# Unifair InRow® Direct Expansion Air Conditioners

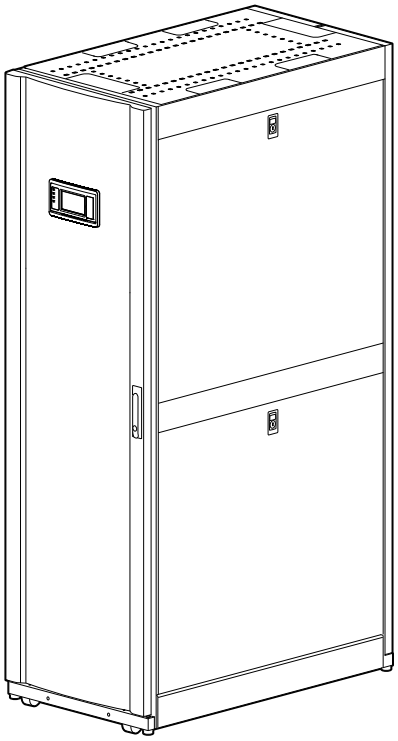
## RD600 Series (Indoor Unit)
## ACCD752XX Air-cooled Condenser Series (Heat Rejection Unit)

## Operation and Maintenance Manual

**600 mm Indoor Unit:**
**ACRD600: 42kW 200-240V/3ph/50/60Hz, Single Power**
**ACRD600P: 42kW 200-240V/3ph/50/60Hz, Single Power, Reheat & Humidifier**
**ACRD601: 42kW 460-480V/3ph/60Hz, Single Power**
**ACRD601P: 42kW 460-480V/3ph/60Hz, Single Power, Reheat & Humidifier**
**ACRD602: 42kW 380-415V/3ph/50/60Hz, Single Power**
**ACRD602P: 42kW 380-415V/3ph/50/60Hz, Single Power, Reheat & Humidifier**

**Air-cooled Condenser:**
**ACCD75228 (ACCD75229): 208-240V/3ph/60Hz, UL, 40.6℃/105℉ Ambient (46℃ /115℉)**
**ACCD75230 (ACCD75231): 460-480V/3ph/60Hz, UL, 40.6℃/105℉ Ambient (46℃ /115℉)**
**ACCD75232-C (ACCD75232): 230V/1ph/50Hz, CE (CCC), Ambient (46℃ /115℉)**
**ACCD75232-40C: 230V/1ph/50Hz, CE, Ambient -40 to 46℃/-40 to 115℉**
**ACCD75233-C: 230V/1ph/60Hz, CE, Ambient 46℃ /115℉**

**990-5712G-001**
**Release Date: 03/2026**



Schneider Electric

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# Legal Information

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# Table of Contents

# Safety

## Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert the user to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

This is the service indicator symbol. It is used to advise the user to read the technical manual.

This is the operator’s manual symbol. It is used to advise the user to read the operating instructions.

**⚠DANGER**

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

**Failure to follow these instructions will result in death or serious injury.**

**⚠WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

**Failure to follow these instructions can result in injury or equipment damage.**

***NOTICE***

**NOTICE** is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

**Failure to follow these instructions can result in equipment damage.**

# Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Always abide strictly by local laws and regulations in the place of installation.

# Safety During Operation and Maintenance

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must be installed and serviced by qualified and trained personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

**⚠WARNING**

**HAZARD FROM MOVING PARTS**

Keep hands, clothing, and jewelry away from moving parts. Check the equipment for foreign objects before closing the doors and starting the equipment.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠WARNING**

**MOVING PARTS HAZARD**

Do not remove rear panels if the equipment is operating.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠WARNING**

**HAZARD TO EQUIPMENT OR PERSONNEL**

All work must be performed by Schneider Electric qualified and trained personnel.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠WARNING**

**HAZARD OF EQUIPMENT FALLING OVER**

- Use two or more persons at all times to move or turn this equipment.
- Always push, pull, or turn while facing the front and rear of this equipment. Never push, pull, or turn while facing the sides of this equipment.
- Slowly move this equipment across uneven surfaces or door thresholds.
- Lower leveling feet to floor when this equipment is at rest.
- Lower leveling feet and attach joining brackets to adjacent racks when this equipment is in final position.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠CAUTION**

**HAZARD FROM SHARP EDGES**

Many metal parts have sharp edges. Be careful and wear protective gloves and clothing when working around and inside the equipment.

**Failure to follow these instructions can result in injury or equipment damage.**

**⚠CAUTION**

**HAZARD TO EQUIPMENT OR PERSONNEL**

Ensure that all spare parts and tools are removed from the equipment before operating.

**Failure to follow these instructions can result in injury or equipment damage.**

## Personal Protective Equipment (PPE)

To carry out the tasks described in this manual, make sure to wear suitable PPE:

# General Information

## Translation Reference

The original version of this manual was written in English.

Manuals written in other languages have been translated from the original English version.

## Document Overview

### Save These Instructions

This manual contains important instructions that must be followed during the installation of this equipment.

### Manual Updates

Schneider Electric™ policy is one of continuous technological innovation and the company reserves the right to amend any data herein without prior notice. The images shown in this manual are for descriptive purposes only.

**NOTE:** Unit images and component identification information are examples only.

For any updates to this manual, please contact Schneider Electric™ providing the related part number displayed on the manual back cover.

### Cross-Reference Symbol Used in This Manual

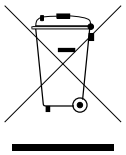
See another section of this document or another document for more information about this subject.

### Abbreviations

The following are abbreviations and terms used in this manual:

- EEV: Electronic expansion valve
- VFD/VSD: Variable-frequency drive/variable-speed drive
- BMS: Building management system
- ATS: Automatic transfer switch
- HACS: Hot aisle containment system
- CACS: Cold aisle containment system
- CSCB: Compressor speed control board

# Waste Electrical and Electronic Equipment (WEEE) Disposal



Schneider Electric products comply with international directives on the Restriction of Hazardous Substances (RoHS) in electronic and electrical equipment and the disposal of Waste Electrical and Electronic Equipment (WEEE). Dispose of any waste electronic or electrical equipment with the appropriate recycling center. Contact Schneider Electric for assistance.

At the end of an EEE (Electrical and Electronic Equipment) useful life, any battery included in the same must be removed and separated according to the instructions provided by the supplier, before disposing of the product. Used batteries must be disposed of at an appropriate waste collection center, as required by local regulations.

# Environmental Considerations

## Wind

The equipment is not intended for installation in areas of high wind. Consult the sales representative for information on any applicable options for installation in areas of high wind.

## ATEX

The equipment is not intended for use in potentially explosive atmospheres and does not comply with Directive 2014/34 / EU (ATEX).

## Dust

The equipment is not intended for use in dusty environments and in environments with conductive dust.

## Corrosion

The equipment is not intended for use in a potentially corrosive environment.

# Oil Disposal

Refrigerant oil is harmful to the environment, therefore it must be properly recycled or disposed of, according to 2008/98/EC (Water Framework Directive).

- Collect the oil from the unit by draining it until it is no longer flowing. Be aware that oil recovered from an air-conditioning equipment may contain halogens.
- Measure and record the quantity of recovered waste oil, then pour it into a suitable container. Do not fill containers over 90% of their capacity and leave the remaining 10% for expansion.

  **NOTE:** Do not mix refrigerant oil with any other sorts of waste oils.

- If the appliance is being dismantled, store waste oil containers in a diked area or in a containment vessel, until the dismantling procedure is completed.
- Once the waste oil collection has been completed, contact a licensed waste oil company for pick up.

# Radio Frequency Interference

**NOTE:** The Radio Frequency Interference directive applies to units installed in US and in Canada only.

Cooling units comply with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. These devices may not cause harmful interference.
2. These devices must accept any interference received, including interference that may cause undesired operation.

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

# California Proposition 65—Warning Statement for California Residents

**NOTE:** This directive applies to units installed in US and in Canada only.

**WARNING:** This product can expose the user to chemicals including lead and lead compounds, that are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

# Commissioning

After installation, verify that all components are working properly and the equipment is ready to begin operation.

## Overview

In order to complete commissioning, make sure that the following procedures has been done.

1. Complete the following inspections:
   - Initial
   - Electrical
   - Mechanical
   - Display interface
   - Start-up
   - Final
2. Check the refrigerant charge in the system and add refrigerant if needed (see Charging the Equipment, page 76).
3. Charge the system with oil (see Oil Charging Procedure, page 80).

## Inspection Checklists

### Initial Inspection Checklist

**⚠WARNING**

**DAMAGE TO EQUIPMENT AND PERSONNEL**

Do not run service utilities in front of the fan outlet.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The initial inspection ensures that the equipment has been properly installed. The location of the cooling unit has been properly prepared and the cooling unit is free of damage.

**NOTE:** The vapor barrier minimizes moisture infiltration. Without a vapor barrier, it will be difficult to maintain the humidity in the room. Do not introduce unconditioned outside air into the space.

**Ensure that**

- ❑ The installation procedure is complete according to the requirements of the installation manual and local codes.
- ❑ The walls, floor, and ceiling of the room where the cooling unit is located are sealed with a vapor barrier.
- ❑ There is no evidence of damage to the cooling unit.
- ❑ Clearance around the equipment is in accordance with CE, local, and national codes as well as the installation manual.
- ❑ The cooling unit is level and joined to the adjacent racks.
- ❑ The cooling unit is not installed at the open end of a row.

# Electrical Inspection Checklist

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must be installed and serviced by qualified and trained personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

**⚠⚠WARNING**

**ELECTRICAL HAZARD**

- Electrical service must conform to local and national electrical codes and regulations.
- The equipment must be grounded.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The electrical inspection verifies that all electrical connections are secure and correct and that the equipment is properly grounded.

**Ensure that**

- ❑ Incoming voltages match the phase and voltage rating on the nameplate.
- ❑ Electrical wiring complies with local and national codes and regulations.
- ❑ Equipment is properly connected to an earth ground.
- ❑ Front and rear doors for the indoor unit and doors for the outdoor are properly grounded.
- ❑ Internal electrical components and terminal blocks do not have any loose connections.
- ❑ Electrical connections are tight, including contactors, terminal blocks, controllers, switches, relays, auxiliary devices, and field connections.
- ❑ The primary and secondary power feeds (if applicable) are properly connected.
- ❑ Circuit breakers are correct and securely attached to the DIN rail.
- ❑ The rack temperature sensors are installed correctly for InRow and CACS modes.
- ❑ The optional rope water detection device is installed properly.
- ❑ The temperature and humidity sensors are connected correctly.

See the *Installation Manual* for the unit for installation procedures.

# Mechanical Inspection Checklist

**⚠CAUTION**

**HAZARD TO EQUIPMENT OR PERSONNEL**

- The equipment is shipped from the factory with a nitrogen holding charge. Remove the nitrogen holding charge using the service ports located on the internal refrigerant piping.
- Improperly installed piping may result in improper operation and possible damage to the cooling unit or surrounding equipment.

**Failure to follow these instructions can result in injury or equipment damage.**

The mechanical inspection verifies that all mechanical components and connections are secure and tight and ready for start-up. The inspection ensures that field piping is properly installed to promote oil return to the compressor.

**Ensure that**

- ❑ The condensate drain line is the size of the drain connection and has proper slope away from the unit.
- ❑ Mechanical connections are tight, including refrigerant piping and the condensate drain line.
- ❑ Refrigerant piping size is correct according to the line size table in the installation manual.
- ❑ Vertical, horizontal, and total run lengths are recorded for liquid and gas lines.
- ❑ Field-installed traps and piping are in accordance with the installation manual and follow proper piping practices.
- ❑ The number of 45- and 90-degree bends in the refrigerant piping are recorded.
- ❑ Room conditions comply with the operating guidelines before starting the equipment.
- ❑ Covers and guards are in place.
- ❑ Piping is adequately supported and isolated when necessary.
- ❑ Piping in the building and on the roof is properly insulated.
- ❑ Piping has been leak tested and held a vacuum prior to introduction to refrigerant into the system.

  Indoor units: Check that the indicator paper in the sight glass is a green color.
- ❑ Field-installed service valves are open.

# Display Interface Inspection Checklist

The display interface inspection verifies that the sensors and internal communication links are installed properly. Check that the cooling unit is connected to the other cooling units in the room if you are using cooling group controls.

**Ensure that**

- ❑ An A-Link bus is connected to each cooling unit and a terminator is plugged into all unused A-Link connections.
- ❑ The input contacts and output relays are connected correctly.
- ❑ The building management system is connected correctly and a terminator is wired into the final cooling unit between Modbus D0 and Modbus D1.
- ❑ The network port is connected correctly and an IP address has been assigned to the equipment.

# Start-Up Inspection Checklist

The start-up inspection ensures that the equipment is operating properly after the initial start-up. This inspection verifies that all modes of operation are working correctly and that the cooling unit is ready for normal operation.

**While the equipment is operating, ensure that**

- ❑ The cooling unit is free from malfunctions, including water leaks, unusual vibrations, or other irregularities in each mode of operation.
- ❑ Air filters are clean and free of debris. Replace air filters if necessary.
- ❑ If applicable, perform an air balance to verify that the fans are set to the desired fan speed.
- ❑ If equipped, the condensate pump is working properly by adding fresh clean water to the condensate pan and checking pump operation.
- ❑ Temperature and humidity sensors are working properly.
- ❑ Compressor suction and discharge pressures are within normal range.
- ❑ The compressor oil level is at least 1/3 full.
- ❑ The cooling unit has the proper refrigerant charge for year-round operation.
- ❑ The high-pressure switch is operating correctly.
  1. Shut down the condenser fan.
  2. The head-pressure will rise until the high-pressure switch shuts down the compressor.
  3. Record the shut-off point.

# Final Inspection Checklist

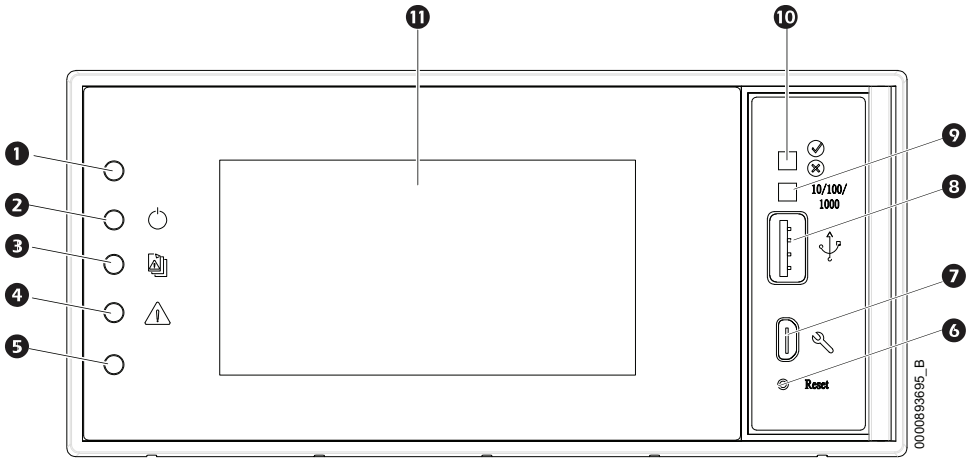
The final inspection verifies that the system is clean, the installed options work properly, and the start-up form is sent to Schneider Electric.

**Ensure that**

- ❑ Interior and exterior of the equipment are clean and free from debris and loose hardware.
- ❑ Internal protective covers and hardware are installed.
- ❑ Packaging materials are disposed of properly.
- ❑ There are no active alarms.
- ❑ Customer is trained on the user display and is able to view active alarms and status readings.
- ❑ The customer is given the technical support contact number applicable for their region.
- ❑ Unit documentation has been given to the customer.
- ❑ Start-up form is filled in and sent to Schneider Electric.

# Operation

## Display Interface




| Item | Description | Function |
|---|---|---|
| ❶ | Not used | |
| ❷ | Power LED | The cooling unit is powered when the LED is illuminated. Unit firmware is updating when LED is blinking. |
| ❸ | Check log LED | When this LED is illuminated, a new entry has been made to the event log. |
| ❹ | Alarm LED | Displays current alarm condition of unit. |
| ❺ | Not used | |
| ❻ | Display reset button | Resets the display microprocessor. This has no effect on the air conditioner controller. |
| ❼ | Micro USB | • Used as serial configuration port. Connect the display interface with a local computer to configure initial network settings or to access the command line interface (CLI).<br>• Used as service port. |
| ❽ | USB-A port | Supports firmware upgrades. |
| ❾ | Link-RX/TX (10/100/1000) LED | Displays current network link status. |
| ❿ | Status LED | Displays current network management card status. |
| ⓫ | LCD display | 4.3 in. touch-screen color display. |

## Alarm LED

This LED indicates active alarms on the display.

| Condition | Description |
|---|---|
| Off | No alarm |
| Solid yellow | Warning alarm |
| Solid red | Critical alarm |

# Status LED

This LED displays current network management card status and display status.

| Condition | Description |
|---|---|
| Off | One of the following situations exist:<br>• The display is not receiving input power.<br>• The display is not operating properly. It may need to be repaired or replaced. Please contact Schneider Electric Customer Support. |
| Solid green | The display has valid TCP/IP settings. |
| Solid orange | A hardware malfunction has been detected in the display. Please contact Schneider Electric Customer Support. |
| Flashing green | The display does not have valid TCP/IP settings. |
| Flashing orange | The display is making BOOTP requests. |
| Alternately flashing green and orange | If the LED is flashing slowly, the display is making DHCP requests. If the LED is flashing rapidly, the display is starting up. |

# Link-RX/TX (10/100/1000) LED

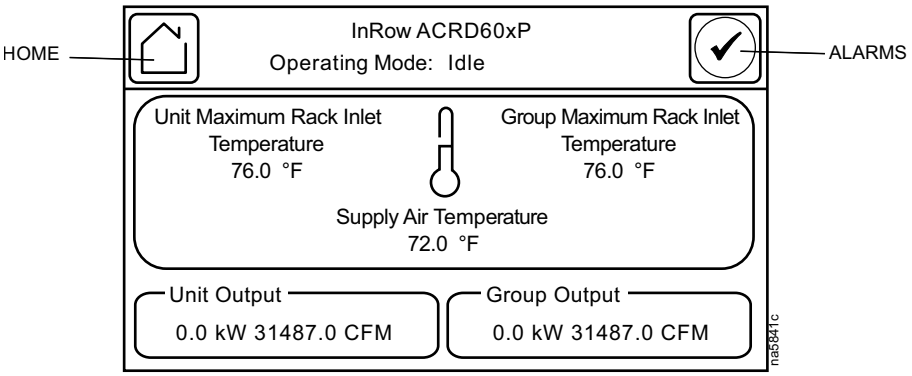
This LED indicates the network status of the display.

| Condition | Description |
|---|---|
| Off | One or more of the following situations are occurring:<br>• The display is not receiving input power.<br>• The cable or device that connects the cooling unit to the network is disconnected or not functioning properly.<br>• The display itself is not operating properly. It may need to be repaired or replaced. Contact Schneider Electric Customer Support. |
| Solid green | The display is connected to a network operating at 10 megabits per second (Mbps). |
| Solid orange | The display is connected to a network operating at 100/1000 Mbps. |
| Flashing green | The display is receiving or transmitting at 10 Mbps. |
| Flashing orange | The display is receiving data packets at 100/1000 Mbps. |

# Using the Display

## Overview Screen

After start-up, the display shows an overview screen containing basic status information. Press **Home** to toggle between the main menu and overview screen. After a period of inactivity, the display also reverts back to the overview screen.




**NOTE:** To maintain cleanliness and optimal performance of the touch-screen surface, it is recommended to use a soft-tip stylus when using the display. Never use sharp or hard-pointed objects on the touch-screen surface.

**NOTE:** Images are examples only to show operation of the display interface. Screens on your unit may vary.

# Main Menu Screen

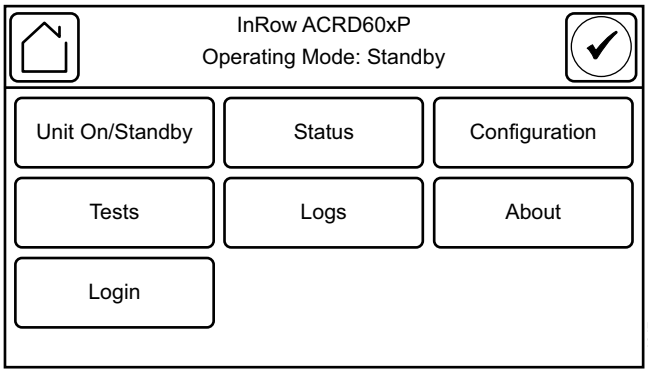
At any time during operation, press **Home** to return to the main menu. To view active alarms, press **Alarms**. The **Alarms** image changes based on the current state of the display.

See Alarm Messages and Suggested Actions, page 50 for more information on the **Alarms** state images.

The **Alarms** button changes based on the current state of the unit.

| Symbol | Description |
|---|---|
| | No alarms: No alarms are present. |
| | Informational: Provides details on an alarms that are not a warning or critical. |
| | Warning: An alarm condition requires attention and could jeopardize data or equipment if its cause is not addressed. |
| | Critical: A critical alarm exists, which requires immediate action. |

Main menu options appear on the display as shown below.



## Menu Description

- **Unit On/Standby:** The **Unit On/Standby** screen is used to turn the unit on or off.

See Start the Cooling Unit, page 30.

- **Status:** It contains menus with sensor reading information, unit operation information, and component information.

See Status Menu, page 47.

- **Configuration:** It contains menus for user-configurable settings for the unit and network.

See Configuration Menu, page 31.

- **Tests:** It contains menus to calibrate the touch screen and test the display LEDs.

See Tests, page 26.

- **Logs:** These screens save status information and record events and configuration changes.

See Logs Menu, page 66.

- **About:** These screens display identifying information that is helpful when obtaining service.

See About Menu, page 64.

- **Login/Logout:** It is used to log into or log out of the unit.

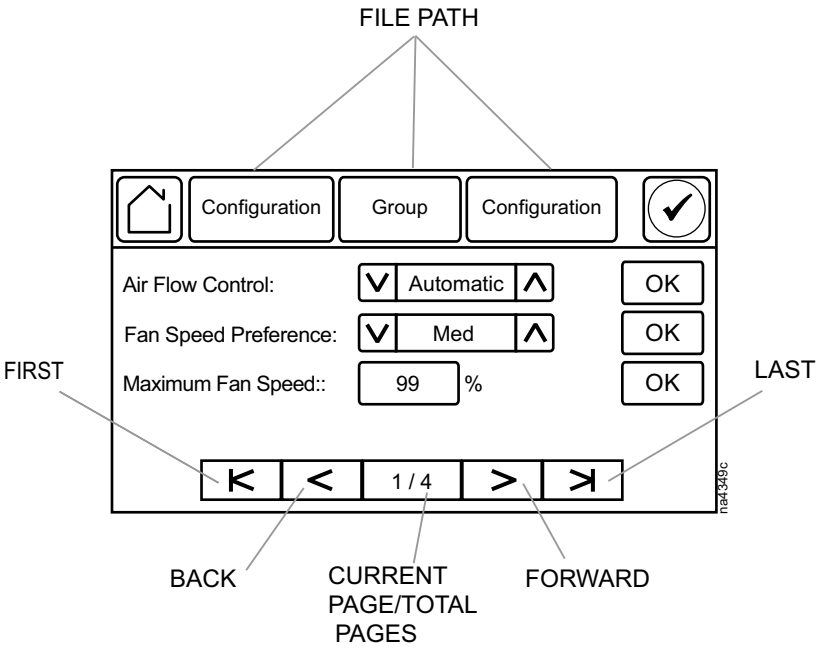
See Login Menu, page 27.

## Display Controls

To view a sub-menu, select an option from the main menu. Continue this process until the appropriate menu is active.

During navigation, the current file path is displayed at the top of the screen. Clicking on any of the headers reverts the display to the specified menu.

Menus with multiple pages use arrows to move between pages. **Forward** and **Back** advance one page at a time while **First** and **Last** move directly to the first or last page within the menu. Once changes have been made within a menu, press **OK** to confirm changes or **ESC** to cancel.




## Using the Path Statement

The Path Statement serves as a guide to access and manage specific settings within the system. It outlines the main and sub-menu options required to navigate to your desired setting. To view or modify a particular configuration, follow the path statement provided. The parts of the path statement are defined in the following example:
**Path: Main > Status > Unit Overview**

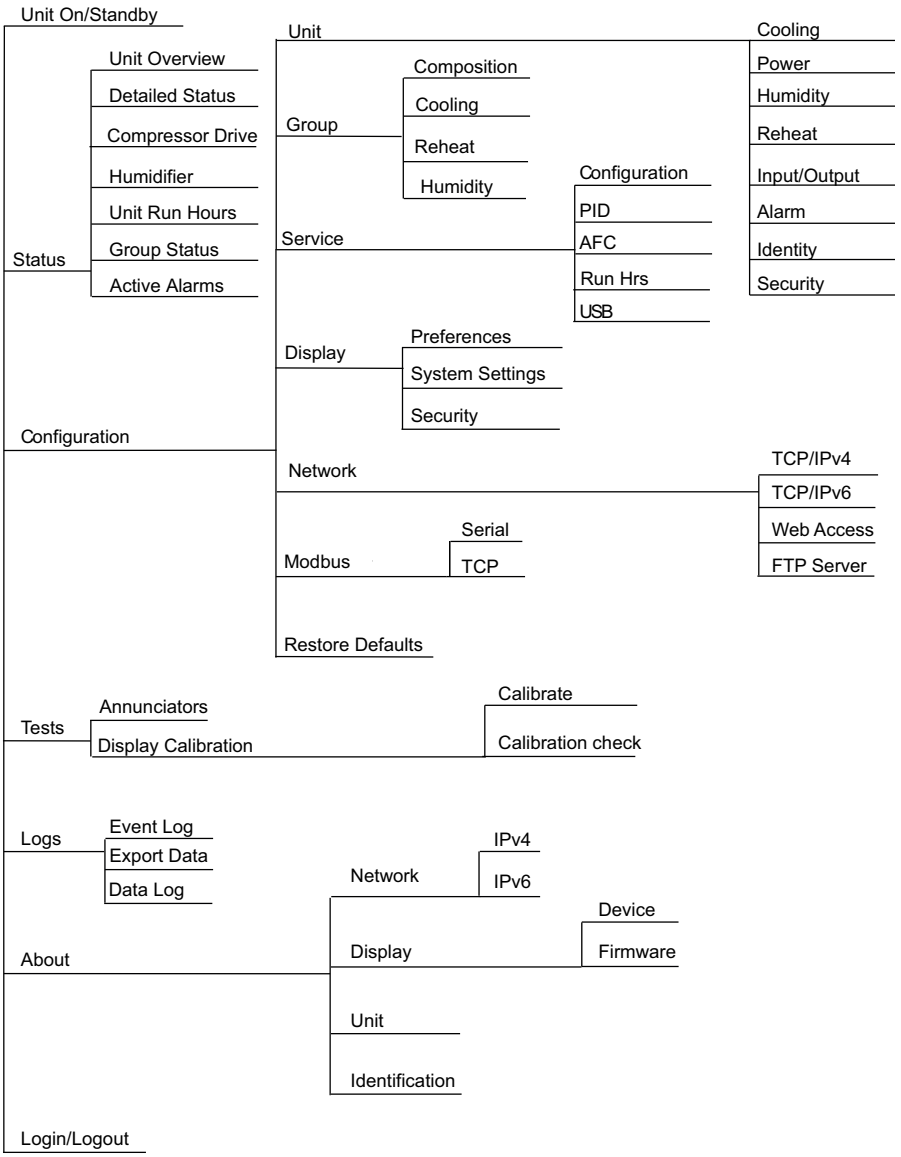
**Main >** Your starting point is the main menu.

**Status >** Select this option from the main menu.

**Unit Overview >** Select this option from the sub-menu.

Subsequent options are listed and defined under the path statement.

## Menu Tree Diagram




**IMPORTANT:**

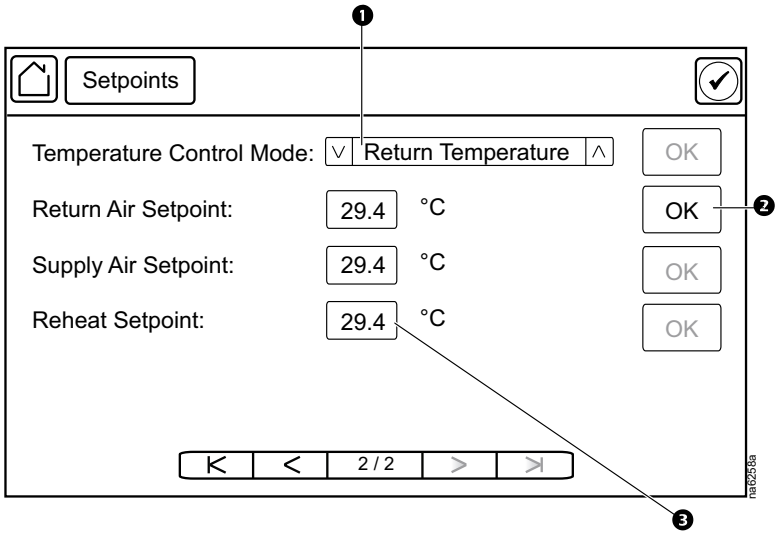
- Login with password user or service is required to access the settings menu.
- Depending on the unit model or configuration, some settings listed in this manual might not be available.

## Changing Settings

**NOTE:** Images are examples only to show operation of the display interface. Screens on your unit may vary.

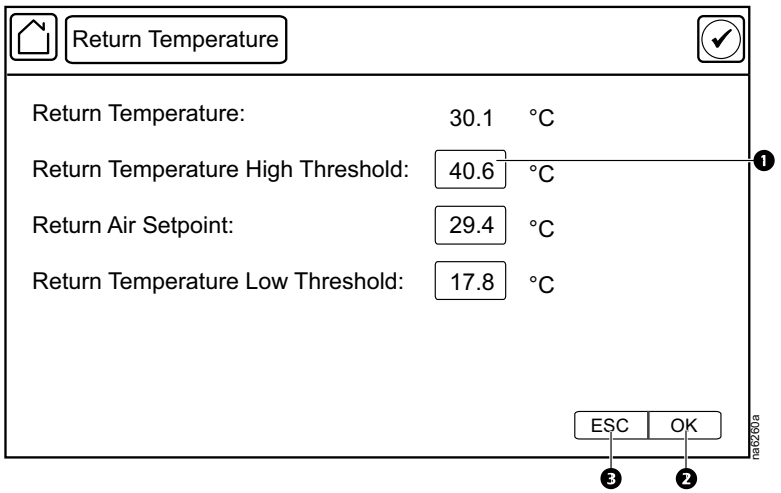
Screens that have mixed types of settings (e.g. list items and field items) require changes to be confirmed individually after being changed.

1. Select the option or enter a value for the setting to be changed.
   a. For list items ❶, press the up and down arrows to select the setting.
   b. For field items ❸, enter a value for the setting.
2. Press **OK** ❷ to confirm after each individual setting change.




Screens that only contain field items can be confirmed together with a single **OK** button.

1. Enter a value for any or all field items ❶.
2. Press **OK** ❷ to confirm all changes at once, or press **ESC** to exit without accepting changes ❸.



## Restore Defaults

**Path: Main > Configuration > Restore Defaults**
The Restore Defaults is used to reset controller settings and display settings to factory defaults.

| Parameter | Description | R/W | Note |
|---|---|---|---|
| Restore Defaults | | | |
| Restart Network Interface | To reboot the touchscreen terminal. | R/W | |
| Reset All | To reset all the settings,except TCP/IP (if selected). See next row. | R/W | |
| Exclude TCP/IP | If not selected, a new start up procedure is needed. See document "Firmware Update for the Security of connected Devices", For First Time Access procedure. | R/W | |
| Reset Only | To reset TCP/IP ro cancel the event list. | R/W | |
| TCP/IP | To reset TCP/IP settings: a new start up procedure is needed. | R/W | |
| Event Configuration | To cancel the event list. | R/W | |

# Tests

## Calibrating the Display

Use this screen to calibrate the touch screen by touching the center of the box that appears on the screen. When you are satisfied with the calibration, let the timer run down to zero.

**NOTE:** The touch screen will need to be calibrated every time the firmware on the touch screen is updated.

Use this screen to test the accuracy of the touch screen calibration by touching the center of the box that appears on the screen. When you are satisfied with the test, let the timer run down to zero.

**NOTE:** The touch screen will need to be calibrated every time the firmware on the touch screen is updated.

## Testing Display LEDs and Annunciator

**Path: Main > Tests > Annunciators**

1. Press **Start** to test the display LEDs and annunciator.

   The display LEDs will cycle through a green, orange, and red illumination pattern and the annunciator will sound.
2. Press **Stop** to stop testing.

# Login Menu

**Path: Main > Login**

or

**Path: Main > Logout**

This menu allows the user to login or logout to make changes in the unit configuration.

# First Log In

The first time you log in to the unit at the display interface, you will be prompted to enable the device account. You can connect to the Network Management Card to enable the account and set the password in any of the following ways :

- HTTPS

  See the *Online Guide* for your unit, available from the Schneider Electric Web site (www.se.com), for more information on the Web interface.

- SSH

  See the *Online Guide* for information on connecting through Secure SHell for your unit, available from the Schneider Electric Web site (www.se.com).

- Console port

  See *Online Guide* for information on connecting through the console port on the display interface. available from the Schneider Electric Web site (www.se.com).

# Logging In/Password Entry

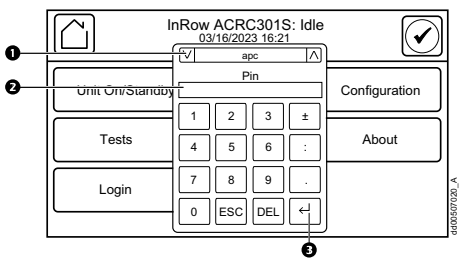
**Path: Main > Login**

The unit display interface requires password verification before settings can be altered on the unit. Log in from the main menu by selecting **Login**. While it is not required to log in to view unit configurations, it is required to make any changes.

1. Select **Login**.
2. Select your login ID with the up and down arrows ❶.

   **NOTE:** The default user ID is `apc`.
3. Enter your password in the **Pin** field ❷ with the keypad.

   **NOTE:** The default password is `1234`.
4. Select **Enter** ❸.



If the password was not entered from the **Login** screen on the main menu, you will be prompted to enter the password when attempting to change a setting. The unit default password is `1234`.

See User Security Settings, page 43 for information on editing users and passwords.

The **Home** button visually changes to signify that a user is currently logged in.

| Symbol | Description |
|---|---|
|  | **Home** when the system is locked. |
|  | **Home** when the system has been unlocked by a user. |

After the password is entered, user login remains active until the period of inactivity exceeds the **Auto Logoff** setting.

See Screen Visibility and Audible Tones, page 43.

# Recover From a Lost Password

Use a local computer (a computer that connects to the Network Management Card through the serial port) to access the command line interface (CLI).

1. Select a serial port at the local computer, and disable any service that uses that port.
2. Connect the Schneider Electric serial cable (part number 940-0299) to the selected port on the computer and to the serial port on the front of the display.
3. Run a terminal program (such as HyperTerminal®) and configure the selected port:

   - 9600 bps
   - 8 data bits
   - no parity
   - 1 stop bit
   - no flow control
4. Press the **Reset** button on the front of the display, immediately press **Enter** on the computer keyboard, repeatedly if necessary, to display the User Name prompt.

   **NOTE:** If you do not press the `ENTER` key before 5 seconds elapse, you must press the **Reset** button again.

   If you are unable to display the **User Name** prompt, verify the following:

   - The serial port is not in use by another application.
   - The terminal settings are correct as specified in step 3.
   - The correct cable is being used as specified in step 2.
5. Press the **Reset** button on the front of the display. The Status LED will alternately flash orange and green. Immediately press the Reset button on the front of the display a second time while the LED is flashing to temporarily reset the user name and password to their defaults.

6. Press ENTER on the computer keyboard as many times as necessary to re-display the **User Name** prompt, then use the default, **apc**, for the user name and password. (If you take longer than 30 seconds to log on after the **User Name** prompt is re-displayed, you must repeat step 5 and log on again.)
7. At the command line interface, use the following commands to change the password setting, which has been reset to **apc**:

   `user -n <user name> -pw <user password>`

   For example, to change the Super User password to **XYZ**, type

   `user -n apc -pw XYZ`
8. Type quit or exit to log off, reconnect any serial cable you disconnected, and restart any service you disabled.

# Unit Start Up/Shut Down

## Start the Cooling Unit

**Path: Main > Unit On/Standby**

1. Select **On** for **On/Standby**.

   If not logged in and **Protect On/Standby** is activated, a prompt will appear to enter your password.

   **NOTE: Protect On/Standby** can be enabled under **Configuration > Unit > Security**. The default setting is Disable.

2. Enter your password if required.

   The **Operating Mode** will now display **On**.

3. Select the option for Unit Role Override:

   — **Automatic:** Allows the system to select the role of the cooling unit.

   — **Forced On:** Select **Enable** if you have **Run-time Balancing Enable** selected and you DO NOT want a particular unit in the group to become a backup unit.

The cooling unit will run according to the configured settings.

**NOTE: On/Standby** only affects the local cooling unit. You must set the **On/Standby** option for each cooling unit in the cooling group.

**NOTE:** The**StandbyInput** must also be inactive in order to leave the **Standby** state.

If the **Protect On/Standby**option has been selected, you will be prompted to enter the device password before a change can be made to the **On/Standby** setting.

## Stop the Cooling Unit

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

The Standby option does not remove power from the cooling unit. You must disconnect power at the mains to remove power from the cooling unit.

**Failure to follow these instructions will result in death or serious injury.**

**Path: Main >Unit On/Standby**

1. Select **Standby** for **On/Standby**.
   If not logged in and **Protect On/Standby** is activated, a prompt will appear for you to enter your password.
2. The **Operating Mode** will now display **Standby**.

   **NOTE:** The unit can also be stopped via an external signal connected to the **Standby Input**.

# General Configuration

## Configuration Menu

**Path: Main > Configuration**

The **Configuration** menu allows to configure the unit according to customer/ ambient necessities.

## Cooling Unit Configuration

The cooling unit configuration options are set during the commissioning of the cooling units in the cooling group.

**NOTE:** Changing the settings incorrectly can cause malfunctions to your cooling unit. Only qualified service personnel should make changes to these settings.

**NOTE:** Displayed settings may vary based on model.

## Configure the Unit

**Path: Main > Configuration > Unit > Cooling**

When the monitored input violates the unit threshold, an alarm will occur.

- **Rack Inlet High Temperature Threshold**: The high temperature threshold for air entering the racks. If the temperature exceeds the threshold, an alarm will occur. (0–100°C (32–212°F))
- **Supply Air High Temperature Threshold**: The high temperature threshold for the supply air as averaged by the upper and lower supply air temperature sensors. If the temperature exceeds this threshold, an alarm will occur. (0–100°C (32–212°F))
- **Return Air High Temperature Threshold**: The high temperature threshold for the air entering the cooling unit. If the temperature exceeds this threshold, an alarm will occur. (0–100°C (32–212°F))
- **Startup Delay**: Enter a value for the start-up in seconds. The start-up delay begins when the cooling unit is started and initialized. The cooling unit cannot begin operation until this delay expires. Use the start-up delay to restart equipment sequentially in your room after a scheduled downtime or a power outage. (0–999)
- **Cool Capacity**: Set the cooling capacity of the unit.
  - — **Automatic**: The cooling unit automatically controls its output under normal (default) conditions.
  - — **Maximum**: The cooling unit runs at full capacity.

    **NOTE:** Normal checks for cooling failures are disabled in **Maximum** mode.
- **Cool Fail Threshold**: If the unit valve or compressor is in operation and the supply air temperature remains higher than the threshold (90°F) for a sustained period of time, the alarm will be activated.
- **Idle on Leak Detect**: When set to **Yes**, the cooling unit will enter idle mode if a **Leak Detected Critical** alarm activates. Set to **No** to disable the cooling unit from entering idle mode if a leak is detected.

  **NOTE:** The leak sensor (AP9326) is optional.

  **NOTE:** There are alarms that will cause the cooling unit to enter idle mode:

  - ◦ Leak Detected Critical (when **Idle On Leak Detect** is set to **Yes**)

- **Idle on Cool Fail**: Set the cooling unit to enter idle mode if the cooling unit is unable to supply conditioned air. Select **Yes** to enable the cooling unit to enter idle mode when unable to supply conditioned air. Select **No** to disable the cooling unit from entering idle mode if a cooling failure is detected.
- **Air Filter Type**: Select whether the air filters are **Standard** or **High Efficiency**.

**Path: Main > Configuration > Unit > Humidity**

- **Return Humidity High Threshold**: The relative humidity at which the high threshold alarm occurs. (35–90%RH)
- **Return Humidity Low Threshold**: The relative humidity at which the low threshold alarm occurs. (20–50%RH)
- **Humidify Enable**: **Enable** or **Disable** humidification.
- **Humidifier Control**: Select **Auto** to run according to settings. Select **Drain** to manually drain the humidifier canister.
- **Dehumidify Enable**: **Enable** or **Disable** dehumidification.

**Path: Main > Configuration > Unit > Reheat**

- **Reheat Enable**: **Enable** or **Disable** the reheat function.
- **Heat Assist Enable**: When **Enable** is selected, this setting allows use of heat when load is less than approximately 10 kW.

## Contacts

Each cooling unit supports a user-defined input contact and a user-defined normal or output contact. Each contact monitors a sensor and responds to changes in the state of the sensor (open or closed). Output contacts can map internal alarms and events to outside devices.

**Path: Main > Configuration > Unit > Input/Output**

- **Standby Input Normal State**: Set the normal state of the contact (**Open** or **Closed**). The cooling unit changes its operating mode to **Standby** when the actual state differs from the normal state.
- **Standby Input State**: Indicates the actual state of the input contact **Open** or **Closed**). A cooling unit is On when the state is normal and in **Standby** when the state is not normal.
- **Output Contact Normal State**: Set the normal state of the contact (**Open** or **Closed**). If the state of an alarm or event mapped to this contact changes from the normal state, the contact also changes state.
- **Output State**: Indicates the actual state of the output contact (**Open** or **Closed**). An alarm will cause the output contact to change from the normal state.
- **Output Source**: Define the type of output source (alarm) that causes the output to change from its normal state.

  — Any Alarm

  — Only Critical Alarms

## Identify the Cooling Unit

**Path: Main > Configuration > Unit > Identity**

- **Unit ID**: Assign a unique identification number to this cooling unit (**1**–**12**).

## Evaporator Fan Type

Path: **Main > Configuration > Service > Configuration**

Select the correct fan type:

- EBMFan1
- EBMFan2
- EBMFan3

## Unit Role Override

**Path: Main > Unit On/Standby**

- **Unit Role Override**: When selected this forces the cooling unit to be the primary cooling unit in the group.
  - — **Automatic**: Allows the system to select the role of the cooling unit.
  - — **Forced On**: Select **Enable** if you have **Run-time Balancing Enable** selected and you DO NOT want a particular unit in the group to become a backup unit.

See Alarm Messages and Suggested Actions, page 50 for more information on alarms.

# Cooling Group Configuration

The cooling group configuration settings determine which components are available and how the cooling group should operate.

**NOTE:** All changes to settings must be performed by qualified personnel.

## Configure the Cooling Group

**Path: Main > Configuration > Group > Composition**

The **Composition** menu contains settings that identify the number of cooling units installed in this cooling group and the physical arrangement of those cooling units.

- **Number of Units in Group**: The number of cooling units in this cooling group. Up to 12 cooling units can be joined together to work as a single cooling group.
- **Number of Backup Units**: The total number of desired backup cooling units. This value can range from zero to one less than **Number of Units in Group**.
- **Number of Precision Units**: The number of units in the group that are precision units (ACRD60xP units).
- **Altitude**: Set the altitude (in feet or meters) of the unit above sea level. This number is used to estimate the density of air and is a factor in pressure measurement.

## Configure Modbus

Use the **Modbus** menu to set up communications between the cooling unit and the building management system. Select to enable serial Modbus or TCP communication protocol.

**Path: Main > Configuration > Modbus > Serial**

- **Enable Serial Modbus**: Select to enable Modbus serial communication protocol.
- **Address**: Each Modbus device must have a unique target identification number. Enter a unique number for this cooling unit (1–247).
- **Baud Rate**: Set to either **2400** bps, **9600** bps, **19200** bps or **38400** bps.
- **Mode**: Select **Even**, **Odd**, or **None**.

  **NOTE:** The mode values that can be selected are: “**8, N, 2**” , “**8, E, 1**”, “**8, O, 1**”, “**8, N, 1**”. These are the values for number of data bits, parity, and number of stop bits.

**Path: Main > Configuration > Modbus > TCP**

- **Enable Modbus TCP**: Select to enable Modbus TCP.
- **Port**: Enter a port. The default port is **502**. For additional security, enter a port between 5000 and 32768 (TCP connection only).
- **Timeout**: Enables the Modbus TCP connection. Timeout for connection are default set.
- **Keep-Alive**: Enables the **Keep-Alive**. Ensures that the communication channel open at all times. Allows for fast data transmission when needed.
- **Restore Port to Default**: Press to restore the **Port** to default settings (**502**).

# Import and Export Unit Configuration

It is possible to configure a cooling unit by importing the settings of another cooling unit from a USB drive.

## Export

1. Navigate to **Main > Configuration > Service > USB**.
2. Insert the USB drive into the USB port on the display.
3. Press **Export**.

   The configuration of the unit will be exported to the USB drive.

   A message stating “Abort export of data to USB drive” will disappear when exporting is complete.
4. Remove the USB drive from the USB port.

## Import

1. Navigate to **Main > Configuration > Service > USB** .
2. Insert the USB drive into the USB port on the display.
3. Press **Import**.

   The configuration of the unit will be downloaded from the USB drive.
4. Press **OK** when the ”Import Complete” message appears.
5. Remove the USB drive from the USB port.

# Control the Environment

The primary function of the cooling unit is to cool air from the hot aisle and deliver it to the cold aisle at the temperature setpoint. The control strategies employed by the cooling unit depend upon the deployment strategy of the cooling group.

In an InRow environment, the cooling unit supplies constant-temperature supply air to the common cold aisle. The fan speed is modulated to ensure that the desired volume of air reaches the IT equipment. The fan speed is determined by the difference between the cooling setpoint and the maximum rack air inlet temperature.

In a HACS or RACS environment, the cooling unit neutralizes the heat accumulated in the common hot aisle and expels it back into the surrounding environmental space while maintaining the desired temperature in the cold aisle.

In a CACS environment, the cooling unit supplies constant temperature supply air to the enclosed cold aisle. The fan speed is modulated to ensure that the required volume of air reaches the IT equipment.

# How the Modes of Operation Work

**Path: Main > Configuration > Service > Configuration**

- **Configuration Type**: The cooling unit uses a direct expansion coil and a variable speed compressor to modulate refrigerant flow through the coil, and a set of fans to control airflow through the coil. The cooling output is determined by the difference between the supply setpoint and the supply air temperature of the cooling unit.

  The airflow control is varied based on configuration.

  — **In-Row**: The fan speed is controlled by comparing the rack inlet temperature to the cooling setpoint. As the rack temperature increases compared to the cooling setpoint the fans increase output to maintain the setpoint. As rack inlet temperature decreases compared to the cooling setpoint the fans decrease output to maintain the setpoint.

  — **RACS/HACS**: When Active Flow Controller (AFC) devices are present, the controller utilizes differential pressure data supplied by the AFC(s) to supply the correct amount of airflow to the IT load. When AFC devices are not present, the fan speed is controlled by the fan speed preference setting. The fan speed can be selected based on the temperature differential across the cooling unit. As return temperatures deviate from the fan speed preference setting, the fan speed increases to bring the temperature difference back down to the setpoint or decreases fan output to increase the unit temperature differential. By maintaining the desired temperature differential, the system matches the airflow requirements of the load.

  — **CACS**: When AFC devices are present, the controller utilizes differential pressure data supplied by the AFC(s) to supply the correct amount of airflow to the IT load. When AFC devices are not present, the evaporator fan speed is controlled by comparing the rack inlet temperature to the cooling setpoint. As the rack temperature increases compared to the cooling setpoint, the fans increase output to maintain the setpoint. As rack temperature decreases compared to the cooling setpoint the fans decrease output to maintain the setpoint.

  The cooling unit is equipped with compressor cycling control that tries to minimize the number of times the compressor cycles on and off. The compressor will cycle off when the supply air temperature drops below 13°C (55.4°F) whether or not the minimum compressor on time of three minutes has elapsed. Once off, the compressor will not normally cycle on until the supply temperature reaches its setpoint and the minimum off time of two minutes has elapsed. However, if the rack inlet temperature reaches 25°C (78°F), the compressor will cycle on regardless of whether the minimum off time has elapsed (InRow and CACS only).

  Compressor cycles are monitored over a seven-day period. If the number of cycles average more than 12 per hour over that period, the **Excessive Compressor Cycling** alarm is set.

See **Supply Air** and **Return Air** for more information.

## ACRD60x Only

When the unit model is set to ACRD60x, the following parameters are visible.

- **Low Suction Retries**: The number of occurrences of low suction pressure events within 30 minutes prior to a persistent low suction pressure event being triggered.
- **Compressor Retry Delay**: The compressor will wait for a certain time in minutes before attempting to restart after a compressor failure condition caused by either low suction pressure or an active high head pressure switch.

- **Humidify**: The cooling unit contains an electric humidifier that injects steam into the treated air if the return air dew point is below the dew point setpoint. The humidification output is determined by the difference between the humidify setpoint and the cooling unit return air dew point (with humidification output increasing as the return air dew point decreases).
- **Dehumidify**: The cooling unit actively removes humidity from the air passing through the cooling unit. The cooling unit dehumidifies if the return air dew point is above the dehumidify dew point setpoint and the cooling unit cooling demand is being met. The dehumidification output is determined by the difference between the dehumidify dew point setpoint and the cooling unit return air dew point.
- **Reheat**: When enabled, reheat is used as needed to provide stable cooling at a lower heat load than is possible with cooling alone. Reheat increases the heat load (up to 4 kW) to the cooling controller which allows the compressor to avoid cycling off. The return air temperature may be low while the unit is dehumidifying or if data center equipment is off and the environment is relatively cold. Reheat output is determined by the difference between the reheat setpoint and the cooling unit return air temperature (the reheat output increases as the return air temperature decreases).
- **Heat assist**: Enabling heat assist in conjunction with reheat increases the reheat output when the compressor speed approaches its minimum cooling output. Without this additional heat load, the compressor cycles off, and will not return to service until its minimum off time has expired. The reheat output changes as needed to provide the minimum air temperature needed to keep the compressor from cycling off. If the heat load is low enough the compressor will cycle off, but this occurs at a lower heat load than if heat assist (or reheat) were disabled.

  Heat assist improves the performance of the dehumidification function by allowing the coils to stay colder than is needed for supply air, which increases condensation.

## Setpoints

A setpoint is the target value that a cooling group tries to maintain in the rack. The default setpoints are appropriate for most cooling applications.

**Path: Main > Configuration > Group > Cooling**

- **Cool Setpoint**: Set the temperature that the cooling group should maintain. The setpoint must be within 18.0 – 35.0°C (64.4 – 95.0°F).
- **Supply Air Setpoint**: The setpoint must be within 15.0–30.2°C (59.0–86.4° F). The **Supply Air Setpoint** will be the required temperature of the air expelled into the surrounding environment.
- **Air Flow Control**: When **Automatic** is selected, the unit operates based on measured demand.

  — **Manual**/**Automatic**

- **Fan Speed Preference**: Set the fan speed preference that will produce the desired temperature difference (DT). Each fan speed provides an approximate DT between the supply air from the cooling unit and the air returned from the rack.

| HACS/RACS Mode Fan Speeds | |
|---|---|
| **Speed Range** | **Desired Temperature Difference (Automatic Mode)** |
| Low | 16.7°C (30°F) |
| Med-Low | 13.9°C (25°F) |
| Med | 11.1°C (20°F) |
| Med-High | 8.3°C (15°F) |
| High | 5.6°C (10°F) |

  **NOTE:** The cooling group will automatically override this fan speed setting and adjust the fan speed to provide optimum cooling for the environment as needed.

- **Maximum Fan Speed**: The maximum fan speed of the Group. The default is **100%**, and is adjustable to **60%**.
- **Run-Time Balancing Enable**: When set to **Enable**, the system maintains similar run-times between units in the group. When the difference between the runtime hours of the cooling units in the system exceeds 72 hours, the system will automatically exchange modes between the longest running primary unit and the backup unit with equal or greater capability if available with the least runtime hours.

  **NOTE:** The runtime balancing cap is not adjustable. Runtime hours are hours that the cooling unit is actually operating and NOT 72 consecutive hours (three days) of time.

- **Load Assist Enable**: When set to **Enable**, provides extra capacity via a backup cooling unit in the event that a primary unit is unable to service the demand. When the assistance is no longer needed, the unit will return to the backup state.

**Path: Main > Configuration > Group > Reheat**

- **Reheat Setpoint**: The Target value for air leaving the cooling unit. This setting must be at least 2°F (1.1°C) below the Supply Air Setpoint. (10.0–18.1°C (50.0–64.6°F)).

**Path: Main > Configuration > Group > Humidity**

The setpoints are the target values that the cooling group tries to maintain in the rack. The default setpoints are appropriate for most cooling applications:

- **Humidify Setpoint**: The target value for the relative humidity of conditioned air, as a percentage. The **Humidify Setpoint** must be at least 5% RH below the **Dehumidify Setpoint**. (20.0–50.0% RH)
- **Humidify Sensitivity Band**: Set the percentage of relative humidity below the **Humidify Setpoint** that will make the humidifier operate at full capacity.
- **Dehumidify Setpoint**: The target value for the relative humidity of conditioned air, as a percentage. The **Humidify Setpoint** must be at least 5% RH below the **Dehumidify Setpoint**. (35.0–80.0% RH)
- **Dehumidify Deadband**: The allowable percentage of relative humidity below the **Dehumidify Setpoint** before dehumidification ceases. (2.0–10.0%)

# PID Settings

**Path: Main > Configuration > Service > PID**

The Proportional plus Integral plus Derivative (PID) loop controls the output of the fans.

**NOTE:** This procedure is to be performed by Schneider Electric qualified personnel only. Improperly set PID controls could result in equipment damage.

- **Cool Gain 'P'**: The proportional multiplier (gain) for this mode. The proportional multiplier adjusts for the difference (error) between the measured value and the setpoint.
- **Cool Reset Rate 'I'**: The integral multiplier (reset rate) for this mode. The integral multiplier adjusts for error measurement and the amount of time that the error has existed. The integral multiplier adds to or subtracts from the output in small increments to correct for the offset error caused by the proportional contribution.
- **Cool Derivative 'D'**: The derivative multiplier (derivative) for this mode. The derivative multiplier adjusts the output for rapid changes in the error, correcting for the rate of change of the error over time.
- **Reheat Gain 'P'**: The proportional multiplier (gain) for this mode. The proportional multiplier adjusts for the difference (error) between the measured value and the setpoint.
- **Reheat Reset Rate 'I'**: The integral multiplier (reset rate) for this mode. The integral multiplier adjusts for error measurement and the amount of time that the error has existed. The integral multiplier adds to or subtracts from the output in small increments to correct for the offset error caused by the proportional contribution.
- **Reheat Derivative 'D'**: The derivative multiplier (derivative) for this mode. The derivative multiplier adjusts the output for rapid changes in the error, correcting for the rate of change of the error over time.
- **Dehumidifying Gain 'P'**: The proportional multiplier (gain) for this mode. The proportional multiplier adjusts for the difference (error) between the measured value and the setpoint.
- **Dehumidifying Reset Rate 'I'**: The integral multiplier (reset rate) for this mode. The integral multiplier adjusts for error measurement and the amount of time that the error has existed. The integral multiplier adds to or subtracts from the output in small increments to correct for the offset error caused by the proportional contribution.
- **Dehumidifying Derivative 'D'**: The derivative multiplier (derivative) for this mode. The derivative multiplier adjusts the output for rapid changes in the error, correcting for the rate of change of the error over time.
- **Reset PID Coefficients**: Reset the coefficients to the default settings.
- **Reset Reheat PID Coefficients**: Reset the reheat coefficients to the default settings.

## Tune the PID Loop

Tune the PID loop to optimize the performance of the cooling group.

**NOTE:** This procedure is to be performed by Schneider Electric qualified personnel only. The PID loop must be tuned after the equipment in the room is installed and running. The loop should be tuned periodically to account for changes in the room load.

1. Adjust the integral and derivative constants to zero and the proportional constant to 1.0.
2. Set the temperature setpoint value and start the cooling group.
3. When the temperature reaches a stable value, increase the proportional constant by 0.5. If the temperature does not respond to this change, adjust the setpoint.
4. Repeat step 3 until the temperature value starts to oscillate and the peak amplitude of the oscillations is constant.
5. Note the time, in minutes, between the peaks of the oscillations. This is the Ultimate Period, $P_U$.
6. Note the value of the proportional constant. This is the Ultimate Gain, $G_U$.

7. Compute the PID constants using the table below. Use the equations for that control method in the row to compute the values for each constant.
8. Set each constant according to these calculations.

| Control Method | Proportional | Integral | Derivative |
|---|---|---|---|
| P | 0.5 * GU | — | — |
| P+I | 0.45 * $GU_U$ | 0.54 * $G_U$ / $P_U$ | — |
| P+I+D | 0.6 * $G_U$ | 1.2*$G_U$/$P_U$ | 0.075 * $G_U$ * $P_U$ |

The PID loop may need to be further tuned in the following ways to account for changes in the room load:

| Loop Behavior | PID Tuning Correction |
|---|---|
| Slow response to temperature changes | Increase the proportional multiplier or increase the derivative multiplier. |
| Overcooling/undercooling after changes in the room load or changes in setpoint | Increase the derivative or the proportional multiplier. |
| Environmental temperature never reaches the setpoint | Increase the integral multiplier. |
| Overcooling/undercooling on constant room load | Decrease the integral multiplier. |

# Active Flow Controller (AFC) Settings

**Path: Main > Configuration > Service > AFC**

- **Number of Active Flow Controllers:** Set the number of AFC units in the group (0–5).
- **Active Flow Control Bias:** This setting is used to change the bias of the controller by adjusting the contained aisle pressure threshold. **Zero** is the default setting. Only qualified service personnel can make changes to these settings.
  - Hot Aisle Containment (HACS)
    - If the cooling units seem to be under-cooling, select **Negative** or **Slightly Negative** to adjust the aisle pressure for additional cooling.
    - If the cooling units seem to be over-cooling, select **Positive** or **Slightly Positive** to adjust the aisle pressure for less cooling.
  - Cold Aisle Containment (CACS)
    - If the cooling units seem to be under-cooling, select **Positive** or **Slightly Positive** to adjust the aisle pressure for additional cooling.
    - If the cooling units seem to be over-cooling, select **Negative** or **Slightly Negative** to adjust the aisle pressure for less cooling.

| Setting | Blue LED—HACS<br>Red LED—CACS | Setpoint Green LED | Red LED—HACS<br>Blue LED—CACS |
|---|---|---|---|
| **Positive** | < –0.008 in. ±3% | 0.004 ±0.0004 in. | > 0.016 in. ±3% |
| **Slightly Positive** | < –0.010 in. ±3% | 0.002 ±0.0004 in. | > 0.014 in. ±3% |
| **Zero** | < –0.012 in. ±3% | 0.000 ±0.0004 in. | > 0.012 in. ±3% |
| **Slightly Negative** | < –0.014 in. ±3% | –0.002 ±0.0004 in. | > 0.010 in. ±3% |
| **Negative** | < –0.016 in. ±3% | –0.004 ±0.0004 in | > 0.008 in. ±3% |

- **Active Flow Control Lamp Test:** When set to **On**, the Active Flow Controller (s) LEDs will cycle through a red, green, and blue illumination pattern. (Not on unit.)

## Run Hours

The cooling unit records the number of hours each of its components has operated. When a component is replaced, use the **Reset** option to reset the run hours for the displayed component to zero.

**Path: Main > Configuration > Service > Run Hrs**

- Evap Fan 1 Run Hrs Reset
- Evap Fan 2 Run Hrs Reset
- Air Filter Run Hrs Reset
- Condensate Pump Run Hrs Reset
- Compressor Run Hrs Reset
- Humidifier Run Hrs Reset
- Heater 1 Run Hrs Reset
- Heater 2 Run Hrs Reset
- Unit Run Hrs Reset

## Thresholds

Set alarms to alert you to threshold violations.

**Path: Main > Status > Detailed Status**

When the monitored input violates the unit threshold, an alarm will occur. The following sensor information is available:

- **Suction Temperature**: The temperature of refrigerant entering the compressor.
- **Suction Pressure**: The pressure of the refrigerant entering the compressor.
- **Discharge Pressure**: The pressure of the refrigerant leaving the compressor.
- **Standby Input State**: The state of the standby digital input.
- **Output State**: The state of the output contact.
- **Filter Differential Pressure**: The amount of pressure drop through the air filter media.
- **Humidifier Current**: The humidifier working current in amps.
- **Humidifier Water Conductivity**: The conductivity of the supply water of the humidifier.
- **Rack Inlet Temperature 1**: The first rack inlet temperature sensor reading.
- **Rack Inlet Temperature 2**: The second rack inlet temperature sensor reading.
- **Rack Inlet Temperature 3**: The third rack inlet temperature sensor reading.

  **NOTE:** Only the **Rack Inlet Temperature** thresholds are configurable from this menu.

## Service Intervals

**Path: Main > Configuration > Unit > Alarms**

The service interval depends on environmental cleanliness. Each component interval setting has an alarm. If enabled, the alarm will sound when the component

interval has elapsed. The alarm is cleared by selecting **Clear Alarms** in the main menu. Set the number of weeks to service the following:

- **Air Filter Service Alarm Enable:** Select to Enable or Disable the alarm.
- **Air Filter Service Interval:** The default is 18 weeks.
- **Heater Service Alarm Enable:** Select to Enable or Disable the alarm.
- **Heater Service Alarm Interval:** The default is 52 weeks.
- **Humidifier Service Alarm Enable:** Select to Enable or Disable the alarm.
- **Humidifier Service Alarm Interval:** The default is 26 weeks.
- **Fans Service Alarm Enable:** Select to Enable or Disable the alarm.
- **Fans Service Alarm Interval:** The default is 52 weeks.
- **Condensate Pump Service Alarm Enable:** Select to Enable or Disable the alarm.
- **Condensate Pump Service Alarm Interval:** The default is 52 weeks.

  **NOTE:** The Air Filter interval alarm is enabled by default. The condensate pump, fan, and compressor interval alarms are disabled by default.

# User Security Settings

The **Security** menus under the **Display** menu include options for user access to the unit.

## Add a New User or Edit an Existing User

1. Select **Add User** to add a new user or select **Edit User** to edit an existing user of the system.
2. In the **Name** field, enter the name of the user.
3. In the **Pin** field, enter a pin code for the user.
4. In the **Confirm Pin** field, re-enter the pin code of the user.
5. Press **OK** to save your settings.

## Delete a User

1. Browse to the user that you wish to delete using the up and down arrows and press **OK**.
2. Press **Yes** to confirm deletion of an existing user of the system.

## Language, Date, Time, and Temperature

**Path: Main > Configuration > Display > Preferences**

- **Language:** Select the correct language for the display.
- **Current Date:** Enter the day, month, and year. The date is displayed on some status screens and is also used in the alarm/event log to date-stamp events.
- **Current Time:** Enter the current time for the display.
- **Temperature:** Select **Metric** or **US Customary** for temperature format.

## Screen Visibility and Audible Tones

**Path: Main > Configuration > Display > System Settings**

The **System** menu under the **Display** menu includes options to configure the unit display.

- **Alarm Volume:** Select the level of audio at which alarms will sound (**Off**, **Low**, **Medium**, or **High**).
- **Button Volume:** Select the volume at which a tone will be produced every time a button is pressed on the display interface. The audible tone can also be set to **Off**.
- **Brightness:** Controls the visibility of the display.
- **Enable Backlight Timeout: Enable** or **Disable** backlight timeout settings.
- **Backlight Timeout:** Adjust the backlight timeout settings. Options are 1, 5, 10, 30, or 60 minutes.

- **Intensity:** Select the visibility of the display during backlight timeout.
  - **Off:** The display will remain at the normal intensity level.
  - **Very Low:** The display will be very dim.
  - **Low:** The display will be dim.
  - **Medium:** The display will dim to about half of the normal brightness.
- **Auto Logoff:** Automatically signs current user out of the system after specified amount of time. Options are 1, 5, 10, 30, or 60 minutes.

# Network Configuration

The cooling unit is shipped with a Network Management Card (NMC) that enables you to manage the cooling unit over your network. Configure the network settings for the cooling unit Network Management Card from the display interface. The management card allows remote control and configuration of the equipment.

## Configure the Network

**Path: Main > Configuration > Network**

- **TCP/IPv4**: Enable IPv4 (if applicable), and select the **Address mode** (**Manual, DCHP, BOOTP**).
  - — **Manual:** Enter the IP Address, subnet mask, and default gateway.
  - — **BootP:** Set the Network Management Card of the cooling unit to obtain its network settings from a BootP server.
  - — **DHCP:** Set the Network Management Card of the cooling unit to obtain its network settings from a DHCP server. Select whether or not to require vendor-specific cookies to accept the DHCP address.
- **TCP/IPv6**: Enable IPv6 (if applicable), select **Auto Configuration** or **Manual Configuration**, and select the **DHCPv6 Mode** (**Router Controlled**, **Non-Address Information Only**, **Address and Other Information**, or **Never**). For **Manual Configuration**, enter the **System IP** and **Default Gateway**.
- **Web Access**: Enable Web (if applicable) and select the **Access Mode** (**HTTP** or **HTTPS**) and enter the **Port**.
- **FTP server**: Enable FTP (if applicable) and enter the **Port**.

## TCP/IPv4 Settings

Enable IPv4 (if applicable), and select the **Address Mode** (**Manual**, **DHCP**, **BOOTP**).

- **Manual:** Enter the IP Address, subnet mask, and default gateway.
- **BootP:** Set the Network Management Card of the cooling unit to obtain its network settings from a BootP server.
- **DHCP:** Set the Network Management Card of the cooling unit to obtain its network settings from a DHCP server. Select whether or not to require vendor-specific cookies to accept the DHCP address.

## TCP/IPv6 Settings

Enable IPv6 (if applicable).

- Select **Auto Configuration** or **Manual Configuration**, and select the **DHCPv6 Mode** (**Router Controlled** , **Non-Address Information Only**, **Address and Other Information**, or **Never**).
- For **Manual Configuration**, enter the **System IP** and **Default Gateway**.

## Web Access Settings

Enable Web (if applicable) and select the **Access Mode** (**HTTP** or **HTTPS**) and enter the **Port**.

# FTP Server Settings

Enable FTP (if applicable) and enter the **Port**.

# View Status Readings

The display interface has several options for viewing the status of the cooling unit, the cooling group to which the cooling unit belongs, and the environment being controlled. The status readings for the cooling unit are available under the screen, and status readings for the cooling group are available under the **Status > Group Status** screen or on the overview screen.

## Overview Screen

After start-up, the display shows an overview screen containing basic status information. Press **Home** to toggle between the main menu and overview screen. After a period of inactivity, the display also reverts back to the overview screen.

## Status Menu

**Path: Main > Status**

The **Status** menu shows the instant functioning parameters of the unit divided into three sub-menus.

## Cooling Unit Status

**Path: Main > Status > Unit Overview**

View information specific to this cooling unit.

- **Operating Mode:** The cooling unit is in one of the following modes:
  - **On:** The cooling unit is cooling.
  - **Standby:** The cooling unit is receiving power but is not enabled for cooling.
  - **Idle:** The cooling unit is not operating in normal mode due to active alarms.
  - **Assist:** A backup unit is operating due to a request for cooling assistance.
  - **Backup:** The unit has been designated as a backup unit and is in the standby state.

For more information, see Idle on Leak Detect, Configure the Unit, page 31.

- **Unit Maximum Rack Inlet Temperature:** The highest reading of the three rack inlet temperature sensors determines the rack temperature.
- **Airflow:** The amount of air required to maintain the setpoint temperature.
- **Fan Speed:** The speed of the fans that regulate the air flow through the cooling unit.
- **Supply Air Temperature:** The average temperature of the air leaving the cooling unit, as measured by the upper and lower supply air temperature sensors.
- **Return Air Temperature:** The temperature of the air entering the cooling unit.
- **Supply Humidity:** The humidity of the air leaving the cooling unit.
- **Return Humidity:** The humidity of the air entering the cooling unit.

- **Cool Output:** The actual cooling output of the cooling unit.
- **Cool Demand:** The amount of cooling that the heat load currently requires.
- **Reheat Output:** The actual percent of maximum reheating output of the cooling unit.
- **Reheat Demand:** The percent of maximum reheating that the rack currently requires.
- **Dehumidify Output:** The actual percent of maximum dehumidification output of the cooling unit.
- **Dehumidify Demand:** The percent of maximum dehumidification that the rack currently requires.
- **Humidify Output:** The actual percent of maximum humidification output of the cooling unit.
- **Humidify Demand:** The percent of maximum humidification that the rack currently requires.

# Cooling Group Status

**Path: Main > Status > Group Status**

View information about the cooling group.

- **Cool Setpoint:** The temperature set to maintain the room environment.
- **Supply Air Setpoint:** The desired temperature of the air supplied by the cooling unit.
- **Group Maximum Rack Inlet Temperature:** The highest rack temperature reported by any cooling unit in the cooling group.
- **Group Minimum Rack Inlet Temperature:** The lowest rack temperature reported by any cooling unit in the cooling group.
- **Dew Point Temperature:** The average group dew point temperature.
- **Group Airflow:** The combined airflow output of the cooling units in the cooling group.
- **Active Flow Control Status:** The conditional state of the containment air pressure differential measurement device (AFC).
  - — Under
  - — Okay
  - — Over
  - — NA
- **Group Cool Demand:** The cooling output required to meet the current heat load of the conditioned space.
- **Group Cool Output:** The combined output of the cooling group.
- **Group Humidify Output:** The actual percent of maximum humidification output of the cooling group.
- **Group Humidify Demand:** The percent of maximum humidification that is currently required.
- **Group Dehumidify Output:** The actual percent of maximum dehumidification output of the cooling group.
- **Group Dehumidify Demand:** The percent of maximum dehumidification that is currently required.
- **Group Reheat Output:**The actual percent of maximum reheating output of the cooling group.
- **Group Reheat Demand:** The percent of maximum reheating that is currently required.

# Compressor Drive Status

**Path: Main > Status > Compressor Drive**

- **Speed:** The compressor speed.
- **Power:** The compressor power consumption.
- **Voltage:** The compressor voltage.
- **Current:** The compressor current draw.
- **DC Link Voltage:** The compressor internal direct current (DC) link voltage.
- **Heat Sink Temperature:** The compressor heat sink temperature.
- **Control Card Temperature:** The compressor control card temperature.
- **Software Version:**The software version of the compressor controller.
- **Software ID:** The compressor driver software ID.
- **Serial Number:** The serial number of the compressor.
- **Warning Status:** The compressor warning word used for diagnostics.
- **Alarm Status:** The compressor alarm word used for diagnostics.
- **Warning History:** The last four warning events stored in the compressor drive.
- **Alarm History:** The last four active alarm events stored in the compressor drive.

# Humidifier

**Path: Main > Status > Humidifier**

View information about the humidifier.

| Parameter | Description | Def./Min...Max/ UOM | R/ W | Note |
|---|---|---|---|---|
| Humidifier | | | | |
| Humidifier Software Release | The version of humidifier software currently installed on the humidifier controller. | 0/-...-/ | R | |

# Unit Run Hours

**Path: Main > Status > Unit Run Hours**

View the run hours for the cooling unit and components.

| Parameter | Description | Def./Min...Max/ UOM | R/W | Note |
|---|---|---|---|---|
| Unit Run Hours | | | | |
| Unit Run Hrs | Display the total hours the Unit has been in operation. | 0/-...-/hr | R | |
| Compressor Run Hrs | Display the total hours the Compressor has been in operation. | 0/-...-/hr | R | |
| Humidifier Run Hrs | Display the total hours the Humidifier has been in operation. | 0/-...-/hr | R | |
| Condensate Pump Run Hrs | Display the total hours the Condensate Pump has been in operation. | 0/-...-/hr | R | |
| Evap Fan 1 Run Hrs | Display the total hours the Evap Fan 1 has been in operation. | 0/-...-/hr | R | |

| | | | | |
|---|---|---|---|---|
| Evap Fan 2 Run Hrs | Display the total hours the Evap Fan 2 has been in operation. | 0/-...-/hr | R | |
| Heater 1 Run Hrs | Display the total hours the Heater 1 has been in operation. | 0/-...-/hr | R | |
| Heater 2 Run Hrs | Display the total hours the Heater 2 has been in operation. | 0/-...-/hr | R | |
| Air Filter Run Hrs | Display the total hours the Air Filter has been in operation. | 0/-...-/hr | R | |
| Air Filter Serviced | This setting allows the customer to service the air filter and reset the run hours. | Select Reset or Not | R/W | |

# Alarms

## Respond to Alarms

When an alarm is triggered, the unit provides alerts through the display in the following methods:

- LEDs on the display interface
- Alarm icon in the upper-right corner of the screen
- An optional audible alarm every 30 seconds if enabled

### View Alarms

**Path: Main > View Alarms**

The **View Alarms** screen provides the number of alarms, the severity, and a brief description of the alarm. Press the arrow keys to view the rest of the list.

### Clear Active Alarms

**Path: Main > Status > Active Alarms**

1. Press **Clear** to clear the active alarms.

   A confirmation screen is displayed.
2. Enter the Admin password to erase the alarms list.
3. Select **Yes** to erase all of the alarms. Select **No** to return to the **Active Alarms** screen.

### Alarm Messages and Suggested Actions

| Alarm Message | Severity | Action Required |
|---|---|---|
| ACS Door Open | Warning | • Verify the aisle containment system door is shut properly.<br>• If the problem persists, contact Schneider Electric technical support. |
| Air Filter Clogged | Warning | • Clean or replace the air filter.<br>• If the problem persists, contact Schneider Electric technical support. |
| Air Filter Runtime Alarm | Warning | • Reset the Air Filter run hours after the air filter is cleaned or replaced.<br>• For assistance, contact Schneider Electric technical support. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| A-Link Isolation Relay Fault | critical | A hardware error exists. For assistance, For assistance, contact Schneider Electric technical support. |
| CABC Sensor Failure | Warning | • Check the Active Flow Controller (AFC) hardware and wiring. Replace the AFC.<br>• If the problem persists, contact Schneider Electric technical support. |
| Compressor Drive Failure | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Compressor Drive Comm Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Compressor Drive Locked | Warning | • Resolve the VFD fault. Power cycle the unit to reset.<br>• If the problem persists, contact Schneider Electric technical support. |
| Compressor Drive Warning | Warning | • For assistance, contact Schneider Electric technical support. |
| Compressor Off via VFD Control Panel | critical | For assistance, contact Schneider Electric technical support. |
| Compressor Runtime Alarm | Warning | • At the display interface, make sure the compressor run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Compressor Suction Sensor Fault | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Condensate Pan Full Shutdown | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric Customer Support. |
| Condensate Pump Runtime Condition | Warning | • At the display interface, make sure the condensate pump run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Condensate System Degraded | Warning | • Clear debris from condensate pump reservoir and the condensate removal lines.<br>• Verify the condensate removal lines are free of obstructions and the float switch moves freely.<br>• For assistance, contact Schneider Electric technical support. |
| Configuration change | informational | For assistance, contact Schneider Electric technical support. |
| Configuration String Changed | informational | For assistance, contact Schneider Electric technical support. |
| Cooling Failure | critical | The cooling unit is inoperable due to a critical condition. For assistance, For assistance, contact Schneider Electric technical support. |
| CW Inlet High Temp Alarm | warning | Check operation of the chiller. Ensure the chilled water supply temperature is within range. |
| CW Valve Actuator Fault | critical | A hardware error exists. For assistance, For assistance, contact Schneider Electric technical support. |
| Discharge Pressure Sensor Failure | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric Customer Support. |
| Excessive Compressor Cycling Alarm | Warning | • For assistance, contact Schneider Electric technical support. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| External Communication Fault | critical | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 1 Communication Error | critical | For assistance, contact Schneider Electric technical support.. |
| Fan 1 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 1 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Fan 2 Communication Error | critical | Contact Schneider Electric Technical Support at {0}. |
| Fan 2 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 2 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Fan 3 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 3 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Filter Diff Pressure Sensor Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fluid Calibration Active | critical | The unit is in Fluid Calibration Mode. Disable this mode from the Service Menu to return the unit to cooling mode. |
| Fluid Flow Meter Comm Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Group Comm Fault | warning | • Make sure the number of cooling units in the group is configured properly, and the A-Link connections between cooling units are correct.<br>• Make sure the system is receiving power and is connected properly.<br>• If the problem persists, contact Schneider Electric technical support. |
| Heater 1 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Heater 1 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Heater 2 Fault | warning | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Heater 2 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Heater 3 Fault | warning | • A hardware problem may exist. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | • For assistance, contact Schneider Electric technical support. |
| Heater 3 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| High Discharge Pressure Condition | Warning | • Check condenser for obstructions.<br>• If the problem persists, contact Schneider Electric technical support. |
| High Pressure Sensor Active | Critical | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| High Return Humidity Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| High Suction Pressure Alarm | Warning | • Check that load is not greater than the cooling capacity rating on the unit.<br>• A hardware problem may exist.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Comm Fault | Warning | • A hardware problem may exist.<br>• See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Cylinder Full Unit Off | Warning | • See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Drain Fault | Warning | • A hardware problem may exist.<br>• See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Error Tolerance Exceed | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Humid Exc Output Reduction Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Humidifier High H2O Conductivity | Warning | • See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Low Water Alarm | Warning | • Make sure the water line to the humidifier is connected, and the water supply is turned on.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Replace Cylinder Alarm | Warning | • Replace the humidifier cylinder.<br>• Consult the humidifier manual.<br>• For further assistance, contact Schneider Electric technical support. |
| Humidifier Runtime Alarm | Warning | • At the display interface, make sure the humidifier run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| Inlet Fluid Temp Sensor Fault | warning | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Input Contact Fault | Warning | • For assistance, contact Schneider Electric technical support. |
| Insufficient Airflow | Warning | • Verify the air ports are clear of obstructions and there is sufficient cooling capacity for the load.<br>• If the problem persists, contact Schneider Electric technical support. |
| Internal Communication Fault | critical | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Leak Detected Critical | Warning | • System configured to enter idle mode when leak has been detected. Identify the source of the leak.<br>• For assistance, contact Schneider Electric technical support. |
| Leak Detected Warning | Warning | • Identify the source of the leak.<br>• For assistance, contact Schneider Electric technical support. |
| Low Return Humidity Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Low Suction Pressure Alarm | Warning | • Check the air filter and evaporator for obstructions.<br>• For assistance, contact Schneider Electric technical support. |
| Low superheat Critical | critical | 1. Check the condition of the fans, evaporator coil, and air filters.<br>2. Clean the evaporator coil. Clean or replace the air filters.<br>3. Increase fan speed. Ensure there is sufficient heat load available.<br>4. Check that the warm air expelled from the IT load is in close proximity to the ACRD600 return air intake.<br>5. Check for sources of cool air being introduced to the ACRD600 return air intake. Ensure that each unit has been positioned properly and configured for common hot aisle and common cold aisle.<br>6. Check the suction temperature and pressure sensor readings. Ensure that the sensors are working properly and are secured to the piping.<br>7. Check operation of the expansion valve device. Make sure the cable and connections are secure.<br>8. Check the system discharge pressure reading. Make sure that the outdoor condenser fan controls are working properly and are maintaining a safe minimum head pressure. |
| Low Superheat Warning | warning | 1. Check the condition of the fans, evaporator coil, and air filters.<br>2. Clean the evaporator coil. Clean or replace the air filters.<br>3. Increase fan speed. Ensure there is sufficient heat load available.<br>4. Check that the warm air expelled from the IT load is in close proximity to the ACRD600 return air intake.<br>5. Check for sources of cool air being introduced to the ACRD600 return air intake. Ensure that each unit has been positioned properly and configured for common hot aisle and common cold aisle.<br>6. Check the suction temperature and pressure sensor readings. Ensure that the sensors are working properly and are secured to the piping.<br>7. Check operation of the expansion valve device. Make sure the cable and connections are secure. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | 8. Check the system discharge pressure reading. Make sure that the outdoor condenser fan controls are working properly and are maintaining a safe minimum head pressure. |
| No Backups Available | Warning | • Check to make sure cooling units in the group have the **Role Override** setting on the **Main > Unit On/Standby** screen set to **Automatic** and that cooling units are available (not in a failed state).<br>• Check that the **Number of Backup Units** on the **Configuration > Group > Composition** screen is not zero.<br>• For assistance, contact Schneider Electric technical support. |
| Persistent High Head Pressure | Warning | • Indicates there were four **Compressor High Pressure** shutdowns in 30 minutes. Alarms must be cleared manually.<br>• If the problem persists, contact Schneider Electric technical support. |
| Persist Low Suction Pressure Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Power Source A Fault | warning | Make sure the power source is connected properly and the power is on. For assistance, contact Schneider Electric technical support. |
| Rack Inlet 1 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly.<br>• Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Inlet 2 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly.<br>• Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Inlet 3 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly.<br>• Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Temp Sensor 1 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Rack Temp Sensor 2 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Rack Temp Sensor 3 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Return High Temp Alarm | warning | Check for excessive heat load or a malfunction of the cooling system. For assistance, contact Schneider Electric technical support. |
| Return Humid Sensor Failure | warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Return Temp Sensor Fault | critical | • Make sure the faulty sensor is connected properly. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | • If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Standby Due to User Action | warning | None |
| Suction Pressure Sensor Failure | Warning | • A hardware problem may exist. For assistance, contact Schneider Electric technical support. |
| Supply High Temp Alarm | Warning | • Make sure the temperature sensor is connected properly.<br>• Make sure the **Supply Air Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• If the problem persists, contact Schneider Electric technical support. |
| Supply Humidity Sensor Failure | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Supply Temp Lower Sensor Fault | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Supply Temp Upper Sensor Fault | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Unexpected Number of AFC Sensors | Warning | • Verify physical number of AFC units matches the number shown in the Number of Active Flow Controllers setting.<br>• If the problem persists, contact Schneider Electric technical support. |
| Unit Capability Not Configured | Warning | • A manufacturing problem may exist.<br>• If the problem persists, contact Schneider Electric technical support. |
| VFD Inverter Overheat | Warning | • The VFD will restart once the inverter cools.<br>• If the problem persists, contact Schneider Electric technical support. |
| Speed Error | Warning | • Check the correct evaporator fan type is selected, which shall be **Ziehl**.<br>• If the problem persists, contact Schneider Electric technical support. |
| Communication Error | Warning | • Check the correct evaporator fan type is selected, which shall be **EBM**.<br>• If the problem persists, contact Schneider Electric technical support. |

# Respond to Alarms

When an alarm is triggered, the unit provides alerts through the display in the following methods:

- LEDs on the display interface
- Alarm icon in the upper-right corner of the screen
- An optional audible alarm every 30 seconds if enabled

# View Alarms

**Path: Main > View Alarms**

The **View Alarms** screen provides the number of alarms, the severity, and a brief description of the alarm. Press the arrow keys to view the rest of the list.

# Clear Active Alarms

**Path: Main > Status > Active Alarms**

1. Press **Clear** to clear the active alarms.

   A confirmation screen is displayed.
2. Enter the Admin password to erase the alarms list.
3. Select **Yes** to erase all of the alarms. Select **No** to return to the **Active Alarms** screen.

# Alarm Messages and Suggested Actions

| Alarm Message | Severity | Action Required |
|---|---|---|
| ACS Door Open | Warning | • Verify the aisle containment system door is shut properly.<br>• If the problem persists, contact Schneider Electric technical support. |
| Air Filter Clogged | Warning | • Clean or replace the air filter.<br>• If the problem persists, contact Schneider Electric technical support. |
| Air Filter Runtime Alarm | Warning | • Reset the Air Filter run hours after the air filter is cleaned or replaced.<br>• For assistance, contact Schneider Electric technical support. |
| A-Link Isolation Relay Fault | critical | A hardware error exists. For assistance, For assistance, contact Schneider Electric technical support. |
| CABC Sensor Failure | Warning | • Check the Active Flow Controller (AFC) hardware and wiring. Replace the AFC.<br>• If the problem persists, contact Schneider Electric technical support. |
| Compressor Drive Failure | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Compressor Drive Comm Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Compressor Drive Locked | Warning | • Resolve the VFD fault. Power cycle the unit to reset.<br>• If the problem persists, contact Schneider Electric technical support. |
| Compressor Drive Warning | Warning | • For assistance, contact Schneider Electric technical support. |
| Compressor Off via VFD Control Panel | critical | For assistance, contact Schneider Electric technical support. |
| Compressor Runtime Alarm | Warning | • At the display interface, make sure the compressor run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| Compressor Suction Sensor Fault | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Condensate Pan Full Shutdown | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric Customer Support. |
| Condensate Pump Runtime Condition | Warning | • At the display interface, make sure the condensate pump run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Condensate System Degraded | Warning | • Clear debris from condensate pump reservoir and the condensate removal lines.<br>• Verify the condensate removal lines are free of obstructions and the float switch moves freely.<br>• For assistance, contact Schneider Electric technical support. |
| Configuration change | informational | For assistance, contact Schneider Electric technical support. |
| Configuration String Changed | informational | For assistance, contact Schneider Electric technical support. |
| Cooling Failure | critical | The cooling unit is inoperable due to a critical condition. For assistance, For assistance, contact Schneider Electric technical support. |
| CW Inlet High Temp Alarm | warning | Check operation of the chiller. Ensure the chilled water supply temperature is within range. |
| CW Valve Actuator Fault | critical | A hardware error exists. For assistance, For assistance, contact Schneider Electric technical support. |
| Discharge Pressure Sensor Failure | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric Customer Support. |
| Excessive Compressor Cycling Alarm | Warning | • For assistance, contact Schneider Electric technical support. |
| External Communication Fault | critical | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 1 Communication Error | critical | For assistance, contact Schneider Electric technical support.. |
| Fan 1 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 1 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Fan 2 Communication Error | critical | Contact Schneider Electric Technical Support at {0}. |
| Fan 2 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fan 2 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Fan 3 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| Fan 3 Runtime Alarm | warning | • At the display interface, make sure the fan run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Filter Diff Pressure Sensor Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Fluid Calibration Active | critical | The unit is in Fluid Calibration Mode. Disable this mode from the Service Menu to return the unit to cooling mode. |
| Fluid Flow Meter Comm Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Group Comm Fault | warning | • Make sure the number of cooling units in the group is configured properly, and the A-Link connections between cooling units are correct.<br>• Make sure the system is receiving power and is connected properly.<br>• If the problem persists, contact Schneider Electric technical support. |
| Heater 1 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Heater 1 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Heater 2 Fault | warning | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Heater 2 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Heater 3 Fault | warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Heater 3 Runtime Alarm | warning | • At the display interface, make sure the heater hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| High Discharge Pressure Condition | Warning | • Check condenser for obstructions.<br>• If the problem persists, contact Schneider Electric technical support. |
| High Pressure Sensor Active | Critical | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| High Return Humidity Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| High Suction Pressure Alarm | Warning | • Check that load is not greater than the cooling capacity rating on the unit.<br>• A hardware problem may exist.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Comm Fault | Warning | • A hardware problem may exist.<br>• See the humidifier manual. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | • If the problem persists, contact Schneider Electric technical support. |
| Humidifier Cylinder Full Unit Off | Warning | • See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Drain Fault | Warning | • A hardware problem may exist.<br>• See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Error Tolerance Exceed | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Humid Exc Output Reduction Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Humidifier High H2O Conductivity | Warning | • See the humidifier manual.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Low Water Alarm | Warning | • Make sure the water line to the humidifier is connected, and the water supply is turned on.<br>• If the problem persists, contact Schneider Electric technical support. |
| Humidifier Replace Cylinder Alarm | Warning | • Replace the humidifier cylinder.<br>• Consult the humidifier manual.<br>• For further assistance, contact Schneider Electric technical support. |
| Humidifier Runtime Alarm | Warning | • At the display interface, make sure the humidifier run hours setting is correct in the **Main > Status > Unit Run Hours** screen after the appropriate maintenance for the device has been performed. |
| Inlet Fluid Temp Sensor Fault | warning | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Input Contact Fault | Warning | • For assistance, contact Schneider Electric technical support. |
| Insufficient Airflow | Warning | • Verify the air ports are clear of obstructions and there is sufficient cooling capacity for the load.<br>• If the problem persists, contact Schneider Electric technical support. |
| Internal Communication Fault | critical | A hardware error exists. For assistance, contact Schneider Electric technical support. |
| Leak Detected Critical | Warning | • System configured to enter idle mode when leak has been detected. Identify the source of the leak.<br>• For assistance, contact Schneider Electric technical support. |
| Leak Detected Warning | Warning | • Identify the source of the leak.<br>• For assistance, contact Schneider Electric technical support. |
| Low Return Humidity Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Low Suction Pressure Alarm | Warning | • Check the air filter and evaporator for obstructions.<br>• For assistance, contact Schneider Electric technical support. |
| Low superheat Critical | critical | 1. Check the condition of the fans, evaporator coil, and air filters. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | 2. Clean the evaporator coil. Clean or replace the air filters.<br>3. Increase fan speed. Ensure there is sufficient heat load available.<br>4. Check that the warm air expelled from the IT load is in close proximity to the ACRD600 return air intake.<br>5. Check for sources of cool air being introduced to the ACRD600 return air intake. Ensure that each unit has been positioned properly and configured for common hot aisle and common cold aisle.<br>6. Check the suction temperature and pressure sensor readings. Ensure that the sensors are working properly and are secured to the piping.<br>7. Check operation of the expansion valve device. Make sure the cable and connections are secure.<br>8. Check the system discharge pressure reading. Make sure that the outdoor condenser fan controls are working properly and are maintaining a safe minimum head pressure. |
| Low Superheat Warning | warning | 1. Check the condition of the fans, evaporator coil, and air filters.<br>2. Clean the evaporator coil. Clean or replace the air filters.<br>3. Increase fan speed. Ensure there is sufficient heat load available.<br>4. Check that the warm air expelled from the IT load is in close proximity to the ACRD600 return air intake.<br>5. Check for sources of cool air being introduced to the ACRD600 return air intake. Ensure that each unit has been positioned properly and configured for common hot aisle and common cold aisle.<br>6. Check the suction temperature and pressure sensor readings. Ensure that the sensors are working properly and are secured to the piping.<br>7. Check operation of the expansion valve device. Make sure the cable and connections are secure.<br>8. Check the system discharge pressure reading. Make sure that the outdoor condenser fan controls are working properly and are maintaining a safe minimum head pressure. |
| No Backups Available | Warning | • Check to make sure cooling units in the group have the **Role Override** setting on the **Main > Unit On/Standby** screen set to **Automatic** and that cooling units are available (not in a failed state).<br>• Check that the **Number of Backup Units** on the **Configuration > Group > Composition** screen is not zero.<br>• For assistance, contact Schneider Electric technical support. |
| Persistent High Head Pressure | Warning | • Indicates there were four **Compressor High Pressure** shutdowns in 30 minutes. Alarms must be cleared manually.<br>• If the problem persists, contact Schneider Electric technical support. |
| Persist Low Suction Pressure Alarm | Warning | • A hardware problem may exist.<br>• For assistance, contact Schneider Electric technical support. |
| Power Source A Fault | warning | Make sure the power source is connected properly and the power is on. For assistance, contact Schneider Electric technical support. |
| Rack Inlet 1 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| | | • Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Inlet 2 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly.<br>• Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Inlet 3 High Temp Alarm | critical | • Make sure the temperature sensor is connected and placed properly.<br>• Make sure the **Rack Inlet Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• For assistance, contact Schneider Electric technical support. |
| Rack Temp Sensor 1 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Rack Temp Sensor 2 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Rack Temp Sensor 3 Fault | critical | • Make sure the sensors are connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Return High Temp Alarm | warning | Check for excessive heat load or a malfunction of the cooling system. For assistance, contact Schneider Electric technical support. |
| Return Humid Sensor Failure | warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Return Temp Sensor Fault | critical | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Standby Due to User Action | warning | None |
| Suction Pressure Sensor Failure | Warning | • A hardware problem may exist. For assistance, contact Schneider Electric technical support. |
| Supply High Temp Alarm | Warning | • Make sure the temperature sensor is connected properly.<br>• Make sure the **Supply Air Threshold** is set correctly in the **Main > Configuration > Unit > Cooling** screen.<br>• If the problem persists, contact Schneider Electric technical support. |
| Supply Humidity Sensor Failure | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Supply Temp Lower Sensor Fault | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |
| Supply Temp Upper Sensor Fault | Warning | • Make sure the faulty sensor is connected properly.<br>• If the problem persists, replace the sensor, or contact Schneider Electric technical support. |

| Alarm Message | Severity | Action Required |
|---|---|---|
| Unexpected Number of AFC Sensors | Warning | • Verify physical number of AFC units matches the number shown in the Number of Active Flow Controllers setting.<br>• If the problem persists, contact Schneider Electric technical support. |
| Unit Capability Not Configured | Warning | • A manufacturing problem may exist.<br>• If the problem persists, contact Schneider Electric technical support. |
| VFD Inverter Overheat | Warning | • The VFD will restart once the inverter cools.<br>• If the problem persists, contact Schneider Electric technical support. |
| Speed Error | Warning | • Check the correct evaporator fan type is selected, which shall be **Ziehl**.<br>• If the problem persists, contact Schneider Electric technical support. |
| Communication Error | Warning | • Check the correct evaporator fan type is selected, which shall be **EBM**.<br>• If the problem persists, contact Schneider Electric technical support. |

# About Menu

**Path: Main > About**

This menu shows information about the unit configuration and the actual firmware version of the hardware.

# About the Network

View identifying information about the cooling network parameters (IPv4 or IPv6).

**Path: Main > About > Network**

**IPv4 Configuration:** If IPv4 is used, this section will display IPv4 information.

- **Enabled:** Identifies whether the specified network is enabled or not.
- **Mode:** Identifies how the IP address is obtained.
- **IP Address:** The IP address of the unit.
- **Subnet Mask:** The subnet mask for the sub-network.
- **Default Gateway:** The default gateway address used by the network.

**IPv6 Configuration:** If IPv6 is used, this section will display IPv6 information.

Press **Addresses** to view all assigned IPv6 addresses.

- **Enabled:** Identifies whether the specified network is enabled or not.
- **Auto Configuration:** Displays **Yes** if the IP address is assigned automatically.
- **Manual Configuration:** Displays **Yes** if the IP address is assigned manually.
- **DHCPv6 Mode:** The DHCPv6 mode.
  - **Router Controlled:** DHCPv6 is controlled by the **M** (Managed Address Configuration Flag) and **O** (Other Stateful Configuration Flag) flags received in IPv6 Router Advertisements. When a router advertisement is received, the network management card (NMC) checks whether the **M** and **O** flags are set. The NMC interprets the state of the **M** and **O** “bits” for the following cases:
    - Neither is set: Indicates local network has no DHCPv6 infrastructure. The NMC uses Router Advertisements and/or manual configuration to get non-link-local addresses and other settings.
    - **M**, or **M** and **O** are set: In this situation, full DHCPv6 address configuration occurs. DHCPv6 is used to obtain addresses AND other configuration settings. This is known as DHCPv6 stateful. Once the **M** flag has been received, the DHCPv6 address configuration stays in effect until the interface in question has been closed, even if subsequent Router Advertisement packets are received in which the **M** flag is not set. If an **O** flag is received first, then an **M** flag is received subsequently, the NMC performs full address configuration upon receipt of the **M** flag.
    - Only **O** is set: In this situation, the NMC sends a DHCPv6 Info-Request packet. DHCPv6 is used to configure “other” settings (such as location of DNS servers), but NOT to provide addresses. This is known as DHCPv6 stateless.
  - **Address and Other Information:** DHCPv6 is used to obtain addresses AND other configuration settings. This is known as DHCPv6 stateful.
  - **Non-Address and Information Only:** DHCPv6 is used to configure “other” settings (such as locations of DNS servers), but NOT to provide addresses. This is known as DHCPv6 stateless.
  - **Never:** If this radio box is selected, DHCPv6 is NOT to be used for any configuration settings.

# About the Unit

View identifying information that is helpful when obtaining service.

**NOTE:** Displayed settings are read-only and will vary based on unit type and configuration.

**Path: Main > About > Unit**

# About the Display

View identifying information about the unit display.

**Path: Main > About > Display > Device**

**Device summary:** Information about the physical display device.

- **Model Number:** The model number of the display interface.
- **Serial Number:** The serial number of the display interface.
- **Hardware Revision:** The hardware revision of the display interface.
- **Manufacture Date:** The date the display interface was manufactured.
- **MAC Address:** The MAC address of the unit.

**Path: Main > About > Display > Firmware**

**Firmware summary:** View identifying revision information about the display interface firmware:

- Application
- APC OS (AOS)
- APC Boot Monitor

# Logs Menu

**Path: Main > Logs**

This menu allows to view the saved information of the unit as alarms and events and all changes made to the configuration of the unit.

# Event Log

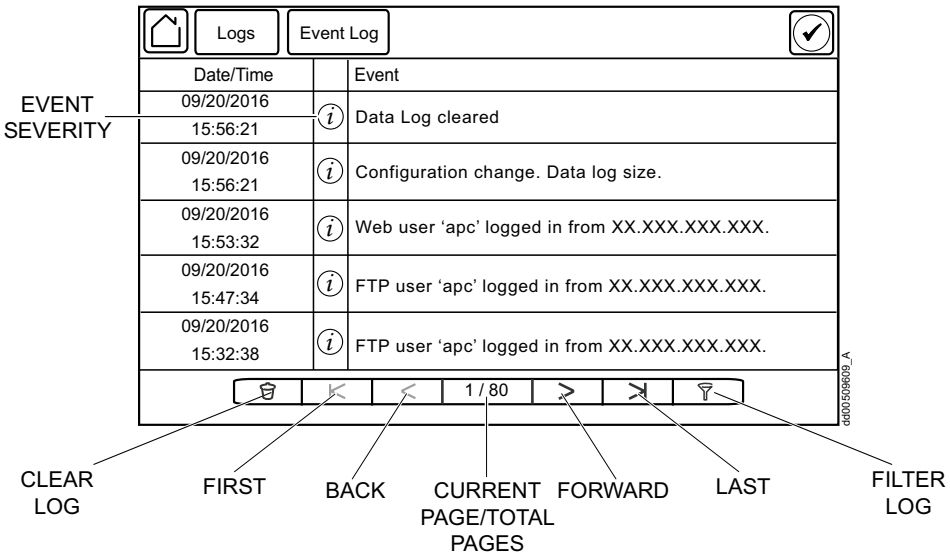
The event log saves status information and a message each time a change in the cooling group is detected. Alarms and events are recorded in the log and displayed on the active alarm screen. Status information and system configuration changes are only displayed in the event log.

## View Event Log

**Path: Main > Logs > Event Log**

The **Event Log** keeps a record of all alarms and events. The screen displays the following:

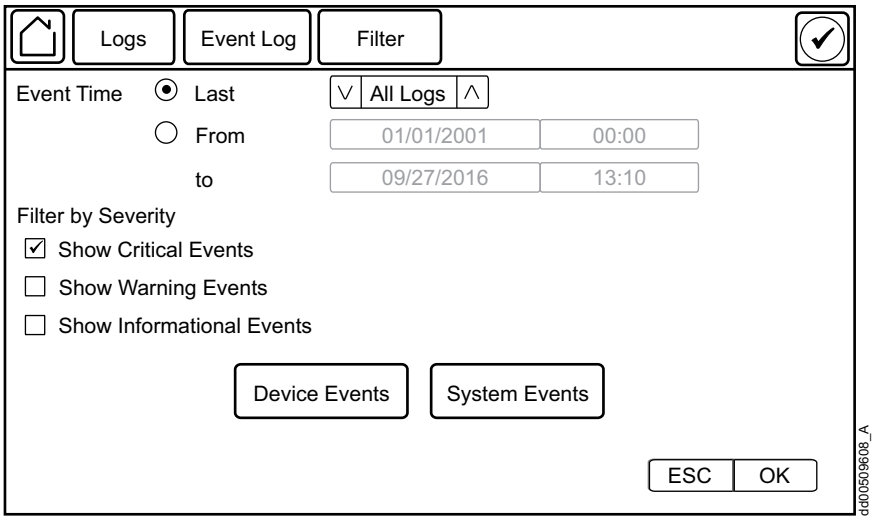
- The name of the event.
- The severity of the event.
- The time and date the event occurred.




Use the arrows to scroll through the list of events and display the date and time for each event.

## Filter Event Log

Events in the **Event Log** can be sorted by time or severity. Events can also be displayed by **Device Events** or **System Events**. Press **ESC** to return to the previous screen without making changes; press **OK** to accept changes.




The filter options for related **Device Events** are the following:

- Communication
- Temperature
- Fans
- Status
- Diagnostics
- Configuration

The filter options for related **System Events** are the following:

- Mass Configuration
- Security

## Clear Event Log

**Path: Main > Logs > Event Log**

1. Press the trash can icon in the bottom-left corner of the **Event Log** screen to clear the log. A confirmation screen is displayed.
2. Enter the Admin password to clear the log.
3. Select **Yes** to clear all of the events in the log. Select **No** to return to the **Event Log** screen.

## Export Data

**Path: Main > Logs > Export Data**

The data export function exports a .tar file containing the following files:

- config.ini
- data.txt
- debug.txt
- event.txt

1. Insert a USB drive into the USB port of the display interface.
2. Press **Start Data Export**.
3. Confirm exporting the data to the USB drive.
4. Wait for the data to export or abort exporting by pressing **Abort Data Export**.
5. Press **OK** when the “Data exported successfully. Remove USB device.” message displays.
6. Remove the USB drive from the display interface.

# Data Log

**Path: Main > Logs > Data Log**

# Maintenance

## Monthly Preventive Maintenance

Photocopy the following pages and use them during the maintenance procedures. After they have been completed, save them for future reference.

Prepared By: _____

Model Number: _____

Serial Number: _____

Date: _____

## Environment

- ❑ Supply air temperature sensor reading: _____
- ❑ Supply air humidity sensor reading: _____
- ❑ Return air temperature sensor reading: _____
- ❑ Return air humidity sensor reading: _____
- ❑ Record the alarm history for the last month.

  _____

  _____

  _____

## Cleanliness

- ❑ Check the condition of the air filters. Clean or change if necessary.
- ❑ Check the condition of the condenser coil. Remove large debris.

## Mechanical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

| | |
|---|---|
| ❑ | Check the evaporator fans for abnormal noise or vibration. |
| ❑ | Check the liquid line sight glass moisture indicator. |
| ❑ | Check the liquid line sight glass for bubbles. |
| ❑ | Check the oil level in the compressor sight glass. |
| ❑ | Check the condenser fans for abnormal noise or vibration. |

## Electrical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

| | |
|---|---|
| ❑ | Inspect the electrical panel doors and covers for damage or loose hardware. |
| ❑ | Check the condenser electrical panel and covers for damage or loose hardware. |

## Functional Tests

| | |
|---|---|
| ❑ | Check the operation of the display interface. |

# Quarterly Preventive Maintenance

* Perform all the Monthly Preventive Maintenance items **and** the items below.

Prepared By: _____

Model Number: _____

Serial Number: _____

Date: _____

## Environment

- ❑ Record the **Supply Air Setpoint**: _____
- ❑ Record the **Cool Setpoint**: _____

## Cleanliness

- ❑ Check for debris in the condensate pan. Clean as needed.

## Mechanical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

- ❑ Record the suction and discharge pressures: _____
- ❑ Record the evaporator superheat temperature: _____
- ❑ Check the condition of the humidifier cylinder.

# Electrical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

| | |
|---|---|
| ❑ | Check wiring harnesses and molded connectors. |
| ❑ | Check customer interface wiring connections. |
| ❑ | Check temperature and humidity sensor connections. |

# Semi-Annual Preventive Maintenance

* Perform all the Monthly/Quarterly Preventive Maintenance items **and** the items below.

Prepared By: _____

Model Number: _____

Serial Number: _____

Date: _____

## Environment

| | |
|---|---|
| ❑ | Check for visible damage to the cooling unit. |
| ❑ | Check for dirt, dust, debris, and liquid stains in and around the cooling unit. |

## Cleanliness

| | |
|---|---|
| ❑ | Replace air filters. Reset air filter run hours alarm counter. |
| ❑ | Replace humidifier cylinder. Reset humidifier run hours alarm counter. |
| ❑ | Check and clean the evaporator coil. |
| ❑ | Check and clean the condenser coil. |

## Mechanical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

| | |
|---|---|
| ❑ | Check for refrigerant leaks on valves, threaded connections, and heat exchangers. |
| ❑ | Check refrigerant piping clamps and insulation. Secure as needed. |
| ❑ | Check that the condensate line is not obstructed or clogged. |

# Electrical

**⚠⚠DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must be installed and serviced by qualified personnel only.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

**Failure to follow these instructions will result in death or serious injury.**

| | |
|---|---|
| ❑ | Check circuit breaker and fuse block electrical connections. |
| ❑ | Check low voltage transformers, measure and record output voltage. |
| ❑ | Measure and record mains input voltage: _____ |
| ❑ | Check and tighten electrical connections on the compressor inverter drive. |
| ❑ | Check and record the current draw for the following components:<br>• Fans: _____<br>• Compressor:_____<br>• Heaters:_____<br>• Humidifier:_____ |
| ❑ | Check condenser electrical components, fuses, contactors, speed controller. |

# Functional Tests

| | |
|---|---|
| ❑ | Check the operation of the water leak detection device. |
| ❑ | Verify the cooling operation mode is functioning properly. |
| ❑ | Check condensate pump operation. |

# Charging with Refrigerant

## Calculating R410A Charge

Use the following table and formula when calculating the total R410A charge.

| Condenser Model | Schneider Electric SKU | Selected Ambient Temperature – °C (° F) | Condenser Summer Charge – kg (lb) | Condenser Flooded Charge for Different Minimum Outdoor Ambient Temperatures – kg (lb) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 4°C (40°F) | –7°C (20°F) | –18 °C (0°F) | –29 °C (–20°F) | –40°C (–40°F) |
| LCS5213-099-2C | ACCD75228 | 35.0–40.6 (95–105) | 6.1 (13.3) | 9.7 (21.4) | 9.7 (21.4) | 10.3 (22.8) | 10.4 (22.9) | 10.8 (23.7) |
| LCS5213-113-2C | ACCD75229 | 46 (115) | 8.1 (17.9) | 13.0 (28.6) | 12.9 (28.5) | 13.8 (30.4) | 13.9 (30.6) | 14.3 (31.6) |
| LCS5213-099-4C | ACCD75230 | 35.0–40.6 (95–105) | 6.1 (13.3) | 9.7 (21.4) | 9.7 (21.4) | 10.3 (22.8) | 10.4 (22.9) | 10.8 (23.7) |
| LCS5213-113-4C | ACCD75231 | 46 (115) | 8.1 (17.9) | 13.0 (28.6) | 12.9 (28.5) | 13.8 (30.4) | 13.9 (30.6) | 14.3 (31.6) |
| CAP2001P | ACCD75232 | 35.0–46.0 (95–115) | 7.7 (17.0) | 12.4 (27.2) | 12.4 (27.2) | 13.1 (28.9) | 13.2 (29.1) | 13.7 (30.1) |
| CAP2001P | ACCD75232-C | 35.0–46.0 (95–115) | 7.7 (17.0) | 12.4 (27.2) | 12.4 (27.2) | 13.1 (28.9) | 13.2 (29.1) | 13.7 (30.1) |
| CAP2001P.0005 | ACCD75233-C | 35.0–46.0 (95–115) | 7.7 (17.0) | 12.4 (27.2) | 12.4 (27.2) | 13.1 (28.9) | 13.2 (29.1) | 13.7 (30.1) |
| LCV8211-009-2C | ACCD75234* | 35.0–40.6 (95–105) | 6.1 (13.3) | 9.0 (19.9) | 9.3 (20.6) | 9.9 (21.7) | 10.0 (21.9) | 10.4 (23.0) |
| LCV8211-009-4C | ACCD75235* | 35.0–40.6 (95–105) | 6.1 (13.3) | 9.0 (19.9) | 9.3 (20.6) | 9.9 (21.7) | 10.0 (21.9) | 10.4 (23.0) |
| *Longer lead times may apply. Consult a Schneider Electric representative for more information. | | | | | | | | |

Total charge = Equipment charge + condenser summer charge + condenser flooded charge (for minimum possible ambient temperature) + liquid R410A in liquid pipe.

Equipment charge: 5.5 kg (12.1 lb).

Liquid line charge for 7/8 in. ACR copper tube: 0.28 kg/m (0.186 lb/ft).

Density of liquid R410A at 40.6 °C (105 °F) and 27.5 bar (400 psig): 0.975 g/cm$^3$ (60.9 lbm/ft$^3$).

Example: Calculate the total R410A charge for an ACCD75232 condenser with 7.6 m (24.9 ft) of 7/8-in. liquid piping. Outdoor temperature is –18°C (0 °F).

Total R410A charge:

- Metric: 5.5 + 7.7 + 13.1 + (7.6 * 0.28) = 28.4 kg
- Imperial: 12.1 + 17.0 + 28.9 + (24.9 * 0.186) = 62.6 lb

# Charging the Equipment

**⚠WARNING**

**HAZARD TO EQUIPMENT OR PERSONNEL**

All work must be performed by Schneider Electric qualified and trained personnel.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

**⚠CAUTION**

**HAZARD OF HIGH PRESSURE REFRIGERANT OR EQUIPMENT DAMAGE**

- Use R410A refrigerant only.
- Use hose and manifold set suitable for R410A.
- The unit display interface should be used to obtain pressure readings.

**Failure to follow these instructions can result in injury or equipment damage.**

***NOTICE***

**HAZARD TO EQUIPMENT**

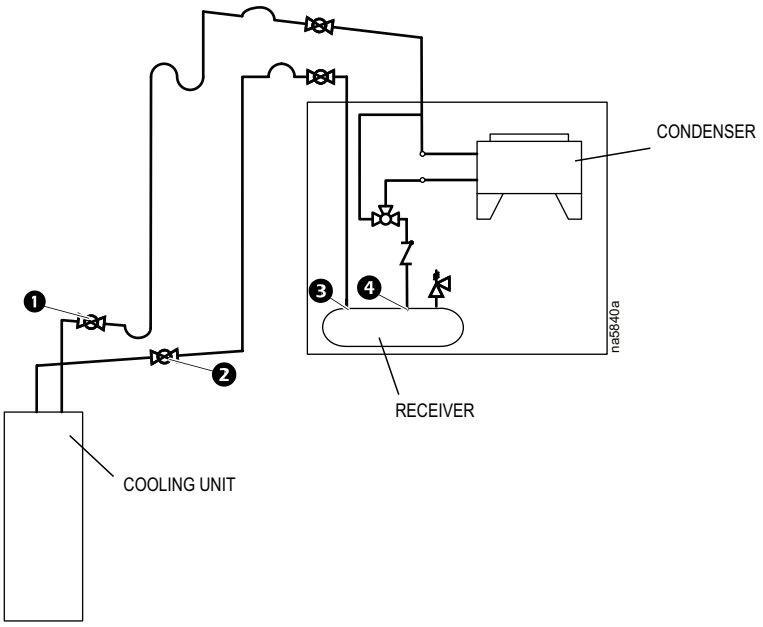
Introducing a fast charge of liquid refrigerant through the suction port may damage the compressor.

**Failure to follow these instructions can result in equipment damage.**

Perform the **Add initial refrigerant amount—"fast charge"**method, and then select one of the following to complete charging the system: **Top off the system refrigerant charge—"fast charge"** method or **Top off the system refrigerant charge—"slow charge"** method.

# Add Initial Refrigerant Amount—“Fast Charge” Method

Perform the following with the system not in operation.

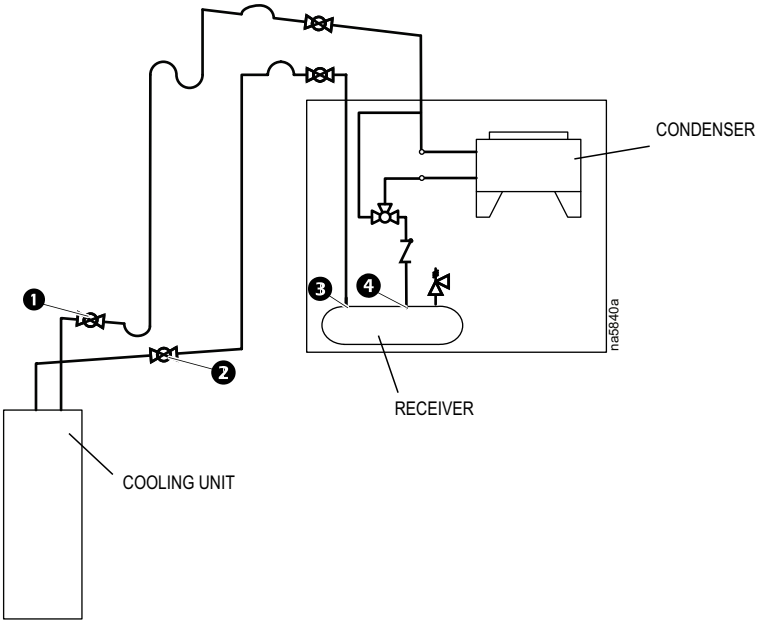



| Item | Description | Item | Description |
|---|---|---|---|
| ❶ | Discharge isolation valve | ❸ | Receiver outlet |
| ❷ | Liquid line isolation valve | ❹ | Receiver inlet |

1. Open the discharge isolation valve, the liquid line isolation valve. The receiver outlet valve and receiver inlet valve should be back seated.
2. Attach a refrigerant cylinder and charging hose to the receiver outlet valve and purge the hose if necessary.
3. Open the receiver outlet valve and add the liquid refrigerant until the calculate initial amount is charged into the system.
4. Close the receiver outlet valve, and remove the refrigerant cylinder and charging hose.

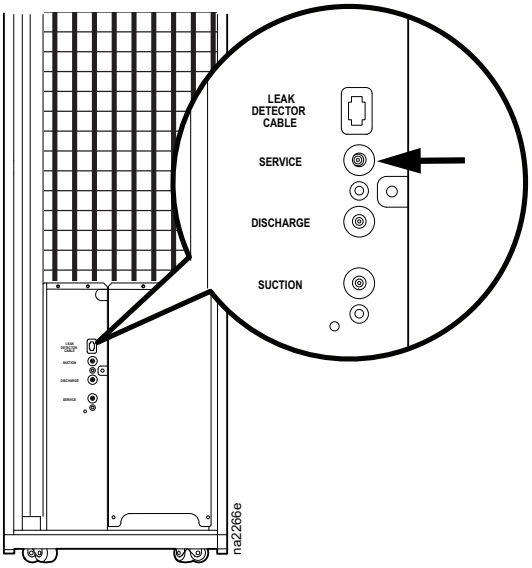
# Top Off the System Refrigerant Charge—“Fast Charge” Method

Perform the following with the system in operation.



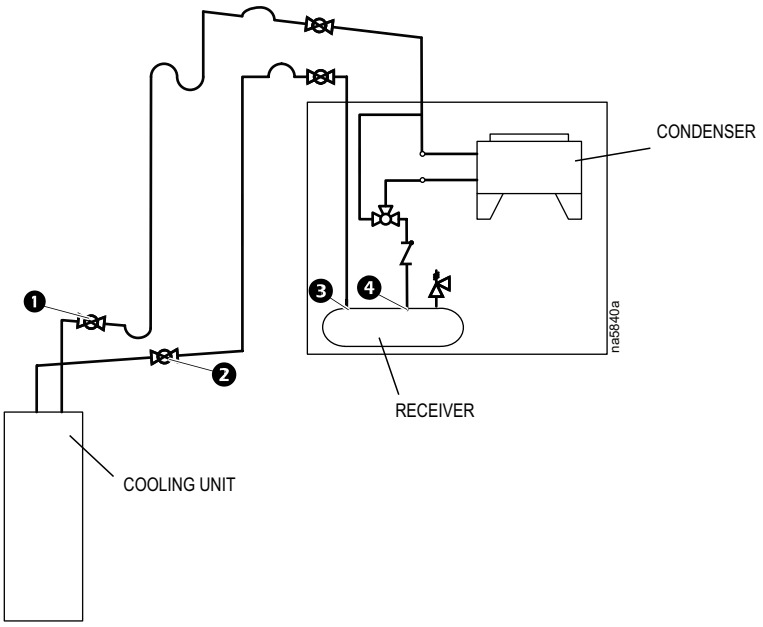

| Item | Description | Item | Description |
|---|---|---|---|
| ❶ | Discharge isolation valve | ❸ | Receiver outlet |
| ❷ | Liquid line isolation valve | ❹ | Receiver inlet |

1. Attach a refrigerant cylinder and charging hose to the service port on the cooling unit and purge the hose if necessary.
2. Close the liquid line isolation valve and wait for bubbles to appear in the liquid line sight glass.
3. Open the refrigerant cylinder valve and add refrigerant.
4. When charging is complete, close the refrigerant cylinder valve and remove the charging hose from the service port.
5. Slowly open the liquid line isolation valve.



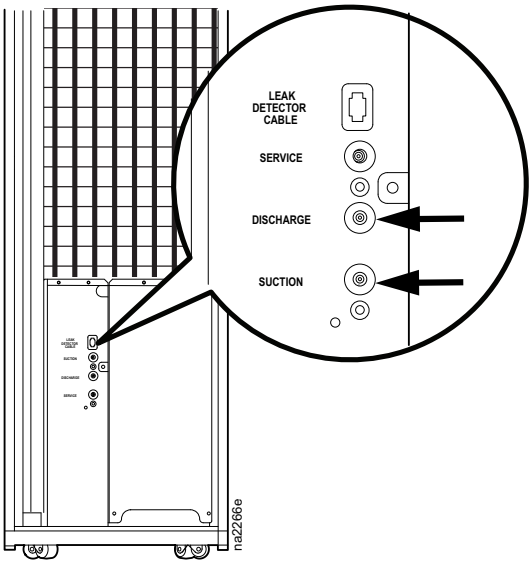
# Top Off the System Refrigerant Charge—“Slow Charge” Method

Perform the following with the system in operation.




| Item | Description | Item | Description |
|---|---|---|---|
| ❶ | Discharge isolation valve | ❸ | Receiver outlet |
| ❷ | Liquid line isolation valve | ❹ | Receiver inlet |

1. Attach a refrigerant gauge manifold to the discharge and suction ports on the cooling unit.
2. Attach a manifold charging hose to the refrigerant cylinder and purge the hose if necessary.
3. Add liquid refrigerant very slowly through the suction port at a pressure of about 1 bar (15 psig) above the suction pressure. Do not charge for longer than two minute intervals; stop charging and wait 3–5 minutes for the system to stabilize.
4. Repeat step 3 as necessary.
5. When charging is complete, close the refrigerant cylinder valve and remove the charging hose from the suction port.
6. Slowly open the liquid line isolation valve.



# Compressor Oil Charge

**⚠WARNING**

**HAZARD TO EQUIPMENT OR PERSONNEL**

All work must be performed by Schneider Electric qualified personnel.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## Oil Charging Procedure

***NOTICE***

**HAZARD TO EQUIPMENT**

Do not charge the compressor with too much oil, or compressor damage could result. The only way to drain oil from the compressor is to remove the compressor from the equipment, which cannot be done when the equipment is in the row.

**Failure to follow these instructions can result in equipment damage.**

***NOTICE***

**DAMAGE TO EQUIPMENT**

Be careful not to charge more oil than is necessary. Excessive oil in the system may cause system damage, including the following:

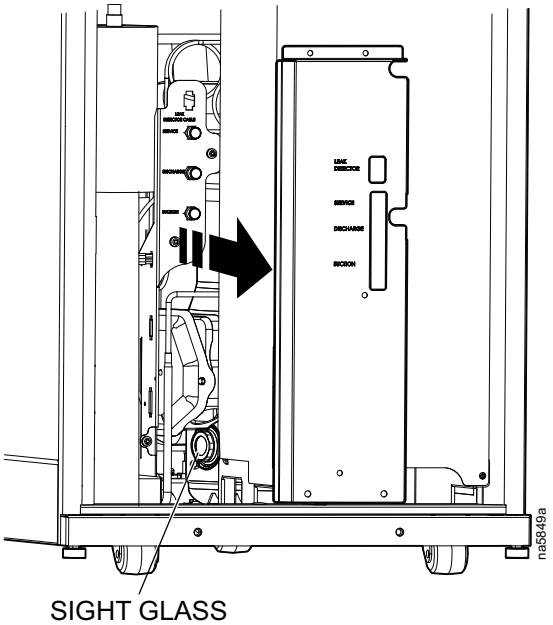
- Failure of valves and pistons due to oil slugging.
- Excessive oil carryover.
- Loss of evaporator performance due to oil level build-up in the low-pressure side of the system.

**Failure to follow these instructions can result in equipment damage.**

1. Prepare to add oil:
   a. Use a new sealed oil can and a manual oil pump. The pump hose must be sized for 1/4 in. flare fittings and must include a valve depressor at its end, which will open the valve on the suction port of the compressor.
   b. Use high quality polyolester (POE) type 160SZ oil or equivalent.
2. Purge the pump and hose:
   a. Ensure that the oil pump is clean. Insert the pump in the oil container and make sure that the container is open to the atmosphere for as short a period of time as possible. When available, use a plug adapter kit to further reduce the exposure of the oil to the atmosphere.
   b. Bleed all air from the pump and hose with a few strokes of the pump. Purging the pump removes the moisture-saturated oil left inside the hose from previous usage.
   c. Connect the hose to the suction port of the compressor immediately after purging to avoid moisture contamination.
3. While the equipment is running, charge 0.44 l (15 oz.) POE oil through the suction port. Pump the oil very slowly. (This is to ensure the oil separator is functioning properly.)

4. Other than the amount required for the oil separator, no additional oil should be required.
   Let the compressor run at full capacity for at least one hour and check the oil level in the oil sight glass. The level should be between 1/4 and 3/4 full, or within the limit shown on the oil level sticker. If the oil is not within the acceptable limit, check the oil return line for restrictions. When oil is flowing properly, the oil return line should feel warm.

   **NOTE:** Dispose of the oil waste appropriately.



# Troubleshooting

If necessary, call Technical Support describing the nature of the fault and its possible cause displayed on the control panel.

| Problem | Possible Cause | Corrective Action |
|---|---|---|
| Controls erratic or inoperative | Inlet temperature to cooling unit is higher than rated maximum temperature | Reduce the load or add additional cooling equipment. |
| Fans fail to start | Cooling unit shutdown due to an external command | Temporarily remove the input contact cable, if it is connected. |
| | Single fan fails to start | Verify that the fan circuit breaker is ON. |
| Cooling unit cannot obtain setpoint | Improper placement of remote temperature sensor | Verify that the remote temperature sensor is properly located in the cold aisle. |
| | Dirty filter | Clean the filter. |
| | Dirty coil | Clean the coil. |
| | Application error | Contact Schneider Electric technical support |
| | Heat load is too far away | Place the cooling unit closer to the heat load. |
| Water carryover | Improper fan speed selected | HACS mode only: Select the next-highest fan speed setting. |
| | Room humidity is too high | Improve room sealing. |
| Temperature control not tight enough | Improper placement of remote temperature sensor | Verify that the remote temperature sensor is properly located in the cold aisle. |
| Water on outside of cooling unit | Condensate drain hose is not connected or not properly routed outside the cooling unit | Verify that the condensate drain hose is properly connected to the pump and properly routed outside of the cooling unit.<br>Verify that the condensate drain line does not exceed 4.9 m (16 ft) lift and 15.2 m (50 ft) horizontal run. |
| | Leak in drain system | Locate and repair the leak. |
| | Cooling unit not leveled properly | Adjust the leveling feet of the cooling unit. |
| | Damaged piping insulation | Identify damaged area and repair the insulation. |
| Display interface not operational, but cooling unit operates | Display interface not connected properly | Verify that the display interface cable is connected properly. |
| Airflow switch is energized | False filter clogs | Verify that the ends of the clear plastic air tubes are not obstructed.<br>Verify that the clear plastic air tubes are connected to the controller.<br>Verify that the clear plastic air tubes are not pinched. |
| Alarms do not show up on monitoring equipment (Customer Output Contact) | External monitoring equipment is not receiving power or is not functioning properly | Confirm that power, if required, is being supplied to the external equipment.<br>If the cooling unit (+12 V or +24 V) is providing power to the external equipment, verify that the external equipment is ≤50 mA.<br>Test the external equipment by bypassing the customer output contact.<br>Verify Customer Output Contact settings. |

| Problem | Possible Cause | Corrective Action |
|---|---|---|
| Cooling unit does not shut down on command | Drive voltage | Verify that there is a drive voltage entering the input of the cooling unit. It is possible to use the available +12 V or +24 V. Also the ground must be used.<br><br>Verify Customer Input Contact settings. |
| No communication with building management system (BMS) port | Improper connection | Confirm that the cooling unit is connected to the BMS port and not to the Control port.<br><br>Make sure that the wire polarity is correct. Using a DC voltmeter, test the signal with no transmissions in progress. Expect the voltage at pin 2 to be greater than at pin 1 by at least 200 mV. Measure the cooling unit with the cable disconnected, and then measure it again with the cable connected. If the signal is less than 200 mV, the cooling unit may be reverse-wired.<br><br>Make sure that every cooling unit has either two sets of wires in its connector or one set of wires and a terminating resistor of 100 to 120 ohms. |
| Cooling units are not communicating with each other | CANBus failure | Verify that the first and last cooling units have one cable and a terminator.<br><br>Verify that every other cooling unit has two cables.<br><br>Verify that the addresses of the units in the group are unique. To do that power on the units one by one for checking.<br><br>Confirm that the CANBus cables are connected to the CANBus ports and that a network cable is connected to the network port. |
| Fans are running at a very high rate of speed. | Upper or lower supply air sensor | Either upper or lower supply air temperature sensor has a fault. Verify that both supply air temperature sensors are installed and working properly. |

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.



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