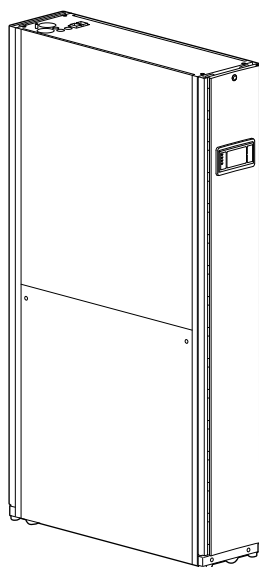# Uniflair™ Chilled-Water InRow Cooling

ACRC300 Series

Operation and Maintenance Manual

990-4739E-001

Release Date: 08/2023

Schneider Electric

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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

⚡⚠ 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 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 has been written in the English language.

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

Overview

Save These Instructions

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

Cross-Reference Symbol Used in This Manual

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

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.

Abbreviations

The following are abbreviations and terms used in this manual:

- CW: Chilled Water
- BMS: Building management system
- ATS: Automatic transfer switch
- HACS: Hot aisle containment system
- CACS: Cold aisle containment system
- RACS: Rack aisle containment system

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.

Earthquakes

The equipment is not intended for installation in areas at risk of seismic activity. Consult the sales representative for information on any applicable options for installation in areas at risk of seismic activity.

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.

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.

Commissioning

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

Checklists

Initial Inspection

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.

The room 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 this installation manual.
❑	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 ASHRAE, local, and national codes as well as this installation manual.
❑	The cooling unit is level and joined to the adjacent racks or fastened to the floor.
❑	Room humidity is below 60% relative humidity and all other room cooling equipment is functioning before starting this equipment. See Preparation and Sequence, page 28.
❑	Chilled water temperature is above the room dew point without the optional circulation pump (ACRC301H only).
❑	Chilled water flow rate is above 0.85 l/s (13.5 gpm) with the optional circulation pump (ACRC301H only).

Electrical Inspection

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

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- All electrical wiring must comply with local and national codes and regulations.
- Turn off all power supplying this equipment before working on the equipment.
- The equipment is grounded through its power cord. Ensure the equipment is connected to a grounded outlet.

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

Ensure that

❑	Incoming voltages match the phase and voltage rating on the nameplate.
❑	Equipment is properly connected to an earth ground.
❑	Internal electrical components and terminal blocks do not have any loose connections.
❑	Electrical connections are tight, including controllers and auxiliary devices.
❑	The primary and secondary power feeds are properly connected.

Mechanical Inspection

The mechanical inspection verifies that all mechanical components and connections are secure.

NOTICE

PROPER INSTALLATION

Ensure all piping is properly installed to avoid improper operation or damage to cooling unit or surrounding equipment.

Failure to follow these instructions can result in equipment damage.

Ensure that

❑	If equipped, the condensate drain line is the size of the drain connection and is routed properly (ACRC301S only).
❑	Mechanical connections are tight.
❑	Equipment has isolation valves installed for removal of the equipment from a row for servicing.
❑	Piping is insulated.
❑	Equipment has strainers installed into the supply piping.
❑	Piping does not have any leaks.
❑	External chilled water isolation valves are open.
❑	Air is bled from the system. If air remains in the system, bleed it out now.
❑	Supply water temperature is recorded.

Ensure that

❑	Internal chilled water valves are open.
❑	Cooling Distribution Unit (CDU) is used in conjunction with the equipment or that circuit setters are installed in the supply lines to each cooling unit.
❑	Room conditions and relative humidity comply with the operating guidelines before starting the equipment. (See Preparation and Sequence, page 28).
❑	If included, make sure the rope leak sensors and rope leak sensor extensions are routed properly to the bottom of the unit.

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 connectors.

❑ The input contacts and output relays are connected correctly.

❑ The building management system is connected correctly. Be aware that a terminator is required between the differential pair of a RS-485 bus at the point where the bus ends.

❑ The network port is connected correctly and an IP address has been assigned to the equipment.

Start-Up Inspection

The start-up inspection ensures that the cooling unit 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.

❑ The cool cycle engages. The chilled water valve actuator responds to the cooling demand.

❑ Air filters are clean and free of debris. Replace air filters if necessary.

❑ The fans achieve the desired fan speed setting.

❑ If equipped, the condensate pump is working properly by adding fresh clean water to the condensate pan and checking pump operation (ACRC301S only).

❑ If equipped, the circulation pump settings match those shown in Preparation and Sequence, page 28. (ACRC301H only).

Final Inspection

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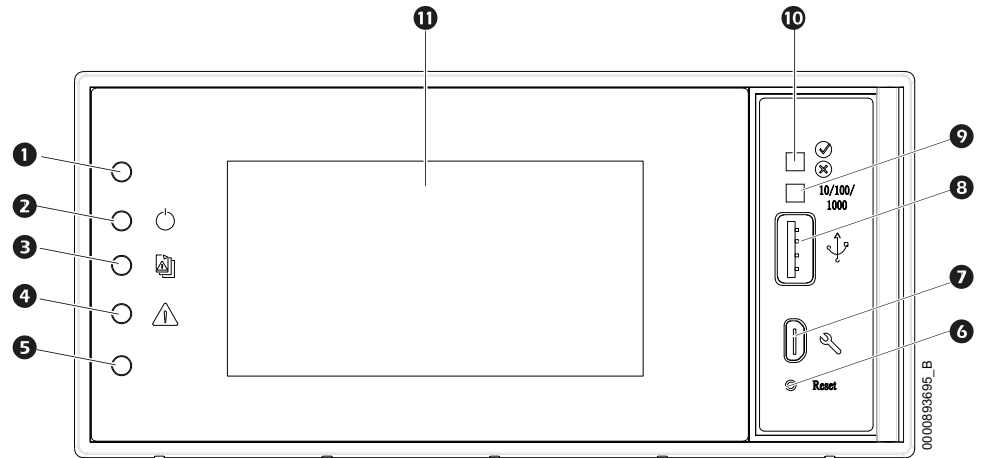
Ensure that

❑ Interior and exterior of the equipment are clean and free from debris.

❑ Packaging materials are disposed of properly.

❑ 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). • 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: • The display is not receiving input power. • The display is not operating properly. It may need to be repaired or replaced. 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. 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: • The display is not receiving input power. • The cable or device that connects the cooling unit to the network is disconnected or not functioning properly. • 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.

NOTE: When connected with controller, network connection port and Touchscreen display connection port support network speed at 100 Mbps.
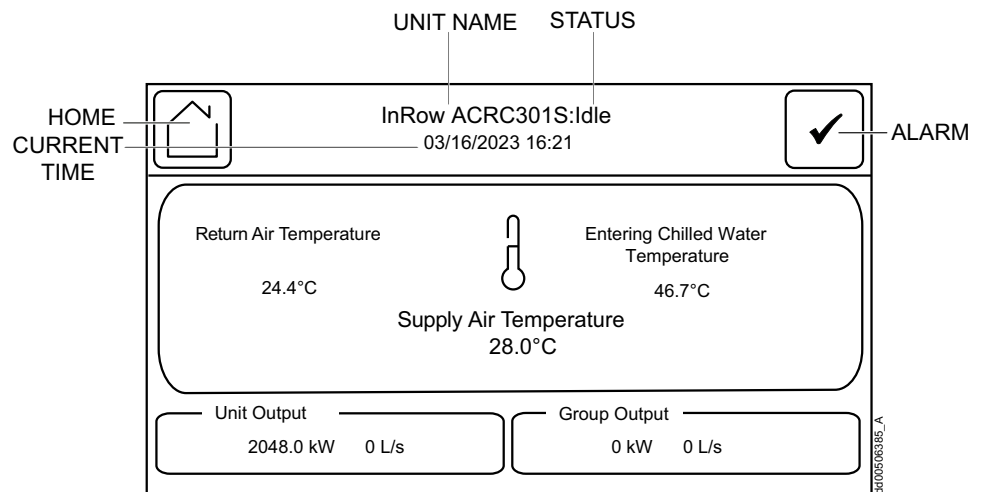
Using the Display

The display initializes and runs a LED test when power is applied to the cooling unit.

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 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.

UNIT NAME   STATUS

HOME
CURRENT
TIME   ALARM

InRow ACRC301S:Idle
03/16/2023 16:21

Return Air Temperature   Entering Chilled Water
                                                Temperature

24.4°C   46.7°C

Supply Air Temperature
28.0°C

Unit Output   Group Output
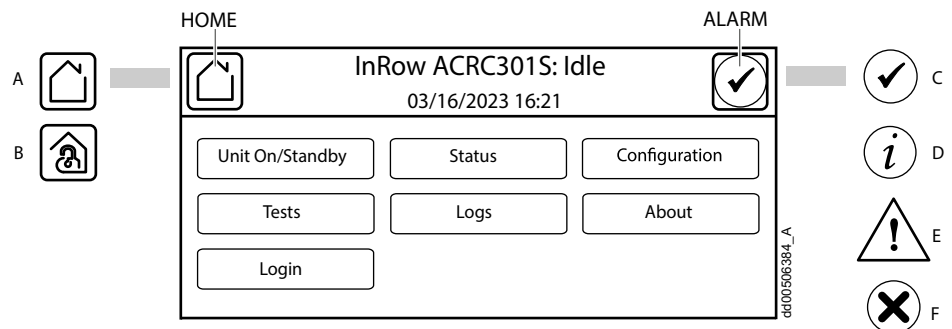2048.0 kW   0 L/s   0 kW   0 L/s

Home Screen/Main Menu

At any time during operation, press **Home** to return to the main menu. While on the main menu, press **Home** to toggle between the home and overview screen.

To view active alarms, press **Alarm**.

The **Home** button signals that a user has accessed parameters protected by a password.

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

HOME   ALARM

A

B

InRow ACRC301S: Idle
03/16/2023 16:21

Unit On/Standby   Status   Configuration   C

Tests   Logs   About   D

Login   E

                                                     F

Item	Description
A	System locked
B	System unlocked by a user
C	No alarm active
D	Informational event
E	Warning
F	Critical alarm

See Alarms, page 31 for more information.

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 27.

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

  See Status Menu, page 29.

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

  See Configuration Menu, page 36.

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

  See Tests, page 24.

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

  See Logs Menu, page 47.

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

  See About Menu, page 49.

- **Login/Logout:** It is used to log into or log out of the unit.
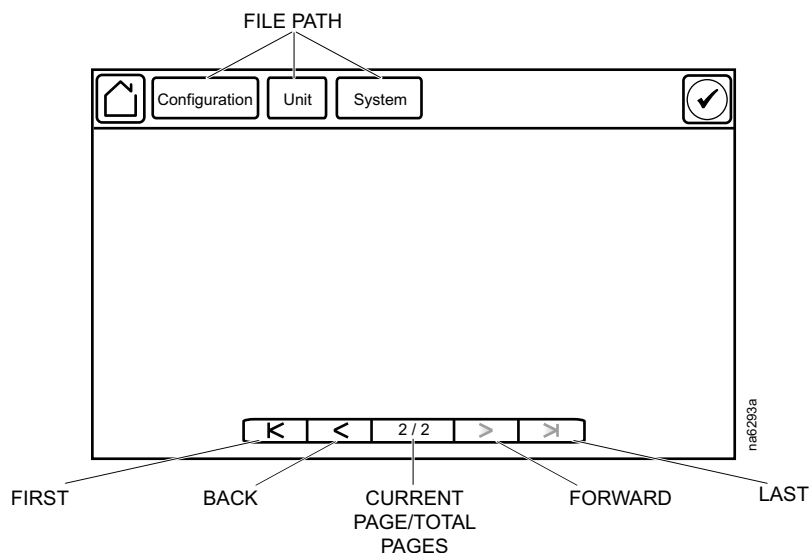
See Login Menu, page 24.

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.

> **NOTE:** Images are examples only to show operation of the display interface. Screens on the unit in use may differ.

FILE PATH

| Configuration | Unit | System |

K < 2 / 2 > >|

FIRST   BACK   CURRENT   FORWARD   LAST
                         PAGE/TOTAL
                           PAGES

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.

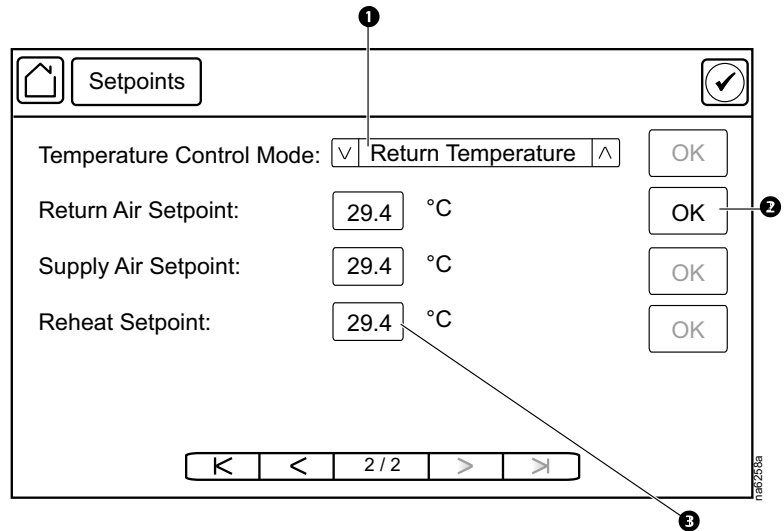**Unit Overview >** Select this option from the sub-menu.

Subsequent options are listed and defined under the path statement.

Changing Settings

> **NOTE:** Images are examples only to show operation of the display interface. Screens on the unit in use may differ.

Screens 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.

❶

| 🏠 | Setpoints | | | ✔ |

Temperature Control Mode: ∨ Return Temperature ∧   OK

Return Air Setpoint: 29.4   °C   OK   ❷

Supply Air Setpoint: 29.4   °C   OK

Reheat Setpoint: 29.4   °C   OK

⏮ <   2 / 2   > ⏭

❸

Restore Defaults
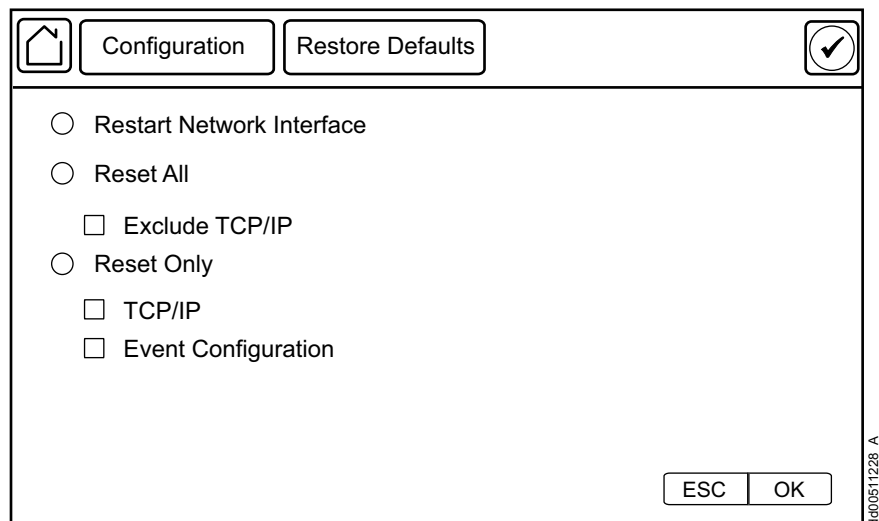

NOTICE

DANGER OF DATA LOSS

The command "Reset all" causes the deletion of all users account credentials.

Failure to follow these instructions can result in equipment damage.

Path: Main > Configuration > Restore Defaults

The **Restore Defaults** screen is used to reset controller settings and display settings to factory defaults.

NOTE: The controller settings will not be restored.

| 🏠 | Configuration | Restore Defaults | ✔ |

○ Restart Network Interface

○ Reset All

   ☐ Exclude TCP/IP

○ Reset Only

   ☐ TCP/IP

   ☐ Event Configuration

ESC   OK

Select:

- **Restart Network Interface:** to reboot the touchscreen terminal.
- **Reset All:** to reset all the settings, except TCP/IP (if selected). See next row.

- **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.

- **Reset only:**
  - ◦ **TCP/IP:** to reset TCP/IP settings: a new start up procedure is needed.
  - ◦ **Event Configuration:** to cancel the event list.

Menu Tree Diagram
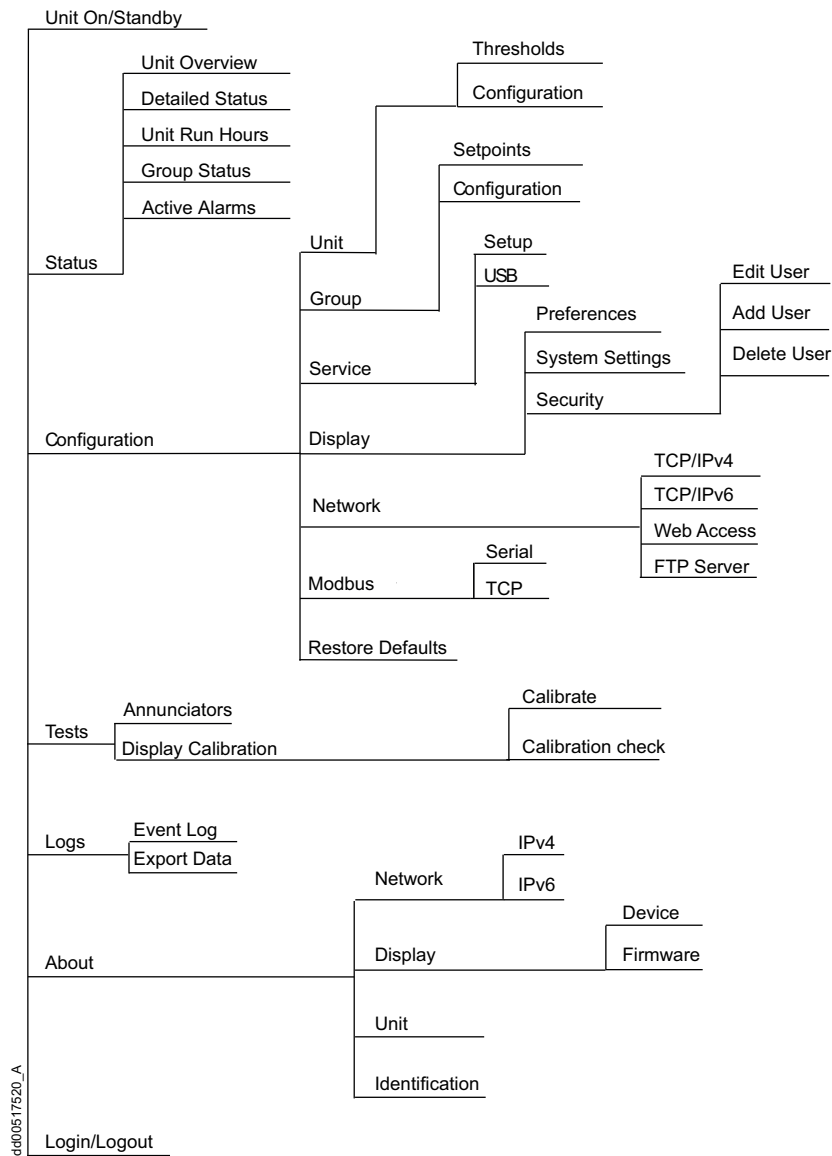
IMPORTANT:

- 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.

Tests

Path: Main > Tests

In this menu is possible to calibrate the display.

Annunciators

Path: Main > Tests > Annunciators

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

   The display LEDs (Power LED, Check Log LED, Alarm LED) will cycle through a green, orange, and red illumination pattern and the annunciator will sound.

2. After a few seconds the test stops.

Display Calibration

Path: Main > Tests > Display Calibration

This menu allows for display calibration.

Calibrating the Display

Path: Main > Tests > Display Calibration > Calibrate

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.

Calibration Check

Path: Main > Tests > Display Calibration > Calibration Check

Use this screen to test the accuracy of the touch screen calibration by touching the center of the box that appears on the screen. If the touch screen can be considered properly calibrated, let the timer run down to zero.

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.

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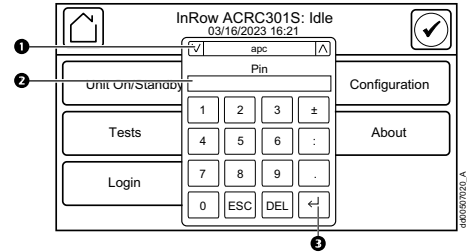
If the password was not entered from the **Login** screen on the main menu, you will be prompted to enter the password when attempting to change a setting. The unit default password is `1234`.

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.

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.

Start the Cooling Unit

Path: Main > Unit On/Standby

1. Select **On**.

2. Click **OK**.

   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 > Configuration**. The default setting is **Standby**.

3. Enter your password if required.

   The **On/Standby** status will now display **On**.

The fans will start after the chilled water valve has reached its starting position. 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 Standby Input 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

<table>
<tr><td>⚠⚠ DANGER</td></tr>
<tr><td>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH</td></tr>
<tr><td>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.</td></tr>
<tr><td>Failure to follow these instructions will result in death or serious injury.</td></tr>
</table>

Path: Main > Unit On/Standby

1. Select **Standby**.

2. Click **OK**.

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

4. The **Unit On/Standby** status will now display **Standby**.

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

Start-up Conditions

NOTICE
HIGH HUMIDITY
Ensure excess humidity is removed from the installation area.
Failure to follow these instructions can result in equipment damage.

Preparation and Sequence

1. Close all doors and windows. Ensure the room is sealed.

   See *Room Preparation* in the *Uniflair™ Chilled-Water InRow Cooling Installation Manual*.

2. Run the room cooling equipment until the **Acceptable Operating Conditions** dry bulb temperature (db ºC or db ºF) and relative humidity (% RH) zone indicated in the chart below are reached. Supplementary dehumidification and cooling equipment may be necessary to reduce the humidity to acceptable levels. Do not proceed until all conditions in step 2 have been met.

3. Turn on the unit.

4. Turn on the heat loads.

5. Check circulation pump display (optional for ACRC301H only).

   See the *Dew Point Control Pump Kit ACAC10061 Installation Manual* for information on display items and settings.

   If the settings on the pump do not match the settings given, you must manually change the settings.

If the following sequence of events occurs on units equipped with a condensation pump, the room humidity is too high. Ensure step 1 (above) is completed. InRow RC cooling units are not intended for dehumidification.

1. If the high-limit float device detects that the condensate pan is full, the **Condensate Pan Full Alarm** is recorded in the event log and the critical alarm LED illuminates.

   NOTE: Only ACRC301S units have a condensate pan. ACRC301H units should not produce condensate; however, if this is a possibility in the operation environment, an optional circulation pump is available for installation.

2. The fans turn off and the chilled water valve closes completely.

3. The condensate pump continues to operate until the low-limit float is deactivated, which clears the alarm (ACRC301S only).

4. The equipment resumes normal operation.

5. Subsequent activation of the high-limit float results in repeating steps 1 through 4 until room conditions are reduced to an acceptable level as shown in the chart below.

InRow RC Operating Guidelines
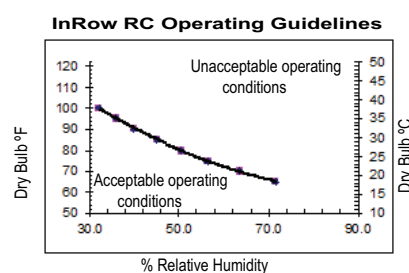
View Status Readings

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.

Status Menu

Path: Main > Status

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

Basic Cooling Unit Status

Path: Main > Status > Unit Overview

The cooling unit status screens provide basic information for each cooling unit in a cooling group.

- **Operating Mode**. Identifies the operating mode of the unit.
  - **Standby**: The cooling unit is receiving power but not enabled for cooling.
  - **On**: The cooling unit is cooling.
  - **Idle**: The cooling unit is no longer cooling due to active alarms.
  - **Maintenance**: Testing and maintenance mode used by qualified service personnel.
- **Unit Maximum Rack Inlet Temperature**. The recorded maximum temperature at the rack inlet temperature sensors connected to the unit.
- **Supply Air Temperature**. The temperature of the air leaving the cooling unit.
- **Return Air Temperature**. The temperature of the air entering the cooling unit.
- **Dew Point Temperature**. The dew point of the environment (ACRC301H only).
- **Airflow**. The amount of airflow output by the unit.
- **Fan Speed**. The speed of the fans that regulate the airflow through the cooling unit.
- **Cool Output**. The actual cooling output of the cooling unit.
- **Cool Demand**. The amount of cooling that the load currently requires.
- **Unit Energy**. The electrical energy consumed by the unit since the last Reset Unit Energy command.
- **Reset Unit Energy**. To clear the recorded unit energy and reset.
- **Unit Power**. The electrical power being consumed by the unit.

Detailed Cooling Unit Status

Path: Main > Status > Detailed Status

- **Chilled Water Valve Position**. The position (percent open) of the valve that controls how much chilled water enters the cooling unit.

- **Chilled Water Flow**. The amount of chilled water that flows through the cooling unit.

- **Circulation Pump Flow**. The volume of liquid pushed through the circulation pump (Stratos MAXO only).

- **Entering Chilled Water Temperature**. The temperature of the chilled water as it enters the cooling coil.

- **Leaving Chilled Water Temperature**. The temperature of the chilled water as it leaves the cooling coil.

- **Coil Chilled Water Temperature**. The temperature of chilled water entering the coil (ACRC301H only).

- **Rack Inlet 1- 4 Temperatures**. The temperature measured at the rack inlet.

- **Standby Input State**. The current state of the input. If the input is in an abnormal state, an alarm will occur and the unit will stop cooling.

   See *Output Relays and Standby Input* in the *Uniflair™ Chilled-Water InRow Cooling Installation Manual*.

- **Output 1-4 State**. The current state of the output.

   See *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide* for information on editing output states.

- **Filter Differential Pressure**. The differential pressure of the air filter.

- **Active Power Source**. The power source being used by the unit. The unit supports a redundant power input.

- **Leak 1- 4 Detector**. The state of the leak detector rope sensor.

Run Hours Cooling Unit Status

Path: Main > Status > Unit Run Hours

The cooling unit records the number of hours each of its components has been in operation.

- **Unit**
- **Condensate Pump** (ACRC301S only)
- **Fan Power Supply 1**
- **Fan Power Supply 2**
- **Air Filter**

   NOTE: When the air filter is replaced, **Air Filter Serviced** use the Air Filter Serviced button to reset the maintenance alarm.

- **Fan 1-8** (Fan 1 is the bottom fan; Fan 8 is the top fan)
- **Circulation Pump** (optional for ACRC301H only)

Cooling Group Status

Path: Main > Status > Group Status

- **Cool Output**. The actual cooling output of the cooling group.

- **Cool Demand**. The output required to meet the current heat load of the conditioned space.
- **Cool Setpoint**. The temperature setting that the air entering the rack should maintain (InRow, cold aisle containment system (CACS) modes only).
- **Airflow**. The total airflow output of the cooling units in the cooling group.
- **Maximum Rack Inlet Temperature**. The highest rack temperature reported by any cooling unit in the cooling group.
- **Minimum Rack Inlet Temperature**. The lowest rack temperature reported by any cooling unit in the cooling group.

Alarms

View Alarms

Path: Main > Status > Active Alarms

The **Alarms** menu displays all active alarms. Use **Forward** and **Backward** to navigate between pages if necessary.

See View Event Log, page 47 for more information on the alarm and event details screens.

Click **Clear** button on the right bottom of the screen to clear all active alarms in log.

Alarm Messages and Suggested Actions

Critical alarm—An alarm that requires immediate action and prevents the system from performing at its rated cooling capacity.

Warning alarm—An alarm that requires attention and could jeopardize your data or equipment if its cause is not addressed.

Displayed Alarm Message	Severity	Action Required
Active Flow Controller Sensor Fault	Warning	• Check the AFC hardware and wiring. • Replace the AFC. • If the problem persists, contact Schneider Electric Technical Support.
Air Filter Clogged	Warning	• Clean or replace the air filter. • If the problem persists, contact Schneider Electric Technical Support.
Air Filter Run Hours Violation	Warning	• At the management interface, reset the **Air Filter** time after the air filter is cleaned or replaced.
Check Condensate Management System	Warning	• Clear debris from the condensate pump reservoir and the condensate removal lines. • Make sure the condensate removal lines are free of obstructions and the float switch moves freely. • For assistance, contact Schneider Electric Technical Support.
Chilled Water Flow Meter Fault	Warning	• Verify if a leak occurs. • Make sure the supply and return chilled water pipes are connected properly, the fluid is flowing from the chiller to the unit, and the electrical connections to the flow meter are correct.

Displayed Alarm Message	Severity	Action Required
		• If the problem persists, contact Schneider Electric Technical Support.
Chilled Water Valve Actuator Fault	Critical	• Check the actuator hardware and wiring. • If the problem persists, contact Schneider Electric Technical Support.
Chilled Water Valve Control Not Set to Auto	Warning	• Check the configuration. • If the problem persists, contact Schneider Electric Technical Support.
Coil Chilled Water Temperature Sensor Fault	Warning	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Coil Condensation Possible	Warning	• To prevent coil condensation, the chilled water temperature must be kept above the room dew point temperature. • If the problem persists, contact Schneider Electric Technical Support.
Condensate Pan Full	Critical	• Make sure the floats are operating correctly. • Clear debris from the condensate pan and drain lines. • If the problem persists, contact Schneider Electric Technical Support.
Controller Power Supply 1 Fault	Warning	• A hardware error exists. • For assistance, contact Schneider Electric Technical Support.
Controller Power Supply 2 Fault	Warning	• A hardware error exists. • For assistance, contact Schneider Electric Technical Support.
Cool Fail	Critical	• A hardware error exists. • Make sure the chiller is operating properly. • Make sure the chilled water pump is operating properly. • For assistance, contact Schneider Electric Technical Support.
EcoAisle Door Open	Warning	• Make sure the EcoAisle door is shut properly. • If the problem persists, contact Schneider Electric Technical Support.
Entering Chilled Water Temperature High Violation	Warning	• Make sure the chiller is operating properly. • At the management interface, make sure the threshold is set correctly. • If the problem persists, contact Schneider Electric Technical Support.
Entering Chilled Water Temperature Sensor Fault	Warning	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Factory Configuration Not Completed	Critical	• For assistance, contact Schneider Electric Technical Support.
Fan #n Fault	Warning	• Make sure all air intakes are clear of any blockage. **NOTE:** Fans are numbered sequentially, starting with Fan 1 at the bottom. • If the problem persists, contact Schneider Electric Technical Support.
Fan Power Supply 1 Current Sense Fault	Warning	• A hardware error exists.

Displayed Alarm Message	Severity	Action Required
		• For assistance, contact Schneider Electric Technical Support.
Fan Power Supply 1 Fault	Warning	• Replace the power supply. • For assistance, contact Schneider Electric Technical Support.
Fan Power Supply 2 Current Sense Fault	Warning	• A hardware error exists. • For assistance, contact Schneider Electric Technical Support.
Fan Power Supply 2 Fault	Warning	• Replace the power supply. • For assistance, contact Schneider Electric Technical Support.
Filter DP Sensor Failure	Warning	For assistance, contact Schneider Electric Technical Support.
Humidity Sensor Fault	Warning	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Insufficient Airflow	Warning	• Make sure the air ports are clear of obstructions and there is sufficient cooling capacity for the load. • If the problem persists, contact Schneider Electric Technical Support.
Internal Communication Error	Critical	For assistance, contact Schneider Electric Technical Support.
Leaving Chilled Water Temperature Sensor Fault	Warning	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Lower Return Air Sensor Fault	Critical	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Lower Supply Air Sensor Fault	Critical	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Output Relay #n Active	Warning	Alarm relay #n contacts have switched from their normal position due to an active alarm. Check the alarm log for active alarms. • If the problem persists, contact Schneider Electric Technical Support.
Primary Power Source Fail	Warning	• Make sure the power source is connected properly and the power is on. • If the problem persists, contact Schneider Electric Technical Support.
Rack Temperature High Violation	Critical	• Make sure the temperature sensors are connected and placed properly. • At the management interface, make sure the threshold is set correctly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Rack Temperature Sensor #n Fault	Critical	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Return Air High Temperature Violation	Warning	• Make sure the temperature sensor is connected properly. • At the management interface, make sure the threshold is set correctly.

Displayed Alarm Message	Severity	Action Required
		• If the problem persists, contact Schneider Electric Technical Support.
Secondary Power Source Fail	Warning	• Make sure the power source is connected properly and the power is on. • If the redundant power input is unused, set **Power Source** to **Single**. • If the problem persists, contact Schneider Electric Technical Support.
Standby Due to Input Contact	Warning	• No user action is required, since it is assumed the unit shut down due to the user's action. • For assistance, contact Schneider Electric Technical Support.
Supply Air High Temperature Violation	Warning	• Make sure the temperature sensor is connected properly. • At the management interface, make sure the threshold is set correctly. • If the problem persists, contact Schneider Electric Technical Support.
Unexpected Number of Active Flow Controllers	Warning	• At the management interface, make sure the configured number of active flow controllers matches the number of controllers physically present and connected. • If the problem persists, contact Schneider Electric Technical Support.
Unexpected Number of Leak Detectors	Warning	• At the management interface, make sure the configured number of leak detectors matches the number of detectors physically present and connected. • If the problem persists, contact Schneider Electric Technical Support.
Unexpected Number of Rack Inlet Temperature Sensors	Warning	• At the management interface, make sure the configured number of rack inlet temperature sensors matches the number of sensors physically present and connected. • If the problem persists, contact Schneider Electric Technical Support.
Unexpected Number of Units in Group	Warning	• Make sure the number of units in the group is configured properly, and the A-Link connections between units are correct. • Make sure the system is receiving power and connected properly. • If the problem persists, contact Schneider Electric Technical Support.
Unit is in Maintenance Mode	Critical	• The unit has been placed in maintenance mode by service personnel. • There is no action required.
Unit Service Required	Warning	• The unit has exceeded the unit service interval. • Please, contact Schneider Electric Technical Support.
Upper Return Air Sensor Fault	Critical	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Upper Supply Air Sensor Fault	Critical	• Make sure the sensor is connected properly. • If the problem persists, replace the sensor, or contact Schneider Electric Technical Support.
Water Detected Fault	Warning	• Identify the source of the leak.

Displayed Alarm Message	Severity	Action Required
		• Isolate the leak by shutting off the main water supply valve. • For assistance, contact Schneider Electric Technical Support.
Water Detected Shutdown	Critical	• Identify the source of the leak. • Isolate the leak by shutting off the main water supply valve. • For assistance, contact Schneider Electric Technical Support.
Standby Due To User Action	Warning	• The user must transition the unit out of standby mode. • For assistance, contact Schneider Electric Technical Support.
Circulation Pump Communication Loss	Warning	If the problem persists, contact Schneider Electric Technical Support.
Circulation Pump Warning Present	Warning	If the problem persists, contact Schneider Electric Technical Support.
Circulation Pump Needs Service	Warning	If the problem persists, contact Schneider Electric Technical Support.
Circulation Pump Fault	Warning	If the problem persists, contact Schneider Electric Technical Support.

General Configuration

The cooling group 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.

Configuration Menu

Path: Main > Configuration

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

Unit

Path: Main > Configuration > Unit

The **Unit** menus set the configuration for the unit working modes.

Thresholds

Path: Main > Configuration > Unit > Thresholds

Set alarms to receive alerts when components require service or there are high temperature violations.

When the air temperature exceeds the temperature defined by the **High Temperature Threshold**, an alarm will occur. Set **High Temperature Thresholds** for the following:

- **Rack Inlet High Temperature Threshold:** An alarm condition exists when the temperature of the air entering the rack at the rack inlet sensor exceeds the threshold.

- **Supply Air High Temperature Threshold:** An alarm condition exists when the temperature of the air output from the cooling unit exceeds the threshold.

- **Return Air High Temperature Threshold:** An alarm condition exists when the temperature of the air entering the cooling unit at the temperature sensor exceeds the threshold.

- **Entering Chilled Water High Temperature Threshold:** The chilled water entering the cooling unit.

Cooling Unit Configuration

Path: Main > Configuration > Unit > Configuration

- **Startup Delay**. The delay begins when the cooling unit is started and initialized. The cooling unit cannot begin operation until this delay has expired. Use the start-up delay to restart equipment sequentially in your room after a scheduled downtime.

- **Idle on Leak Detect**. When set to **Yes**, the cooling unit will enter idle mode if a **Water Detection Fault** activates. Set to **No** to disable the cooling unit from entering idle mode if a leak is detected.

  > **NOTE:** The leak sensor (Schneider Electric part number NBES0308) and extension (Schneider Electric part number NBES0309) are optional.

- **Idle on Cool Fail**. When set to **Yes**, the cooling unit will enter idle mode if the cooling unit is unable to supply conditioned air. Set to **No** to disable the cooling unit from entering idle mode if a cooling failure is detected.

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

    ◦   Water Detection Fault (If **Idle on Leak** is set to **Yes**.)

    ◦   Condensate Pan Full

    ◦   Cooling Failure (If **Idle on Cool Fail** is set to **Yes**.)

    See Alarms, page 31 for more information on alarms.

- **Air Filter Type**. Selects the type of air filter the unit is using. The controller requires this information in order to properly calculate air flow.

- **Air Filter Service Alarm Enable**. **Enable** or **Disable** the air filter service alarm.

- **Air Filter Service Interval**. Enter the number of weeks between air filter service alarms.

- **Bypass Valve Position**. Reflects the position of the manual bypass valve. This setting must match the physical setting of the valve. When the bypass is **Closed**, the maximum chilled water flow is limited via the **Maximum Chilled Water Flow** setting.

- **Maximum Chilled Water Flow**. Restricts the maximum chilled water flow rate of the unit. This setting is only used when the **Bypass Valve Position** is set to **Closed**. The input range is 0–100 gallons per minute (0–6.30 liters per second). Only qualified service personnel can make changes to this setting.

- **Chilled Water Valve Control**. The setting used to determine chilled water flow. When **Automatic** is selected, the unit operates based on measured demand. Only qualified service personnel can make changes to this setting.

- **Power Source**. Select the number of InRow RC power connections. Select **Single** when using one power connection. Select **Dual** when using two power connections.

- **Standby Input Normal State**. Define the normal state of the standby input: **Open** (no voltage present at the input) or **Closed** (voltage present at the input).

    See *Output relays and standby input* in the *Uniflair™ Chilled-Water InRow Cooling Installation Manual*.

- **Number of Rack Inlet Temp Sensors in Unit**. The number of expected rack inlet sensors for the unit. One (1) sensor is included by default; the unit supports up to four (4) sensors.

    NOTE: Four sensor ports total are provided for rack inlet temperature sensors and leak detectors combined

- **Number of Leak Detectors in Unit**. The number of expected leak detectors in the unit. Zero (0) leak detectors are included by default; the unit supports up to four (4) leak detectors.

    NOTE: Four (4) sensor ports total are provided for rack inlet temperature sensors and leak detectors combined.

- **Unit Service Alarm Enable**. **Enable** or **Disable** the unit service alarm. Only qualified service personnel can make changes to this setting.

- **Unit Service Alarm Interval**. Enter the number of weeks between unit service alarms. Only qualified service personnel can make changes to this setting.

- **Protect On/Standby**. **Enable** to password protect the On/Standby menu.

- **Alarm on Standby:** When set to **Yes**, `Standby Due to User Action` alarm is triggered if the unit is in standby mode.

Cooling Group Configuration

The cooling group configuration determines how the cooling group should operate.

NOTE: The settings in the **Cooling Group Configuration** menu are defined by the field service representative when the cooling group is commissioned. Only qualified service personnel should make changes to these settings.

Control the Environment

The InRow RC utilizes a chilled water coil, a valve to modulate fluid flow through the chilled water coil, and a set of fans to control airflow through the coil. The control strategies employed by the cooling unit depend upon the deployment strategy of the cooling group.

In an in-row environment, the InRow RC supplies constant-temperature supply air to the common aisle. The fan speed is modulated to ensure that the required volume of air reaches the IT equipment.

In a HACS or RACS environment, the InRow RC neutralizes the heat accumulated in the common hot aisle and expels it back into the environment after the heat is neutralized while maintaining the required temperature gradient across the group.

In a CACS environment, the InRow RC 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.

Setpoints

Path: Main > Configuration > Group > Setpoints

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

- **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).

    NOTE: This is the temperature maintained at the rack inlets.

- **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.

    NOTE: The **Supply Air setting** is defined by the field service representative when the cooling group is commissioned.

- **Delta-T Setpoint**. When the group is programmed for HACS or RACS mode, this property specifies the desired temperature difference across the equipment from the following options.
    - 40°F/22.2°C
    - 35°F/19.4°C
    - 30°F/16.7°C
    - 25°F/13.9°C
    - 20°F/11.1°C
    - 15°F/8.3°C
    - 10°F/5.6°C

Configure the Cooling Group

Path: Main > Configuration > Group > Configuration

The group configuration settings identify the number of cooling units installed in this cooling group and the physical arrangement of those cooling units.

- **Configuration Type**. The airflow control strategy for the cooling units of this cooling group. Only qualified service personnel can make changes to this setting.
  - **In-Row**: Air flow is horizontal to allow in-row operation of the cooling. The loads share a common open cold aisle.
  - **HACS** (Hot Aisle Containment System): Air flow in the room is controlled by enclosing the hot air aisle. The loads share an enclosed common hot aisle.
  - **RACS** (Rack Air Containment System): Air flow in the enclosure is controlled by a ducting system fitted to the enclosure.
  - **CACS** (Cold Aisle Containment System): Air flow in the room is controlled be enclosing the cold air aisle. The loads share an enclosed common cold aisle.
- **Number of Units in Group**. Indicates the number of cooling units in this cooling group. Up to twelve cooling units can be joined together to work as a single cooling group.
- **Maximum Fan Speed**. Defines the maximum speed at which the fans operate. The speed of the fans will not be allowed to exceed this percentage.

  NOTE: Reducing the default maximum fan speed percentage may lower the sound level of operating equipment. This reduction will result in reducing total cooling capacity.
- **Percent Glycol**. The percentage of glycol used by the cooling group to cool the environment. This affects how cooling output is reported. Only qualified service personnel can make changes to this setting.
- **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.
- **Airflow Control**. When **Automatic** is selected, the unit operates based on measured demand. When set to **60%**, **70%**, **80%**, **90%**, or **100%**, the fans will operate at the selected output.

  NOTE: If an active flow controller is being used in RACS/HACS/CACS, the following parameters are pertinent.
- **Number of Active Flow Controllers**. Sets number of AFC units in the group (0 to 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 is under-cooling, select **Negative** or **Slightly Negative** to adjust the aisle pressure for additional cooling.
    — If the cooling units is over-cooling, select **Positive** or **Slightly Positive** to adjust the aisle pressure for less cooling.
  - Cold Aisle Containment (CACS)
    — If the cooling units is under-cooling, select **Positive** or **Slightly Positive** to adjust the aisle pressure for additional cooling.
    — If the cooling units is over-cooling, select **Negative** or **Slightly Negative** to adjust the aisle pressure for less cooling.

Setting	Blue LED – HACS Red LED – CACS	Setpoint Green LED	Red LED – HACS 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 Status**. The status of the Active Flow Control. Indicates whether the correct amount of airflow is being provided to the load. This status is not configurable.

    NOTE: AFC compatibility may require upgrading the cooling unit controller.

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

PID Settings

Path: Main > Configuration > Group > Configuration

NOTE: Only qualified service personnel can make changes to these settings.

- **Cool Gain ('P')**. The proportional multiplier (gain) for this mode or actuator. The proportional multiplier adjusts for the difference (error) between the measured temperature and the setpoint. The proportional multiplier is expressed in percent of output per unit error.

- **Cool Reset Rate ('I')**. The integral multiplier (reset rate) for this mode or actuator. The integral multiplier adjusts for error measurement and for the amount of time that the error has existed. The integral multiplier adds to or subtracts from the output in small increments to correct the offset error caused by the proportional contribution. It is expressed in percent of output for each minute and unit of error (error multiplied by minutes).

- **Cool Derivative ('D')**. The derivative multiplier (derivative) for this mode or actuator. The derivative multiplier adjusts the output for rapid changes in the error, correcting the error rate of change over time. It is expressed in percent of output for each unit of error per minute (error divided by minutes).

Service

Path: Main > Configuration > Service

The **Service** menu contains settings related to operation of the InRow RC unit that should only be changed by trained service personnel.

The **Service** menu is only accessible to service personnel. If you need to access the **Service** menu, you will need to contact technical support with the code displayed in the message window. After receiving a service code from technical support, enter the service code in the appropriate window on the display.

- **Configuration Type**. The airflow control strategy for the cooling units of this cooling group.

    ◦ **In-Row** Air flow is horizontal to allow in-row operation of the cooling. The loads share a common open cold aisle.

    ◦ **HACS** (Hot Aisle Containment System): Air flow in the room is controlled by enclosing the hot air aisle. The loads share an enclosed common hot aisle.

    ◦ **RACS** (Rack Air Containment System): Air flow in the enclosure is controlled by a ducting system fitted to the enclosure.

    ◦ **CACS** (Cold Aisle Containment System): Air flow in the room is controlled be enclosing the cold air aisle. The loads share an enclosed common cold aisle.

- **Percent Glycol**. The percentage of glycol used by the cooling group to cool the environment. This affects how cooling output is reported.

- **Active Flow Control Bias**. This setting is used to control the difference between the cooling airflow and the airflow of the load as measured by the Active Flow Controller(s). A setting of **Zero** will control the fans to match the airflow of the load. A setting of **Positive** will provide more cooling airflow than required by the load. A setting of **Negative** will provide less cooling airflow than required by the load.

- **Cool Gain 'P'**. The proportional multiplier (gain) for this mode or actuator. The proportional multiplier adjusts for the difference (error) between the measured temperature and the setpoint. The proportional multiplier is expressed in percent of output per unit error.

- **Cool Reset Rate 'I'**. The integral multiplier (reset rate) for this mode or actuator. The integral multiplier adjusts for error measurement and for 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. It is expressed in percent of output for each minute and unit of error (error multiplied by minutes).

- **Cool Derivative 'D'**. The derivative multiplier (derivative) for this mode or actuator. The derivative multiplier adjusts the output for rapid changes in the error, correcting for the rate of change of the error over time. It is expressed in percent of output for each unit of error per minute (error divided by minutes).

- **Chilled Water Valve Control**. The setting used to determine chilled water flow. When **Automatic** is selected, the unit operates based on measured demand.

- **Maximum Chilled Water Flow**. Restricts the maximum chilled water flow rate of the unit. This setting is only used when the **Bypass Valve Position** is set to **Closed**. The input range is 0–100 gallons per minute (0–6.30 liters per second).

- **Unit Service Alarm Enable**. **Enable** or **Disable** the unit service alarm.

- **Unit Service Alarm Interval**. Enter the number of weeks between unit service alarms.

- **Reset Run Hours**. Clear the running hours records after conducting the service.

- **Circulation Pump Model**. Selects the circulation pump model for the ACRC301H.

- **Minimum HACS Fan Speed**. Select the minimum fan speed for HACS mode.

- **Cool Fail Threshold**. The temperature threshold at which the unit will transition to the idle state if Idle on Cool Fail is enabled.

- **Auto Recover Cool Fail**. If enabled, the controller will attempt to automatically recover from a Cool Fail condition. At five minute intervals, the controller will open the chilled water valve and start the fans. If the supply temperature is fine, the unit is restarted. If not, the unit closes the chilled water valve, and stops the fans and idles until the next sample period.

Individual serviceable components are listed. After servicing individual items in the list, select the check box next to the item.

- Unit
- Condensate Pump
- Circulation Pump
- Air Filter
- Fan Power Supply 1
- Fan Power Supply 2
- Fan 1 - 8

Display Settings

Set display settings including the time and date, temperature units, passwords, and time-out settings.

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.

Security

Path: Main > Configuration > Display > Security

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

Edit User

Select **Edit User** to edit an existing user of the system.

Add User

Select **Add User** to add a new user.

1. In the **Name** field, enter the name of the user.
2. In the **Pin** field, enter a pin code for the user.

3. In the **Confirm Pin** field, re-enter the pin code of the user.

4. Press **OK** to save your settings.

Delete User

Select **Delete User** to 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.

Network Configuration

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

Configure the Network

Path: Main > Configuration > Network

The **Network** menus set the configuration for the connection of the unit.

TCP/IPv4

Path: Main > Configuration > Network > TCP/IPv4

This menu sets the configuration for the connection of the unit with **TCP/IPv4**.

- **Enable IPv4**: Enables the **TCP/IPv4** connection.
- **Address Mode**: Sets the connection mode for **TCP/IPv4**.
    - **DHCP** connection is the default configuration.
    - **Manual** connection can be preferred if a static IP connection is required.
    - **BOOTP** sets the Network Management Card of the cooling unit to obtain its network settings from a BOOTP server.
- **Require vendor specific cookies to accept DHCP address**: Enables features for **DHCP** connection to the vendor. It requires vendor specific cookies to be accepted
- **Manual Settings**: Enabled when a **Manual** connection is set. Fill the **System IP**, **Subnet Mask** and **Default Gateway** blocks with the required information.

TCP/IPv6

Path: Main > Configuration > Network > TCP/IPv6

This menu sets the configuration for the connection of the unit with **TCP/IPv6**.

- **Enable IPv6**: Enables the **TCP/IPv6** connection.
- **Auto Configuration**: Sets an automatic configuration for **TCP/IPv6**.
- **DHCPv6 Mode**: Sets the DHCP connection mode for TCP/IPv6.
    - Router Controlled.
    - Address and Other information.
    - Non-Address Information Only.
    - Never.
- **Manual Configuration**: Sets a manual configuration for **TCP/IPv6**. Fill the **System IP** block and the **Default Gateway** block for the connection.

Web Access

Path:Main > Configuration > Network > Web Access

This menu sets the configuration for the connection of the unit with a **Web Access**.

- **Enable Web**: Enables the Web access (only if applicable).

- **Access Mode**: Sets the connection mode to the Web as **HTTP** or **HTTPS**, the port is automatically set, but it can be manually modified.
- **Restore Port to Default**: This button restores the default port for connection.

FTP Server

Path:Main > Configuration > Network > FTP Server

- **Enable FTP**: Enables the use of an FTP server only if applicable. The port is automatically set, but it can be manually modified.
- **Restore Port to Default**: This button restores the default port for connection.

FTP and SCP

You can use FTP (disabled by default) or Secure CoPy (SCP) to transfer downloaded firmware to the Network Management Card or to access a copy of the InRow RC event or data logs. SCP provides the higher security of encrypted data transmission and is enabled automatically when you enable SSH. FTP and SCP can be enabled simultaneously.

To access the Network Management Card through FTP or SCP, the default user name and password are **apc** and **apc** for an Administrator, or **device** and **apc** for a Device User. In the command line, use the IP address of the unit.

NOTE: If you enable SSL and SSH for their high-security authentication and encryption, disable FTP. To disable FTP, you must be an Administrator. Go to **Main > Configuration > Network** to enable FTP.

In the *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide*, see the following sections:

To retrieve a copy of the event or data log, see "How to Use FTP or SCP to Retrieve Log Files."

Modbus

Modbus allows for viewing the Network Management Card through the interface of the building management system in use.

The Modbus RTU interface supports 2-wire RS-485, 4-wire RS-485, plus ground MODBUS TCP.

> **NOTE:** Modbus can be configured to run at either 9600 or 19200 bps. It is already configured for 8 data bits, no parity, and 1 stop bit: parity is changeable but data bits and stop bits are not.

To access the Modbus Register Map, go to the Schneider Electric website, www.schneider-electric.com, and search for "Modbus Register Map."

Configure Modbus

Serial

Path: Main > Configuration > Modbus > Serial

- **Enable Serial Modbus**: Enables the Serial Modbus connection.
- **Address**: Sets the unit address, with a range between 1 and 247.
- **Baud Rate**: The baud rate can be set to: 2400, 9600, 19200, 38400.
- **Mode**: A data frame consists of:
    - **8,E,1**: 8 data bits, Even parity, and 1 stop bit.
    - **8,O,1**: 8 data bits, Odd parity, and 1 stop bit.
    - **8,N,1**: 8 data bits, None parity, and 1 stop bit.
    - **8,N,2**: 8 data bits, None parity, and 2 stop bit.

TCP

Path: Main > Configuration > Modbus > TCP

- **Enable Modbus TCP** : Enables the Modbus TCP connection. Port and Timeout for connection are set by default.
- **Reset to Defaults**: This button restores the default Port and Timeout in case they have been manually set.

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.

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. Select **IPv4** or **IPv6**.

Path: Main > About > Network > IPv4

- **Enabled**. Identifies whether the specified network is **Enabled** or **Disabled**.
- **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.

Path: Main > About > Network > IPv6

- **Enabled**. Identifies whether the specified network is **Enabled** or **Disabled**.
- **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**: When this radio box is selected, 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**: If this radio box is selected, DHCPv6 is used to obtain addresses AND other configuration settings. This is known as DHCPv6 stateful.
  - **Non-Address and Information Only**: If this radio box is selected, 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 Display

Device

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.

Firmware

Path: Main > About > Display > Firmware

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

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

About the Unit

Path: Main > About > 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.

- **Model Number:** The model number of the unit.
- **Serial Number:** The serial number of the unit.
- **Firmware Revision:** The firmware revision of the unit.
- **Hardware Revision:** The hardware revision of the unit.
- **Ctrl Bootloader Rev:** The bootloader revision of the unit.
- **PIC 1 F/W Rev:** The PIC 1 F/W revision of the unit.
- **PIC 1 Bootloader Rev:** The PIC 1 bootloader revision of the unit.
- **PIC 2 F/W Rev:** The PIC 2 F/W revision of the unit.
- **PIC 2 Bootloader Rev:** The PIC 2 bootloader revision of the unit.

Network Management Card

Quick Configuration

The cooling unit is equipped with an embedded Network Management Card that enables the cooling unit to be managed over the network. The Network Management Card must be configured in order to control the cooling unit over a network.

Overview

You must configure the following TCP/IP settings before the cooling unit can operate on a network:

- IP address of the Network Management Card
- Subnet mask
- Default gateway

IMPORTANT: Never use the loopback address (127.0.0.1) as the default gateway address for the Network Management Card. Doing so will disable the card and will require you to reset TCP/IP settings to their defaults using a local serial login.

> **NOTE:** If a default gateway is unavailable, use the IP address of a computer that is located on the same subnet as the Network Management Card and that is usually running. The Network Management Card uses the default gateway to test the network when traffic is very light.

See *Watchdog Features* in the *Introduction* of the *Uniflair™ Chilled-WaterInRow Cooling ACRC300 Series Online Guide* for more information about the watchdog role of the default gateway.

TCP/IP Configuration Methods

Use one of the following methods to define the basic TCP/IP settings needed by the Network Management Card:

- Device IP Configuration Wizard (See Device IP Configuration Wizard, page 52)
- BOOTP or DHCP server (See BOOTP and DHCP configuration, page 53)
- Networked computer
  - Remote Access to the Command Line Interface (CLI), page 54.
  - Local Access to the Command Line Interface (CLI), page 55.

Device IP Configuration Wizard

The Device IP Configuration Utility is used to discover and configure Network Management Cards that do not have IP addresses assigned. The Device IP Configuration Utility runs on Microsoft® Windows® 2000, Windows® 2003, Windows Server® 2003, WindowsServer® 2012, and on 32- and 64-bit versions of Windows XP, Windows Vista, Windows 2008, Windows 7, and Windows 8, Windows 10, and Windows 2012 operating systems.

The Device IP Configuration Utility supports cards that have firmware version 5.0.x or higher and is for IPv4 only.

> **NOTE:** Most software firewalls must be temporarily disabled for the Configuration Utility to discover Network Management Cards that are not configured.

1. Enable **SNMPv1** on your device and set the Community Name to *public*.

2. Download the Device IP Configuration Utility from http://www.apc.com/tools/download.

3. Install and run the Device IP Configuration Wizard.

4. Follow the onscreen instructions.

   > **NOTE:** If you leave the option **Start a Web browser when finished** enabled, you can use **apc** (the default) for both the user name and password.

   > **NOTE:** When the IP address settings of your device are configured, to access the device in a Web browser via the wizard, update the URL from **http** to **https**.

.ini File Utility

You can use the .ini file export utility to export .ini file settings from configured Network Management Cards to one or more Network Management Cards that are not configured.

Refer to *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide*.

BOOTP and DHCP configuration

The default **TCP/IP Configuration**, **DHCP**, assumes that a properly configured DHCP server is available to provide TCP/IP settings to Network Management Cards. The possible settings are **Manual**, **DHCP**, or **BOOTP**.

If neither a DHCP nor BOOTP server is available, see Device IP Configuration Wizard, page 52 or Remote Access to the Command Line Interface (CLI), page 54 to configure the TCP/IP settings.

BOOTP

For the Network Management Card to use a BOOTP server to configure its TCP/IP settings, it must find a properly-configured RFC951-compliant BOOTP server.

1. In the BOOTPTAB file of the BOOTP server, enter the MAC address of the Network Management Card, and the IP addresses of the subnet mask and default gateway, and an optional bootup file name.

   NOTE: Look on the nameplate of the unit for the MAC address. The MAC address is also available on the display interface at **Main > About > Display > Device**.

2. When the Network Management Card reboots, the BOOTP server provides it with the TCP/IP settings.

   • If you specified a bootup file name, the Network Management Card attempts to transfer that file from the BOOTP server using TFTP or FTP. The Network Management Card takes on all settings specified in the bootup file.

   • If you did not specify a bootup file name, the Network Management Card can be configured remotely by using the CLI or the Web interface. User name and password are both **apc**, by default.

     To create the bootup file, see your BOOTP server documentation.

DHCP

You can use a RFC2131/RFC2132-compliant DHCP server to configure the TCP/IP settings for the Network Management Card

For more details on how a DHCP can configure the network settings for a Network Management Card, see *DHCP Configuration* in the *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide*.

1. The Network Management Card sends out a DHCP request that uses the following to identify itself:

   • Vendor Class Identifier (by default, APC)

   • Client Identifier (by default, the MAC address of the Network Management Card)

   • User Class Identifier (by default, the identification of the application firmware installed on the Network Management Card)

2. A properly configured DHCP server responds with a DHCP offer that includes all of the settings that the Network Management Card needs for network communication. The DHCP offer also includes the Vendor Specific Information option (DHCP option 43). If configured to do so, the Network Management Card will ignore DHCP offers that do not encapsulate the APC cookie in DHCP option 43 using the following hexadecimal format:

`Option 43 = 01 04 31 41 50 43`

where

- The first byte (`01`) is the code
- The second byte (`04`) is the length
- The remaining bytes (`31 41 50 43`) are the APC cookie (not required by default)

See your DHCP server documentation to add code to the Vendor Specific Information option.

To change the command line interface (CLI) DHCP Cookie Is setting, use the Advanced option in the TCP/IP menu.

See Remote Access to the Command Line Interface (CLI), page 54.

Remote Access to the Command Line Interface (CLI)

From any computer on the same network as the Network Management Card, you can use ARP and Ping to assign an IP address to the Network Management Card and then use Telnet to access the CLI of that Network Management Card and configure the other TCP/IP settings.

NOTE: After a Network Management Card has its IP address configured, you can use Telnet, without first using ARP and Ping, to access that Network Management Card.

1. Use the MAC address of the Network Management Card in the ARP command to define an IP address for the Network Management Card. For example, to define an IP address of `156.205.14.141` for a Network Management Card that has a MAC address of `00 c0 b7 63 9f 67`, use one of the following commands:

   NOTE: Look on the nameplate of the unit for the MAC address. The MAC address is also available on the display interface at **Main > About > Display > Device**.

   - Windows command format:

     `arp -s 156.205.14.141 00-c0-b7-63-9f-67`

   - LINUX command format:

     `arp -s 156.205.14.141 00:c0:b7:63:9f:67`

2. Use Ping with a size of 113 bytes to assign the IP address defined by the ARP command. For the IP address defined in step 1, use one of the following Ping commands:

   - Windows command format:

     `ping 156.205.14.141 -l 113`

   - LINUX command format:

     `ping 156.205.14.141 -s 113`

3. Use Telnet to access the Network Management Card at its newly assigned IP address. For example,

   `telnet 156.205.14.141`

4. Use **apc** for both the user name and password.

5. Contact your network administrator to obtain the IP address, subnet mask, and default gateway for the Network Management Card.

6. Use these three commands to configure network settings (text in *italics* indicates a variable):

   a. `tcpip -i` *yourIPaddress*

   b. `tcpip -s` *yourSubnetMask*

   c. `tcpip -g` *yourDefaultGateway*

   For each variable, enter a numeric value with the format xxx.xxx.xxx.xxx.

   For example, to set a system IP address of 156.205.14.141, enter the following command and press **ENTER**:

   `tcpip -i 156.205.14.141`

7. Type `reboot`. The Network Management Card restarts to apply the changes.

Local Access to the Command Line Interface (CLI)

You can use a computer connected to the serial port on the front of the display to access the CLI.

1. Select a serial port on the local computer and disable any service that uses that port.

2. Use the provided serial cable (part number: 940-0299) to connect the selected serial port to the serial on the front of the display.

3. Run a terminal program (such as HyperTerminal®, TeraTerm, or PuTTY) and configure the selected port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control.

4. Save the changes.

5. Press **ENTER**, repeatedly if necessary, to display the **User Name** prompt.

6. Use **apc** for the user name and password.

7. Contact your network administrator to obtain the IP address, subnet mask, and default gateway for the Network Management Card.

8. Use these three commands to configure network settings (text in *italics* indicates a variable):

   a. `tcpip -i` *yourIPaddress*

   b. `tcpip -s` *yourSubnetMask*

   c. `tcpip -g` *yourDefaultGateway*

   For each variable, enter a numeric value with the format xxx.xxx.xxx.xxx. For example, to set a system IP address of 156.205.14.141, enter the following command and press **ENTER**:

   `tcpip -i 156.205.14.141`

9. Type `reboot`. The Network Management Card restarts to apply the changes.

Access a Configured Unit

Overview

After the InRow RC is running on your network, you can access the configured InRow RC through the following interfaces:

- Web interface
- Telnet/SSH
- Simple Network Management Protocol (SNMP)
- FTP/SCP
- Modbus
- BACnet

For more information on the interfaces, see *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide*.

Web Interface

Use Microsoft Internet Explorer® 7.x or higher (on Windows operating systems only), or Mozilla® Firefox® 3.0.6 or higher (on all operating systems) to access the InRow RC through its Web interface. Other commonly available browsers also may work but have not been fully tested by Schneider Electric.

You can use either of the following protocols when you use the Web browser to configure display interface options or to view the event log:

- The HTTP protocol (enabled by default), which provides authentication by user name and password but no encryption.
- The HTTPS protocol, which provides extra security through Secure Sockets Layer (SSL), encrypts user names, passwords, and data being transmitted, and authenticates the Network Management Card by means of digital certificates.

To access the Web interface and configure the security of your cooling unit on the network,

1. Enter the IP address or DNS name of the cooling unit into a Web browser.
2. Enter the user name and password (both are `apc` by default).
3. To enable or disable the HTTP or HTTPS protocols, use **Main > Configuration > Network > Web > Access**.

For more information on selecting and configuring network security, see the UPS Network Management Card Security Handbook, available at http://www.apc.com/site/support/. Click on *User Manuals* on the right side and search for *UPS Network Management Cards*.

Telnet and SSH

You can access the control console through Telnet and/or Secure SHell (SSH), depending on which is enabled. To enable these access methods from the Web UI, select **Configuration > Network > Console > Access**. By default, Telnet is enabled. Telnet and SSH can be enabled simultaneously.

Telnet for Basic Access

Telnet provides the basic security of authentication by user name and password, but not the high-security benefits of encryption. To use Telnet to access the Network Management Card control console from any computer on the same network,

1. At a command prompt, use the following command line, and press **ENTER**:

   `telnet address`

   As *address*, use the Network Management Card IP address or DNS name (if configured).

2. Enter the user name and password (by default, **apc** and **apc** for an Administrator, or **device** and **apc** for a Device User).

SSH for High-Security Access

If you use the high security of SSL for the Web interface, use Secure SHell (SSH) for access to the CLI. SSH encrypts user names, passwords, and transmitted data.

The interface, user accounts, and user access rights are the same whether you access the CLI through SSH or Telnet, but to use SSH, you must first configure SSH and have an SSH client program installed on your computer.

See *Uniflair™ Chilled-Water InRow Cooling ACRC300 Series Online Guide* for more information on configuring and using SSH.

Simple Network Management Protocol (SNMP)

SNMPv1 Only

After you add the latest version of PowerNet® MIB to a standard SNMP MIB browser, you can use that browser to access the InRow RC. All user names, passwords, and community names for SNMP are transferred over the network as plain text. The default read community name is **public**; the default read/write community name is **private**.

SNMPv3 Only

For SNMP GETs, SETs, and trap receivers, SNMPv3 uses a system of user profiles to identify users. An SNMPv3 user must have a user profile assigned in the MIB software program to perform GETs and SETs, browse the MIB, and receive traps. The default settings are **no authentication** and **no privacy**.

NOTE: To use SNMPv3, you must have an MIB program that supports SNMPv3, and SNMPv3 must be configured correctly in the Network Management Card.

The InRow RC supports SHA or MD5 authentication and V or DES encryption.

SNMPv1 and SNMPv3

To use StruxureWare Data Center Expert to manage the InRow RC on the public network of an InfraStruXure system, you must have SNMPv1 enabled in the unit interface. Read access allows InfraStruXure devices to receive traps from the InRow RC. Write access is required while you set the InfraStruXure device as a trap receiver.

To enable or disable SNMP access, you must be an Administrator. Select **Administration > Network** and select the access option under SNMPv1 or SNMPv3.

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

❑   In what type of room is the cooling unit located?

_____

❑   Is the cooling unit maintaining the temperature setpoint?

_____

Temperature setpoint: _____

❑   Is there visible damage on the cooling unit (dents, scratches)?

_____

_____

_____

_____

❑   Check for environmental damage (dirt, dust, debris, liquid stains) around the installation area.

_____

_____

_____

❑   Record the room temperature/humidity near the return of the cooling unit.

Temperature _____

❑   Record the alarm history from last month.

_____

_____

_____

_____

Cleanliness

	Check the condition of the return air filters. Clean or replace if necessary.
	Check the condition of the drain pan and accumulation of debris in the pan. Clean as required.

Mechanical

⚠⚠ 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.

	Check the fans. All components should be moving freely with no signs of binding or damages.
	Verify that the condensate line is flowing freely.
	Verify the chilled water supply temperature for the cooling unit. Chilled water supply temperature_____

Electrical

⚠⚠ 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.

	Before checking the electrical connections, shut off and lock out the power to the cooling unit.
	Inspect the electrical panel for tight connections or overheated connections from loose contact terminals.
	Confirm the incoming main power matches the requirements listed on the cooling unit nameplate. The measurement should be within 10% of the nameplate listing.

Functional Tests

	Check the operation of the display interface

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: _____

Mechanical

❏	Before you perform mechanical checks, you must shut off and lock out the power to the cooling unit.
❏	Verify that the fan hardware is tight.
❏	Clean or replace filters.
❏	Clean condensate pans.
❏	Clean condensate drain line.
❏	Remove any debris from condensate floats.
❏	Clean dust from door perforations.
❏	Clean dust from fan bezels.
❏	Check and clean dust accumulation on the fan power supply ventilation openings.

Functional tests

❏	Verify the cooling operation mode.
❏	Verify the operation of the chilled water actuator.
❏	Check the status LEDs on the fan power supplies.

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.

Electrical

⚡⚠ **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.

❏	Check circuit breaker and fuse block electrical connections
❏	Check low voltage transformers, measure and record output voltage.
❏	Measure and record mains input voltage: • Fans: _____ • Heaters:_____ • Humidifier:_____

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
Cooling controller response is erratic or inoperative	• Inlet temperature to the cooling unit is higher than the rated maximum temperature	• Reduce the load or add additional cooling equipment.
	• Cooling unit is not properly tuned	• Contact Schneider Electric Customer Support.
Fans fail to start	• Power supplies are not operating properly	• Confirm that the power supplies are seated properly and fully engaged. This is indicated by a green LED. • Confirm that the cooling unit is plugged in and is receiving power.
	• Failed power supply	• Replace the power supply if the LED is red.
	• Cooling unit inlet temperature is higher than rated maximum temperature	• Reduce the load or add additional cooling equipment.
	• Cooling unit shutdown due to an external command	• Temporarily remove the user input contact cable if it is connected.
	• Single fan fails to start	• Confirm that the fan is seated properly and fully engaged. • Replace the fan if it is faulty.
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.
	• Valve/actuator malfunction	• Fully open the valve.
	• Isolation valve is closed or is not open fully	• Fully open the valve.
	• Application error	• Contact Schneider Electric Customer Support.
	• Entering water temperature is too high	• Verify that the temperature of the cooling unit water supply is within the specified range.
	• Heat load is too far away	• Place the cooling unit closer to the heat load.
	• Cooling unit is not properly tuned	• Contact Schneider Electric Customer Support.
Water carryover	• Improper fan speed selected	• Select the next highest fan speed setting. For example, change the fan speed setting from Low to Med/Low.
	• Inlet water temperature is too low	• Verify that the temperature of the inlet water is within the specified range.
	• Room humidity is too high	• Adjust setpoint on dehumidifying equipment. • Add additional dehumidifying equipment.
	• Dirty coil	• Clean the coil.
	• Dirty filter	• Clean the air filter.

Problem	Possible Cause	Corrective Action
Cooling unit fan sound is louder than expected	• Improper fan speed selected	• Select a lower fan speed.
	• Incorrect placement of remote temperature sensor	• Verify that the remote temperature sensor is properly located in the cold aisle.
Temperature control not tight enough	• Improper placement of remote temperature sensor	• Verify that the remote temperature sensor is properly located in the cold aisle.
	• Improper PID tuning	• Contact Schneider Electric Customer Support.
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. • Verify that the condensate drain line does not exceed 16 feet lift and 50 feet horizontal run.
	• Leak in piping 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.
Water valve not responsive	• Actuator not connected properly	• Verify that the actuator is connected properly.
	• Actuator and shaft not rotating together	• Tighten the linkage screw on the actuator shaft.
Display interface not operational but cooling unit operates	• Display interface not connected properly	• Verify that the display interface cable is connected properly.
Incorrect air filter differential pressure reading	• False filter clogs	• Verify that the ends of the clear plastic air tubes are not obstructed. • Verify that the clear plastic air tubes are connected to the controller. • Verify that the clear plastic air tubes are not pinched.
Alarms do not show up on monitoring equipment (Form C)	• External monitoring equipment is not receiving power or is not functioning properly	• Confirm that power, if required, is being supplied to the external equipment. • If the cooling unit is providing power (+12 V or +24 V) to the external equipment, verify that the external equipment is ≤50 mA. • Test the external equipment by bypassing the Form C.
Cooling unit does not shut down when using the input contact	• Drive voltage	• Verify that there is drive voltage entering the input of the cooling unit. You may use the available +12 V or +24 V. You must then also use the ground.
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. • Verify that the wire polarity is correct. Using a DC voltmeter, test the signal with no transmissions in progress: expect Pin 2 to be greater than 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.

Problem	Possible Cause	Corrective Action
		• 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.
	• Wrong baud rate	• Verify the baud rate is correct.
	• Wrong ID	• Verify the ID is correct.
Cooling units are not communicating with each other	• A-Link CAN	• Verify that the A-Link port of every cooling unit has either two cables or one cable and a terminator. • Confirm that the A-Link cables are connected to the A-Link ports and that a network cable is connected to the network port.

First Aid

> **IMPORTANT:** The following measures can be carried out by trained and qualified personnel only.

First Aid Measures in Case of Electrical Shock

In case of electrical shock, follow this procedure:

1. Turn off the electricity source, if possible. If not, remove the same using a dry, non-conducting object made of paperboard, plastic or wood

2. In case of electrical burn, cover any burned areas with a sterile gauze bandage, if available, or a clean cloth. Don't use a blanket or towel, because loose fibers may stick to the burns

3. If necessary, perform mouth-to-mouth resuscitation when the person shows no signs of circulation, such as breathing, coughing or movement

In case of persisting irritations or symptoms, contact the emergency aid.

First Aid Measures in Case of Burn

In case of burn, follow this procedure:

1. Cool the burn: place the burned area under running cool (not cold) water for at least five minutes or apply a clean wet compress to reduce pain and swelling

2. Remove rings or other tight items from the burned area: do this quickly and gently before the area swells

3. Do not break blisters as they prevent infection. If a blister breaks, clean the area with water and apply an antibiotic ointment

4. When a burn is completely cooled, apply a lotion to relieve the area and prevent it from drying

5. Loosely wrap a sterile gauze bandage around the burn

6. If needed, take a pain reliever making sure to carefully read the related information leaflet

In case of severe burn, contact the emergency aid or go to the nearest hospital.

First Aid Measures in Case of Cut from Sharp Edges

In case of deep cuts, follow this procedure:

1. Have the injured person lie down and elevate the site of bleeding. Do not breathe on an open wound. Any objects in the wound should not be removed.

2. Remove or cut clothing around the wound. Gently remove rings or other tight items from the injured area, also to allow blood circulation in case of swelling

3. Apply direct pressure and elevate the area for fifteen minutes. If blood soaks through the cloth, apply another one without lifting the first. If there is an object that could not be removed, apply pressure around the object and not directly over it and then seek medical attention

4. Once the bleeding has stopped, clean the wound to reduce the chance of infection: wash the wound for five minutes with cool water

5. Apply a bandage to protect the cut from dirt and prevent infection. Moisture-enhancing bandages are usually available in first-aid kits

If an infection occurs under the bandage, contact a doctor.

If the cut does not stop bleeding, contact the emergency aid.

First Aid Measures in Case of Fall

In case of fall from considerable heights, do not move the person to avoid further injury.

Call for medical help and, if necessary:

1. Stop any bleeding by applying pressure to the wound with a clean cloth

2. Immobilize the injured area. Do not try and realign any bone sticking out

3. Apply ice packs to limit swelling and help relieve the pain. Do not apply ice directly to the skin

Worldwide Customer Support

Customer support for this product is available at no charge in any of the following ways:

- Visit the Schneider Electric Web site to access documents in the Schneider Electric Knowledge Base and to submit customer support requests.

  ◦ www.se.com (Corporate Headquarters)

    Connect to localized Schneider Electric websites for specific countries, each of which provides customer support information.

  ◦ www.se.com/support/

    Get global support by searching the Schneider Electric Knowledge Base and using esupport.

- Contact the Schneider Electric Customer Support Center by telephone or e-mail.

  Go to **www.se.com > Support > Contact Support** to find contact information for country-specific centers.

For information on how to obtain local customer support, contact the representative or other distributors from whom you purchased your product.

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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