Systems Integration

APOGEE™ Open Processor with McQuay Microtech Driver: One-Compressor Screw Chiller

Table 1. One-Compressor Screw Chiller.

Point	Type	Description	Range/Units
01	LAO	Device Address	—
02	LAO	Application Number	5047
03	LAI	Circuit 1 Condenser Approach Temperature	0 – 263°F
04	LAI	Circuit 1 Condenser Pressure	0 – 450 psi
05	LAI	Circuit No.1 Condition at Time of Alarm: Capacity	0 – 100%
06	LAI	Circuit No.1 Condition at Time of Alarm: Condenser Leaving Water Temperature or Outside Air Temperature	-40 – 263°F
07	LAI	Circuit No.1 Condition at Time of Alarm: Condenser Pressure	0 – 450 psi
08	LAI	Circuit No.1 Condition at Time of Alarm: Evaporator Leaving Water Temperature	-40 – 263°F
09	LAI	Circuit No.1 Condition at Time of Alarm: Evaporator Pressure	0 – 150 psi
10	LAI	Circuit No.1 Condition at Time of Alarm: Fan Stage	0 – 6
11	LAI	Circuit No.1 Condition at Time of Alarm: Liquid Line Temperature	-40 – 263°F
12	LAI	Circuit No.1 Condition at Time of Alarm: Suction Temperature	-40 – 263°F
13	LAI	Circuit 1 Alarm	See Table 2
14	LAI	Circuit 1 Evaporator Pressure	0 – 150 psi
15	LAI	Circuit 1 Liquid Line Temperature	-40 – 263°F
16	LAI	Circuit 1 Status	See Table 3
17	LAI	Circuit 1 Subcooling Temperature	0 – 263°F
18	LAI	Circuit 1 Suction Temperature	-40 – 263°F
19	LAI	Circuit 1 Superheat Temperature	0 – 263°F
20	LAI	Compressor 1 Operating Hours	Hours
21	LAI	Compressor 1 Starts	Starts
22	LAI	Condenser Entering Water Temperature	-40 – 263°F
23	LAI	Condenser Leaving Water Temperature	-40 – 263°F
24	LAI	Evaporator Entering Water Temperature	-40 – 263°F

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Table 1. One-Compressor Screw Chiller.

Point	Type	Description	Range/Units
25	LAI	Evaporator Leaving Water Temperature	-40 – 263°F
26	LAI	Outside Air Temperature	-40 – 263°F
27	LAI	Current Stage of Cooling	0 – 8
28	LAI	Unit Status	See Table 4
29	LDO	Clear Circuit 1 Alarm	No/Yes
30	LAO	Evaporator Entering Water Temperature Set Point	15 – 80°F
31	LAO	Evaporator Leaving Water Temperature Set Point	10 – 80°F
32	LAO	Maximum Chilled Water Reset Set Point	0 – 45°F
33	LDO	Network Command	Enable/Disable
34	LAO	Network Demand Limit	0 – 100%
35	LAO	Network Evaporator Leaving Water Temperature Reset	0 – 100%
36	LAO	Reset Option Set Point	See Table 5
99	LDI	Device Communication Failure	Normal/Failed

Table 2. Alarms (Point 13).

Value	Description
0	No Alarm
1	High Condenser Pre-alarm Hold Stage
2	High Condenser Pre-alarm Stage-down
3	Freeze Refrigerant Pre-alarm Stage-down
4	Loss of Chilled Water Flow
5	No Pump-down
6	Low Evaporator No Start
7	Pre-purge Fail
9	Low Ambient Start
12	Refrigerant Freeze Protect
13	Low Evaporator Pressure
14	Motor Protect
15	Re-power After Power Loss
17	No Condenser Water Flow
18	No Evaporator Pressure Drop
19	Low Lift Pressure
20	No Liquid Run
21	No Liquid Start
22	Low Oil Pressure
25	High Condenser Pressure
26	Mechanical High Pressure
29	Bad Compressor Suction Temperature Sensor
30	Bad Evaporator Pressure Sensor
31	Bad Condenser Pressure Sensor
32	Bad Phase Voltage
33	Chilled Water Freeze Protect
34	Bad Voltage Ratio
35	Bad Leaving Evaporator Temperature Sensor

Table 3. Circuit Status (Point 16).

Value	Description
0	Off – S–1 System Switch
1	Off – Manual Set Point
2	Off – Alarm
3	Off – Pump Down Switch
4	Off – Wait For Cycle
5	Off – Wait For Flood
6	Off – Ready To Start
7	Start Pump-down
8	Pump-down
9	Start Requested
10	Pre-purge
11	Open Solenoid
12	Low Ambient Start
13	Cooling

Table 4. Unit Status (Point 28).

Value	Description
0	Off – Manual Set Point
1	Off – S–1 System Switch
2	Off – Remote Communication
3	Off – Remote Switch
4	Off – Time Schedule
5	Off – Alarm
6	Off – Pump-down Switches
7	Off – Ambient Lock
8	Starting
9	Waiting for Flow
10	Waiting for Load
11	Cool Stage-up
12	Cool Stage-down
13	Cool Staging
14	Manual Cool Staging

Table 5. Reset Option Set Point (Point 36).

Value	Description
0	No Chilled Water Reset
1	Return Chilled Water Reset. Constant return Chilled Water Temperature Set Point maintained.
2	4 – 20 mA Chilled Water Reset. Resets Chilled Water Set Point based on 4 – 20 mA signal. A signal less than 4 mA results in no reset of Chilled Water Temperature Set Point. A signal greater than 4 mA results in a linear reset between Chilled Water Set Point and the maximum Chilled Water Reset Set Point plus the Chilled Water Set Point.
3	Network Chilled Water Reset. Resets Chilled Water Set Point based on the network evaporator leaving temperature reset. A signal of 0 – 100% results in a linear reset between the Chilled Water Set Point and the maximum Chilled Water Reset Set Point plus the Chilled Water Set Point.
4	Ice Chilled Water Reset. Resets the Chilled Water Set Point (typically 23°F) based upon a 4 – 20 mA signal. A signal less than 4 mA results in no reset of Chilled Water Temperature Set Point. A signal greater than 4 mA results in a Chilled Water Set Point equal to the set point plus the Maximum Chilled Water Reset Set Point (typically 22°F).
5	Outdoor Air Temperature Chilled Water Reset.