

Appendix D Chiller BACnet List (Sorted by Instance Number)

NOTE: AI= Analog Inputs, AO= Analog Outputs, BI= Binary Inputs, BO= Binary Outputs, MI= Multi-state Inputs, MO= Multi-state Outputs										
Object Type	Instance #	ObjectName	RIMD/RTUD	RIMD	RTAC	CGAM	ObjectDescription	PresentValue	Range	Units of Measure
AI	1	Active Cool/Heat Setpoint Temperature	•	•	•	•	Active chiller water or hot water setpoint.			Temperature (°F or °C)
AI	2	Active Current Limit Setpoint	•	•	•		Active capacity current limit setpoint.			Percent
AI	3	Active Demand Limit Setpoint				•	Active demand limit setpoint.			Percent
AI	4	Active Base Loading Setpoint		•			Value of base loading setpoint currently being used by the chiller.			Percent
AI	5	Actual Running Capacity	•	•	•	•	Level of capacity that the chiller is currently running at.			Percent
AI	6	Evaporator Refrigerant Pressure- Ckt1		•	•		Circuit 1 evaporator refrigerant pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	7	Suction Pressure- Ckt 1	•				Circuit 1 suction pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	8	Suction Pressure- Ckt 1				•	Circuit 1 suction pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	9	Evaporator Refrigerant Pressure- Ckt 2		•	•		Circuit 2 evaporator refrigerant pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	10	Suction Pressure- Ckt 2	•				Circuit 2 suction pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	11	Suction Pressure- Ckt 2				•	Circuit 2 suction pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	12	Evaporator Saturated Refrigerant Temperature- Ckt 1	•	•	•		Circuit 2 evaporator refrigerant temperature.			Temperature (°F or °C)
AI	13	Suction Saturated Refrigerant Temperature- Ckt 1				•	Circuit 1 suction refrigerant temperature.			Temperature (°F or °C)
AI	14	Evaporator Saturated Refrigerant Temperature- Ckt 2	•	•	•		Circuit 2 suction refrigerant temperature.			Temperature (°F or °C)
AI	15	Suction Saturated Refrigerant Temperature- Ckt 2				•	Circuit 2 suction refrigerant temperature.			Temperature (°F or °C)
AI	16	Condenser Refrigerant Pressure- Ckt 1	•	•	•		Circuit 1 condenser refrigerant pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	17	Discharge Pressure- Ckt 1				•	Circuit 1 discharge pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	18	Condenser Refrigerant Pressure- Ckt 2	•	•	•		Circuit 2 condenser refrigerant pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	19	Discharge Pressure- Ckt 2				•	Circuit 2 discharge pressure.			Gaseous Pressure (in H2O, in Hg, mm H2O, mm Hg, Pa, kPa)
AI	20	Condenser Saturated Refrigerant Temperature- Ckt 1	•	•	•		Circuit 1 condenser refrigerant temperature.			Temperature (°F or °C)
AI	21	Discharge Saturated Refrigerant Temperature- Ckt 1				•	Circuit 1 discharge refrigerant temperature.			Temperature (°F or °C)

AI	22	Condenser Saturated Refrigerant Temperature- Ckt 2	•	•	•	•	•	•	•	Circuit 2 condenser refrigerant temperature.	Temperature (°F or °C)
AI	23	Discharge Saturated Refrigerant Temperature- Ckt 2	•	•	•	•	•	•	•	Circuit 2 discharge refrigerant temperature.	Temperature (°F or °C)
AI	24	Unit Power Consumption	•	•	•	•	•	•	•	The power being consumed by the chiller.	Power - Electrical (kW)
AI	25	Local Atmospheric Pressure	•	•	•	•	•	•	•	Local atmospheric pressure.	Gaseous Pressure (in H ₂ O, in Hg, mm H ₂ O, mm Hg, Pa, kPa)
AI	26	Starts- Compressor 1A	•	•	•	•	•	•	•	Number of starts for compressor 1A.	None
AI	27	Starts- Compressor 1B	•	•	•	•	•	•	•	Number of starts for compressor 1B.	None
AI	28	Starts- Compressor 2A	•	•	•	•	•	•	•	Number of starts for compressor 2A.	None
AI	29	Starts- Compressor 2B	•	•	•	•	•	•	•	Number of starts for compressor 2B.	None
AI	30	Starts- Compressor 1C	•	•	•	•	•	•	•	Number of starts for compressor 1C.	None
AI	31	Starts- Compressor 2A	•	•	•	•	•	•	•	Number of starts for compressor 2A.	None
AI	32	Starts- Compressor 2B	•	•	•	•	•	•	•	Number of starts for compressor 2B.	None
AI	33	Starts- Compressor 2C	•	•	•	•	•	•	•	Number of starts for compressor 2C.	None
AI	34	Run Time- Compressor 1A	•	•	•	•	•	•	•	Total run time of compressor 1A.	Time
AI	35	Run Time- Compressor 1B	•	•	•	•	•	•	•	Total run time of compressor 1B.	Time
AI	36	Run Time- Compressor 2A	•	•	•	•	•	•	•	Total run time of compressor 2A.	Time
AI	37	Run Time- Compressor 2B	•	•	•	•	•	•	•	Total run time of compressor 2B.	Time
AI	38	Run Time- Compressor 1C	•	•	•	•	•	•	•	Total run time of compressor 1C.	Time
AI	39	Run Time- Compressor 2A	•	•	•	•	•	•	•	Total run time of compressor 2A.	Time
AI	40	Run Time- Compressor 2B	•	•	•	•	•	•	•	Total run time of compressor 2B.	Time
AI	41	Run Time- Compressor 2C	•	•	•	•	•	•	•	Total run time of compressor 2C.	Time
AI	42	Airflow Percentage- Circuit 1	•	•	•	•	•	•	•	Approximate airflow percentage of circuit 1.	Percent
AI	43	Airflow Percentage- Circuit 2	•	•	•	•	•	•	•	Approximate airflow percentage of circuit 2.	Percent
AI	44	Evaporator Entering Water Temp	•	•	•	•	•	•	•	Temperature of the water entering the evaporator.	Temperature (°F or °C)
AI	45	Evaporator Leaving Water Temp	•	•	•	•	•	•	•	Temperature of the water leaving the evaporator.	Temperature (°F or °C)
AI	46	Condenser Entering Water Temp	•	•	•	•	•	•	•	Temperature of the water entering the condenser.	Temperature (°F or °C)
AI	47	Condenser Leaving Water Temp	•	•	•	•	•	•	•	Temperature of the water leaving the condenser.	Temperature (°F or °C)
AI	48	High Side Oil Pressure- Compressor 1A	•	•	•	•	•	•	•	Pressure of the oil at the high side of compressor 1A.	Fluid Pressure (PSI, kPa)
AI	49	High Side Oil Pressure- Compressor 1B	•	•	•	•	•	•	•	Pressure of the oil at the high side of compressor 1B.	Fluid Pressure (PSI, kPa)
AI	50	High Side Oil Pressure- Compressor 2A	•	•	•	•	•	•	•	Pressure of the oil at the high side of compressor 2A.	Fluid Pressure (PSI, kPa)
AI	51	High Side Oil Pressure- Compressor 2B	•	•	•	•	•	•	•	Pressure of the oil at the high side of compressor 2B.	Fluid Pressure (PSI, kPa)

AI	52	Oil Temp- Compressor 1A							Temperature of the oil in compressor 1A.	Temperature (°F or °C)
AI	53	Oil Temp- Compressor 1B							Temperature of the oil in compressor 1B.	Temperature (°F or °C)
AI	54	Oil Temp- Compressor 2A							Temperature of the oil in compressor 2A.	Temperature (°F or °C)
AI	55	Oil Temp- Compressor 2B							Temperature of the oil in compressor 2B.	Temperature (°F or °C)
AI	56	Refrigerant Disch Temp- Ckt 1							Temperature of the refrigerant being discharged from Ckt 1.	Temperature (°F or °C)
AI	57	Outdoor Air Temperature							Outdoor air temperature.	Temperature (°F or °C)
AI	58	Condenser Control Output							Percentage of condenser water flow being requested by the chiller.	Percent
AI	59	Phase AB Voltage- Compressor 1A							Phase AB voltage, compressor 1A.	Voltage
AI	60	Phase BC Voltage- Compressor 1A							Phase BC voltage, compressor 1A.	Voltage
AI	61	Phase CA Voltage- Compressor 1A							Phase CA voltage, compressor 1A.	Voltage
AI	62	Phase AB Voltage- Compressor 1B							Phase AB voltage, compressor 1B.	Voltage
AI	63	Phase BC Voltage- Compressor 1B							Phase BC voltage, compressor 1B.	Voltage
AI	64	Phase CA Voltage- Compressor 1B							Phase CA voltage, compressor 1B.	Voltage
AI	65	Phase AB Voltage- Compressor 2A							Phase AB voltage, compressor 2A.	Voltage
AI	66	Phase BC Voltage- Compressor 2A							Phase BC voltage, compressor 2A.	Voltage
AI	67	Phase CA Voltage- Compressor 2A							Phase CA voltage, compressor 2A.	Voltage
AI	68	Phase AB Voltage- Compressor 2B							Phase AB voltage, compressor 2B.	Voltage
AI	69	Phase BC Voltage- Compressor 2B							Phase BC voltage, compressor 2B.	Voltage
AI	70	Phase CA Voltage- Compressor 2B							Phase CA voltage, compressor 2B.	Voltage
AI	71	Line 1 Current (in Amps)- Compressor 1A							Line 1 Current (in Amps)- Compressor 1A	Current
AI	72	Line 2 Current (in Amps)- Compressor 1A							Line 2 Current (in Amps)- Compressor 1A	Current
AI	73	Line 3 Current (in Amps)- Compressor 1A							Line 3 Current (in Amps)- Compressor 1A	Current
AI	74	Line 1 Current (in Amps)- Compressor 1B							Line 1 Current (in Amps)- Compressor 1B	Current
AI	75	Line 2 Current (in Amps)- Compressor 1B							Line 2 Current (in Amps)- Compressor 1B	Current
AI	76	Line 3 Current (in Amps)- Compressor 1B							Line 3 Current (in Amps)- Compressor 1B	Current
AI	77	Line 1 Current (in Amps)- Compressor 2A							Line 1 Current (in Amps)- Compressor 2A	Current
AI	78	Line 2 Current (in Amps)- Compressor 2A							Line 2 Current (in Amps)- Compressor 2A	Current
AI	79	Line 3 Current (in Amps)- Compressor 2A							Line 3 Current (in Amps)- Compressor 2A	Current
AI	80	Line 1 Current (in Amps)- Compressor 2B							Line 1 Current (in Amps)- Compressor 2B	Current
AI	81	Line 2 Current (in Amps)- Compressor 2B							Line 2 Current (in Amps)- Compressor 2B	Current

AI	82	Line 3 Current (in Amps)- Compressor 2B							Line 3 Current (in Amps)- Compressor 2B		Current
AI	83	Line 1 Current (%RLA)- Compressor 1A							Line 1 Current (%RLA)- Compressor 1A		Percent
AI	84	Line 2 Current (%RLA)- Compressor 1A							Line 2 Current (%RLA)- Compressor 1A		Percent
AI	85	Line 3 Current (%RLA)- Compressor 1A							Line 3 Current (%RLA)- Compressor 1A		Percent
AI	86	Line 1 Current (%RLA)- Compressor 1B							Line 1 Current (%RLA)- Compressor 1B		Percent
AI	87	Line 2 Current (%RLA)- Compressor 1B							Line 2 Current (%RLA)- Compressor 1B		Percent
AI	88	Line 3 Current (%RLA)- Compressor 1B							Line 3 Current (%RLA)- Compressor 1B		Percent
AI	89	Line 1 Current (%RLA)- Compressor 2A							Line 1 Current (%RLA)- Compressor 2A		Percent
AI	90	Line 2 Current (%RLA)- Compressor 2A							Line 2 Current (%RLA)- Compressor 2A		Percent
AI	91	Line 3 Current (%RLA)- Compressor 2A							Line 3 Current (%RLA)- Compressor 2A		Percent
AI	92	Line 1 Current (%RLA)- Compressor 2B							Line 1 Current (%RLA)- Compressor 2B		Percent
AI	93	Line 2 Current (%RLA)- Compressor 2B							Line 2 Current (%RLA)- Compressor 2B		Percent
AI	94	Line 3 Current (%RLA)- Compressor 2B							Line 3 Current (%RLA)- Compressor 2B		Percent
AI	95	Number of Circuits							Number of Circuits		None
AI	96	Number of Compressors, Ckt 1							Number of Compressors, Ckt 1		None
AI	97	Number of Compressors, Ckt 2							Number of Compressors, Ckt 2		None
AI	98	Chiller Design Capacity							Design Capacity of the Chiller		None
AO	1	Chilled Water Setpoint							Desired leaving water temperature if chiller is in cooling mode.	0°F to 75°F (-17.8°C to 23.8°C)	Temperature (°F or °C)
AO	2	Current Limit Setpoint							Sets the maximum capacity that the chiller can use.	0% to 120%	Percent
AO	3	Demand Limit Setpoint							Sets the maximum capacity that the chiller can use.	0% to 120%	Percent
AO	4	Hot Water Setpoint							Desired leaving water temperature if chiller is in heating mode.	80°F to 140°F (26.7°C to 60°C)	Temperature (°F or °C)
AO	5	Base Loading Setpoint							Capacity level to which the chiller should control when base loading is active.	0% to 100%	Percent
BI	1	Run Enabled							Indicates if the chiller is available to run or is currently running.	Inactive = Stop Active = Auto	
BI	2	Local Setpoint Control							Indicates if the chiller is being controlled by local setpoints instead of BAS setpoints.	Inactive = Remote Control Active = Local Control	
BI	3	Capacity Limited							Indicates if conditions may exist that prevent the chiller from reaching setpoint.	Inactive = Not Limited Active = Limited	
BI	4	Chiller Running State							Indicates if the chiller is running or stopped.	Inactive = Off Active = On	
BI	5	Condenser Water Flow Status							Condenser water flow status.	Inactive = No Flow Active = Flow	
BI	6	Maximum Capacity							Indicates if all available chiller capacity is being used.	Inactive = Off Active = On	

BI	7	Head Relief Request								Indicates if the chiller is asking an outside system to provide more heat rejection from the condenser water loop.	Inactive = Off Active = On	
BI	8	Base Loading Active								Indicates if the base loading control method is currently being used.	Inactive = Inactive Active = Active	
BI	9	Compressor 1A Running								Indicates if compressor 1A is running.	Inactive = Off Active = Running	
BI	10	Compressor 1B Running								Indicates if compressor 1B is running.	Inactive = Off Active = Running	
BI	11	Compressor 2A Running								Indicates if compressor 2A is running.	Inactive = Off Active = Running	
BI	12	Compressor 2B Running								Indicates if compressor 2B is running.	Inactive = Off Active = Running	
BI	13	Compressor 1C Running								Indicates if compressor 1C is running.	Inactive = Off Active = Running	
BI	14	Compressor 2A Running								Indicates if compressor 2A is running.	Inactive = Off Active = Running	
BI	15	Compressor 2B Running								Indicates if compressor 2B is running.	Inactive = Off Active = Running	
BI	16	Compressor 2C Running								Indicates if compressor 2C is running.	Inactive = Off Active = Running	
BI	17	Evaporator Water Pump Request								Indicates a request from the chiller to turn on the evaporator water pump.	Inactive = Off Active = On	
BI	18	Water Pump Request								Indicates a request from the chiller to turn on the water pump.	Inactive = Off Active = On	
BI	19	Condenser Water Pump Request								Indicates a request from the chiller to turn on the condenser water pump.	Inactive = Off Active = On	
BI	20	Noise Reduction Active								Indicates if the chiller is in a state where noise is being reduced.	Inactive = Off Active = On	
BI	21	Defrost Mode (or in Defrost)								Indicates if one or more circuits are in a defrost mode.	Inactive = Not in Defrost Active = Defrost	
BI	22	Evaporator Water Flow Status								Indicates if water is flowing through the evaporator.	Inactive = No Flow Active = Flow	
BI	23	Alarm Present								Indicates if an alarm is active.	Inactive = No Alarm Active = Alarm	
BI	24	Shutdown Alarm Present								Indicates if a shutdown alarm is active.	Inactive = No Alarm Active = Alarm	
BI	25	Last Diagnostic								Indicates last diagnostic for the chiller.	Inactive = Off Active = On	
BO	1	Chiller Auto Stop Command								Allows the chiller to run if conditions for running are met.	Inactive = Stop Active = Auto	
BO	2	Remote Diagnostic Reset Command								Resets remotely diagnostics that can be reset.	Inactive = No Reset Request Active = Reset Request	
BO	3	Base Loading Auto/On Request								Requests chiller to use base loading.	Inactive = Auto Active = On	
BO	4	Noise Reduction Request								Requests chiller to enter mode to reduce noise.	Inactive = Normal Active = Reduced Noise	
MI	1	Running Mode								Indicates the primary running mode of the chiller.	1 = Chiller Off 2 = Chiller in Start Mode 3 = Chiller in Run Mode 4 = Chiller in Pre-shutdown Mode 5 = Chiller in Service Mode	
MI	2	Operating Mode								Indicates the primary operating mode of the chiller.	1 = HVAC_Cool 2 = HVAC_Heat 3 = HVAC_Ice 4 = Not Used	

MI	3	MP Communication Status	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	4	Refrigerant Type																	
	5	Model Information																	
	6	Cooling Type																	
	7	Manufacturing Location																	
MI																			
MO	1	Chiller Mode Command																	

1 = R-22
 2 = Communication
 3 = Communication Lost
 4 = Failed to Establish
 5 = Waiting to Establish
 1 = R-11
 2 = R-12
 3 = R-22
 4 = R-123
 5 = R-134A
 6 = R407C
 7 = R-410A

1 = RTA
 2 = CVH
 3 = CVG
 4 = CVR
 5 = CDH
 6 = RTH
 7 = CGW
 8 = CGA
 9 = CCA
 10 = RTW
 11 = RTX
 12 = RTU
 13 = CCU
 14 = CXA
 15 = CGC
 16 = RAU

1 = Water Cooled
 2 = Air Cooled
 1 = Field Applied
 2 = La Crosse
 3 = Pueblo
 4 = Charnes
 5 = Rushville
 6 = Macon
 7 = Waco
 8 = Lexington
 9 = Forsyth
 10 = Clarksville
 11 = Ft. Smith
 12 = Penang
 13 = Colchester
 14 = Curitiba
 15 = Taicang
 16 = Taiwan
 17 = Epinal
 18 = Galbey

1 = HVAC_Cool
 2 = HVAC_Heat
 3 = HVAC_Ice
 4 = Not Used

Mechanical Equipment Schedule

ATES System Replacement
PARC Agassiz, Agassiz, BC
Project No.: R.054815.001

UNIT ID.	UNIT DESCRIPTION	UNIT LOCATION	HP	KW	MCA	VOLT	PH	STARTER TYPE	STARTER BY	DISC SW BY	FED FROM	PROTECTION	FEEDER	NOTES
CH-1	Chiller	Site		206	271	600	3		M	M	DPT-EAA1	350A, 3P	78mmC, 2 x 3C #3/0 + G	1
CHW-P3A	Chiller Pump	Mechanical Room	10			600	3	VFD	M	N/A	MCC1 EA1	25A, 3P	21mmC, 3C #10 + G	1
CHW-P3B	Chiller Pump	Mechanical Room	10			600	3	VFD	M	N/A		25A, 3P	21mmC, 3C #10 + G	1
	Heat Trace	Site				120	1		N/A	E	BP1-EB3	15A, 1P	27mmC, 2C #12 + G	1, 2

NOTES:
1 Coordinate power connection with the Mechanical Contractor on site
2 Heat trace supplied by others