Advansor Flex One CO_2 Condensing Unit

Quick Start-Up Guide

Advansor Flex One CO_2 Condensing Unit

FOR CONDENSING UNIT HANDLING AND INSTALLATION OPERATIONS, CAREFULLY READ THE MANUAL.

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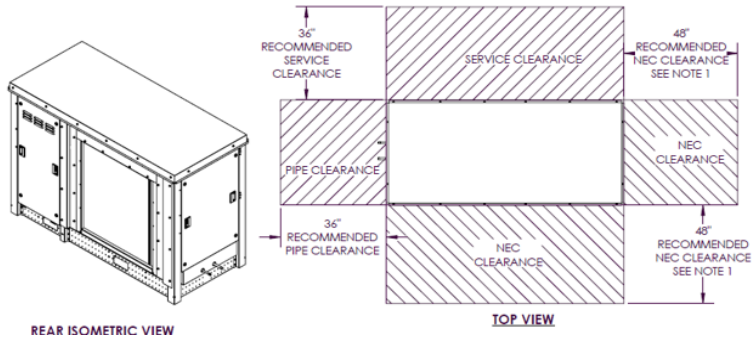
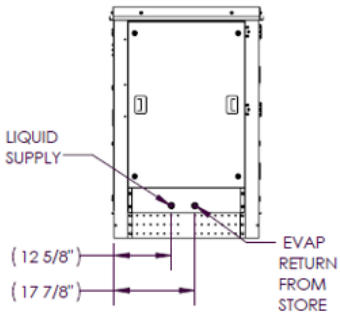
Installation





⚠ CAUTION

The nominal diameters of the refrigerant lines (suction line and liquid line) shown in the refrigeration diagrams are calculated for a MAXIMUM LENGTH of 98 ft (30 m).

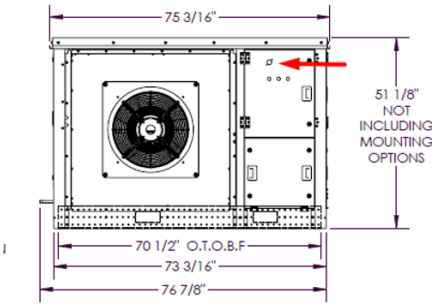
Design Pressure Line Components

Line	CDU Design Pressure	CDU Relief Valve Set
Liquid Line	90 bar (1305 psig)	90 bar (1305 psig)
Suction Line	90 bar (1305 psig)	90 bar (1305 psig)
Gas Cooler MT/IT Discharge	130 bar (1886 psig)	130 bar (1886 psig)

Note: If evaporator or lines are connected with ratings less than 90 bar (1305 psig), additional safety devices are required.

Please refer to the full manual for instructions on how to connect evaporators or lines that are not rated for at least 90 bar (1305 psig).

Pressure Test



⚠ CAUTION

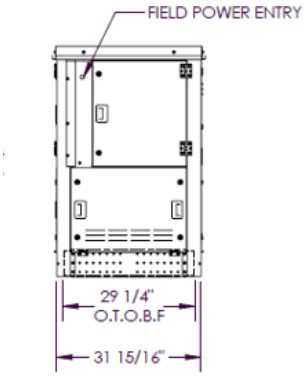
Strength and tightness test must be performed according to the regulations in the country of installation.

Pressure test must use inert gas, such as nitrogen, for all piping and connections used in the install site.

Isolate the condensing unit by closing suction and liquid ball valves so that only the suction line, liquid line, and evaporator(s) are tested.

To avoid damaging the components, do not exceed the pressure test value of **1.1 * PS**, where PS is the design pressure of the specific circuit.

Power Supply Connection



Connect main power cable to the unit by utilizing the power entry knockout. Ensure the power cable is properly landed and torqued to the main disconnect.

Make sure to follow the electrical diagram supplied with the unit.

⚠ CAUTION

Power connections must be performed and meet the codes and regulations of the country/state/county/city of the installation.

Network Connections

If using the wireless access point, please follow the instructions that are provided with the access point.

Ethernet connection is the default way to connect the main controller to the installation site system or a local laptop.

ETH1 is designed to be used for directly connecting to a laptop, PC, or optional touchscreen with a CAT5 network cable.

The default IP for ETH1 is 192.168.1.250

For detailed instructions on how to connect a laptop IP address properly, please refer to the Copeland Site Supervisor: Quick Startup Guide.

Preparation for Start-Up

Ensure that the compressor switch on the panel is in the OFF position.

Ensure that both the compressor and gas cooler breaker are in the OFF position.

Set the transformer breaker to the ON position.

Close the door and turn the disconnect to the ON position to energize the unit.

Controller Display

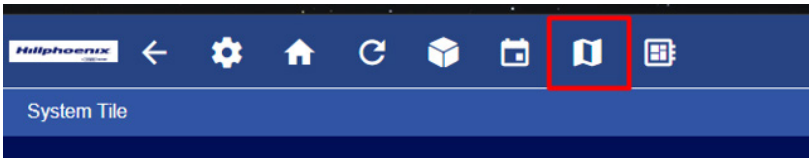
Once the laptop is connected and the IP is configured, launch your preferred web browser.

Enter the IP Address of the device (the default IP for ETH1 is 192.168.1.250).

Enter your username/password (default is user/supervisor) and login. Make sure to update your password to meet the minimum complexity requirements and save.

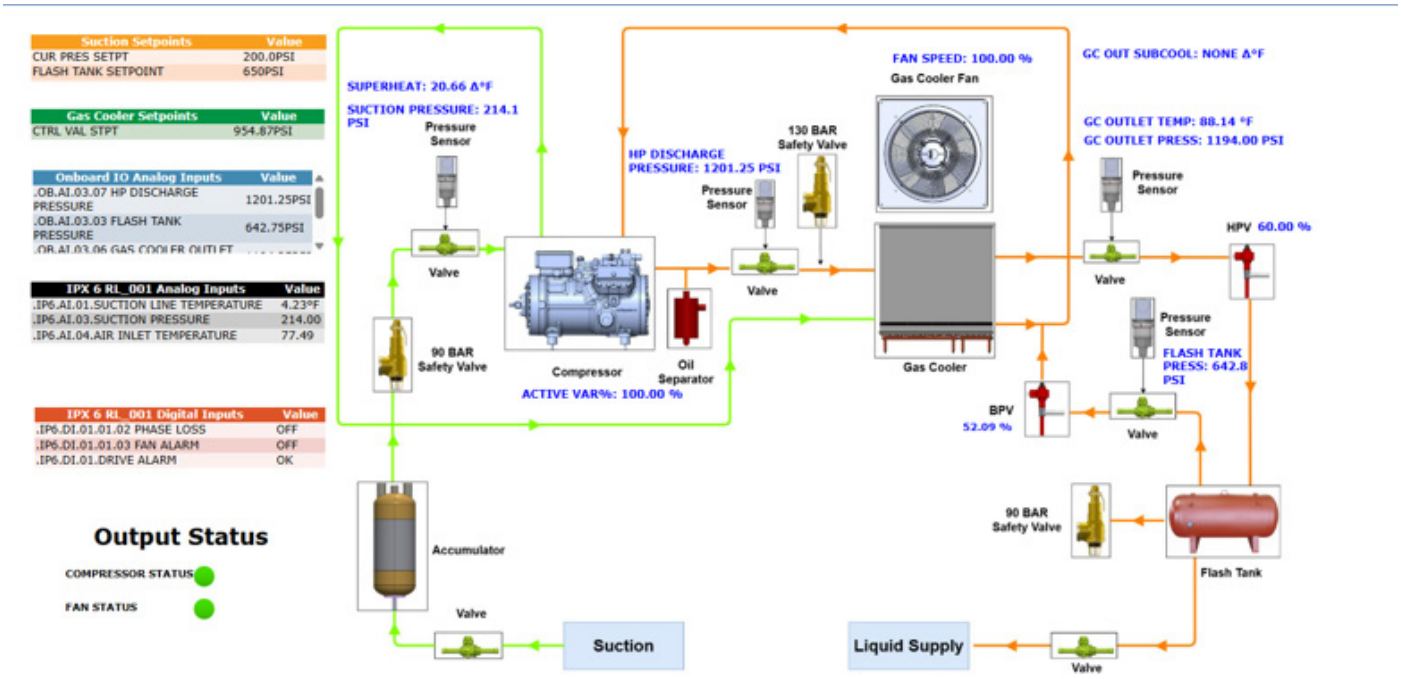
Controller Functionality

The default screen will show you tiles that display all of the system parts. Details can be expanded per specific application, like Refrigeration in the image below on the left.



If you are using a laptop, the layout screen option highlighted above on the right shows all parts of the system.

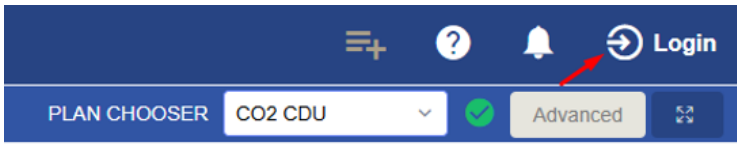
Each component on the layout screen, shown below, can be viewed in detail or placed into override by right-clicking on the desired device.



Suction Setpoint and Shutdown Control

Per the store legends, set the suction setpoint control in the controller by doing the following steps:

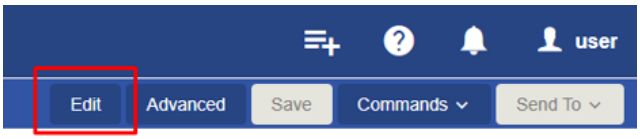
1. Ensure you are logged in as a technician using the default username and password (default is user/supervisor).



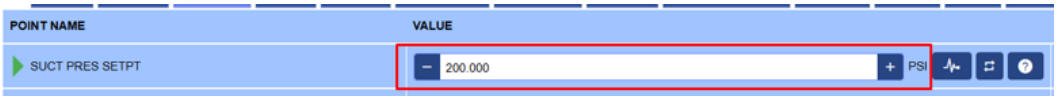
2. Select the **CO2 Suction Group**.

3. Select setpoints.

4. Enter edit mode.



5. Enter your suction setpoint.



For systems that require notification of shutdown/failure, connect them to the following points:

1. Board N1 - Relay 3
2. The ouput turns ON whenever a CO2 Suction Group shuts down due to failure, such as proof failures on compressor, a high discharge shutdown, etc. The output is typically used in a case control system to inform them of system failure. However, the output is not triggered by a pumpdown.

Evacuation and Vacuum

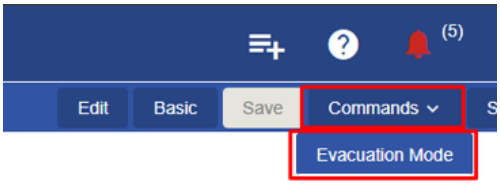
Once the pressure test is completed, release the internal pressure and ensure all system valves are in the normal position for system operation.

To ensure that we pull vacuum on entire unit and pre-charge the entire unit, the controller needs to be placed in evacuation mode. Evacuation mode allows all parts of the system to be evacuated without any sections being trapped. Once a holding charge has been introduced, or the command to cancel has been sent, all valves will reset to their default positions.

Evacuation and Vacuum (cont.)

1. Ensure you are logged in as a technician using the default username and password (default is user/supervisor).
2. Select the **CO2 Valve Controller** application.

3. Select **Commands - Evacuation Mode**



The unit must be vacuumed to at least 500 microns. For at least 2 hours, the unit must maintain 500 microns or less to proceed. If the level exceeds this, pull the vacuum again and restart the time.

Please refer to the manual for detailed instructions on the recommended triple evacuation.

⚠ CAUTION

Before proceeding with the vacuum phase, check that all the valves on the machine and on the system are open.

⚠ CAUTION

The vacuum phase can take place when the machine is not electrically powered.

⚠ CAUTION

Do NOT start the compressors in vacuum conditions and without refrigerant in order to avoid irreparable damage.

Oil Charge

Verify oil alarm for each compressor is active when no oil is present in the compressors.

Close the ball valve after the oil separator and close the compressor suction valve and discharge service valve.

Using the access port after the oil separator, if needed, lower the pressure of the oil line and compressor.

Ensure that the compressor circuit breaker is OFF and the electronic oil controller is ON. If the oil controller goes into failure, cycle control breaker power to begin filling again. Pump oil into the compressor oil line, using the access valve between the compressor and oil filter/drier.

Watch the oil level controller on the compressor and continue filling the compressor with oil until the compressor's oil level is satisfied.

Refer to the manual for recommended oil charges.

Refrigerant Pre-Charge

⚠ CAUTION

The evaporators must be activated. Activate the evaporators gradually and one at a time if multiple users are present.

⚠ CAUTION

Measure and mark down the refrigerant charge.

The refrigerant used must be only carbon dioxide (CO_2) R-744.

Hillphoenix recommends using Instrument (99.99% purity) CO_2 which contains less than 0.01% non-condensable gases and moisture.

Charge vapor only until all parts of the system read 150 psi.

Unit Ready - Power

Turn off the disconnect and open the control panel door.

Ensure that both the compressor and the gas cooler breaker are in the ON position.

Set the transformer breaker to the ON position.

Close the door and turn the disconnect to the ON position to energize the unit.

Ensure that the compressor switch on the panel is in the ON position.

Ensure that all controls are in the automatic position (not in override).

Unit Ready - System Check

Ensure that the gas cooler fan operates correctly by putting the fan in override at the following percentages (25%, 50%, 75%, 100%). The fan should pull air across the coil.

Ensure that the HPV and FGBV are operational by placing them in override and ensure that they move accordingly.

Ensure once again, that all valves are in the normal position for operation according to the mechanical diagrams.

Ensure that the oil level in the compressor is in the green status light.

Confirm there are no unexpected alarms present in the system controller and that all pressures read appropriately.

Refrigerant Charge

⚠ CAUTION

The evaporators must be activated. Activate the evaporators gradually and one at a time if multiple users are present.

⚠ CAUTION

Measure and mark down the refrigerant charge.

Using the liquid line ball valve, begin to charge liquid refrigerant. Charge until the level of liquid in the receiver reaches halfway up the first sight glass. Maintain this level of liquid until the system is fully operational.

⚠ CAUTION

Do not overcharge the system. Refer to the manual for maximum charge limitations.

System Running and Operation

As you charge liquid, the pressures in the system will rise and trigger the valves and the compressor to activate.

Monitor the system pressures and slowly bring the evaporators on one at a time.

Important Note: This guide serves as a reference document only. The "Advansor Flex One Installation, Start-Up, and Operating Manual" must be thoroughly read for detailed instructions on the unit.