

Systems Integration

YORK Modbus Solution to the YK Chiller with Variable Speed Drive

Table 1. YK Chiller with Variable Speed Drive APOGEE Points, Application Number: 4626.

Point	Type	Description	Range/Units ^{a b c}
1	LAO	Address	–
2	LAI	Application	–
3	LDI	Communication Error	Off/On
4	LAO	IP Address 1	–
5	LAO	IP Address 2	–
6	LAO	IP Address 3	–
7	LAO	IP Address 4	–
8	LAO	IP Port	–
9	LAO	Base Offset	–
10	LAO	Send Initial Values	–
11	LAO	Leaving Chilled Liquid Setpoint Selected	°F °C
12	LAO	Motor Current Limit Setpoint Selected	%
15	LDO	Remote Start Stop	Stop/Start
17	LDO	Variable Or Fixed Speed	No/Yes
19	LAI	Leaving Chilled Liquid Temperature	°F °C
20	LAI	Return Chilled Liquid Temperature	°F °C
21	LAI	Evaporator Pressure	psi kPa
22	LAI	Condenser Pressure	psi kPa
23	LAI	Oil Pressure Differential	psi kPa
24	LAI	Return Condenser Liquid Temperature	°F °C
25	LAI	Leaving Condenser Liquid Temperature	°F °C

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Table 1. YK Chiller with Variable Speed Drive APOGEE Points, Application Number: 4626. (continued)

Point	Type	Description	Range/Units^{a b c}
26	LAI	Motor Current Percent Fla	% FLA
27	LAI	P19	–
28	LAI	P20	–
29	LAI	P21	–
30	LAI	P22	–
31	LAI	P23	–
32	LAI	P24	–
33	LAI	Leaving Chilled Liquid Setpoint Selected	°F °C
34	LAI	Motor Current Limit Setpoint Selected	% FLA
35	LAI	Evaporator Saturation Temperature	°F °C
36	LAI	Condenser Saturation Temperature	°F °C
37	LAI	Discharge Temperature	°F °C
38	LAI	Oil Sump Temperature	°F °C
39	LAI	Purge Pressure	psi kPa
40	LAI	Unit Operating Hours	hrs
41	LAI	Unit System Starts	–
42	LAI	Oil Sump Pressure	psi kPa
43	LAI	Oil Pump Pressure	psi kPa
44	LDI	Motor Run Contacts	Off/On
45	LDI	Liquid Line Solenoid	Off/On
46	LDI	Chilled Liquid Pump	Off/On
47	LDI	Panel Start Switch	Off/On
48	LDI	Chilled Liquid Flow Switch	Off/On
49	LDI	P41	Off/On
50	LDI	P42	Off/On
51	LDI	P43	Off/On
52	LDI	P44	Off/On
53	LDI	P45	Off/On
54	LDI	P46	Off/On
55	LDI	P47	Off/On

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Table 1. YK Chiller with Variable Speed Drive APOGEE Points, Application Number: 4626. (continued)

Point	Type	Description	Range/Units ^{a b c}
56	LDI	Acc Valid Surge Map	False/True
57	LDI	Acc New Surge Point	False/True
58	LDI	Vsd Water Pump Relay	Stop/Run
59	LDI	Harmonic Filter Installed	False/True
60	LDI	Acc Surge Type	Off/On
64	LAI	Antirecycle Time Remaining	sec
65	LAI	Warning Code	See Table 2
66	LAI	Operation Code	See Table 3
67	LAI	Safety Shutdown Code	See Table 4
68	LAI	Cycling Shutdown Code	See Table 5
69	LAI	Vsd Internal Ambient Temperature	°F °C
70	LAI	Vsd Converter Heatsink Temperature	°F °C
71	LAI	Pre Rotation Vanes Position	%
72	LAI	Acc Map Output Frequency	Hz
73	LAI	Refrigerant Level Setpoint	–
74	LAI	Thrust Bearing Proximity Position	–
75	LAI	Thrust Bearing Proximity Reference	–
76	LAI	P68	–
77	LAI	Acc Map Prv Position	%
78	LAI	Vsd Outputvoltage	V
79	LAI	Vsd Input Power	kW
80	LAI	Vsd Killowatt Hours	kWh
81	LAI	Vsd Dc Bus Voltage	V
82	LAI	Vsd Inverter Link Current	A
83	LAI	Acc Surge Count	–
84	LAI	Vsd Output Frequency	Hz

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Table 1. YK Chiller with Variable Speed Drive APOGEE Points, Application Number: 4626. (continued)

Point	Type	Description	Range/Units ^{a b c}
85	LAI	Harmonic Filter Maximum Voltage Thd	–
86	LAI	Harmonic Filter Maximum Current Tdd	–
87	LAI	Harmonic Filter Total Supply Kva	kVA

^a Values noted for LDIs and LDOs are in the following format: OFF text/ON text.
^b This column indicates the value/range or engineering units or both if known.
^c The default English value is not italicized. An italicized entry indicates an SI value.

Table 2. Warning Codes.

Value	Description
0	No Abnormal Condition
1	Real-Time Clock Failure
2	Default Setpoints Loaded
3	Evaporator Or Condenser Transducer Error
4	Evaporator - Low Pressure Limit
5	Condenser - High Pressure Limit
8	Refrigerant Level Out Of Range
9	Standby Lube - Low Oil Pressure
14	Motor - High Current Limit
15	Vanes Uncalibrated
16	Vanes Uncalibrated - Fixed Speed Operation
17	Harmonic Filter - Operation Inhibited
18	Harmonic Filter - Data Loss
19	Harmonic Filter - Input Frequency Out Of Range
25	Seal Lubrication In Process
26	External I/O Board Serial Communications

Table 3. Operational Codes.

Value	Description
0	Unit Stopped - Ready to Start
1	Unit Stopped - Local Shutdown
2	Unit Stopped - Remote Shutdown
3	Unit Stopped - Warning Active
4	Unit Stopped - Cycling Shutdown
5	Unit Stopped - Safety Shutdown
6	Unit Start Inhibit
7	Unit Starting
8	Unit Running - No Abnormal Condition

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Table 3. Operational Codes. (continued)

Value	Description
9	Unit Running - Warning Active
10	Unit Running - Chiller Unload Before Shutdown
11	Unit Coastdown

Table 4. Safety Codes.

Value	Description
0	No Abnormal Condition
1	Evaporator - Low Pressure
2	Evaporator - Transducer Or Leaving Liquid Probe
3	Evaporator - Temperature Transducer
4	Condenser - High Pressure Contacts Open
5	Condenser - High Pressure
6	Condenser - Pressure Transducer Out Of Range
7	Auxiliary Safety - Contacts Closed
8	Discharge - Low Temperature
9	Discharge - High Temperature
10	Oil - High Temperature
11	Oil - Low Differential Pressure
12	Oil - High Differential Pressure
13	Oil - Pump Pressure Transducer Out Of Range
14	Oil - Sump Pressure Transducer Out Of Range
18	Oil - Differential Pressure Calibration
20	Oil - Variable Speed Pump - Pressure Setpoint
21	Control Panel - Power Failure
23	Motor Or Starter - Current Imbalance
24	Thrust Bearing - Proximity Probe Clearance
25	Thrust Bearing - Proximity Probe Uncalibrated
26	Thrust Bearing - Proximity Probe Out Of Range
29	VSD - High Heatsink Temperature
30	VSD - 105% Motor Current Overload
31	VSD - High Phase A Inverter Heatsink Temperature
32	VSD - High Phase B Inverter Heatsink Temperature
33	VSD - High Phase C Inverter Heatsink Temperature
34	VSD - High Converter Heatsink Temperature
35	VSD - Precharge Lockout
36	Harmonic Filter - High Heatsink Temperature

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Table 4. Safety Codes. (continued)

Value	Description
37	Harmonic Filter - High Total Demand Distortion
49	Starter - Invalid Motor Selection
51	Evaporator - Low Pressure
52	Evaporator - Low Pressure - Smart Freeze

Table 5. Cycling Codes.

Value	Description
0	No Abnormal Condition
1	Multi-Unit Cycling - Contacts Open
2	System Cycling - Contacts Open
4	Oil - Low Temperature
5	Control Panel - Power Failure
6	Leaving Chilled Liquid - Low Temperature
7	Leaving Chilled Liquid - Flow Switch Open
8	Condenser - Flow Switch Open
9	Motor Controller - Contacts Open
10	Motor Controller - Loss Of Current
11	Power Fault
12	Control Panel - Schedule
13	Starter - Low Supply Line Voltage
14	Starter - High Supply Line Voltage
15	Proximity Probe - Low Supply Voltage
16	Oil - Variable Speed Pump - Drive Contacts Open
17	VSD Initialization Failure
18	VSD Shutdown - Requesting Fault Data
19	VSD - High Phase A Instantaneous Current
20	VSD - High Phase B Instantaneous Current
21	VSD - High Phase C Instantaneous Current
22	VSD - Phase A Gate Driver
23	VSD - Phase B Gate Driver
24	VSD - Phase C Gate Driver
25	VSD - Single Phase Input Power
26	VSD - High DC Bus Voltage
27	VSD - Logic Board Power Supply
28	VSD - Low DC Bus Voltage
29	VSD - DC Bus Voltage Imbalance

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Table 5. Cycling Codes. (continued)

Value	Description
30	VSD - High Internal Ambient Temperature
31	VSD - Invalid Current Scale Selection
32	VSD - Low Phase A Inverter Heatsink Temperature
33	VSD - Low Phase B Inverter Heatsink Temperature
34	VSD - Low Phase C Inverter Heatsink Temperature
35	VSD - Low Converter Heatsink Temperature
36	VSD - Precharge - DC Bus Voltage Imbalance
37	VSD - Precharge - Low DC Bus Voltage
38	VSD - Logic Board Processor
39	VSD - Run Signal
40	VSD - Serial Communications
41	VSD - Stop Contacts Open
42	Harmonic Filter - Logic Board Or Communications
43	Harmonic Filter - High DC Bus Voltage
44	Harmonic Filter - High Phase A Instantaneous Current
45	Harmonic Filter - High Phase B Instantaneous Current
46	Harmonic Filter - High Phase C Instantaneous Current
47	Harmonic Filter - Phase Locked Loop
48	Harmonic Filter - Precharge - Low DC Bus Voltage
49	Harmonic Filter - Low DC Bus Voltage
50	Harmonic Filter - DC Bus Voltage Imbalance
51	Harmonic Filter - 110% Input Current Overload
52	Harmonic Filter - Logic Board Power Supply
53	Harmonic Filter - Run Signal
54	Harmonic Filter - DC Current Transformer 1
55	Harmonic Filter - DC Current Transformer 2
73	VSD - Serial Communications

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