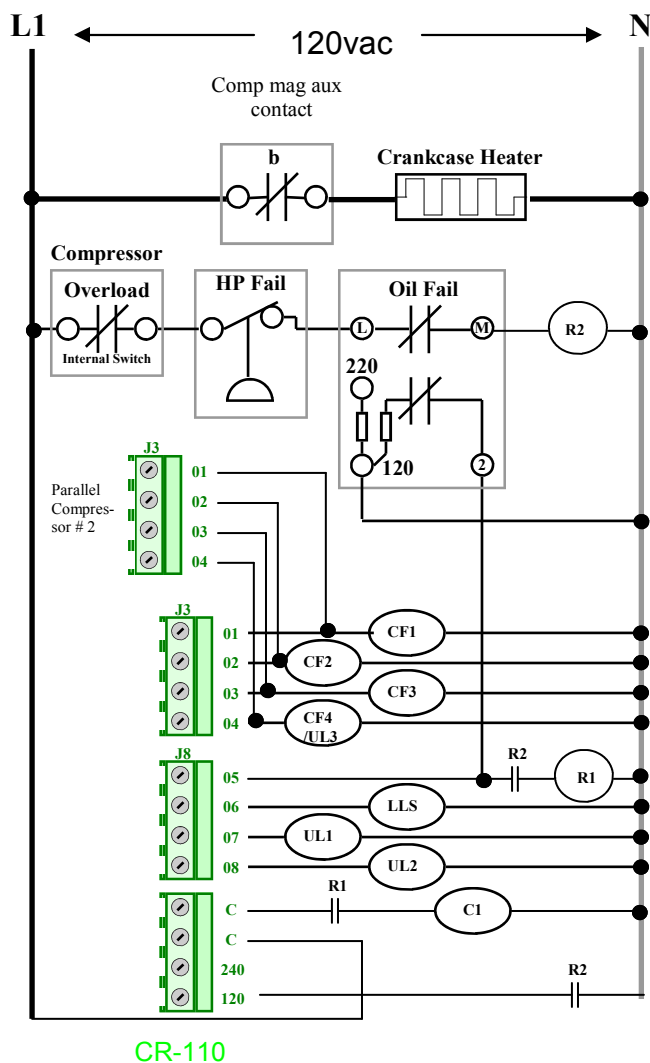


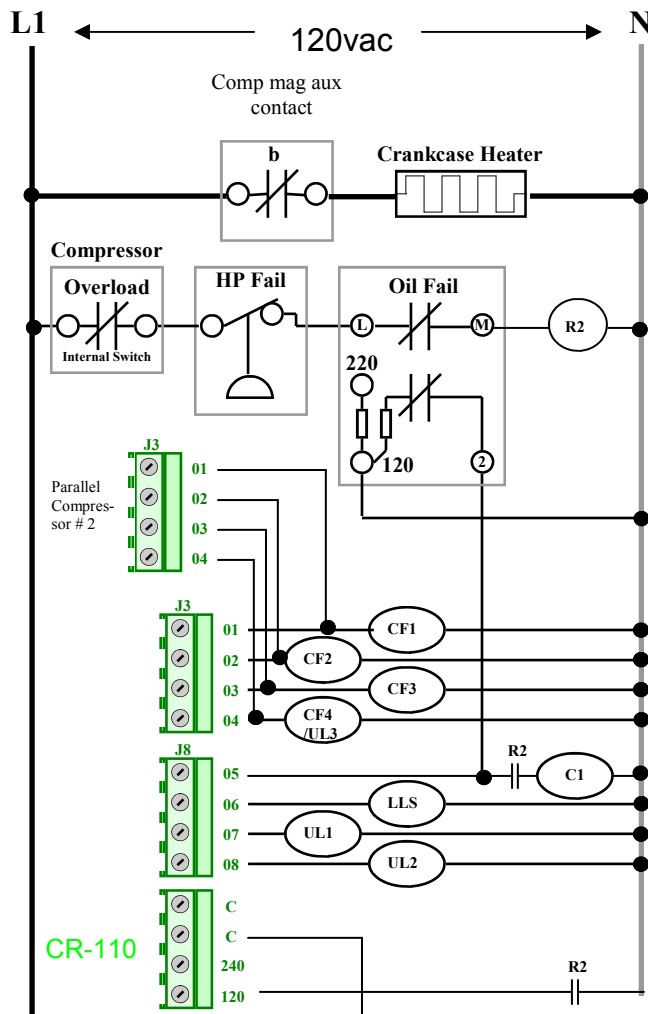
**Basic Refrigeration & Parallel compressors
APP- 015**

This application Note will describe how to hook up and program CR-110 for Basic Refrigeration and using parallel compressors. This information is primarily for doing a retrofit in the field. If the compressor is over 30hp it is recommended to use a relay to drive the compressor mag. The inrush current on the larger contactors can be enough to cause the on board fuse to blow. This example will show the additional relay. A lot of compressor may share condenser fans. This example will also show how to hook up two CR-110 cards for parallel condenser fans.



This is a basic wiring diagram for Basic Refrigeration using Parallel compressors and Parallel condenser fans. Relay R1 is used just if the compressor is over 30hp. Relay R2 is a isolation relay that is needed if you are paralleling condenser fans for two CR-110 cards.

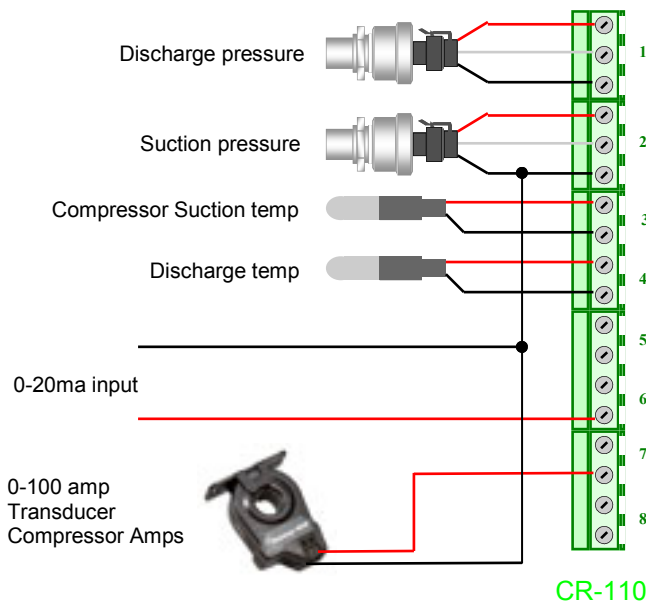
CF1	-	Condenser Fan 1 mag.
CF2	-	Condenser Fan 2 mag.
CF3	-	Condenser Fan 3 mag.
CF4	-	Condenser Fan 4 mag.
C1	-	Compressor mag
LLS	-	Liquid line solenoid
UL1	-	Un-loader # 1
UL2	-	Un-loader # 2
UL3	-	Un-loader # 3
R1	-	Compressor Aux Relay
R2	-	Parallel Isolation Relay



This wiring diagram is shown with out the compressor aux relay R1. R2 is used to isolate the safety's when paralleling condenser fans from a 2nd CR-110 card.

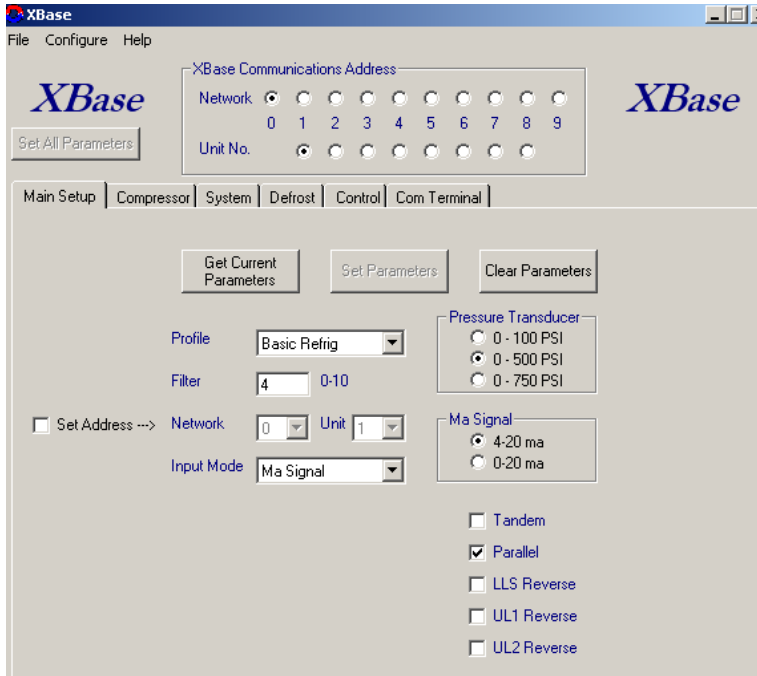
CF1	-	Condenser Fan 1 mag.
CF2	-	Condenser Fan 2 mag.
CF3	-	Condenser Fan 3 mag.
CF4	-	Condenser Fan 4 mag.
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UL2	-	Un-loader # 2
UL3	-	Un-loader # 3
R1	-	Compressor Aux Relay
R2	-	Parallel Isolation Relay

Sensor Wiring



The discharge pressure transducer is always 0-500 psi. The suction pressure transducer works best with a 0-100 psi, but a 0-500 psi could also be used.

On the Main Setup, select the type of suction transducer you are using.



Under the Pressure Transducer select either 0-100 or 0-500 depending the type of suction transducer you are using.

Select the type of Ma signal, XT panels use a 0-20ma, where a Galaxy panel uses a 4-20ma signal

The Parallel compressor box needs to be checked on both CR-110 compressors. When this box is checked, only the lead compressor will pump down.



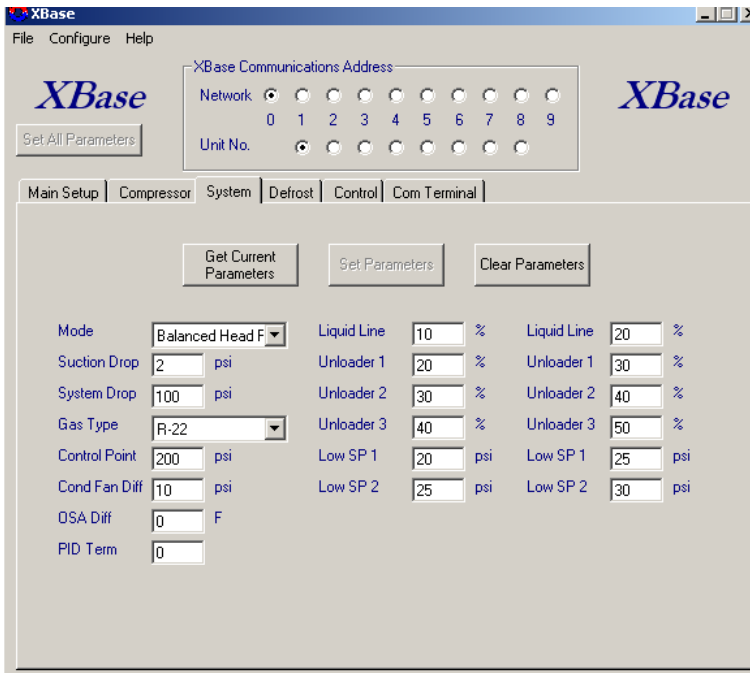
The Low Operator setting should be adjusted for the application.

Short Cycle Timer can be set to desired time. A short time of 10 s is handy for testing.

The Rotation is shut off by setting it to 0. Compressor rotation will work fine on the parallel compressors.

The number of Compressors must be set the total number of compressors. This will activate the passing of the input signal to each of the cards via the comp RS-485 port.

The alarms can be set to the desired setting, a 0 in the timers will disable the

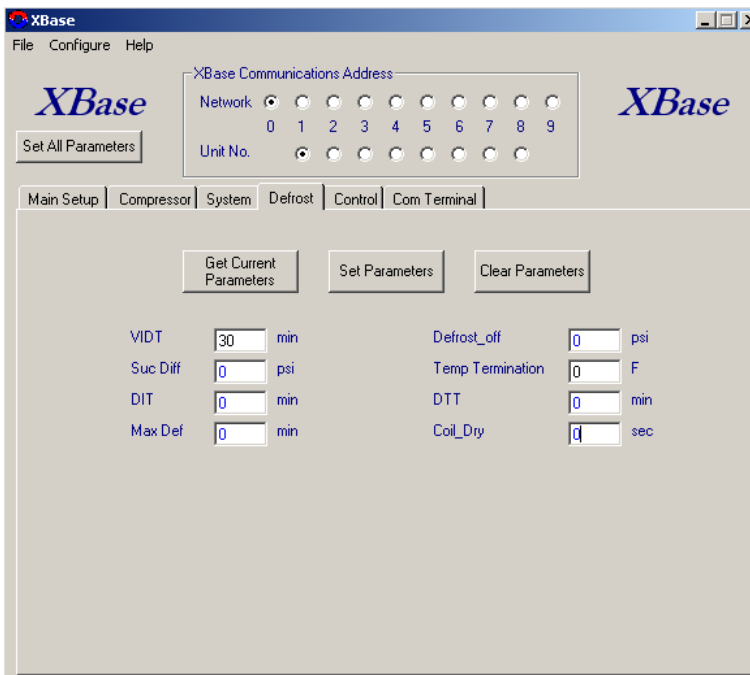


The minimum head pressure is the System Drop + Suction pressure. If the head pressure is running to low, you can adjust the System Drop.

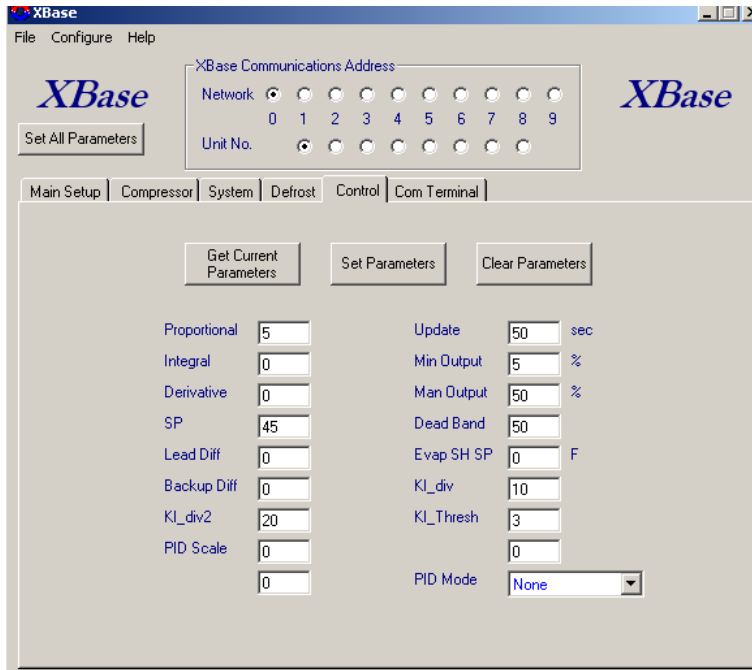
The LLS and Unloaders should be set for a span of 50% with 2 compressors.

Adjust the Unload Low Suction Override according to the desired setpoint.

If the condenser fans seem to cycle, you may want to increase the Cond Fan Diff setting.



No Defrost parameters are used in this application.



The main parameter on this page is the Dead Band setting. For a 2 compressor system this should be set to 50%. This sets up the 0-100% signal coming from the panel. If you had 4 compressors the setting would be 25%.