BTU Ventilation

CRX Refrigeration

www.btuvent.com

CRX Refrigeration Control Panel

User's Manual

Manual CRX-Refrig 002.3

FORWARD

The new CRX Control Panel from BTU Ventilation is built from the ground up for the 21st century farm manager. Simplicity of operation, combined with sophisticated controls make this.

STANDARD FEATURES:

- Two Pressure and four Temperature inputs
- Back lighted 2x16 local display
- 5 button keyboard
- 8 Relay outputs
- 5 Aux Relay outputs
- 5 Digital Inputs
- Two 0-20ma Outputs
- 8 Auto, Manual, Off Switches

OPTIONAL FEATURES:

- Color TPC touch screen interface for up to 10 CRX Controllers.
- TPC touch screen gateway to internet for remote control and polling of data.
- Full internet web interface for 10 Controllers using one RGX embedded web server.
- RGX provides detailed records for up to 10 CRX panels, using web interface. Direct download into Excel Spreadsheet.
- RGX provides e-mail and text messaging for up to 10 CRX panels.
- SDX multiple fresh air door controller

CRX Sensors: The CRX Refrigeration Card can accept a number of different input sensors and has 13 one amp outputs. In addition, there are two analog outputs that are 0-20mA or 0-10VDC.

Analog Inputs:

- Dis Pressure psi .5-4.5vdc
- Suc Pressure psi .5-4.5vdc
- Suc Temp F 2250 ohm
- Dis Temp F 2250 ohm
- ma Input ma 0-20ma
- Comp Amps A 0-5vdc

Analog Outputs:

- VFD Comp 0-20mA / 0-10VDC
- VFD Cond Fan 0-20mA / 0-10VDC

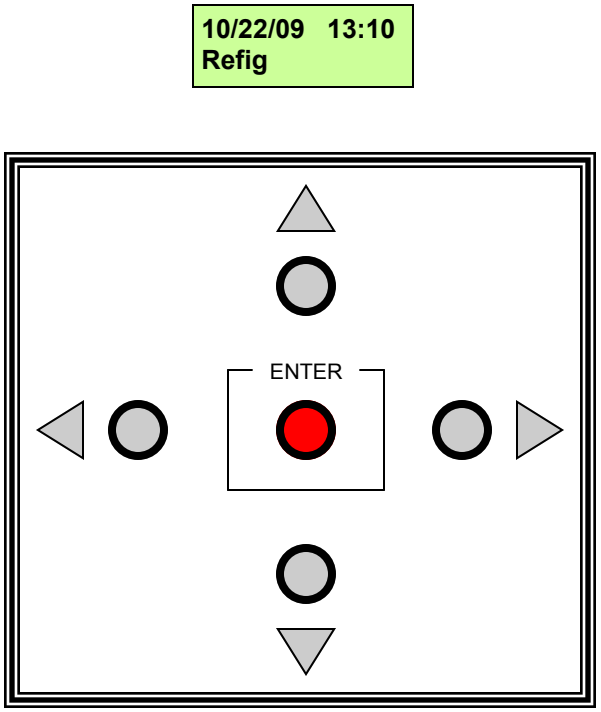
Digital Inputs:

- Fan proving Dry contact
- Crank Case Heat Dry contact
- External Alarm Dry contact
- Remote Standby Dry contact
- Start / Stop Dry contact

Digital Outputs:

- C Fan 1
- C Fan 2
- C Fan 3
- C Fan 4
- Compressor
- LLS
- Aux 1
- Aux 2
- Alarm

CRX Display & Keyboard

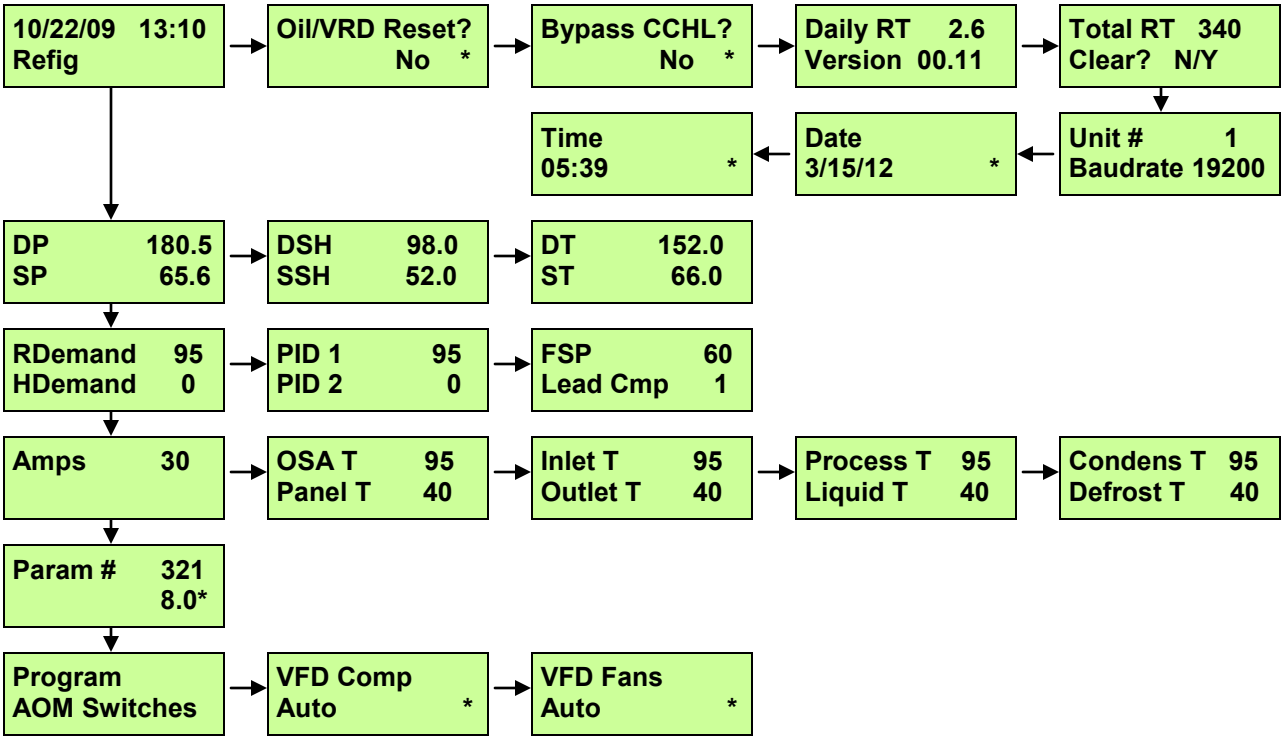


Use up and down arrows to navigate thru the main menu. The left and right keys are used to access additional parameters associated with the main menu.

Programmable parameters are followed with an *. On any of these parameters pressing the ENTER key will activate a cursor indicating program mode. Press the up and down arrows to change the parameter. Use the left and right keys to move the cursor on multiple program screens.

Press the ENTER button when done to save and escape from the program mode.

Display Sequence



Display Windows

10/22/09 13:10 **Refig LSPU**	Shows date, time and card mode of operation. No programmable values. The left side of the bottom line is the main mode and the right side is the secondary mode.
Oil/VFD Reset **No ***	**(Programmable Parameter)** Oil Pressure and VFD Reset. Press SELECT to Program. Use up and down to change No to Yes. Press ENTER to save.
Bypass CCHL **No ***	**(Programmable Parameter)** Crank Case Heater Lockout. Press SELECT to Program. Use up and down to change No to Yes. Press ENTER to save.
Daily RT 2.6 **Version 00.11**	Daily RT (system run time since noon) 2.6 hrs Version 00.11 software version 0.11
Total RT 340.0 **Clear? N/Y**	**(Programmable Parameter)** Total Run Time in hours for the year. Clear once a year. Choose Yes to clear time.
Unit # 1 **Baudrate 19200**	Unit # is the panel number when used in a network with multiple panels. Each panel must have a unique number. The Baudrate is set for both communication ports.
Date **3/15/12 ***	**(Programmable Parameter)** Current Date. Press SELECT to Program. Use up and down to change and left and right to select digit. Press ENTER to save.
Time **05:39 ***	**(Programmable Parameter)** Current Time. Press SELECT to Program. Use up and down to change and left and right to select digit. Press ENTER to save. Time is 24hr format.
DP 180.5 **SP 65.0**	DP is the current Discharge Pressure in psi. SP is the current Suction Pressure in psi.
DSH 180.5 **SSH 30.0**	DSH is the current Discharge Super Heat in degrees F. SSH is the current Suction Super Heat in degrees F.
DT 180.5 **ST 30.0**	DT is the current Discharge Temperature in degrees F. ST is the current Suction Temperature in degrees F.
RDemand 90 **HDemand 0**	RDemand is the current Refrigeration demand from 0 to 100 %. HDemand is the current Heat Pump demand from 0 to 100%.
PID 1 65 **PID 2 100**	PID 1 is the current output percentage for J16 which is typically the Compressor VFD. PID 2 is the current output percentage for J17 which is typically the Condenser VFD.

Parameter Description

2.2

FSSP 60 **Lead Cmp 1**	FSSP is the current Floating Suction Setpoint. Lead Cmp is the current lead compressor number.
Amps 30	Amps is the current Compressor amps.
OSA T 95 **Panel T 40**	Outside Air Temperature Control Panel Temperature
Inlet T 95 **Outlet T 40**	Inlet Temperature Outlet Temperature
Process T 95 **Liquid T 40**	Process Temperature Liquid Temperature
Condens T 95 **Defrost T 40**	Condenser Air Temperature Defrostl Temperature
Param # 321 **8.0 ***	**(Programmable Parameter)** Parameter Number. The number is associated with a given parameter and the value is displayed below it. Use the left and right arrows to view the different parameters and the up and down arrow to view a different display. Press the SELECT button to program the parameter shown. Use the up and down arrows to change the value. Press the ENTER button so Save.
Program **AOM Switches**	Use the Right arrow to access the Compressor and Condenser Fan VFD's. The VFD's can be run in Auto, Off and Manual. In Manual the percentage can be entered for the desired speed.
VFD Comp **Auto ***	**(Programmable Parameter)** VFD variable frequency drive for the compressor. Press the SELECT button to program. Use the up and down arrows to change the value. Press the ENTER button to Save. If programming in Manual use the right arrow to select the manual percentage. Up and down arrows to change the manual percentage and press ENTER to Save.
VFD Fan **Auto ***	**(Programmable Parameter)** VFD variable frequency drive for the condenser fans. Press the SELECT button to program. Use the up and down arrows to change the value. Press the ENTER button to Save. If programming in Manual use the right arrow to select the manual percentage. Up and down arrows to change the manual percentage and press ENTER to Save.

MAIN MODES OF OPERATION

OFF	OFF
SD	SHUTDOWN
RSD	REMOTE SHUTDOWN
STB	STANDBY
Spare	
SC	SHORT CYCLE
RF	REFRIGERATION
Spare	
Spare	
Spare	
Spare	
HEAT	HEAT
SSHHA	SUCTION SUPER HEAT HI ALARM
SSHLA	SUCTION SUPER HEAT LO ALARM
HDPA	HIGH DISCHARGE PRESS ALARM
LSPA	LOW SUCTION PRESSURE ALARM
CCHA	CRANK CASE HEATER ALARM
CCHL	CRANK CASE HEATER LOCKOUT
HDTA	HIGH DISCHARGE TEMP ALARM
HAA	HIGH AMP ALARM
OPA	OIL PRESSURE ALARM
DPSA	DIS PRESS SENSOR ALARM
SPSA	SUC PRESS SENSOR ALARM
TSA	TEMP SENSOR ALARM
EXTA	EXTERNAL ALARM
FFA	FAN FAIL ALARM
PFA	PUMP FAIL ALARM
CPVFDA	COMP VFD ALARM
COVFDA	COND VFD ALARM
OPTA	OIL PRESS TRIP ALARM
OLA	OIL LEVEL ALARM
STSA	SUCTION TEMP SENSOR ALARM
DTSA	DISCH TEMP SENSOR ALARM
COVA	COMP OVERLOAD TRIP ALARM
PHMA	PHASE MONITOR ALARM
HPTA	HIGH PRESS TRIP ALARM
PMA	POWER MONITOR ALARM
PDTA	PUMPDOWN TIMER ALARM

SECONDARY MODES OF OPERATION

	NO SECONDARY
LSU	LOW SUCTION UNLOAD
HDPU	HIGH DISCHARGE PRESS UNLOAD
HDTU	HIGH DISCHARGE TEMP UNLOAD
HCU	HIGH CURRENT UNLOAD
HPD	HIGH PRESSURE DEFROST
OPU	OIL PRESSURE UNLOAD
EVAP	EVAP FAN OFF
AD	AIR DEFROST
ED	ELECTRIC DEFROST
HGD	HOT GAS DEFROST
CD	COIL DRY

Analog Inputs

TABLE 1

0: N/U
1: OSA Temperature
2: Suction Temperature
3: Discharge Temperature
4: Panel Temperature
5: Inlet Temperature
6: Outlet Temperature
7: Defrost Temperature
8: Process Temperature
9: Liquid Temperature
10: Condenser Temperature
11: Discharge Pressure
12: Suction Pressure (100)
13: Suction Pressure (500)
14: Oil Pressure (100)
15: Oil Pressure (500)
16: Water Pressure (100)
17: Water Pressure (500)
18: Amps (50) 0-5vdc
19: Amps (100) 0-5vdc
20: Amps (200) 0-5vdc
21: Amps (200) 20ma
22: KW Demand
23: Input (0-20ma)
24: Input (4-20ma)
25: Fan Proving
26: Pump Proving
27: External Alarm
28: Pulse UP
29: Pulse Down
30: Crank Case On
31: Heat Demand
32: Compressor VFD Fault
33: Condenser VFD Fault
34 Pump Down Switch
35: Run Switch
36: Oil Press Switch

TABLE 1 Continuted

37: Oil Level Switch
38: High Press Switch
39: PM Switch
40: Comp Over Load Sw
41: Phase Monitor
42: Refrigeration Bypass
43: Humidity Bypass
44: Plenum Temp 1
45: Plenum Temp 2

Outputs

TABLE 2

0: N/U
1: Condenser Fan 1
2: Condenser Fan 2
3: Condenser Fan 3
4: Condenser Fan 4
5: Circluation Pump
6: Evaporator Fan
7: Defrost
8: Compressor
9: LLS
10: Unloader 1
11: Unloader 2
12: Unloader 3
13: Screw Load
14: Screw Unload
15: CCH
16: Cond BPV
17: Comp 2
18: VFD Compressor
19: VFD Cond Fan
20: VFD Water Pump
21: HLLS
22: N/U
23: Reversing Valve
24: Alarm
25: Cooling
26: Heating
27: Manual
28: Comp Reset
29: VFD Reset
30: N/U
31: N/U
32: Digital Un-load

Auto Off Manual Sw

TABLE 3

0: OFF
1: MAN
2: AUTO

Parameter Explanation

0: Unit ID The Unit ID has a range of 0 to 99. The ID number designates which compressor are in rotation and used in the same staging scenario. Example - four compressors staging together connected to a XT-70 control panel. The unit ID should be 51, 52, 53, 54 for each of the compressors. The first number is considered a network number and the second number the unit number. The unit number should always start with 1.

1: Baud Rate This is the baud rate for both com 1 and com 2 ports. Set to 1 for 9600 and 2 for 19.2 kb. The default setting is 2.

2: Filter This is a digital filter for all the analog inputs. It can be set from 1 to 10. One would be the least filtering and ten would be the max filtering.

3: Proportion gain 1 This value controls the response of the Condenser Fan VFD. The proportional gain is based off of change. In this case it would be change between the Discharge SP and the actual discharge pressure. Raising the value of P results in a greater reaction to discharge pressure changes. A typical setting would be 5-20.

4: Integral gain 1 This value controls the response of the Condenser Fan VFD. The integral gain is what will cause the output to change when the discharge pressure is not changing and is steady state. Increasing this value to much will cause the system to become unstable. A typical value would be 5.

5: Derivative gain 1 This value controls the response of the Condenser Fan VFD. The derivative is constantly analyzing the rate of change of the error, makes a predication about what the future error will be and makes adjustment to the output in an attempt to reduce the rate of change in the error. For most cases the derivative is disabled by setting it to zero.

6: Update time 1 This value controls the response of the Condenser VFD. The update time is in milliseconds and will determine how often the PID loop math is calculated and a correction made.

7: Proportion gain 2 This value controls the response of the Compressor VFD. This PID loop would only be used when running suction pressure control. The proportional gain is based off of change. In this case it would be change between the Suction pressure SP and the actual suction pressure. Raising the value of P results in a greater reaction to suction pressure changes. A typical setting would be 5-20.

8: Integral gain 2 This value controls the response of the Compressor VFD. This PID loop would only be used when running suction pressure control. The integral gain is what will cause the output to change when the suction pressure is not changing and is steady state. Increasing this value to much will cause the system to become unstable. A typical value would be 5.

9: Derivative gain 2 This value controls the response of the Compressor VFD. This PID loop would only be used when running suction pressure control. The derivative is constantly analyzing the rate of change of the error, makes a predication about what the future error will be and makes adjustment to the output in an attempt to reduce the rate of change in the error. For most cases the derivative is disabled by setting it to zero.

10: Update time 2 This value controls the response of the Compressor Fan VFD. This PID loop would only be used when running suction pressure control. The update time is in milliseconds and will determine how often the PID loop math is calculated and a correction made.

11: Proportion gain 3 This value controls the response of the Rdemand signal. This PID loop would only be used when running temperature control directly. The proportional gain is based off of change. In this case it would be change between the Temperature SP and the actual process temperature. Raising the value of P results in a greater reaction to temperature changes. A typical setting would be 5-20.

12: Integral gain 3 This value controls the response of the Rdemand signal. This PID loop would only be used when running temperature control directly. The integral gain is what will cause the output to change when the suction pressure is not changing and is steady state. Increasing this value to much will cause the system to become unstable. A typical value would be 5.

13: Derivative gain 3 This value controls the response of the Rdemand signal. This PID loop would only be used when running temperature control directly. The derivative is constantly analyzing the rate of change of the error, makes a predication about what the future error will be and makes adjustment to the output in an attempt to reduce the rate of change in the error. For most cases the derivative is disabled by setting it to zero.

14: Update time 3 This value controls the response of the Rdemand signal. This PID loop would only be used when running temperature control directly. The update time is in milliseconds and will determine how often the PID loop math is calculated and a correction made.

15: Communications Alarm Timer This timer monitors the communications on the slave units. If the slave unit does not receive communications from the master this timer will time out and the secondary mode will show Comm A. The default setting is 30 seconds. A setting of zero will disable the alarm.

16: Remote Control Switch This switch must be in Auto or equal to 3 for the PD-OFF-RUN switch on the cover to work. Remote cover switch can be over ridded. 0 = OFF, 1 = remote PD and 2 = remote RUN.

17: Liquid Line Solenoid Off The LLS operates off the Rdemand signal. This is the percentage that when the Rdemand signal drops below the LLS will de-energize. The default value is 20%. Note - for most profiles this is automatically calculated and this setting is not used.

18: Liquid Line Solenoid On The LLS operates off the Rdemand signal. This is the percentage that when the Rdemand signal raises above the LLS will energize. The default value is 40%. Note - for most profiles this is automatically calculated and this setting is not used.

19: Unloader 1 Off The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal drops below the unloader will energize. Unloaders load the cylinders when de-energized. Unloader 1 is for cylinder 1. The default value is 30%. Note - for most profiles this is automatically calculated and this setting is not used.

20: Unloader 1 On The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal raises above, the unloader will de-energize. Unloaders load the cylinders when de-energized. Unloader 1 is for cylinder 1. The default value is 40%. Note - for most profiles this is automatically calculated and this setting is not used.

21: Unloader 2 Off The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal drops below the unloader will energize. Unloaders load the cylinders when de-energized. Unloader 2 is for cylinder 2. The default value is 40%. Note - for most profiles this is automatically calculated and this setting is not used.

22: Unloader 2 On The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal raises above, the unloader will de-energize. Unloaders load the cylinders when de-energized. Unloader 2 is for cylinder 2. The default value is 60%. Note - for most profiles this is automatically calculated and this setting is not used.

23: Unloader 3 Off The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal drops below the unloader will energize. Unloaders load the cylinders when de-energized. Unloader 3 is for cylinder 3. The default value is 60%. Note - for most profiles this is automatically calculated and this setting is not used.

24: Unloader 3 On The cylinder unloaders operates off the Rdemand signal. This is the percentage that when the Rdemand signal raises above, the unloader will de-energize. Unloaders load the cylinders when de-energized. Unloader 3 is for cylinder 3. The default value is 80%. Note - for most profiles this is automatically calculated and this setting is not used.

25: Cond BPV On Condenser bypass valve On setting. If the outside temperature drops below this setting the valve will energize and bypass part of the condenser.

26: Cond BPV Off Condenser bypass valve Off setting. If the outside temperature goes above this setting the valve will de-energize and the system will use the entire condenser.

27: Heat Liquid Line Solenoid Off The Liquid Line Solenoid operates off the Hdemand signal. This is the percentage that when the Hdemand signal drops below the HLLS will de-energize. The default setting is 40%. This parameter is only used when the system has a reversing valve for heat pump operation.

28: Heat Liquid Line Solenoid On The Liquid Line Solenoid operates off the Hdemand signal. This is the percentage that when the Hdemand raises above the HLLS will energize. The default setting is 60%. This parameter is only used when the system has a reversing valve for heat pump operation.

29: Comp 2 On Tandem compressor 2 turn on. This is the Rdemand percentage that compressor 2 on a tandem system will turn on.

30: Comp 2 Off Tandem compressor 2 turn off. This is the Rdemand percentage that compressor 2 on a tandem system will turn off.

31: SH Reset Super Heat Reset. This is a dynamic superheat parameter. A typical value would be 14 degrees. Anytime the CRX resets or has been off for a long time this value is transferred into the SH Setpoint that is sent to the ER card.

32: SH Reset T Super Heat Reset Timer. This time is in hours and looks at the length of time the LLS has been off. A typical setting would be 4 hours. If the LLS is off for this amount of time the SH Reset value is transferred to the SH Setpoint that is sent to the ER card.

33: Compressor Super Heat Low Limit This parameter can range from 0 to 200.0. This is a decimal value and is used to set the desired low limit for the compressor super heat. This is one of the Dynamic Super Heat parameters. This will set a window that will control the super heat of the compressor by adjusting the evaporator super heat.

34: Compressor Super Heat High Limit This parameter can range from 0 to 200.0. This is a decimal value and is used to set the desired high limit for the compressor super heat. This is one of the Dynamic Super Heat parameters. This will set a window that will control the super heat of the compressor by adjusting the evaporator super heat.

35: Defrost Low Suction Spoofed Rdemand When running in the Heat cycle with low ambient conditions ice will form on the condenser coils and need to be defrosted. To defrost a forward run cycle is initiated and this value is used to designate the percentage of speed the compressor will run. 100% is the recommended setting.

36: Remote Reset Set this parameter to 1 to reset the card.

37: Evaporator High Limit When running in dynamic super heat mode, this is the High Limit that the super heat setpoint can be incremented to.

38: Evaporator Lo Limit When running in dynamic super heat mode, this is the Low Limit that the super heat setpoint can be decremented to.

39: Evaporator Super Heat Setpoint This parameter is only used when ER-110 cards are used to control the evaporator super heat. This is the actual value that is being broadcast to the ER-110 cards for their Super Heat Setpoint. This value will automatically change if the dynamic super heat control is active. If the dynamic super heat control is active, the compressor super heat is constantly adjusted by changing the evaporator super heat.

40: High Amp Alarm This alarm setting can be used when the compressor amps are available. If the compressor amps go above this setting for a preprogrammed time the system will shutdown in alarm.

41: Temperature Sensor Fail Alarm This parameter selects which sensor is the controlling sensor. 0 = no sensor: 4 = Room sensor: 5 = Inlet sensor: 6 = Outlet sensor: The default setting is 0.

42: Suction Super Heat Hi Timer This is the alarm timer for High Super Heat. The timer can be set from 0 to 250. The timer is in minutes and is only active during the time when the super heat exceeds the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 15 minutes.

43: Suction Super Heat Lo Timer This is the alarm timer for Low Super Heat. The timer can be set from 0 to 250. The timer is in minutes and is only active during the time when the super heat is less than the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 5 seconds.

44: Discharge High Pressure Timer This is the alarm timer for High Discharge Pressure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the discharge pressure exceeds the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 15 minutes.

45: Suction Low Pressure Timer This is the alarm timer for Low Suction Pressure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the suction pressure is below the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

46: Crank Case Heater On Timer This is the alarm timer for crank case heater. The timer is in hours and is only active during the time when the crank case heater is on. Setting this timer to 0 will disable the

alarm. This timer is used when the power is initially turn on. It will keep the compressor from turning on until the timer has expired past this setting. The default setting is 4 hours.

47: Crank Case Heater Off Timer This is the alarm timer for the crank case heater. The timer is in hours and is only active during the time when the crank case heater is off. This could occur during a power failure or if the heater were to burn out. Setting this timer to 0 will disable the alarm. This timer is used when the power is off and will lock the system out if it times out before the power is restored. The default setting is 4 hours.

48: Discharge High Temperature Timer This is the alarm timer for High Discharge Pressure. The timer is in seconds and is only active during the time when the discharge pressure is above the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

49: Amp High Timer This is the alarm timer for High Compressor amps. The timer is in seconds and is only active during the time when the compressor amps is above the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 10 seconds.

50: Oil Pressure Timer This is the alarm timer for Low Oil Pressure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the oil pressure is below the alarm point. Setting this timer to 0 will disable the alarm. The default setting is 120 seconds.

51: Discharge Pressure Sensor Timer This is the alarm timer for Discharge Pressure Sensor failure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the discharge pressure sensor is out of limits. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

52: Suction Pressure Sensor Timer This is the alarm timer for Suction Pressure Sensor failure. The timer is in seconds and is only active during the time when the suction pressure sensor is out of limits. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

53: Temperature Sensor Timer This is the alarm timer for the controlling Temperature Sensor failure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the controlling temperature sensor is out of limits. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

54: External Alarm Timer This is the alarm timer for External Alarms. The external alarms are a series of contacts consisting of high pressure switch, oil switch and phase monitor. The timer can be set plus or minus from 0 to 250. The timer is in seconds and is only active during the time when the one of the external devices is tripped and the system is in Refrigeration. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

55: Fan Failure Timer This is the alarm timer is only used when one of the inputs is defined as Fan Proving. The timer can be set from 0 to 250. The timer is in seconds and is only active when the fan is being called to run and the Fan Proving contract is not made. Once this timer times out the system would shut off. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

56: Pump Failure Timer This is the alarm timer is only used when one of the inputs is defined as Pump Proving. The timer can be set from 0 to 250. The timer is in seconds and is only active when the pump is being called to run and the Pump Proving contract is not made. Once this timer times out the system would shut off. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

57: VFD Compressor Fault Timer This is the alarm timer is only used when one of the inputs is defined as Compressor VFD Fault. The timer can be set from 0 to 250. The timer is in seconds and is only active when the VFD is showing a fault. Once this timer times out the system would shut off. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

58: VFD Condenser Fault Timer This is the alarm timer is only used when one of the inputs is defined as Condenser VFD Fault. The timer can be set from 0 to 250. The timer is in seconds and is only active when the VFD is showing a fault. Once this timer times out the system would shut off. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

59: Crank Case Heater Lockout Timer This is an internal timer. It is used as temporary storage and has a range of 0 to 250 hours. Setting this timer to zero will bypass the CC Lockout.

60: Condenser Fan Profile This parameter is used to set the desired operation of the condenser fans. The condenser fan outputs need to be defined in the output parameters (31) to (45). If this parameter is set to 0 there will be no condenser fan operation.

1: Fixed Head Pressure. The Discharge Pressure SP (353) and the Condenser Fan Differential (435) to cycle the condenser fans off and on.
2: Balance Head Pressure. This will float the head pressure depending on the ambient air conditions. The lowest pressure that the system will float to is the System Drop (180) plus the suction pressure. The Condenser Fan Differential (435) is used to stage the condenser fans.
3: Fix Head VFD. One of the analog output parameters (31) to (45) needs to be defined for 0-10vdc. The analog output will vary the VFD signal to control the discharge pressure to Discharge Pressure SP (353).
4: Balanced Head VFD. Same as profile 3 except the Discharge Pressure SP (353) will be floating. The lowest pressure the system will float to is the System Drop (180) plus the suction pressure.

61: Compressor Profile This parameter is used to set the desired operation of the compressor. The output need to be defined in the output parameters (31) to (45).

0: Recip compressor. This profile can have up to four compressors. It will automatically determine the staging and sequencing. See flow chart compressor type 0 for more detail operation.
1: VFD Recip compressor. This profile would be used with one VFD recip compressor and other stages being provided by recip compressors. The VFD recip would ramp up and down to control loading.
2: VFD 25 & 40 hp. This custom profile is for one 25hp VFD recip and one 40hp VFD recip. It will precisely stage the two compressor. **No Longer Used**
3: Two VFD Compressors. This profile will stage two VFD compressors of the same horse power. **No Longer Used.**
4: Bitzer Screw Compressor. This profile is for a Bitzer Screw Compressor.
5: Dual Screw Compressors.

62: Defrost Profile This parameter is used to set the desired operation of the defrost. The output need to be defined in the output parameters (31) to (45).

0: None. No defrost operation will be performed.
1: Air Defrost. Air defrost requires no output. The defrost would be accomplished by allowing the evaporator fans to run with the refrigeration off.
2: Electric Defrost. When a electric defrost was triggered the compressor LLS would shut the compressor would pump down and the electric heating coils in the evaporator would be turned on.
3: Hot Gas Reverse. This defrost cycle uses a reversing valve to run the system in a reverse cycle.

4: Hot Gas Three Pipe. Not implemented at this time.

63: Spare

64: Input Profile This parameter is used to set the desired input to the controller. The input needs to be defined in the input parameters (15) to (30).

0: MA Signal. A 0-20ma signal is used to generate the Rdemand signal.
1: Setpoint. Temperature Setpoint (349) is used to generate the Rdemand signal. A temperature sensor is used for the process temperature and the Rdemand signal will vary using a PID loop to control the temperature.
2: Pulse. The Rdemand signal is control by a pulse up signal and a pulse down signal. The Pulse Up and Pulse Down inputs must be defined in the Input parameters (15) to (30).
3: Setpoint C. The same as 1 on degree's C instead of degree's F.

65: Rotation Compressor Hours This time is in hours 0-250. When the timer expires the compressors will rotate lead. If set to zero no rotation will happen.

66: Number of Compressors This value is 1 to 4. Enter the number of compressors that will be used for staging.

67: Number of Unloaders per compressor This value is 1 to 3. Enter the number of unloaders per compressor.

68: Gas Type This parameter is used to set the type of gas being used in the system. This is used to calculate the superheats and alarms.

0: R22
1: R410
2: R507
3: R134a
4: R12
5: R404a
6: R407c

69: Suction Temperature Sensor Timer This is the alarm timer for the Suction Temperature Sensor failure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the controlling temperature sensor is out of limits. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

70: Discharge Temperature Sensor Timer This is the alarm timer for the Discharge Temperature Sensor failure. The timer can be set from 0 to 250. The timer is in seconds and is only active during the time when the controlling temperature sensor is out of limits. Setting this timer to 0 will disable the alarm. The default setting is 30 seconds.

71: Discharge High Temperature Unload Timer When the discharge temperature is above the setpoint this timer is active. When the timer expires then the unload pulses will start. The default value is 30 seconds.

72: Discharge High Pressure Unload Timer When the discharge pressure is above the setpoint this timer is active. When the timer expires then the unload pulses will start. The default value is 30 seconds.

73: VFD Compressor Rate Span % for each 1 % of RDemand. **No Longer Used**

74: VFD Compressor Min This is the lowest setting that the compressor is allowed to run at. A typical setting would be 50%. This setting is in percentage 0-100.

75: VFD Compressor Max Max setting for the compressor in percentage. A typical setting would be 100%.

76: VFD Compressor AOM AOM is the compressor Auto, Off, Manual software switch. The default setting is 2 or auto.

0: Off. This will prevent the compressor from starting with a software command.
1: Manual. This will over-ride all software commands and cause the compressor to start. This should be used with extreme caution.
2: Auto. The auto mode is used for normal operation. In the auto mode the software is controlling the compressor.

77: VFD Condenser Fan Min This is the lowest setting that the condenser fans are allowed to run at. A typical setting would be 0%. This setting is in percentage 0-100.

78: VFD Condenser Fan Max Max setting for the condenser fan in percentage. A typical setting would be 100%.

79: VFD Condenser Fan AOM AOM is the condenser fan Auto, Off, Manual software switch. The default setting is 2 or auto.

0: Off. This will prevent the condenser fans from starting with a software command.
1: Manual. This will over-ride all software commands and cause the condenser fans to start. This should be used with extreme caution.
2: Auto. The auto mode is used for normal operation. In the auto mode the software is controlling the condenser fans.

80: VFD Pump Down Min If the suction pressure is above the turn off point (72) and the LLS is off the compressor is in a pump down mode. This parameter is the percentage at which the compressor will run when in the pump down mode. The default setting is 50%.

81: VFD Compressor Manual This is the speed in percentage that the compressor will run when the AOM switch (195) is set to manual. It is recommended not to go below 50%.

82: VFD Condenser Fan Manual This is the speed in percentage that the compressor will run when the AOM switch (198) is set to manual. This parameter can go from 0 to 100%.

83: Floating Suction Hi SP This is the value of the floating suction setpoint (FSP) when the Rdemand equals zero. As the Rdemand increases the FSP with proportionally go towards the Floating Suction Lo SP. This is the Hi side of the span for the suction pressure.

84: Floating Suction Lo SP This is the value of the floating suction setpoint (FSP) when the Rdemand equals 100%. This is the Lo side of the span for the suction pressure.

85: High Amp Unload If the compressor amps exceed this value the unit will be unloaded until the amps drop by 5 below the setting. Once 5 amps below the setting then normal operation will resume.

86: High Amp Unload Timer If the amps exceed the high amp unload value this timer will be active. Once the timer times out the high amp unload mode will start.

87: Oil Pressure Trip Timer This timer is associated with a mechanical oil pressure switch. The contact closure of this switch will start the timer. This is a short delay, typically 5 seconds. When the alarm expires the alarm will display. The alarm can be disabled by setting this parameter to zero.

88: Compressor Over Load Trip Timer The compressor contactor has current overloads in it. If the overloads were to trip, this timer would be active. When the timer expires the Over Load alarm will be triggered. This is a short delay typically 5 seconds. The alarm can be disabled by setting this parameter to zero.

89: Phase Monitor Trip Timer The phase monitor watches the three phase power. If any thing goes wrong with the power the unit will trip. This timer monitors the phase monitor contacts and will be active if the phase monitor drops out at any time. Once the time expires the Phase Monitor Alarm will be triggered. A setting of zero will disable this alarm.

90: High Press Trip Timer The High Press Trip Timer is associated with a High Pressure mechanical switch. The timer will be active when the mechanical switch trips. The timer will be short typically 5 seconds and will trigger an alarm when it expires. A setting of zero in this timer will disable the reporting of this alarm. The High Pressure switch would still disable the system.

91: Power Monitor Trip Timer The power monitor is internal in the compressor and monitors a number of parameters. When it trips this timer will be active and will trigger a Power Monitor Alarm when it expirers. This is typically a short timer and a setting of zero would disable the alarm.

92: Pump Down Timer If the compressor run time exceeds this timer when the LLS if off the system will shutdown on a Pump Down Failure. This feature can be disabled by setting the timer to zero.

93: Low Suction Unload Timer When the suction pressure is below the setpoint this timer is active. When the timer expires then the unload pulses will start. The default value is 30 seconds.

94: Delay LLS Timer for delay of main LLS when using a slave LLS. Time is in seconds and a 0 setting will disable timer.

95: Process Pump Fail Timer for chiller process pump fail. A zero setting will disable the timer. Time is in seconds.

96: Room T Diff Room temperature differential. This differential is in degrees. A typical setting would be 2 degrees. This is only active when the CRX is running in the SP mode using two plenum sensors. If these two sensors drift more than this differential for the set time of parameter 53 the system will alarm.

97: PID 3 Scale Allows the overall PID output to be scaled. This is a divide function and is primarily used

during initial setup.

98: Force Defrost Setting this parameter to 1 will force a defrost cycle.

99: Display Card If set to zero no display card would be used.

100: Staged Liquid Line Solenoid Off If set to zero LLS Off percentage will operate normally. The number you put in this parameter is positive and a percentage. Example - set SLLS OFF to 75% for all compressors. The lead compressor operates normally. Next compressor turn on the LLS normally and turn off its LLS at 75% of the previous compressor. If C1 was lead then C2 could turn on at 100% plus what ever you have the LLS ON set for. It would turn off at 75%. When C2 becomes lead then everything shifts and C2 operates normally.

300: Temperature Setpoint This parameter can be plus or minus 250.0. This is a decimal value and is used to set the desired temperature for either air or water. A designated temperature sensor will be used to compare to this value and generate a Rdemand signal.

301: Suction Pressure Setpoint This parameter can range from 0 to 500.0 psi. This is a decimal value and is used to set the desired suction pressure. This may be a fixed value or may range depending on the Rdemand signal. Depending on the profile (178) the Suction Pressure Setpoint may have different formats.

302: Discharge Pressure Setpoint This parameter can range from 0 to 750 psi. This is a decimal value and is used to set the desired discharge pressure.

303: Defrost Temperature Termination This parameter can be plus or minus 250.0. This is a decimal value and is used to set the desired temperature for termination of the defrost cycle. A designated temperature sensor will be used to compare to this value and generate a defrost termination.

304: Defrost Suction Differential This parameter can range from 0 to 25.0 psi. This is a decimal value and is used to set the desired drop in suction pressure . As the coils ice up the suction pressure will drop. The defrost suction differential determines how much the suction pressure will drop before a defrost cycle is initiated. A typical setting would be 5 psi.

305: Discharge High Pressure Unload This parameter ranges from 0 to 700.0 psi. This is a decimal value and is used to set the desired high pressure at which the system would unload. When the ambient air temperature exceeds the rating of the condenser, the condenser no longer has the ability to reject the full load heat. This can produce a nuisance high head pressure alarm. The HHPU feature will automatically unload the compressor and prevent this alarm. The unloading can occur either with unloaders or backing off the VFD on a compressor. The HHPU setting should be set below the soft high head alarm. Example - if set for 300 psi, unloader # 2 would unload when the discharge exceeded 300 psi. It would reset when the pressure dropped below 295.

306: Suction Low Pressure Unload This parameter ranges from 0 to 700.0 psi. This is a decimal value and is used to set the desired low pressure at which the system would unload. If the suction pressure drops below this value the compressor will unload either by unloaders or by backing off of the VFD. For the VFD the output will be decrement by 5% until the Low Pressure Unload Setpoint is reached. If the suction pressure rises above the setpoint the output will be incremented by 5%. LSU is a secondary mode and will be terminated when the Rdemand drops 5% below the compressor VFD output.

307: Defrost Suction Pressure SP This parameter ranges from 0 to 700.0 psi. This is a decimal value and is used to set the desired defrost suction pressure setpoint. The defrost cycle and timers are only active when the suction pressure is below this value. This is primarily used with a heat pump defrost.

308: Defrost Discharge Pressure Termination This parameter ranges from 0 to 700.0 psi. This is a decimal value and is used to set the desired pressure termination. When using a hot gas reverse cycle defrost the discharge pressure will build as the ice melts. When the discharge pressure exceeds this parameter the reverse cycle defrost will be terminated.

309: Total Run Time This parameter ranges from 0 to 6500.0 hrs. It is an accumulation of the run time hours of the compressor. It can be reset by setting it to 0.

310: Daily Run Time This parameter can range from 0 to 24.0 hours. From 12pm the elapsed time is recorded for the compressor Run Time.

311: Suction Super Heat Hi Alarm This parameter can range from 0 to 100.0. This is a decimal value and is used to set the desired high alarm for the compressor suction super heat. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

312: Suction Super Heat Lo Alarm This parameter can range from 0 to 100.0. This is a decimal value and is used to set the desired low alarm for the compressor suction super heat. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

313: Discharge High Pressure Alarm This parameter can range from 0 to 1000.0. This is a decimal value and is used to set the desired high pressure alarm for the compressor discharge pressure. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

314: Suction Low Pressure Alarm This parameter can range from 0 to 1000.0. This is a decimal value and is used to set the desired low pressure alarm for the compressor suction pressure. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

315: Discharge High Temperature Alarm This parameter can range from 0 to 500.0. This is a decimal value and is used to set the desired high temperature alarm for the compressor discharge pressure. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

316: Oil Pressure Alarm This parameter can range from 0 to 100.0. This is a decimal value and is used to set the desired low oil pressure alarm for the compressor. This is used on screw compressors only. There must be an initial time delay of at least 30 seconds. There is an associated timer that must be activated. This alarm will trip the compressor off line when active.

317: Condenser Fan Differential This parameter can range from 0 to 100.0. This is a decimal value and is used to set the desired differential setting for cycling the condenser fans. A typical setting would 5 to 10 psi.

318: High Discharge Temp Unload If the Discharge Temperature goes above this Setpoint the system will unload until the temperature drops 10 degrees. At that point it will resume normal operation.

320: Aux Heat SP If the temperature inside the control panel goes below this value the panel heater will turn on. There is a high side 5 degree differential. The heat will turn off at Aux Heat SP plus 5 degrees.

321: Aux Cooling SP If the temperature inside the control panel goes above this value the panel cooling fan will turn on. There is a low side 5 degree differential. The cooling fan will turn off at the Aux Cooling SP minus 5 degrees.

322: Spare

323: Defrost Low Suction Control Point This parameter ranges from 0 to 700.0 psi. This is a decimal value and is used to set the desired defrost suction pressure setpoint. The defrost cycle and timers are only active when the suction pressure is below this value.

324: System Drop This is a calculated value and has a range of 0 to 250 psi. The calculation is for total system pressure drop. A typical value would be 70 psi. The Balanced Head Pressure condenser profile (177) uses this value for controlling the head pressure. The controlling pressure is determined by the suction pressure plus the System Drop.

325: Compressor Turn On This is the compressor suction setting that will cause the compressor to turn on. If the suction pressure raises above this setting the mode will change to REFIG and the compressor will start.

326: Compressor Turn Off This is the compressor suction setting that will cause the compressor to turn off. If the suction pressure drops below this setting the mode will change from REFIG to Short cycle and then to Standby. This is considered the pump down setting.

327: Heat Max Floating Discharge SP This parameter is used only in the heat pump mode. The Hdemand signal caused a Floating Discharge SP to move in a given range. This is the Max limit that the Discharge SP can move to. It has a range of 0 to 250 psi. The default setting is 200 psi.

328: Heat Min Floating Discharge SP This parameter is used only in the heat pump mode. The Hdemand signal caused a Floating Discharge SP to move in a given range. This is the Minimum limit that the Discharge SP can move to. It has a range of 0 to 250 psi. The default setting is 150 psi.

400: Variable Initiated Defrost The VID allows the system to over-ride the defrost accumulated time. This parameter ranges from 0 to 1000.0 minutes. This is the amount of time that is used to establish a suction pressure base line. This base line is used to compare the Defrost Suction Differential (304). Once the suction pressure drops below the base line minus the Defrost Suction Differential (304) a defrost cycle will be initiated. The base line will only be established once the suction pressure drops below the Defrost Low Suction Control Point (323). The base line will be an average of the suction pressure over the number of minutes set by the VID parameter

401: Defrost Initiate Time This parameter can range from 0 to 1000.0 minutes. Once the suction pressure drops below the Defrost Low Suction Control Point (323) this timer will be active. This timer will only time when the compressor is running. Set this timer for the desired time between defrosts. When the timer times out a defrost cycle will be initiated. A setting of zero will disable this function.

402: Defrost Max Time Between cycles This parameter is currently not used.

403: Defrost Termination Timer This parameter can range from 0 to 1000.0 minutes. This timer is used to terminate the defrost cycle if pressure or temperature terminations are not active.

404: Defrost Coil Dry Timer This parameter can range from 0 to 1000.0 seconds. This is the time

in seconds that the coil will be dried after the defrost termination. The system will run with the compressor and LLS open, but the evaporator fans will be off.

405: Defrost Elapsed Time Last Cycles This parameter can range from 0 to 1000.0 hours. Time is recorded as long as the compressor is running and the suction pressures is less than the Defrost Low Suction Control Point (323). This value is for information and is also used in the activation of a defrost cycle.

406: Lead Compressor Run Time This parameter can range from 0 to 10000 minutes. Time is recorded as long as the compressor is running and the compressor is designated as lead.

407: Lead Compressor Run Time This parameter can range from 0 to 10000 minutes. Time is recorded as long as the compressor is running and the compressor is designated as lead.

408: Alarm Reset Timer This parameter can range from 0 to 10000 seconds. This time is used on some alarm parameters that automatically reset. This is the amount of time after the alarm clears that the system will reset.

409: Evaporator Update This parameter can range from 0 to 10000 minutes. This timer sets the interval that the compressor can change the Super Heat Setpoint of the evaporator.

410: Minimum Pulse Width for Pulse PID This parameter can range from 0 to 1000 msec. If the PID is pulse, this will set the minimum pulse width. The PID will collect open and close pulses until it exceeds this amount and then will produce a pulse.

411: Compressor Staging Timer This parameter can range from 0 to 10000 seconds. This timer must elapses before the staging of a VFD compressor can change.

412: Oil Level Timer Trip This timer is associated with a mechanical oil level switch. This switch is normally closed and will open when the oil level is low. When the switch opens this timer will start to time. When it expires the Oil Level Alarm will be triggered. This is typically a long timer of 5 minutes. A setting of zero will disable the alarm.

500: Output Ch1 (J6-1) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 1 or Condenser Fan 1.

501: Output Ch1 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

502: Output Ch2 (J6-2) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 2 or Condenser Fan 2.

503: Output Ch2 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

504: Output Ch3 (J6-3) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 3 or Condenser Fan 3.

505: Output Ch3 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

506: Output Ch4 (J6-4) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 4 or Condenser Fan 4.

507: Output Ch4 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

508: Output Ch5 (J14-1) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 8 or Compressor.

509: Output Ch5 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

510: Output Ch6 (J14-2) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 9 or Liquid Line Solenoid.

511: Output Ch6 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

512: Output Ch7 (J14-3) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 10 or Unloader 1.

513: Output Ch7 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

514: Output Ch8 (J14-4) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 11 or Unloader 2.

515: Output Ch8 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

516: Output Ch9 (J2) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 22 or Alarm Output.

517: Output Ch9 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

518: Output Ch10 (J3) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 0 or not used.

519: Output Ch10 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

520: Output Ch11 (J4) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 0 or not used.

521: Output Ch11 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

522: Output Ch12 (J5) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 0 or not used.

523: Output Ch12 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

524: Output Ch13 (J23) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 0 or not used.

525: Output Ch13 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

526: Output Ch14 (J16) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 17 or VFD Condenser Fan Output.

528: Output Ch15 (J17) The output channels can be assigned many different functions. Use the table to select the correct function for this output. The default is 0 or Not used. For VFD compressor use 16.

534: Digital E4 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input. The default is 34 or Pump Down Switch.

535: Digital E4 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

536: Digital E6 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input.

537: Digital E6 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

538: Digital E8 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input. The default is 35 or Run Switch.

539: Digital E8 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

540: Digital E14 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input.

541: Digital E14 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

542: Digital E12 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input.

543: Digital E12 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

544: Digital E10 The digital input can be assigned many different types of inputs. Use the table to slect the correct sensor for this input.

545: Digital E10 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

600: A/D Ch1 (J7) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 11 or Discharge Pressure.

601: A/D Ch1 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

602: A/D Ch1 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

603: A/D Ch2 (J10) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 12 or Suction Pressure (100 psi).

604: A/D Ch2 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

605: A/D Ch2 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

606: A/D Ch3 (J11-3/4) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 2 or Suction Temperature.

607: A/D Ch3 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

608: A/D Ch3 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

609: A/D Ch4 (J11-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 3 or Discharge Temperature.

610: A/D Ch4 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

611: A/D Ch4 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

612: A/D Ch5 (J15-3/4) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 0 or not used.

613: A/D Ch5 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

614: A/D Ch5 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

615: A/D Ch6 (J15-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 23 or Input (0-20ma).

616: A/D Ch6 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

617: A/D Ch6 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

618: A/D Ch7 (J18-3/4) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 18 or Amps (200).

619: A/D Ch7 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

620: A/D Ch7 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

621: A/D Ch8 (J18-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 0 or not used.

622: A/D Ch8 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

623: A/D Ch8 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

624: A/D Ch9 (J19-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 32 or Compressor VFD Fault.

625: A/D Ch9 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

626: A/D Ch9 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

627: A/D Ch10 (J19-3/4) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 33 or Condenser Fan VFD Fault.

628: A/D Ch10 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

629: A/D Ch10 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

630: A/D Ch11 (J21-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 34 or Pump Down Switch.

631: A/D Ch11 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

632: A/D Ch11 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

633: A/D Ch12 (J21-3/4) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 35 or Run Switch.

634: A/D Ch12 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

635: A/D Ch12 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

636: A/D Ch13 (J24-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 0 or not used.

637: A/D Ch13 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

638: A/D Ch13 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

639: A/D Ch14 (J25-1/2) The input channels can be assigned many different types of sensors. Use the table to select the correct sensor for this input. The default is 0 or not used.

640: A/D Ch14 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

641: A/D Ch14 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

642: A/D Ch15 (J26-1) The input channels can be assigned many different types of sensors. Use the table to
select the correct sensor for this input. The default is 0 or not used.

643: A/D Ch15 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

644: A/D Ch15 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..

645: A/D Ch16 (J26-2) The input channels can be assigned many different types of sensors. Use the

table to select the correct sensor for this input. The default is 0 or not used.

646: A/D Ch16 AOM SW This is a virtual switch. 0 = OFF, 1 = MAN and 2 = AUTO. OFF the output will always be off. Man the output will always be on. Auto the output will operate normal.

647: A/D Ch16 Manual Count When the AOM switch is in manual a count 0-4095 can be entered as an input signal..