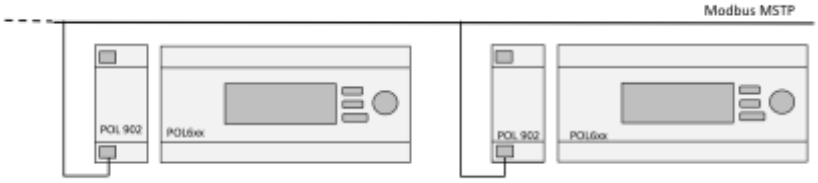
**Unit controller is a Microtech 4**

Microtech 4 controller can be integrated in a Modbus network provided one of the followings:

a) it is equipped with the proper communication module
b) the onboard communication has been made available (software option).

**Modbus MSTP (POL902)**

Communication module to configure Microtech controllers in Modbus network is the POL902:

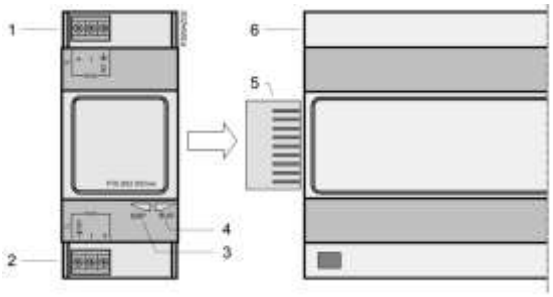



**Communication software option**

For Microtech 4, Modbus communication is also available onborad the controller as a software option.

## 4.2 Modbus MSTP module (POL902)

**Module description**




| Part | Description |
|---|---|
| 1 | Modbus RS485 interface T1 (slave, channel 0). |
| 2 | Modbus RS485 interface T2 (slave, channel 1). |
| 3 | Status display "BSP" (Board Support Package). |
| 4 | Status display "BUS" (bus connections o.k. / bus traffic). |
| 5 | Plug connection "Communication extension bus". |
| 6 | Microtech III controller. |

**BSP Led**

| Color | Flashing frequency | Meaning |
|---|---|---|
| Green | Steady on | BSP operating and communication with controller working. |
| Yellow | Steady on | BSP operating, but no communication with controller. |
| Red | Steady on | Hardware fault. |
| Red/Yellow | Flashing at 1 Hz<br>(1 second on/ 1 second off) | Upgrade mode running. |
| Red | Flashing at 2 Hz<br>(0,5 second on/ 0,5 second off) | BSP error (software error). |

**BUS Led**

| Color | Flashing frequency | Meaning |
|---|---|---|
| Green | Steady on | Communication active. |
| Yellow | Steady on | Initializing |
| Red | Steady on | Communication interrupted. |

**Module connection**

| Step | Action |
|---|---|
| 1 | Power off the controller |
| 2 | Connect POL902 module to the controller via plug connection (part 5). |
| 4 | Power on the controller |

**Configuration procedure**

| Step | Action |
|---|---|
| 1 | Check that BUS led status is steady on green coloured. |
| 2 | Navigate the unit's keypad/display to the main menu page and set the "service" password |
| 3 | Navigate the unit's keypad/display following the path below:<br>**Main menu→Commissioning→Modbus** |
| 4 | Set parameters in the table below as needed according to the local network |

**Configuration parameters**

| Parameter | Default value |
|---|---|
| Address T1 | 1 |
| Parity T1 | None |
| 2 Stop bits T1 | Yes |
| Baud rate T1 | 19200 |
| Rspnce Dly T1 | 5 ms |
| Port T2 | Passive |
| Address T2 | 1 |
| Parity T2 | None |

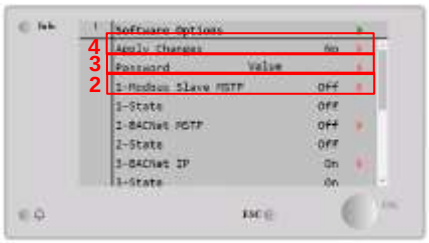
| | |
|---|---|
| 2 Stop bits T2 | Yes |
| Baud rate T2 | 19200 |
| Rspnce Dly T2 | 5 ms |

## 4.3 Modbus MSTP software option (Microtech 4)

**Option enabling**

1. From the HMI main menu choose:

   *Commissioning→ Configuration→ Software Options*

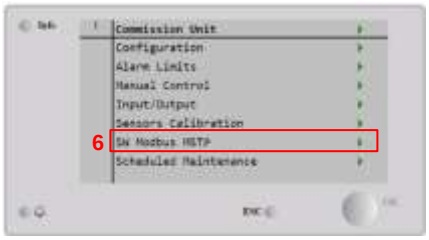



2. Select “On” for option #1-Modbus Slave MSTP
3. Insert the unlock password
4. Apply Changes

**Option configuration**

5. From the HMI main menu choose:

   *Commissioning→*




6. Select “SW Modbus MSTP”

7. Select proper parameters for Modbus communication

| Parameter | Default value |
|---|---|
| Address | Variable |
| Baudrate | 19200 |
| Parity | None |
| 2StopBits | No |
| Delay | 100 ms |
| Response Timeout | 100 ms |

# 5. Modbus integration list

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit - Control Source | UNSIGNED WORD | 1 | 1 | 0 Network<br>1 Local | R |
| Unit - Enabled State | UNSIGNED WORD | 2 | 1 | 0 Disabled<br>1 Enabled | R |
| Unit - Run Allowed | UNSIGNED WORD | 3 | 1 | 0 Off<br>1 Allowed | R |
| Unit - Capacity Limited | UNSIGNED WORD | 4 | 1 | 0 NotLimited<br>1 Limited | R |
| Unit - Generic Alarm | UNSIGNED WORD | 5 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Evaporator - Water Flow State | UNSIGNED WORD | 6 | 1 | 0 NoFlow<br>1 Flow | R |
| Unit - Operating State | UNSIGNED WORD | 8 | 1 | 0 ThermoOff<br>1 ThermoOn | R |
| Unit - Enable Setpoint | UNSIGNED WORD | 9 | 1 | 0 Disable<br>1 Enable | W |
| Unit - Alarm Reset Setpoint | UNSIGNED WORD | 10 | 1 | 0 None<br>1 Clear | W |
| Unit - Active Operation Mode | UNSIGNED WORD | 11 | 1 | 0 Ice<br>1 Cool<br>2 Heat<br>3 Pursuit | R |
| Unit - Active Temperature Setpoint | SIGNED WORD | 12 | 0.1 | °C | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit - Actual Capacity | UNSIGNED WORD | 13 | 0.1 | % | R |
| Unit - Active Capacity Limit | UNSIGNED WORD | 14 | 0.1 | % | R |
| Unit - Status | UNSIGNED WORD | 15 | 1 | 0 Off<br>1 Start<br>2 Run<br>3 PreShutdown<br>4 Service | R |
| Evaporator Entering Water Temperature | SIGNED WORD | 16 | 0.1 | °C | R |
| Evaporator Leaving Water Temperature | SIGNED WORD | 17 | 0.1 | °C | R |
| Heat Recovery - Enable Setpoint | UNSIGNED WORD | 18 | 1 | 0 Disable<br>1 Enable | W |
| Heat Recovery - Entering Water Temperature | SIGNED WORD | 22 | 0.1 | °C | R |
| Heat Recovery - Leaving Water Temperature | SIGNED WORD | 23 | 0.1 | °C | R |
| Outside Air Temperature | SIGNED WORD | 24 | 0.1 | °C | R |
| Unit - Average Current | UNSIGNED WORD | 25 | 1 | A | R |
| Unit - Average Voltage | UNSIGNED WORD | 26 | 0.1 | V | R |
| Unit - Active Power | UNSIGNED WORD | 27 | 0.1 | kW | R |
| Unit Alarm - Warning Index | UNSIGNED WORD | 28 | 1 | 0….65534 | R |
| Unit Alarm - Problem Index | UNSIGNED WORD | 29 | 1 | 0….65534 | R |
| Unit Alarm - Fault Index | UNSIGNED WORD | 30 | 1 | 0….65534 | R |
| Unit Alarm - Warning Code | UNSIGNED WORD | 31 | 1 | 0….65534 | R |
| Unit Alarm - Problem Code | UNSIGNED WORD | 32 | 1 | 0….65534 | R |
| Unit Alarm - Fault Code | UNSIGNED WORD | 33 | 1 | 0….65534 | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit - Operation Mode Setpoint | UNSIGNED WORD | 34 | 1 | 0 NULL<br>1 Ice<br>2 Cool<br>3 Heat<br>4 Pursuit | W |
| Unit - Cool Temperature Setpoint | SIGNED WORD | 35 | 0.1 | °C | W |
| Unit - Ice Temperature Setpoint | SIGNED WORD | 36 | 0.1 | °C | W |
| Unit - Heat Temperature Setpoint | SIGNED WORD | 37 | 0.1 | °C | W |
| Unit - Capacity Limit Setpoint | UNSIGNED WORD | 38 | 0.1 | % | W |
| Circuit 1 - Condenser Refrigerant Pressure | SIGNED WORD | 39 | 0.1 | kPa | R |
| Circuit 1 - Condeser Saturated Temperature | SIGNED WORD | 40 | 0.1 | °C | R |
| Circuit 1 - Evaporator Refrigerant Pressure | SIGNED WORD | 41 | 0.1 | kPa | R |
| Circuit 1 - Evaporator Saturated Temperature | SIGNED WORD | 42 | 0.1 | °C | R |
| Circuit 2 - Condenser Refrigerant Pressure | SIGNED WORD | 43 | 0.1 | kPa | R |
| Circuit 2 - Condeser Saturated Temperature | SIGNED WORD | 44 | 0.1 | °C | R |
| Circuit 2 - Evaporator Refrigerant Pressure | SIGNED WORD | 45 | 0.1 | kPa | R |
| Circuit 2 - Evaporator Saturated Temperature | SIGNED WORD | 46 | 0.1 | °C | R |
| Circuit 1 - Shutdown Alarm | UNSIGNED WORD | 51 | 1 | 1 NoAlarm<br>2 Alarm | R |
| Circuit 2 - Shutdown Alarm | UNSIGNED WORD | 52 | 1 | 1 NoAlarm<br>2 Alarm | R |
| Unit - Shutdown Alarm | UNSIGNED WORD | 54 | 1 | 1 NoAlarm<br>2 Alarm | R |
| Heat Recovery - Temperature Setpoint | SIGNED WORD | 59 | 0.1 | °C | W |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Heat Recovery - Operating State | UNSIGNED WORD | 60 | 1 | 0 Off<br>1 Recirculation<br>2 Regulation | R |
| Defrost - Operating State | UNSIGNED WORD | 62 | 1 | bit 0 None<br>bit 1 Defrost On C1<br>bit 2 Defrost On C2 | R |
| Circ 1 Compressor 1 - Suction Temperature | SIGNED WORD | 65 | 0.1 | °C | R |
| Circ 1 Compressor 1 - Discharge Temperature | SIGNED WORD | 68 | 0.1 | °C | R |
| Circ 1 Compressor 1 - Number of Starts | UNSIGNED WORD | 73 | 1 | - | W |
| Circ 1 Compressor 1 - Number of Running Hours | UNSIGNED DOUBLE | 74-75 | 1 | h | W |
| Circ 1 Compressor 2 - Number of Starts | UNSIGNED WORD | 86 | 1 | - | W |
| Circ 1 Compressor 2 - Number of Running Hours | UNSIGNED DOUBLE | 87-88 | 1 | h | W |
| Circ 1 Compressor 3 - Number of Starts | UNSIGNED WORD | 99 | 1 | - | W |
| Circ 1 Compressor 3 - Number of Running Hours | UNSIGNED DOUBLE | 100-101 | 1 | h | W |
| Circ 2 Compressor 1 - Suction Temperature | SIGNED WORD | 104 | 0.1 | °C | R |
| Circ 2 Compressor 1 - Discharge Temperature | SIGNED WORD | 107 | 0.1 | °C | R |
| Circ 2 Compressor 1 - Number of Starts | UNSIGNED WORD | 112 | 1 | - | W |
| Circ 2 Compressor 1 - Number of Running Hours | UNSIGNED DOUBLE | 113-114 | 1 | h | W |
| Circ 2 Compressor 2 - Number of Starts | UNSIGNED WORD | 125 | 1 | - | W |
| Circ 2 Compressor 2 - Number of Running Hours | UNSIGNED DOUBLE | 126-127 | 1 | h | W |
| Circ 2 Compressor 3 - Number of Starts | UNSIGNED WORD | 138 | 1 | - | W |
| Circ 2 Compressor 3 - Number of Running Hours | UNSIGNED DOUBLE | 139-140 | 1 | h | W |
| Collective Housing - Changeover Temp. Upper Limit | SIGNED WORD | 255 | 0.1 | °C | R |
| Collective Housing - Changeover Temp. Lower Limit | SIGNED WORD | 256 | 0.1 | °C | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Collective Housing - Controlled Temperature | SIGNED WORD | 257 | 0.1 | °C | R |
| Performance - Unit Thermal Capacity | UNSIGNED DOUBLE | 260-261 | 0.1 | kW | R |
| Performance - Unit Power Input | UNSIGNED DOUBLE | 262-263 | 0.1 | kW | R |
| Performance - Unit Efficiency | UNSIGNED WORD | 264 | 0.01 | - | R |
| Performance - Unit Thermal Energy | UNSIGNED DOUBLE | 266-267 | 0.1 | MWh | R |
| Performance - Unit Electrical Energy | UNSIGNED DOUBLE | 268-269 | 0.1 | MWh | R |
| Evaporator Pump - Speed | UNSIGNED WORD | 296 | 1 | % | R |
| Evaporator Pump 1 - Number of Running Hours | UNSIGNED DOUBLE | 303-304 | 1 | h | R |
| Evaporator Pump 1 - Operating State | UNSIGNED WORD | 305 | 1 | 0 Stop<br>1 Run | R |
| Evaporator Pump 2 - Number of Running Hours | UNSIGNED DOUBLE | 306-307 | 1 | h | R |
| Evaporator Pump 2 - Operating State | UNSIGNED WORD | 308 | 1 | 0 Stop<br>1 Run | R |
| Unit - Measurement unit setpoint | UNSIGNED WORD | 316 | 1 | 0 English<br>1 Metric | W |
| Unit - Model | UNSIGNED WORD | 317 | 1 | 1 Centrifugal<br>2 Water Cooled<br>3 Air Cooled<br>4 HeatPump<br>5 Reserved<br>6 Reserved<br>7 Reserved<br>8 Reserved<br>9 Other | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit Alarm - Condenser Entering Temperature Sensor Fault | UNSIGNED WORD | 365 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - Evaporator Entering Temperature Sensor Fault | UNSIGNED WORD | 366 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - Condenser Leaving Temperature Sensor Fault | UNSIGNED WORD | 368 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Warning - Setpoint Reset Input Out of Range | UNSIGNED WORD | 377 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Warning - Demand Limit Input Out of Range | UNSIGNED WORD | 378 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Warning - Unload for Condenser High Pressure | UNSIGNED WORD | 395 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Warning - Unload for Condenser High Pressure | UNSIGNED WORD | 396 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Warning - Inhibition for Evaporator Low Pressure | UNSIGNED WORD | 411 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Warning - Inhibition for Evaporator Low Pressure | UNSIGNED WORD | 412 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Warning - Unload for Evaporator Low Pressure | UNSIGNED WORD | 416 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Warning - Unload for Evaporator Low Pressure | UNSIGNED WORD | 417 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Evaporator Pump 1 - Fault | UNSIGNED WORD | 430 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Evaporator Pump 2 - Fault | UNSIGNED WORD | 431 | 1 | 0 NoAlarm<br>1 Alarm | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit Alarm - Outside Air Temperature Sensor Fault | UNSIGNED WORD | 446 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 1 Comp 1 Alarm - Motor Protection | UNSIGNED WORD | 466 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 1 Comp 2 Alarm - Motor Protection | UNSIGNED WORD | 467 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 2 Comp 1 Alarm - Motor Protection | UNSIGNED WORD | 468 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 2 Comp 2 Alarm - Motor Protection | UNSIGNED WORD | 469 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 1 Comp 3 Alarm - Motor Protection | UNSIGNED WORD | 470 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 2 Comp 3 Alarm - Motor Protection | UNSIGNED WORD | 471 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Condenser Pressure Sensor Fault | UNSIGNED WORD | 509 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Condenser Pressure Sensor Fault | UNSIGNED WORD | 511 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Condenser High Pressure | UNSIGNED WORD | 517 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Condenser High Pressure | UNSIGNED WORD | 519 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Discharge Temperature Sensor Fault | UNSIGNED WORD | 529 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Discharge Temperature Sensor Fault | UNSIGNED WORD | 531 | 1 | 0 NoAlarm<br>1 Alarm | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit Alarm - Evaporator Water Flow Loss | UNSIGNED WORD | 542 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - Evaporator Water Freeze | UNSIGNED WORD | 543 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Evaporator Pressure Low | UNSIGNED WORD | 545 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Evaporator Pressure Low | UNSIGNED WORD | 547 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Evaporator Pressure Sensor Failure | UNSIGNED WORD | 552 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Evaporator Pressure Sensor Failure | UNSIGNED WORD | 554 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Too many restart | UNSIGNED WORD | 583 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Too many restart | UNSIGNED WORD | 585 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - Evaporator Leaving Temperature Sensor Fault | UNSIGNED WORD | 589 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Mechanical High Pressure | UNSIGNED WORD | 601 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Mechanical High Pressure | UNSIGNED WORD | 603 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 1 Comp 1 Alarm - Suction Temperature Sensor Fault | UNSIGNED WORD | 698 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 2 Comp 1 Alarm - Suction Temperature Sensor Fault | UNSIGNED WORD | 700 | 1 | 0 NoAlarm<br>1 Alarm | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Controller Alarm - Circuit 1 Board Offline | UNSIGNED WORD | 723 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Controller Alarm - Circuit 2 Board Offline | UNSIGNED WORD | 724 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Pumpdown Failure | UNSIGNED WORD | 741 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Pumpdown Failure | UNSIGNED WORD | 742 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - External Event | UNSIGNED WORD | 745 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - No Pressure change at Start | UNSIGNED WORD | 747 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - No Pressure change at Start | UNSIGNED WORD | 748 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - External Alarm | UNSIGNED WORD | 800 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit Alarm - Wrong Phase Voltage | UNSIGNED WORD | 816 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 1 Alarm - Gas Leakage | UNSIGNED WORD | 844 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circuit 2 Alarm - Gas Leakage | UNSIGNED WORD | 845 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Unit - Electrical Panel Temperature | SIGNED WORD | 850 | 0.1 | °C | R |
| Unit Warning - Electrical Panel Temp Sensor Fault | UNSIGNED WORD | 851 | 1 | 0 NoAlarm<br>1 Alarm | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Unit Warning - Electrical Panel High Temperature | UNSIGNED WORD | 852 | 1 | 0 NoAlarm<br>1 Alarm | R |
| Circ 2 Compressor 3 - OffAuto Setpoint | UNSIGNED WORD | 1775 | 1 | 0 Off<br>1 Auto | W |
| Circ 2 Compressor 3 - Operating State | UNSIGNED WORD | 1786 | 1 | 0 Off<br>1 On | R |
| Circ 2 Compressor 2 - OffAuto Setpoint | UNSIGNED WORD | 1788 | 1 | 0 Off<br>1 Auto | W |
| Circ 2 Compressor 2 - Operating State | UNSIGNED WORD | 1799 | 1 | 0 Off<br>1 On | R |
| Circ 2 Compressor 1 - Actual Capacity | UNSIGNED WORD | 1800 | 0.1 | % | R |
| Circ 2 Compressor 1 - OffAuto Setpoint | UNSIGNED WORD | 1801 | 1 | 0 Off<br>1 Auto | W |
| Circ 2 Compressor 1 - Operating State | UNSIGNED WORD | 1812 | 1 | 0 Off<br>1 On | R |
| Circ 1 Compressor 3 - OffAuto Setpoint | UNSIGNED WORD | 1814 | 1 | 0 Off<br>1 Auto | W |
| Circ 1 Compressor 3 - Operating State | UNSIGNED WORD | 1825 | 1 | 0 Off<br>1 On | R |
| Circ 1 Compressor 2 - OffAuto Setpoint | UNSIGNED WORD | 1827 | 1 | 0 Off<br>1 Auto | W |
| Circ 1 Compressor 2 - Operating State | UNSIGNED WORD | 1838 | 1 | 0 Off<br>1 On | R |
| Circ 1 Compressor 1 - Actual Capacity | UNSIGNED WORD | 1840 | 0.1 | % | R |
| Circ 1 Compressor 1 - OffAuto Setpoint | UNSIGNED WORD | 1841 | 1 | 0 Off<br>1 Auto | W |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Circ 1 Compressor 1 - Operating State | UNSIGNED WORD | 1852 | 1 | 0 Off<br>1 On | R |
| Unit - Number of Circuits | UNSIGNED WORD | 1855 | 1 | 1…2 | R |
| Unit - Number of Compressors | UNSIGNED WORD | 1856 | 1 | 1…3 | R |
| Unit - Number of Tons | UNSIGNED WORD | 1857 | 1 | tons | R |
| Circuit 2 - Evaporator Superheat  Active Setpoint | SIGNED WORD | 1896 | 0.1 | dK | R |
| Circuit 1 - Evaporator Superheat Active Setpoint | SIGNED WORD | 1897 | 0.1 | dK | R |
| Circuit 2 - Evaporator Superheat Temperature | SIGNED WORD | 1898 | 0.1 | dK | R |
| Circuit 1 - Evaporator Superheat Temperature | SIGNED WORD | 1899 | 0.1 | dK | R |
| Unit - Active Energy | UNSIGNED DOUBLE | 1900-1901 | 0.1 | kWh | R |
| Unit - Power Factor | SIGNED WORD | 1902 | 0.01 | - | R |
| Variable Flow - Plant Differential Pressure | SIGNED WORD | 1905 | 0.1 | kPa | W |
| Varibale Flow - Water Bypass Valve State | UNSIGNED WORD | 1906 | 1 | 0 Closed<br>1 Opened | R |
| Varibale Flow - Plant Differential Pressure setpoint | UNSIGNED WORD | 1909 | 0.1 | kPa | W |
| Variable Flow - Plant Delta Temperature | SIGNED WORD | 1911 | 0.1 | °Dc | R |
| Variable Flow - Plant Delta Temperature Setpoint | SIGNED WORD | 1913 | 0.1 | °Dc | W |
| Varibale Flow - Evaporator Fixed Speed Setpoint | SIGNED WORD | 1915 | 1 | % | W |
| Circuit 2 - Expansion Valve Position | UNSIGNED WORD | 1966 | 1 | % | R |
| Circuit 2 - Fan Speed | UNSIGNED WORD | 1970 | 1 | % | R |
| Circuit 2 - Condenser Approach Temperature | SIGNED WORD | 1971 | 0.1 | dK | R |
| Circuit 2 - Evaporator Approach Temperature | SIGNED WORD | 1972 | 0.1 | dK | R |
| Circuit 2 - Fan Staging | UNSIGNED WORD | 1981 | 1 | -- | R |
| Circuit 1 - Expansion Valve Position | UNSIGNED WORD | 1982 | 1 | % | R |
| Circuit 1 - Fan Speed | UNSIGNED WORD | 1986 | 1 | % | R |

| Description | Type | Adrress | Gain | Range | Read/Write |
|---|---|---|---|---|---|
| Circuit 1 - Condenser Approach Temperature | SIGNED WORD | 1987 | 0.1 | dK | R |
| Circuit 1 - Evaporator Approach Temperature | SIGNED WORD | 1988 | 0.1 | dK | R |
| Circuit 1 - Fan Staging | UNSIGNED WORD | 1997 | 1 | -- | R |

## 5.1 Alarm Codes and Indexes

**Premise**

Unit communicates to BAS the status alarm through Codes and Indexes.
Those are grouped in 3 level of alarm

**Levels of Alarm**

The three levels of alarms are as it follows:

| Level | Description |
|---|---|
| Warning | They are notifications from unit or equipment of an incorrect status |
| Problem | They are notifications from unit or equipment of a status that does allow unit to work properly |
| Fault | They are notifications from unit or equipment (circuits, Compressors, Sensors, etc) that can cause stop of the unit or specific equipment |

**Index**

Index describes the general cause of the notification

**Code**

Code describes which equipment or device of the unit is generating a notification

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 257 | 1 | Warning | Unit | Condenser Entering Water Temperature Sensor Failure |
| 513 | 2 | Warning | Unit | Evaporator Entering Water Temperature Sensor Failure |
| 769 | 3 | Warning | Unit | Liquid Line Refrigerant Temperature Sensor Failure |
| 1025 | 4 | Warning | Unit | Condenser Leaving Water Temperature Sensor Failure (STOP if Heat) |
| 1281 | 5 | Warning | Unit | Evaporator pump maintenance |
| 1537 | 6 | Warning | Unit | Condenser pump maintenance |
| 1829 | 7 | Warning | C1.Comp1 | Compressor maintenance #n |
| 1833 | | | C1.Comp2 | |
| 1837 | | | C1.Comp3 | |
| 1861 | | | C2.Comp1 | |
| 1865 | | | C2.Comp2 | |
| 1869 | | | C2.Comp3 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 2049 | 8 | Warning | Unit | Bad setpoint override input |
| 2305 | 9 | Warning | Unit | Bad demand limit input |
| 2561 | 10 | Warning | Unit | Power Loss While Running |
| 2817 | 11 | Warning | Unit | Unit Power Restore |
| 3105 | 12 | Warning | Circuit 1 | Circuit Failed Pumpdown |
| 3137 | | | Circuit 2 | |
| 3329 | 13 | Warning | Unit | External Event |
| 3585 | 14 | Warning | Unit | Bad Current Limit Input |
| 3841 | 15 | Warning | Unit | Option Controller Communication Failed |
| 4128 | 16 | Warning | Circuit 1 | Low Refrigerant Charge |
| 4160 | | | Circuit 2 | |
| 4352 | 17 | Warning | Unit | Chiller network Communication Failure |
| 6177 | 24 | Warning | Circuit 1 | Economizer Pressure Sensor Fault #n |
| 6209 | | | Circuit 2 | |
| 6433 | 25 | Warning | Circuit 1 | Economizer Temperature Sensor Fault #n |
| 6465 | | | Circuit 2 | |
| 6689 | 26 | Warning | Circuit 1 | Economizer EXV Motor Fault |
| 6721 | | | Circuit 2 | |
| 7169 | 28 | Warning | Unit | Economizer EXV Module Communications Fault |
| 7461 | 29 | Warning | C1.Comp1 | Hot Gas Bypass Fault |
| 7465 | | Warning | C1.Comp2 | |
| 7493 | | Warning | C1.Comp1 | |
| 7497 | | Warning | C1.Comp2 | |
| 7681 | 30 | Warning | Unit | Energy Meter Commununication Failure |
| 9729 | 38 | Warning | Unit | Heat Recovery Entering Water Temperature Sensor Fault |
| 9985 | 39 | Warning | Unit | Heat Recovery Leaving Water Temperature Sensor Fault |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 10241 | 40 | Warning | Unit | SwitchBox Temperature High |
| 10497 | 41 | Warning | Unit | SwitchBox Temperature Sesnor Fault |
| 10785 | 42 | Warning | Circuit 1 | Defrost EXV Motor Fault |
| 10817 | | Warning | Circuit 2 | |
| 11009 | 43 | Warning | Unit | Heat Recovery EWT or LWT freeze |
| 11265 | 44 | Warning | Unit | Heat Recovery Water Temperature Inverted |
| 11553 | 45 | Warning | Circuit 1 | Liquid Refrigerant Temperature Sensor Fault |
| 11585 | | Warning | Circuit 2 | |
| **PROBLEM** | | | | |
| 16418 | 64 | Problem | Circuit 1 | Power Loss While Running #n |
| 16450 | | Problem | Crcuit 2 | |
| 16642 | 65 | Problem | Unit | START INHIBITED - Ambient Temperature Low |
| 16898 | 66 | Problem | Unit | INHIBIT LOAD – Condenser Pressure High |
| 17186 | 67 | Problem | Circuit 1 | INHIBIT LOAD – Condenser Pressure High #n |
| 17218 | | Problem | Crcuit 2 | |
| 17410 | 68 | Problem | Unit | UNLOAD – Condenser Pressure High |
| 17698 | 69 | Problem | Circuit 1 | UNLOAD – Condenser Pressure High #n |
| 17730 | | Problem | Crcuit 2 | |
| 18178 | 71 | Problem | Pump 1 | PUMP START ATTEMPTED - Condenser Pump #1 Failure |
| 18434 | 72 | Problem | Pump 2 | PUMP START ATTEMPTED - Condenser Pump #2 Failure |
| 18722 | 73 | Problem | Circuit 1 | INHIBIT LOAD - Discharge Temperature High #n |
| 18754 | | Problem | Crcuit 2 | |
| 18946 | 74 | Problem | Unit | NO EWT RESET - Entering Evaporator Temperature Sensor Failure |
| 19202 | 75 | Problem | Unit | INHIBIT LOAD - Evaporator Pressure Low |
| 19490 | 76 | Problem | Circuit 1 | INHIBIT LOAD - Evaporator Pressure Low #n |
| 19522 | | Problem | Crcuit 2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 19714 | 77 | Problem | Unit | UNLOAD - Evaporator Pressure Low |
| 20002 | 78 | Problem | Circuit 1 | UNLOAD - Evaporator Pressure Low #n |
| 20034 | | | Crcuit 2 | |
| 20262 | 79 | Problem | C1.Comp1 | UNLOAD - Compressor Motor Current High #n |
| 20266 | | | C1.Comp2 | |
| 20294 | | | C2.Comp1 | |
| 20298 | | | C2.Comp2 | |
| 20513 | 80 | Problem | Circuit 1 | UNLOAD - Discharge Temperature High |
| 20545 | | Problem | Crcuit 2 | |
| 20738 | 81 | Problem | Pump 1 | PUMP START ATTEMPTED - Evaporator Pump #1 Failure |
| 20994 | 82 | Problem | Pump 2 | PUMP START ATTEMPTED - Evaporator Pump #2 Failure |
| 21250 | 83 | Problem | Unit | (Check Chiller Display for Cause) |
| 21542 | 84 | Problem | C1.Comp1 | INHIBIT LOAD - Compressor Motor Current High #n |
| 21546 | | | C1.Comp2 | |
| 21574 | | | C2.Comp1 | |
| 21578 | | | C2.Comp2 | |
| 21763 | 85 | Problem | Unit | UNLOAD - Power Holes |
| 22050 | 86 | Problem | Circuit 1 | INHIBIT FREECOOLING - Wrong Valve Position |
| 22082 | | Problem | Crcuit 2 | |
| **FAULT** | | | | |
| 1027 | 4 | Fault | Unit | Condenser Leaving Water Temperature Sensor Failure |
| 5671 | 22 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Sump Temperature High |
| 5675 | | Fault | C1.Comp2 | |
| 5703 | | Fault | C2.Comp1 | |
| 5707 | | Fault | C2.Comp2 | |
| 6691 | 26 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Eco EXV Alarm |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 6723 | | Fault | Circuit 2 | |
| 6947 | 27 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Fans Fault Alarm |
| 6979 | | Fault | Circuit 2 | |
| 9251 | 36 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - EXV Alarm |
| 9283 | | Fault | Circuit 2 | |
| 26151 | 102 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Discharge Pressure Sensor Fault |
| 26155 | | | C1.Comp2 | |
| 26407 | 103 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Suction Pressure Low |
| 26411 | | | C1.Comp2 | |
| 26663 | 104 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Discharge Pressure High |
| 26667 | | | C1.Comp2 | |
| 27943 | 109 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Surge Temperature |
| 27947 | | | C1.Comp2 | |
| 31015 | 121 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Suction Pressure Sensor Fault |
| 31019 | | | C1.Comp2 | |
| 32551 | 127 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Low pressure ratio #n |
| 32555 | | | C1.Comp2 | |
| 32583 | | | C2.Comp1 | |
| 32587 | | | C2.Comp2 | |
| 32771 | 128 | Fault | Unit | UNIT SHUTDOWN - Outside Air Temperature Sensor Fault |
| 33063 | 129 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Current Overload Trip #n |
| 33067 | | | C1.Comp2 | |
| 33095 | | | C2.Comp1 | |
| 33099 | | | C2.Comp2 | |
| 33063 | 129 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Motor Current High |
| 33095 | | | Circuit 2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 33795 | 132 | Fault | Unit | UNIT SHUTDOWN - Motor Protector Trip |
| 34087 | 133 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Motor Protector Trip #n |
| 34091 | | | C1.Comp2 | |
| 34119 | | | C2.Comp1 | |
| 34123 | | | C2.Comp2 | |
| 34083 | 133 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Motor Protector Trip |
| 34115 | | | Circuit 2 | |
| 34343 | 134 | Fault | C1.Comp1 | Compressor overload #n |
| 34347 | | | C1.Comp2 | |
| 34375 | | | C2.Comp1 | |
| 34379 | | | C2.Comp2 | |
| 34599 | 135 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Motor Temperature High #n |
| 34603 | | | C1.Comp2 | |
| 34631 | | | C2.Comp1 | |
| 34635 | | | C2.Comp2 | |
| 34855 | 136 | Fault | C1.Comp1 | Compressor Shutdown - Motor Tempeature Sensor Fault #n |
| 34859 | | | C1.Comp2 | |
| 34887 | | | C2.Comp1 | |
| 34891 | | | C2.Comp2 | |
| 35111 | 137 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Phase Loss #n |
| 35115 | | | C1.Comp2 | |
| 35143 | | | C2.Comp1 | |
| 35147 | | | C2.Comp2 | |
| 35367 | 138 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Phase Reversal #n |
| 35371 | | | C1.Comp2 | |
| 35399 | | | C2.Comp1 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 35403 | | | C2.Comp2 | |
| 35623 | 139 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Overvoltage #n |
| 35627 | | | C1.Comp2 | |
| 35655 | | | C2.Comp1 | |
| 35659 | | | C2.Comp2 | |
| 35879 | 140 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Undervoltage #n |
| 35883 | | | C1.Comp2 | |
| 35911 | | | C2.Comp1 | |
| 35915 | | | C2.Comp2 | |
| 36099 | 141 | Fault | Unit | COMPRESSOR SHUTDOWN - Condenser Pressure Sensor Fault |
| 36391 | 142 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Condenser Pressure Sensor Fault #n |
| 36935 | | | C1.Comp2 | |
| 36423 | | | C2.Comp1 | |
| 36427 | | | C2.Comp2 | |
| 36387 | 142 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Condenser Pressure Sensor Fault #n |
| 36419 | | | Circuit 2 | |
| 36611 | 143 | Fault | Unit | COMPRESSOR SHUTDOWN - Condenser Water Flow Loss |
| 36867 | 144 | Fault | Unit | COMPRESSOR SHUTDOWN - Condenser Pressure High |
| 37159 | 145 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Condenser Pressure High #n |
| 37163 | | | C1.Comp2 | |
| 37191 | | | C2.Comp1 | |
| 37195 | | | C2.Comp2 | |
| 37155 | 145 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Condenser Pressure High #n |
| 37187 | | | Circuit 2 | |
| 37415 | 146 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Current High with Compressor OFF #n |
| 37419 | | | C1.Comp2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 37447 | | | C2.Comp1 | |
| 37451 | | | C2.Comp2 | |
| 37671 | 147 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Discharge Temperature Sensor Fault #n |
| 37675 | | | C1.Comp2 | |
| 37703 | | | C2.Comp1 | |
| 37707 | | | C2.Comp2 | |
| 37927 | 148 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Discharge Temperature High #n |
| 37931 | | | C1.Comp2 | |
| 37959 | | | C2.Comp1 | |
| 37963 | | | C2.Comp2 | |
| 38147 | 149 | Fault | Unit | UNIT SHUTDOWN - Condenser Entering Water Temperature Sensor Fault |
| 38403 | 150 | Fault | Unit | UNIT SHUTDOWN - Evaporator Water Flow Loss |
| 38659 | 151 | Fault | Unit | UNIT SHUTDOWN - Evaporator LWT or EWT Low (Freeze) |
| 38915 | 152 | Fault | Unit | COMPRESSOR SHUTDOWN - Evaporator Pressure Low |
| 39207 | 153 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Evaporator (or Suction) Pressure Low #n |
| 39211 | | | C1.Comp2 | |
| 39239 | | | C2.Comp1 | |
| 39243 | | | C2.Comp2 | |
| 39203 | 153 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Evaporator (or Suction) Pressure Low |
| 39235 | | | Circuit 2 | |
| 39427 | 154 | Fault | Unit | COMPRESSOR SHUTDOWN - Evaporator Pressure Sensor Fault |
| 39719 | 155 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Evaporator Pressure Sensor Fault #n |
| 39723 | | | C1.Comp2 | |
| 39751 | | | C2.Comp1 | |
| 39755 | | | C2.Comp2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 39715 | 155 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Evaporator Pressure Sensor Fault #n |
| 39747 | | | Circuit 2 | |
| 39975 | 156 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Ground Fault Trip #n |
| 39979 | | | C1.Comp2 | |
| 40007 | | | C2.Comp1 | |
| 40011 | | | C2.Comp2 | |
| 40231 | 157 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Lift Pressure Low #n |
| 40235 | | | C1.Comp2 | |
| 40263 | | | C2.Comp1 | |
| 40267 | | | C2.Comp2 | |
| 40487 | 158 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Liquid Line Pressure Sensor Fault #n |
| 40491 | | | C1.Comp2 | |
| 40519 | | | C2.Comp1 | |
| 40523 | | | C2.Comp2 | |
| 40739 | 159 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Liquid Line Temperature Sensor Fault #n |
| 40771 | | | Circuit 2 | |
| 40963 | 160 | Fault | Unit | UNIT LOCKOUT - Number of Allowed Re-Starts Exceeded |
| 41255 | 161 | Fault | C1.Comp1 | COMPRESSOR LOCKOUT - Number of Allowed Re-Starts Exceeded #n |
| 41259 | | | C1.Comp2 | |
| 41287 | | | C2.Comp1 | |
| 41291 | | | C2.Comp2 | |
| 41251 | 161 | Fault | Circuit 1 | CIRCUIT LOCKOUT - Number of Allowed Re-Starts Exceeded #n |
| 41283 | | | Circuit 2 | |
| 41475 | 162 | Fault | Unit | UNIT SHUTDOWN - Evaporator Leaving Water Temperature Sensor Fault |
| 41731 | 163 | Fault | Unit | UNIT SHUTDOWN - Evaporator Entering Water Temperature Sensor Fault |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 42023 | 164 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Evaporator Leaving Water Temperature Sensor Fault #n |
| 42027 | | | C1.Comp2 | |
| 42055 | | | C2.Comp1 | |
| 42059 | | | C2.Comp2 | |
| 42019 | 164 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Evaporator Leaving Water Temperature Sensor Fault #n |
| 42051 | | | Circuit 2 | |
| 42243 | 165 | Fault | Unit | UNIT STOP - Mechanical High Pressure Trip |
| 42535 | 166 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Mechanical High Pressure Trip #n |
| 42539 | | | C1.Comp2 | |
| 42567 | | | C2.Comp1 | |
| 42571 | | | C2.Comp2 | |
| 42531 | 166 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Mechanical High Pressure Trip #n |
| 42563 | | | Circuit 2 | |
| 42791 | 167 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Net Pressure Low #n |
| 42795 | | | C1.Comp2 | |
| 42823 | | | C2.Comp1 | |
| 42827 | | | C2.Comp2 | |
| 43047 | 168 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Feed Temperature High #n |
| 43051 | | | C1.Comp2 | |
| 43079 | | | C2.Comp1 | |
| 43083 | | | C2.Comp2 | |
| 43303 | 169 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Feed Temperature Low #n |
| 43307 | | | C1.Comp2 | |
| 43335 | | | C2.Comp1 | |
| 43339 | | | C2.Comp2 | |
| 43559 | 170 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Feed Temperature Sensor Fault #n |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 43563 | | | C1.Comp2 | |
| 43591 | | | C2.Comp1 | |
| 43595 | | | C2.Comp2 | |
| 43815 | 171 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Level Low #n |
| 43819 | | | C1.Comp2 | |
| 43847 | | | C2.Comp1 | |
| 43851 | | | C2.Comp2 | |
| 44071 | 172 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Delta Pressure High #n |
| 44075 | | | C1.Comp2 | |
| 44103 | | | C2.Comp1 | |
| 44107 | | | C2.Comp2 | |
| 44327 | 173 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Feed Pressure Sensor Fault #n |
| 44331 | | | C1.Comp2 | |
| 44359 | | | C2.Comp1 | |
| 44363 | | | C2.Comp2 | |
| 44583 | 174 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Sump Pressure Sensor Fault #n |
| 44587 | | | C1.Comp2 | |
| 44615 | | | C2.Comp1 | |
| 44619 | | | C2.Comp2 | |
| 44839 | 175 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Oil Sump Temperature Sensor Fault #n |
| 44843 | | | C1.Comp2 | |
| 44871 | | | C2.Comp1 | |
| 44875 | | | C2.Comp2 | |
| 45059 | 176 | Fault | Unit | SHUTDOWN – Phase Voltage Protection |
| 45091 | | | Circuit 1 | |
| 45123 | | | Circuit 2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 45351 | 177 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Starter Fault Compressor #n |
| 45355 | | | C1.Comp2 | |
| 45383 | | | C2.Comp1 | |
| 45387 | | | C2.Comp2 | |
| 45607 | 178 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - No Starter Transition #n |
| 45611 | | | C1.Comp2 | |
| 45639 | | | C2.Comp1 | |
| 45643 | | | C2.Comp2 | |
| 45863 | 179 | Fault | C1.Comp1 | COMPRESSOR START ABORT - Oil Pressure Low #n |
| 45867 | | | C1.Comp2 | |
| 45895 | | | C2.Comp1 | |
| 45899 | | | C2.Comp2 | |
| 46119 | 180 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Subcooling Low #n |
| 46123 | | | C1.Comp2 | |
| 46151 | | | C2.Comp1 | |
| 46155 | | | C2.Comp2 | |
| 46375 | 181 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Surge Suction Superheat High-Running #n |
| 46379 | | | C1.Comp2 | |
| 46417 | | | C2.Comp1 | |
| 46411 | | | C2.Comp2 | |
| 46631 | 182 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Surge Suction Superheat High-Starting #n |
| 46635 | | | C1.Comp2 | |
| 46663 | | | C2.Comp1 | |
| 46667 | | | C2.Comp2 | |
| 46887 | 183 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Suction Temperature Sensor Fault #n |
| 46891 | | | C1.Comp2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 46919 | | | C2.Comp1 | |
| 46923 | | | C2.Comp2 | |
| 46883 | 183 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Suction Temperature Sensor Fault #n |
| 46915 | | | Circuit 2 | |
| 47143 | 184 | Fault | C1.Comp1 | COMPRESSOR START ABORT - Vanes Open OR No Start – Interlock Switch #n |
| 47147 | | | C1.Comp2 | |
| 47175 | | | C2.Comp1 | |
| 47179 | | | C2.Comp2 | |
| 47399 | 185 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN – Compressor Fault #n |
| 47403 | | | C1.Comp2 | |
| 47431 | | | C2.Comp1 | |
| 47435 | | | C2.Comp2 | |
| 47619 | 186 | Fault | Unit | UNIT STOP - Mechanical Low Pressure Trip |
| 47911 | 187 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Mechanical Low Pressure Trip #n |
| 47915 | | | C1.Comp2 | |
| 47943 | | | C2.Comp1 | |
| 47947 | | | C2.Comp2 | |
| 48131 | 188 | Fault | Unit | Controller board offline #n<br>(Circuit number describe Control board number. 0=Unit alarm for Alarm/Limit extension module) |
| 48163 | | | Circuit 1 | |
| 48195 | | | Circuit 2 | |
| 48419 | 189 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - No Pressure Change After Start |
| 48451 | | | Circuit 2 | |
| 48675 | 190 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - No Pressure at Startup |
| 48707 | | | Circuit 2 | |
| 48935 | 191 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Slide position sensor Fault #n |
| 48939 | | | C1.Comp2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 48967 | | | C2.Comp1 | |
| 48971 | | | C2.Comp2 | |
| 49155 | 192 | Fault | Unit | UNIT STOP - Emergency Stop Alarm |
| 49411 | 193 | Fault | Unit | UNIT STOP - Evaporator Water Temperatures Inverted |
| 49667 | 194 | Fault | Unit | UNIT STOP - External Alarm |
| 49923 | 195 | Fault | Unit | Evaporator Leaving Water Temperature 1 Sensor Fault |
| 50179 | 196 | Fault | Unit | Evaporator Leaving Water Temperature 2 Sensor Fault |
| 50435 | 197 | Fault | Unit | CIRCUIT SHUTDOWN - Evaporator 1 Freeze Protection |
| 50691 | 198 | Fault | Unit | CIRCUIT SHUTDOWN - Evaporator 2 Freeze Protection |
| 50983 | 199 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - COMPRESSOR VFD Fault #n |
| 50987 | | | C1.Comp2 | |
| 51015 | | | C2.Comp1 | |
| 51019 | | | C2.Comp2 | |
| 51239 | 200 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - COMPRESSOR VFD Overheat Fault #n<br>(This Fault is detected by Controller, not VFD) |
| 51243 | | | C1.Comp2 | |
| 51271 | | | C2.Comp1 | |
| 51275 | | | C2.Comp2 | |
| 51495 | 201 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - COM ERROR With COMPRESSOR VFD #n |
| 51499 | | | C1.Comp2 | |
| 51527 | | | C2.Comp1 | |
| 51531 | | | C2.Comp2 | |
| 51751 | 202 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Low Discharge Superheat #n |
| 51755 | | | C1.Comp2 | |
| 51783 | | | C2.Comp1 | |
| 51787 | | | C2.Comp2 | |
| 52007 | 203 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - VFD Undergrid |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 52011 | | Fault | C1.Comp2 | |
| 52039 | | Fault | C2.Comp1 | |
| 52043 | | Fault | C2.Comp2 | |
| 52263 | 204 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - VFD Overgrid |
| 52267 | | Fault | C1.Comp2 | |
| 52295 | | Fault | C2.Comp1 | |
| 52299 | | Fault | C2.Comp2 | |
| 52519 | 205 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Discharge Superheat Low #n |
| 52523 | | Fault | C1.Comp2 | |
| 52551 | | Fault | C2.Comp1 | |
| 52555 | | Fault | C2.Comp2 | |
| 52739 | 206 | Fault | Unit | UNIT SHUTDOWN - Gas Leakage |
| 52771 | | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Gas Leakage |
| 52803 | | Fault | Circuit 2 | |
| 52995 | 207 | Fault | Unit | UNIT SHUTDOWN - Battery Mode |
| 53251 | 208 | Fault | Unit | UNIT SHUTDOWN - High Pitch (Marine) |
| 53507 | 209 | Fault | Unit | UNIT SHUTDOWN - High Roll (Marine) |
| 53763 | 210 | Fault | Unit | UNIT SHUTDOWN - Pitch Sensor Fault (Marine) |
| 54019 | 211 | Fault | Unit | UNIT SHUTDOWN - Roll Sensor Fault (Marine) |
| 54275 | 212 | Fault | Unit | UNIT SHUTDOWN - Evaporator Differenital Pressure Sensor Fault |
| 54531 | 213 | Fault | Unit | UNIT SHUTDOWN - Evaporator Differenital Pressure High |
| 54787 | 214 | Fault | Unit | UNIT SHUTDOWN - Condenser Differenital Pressure Sensor Fault |
| 55043 | 215 | Fault | Unit | UNIT SHUTDOWN - Condenser Differenital Pressure High |
| 55335 | 216 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - VFD Card Temperature High |
| 55339 | | Fault | C1.Comp2 | |
| 55367 | | Fault | C2.Comp1 | |

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|---|---|---|---|---|
| 55371 | | Fault | C2.Comp2 | |
| 55591 | 217 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - RLA High |
| 55595 | | Fault | C1.Comp2 | |
| 55623 | | Fault | C2.Comp1 | |
| 55627 | | Fault | C2.Comp2 | |
| 55847 | 218 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - RLA Low |
| 55851 | | Fault | C1.Comp2 | |
| 55879 | | Fault | C2.Comp1 | |
| 55883 | | Fault | C2.Comp2 | |
| 56103 | 219 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - Surge Alarm |
| 56107 | | Fault | C1.Comp2 | |
| 56135 | | Fault | C2.Comp1 | |
| 56139 | | Fault | C2.Comp2 | |
| 56323 | 220 | Fault | Unit | UNIT SHUTDOWN - Evaporator Water Differential Pressure Low |
| 56579 | 221 | Fault | Unit | UNIT SHUTDOWN - Condenser Water Differential Pressure Low |
| 56835 | 222 | Fault | Unit | UNIT SHUTDOWN - Unit or Compressor not configured |
| 57091 | 223 | Fault | Unit | UNIT SHUTDOWN - Power Availability Alarm (Marine) |
| 57347 | 224 | Fault | Unit | UNIT SHUTDOWN - Freecooling water valves feedback Alarm |
| 57635 | 225 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Freeccoling Valves Feedback Alarm |
| 57667 | | Fault | Circuit 2 | |
| 57895 | 226 | Fault | C1.Comp1 | COMPRESSOR SHUTDOWN - VFD Components to be replaced |
| 57899 | | Fault | C1.Comp2 | |
| 57927 | | Fault | C2.Comp1 | |
| 57931 | | Fault | C2.Comp2 | |
| 58147 | 227 | Fault | Circuit 1 | CIRCUIT SHUTDOWN - Fans Communication Fail |
| 58179 | | Fault | Circuit 2 | |

| CODE | INDEX | LEVEL | Device | Description |
|---|---|---|---|---|
| 59649 | 233 | Fault | Unit | UNIT SHUTDOWN - Condenser LWT or EWT (freeze) |

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