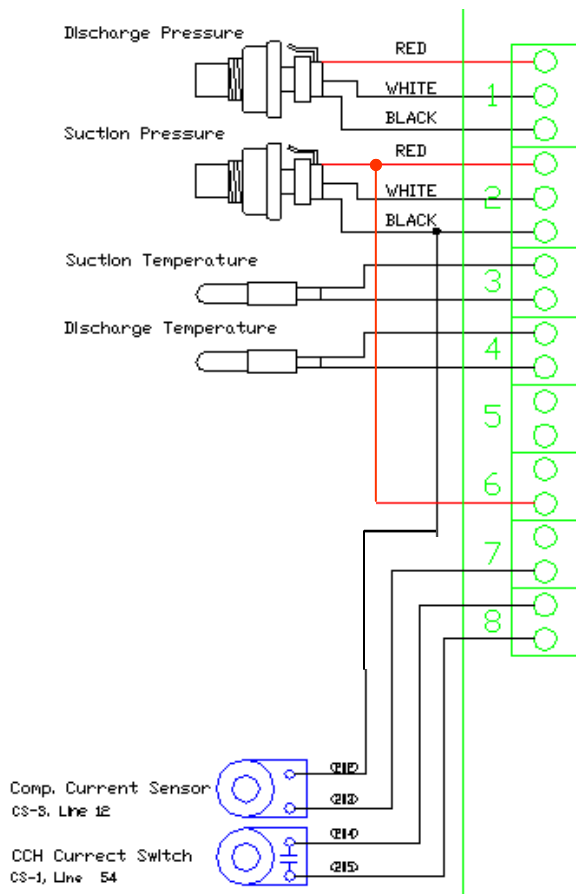


**Screw Compressor Rack
APP- 045**

Application:

This application note will cover the use of a screw compressor with multiple unit coolers each being controlled with a individual liquid line solenoid and thermostat. The screw compressor will start when the suction pressure rises above the turn on point. It will then control the suction pressure to the suction setpoint. If the suction pressure drops below the turn off point the compressor will shut down and go into a standby mode. The suction setpoint needs to be set for the lowest suction pressure needed.

Inputs:



The pressure sensors and temperature sensors are located right next to the compressor.

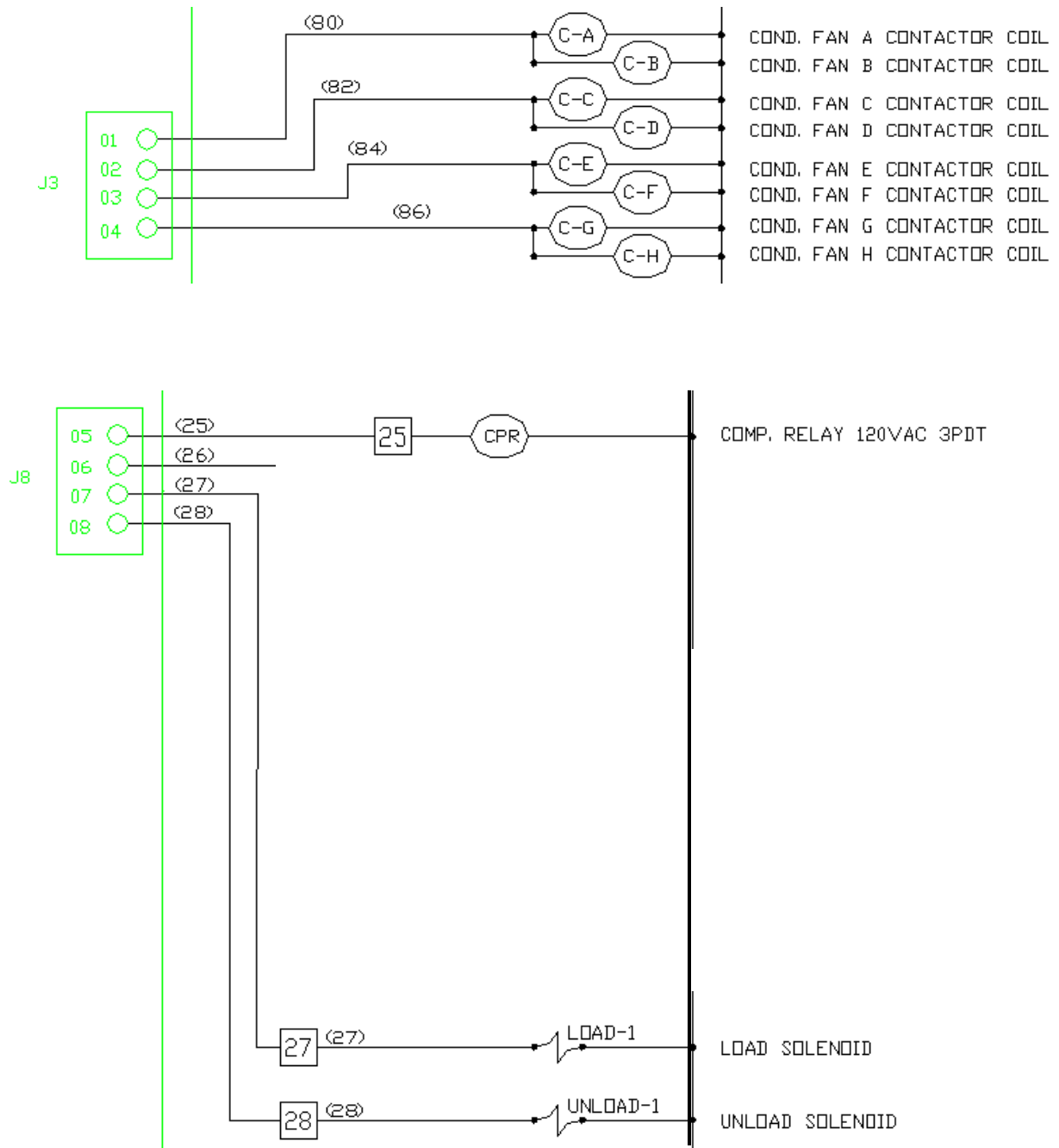
Ch 5 is not used at this point.

Ch 6 is jumped to +5vdc and will show 100% refrigeration demand.

Ch 7 is a 0-5vdc current transducer. The transducer has a switch for selecting different ranges. Make sure that the CR-110 is programmed for the correct setting.

Ch 8 is a current switch that provides a dry contact when the Crank Case heater is on.

Outputs:



Setup:

Network	51	Setpoint	10	F
Profile	Basic Screw	Short Cycle	10	sec
Input Mode	Ma Signal	Comp OFF	25	psi
Signal	0-20ma	Comp ON	55	psi
Gas Type	R-22	Rotation	0	min
Condenser	Fixed Head Press	# of Comp's	1	
PID Mode	Screw FSP	Max Horsepower	17.5	hp
Transducer	500 psi single	Min Horsepower	8.7	hp

Profile is Basic Screw. PID mode is Screw FSP (Floating Suction Setpoint). These are the main setup parameters. The max and min horsepower is not used. Setpoint is for temperature and not used. The Suction setpoint is under the Screw Compressor Tab. The Comp OFF and Comp ON parameters will determine when the compressor starts and runs in Refrig and when it will shut off and go to standby.

The Recip Compressor tab is not used. All compressor parameters are under the Screw Compressor tab.

LLS OFF	5	%	LLS ON	110	%
Span L	20	%	Span U	100	%
Oil Pressure	70	%	Oil Pressure Timer	0	%
Pulse Width	5	.1sec	Off Time	10	.1sec
Dis Temp Unload	200	F			
Dis Press Unload	300	psi			
RLA Limit	100	amps			
Suc SP	55	psi	Suc Span	0	psi

The LLS ON should be set for 110. The LLS is not used and needs to be set above 100%.

To trigger the rack configuration the Suc Span needs to be set to zero. This will allow the Suc SP to have no offset.

Set the Suc SP to the desired suction pressure.

Setup:

Main Setup	Recip Compressor	Screw Compressor	Control	Alarms	Defrost	Com Terminal
<div style="display: flex; justify-content: space-around;"> Get Tab Data Program Tab Updates Clear Tab Data </div>						
Cond Fan SP	<input type="text" value="200"/>	psi	Output Offset	<input type="text" value="0"/>	%	
Cond Fan Diff	<input type="text" value="10"/>	psi	Amps	<input type="text" value="1"/>	amps	
System Drop	<input type="text" value="100"/>	psi	Evap SH SP	<input type="text" value="26"/>	F	
Filter	<input type="text" value="4"/>		EV HI Limit	<input type="text" value="50"/>	F	
Proportional	<input type="text" value="10"/>		EV Lo Limit	<input type="text" value="10"/>	F	
Integral	<input type="text" value="5"/>		EV Update	<input type="text" value="5"/>	min	
Derivative	<input type="text" value="0"/>		Comp SH H	<input type="text" value="25"/>	F	
Update	<input type="text" value="50"/>	.01 sec	Comp SH L	<input type="text" value="15"/>	F	
Min Output	<input type="text" value="0"/>	%	SH Safety	<input type="text" value="0"/>	F	
Man Output	<input type="text" value="0"/>	%				

The PID & U parameters will control the Suction pressure to the Suction Setpoint. All other parameters should be roughly as shown.

Main Setup	Recip Compressor	Screw Compressor	Control	Alarms	Defrost	Com Terminal
<div style="display: flex; justify-content: space-around;"> Get Tab Data Program Tab Updates Clear Tab Data </div>						
Discharge Press A	<input type="text" value="325"/>	psi				
Dis High Temp	<input type="text" value="212"/>	F				
Low Suc A	<input type="text" value="10"/>	psi				
Low Suc T	<input type="text" value="5"/>	min				
Super Heat HI	<input type="text" value="50"/>	F				
Super Heat LO	<input type="text" value="12"/>	F				
Super Heat T	<input type="text" value="0"/>	min				
RLA Alarm	<input type="text" value="0"/>	amps				
RLA Time	<input type="text" value="0"/>	sec				

Adjust the alarm parameters as needed.