BACnet Points for Reversible Chiller Water-to-Water Heat Pumps Utilizing the FX10 Controller

All volatile (Output) type points will revert to the uncommanded values after a power interruption. These have no limit on the number of writes in a lifetime. The nonvolatile (Value) type points have their values stored in flash memory and they retain their values through a power outage. These have a limited life-time number of write cycles, about 2,000,000. Excessive writes to these will cause controller failure.

Depending on the type of BAS that you are using to integrate the controllers, you will either have an uncommanded value of 254 or 255 for the multistate inputs, outputs and values. For the BAS systems that show 254 as the uncommanded value, you will read/write a "0" for the "Off" command and "1" for the "On" command. For the BAS that shows 255 you will read/write a "1" for the "Off" command and a "2" for the "On" command.

	Analog Inputs	*Read/Write*	*Description*
AI1	Source Frz 1	Read	Shows the temperature of the refrigerant entering the source side heat exchanger for compressor 1.
AI2	Load Frz 1	Read	Shows the temperature of the refrigerant entering the load side heat exchanger for compressor 1.
AI3	Enter Load Temp	Read	Shows the temperature of the water entering the load side heat exchanger.
AI4	Leaving Load Temp	Read	Shows the temperature of the water leaving the load side heat exchanger.
AI5	Enter Source Temp	Read	Shows the temperature of the water entering the source side heat exchanger.
AI6	Leaving Source Temp	Read	Shows the temperature of the water leaving the source side heat exchanger.
AI7	Source Frz Setpt	Read	Shows the low temperature limit of the source side heat exchanger.
AI8	Load Frz Setpt	Read	Shows the low temperature limit of the load side heat exchanger.
AI9	Comp1 Status Output	Read	Shows the commanded status of compressor 1. 1=Off, 2=On
AI10	Alarm Status Output	Read	Shows the commanded status of the alarm output. 1=Off, 2=On
AI11	Comp2 Status Output	Read	Shows the commanded status of compressor 2. 1=Off, 2=On
AI12	Source Frz 2	Read	Shows the refrigerant temperature entering the source side heat for compressor 2.
AI13	Load Frz 2	Read	Shows the refrigerant temperature entering the load side heat for compressor 2.

AI14 Alarms	Read	Shows a numeric value that can be related to the alarms table located on the last page of this document.

Warning: *These are written in Flash memory and have about 2,000,000 write cycles. Should only be written to by manual writes or through a scheduled writes, not by the automated reset process.* **EXCESSIVE WRITES WILL CAUSE CONTROLLER FAILURE, THIS WILL NOT BE COVERED UNDER WARRANTY!**

Analog Values	***Read/Write***	***Description***
AV1 Frz Setpt 1	Read/Write	Shows the high temp freeze limit
AV2 Frz Setpt 2	Read/Write	Allows for the low temp limit to be adjusted once the jumpers are removed on the control board.
AV3 Compressor On Delay	Read/Write	Allows for the compressor on delay timer to be adjusted. Default is 90 seconds.

Warning: If your uncommanded value is 254 then the numeric values listed below will be 1 less than what is described.

Multistate Inputs	***Read/Write***	***Description***
MI1 Mode of Operation	Read	Shows the current operating status of the heatpump. 1=Auto, 7=Shutdown
MI2 Compr 1 Cmd Status	Read	Shows the commanded status of compressor 1. 1=Off, 2=On
MI3 Compr 2 Cmd Status	Read	Shows the commanded status of compressor 2. 1=Off, 2=On
MI4 Rev Valve Status	Read	Shows the commanded position of the reversing valve. 1=Cooling, 2=Heating
MI5 Acc 1 Status	Read	Shows the current state of the ACC 1(X1) output. 1=Off, 2=On
MI6 Stage 1 Alarm	Read	Shows the current status of the compressor 1 alarm. 1=Off, 2=Alarm
MI7 Stage 2 Alarm	Read	Shows the current status of the compressor 2 alarm. 1=Off, 2=Alarm
MI8 Load Flow Switch	Read	Shows the current status of the load flow switch input. 1=Open, 2=Closed
MI9 Source Flow Switch	Read	Shows the current status of the source flow switch input. 1=Open, 2=Closed

Warning: With Lead/Lag enabled (factory default), and no compressors running, if there is a command given to run a compressor whether a Y1 or Y2 call, the unit will start the compressor that has been off the longest.

With Lead/Lag disabled and no compressors are running, a Y1 call will start compressor 1, a Y2 call will start compressor 2. The control does not care which command it receives, it will start the corresponding compressor.

Warning: If your uncommanded value is 254 then the numeric values listed below will be 1 less than what is described.

Multistate Outputs	*Read/Write*	*Description*
MO1 Compr 1 Cmd (Y1)	Write	Allows for network command equivalent of a thermostat 'Y1' call. 1=Off, 2=On
MO2 Compr 2 Cmd (Y2)	Write	Allows for network command equivalent of a thermostat 'Y2' call. 1=Off, 2=On
MO3 Rev Valve Cmd (B)	Write	Allows for network command equivalent of a thermostat 'B' call. 1=Cooling, 2=Heating
MO4 Alarm Reset	Write	Allows for network reset of manual reset alarms, must write to a 2 then back to a 1 for reset to take effect.
MO5 nviEXPBO1	Write	Allows for network control of digital output 1 on the expansion board. 1=Off, 2=On
MO6 nviEXPO2	Write	Allows for network control of digital output 2 on the expansion board. 1=Off, 2=On
MO7 nviEXPO7	Write	Allows for network control of digital output 7 on the expansion board. 1=Off, 2=On
MO8 nviEXPO8	Write	Allows for network control of digital output 8 on the expansion board. 1=Off, 2=On
MO9 Emergency Override	Write	Allows for a network command to put the unit in emergency shutdown. 1=Auto, 2=Shutdown

PRODCWWE-06/07/08/09 Alarm Table	
#	Description
0	No alarms
1	Load Flow Switch
2	Compressor 1 Low Suction Pressure
3	Source Low Temp Alarm Compressor 1
4	Source Predictive Freeze Alarm Compressor 1
5	Source Flow Switch
6	High Pressure On Compressor 1
7	Bad Source Sensor On Compressor 1
8	Bad Load Sensor On Compressor 1
9	Compressor 2 Low Suction Pressure
10	Source Low Temp Alarm Compressor 2
11	Bad Source Sensor On Compressor 2
12	Source Predictive Freeze Alarm Compressor 2
13	Bad Load Sensor On Compressor 2
14	High Pressure On Compressor 2
15	Compressor 1 Start Failure
16	Low Temp Cutoff on Compressor 1
17	Low Temp Cutoff on Compressor 2
18	Compressor 2 Start Failure
19	Load Low Temp Alarm Compressor 1
20	Load Predictive Freeze Alarm Compressor 1
21	Load Low Temp Alarm Compressor 2
22	Load Predictive Freeze Alarm Compressor 2
23	Compressor 1 Charge Loss
24	Compressor 2 Charge Loss