Installing and setting up the SMC HRS-040 chiller

This document provides information on how to install and set up the SMC HRS-040 chiller plumbing kit.

Affected products

The following products are affected:

- CP4440-RGB
- CP4445-RGB
- CP4450-RGB
- CP4455-RGB

Required components and tools

The following components and tools are required.

Required components

- SMC HRS-040 Chiller kit (P/N: 163-186106-XX)
- SMC HRS-040 Chiller Assembly kit (P/N: 163-185105-XX)
- Chiller Connection kit for CP44XX-RGB (P/N: 163-187107-XX)
- 10 Foot High-pressure Hose kit (P/N: 163-184104-XX)
- 15 Foot High-pressure Hose kit (P/N: 163-183103-XX)
- 30 Foot High-pressure Hose kit (P/N: 163-182102-XX)

Used components

The following is a list of parts used from the kits listed above.

Description	Kit part number
½” PT male-to- ½” NPT female adapter	163-186106-XX
½” NPT male-to-female 90° elbow—quantity 2	163-185105-XX
Male (plug) quick-disconnect	163-185105-XX
Female (socket) quick disconnect	163-185105-XX

Description	Kit part number
½” NPT-to-½” PT adapter	163-185105-XX Can be found in the particle filter packaging
Particle filter housing	163-185105-XX
5 um particle filter	163-185105-XX
Tank particle filter	163-185105-XX
Tool bag and zip tie	163-185105-XX
Cable adapter	163-185105-XX
Sealant tape	163-185105-XX 163-187107-XX
Male (plug) quick disconnect	163-187107-XX
LQ6 male quick disconnect	163-187107-XX
LQ6 female quick disconnect	163-187107-XX
Female (socket) quick disconnect	163-187107-XX
SAE 8 female x 1/2" NPT male straight adapter—quantity 2	163-187107-XX
Chiller cable	Can be found with the projector

Required tools

- Utility knife
- #2 Phillips screwdriver
- Pair of adjustable wrenches (up to 38 mm)
- Protective gloves
- Safety glasses

Safety and warning guidelines

Read all safety and warning guidelines before installing or operating the SMC HRS-040 chiller.

Caution! If not avoided, the following could result in minor or moderate injury.

- Use protective eye wear and gloves. Follow workplace guidelines for using personal protective equipment when installing, cleaning, and servicing the product.

Installing the power cord

A certified electrician must install the power cord for the chiller.

1. Have a certified electrician install the power cord by following the instructions in the *SMC Chiller Operation manual*.
2. Apply the alarm code label on the upper panel (as shown in the image below).

Alarm code labels can be found in the chiller accessories bag.

Assembling the chiller connections

Follow these steps to assemble the chiller connections.

1. To prevent rolling, lock the front wheels and place on a flat surface.
2. Remove the plastic cap from the chiller outlet port.

3. Apply three or four rounds of grey sealant tape on the threads for the following components from the assembly kit (P/N: 163-185105-XX):
   - ½” PT male-to- ½” NPT female adapter (can be found in the chiller accessory kit; C in the image in step 4)
   - ½” NPT male-to-female 90° elbow (B in the image in step 4)
   - Male (plug) quick-disconnect (A in the image in step 4)

   Make sure to leave the first thread at the end of the components free of tape.
4. Assemble the quick disconnect (A in the image below), NPT elbow (B in the image below), and PT-NPT adapter (C in the image below) together, using a pair of adjustable wrenches to tighten.

5. Install the sub-assembly to the chiller outlet, making sure the assembly is facing down.

6. Remove the plastic cap from the chiller return port.

7. Apply three to four rounds of grey sealant tape to the following components:
   - ½” NPT male-to-female 90° elbow (B in the image in step 9)
   - Female (socket) quick disconnect (A in the image in step 9)
   - ½” NPT-to-½” PT adapter (can be found in the particle filter packaging; C in the image in step 9)

Make sure to leave the first few threads at the end of the components free of tape.

8. Install the female (socket) quick-disconnect (A in the image in step 9) to the ½" NPT male-to-female elbow (B in the image in step 9).
   Use an adjustable wrench to tighten them.
9. Install the sub-assembly from step 8 (A+B in the image below) to the 125 mm particle filter housing inlet (next to the red button, turning it so it is facing down; D in the image below).
   Do not cross thread the particle filter housing and hand tighten the assembly.

10. Unscrew the particle filter bottom housing.
11. Install a new 5 um particle filter (P/N: 012-104287-XX).
12. Re-install the particle filter bottom housing.
13. Install the PT side of the ½" NPT-to-½" PT adapter (C in the image in step 9) to the chiller return port.

    Make sure to note the PT and NPT marking on the part and use adjustable wrenches to tighten the adapter to the chiller.

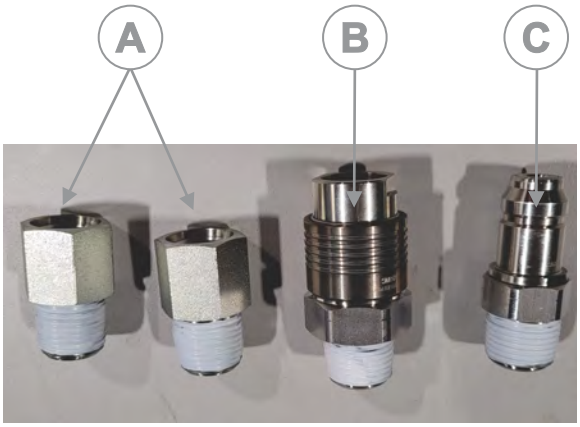
14. Install the particle filter housing assembly (A+B+D in the image in step 9) to the NPT side of the ½" NPT-to-½" PT adapter (C in the image in step 9) in the chiller return port.
    Hand tighten the assembly and see the image below for the recommended orientation.

15. Remove the chiller reservoir cover.
16. Insert a tank particle filter (P/N:012-104286-XX).
17. Re-install the chiller reservoir cover.

Assembling the hose

Follow these steps to assemble the hose.

1. Apply three or four rounds of sealant tape to the following items from the Chiller Connection kit (P/N: 163-187107-XX):
   - Two SAE 8 female x 1/2" NPT male straight adapters (A in image below)
   - Female (socket) quick disconnect (B in image below)
   - Male (plug) quick disconnect (C in image below)



2. Install each SAE-to-NPT adapter to one end of each of the hoses.
3. Select one hose and screw on the LQ6 male quick disconnect (see image below) to the end with the SAE 8 female x 1/2" NPT male straight adapter.

   Do not apply the thread sealant tape to the LQ6 male quick disconnect.

4. Install the female (socket) quick disconnect (see image below) to the opposite end.

5. Use a pair of adjustable wrenches to tighten both ends.
6. Select the second hose and install the LQ6 female quick disconnect (see image below) to the hose end with the SAE 8 female x 1/2" NPT male straight adapter.

   Do not apply the thread sealant tape to the LQ6 female quick disconnect.

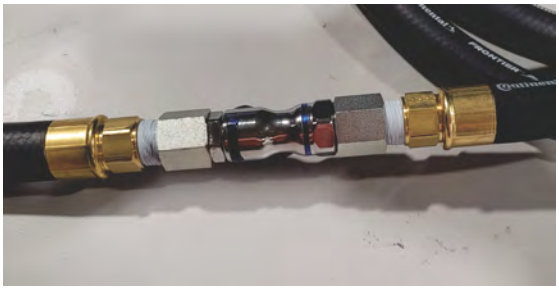
7. Install the male (plug) quick disconnect (see image below) to the opposite end.

8. Use a pair of adjustable wrenches to tighten both ends.
9. Connect the hose kit to the outlet and return port of the chiller.

Starting the chiller

Follow these steps to start the chiller.

1. To run the system for the first time, connect the female LQ6 to the male LQ6.
   These quick disconnects are normally connected to the projector.



2. To fill the chiller with coolant at the tank inlet, follow the instructions included in the *Maintaining Chiller Coolant Levels Instruction Sheet (P/N: 020-103450-XX)*.

Storing spare parts

Before leaving the site, collect and store all parts not used during installation.

1. Place any spare parts in the tool bag provided in the Chiller Assembly kit (P/N: 163-185105-XX).
2. Secure the bag with the zip tie provided in the Chiller Assembly kit (P/N: 163-185105-XX).
3. Secure the bag to the chiller.

Setting up the chiller

For a new SMC chiller, the menu settings are not set to the values needed to use a serial cable to control the chiller. Once the menu options are set, they are saved on the chiller, even if the chiller is unplugged.

The chiller can be controlled with two modes:

- Set the chiller conditions using the control panel on the front of the chiller.
- Set the chiller conditions remotely using a serial cable.

When the LED indicator beside the word *REMOTE* is on, the chiller is set to be controlled remotely by a serial cable.

Connecting the SMC serial cable

The SMC chiller cable needs an adapter to plug into the back of the chiller.

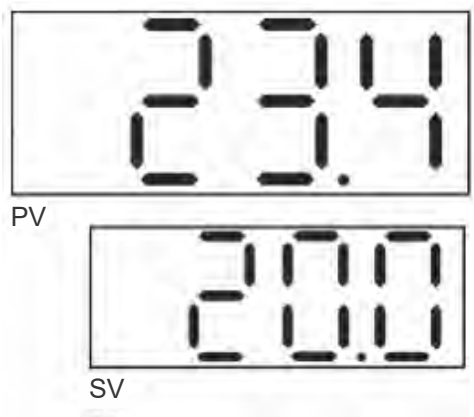
1. Plug the adapter (P/N:001-115197-XX) into the back of the chiller.
2. Plug the chiller cable (P/N: 001-112405-XX) into the adapter on the back of the chiller.
3. Plug the other end of the chiller cable into the projector.

   If the projector is turned on when you connect the cable, the projector display shows a disconnected error message. When you navigate through the prompts to get to the communication, the message disappears.

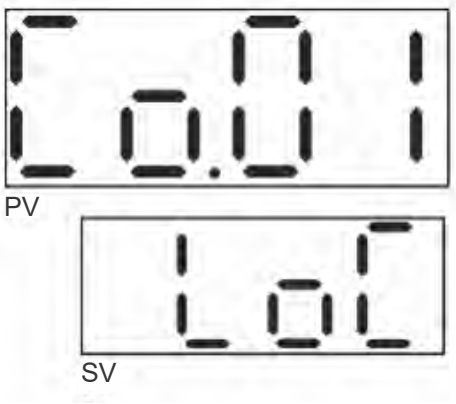
Navigating to the Communications menu

Follow these steps to navigate to the Communications menu.

The initial display shows the coolant temperature and setpoint.



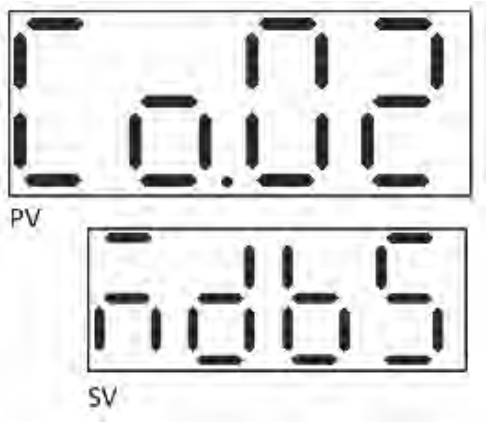
1. From the coolant temperature and setpoint on the display, select and hold the **Menu** button, releasing the button when the chiller beeps (after approximately two seconds).
2. Select and hold the **Menu** button three more times to navigate through the menus to get to the Communication menu.



Controlling the chiller

You can control the chiller from either the projector or the control panel. You only need to control the chiller from the control panel if the remote LED indicator is on.

1. Control the chiller from the control panel:
   a) *Navigate to the Communications menu* (on page 8).
   b) If the lower line does not display `LoC`, select the **Up/Down** buttons until it is displayed.
   c) When `LoC` is displayed, select the **Menu** button to use the chiller.
      The LED indicator labeled REMOTE is off while in local mode.
2. Control the chiller from the projector:
   a) *Navigate to the Communications menu* (on page 8).
   b) Verify the lower line reads `SEr` and if it does not, select the **Up/Down** buttons until it does.
   c) When the second line reads `SEr`, select the **SEL** button to display the Communication menu 2.
   d) Use the **Up/Down** buttons to make sure the second line selects the MODBUS serial protocol.



   e) Once the MODBUS serial protocol is selected, select the **SEL** button to display Communication menu 3.
   f) Use the **Up/Down** buttons to select **485** for the RS485 serial protocol.

g) Select the **SEL** button to display the Communication menu 4.

h) Use the **Up/Down** buttons to select **on**.

i) Select the **SEL** button to display the Communication menu 5.

j) Make sure the second line reads `1`.

k) Select the **SEL** button to display the Communication menu 6.

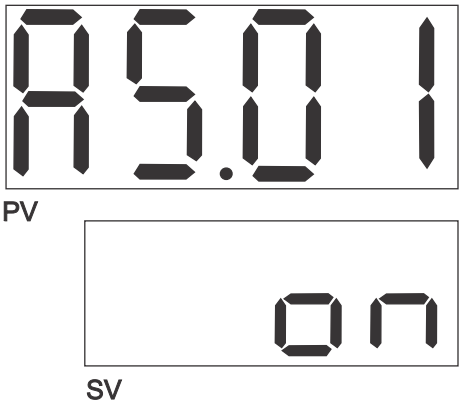
l) Use the **Up/Down** buttons to select **9.6** to set the Communication channel to 9600 Baud.

m) To save the settings and return to normal operation, select the **Menu** button.

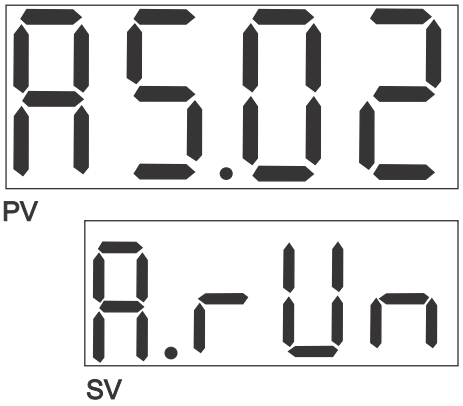
Configuring the chiller

Follow these steps to configure the chiller's alarm settings.

1. Select and hold the **Menu** button three times to navigate through the menus to get to the `AS.01` screen.

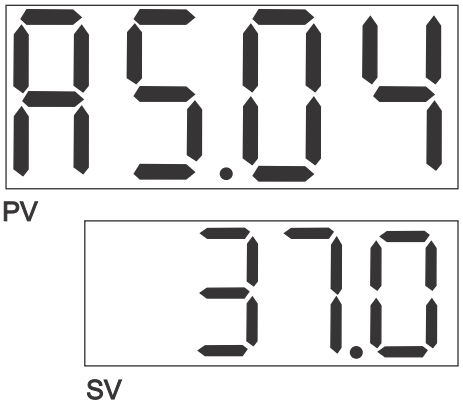


2. To turn off the alarm buzzer if the chiller experiences a failure or issue, use the **Up/Down** buttons to select **off**.
3. To prevent the chiller from shutting down if the tank reaches a low level, select the **SEL** button to display `AS.02`.
4. Use the **Up/Down** buttons to select **A.run**.

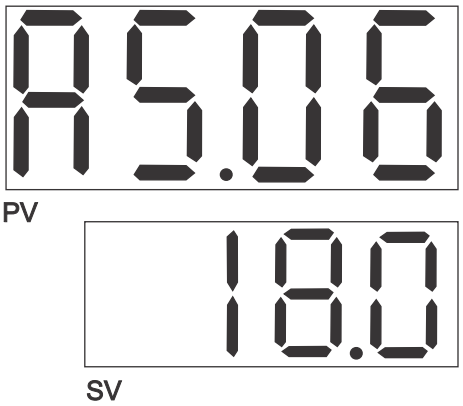


5. To set the maximum coolant temperature, select the **SEL** button two times to display `AS.04`. The default is set to `45.0`.

6. Use the **Up/Down** buttons to select **37.0**.
   This sets the maximum coolant temperature to 37°C (98.6°F). If the coolant temperature exceeds 37°C (98.6°F) in the chiller, the chiller still operates but an alarm is triggered.



7. To set the minimum coolant temperature, select the **SEL** button two times to display `AS.06`.
8. Use the **Up/Down** buttons to select **18.0**.
   This sets the minimum coolant temperature to 18°C (64.4°F).



9. To return to the main menu, select the **Menu** button.
10. To lock the chiller settings, select and hold the **Menu** button two times to get to the `SE.01` menu.
11. Use the **Up/Down** buttons to select **on**.

12. To return to the main menu, select the **Menu** button.

Technical support

Technical support for Christie Cinema products is available at:

- *Support.cinema@christiedigital.com*
- +1-877-334-4267
- Christie Professional Services: +1-800-550-3061 or *NOC@christiedigital.com*