


		<b>ARMSTRONG</b> 
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	<b>DESIGN ENVELOPE</b>	○
	IPC 9511	
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# IPC 9511

## Air cooled chilled water plant control system

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### Data points

File No: 90.873  
Date: JANUARY 16, 2017  
Supersedes: NEW  
Date: NEW

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**BAS DATA POINTS - MODBUS RTU**

**BUILDING AUTOMATION SYSTEM MODBUS RTU**

IPC 9511 Communication Interface Rev 14.062

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	OFF STATE (0)	ON STATE (1)	TYPE	DATA TYPE
00001	Digital	R/W	Remote Start	Stop	Start	Toggle	Boolean
00002	Digital	R/W	Plant Enable / Disable	Disable	Enable	Toggle	Boolean
00003	Digital	R/W	Alarm Reset	N/A	Reset	Positive Edge	Boolean
00004	Digital	R/W	Emergency Stop	Ok	E-Stop	Toggle	Boolean
01001	Digital	R/W	CHW Bypass Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01002	Digital	R/W	Chiller 1 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01003	Digital	R/W	Chiller 2 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01004	Digital	R/W	Chiller 3 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01005	Digital	R/W	Chiller 4 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01006	Digital	R/W	Chiller 5 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle	Boolean
01007	Digital	R/W	Chiller 1 CHW Iso Valve Status	Close	Open	Toggle	Boolean
01008	Digital	R/W	Chiller 2 CHW Iso Valve Status	Close	Open	Toggle	Boolean
01009	Digital	R/W	Chiller 3 CHW Iso Valve Status	Close	Open	Toggle	Boolean
01010	Digital	R/W	Chiller 4 CHW Iso Valve Status	Close	Open	Toggle	Boolean
01011	Digital	R/W	Chiller 5 CHW Iso Valve Status	Close	Open	Toggle	Boolean
10001	Digital	R	Plant Status	Off	On	Toggle	Boolean
10002	Digital	R	All Zone Transmitter Failed	Ok	Alarm	Toggle	Boolean
10003	Digital	R	Zone 1 Transmitter Failed	Ok	Alarm	Toggle	Boolean
10004	Digital	R	Zone 2 Transmitter Failed	Ok	Alarm	Toggle	Boolean
10005	Digital	R	Zone 3 Transmitter Failed	Ok	Alarm	Toggle	Boolean
10006	Digital	R	Zone 4 Transmitter Failed	Ok	Alarm	Toggle	Boolean
10007	Digital	R	Zone 5 Transmitter Failed	Ok	Alarm	Toggle	Boolean
10008	Digital	R	Dry Bulb Air Temp Transmitter Failed	Ok	Alarm	Toggle	Boolean
10009	Digital	R	Relative Humidity Transmitter Failed	Ok	Alarm	Toggle	Boolean
10010	Digital	R	Refrigerant Leak Alarm	Ok	Alarm	Toggle	Boolean
11001	Digital	R	CHWS Temp Transmitter Failed	Ok	Alarm	Toggle	Boolean
11002	Digital	R	CHWR Temp Transmitter Failed	Ok	Alarm	Toggle	Boolean
11003	Digital	R	CHW Flow Transmitter Failed	Ok	Alarm	Toggle	Boolean
11004	Digital	R	CHWP DP Transmitter Failed	Ok	Alarm	Toggle	Boolean
11005	Digital	R	System DP Transmitter Failed	Ok	Alarm	Toggle	Boolean
11006	Digital	R	Chiller 1 CHW Iso Valve Alarm	Ok	Alarm	Toggle	Boolean
11007	Digital	R	Chiller 2 CHW Iso Valve Alarm	Ok	Alarm	Toggle	Boolean
11008	Digital	R	Chiller 3 CHW Iso Valve Alarm	Ok	Alarm	Toggle	Boolean
11009	Digital	R	Chiller 4 CHW Iso Valve Alarm	Ok	Alarm	Toggle	Boolean
11010	Digital	R	Chiller 5 CHW Iso Valve Alarm	Ok	Alarm	Toggle	Boolean
11011	Digital	R	CHW Pump 1/1A Run Feedback *	Stopped	Running	Toggle	Boolean
11012	Digital	R	CHW Pump 1/1A Alarm *	Ok	Alarm	Toggle	Boolean
11013	Digital	R	CHW Pump 2/2A Run Feedback *	Stopped	Running	Toggle	Boolean

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	OFF STATE (0)	ON STATE (1)	TYPE	DATA TYPE
11014	Digital	R	CHW Pump 2/2A Alarm *	Ok	Alarm	Toggle	Boolean
11015	Digital	R	CHW Pump 3/3A Run Feedback *	Stopped	Running	Toggle	Boolean
11016	Digital	R	CHW Pump 3/3A Alarm *	Ok	Alarm	Toggle	Boolean
11017	Digital	R	CHW Pump 4/4A Run Feedback *	Stopped	Running	Toggle	Boolean
11018	Digital	R	CHW Pump 4/4A Alarm *	Ok	Alarm	Toggle	Boolean
11019	Digital	R	CHW Pump 5/5A Run Feedback *	Stopped	Running	Toggle	Boolean
11020	Digital	R	CHW Pump 5/5A Alarm *	Ok	Alarm	Toggle	Boolean
11021	Digital	R	CHW Pump 1B Run Feedback	Stopped	Running	Toggle	Boolean
11022	Digital	R	CHW Pump 1B Alarm	Ok	Alarm	Toggle	Boolean
11023	Digital	R	CHW Pump 2B Run Feedback	Stopped	Running	Toggle	Boolean
11024	Digital	R	CHW Pump 2B Alarm	Ok	Alarm	Toggle	Boolean
11025	Digital	R	CHW Pump 3B Run Feedback	Stopped	Running	Toggle	Boolean
11026	Digital	R	CHW Pump 3B Alarm	Ok	Alarm	Toggle	Boolean
11027	Digital	R	CHW Pump 4B Run Feedback	Stopped	Running	Toggle	Boolean
11028	Digital	R	CHW Pump 4B Alarm	Ok	Alarm	Toggle	Boolean
11029	Digital	R	CHW Pump 5B Run Feedback	Stopped	Running	Toggle	Boolean
11030	Digital	R	CHW Pump 5B Alarm	Ok	Alarm	Toggle	Boolean
11031	Digital	R	Chiller 1 Run Feedback	Stopped	Running	Toggle	Boolean
11032	Digital	R	Chiller 1 Alarm	Ok	Alarm	Toggle	Boolean
11033	Digital	R	Chiller 1 Power Transmitter Failed	Ok	Alarm	Toggle	Boolean
11034	Digital	R	Chiller 2 Run Feedback	Stopped	Running	Toggle	Boolean
11035	Digital	R	Chiller 2 Alarm	Ok	Alarm	Toggle	Boolean
11036	Digital	R	Chiller 2 Power Transmitter Failed	Ok	Alarm	Toggle	Boolean
11037	Digital	R	Chiller 3 Run Feedback	Stopped	Running	Toggle	Boolean
11038	Digital	R	Chiller 3 Alarm	Ok	Alarm	Toggle	Boolean
11039	Digital	R	Chiller 3 Power Transmitter Failed	Ok	Alarm	Toggle	Boolean
11040	Digital	R	Chiller 4 Run Feedback	Stopped	Running	Toggle	Boolean
11041	Digital	R	Chiller 4 Alarm	Ok	Alarm	Toggle	Boolean
11042	Digital	R	Chiller 4 Power Transmitter Failed	Ok	Alarm	Toggle	Boolean
11043	Digital	R	Chiller 5 Run Feedback	Stopped	Running	Toggle	Boolean
11044	Digital	R	Chiller 5 Alarm	Ok	Alarm	Toggle	Boolean
11045	Digital	R	Chiller 5 Power Transmitter Failed	Ok	Alarm	Toggle	Boolean

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	RANGE	REPRESENT	UNITS	DATA TYPE
30001	Analog	R	Plant Efficiency	0 to 65535	0 to 6553.5	kW/Ton	Integer
30002	Analog	R	Total Plant Power Consumption	±1000000000	1 decimal	kW	Long
30004	Analog	R	Total Chiller Capacity	±1000000000	1 decimal	tons	Long
30006	Analog	R	Total Chiller Min Flow	±1000000000	1 decimal	usgpm, lps, m³/hr	Long
30008	Analog	R	Total Chiller Max Flow	±1000000000	1 decimal	usgpm, lps, m³/hr	Long
30010	Analog	R	Sensorless Head	0 to 65535	0 to 6553.5	feet	Integer
30011	Analog	R	Sensorless Flow	0 to 65535	0 to 6553.5	usgpm	Integer
30012	Analog	R	Sensorless Delta	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30013	Analog	R	Zone 1 PV	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30014	Analog	R	Zone 1 Error	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30015	Analog	R	Zone 2 PV	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30016	Analog	R	Zone 2 Error	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30017	Analog	R	Zone 3 PV	-32000 to 32000	-3200.0 to 3200.0	psi, ft, kPA, m, °F or °C	Signed Int
30018	Analog	R	Zone 3 Error	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30019	Analog	R	Zone 4 PV	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30020	Analog	R	Zone 4 Error	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30021	Analog	R	Zone 5 PV	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30022	Analog	R	Zone 5 Error	-32000 to 32000	-3200.0 to 3200.0		Signed Int
30023	Analog	R	Dry Bulb Air Temp	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
30024	Analog	R	Relative Humidity	0 to 1000	0.0 to 100.0	%	Integer
31001	Analog	R	CHWS Temp	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31002	Analog	R	CHWR Temp	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31003	Analog	R	CHW Flow	+/-1000000000	1 decimal	usgpm, lps, m³/hr	Long
31005	Analog	R	CHWP DP	-32000 to 32000	-3200.0 to 3200.0	psi, ft, kPA, m	Signed Int
31006	Analog	R	System DP	-32000 to 32000	-3200.0 to 3200.0	psi, ft, kPA, m	Signed Int
31007	Analog	R	Chiller 1 Leaving CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31008	Analog	R	Chiller 1 Entering CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31009	Analog	R	Chiller 1 Power	0 to 65535	0 to 6553.5	kW	Integer
31010	Analog	R	Chiller 2 Leaving CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31011	Analog	R	Chiller 2 Entering CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31012	Analog	R	Chiller 2 Power	0 to 65535	0 to 6553.5	kW	Integer
31013	Analog	R	Chiller 3 Leaving CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31014	Analog	R	Chiller 3 Entering CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31015	Analog	R	Chiller 3 Power	0 to 65535	0 to 6553.5	kW	Integer
31016	Analog	R	Chiller 4 Leaving CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31017	Analog	R	Chiller 4 Entering CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31018	Analog	R	Chiller 4 Power	0 to 65535	0 to 6553.5	kW	Integer
31019	Analog	R	Chiller 5 Leaving CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31020	Analog	R	Chiller 5 Entering CHW Temperature	-9999 to 9999	-999.9 to 999.9	°F, °C	Signed Int
31021	Analog	R	Chiller 5 Power	0 to 65535	0 to 6553.5	kW	Integer
31022	Analog	R	CHW Pump 1/1A Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31023	Analog	R	CHW Pump 1/1A Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31024	Analog	R	CHW Pump 1/1A Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	RANGE	REPRESENT	UNITS	DATA TYPE
31025	Analog	R	CHW Pump 1/1A Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31026	Analog	R	CHW Pump 2/2A Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31027	Analog	R	CHW Pump 2/2A Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31028	Analog	R	CHW Pump 2/2A Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31029	Analog	R	CHW Pump 2/2A Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31030	Analog	R	CHW Pump 3/3A Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31031	Analog	R	CHW Pump 3/3A Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31032	Analog	R	CHW Pump 3/3A Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31033	Analog	R	CHW Pump 3/3A Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31034	Analog	R	CHW Pump 4/4A Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31035	Analog	R	CHW Pump 4/4A Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31036	Analog	R	CHW Pump 4/4A Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31037	Analog	R	CHW Pump 4/4A Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31038	Analog	R	CHW Pump 5/5A Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31039	Analog	R	CHW Pump 5/5A Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31040	Analog	R	CHW Pump 5/5A Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31041	Analog	R	CHW Pump 5/5A Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31042	Analog	R	CHW Pump 1B Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31043	Analog	R	CHW Pump 1B Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31044	Analog	R	CHW Pump 1B Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31045	Analog	R	CHW Pump 1B Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31046	Analog	R	CHW Pump 2B Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31047	Analog	R	CHW Pump 2B Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31048	Analog	R	CHW Pump 2B Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31049	Analog	R	CHW Pump 2B Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31050	Analog	R	CHW Pump 3B Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31051	Analog	R	CHW Pump 3B Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31052	Analog	R	CHW Pump 3B Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31053	Analog	R	CHW Pump 3B Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31054	Analog	R	CHW Pump 4B Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31055	Analog	R	CHW Pump 4B Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31056	Analog	R	CHW Pump 4B Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31057	Analog	R	CHW Pump 4B Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31058	Analog	R	CHW Pump 5B Drive Power	0 to 65535	0 to 6553.5	kW	Integer
31059	Analog	R	CHW Pump 5B Drive Volt AC	0 to 65535	0 to 6553.5	VAC	Integer
31060	Analog	R	CHW Pump 5B Drive Amp	0 to 65535	0 to 6553.5	Amp	Integer
31061	Analog	R	CHW Pump 5B Drive Speed Feedback	0 to 1000	0.0 to 100.0	%	Integer
31062	Analog	R	CHW Pump 1/1A Run Hours	±1000000000	1 decimal	hours	Long
31064	Analog	R	CHW Pump 2/2A Run Hours	±1000000000	1 decimal	hours	Long
31066	Analog	R	CHW Pump 3/3A Run Hours	±1000000000	1 decimal	hours	Long
31068	Analog	R	CHW Pump 4/4A Run Hours	±1000000000	1 decimal	hours	Long
31070	Analog	R	CHW Pump 5/5A Run Hours	±1000000000	1 decimal	hours	Long
31072	Analog	R	CHW Pump 1B Run Hours	±1000000000	1 decimal	hours	Long

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	RANGE	REPRESENT	UNITS	DATA TYPE
31074	Analog	R	CHW Pump 2B Run Hours	±1000000000	1 decimal	hours	Long
31076	Analog	R	CHW Pump 3B Run Hours	±1000000000	1 decimal	hours	Long
31078	Analog	R	CHW Pump 4B Run Hours	±1000000000	1 decimal	hours	Long
31080	Analog	R	CHW Pump 5B Run Hours	±1000000000	1 decimal	hours	Long
31082	Analog	R	Chiller 1 Run Hours	±1000000000	1 decimal	hours	Long
31084	Analog	R	Chiller 2 Run Hours	±1000000000	1 decimal	hours	Long
31086	Analog	R	Chiller 3 Run Hours	±1000000000	1 decimal	hours	Long
31088	Analog	R	Chiller 4 Run Hours	±1000000000	1 decimal	hours	Long
31090	Analog	R	Chiller 5 Run Hours	±1000000000	1 decimal	hours	Long

MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	RANGE	REPRESENT	UNITS	DATA TYPE
32001	Analog	R	Chiller 1 Duty		0 to 5 (Note 3)		Integer
32002	Analog	R	Chiller 1 State		0 to 7 (Note 4)		Integer
32003	Analog	R	Chiller 2 Duty		0 to 5 (Note 3)		Integer
32004	Analog	R	Chiller 2 State		0 to 7 (Note 4)		Integer
32005	Analog	R	Chiller 3 Duty		0 to 5 (Note 3)		Integer
32006	Analog	R	Chiller 3 State		0 to 7 (Note 4)		Integer
32007	Analog	R	Chiller 4 Duty		0 to 5 (Note 3)		Integer
32008	Analog	R	Chiller 4 State		0 to 7 (Note 4)		Integer
32009	Analog	R	Chiller 5 Duty		0 to 5 (Note 3)		Integer
32010	Analog	R	Chiller 5 State		0 to 7 (Note 4)		Integer
32011	Analog	R	CHW Pump 1 Duty Standby **		0 to 7 (Note 2)		Integer
32012	Analog	R	CHW Pump 2 Duty Standby **		0 to 7 (Note 2)		Integer
32013	Analog	R	CHW Pump 3 Duty Standby **		0 to 7 (Note 2)		Integer
32014	Analog	R	CHW Pump 4 Duty Standby **		0 to 7 (Note 2)		Integer
32015	Analog	R	CHW Pump 5 Duty Standby **		0 to 7 (Note 2)		Integer
32016	Analog	R	CHW Pump 1A Duty Standby **		0 to 7 (Note 2)		Integer
32017	Analog	R	CHW Pump 2A Duty Standby **		0 to 7 (Note 2)		Integer
32018	Analog	R	CHW Pump 3A Duty Standby **		0 to 7 (Note 2)		Integer
32019	Analog	R	CHW Pump 4A Duty Standby **		0 to 7 (Note 2)		Integer
32020	Analog	R	CHW Pump 5A Duty Standby **		0 to 7 (Note 2)		Integer
32021	Analog	R	CHW Pump 1B Duty Standby **		0 to 7 (Note 2)		Integer
32022	Analog	R	CHW Pump 2B Duty Standby **		0 to 7 (Note 2)		Integer
32023	Analog	R	CHW Pump 3B Duty Standby **		0 to 7 (Note 2)		Integer
32024	Analog	R	CHW Pump 4B Duty Standby **		0 to 7 (Note 2)		Integer
32025	Analog	R	CHW Pump 5B Duty Standby **		0 to 7 (Note 2)		Integer



MODBUS ADDRESS	SIGNAL TYPE	READ/ WRITE	DESCRIPTION	RANGE	REPRESENT	UNITS	DATA TYPE
40001	Analog	R/W	Max Open Cooling Valve Position	0 to 1000	0.0 to 100.0	%	Integer
40002	Analog	R/W	Zone 1 Setpoint	-32000 to 32000	-3200.0 to 3200.0	psi, ft, kPA, m, °F or °C	Signed Int
40003	Analog	R/W	Zone 2 Setpoint	-32000 to 32000	-3200.0 to 3200.0		Signed Int
40004	Analog	R/W	Zone 3 Setpoint	-32000 to 32000	-3200.0 to 3200.0		Signed Int
40005	Analog	R/W	Zone 4 Setpoint	-32000 to 32000	-3200.0 to 3200.0		Signed Int
40006	Analog	R/W	Zone 5 Setpoint	-32000 to 32000	-3200.0 to 3200.0		Signed Int
41001	Analog	R/W	CHW Bypass Valve Position	0 to 1000	0.0 to 100.0	%	Integer
41002	Analog	R/W	CHW Pump 1/1A Hand Speed *	0 to 1000	0.0 to 100.0	%	Integer
41003	Analog	R/W	CHW Pump 2/2A Hand Speed *	0 to 1000	0.0 to 100.0	%	Integer
41004	Analog	R/W	CHW Pump 3/3A Hand Speed *	0 to 1000	0.0 to 100.0	%	Integer
41005	Analog	R/W	CHW Pump 4/4A Hand Speed *	0 to 1000	0.0 to 100.0	%	Integer
41006	Analog	R/W	CHW Pump 5/5A Hand Speed *	0 to 1000	0.0 to 100.0	%	Integer
41007	Analog	R/W	CHW Pump 1B Hand Speed	0 to 1000	0.0 to 100.0	%	Integer
41008	Analog	R/W	CHW Pump 2B Hand Speed	0 to 1000	0.0 to 100.0	%	Integer
41009	Analog	R/W	CHW Pump 3B Hand Speed	0 to 1000	0.0 to 100.0	%	Integer
41010	Analog	R/W	CHW Pump 4B Hand Speed	0 to 1000	0.0 to 100.0	%	Integer
41011	Analog	R/W	CHW Pump 5B Hand Speed	0 to 1000	0.0 to 100.0	%	Integer
42001	Analog	R/W	Chiller 1 Mode		0 to 3 (Note 1)		Integer
42002	Analog	R/W	Chiller 2 Mode		0 to 3 (Note 1)		Integer
42003	Analog	R/W	Chiller 3 Mode		0 to 3 (Note 1)		Integer
42004	Analog	R/W	Chiller 4 Mode		0 to 3 (Note 1)		Integer
42005	Analog	R/W	Chiller 5 Mode		0 to 3 (Note 1)		Integer
42006	Analog	R/W	CHW Pump 1/1A Mode *		0 to 3 (Note 1)		Integer
42007	Analog	R/W	CHW Pump 2/2A Mode *		0 to 3 (Note 1)		Integer
42008	Analog	R/W	CHW Pump 3/3A Mode *		0 to 3 (Note 1)		Integer
42009	Analog	R/W	CHW Pump 4/4A Mode *		0 to 3 (Note 1)		Integer
42010	Analog	R/W	CHW Pump 5/5A Mode *		0 to 3 (Note 1)		Integer
42011	Analog	R/W	CHW Pump 1B Mode		0 to 3 (Note 1)		Integer
42012	Analog	R/W	CHW Pump 2B Mode		0 to 3 (Note 1)		Integer
42013	Analog	R/W	CHW Pump 3B Mode		0 to 3 (Note 1)		Integer
42014	Analog	R/W	CHW Pump 4B Mode		0 to 3 (Note 1)		Integer
42015	Analog	R/W	CHW Pump 5B Mode		0 to 3 (Note 1)		Integer
42016	Analog	R/W	Set Lead Chiller		1 to 5 (On Change)		Integer
42017	Analog	R/W	Set Lead CHW Pump		1 to 5 (On Change)		Integer

**NOTE :** Multistate Data Explanation

1 Mode	2 Pump/Fan Duty Standby	3 Chiller Duty	4 Chiller State
0 = Not Used	0 = N/A	0 = N/A	0 = N/A
1 = Hand	1 = Duty 1	1 = Lead	1 = Ready
2 = Off	2 = Duty 2	2 = Lag 1	2 = Enabled
3 = Auto	3 = Duty 3	3 = Lag 2	3 = Started
	4 = Duty 4	4 = Lag 3	4 = Running
	5 = Duty 5	5 = Lag 4	5 = Shutdown
	6 = Standby		6 = Alarm
	7 = Duty		7 = Not Ready

\* For pump points labeled 1/1A: 1 references the single pump while 1A references side A of a dualArm/Twin pump

\*\* For Pump Duty Standby: 1 refers to the pump (single/dualArm/Twin). A/B refer to each side of the dualArm/Twin pump and are not used for single pumps

**BAS DATA POINTS - BACNET**

**BUILDING AUTOMATION SYSTEM**

IPC 9511 Communication Interface Rev 14.061

BACNET ADDRESS	READ/ WRITE	DESCRIPTION	OFF STATE (0)	ON STATE (1)	TYPE
BO 0001	R/W	Remote Start	Stop	Start	Toggle
BO 0002	R/W	Plant Enable / Disable	Disable	Enable	Toggle
BO 0003	R/W	Alarm Reset	N/A	Reset	Positive Edge
BO 0004	R/W	Emergency Stop	OK	E-Stop	Toggle
BI 0001	R	Plant Status	Off	On	Toggle
BI 0002	R	All Zone Transmitter Failed	Ok	Alarm	Toggle
BI 0003	R	Zone 1 Transmitter Failed	Ok	Alarm	Toggle
BI 0004	R	Zone 2 Transmitter Failed	Ok	Alarm	Toggle
BI 0005	R	Zone 3 Transmitter Failed	Ok	Alarm	Toggle
BI 0006	R	Zone 4 Transmitter Failed	Ok	Alarm	Toggle
BI 0007	R	Zone 5 Transmitter Failed	Ok	Alarm	Toggle
BI 0008	R	Dry Bulb Air Temp Transmitter Failed	Ok	Alarm	Toggle
BI 0009	R	Relative Humidity Transmitter Failed	Ok	Alarm	Toggle
BI 0010	R	Refrigerant Leak Alarm	Ok	Alarm	Toggle
BI 1001	R	CHWS Temp Transmitter Failed	Ok	Alarm	Toggle
BI 1002	R	CHWR Temp Transmitter Failed	Ok	Alarm	Toggle
BI 1003	R	CHW Flow Transmitter Failed	Ok	Alarm	Toggle
BI 1004	R	CHWP DP Transmitter Failed	Ok	Alarm	Toggle
BI 1005	R	System DP Transmitter Failed	Ok	Alarm	Toggle
BI 1006	R	Chiller 1 CHW Iso Valve Alarm	Ok	Alarm	Toggle
BI 1007	R	Chiller 2 CHW Iso Valve Alarm	Ok	Alarm	Toggle
BI 1008	R	Chiller 3 CHW Iso Valve Alarm	Ok	Alarm	Toggle
BI 1009	R	Chiller 4 CHW Iso Valve Alarm	Ok	Alarm	Toggle
BI 1010	R	Chiller 5 CHW Iso Valve Alarm	Ok	Alarm	Toggle
BI 1011	R	CHW Pump 1A Run Feedback	Stopped	Running	Toggle
BI 1012	R	CHW Pump 1A Alarm	Ok	Alarm	Toggle
BI 1013	R	CHW Pump 2A Run Feedback	Stopped	Running	Toggle
BI 1014	R	CHW Pump 2A Alarm	Ok	Alarm	Toggle
BI 1015	R	CHW Pump 3A Run Feedback	Stopped	Running	Toggle
BI 1016	R	CHW Pump 3A Alarm	Ok	Alarm	Toggle
BI 1017	R	CHW Pump 4A Run Feedback	Stopped	Running	Toggle
BI 1018	R	CHW Pump 4A Alarm	Ok	Alarm	Toggle
BI 1019	R	CHW Pump 5A Run Feedback	Stopped	Running	Toggle
BI 1020	R	CHW Pump 5A Alarm	Ok	Alarm	Toggle
BI 1021	R	CHW Pump 1B Run Feedback	Stopped	Running	Toggle
BI 1022	R	CHW Pump 1B Alarm	Ok	Alarm	Toggle
BI 1023	R	CHW Pump 2B Run Feedback	Stopped	Running	Toggle

BACNET ADDRESS	READ/ WRITE	DESCRIPTION	OFF STATE (0)	ON STATE (1)	TYPE
BI 1024	R	CHW Pump 2B Alarm	Ok	Alarm	Toggle
BI 1025	R	CHW Pump 3B Run Feedback	Stopped	Running	Toggle
BI 1026	R	CHW Pump 3B Alarm	Ok	Alarm	Toggle
BI 1027	R	CHW Pump 4B Run Feedback	Stopped	Running	Toggle
BI 1028	R	CHW Pump 4B Alarm	Ok	Alarm	Toggle
BI 1029	R	CHW Pump 5B Run Feedback	Stopped	Running	Toggle
BI 1030	R	CHW Pump 5B Alarm	Ok	Alarm	Toggle
BI 1031	R	Chiller 1 Run Feedback	Stopped	Running	Toggle
BI 1032	R	Chiller 1 Alarm	Ok	Alarm	Toggle
BI 1033	R	Chiller 1 Power Transmitter Failed	Ok	Alarm	Toggle
BI 1034	R	Chiller 2 Run Feedback	Stopped	Running	Toggle
BI 1035	R	Chiller 2 Alarm	Ok	Alarm	Toggle
BI 1036	R	Chiller 2 Power Transmitter Failed	Ok	Alarm	Toggle
BI 1037	R	Chiller 3 Run Feedback	Stopped	Running	Toggle
BI 1038	R	Chiller 3 Alarm	Ok	Alarm	Toggle
BI 1039	R	Chiller 3 Power Transmitter Failed	Ok	Alarm	Toggle
BI 1040	R	Chiller 4 Run Feedback	Stopped	Running	Toggle
BI 1041	R	Chiller 4 Alarm	Ok	Alarm	Toggle
BI 1042	R	Chiller 4 Power Transmitter Failed	Ok	Alarm	Toggle
BI 1043	R	Chiller 5 Run Feedback	Stopped	Running	Toggle
BI 1044	R	Chiller 5 Alarm	Ok	Alarm	Toggle
BI 1045	R	Chiller 5 Power Transmitter Failed	Ok	Alarm	Toggle
BV 1001	R/W	CHW Bypass Valve Hand/Auto	Hand	Auto	Toggle
BV 1002	R/W	Chiller 1 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle
BV 1003	R/W	Chiller 2 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle
BV 1004	R/W	Chiller 3 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle
BV 1005	R/W	Chiller 4 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle
BV 1006	R/W	Chiller 5 CHW Iso Valve Hand/Auto	Hand	Auto	Toggle
BV 1007	R/W	Chiller 1 CHW Iso Valve Status	Close	Open	Toggle
BV 1008	R/W	Chiller 2 CHW Iso Valve Status	Close	Open	Toggle
BV 1009	R/W	Chiller 3 CHW Iso Valve Status	Close	Open	Toggle
BV 1010	R/W	Chiller 4 CHW Iso Valve Status	Close	Open	Toggle
BV 1011	R/W	Chiller 5 CHW Iso Valve Status	Close	Open	Toggle

BACNET ADDRESS	READ/WRITE	DESCRIPTION	RANGE	UNITS
AI 0001	R	Plant Efficiency		kW/Ton
AI 0002	R	Total Plant Power Consumption		kW
AI 0003	R	Total Chiller Capacity		tons
AI 0004	R	Total Chiller Min Flow		usgpm, lps, m <sup>3</sup> /hr
AI 0005	R	Total Chiller Max Flow		usgpm, lps, m <sup>3</sup> /hr
AI 0006	R	Sensorless Head		feet

BACNET ADDRESS	READ/WRITE	DESCRIPTION	RANGE	UNITS
AI 0007	R	Sensorless Flow		usgpm
AI 0008	R	Sensorless Delta		
AI 0009	R	Zone 1 PV		
AI 0010	R	Zone 1 Error		
AI 0011	R	Zone 2 PV		
AI 0012	R	Zone 2 Error		
AI 0013	R	Zone 3 PV		psi, ft, kPA, m, °F or °C
AI 0014	R	Zone 3 Error		
AI 0015	R	Zone 4 PV		
AI 0016	R	Zone 4 Error		
AI 0017	R	Zone 5 PV		
AI 0018	R	Zone 5 Error		
AI 0019	R	Dry Bulb Air Temp		°F, °C
AI 0020	R	Relative Humidity	0 to 100.0	%
AV 0001	R/W	Max Open Cooling Valve Position	0 to 100.0	%
AV 0002	R/W	Zone 1 Setpoint		
AV 0003	R/W	Zone 2 Setpoint		
AV 0004	R/W	Zone 3 Setpoint		psi, ft, kPA, m, °F or °C
AV 0005	R/W	Zone 4 Setpoint		
AV 0006	R/W	Zone 5 Setpoint		
AI 1001	R	CHWS Temp		°F, °C
AI 1002	R	CHWR Temp		°F, °C
AI 1003	R	CHW Flow		usgpm, lps, m <sup>3</sup> /hr
AI 1004	R	CHWP DP		psi, ft, kPA, m
AI 1005	R	System DP		psi, ft, kPA, m
AI 1006	R	Chiller 1 Leaving CHW Temperature		°F, °C
AI 1007	R	Chiller 1 Entering CHW Temperature		°F, °C
AI 1008	R	Chiller 1 Power		kW
AI 1009	R	Chiller 2 Leaving CHW Temperature		°F, °C
AI 1010	R	Chiller 2 Entering CHW Temperature		°F, °C
AI 1011	R	Chiller 2 Power		kW
AI 1012	R	Chiller 3 Leaving CHW Temperature		°F, °C
AI 1013	R	Chiller 3 Entering CHW Temperature		°F, °C
AI 1014	R	Chiller 3 Power		kW
AI 1015	R	Chiller 4 Leaving CHW Temperature		°F, °C
AI 1016	R	Chiller 4 Entering CHW Temperature		°F, °C
AI 1017	R	Chiller 4 Power		kW
AI 1018	R	Chiller 5 Leaving CHW Temperature		°F, °C
AI 1019	R	Chiller 5 Entering CHW Temperature		°F, °C
AI 1020	R	Chiller 5 Power		kW
AI 1021	R	CHW Pump 1A Drive Power		kW
AI 1022	R	CHW Pump 1A Drive Volt AC		VAC
AI 1023	R	CHW Pump 1A Drive Amp		Amp
AI 1024	R	CHW Pump 1A Drive Speed Feedback	0 to 100.0	%

BACNET ADDRESS	READ/WRITE	DESCRIPTION	RANGE	UNITS
AI 1025	R	CHW Pump 2A Drive Power		kW
AI 1026	R	CHW Pump 2A Drive Volt AC		VAC
AI 1027	R	CHW Pump 2A Drive Amp		Amp
AI 1028	R	CHW Pump 2A Drive Speed Feedback	0 to 100.0	%
AI 1029	R	CHW Pump 3A Drive Power		kW
AI 1030	R	CHW Pump 3A Drive Volt AC		VAC
AI 1031	R	CHW Pump 3A Drive Amp		Amp
AI 1032	R	CHW Pump 3A Drive Speed Feedback	0 to 100.0	%
AI 1033	R	CHW Pump 4A Drive Power		kW
AI 1034	R	CHW Pump 4A Drive Volt AC		VAC
AI 1035	R	CHW Pump 4A Drive Amp		Amp
AI 1036	R	CHW Pump 4A Drive Speed Feedback	0 to 100.0	%
AI 1037	R	CHW Pump 5A Drive Power		kW
AI 1038	R	CHW Pump 5A Drive Volt AC		VAC
AI 1039	R	CHW Pump 5A Drive Amp		Amp
AI 1040	R	CHW Pump 5A Drive Speed Feedback	0 to 100.0	%
AI 1041	R	CHW Pump 1B Drive Power		kW
AI 1042	R	CHW Pump 1B Drive Volt AC		VAC
AI 1043	R	CHW Pump 1B Drive Amp		Amp
AI 1044	R	CHW Pump 1B Drive Speed Feedback	0 to 100.0	%
AI 1045	R	CHW Pump 2B Drive Power		kW
AI 1046	R	CHW Pump 2B Drive Volt AC		VAC
AI 1047	R	CHW Pump 2B Drive Amp		Amp
AI 1048	R	CHW Pump 2B Drive Speed Feedback	0 to 100.0	%
AI 1049	R	CHW Pump 3B Drive Power		kW
AI 1050	R	CHW Pump 3B Drive Volt AC		VAC
AI 1051	R	CHW Pump 3B Drive Amp		Amp
AI 1052	R	CHW Pump 3B Drive Speed Feedback	0 to 100.0	%
AI 1053	R	CHW Pump 4B Drive Power		kW
AI 1054	R	CHW Pump 4B Drive Volt AC		VAC
AI 1055	R	CHW Pump 4B Drive Amp		Amp
AI 1056	R	CHW Pump 4B Drive Speed Feedback	0 to 100.0	%
AI 1057	R	CHW Pump 5B Drive Power		kW
AI 1058	R	CHW Pump 5B Drive Volt AC		VAC
AI 1059	R	CHW Pump 5B Drive Amp		Amp
AI 1060	R	CHW Pump 5B Drive Speed Feedback	0 to 100.0	%
AI 1061	R	CHW Pump 1A Run Hours		hours
AI 1062	R	CHW Pump 2A Run Hours		hours
AI 1063	R	CHW Pump 3A Run Hours		hours
AI 1064	R	CHW Pump 4A Run Hours		hours
AI 1065	R	CHW Pump 5A Run Hours		hours
AI 1066	R	CHW Pump 1B Run Hours		hours
AI 1067	R	CHW Pump 2B Run Hours		hours
AI 1068	R	CHW Pump 3B Run Hours		hours

BACNET ADDRESS	READ/WRITE	DESCRIPTION	RANGE	UNITS
AI 1069	R	CHW Pump 4B Run Hours		hours
AI 1070	R	CHW Pump 5B Run Hours		hours
AI 1071	R	Chiller 1 Run Hours		hours
AI 1072	R	Chiller 2 Run Hours		hours
AI 1073	R	Chiller 3 Run Hours		hours
AI 1074	R	Chiller 4 Run Hours		hours
AI 1075	R	Chiller 5 Run Hours		hours
AI 2001	R	Chiller 1 Duty	0 to 5 (Note 3)	
AI 2002	R	Chiller 1 State	0 to 7 (Note 4)	
AI 2003	R	Chiller 2 Duty	0 to 5 (Note 3)	
AI 2004	R	Chiller 2 State	0 to 7 (Note 4)	
AI 2005	R	Chiller 3 Duty	0 to 5 (Note 3)	
AI 2006	R	Chiller 3 State	0 to 7 (Note 4)	
AI 2007	R	Chiller 4 Duty	0 to 5 (Note 3)	
AI 2008	R	Chiller 4 State	0 to 7 (Note 4)	
AI 2009	R	Chiller 5 Duty	0 to 5 (Note 3)	
AI 2010	R	Chiller 5 State	0 to 7 (Note 4)	
AI 2011	R	CHW Pump 1 Duty Standby **	0 to 7 (Note 2)	
AI 2012	R	CHW Pump 2 Duty Standby **	0 to 7 (Note 2)	
AI 2013	R	CHW Pump 3 Duty Standby **	0 to 7 (Note 2)	
AI 2014	R	CHW Pump 4 Duty Standby **	0 to 7 (Note 2)	
AI 2015	R	CHW Pump 5 Duty Standby **	0 to 7 (Note 2)	
AI 2016	R	CHW Pump 1A Duty Standby **	0 to 7 (Note 2)	
AI 2017	R	CHW Pump 2A Duty Standby **	0 to 7 (Note 2)	
AI 2018	R	CHW Pump 3A Duty Standby **	0 to 7 (Note 2)	
AI 2019	R	CHW Pump 4A Duty Standby **	0 to 7 (Note 2)	
AI 2020	R	CHW Pump 5A Duty Standby **	0 to 7 (Note 2)	
AI 2021	R	CHW Pump 1B Duty Standby **	0 to 7 (Note 2)	
AI 2022	R	CHW Pump 2B Duty Standby **	0 to 7 (Note 2)	
AI 2023	R	CHW Pump 3B Duty Standby **	0 to 7 (Note 2)	
AI 2024	R	CHW Pump 4B Duty Standby **	0 to 7 (Note 2)	
AI 2025	R	CHW Pump 5B Duty Standby **	0 to 7 (Note 2)	
AV 2001	R/W	Chiller 1 Mode	0 to 3 (Note 1)	
AV 2002	R/W	Chiller 2 Mode	0 to 3 (Note 1)	
AV 2003	R/W	Chiller 3 Mode	0 to 3 (Note 1)	
AV 2004	R/W	Chiller 4 Mode	0 to 3 (Note 1)	
AV 2005	R/W	Chiller 5 Mode	0 to 3 (Note 1)	
AV 2006	R/W	CHW Pump 1/1A Mode *	0 to 3 (Note 1)	
AV 2007	R/W	CHW Pump 2/2A Mode *	0 to 3 (Note 1)	
AV 2008	R/W	CHW Pump 3/3A Mode *	0 to 3 (Note 1)	
AV 2009	R/W	CHW Pump 4/4A Mode *	0 to 3 (Note 1)	
AV 2010	R/W	CHW Pump 5/5A Mode *	0 to 3 (Note 1)	
AV 2011	R/W	CHW Pump 1B Mode	0 to 3 (Note 1)	
AV 2012	R/W	CHW Pump 2B Mode	0 to 3 (Note 1)	

BACNET ADDRESS	READ/WRITE	DESCRIPTION	RANGE	UNITS
AV 2013	R/W	CHW Pump 3B Mode	0 to 3 (Note 1)	
AV 2014	R/W	CHW Pump 4B Mode	0 to 3 (Note 1)	
AV 2015	R/W	CHW Pump 5B Mode	0 to 3 (Note 1)	
AV 2016	R/W	Set Lead Chiller	1 to 5 ( On Change)	
AV 2017	R/W	Set Lead CHW Pump	1 to 5 ( On Change)	
AO 1001	R/W	CHW Bypass Valve Position	0 to 100.0	%
AO 1002	R/W	CHW Pump 1/1A Hand Speed *	0 to 100.0	%
AO 1003	R/W	CHW Pump 2/2A Hand Speed *	0 to 100.0	%
AO 1004	R/W	CHW Pump 3/3A Hand Speed *	0 to 100.0	%
AO 1005	R/W	CHW Pump 4/4A Hand Speed *	0 to 100.0	%
AO 1006	R/W	CHW Pump 5/5A Hand Speed *	0 to 100.0	%
AO 1007	R/W	CHW Pump 1B Hand Speed	0 to 100.0	%
AO 1008	R/W	CHW Pump 2B Hand Speed	0 to 100.0	%
AO 1009	R/W	CHW Pump 3B Hand Speed	0 to 100.0	%
AO 1010	R/W	CHW Pump 4B Hand Speed	0 to 100.0	%
AO 1011	R/W	CHW Pump 5B Hand Speed	0 to 100.0	%

**NOTE :** Multistate Data Explanation

1 Mode	2 Pump/Fan Duty Standby	3 Chiller Duty	4 Chiller State
0 = Not Used	0 = N/A	0 = N/A	0 = N/A
1 = Hand	1 = Duty 1	1 = Lead	1 = Ready
2 = Off	2 = Duty 2	2 = Lag 1	2 = Enabled
3 = Auto	3 = Duty 3	3 = Lag 2	3 = Started
	4 = Duty 4	4 = Lag 3	4 = Running
	5 = Duty 5	5 = Lag 4	5 = Shutdown
	6 = Standby		6 = Alarm
	7 = Duty		7 = Not Ready

\* For pump points labeled 1/1A: 1 references the single pump while 1A references side A of a dualArm/Twin pump

\*\* For Pump Duty Standby: 1 refers to the pump (single/dualArm/Twin). A/B refer to each side of the dualArm/Twin pump and are not used for single pumps

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