

X-Line Series

Six easy steps to install a Copeland Scroll outdoor refrigeration unit

The Copeland Scroll Outdoor Refrigeration Unit, X-Line Series is built for medium- and low-temperature, walk-in coolers, freezers and display cases commonly found in convenience stores and restaurants. Utilizing scroll compressor technology, variable speed fan motor control, large capacity condenser coils, enhanced vapor injection (in low-temperature models only) and advanced electronic controls, the X-Line meets today's challenging small-format refrigeration requirements. See below for six easy steps to install an X-Line:

1. Remove the old condensing unit and mount the new X-Line condensing unit.
 - Refer to section 3 to 3.1.1 for mounting and spacing requirements in AE5-1412.
2. Install the suction and liquid lines to the available service valves mounted on the side of the X-Line unit.
 - Follow ASHRAE guidelines for proper performance and oil flow.
 - Check for leaks and start pulling the unit into a vacuum.
3. Wire the unit.
 - The unit name plate shows the MCA rating and maximum over current protection requirements for the unit.
 - Refer to Section 3.2 of AE5-1412 to understand the easy-to-use wire connection.

4. Review evaporator connection considerations.

- Refer to Section 3.3 in AE5-1412 for evaporator connection options.

5. Charge the unit with refrigerant.

- Table #3 in AE5-1412 shows the 90% receiver capacity for all the approved refrigerants.

6. Start the unit.

- The unit will be pre-programmed for R-404A but will run with any of the approved refrigerants. To optimize the unit's performance, follow the Quick Start Guide (Appendix D in AE5-1412) to set the real-time clock, refrigerant type, pressure control set points, and defrost parameters.
- Verify the superheat and subcooling once the unit has stabilized.

For more detailed information, including access to video instructions, please review the complete Application Engineering Bulletin (AE5-1412). The wiring diagram and quick start guide are located on the inside of the unit's door panel.

*All work must be completed by a trained and qualified refrigeration technician.

Evaporator Integration

Evaporator Connections & Considerations

- The X-Line unit can connect with any electric defrost or air defrost evaporator.
- Most evaporators will connect to the X-Line unit using the typical wiring of any other unit.
- Some newer evaporators with built-in electronic controls may require some adjustments to parameter settings to avoid conflicts or false alarms.
- Evaporators with stand-alone power and controls do not need any connection to the X-Line unit. The unit will cycle based on suction pressure cut-in/cut-out.

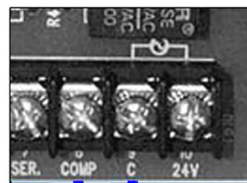
Beacon Evaporators

Evaporators from Heatcraft (Bohn, Larkin, Chandler, Climate Control) with the Beacon system will require a load wired to the compressor terminals to avoid nuisance alarms. The control requires a 2000-ohm resistance between the COMP and C terminals.

This can be achieved by either using a jumper wire with a 2000-ohm resistor OR by connecting a relay or contactor with a 24v coil.



Beacon II Control Board



Connect "C" and "COMP" to 24V Relay Coil or jumper with 2000 ohm resistor

Evaporators with Heatcraft QRC, Beacon II or Intelligen and built-in defrost controls

Evaporators with the Heatcraft QRC (or any other evaporator with a non-adjustable built-in time delay function) will require a time delay adjustment on the X-Line unit to avoid conflicts. Parameter 2oF in the advanced settings menu should be adjusted to 20 seconds or less.

- **Set parameter 2oF to a time less than the delay setting in the evaporator. See section 3.3.1 in AE 5-1412.**
- If the unit has a built-in demand defrost. The defrost control on the X-Line unit should be disabled.
- **Set parameter EdF to nU.**

Time delay adjustment: <http://bit.ly/2TTxiCA>

Evaporators with electronic expansion valves (EXV)

If the evaporator has an electronic expansion valve and control, additional energy savings are possible by adjusting the minimum condensing temperature (Parameter MCS) of the X-Line unit. (See below for further details on low condensing operation.)

Low Condensing Operation

The unit is factory set with a default minimum condensing value of 70°F (80°F for XFAL). To fully utilize low condensing options below 70°F condensing, an electronic expansion valve (EXV) is normally required to handle the larger variation in mass flows. If a system EXV is installed, the minimum condensing value can be lowered by changing parameter **MCS** in the advanced options menu. The system will monitor operating conditions and automatically adjust the minimum condensing value if the compressor operating envelope would be exceeded.