



MODEL AC-SCC-1 INSTALLATION, OPERATION & MAINTENANCE MANUAL

Single-zone Hydronic Chiller
Interface Module



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Section 1: INTRODUCTION

The SpacePak AC-SCC-1 is an interface module that allows communication between a wide variety of commercially available thermostats, air handlers, control systems, and the SCM-036 & SCM-060 reverse cycle chillers. The AC-SCC-1 is used to communicate between a single air handler and one chiller.

Description:

The AC-SCC-1 consists of two electromechanical relays mounted inside metal enclosure that can be located at any indoor location. The AC-SCC-1 operates on 24VAC signals from the air handler or thermostat circuit, and does not require any additional power supply. The output signal consists of two “dry” contacts, one to enable the chiller and one to determine heating or cooling operation. These switch to open or close the low voltage circuit supplied by the chiller

Section 2: INSTALLATION

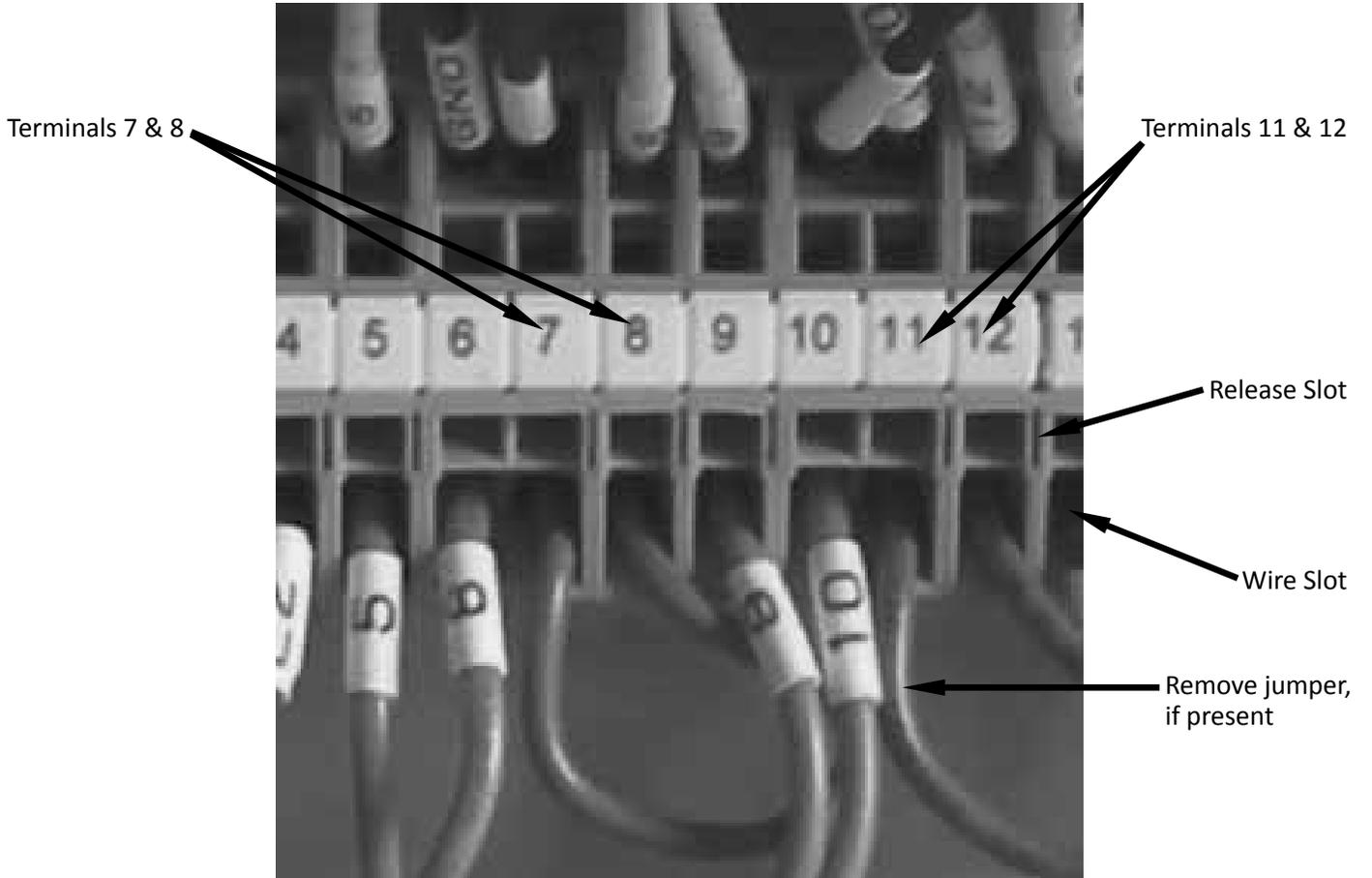
Installation:

Before beginning, ensure all power is removed from the chiller, either at a breaker or disconnect. Mounting and wiring must be accomplished by a qualified technician who is responsible for compliance with all local codes and good practices.

1. Mount the AC-SCC-1 in a dry indoor location that provides easy wiring access from the air handler, and to the outside chiller. The enclosure must be attached securely to a wall or other fixed structure.
2. Determine whether the thermostat wiring will be connected at the air handler, or at the AC-SCC-1 module. The AC-SCC-1 does not perform any control function between the thermostat and the air handler, but depending upon the physical location of these components, can provide a convenient junction point between the two. If the thermostat is wired directly to the air handler, and the air handler alone is wired to the interface module, only the Y, O/B, and C connections need to be made.
3. Pass the control wires from the air handler/thermostat through the grommet at the lower left of the enclosure, and install them as indicated to the terminal strip at the bottom of the panel.
4. Install a minimum four conductor, single strand 22 or 24 AWG copper, thermostat wire from the interface module, to the chiller.
5. Pass the wire through the grommet at the upper right of the enclosure, and connect one each conductor to the four terminal points marked 7 or 11, 8 or 12 & 43, 44 at the top of the panel. Note the color of the individual wires as these must be connected to the same numbered terminals in the chiller.
6. Using the square bit key supplied with the chiller, remove the access plate on the chiller.
7. At the chiller, pass the control/thermostat wire through one of the grommets in the chiller enclosure not already occupied by the chiller power supply wiring. Take care to route the control wire away from the power wire, to avoid the very small possibility that electrical interference could affect the operation of the chiller.
8. Locate the interface terminal strip. Remove the blue jumper (if installed) between connection points 43 and 44. These are for the remote enable signal. Remove them by inserting a 1/8” (3.5 mm) screwdriver blade or other similar tool into the release slot of the connector, and lifting the handle slightly to depress the spring. This will then free the end of the blue jumper which can be gently pulled out of the wire slot.
9. Next, remove the blue jumper (if installed) from the remote Reversing Valve signal. First identify the serial number of the chiller. Refer to the chart below to determine if the chiller is configuration A or configuration B. For configuration A, removed the jumper between terminals 7 & 8, these are the Reversing Valve signal terminals. For configuration B, removed the jumper between terminals 11 & 12, these are the Reversing Valve signal terminals.
10. While still depressing the spring, install the wires leading from terminals 7/11 & 8/12 of the AC-SCC-1 into the same wire slots.
11. Repeat above steps 8 & 9 at terminals 43 & 44.
12. Ensure all wire are routed neatly and clear of the access opening, and replace the access panel using the square bit key.

Section 2: *INSTALLATION* (continued)

Figure 1



Chiller identification

Chiller Model	Serial Number Range	Wiring Configuration
SCM-036-A4	A1100222680001001 through A1100222680001025	Configuration A
	A1100222680001026 and greater	Configuration B
SCM-060-A4	A1100222680001001 through A1100222680001035	Configuration A
	A1100222680002036 and greater	Configuration B

Section 3: OPERATION

Testing:

1. When all wire connections have been completed, turn on power to the chiller.
2. Set the indoor thermostat, or other control device, to call for heating. (this assumes that the glycol/water solution in the chiller is lower than the heating setpoint. If the temperature is higher, proceed with step 7, below).
3. Observe that the thermostat, or air handler, sends a signal to call for heating. (Depending on the specific thermostat or air handler setpoints, this may pause for of up to two minutes before reacting.)
4. When the call is sent, wire Y1 will energize the left-most relay in the interface module, producing an audible “click”, and the contacts will close completing the circuit between terminals 43 and 44.
5. The chiller will begin by flashing the Pump symbol for one to two minutes while the control undergoes a self-test. The symbol will then become solid and the pump will begin to circulate. The heating symbol will then begin to flash, again for one to two minutes, and then become solid. At this time, the compressor(s) will engage and the system will begin heating.
6. Lower the thermostat to remove the call for heating, and allow the chiller to complete its shutdown cycle, running for two to three minutes.

7. When the chiller has shut down and the pump stopped circulating, lower the thermostat to initiate a call for cooling. Again, this may pause for up to two minutes.
8. When the call for cooling is sent, the wire Y1 will again energize the left-most relay, and wire O/B will energize the right-most relay, producing an audible “click” and *opening* the circuit between wires 7 and 8 (or 11 & 12)
9. The chiller start sequence will be the same, except that now the cooling symbol will display.

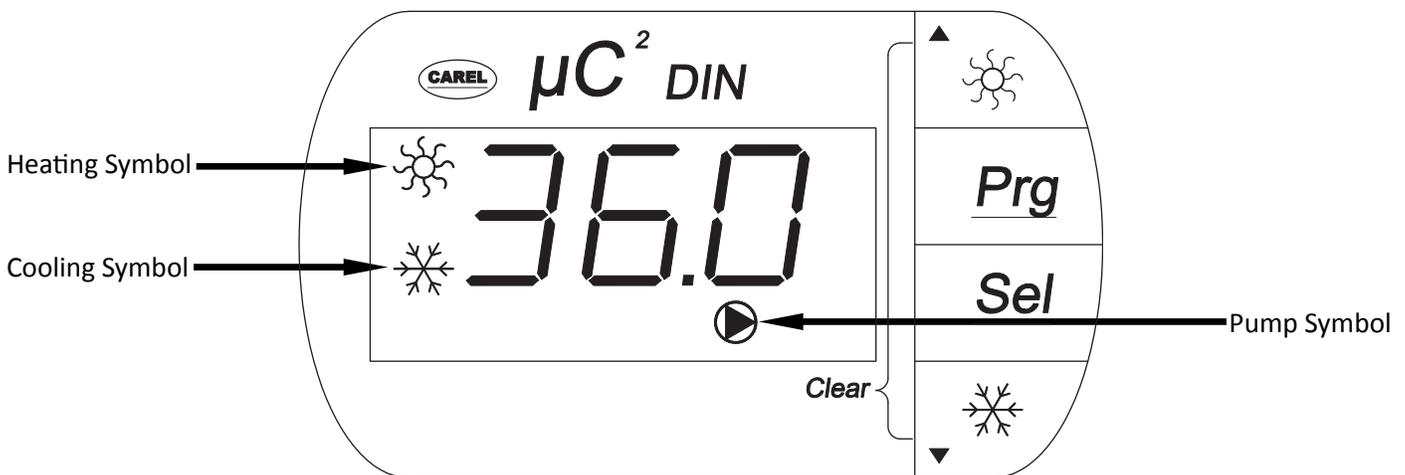
Control Logic:

The default configuration, and above description, assume the following.

- a. The thermostat and/or air handler energizes the O/B connection in cooling, and de-energizes it in heating.
- b. The chiller operates in cooling when circuit 7 & 8 (or 11 & 12) is open, and heating when circuit 7 & 8 (or 11 & 12) is closed.

If either of these conditions is not true, causing the chiller to function opposite to the description above, the operation of the interface module can be reversed by simply relocating wire 7 (or 11), at the right-most relay, from the NC terminal to the NO terminal.

Figure 2 Chiller display



Section 3: OPERATION (continued)

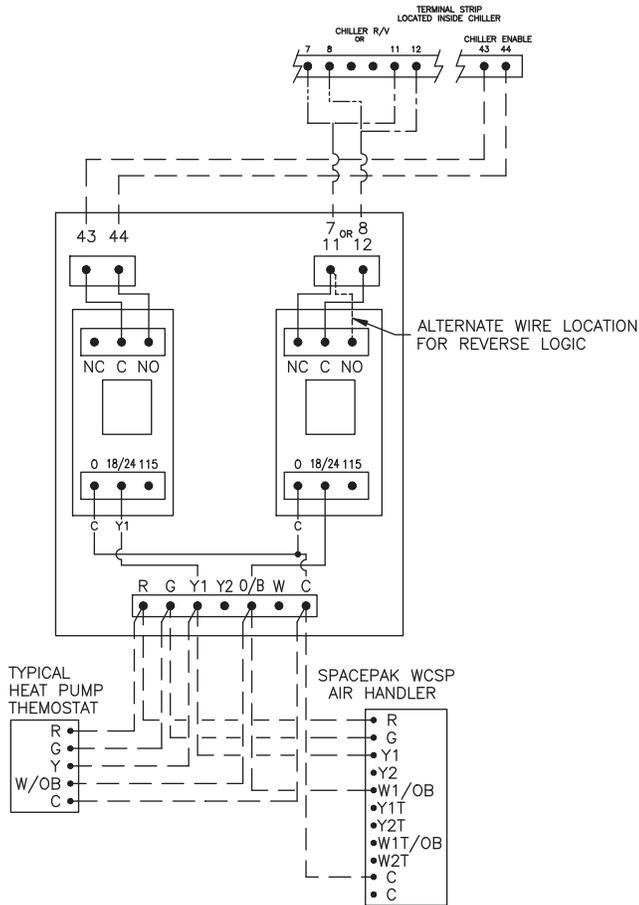
Troubleshooting:

Condition	Possible cause	Solution
Chiller does not respond to call for conditioning.	Voltage not supplied to interface module.	24VDC power is supplied by air handler. Be sure that air handler is powered.
	Time delay has not elapsed	Verify that the thermostat or air handler delay has timed out and voltage is being supplied to the interface module.
	Disconnected or broken wire.	Physically inspect the condition of the wires between the thermostat, air handler and the interface module, and between the interface module and the chiller.
	No power to the chiller	Ensure the chiller always has 230VAC power connected, display must remain active at all times.
Chiller operates in cooling when called upon for heating, or heating when called upon for cooling.	Logic is reversed at one component.	Relocate wire 7 as described in Control Logic paragraph above.

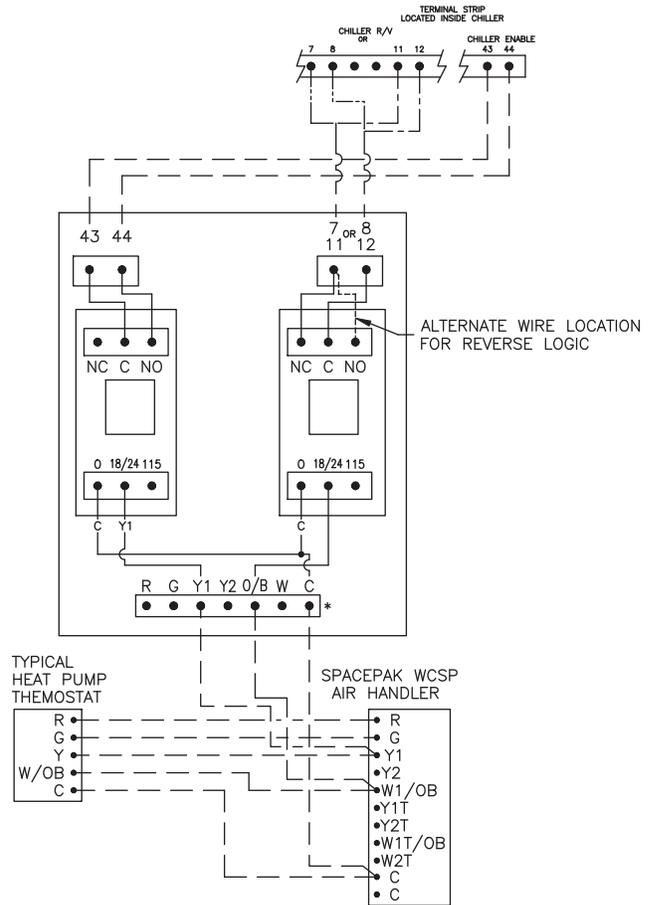
Section 3: OPERATION (continued)

Electrical Diagram

Connection using interface module as a Junction Point



Connection using air handler as junction point



*NOTE: IF THERMOSTAT IS WIRED DIRECTLY TO THE AIR HANDLER ONLY Y, O/B AND C CONNECTIONS NEED TO BE MADE TO THE INTERFACE MODULE



