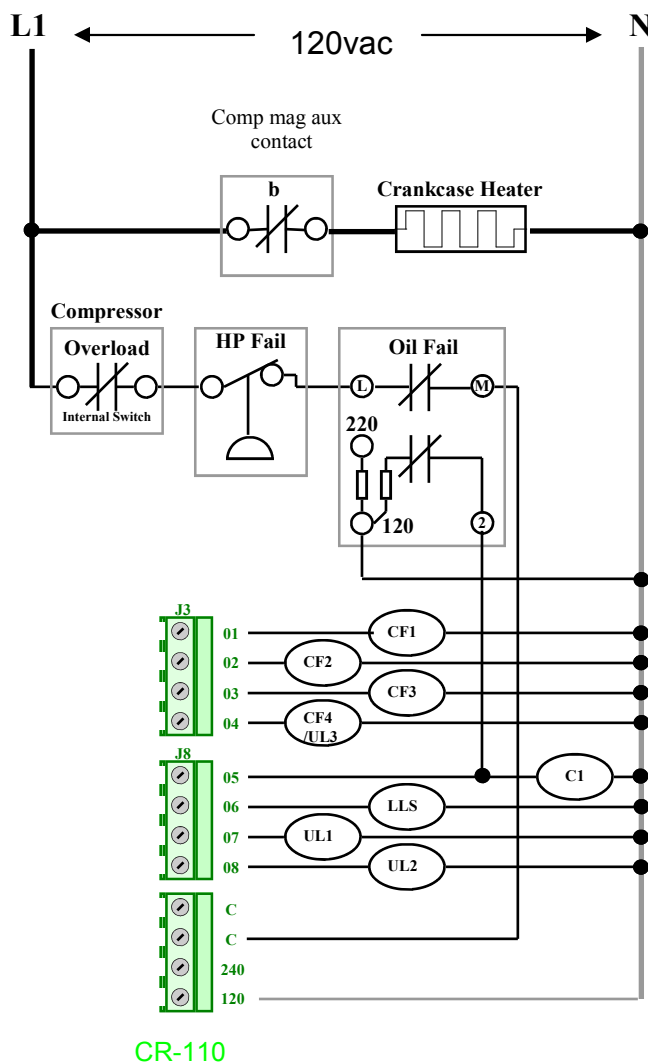


**Basic Refrigeration & Air Defrost Application Note  
APP- 014**

This application Note will describe how to hook up and program CR-110 for Basic Refrigeration and Air Defrost Profiles. This information is primarily for doing a retrofit in the field. A new feature has been added that allows the use of a third unloader. Output 4 can now be either condenser fan 4 output or unloader 3 output. If you specify the number of unloaders less than 3 then the output 4 is the condenser fan. Setting the number of unloaders to 3 will activate the output 4 as unloader 3.

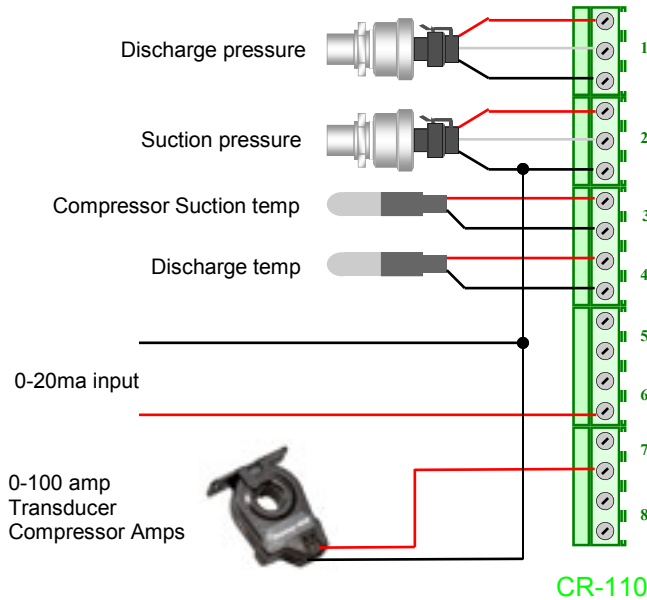
Cold Weather start is another new feature. The Low\_ambient setting if set to zero will disable this feature. This is a timer in seconds, and will start the compressor when the liquid line is opened, and keep the compressor running for the programmed time in seconds.



This is a basic wiring diagram for the two profiles Basic Refrigeration and Air Defrost. If the compressor mag is greater than 40hp, a 120vac relay should be used to pull in the mag. All other outputs can be wired direct.

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

### 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.

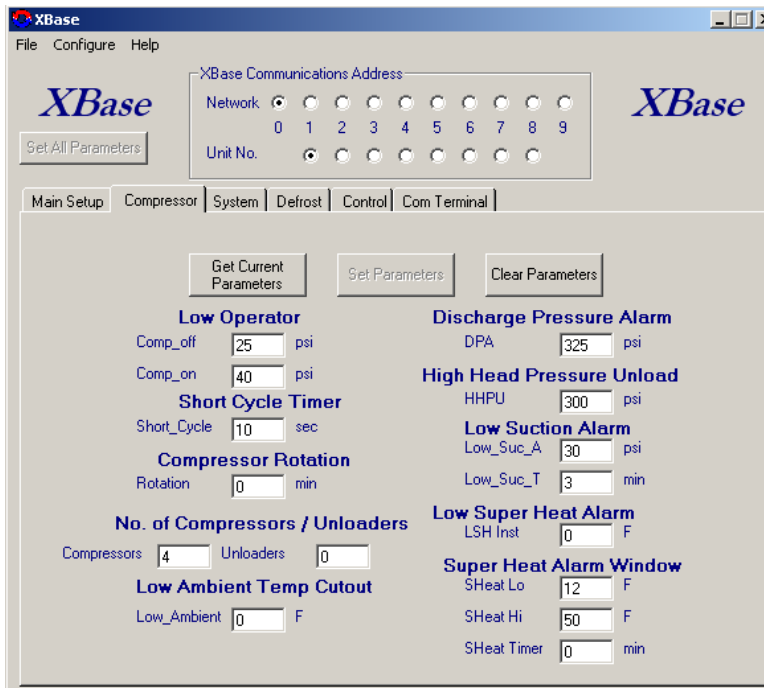
On the Main Setup, select the type of suction transducer you are using.



Under the profile drop down select either Air Defrost or Basic Refrigeration.

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.



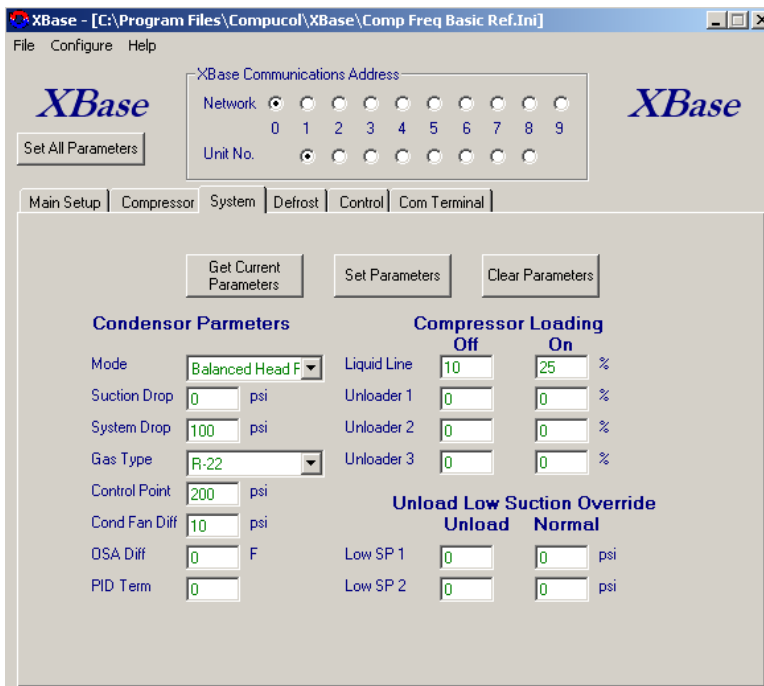
The Low Operator setting should be adjusted for the application.

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.

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 alarm.



On C1 there are no unloaders, so we set the LLS only.

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

System Drop setting can be adjust for the minimum discharge pressure that the head will float to. Minimum head pressure setting is equal to System Drop + Suction pressure.