

YCAL/YCUL/YCWL/YLAA IPU II

Native Modbus and BACnet MS/TP Data Maps

Board: 031-02630-xxx w/ 031-02550

ITEM	Version	Date	York PN	Check Sum	Comments												
1	C.MMC.13.00	29-Nov-06	031-02755-001		Standard with Board: 031-02630-xxx w/ 031-02550												
2	C.MMC.15.00	29-Nov-06	031-02755-002		Basildon with Board: 031-02630-xxx w/ 031-02550												
3	C.MMC.14.00	29-Nov-06	031-02755-003		MMHP with Board: 031-02630-xxx w/ 031-02550												
4	C.MMC.16.00	29-Nov-06	031-02755-004		Basildon MMHP with Board: 031-02630-xxx w/ 031-02550												
5	C.MMC.13.02	17-Oct-08	031-02755-001		Standard Micro Board 031-02550-xxx . Fix native Modbus communications. Fix Café Metric functionality (SCR-766)												
6	C.MMC.14.02	17-Oct-08	031-02755-003		MMHP with Board: 031-02630-xxx w/ 031-02550Fix native Modbus communications. Fix Café Metric functionality (SCR-766)												
7	C.MMC.16.02	17-Oct-08	031-02755-004		Basildon MMHP with Board: 031-02630-xxx w/ 031-02550 Fix native Modbus communications. Fix Café Metric functionality (SCR-766)												
8																	
9																	
10																	
ITEM REF NUM	BACnet NAME	BACnet Object/Instance	MODBUS ADDRESS	MODBUS Data Type Supported	ENG UNITS	READ WRITE	POINT DESCRIPTION	Point List Code									
								S=Standard; O = Optional; N = Not Available									
1					SEE NOTE 5		SEE NOTE 1	1	2	3	4	5	6	7	8	9	10
3	<b>ANALOG WRITE POINTS</b>																
4	REM_SETP	AV_1	1026	03,06,16	F°	R/W	Setpoint Cooling Setpoint(HP Only), 99 = Auto; (40°F - 70°F)										
5	SP_REM_SP_S1	AV_2	1027	03,06,16	PSIG	R/W	Sys 1 Setpoint (Suction Pressure Control units only)										
6	LOAD_LIMIT	AV_3	1028	03,06,16	index	R/W	Load Limit Stage (0, 1, 2)										
7	REM_CR	AV_4	1029	03,06,16	F°	R/W	Cooling Range (DAT Mode Only)										
8	SP_REM_SP_S2	AV_5	1030	03,06,16	PSIG	R/W	Sys 2 Setpoint (Suction Pressure Control)										
9	REM_SP_HEAT	AV_6	1031	03,06,16	F°	R/W	Heating Setpoint (HP Only), 999 = Auto (95°F - 122°F)										
10	HP_MODE	AV_7	1032	03,06,16	index	R/W	Mode (HP Only) (0=Panel, 1=Cooling, 2=Heating)										
11																	
12	<b>BINARY WRITE POINTS</b>																
13	START_STOP	BV_1	1538	01,03,05,15,06,	0, 1	R/W	Stop Start Command										
14	SS_SYS1	BV_2	1539	01,03,05,15,06,	0, 1	R/W	Sys 1 Start/Stop ( Suction Pressure (SP) Control Only)										
15	SS_SYS2	BV_3	1540	01,03,05,15,06,	0, 1	R/W	Sys 2 Start/Stop ( Suction Pressure (SP) Control Only)										
16	<b>ANALOG READ ONLY POINTS</b>																
17	LCHLT	AI_1	514	03,04	F°	R	Leaving Chilled Liquid Temp										
18	RCHLT	AI_2	515	03,04	F°	R	Return Chilled Liquid Temp										
19	DAT	AI_3	516	03,04	F°	R	Condensing Unit Models Only										
20	S1_SUCT_TEMP	AI_4	517	03,04	F°	R	Electronic Expansion Valve Models Only										
21	OAT	AI_5	518	03,04	F°	R	Ambient Air Temperature										
22	S1_SUCT_SHEAT	AI_6	519	03,04	F°	R	Sys 1 Suction Superheat ( EEV Models Only)										
23	S1_RUN_TIME	AI_7	520	03,04	seconds	R	Sys 1 Run Time (seconds)										
24	S1_SUCT_PR	AI_8	521	03,04	PSIG	R	Sys 1 Suction Pressure										
25	S1_DSCH_PR	AI_9	522	03,04	PSIG	R	Sys 1 Discharge Pressure										
27	S1_CIR_TEMP	AI_10	523	03,04	F°	R	Sys 1 Cooler Inlet Refrigerant Temp (R-407c Models Only)										
28	S1_DEF_TEMP	AI_11	524	03,04	F°	R	Sys 1 Defrost Temperature (HP Only)										
29	S1_EEV_OUT	AI_12	525	03,04	F°	R	System 1 EEV Output % ( EEV Models Only)										
30	S1_AR_TIMER	AI_13	526	03,04	seconds	R	Sys 1 Anti-Recycle Timer										
31	AC_TIMER	AI_14	527	03,04	seconds	R	Anti-Coincident Timer										
32	S2_SUCT_TEMP	AI_15	528	03,04	F°	R	System 2 Suction Temp ( EEVModels Only)										
33	S2_RUN_TIME	AI_16	529	03,04	seconds	R	Sys 2 Run Time (seconds)										
34	S2_SUCT_PR	AI_17	530	03,04	PSIG	R	Sys 2 Suction Pressure										
35	S2_DSCH_PR	AI_18	531	03,04	PSIG	R	Sys 2 Discharge Pressure										
36	S2_CIR_TEMP	AI_19	532	03,04	F°	R	Sys 2 Cooler Inlet Refrigerant Temperature(R-407c Only)										
37	S2_DEF_TEMP	AI_20	533	03,04	F°	R	Sys 2 Defrost Temperature (HP Only)										
38	S2_SUCT_SH	AI_21	534	03,04	F°	R	Sys 2 Suction SuperHeat (EEV Models Only)										
39	S2_AR_TIMER	AI_22	535	03,04	seconds	R	Sys 2 Anti-Recycle Timer										
40	S2_EEV_OUT	AI_23	536	03,04	F°	R	Sys 2 Suction Superheat ( EEV Models Only)										

**Maintenance**

**TABLE 41 - BACNET AND MODBUS COMMUNICATIONS DATA MAP (CONT'D)**

FORM 150.67-NM1 (1016)

ITEM REF NUM	BACnet NAME	BACnet Object/Instance	MODBUS ADDRESS	MODBUS Data Type Supported	ENG UNITS	READ WRITE	POINT DESCRIPTION	Point List Code												
								S=Standard: O = Optional: N = Not Available	1	2	3	4	5	6	7	8	9	10		
41	NUM_COMPS	AI_24	537	03,04	count	R	Number of Compressors													
42	S1_OP_CODE	AI_25	538	03,04	index	R	Sys 1 Operational Code (See Table A & B)													
43	S1_FLT_CODE	AI_26	539	03,04	index	R	Sys 1 Fault Code (See Table A & B)													
44	S2_OP_CODE	AI_27	540	03,04	index	R	Sys 2 Operational Code (See Table A & B)													
45	S2_FLT_CODE	AI_28	541	03,04	index	R	Sys 2 Fault Code (See Table A & B)													
46	S1_DBG_CODE	AI_29	542	03,04	index	R	Sys 1 Debug Code													
47	S1_FAN_STAGE	AI_30	543	03,04	count	R	Sys 1 Condenser Fan Stage													
48	S2_DBG_CODE	AI_31	544	03,04	index	R	Sys 2 Debug Code													
49	S2_FAN_STAGE	AI_32	545	03,04	count	R	Sys 2 Condenser Fan Stage													
50	CONTROL_MODE	AI_33	546	03,04	count	R	Unit Control Mode (0=Leaving Water, 1=Return Water, 2=Discharge Air, 3=Suction Press, 4=Cooling, 5=Heating)													
51	AR_TIME	AI_34	547	03,04	seconds	R	Anti-Recycle Time (Programmed)													
52	LCHLT_CUT	AI_35	548	03,04	F°	R	Leaving Chilled Liquid Temp Cutout													
53	LOW_AMB_CUT	AI_36	549	03,04	F°	R	Low Ambient Temperature Cutout													
54	SUCT_P_CO_HT	AI_37	550	03,04	PSIG	R	Low Suction Pressure Cutout Heating (HP Only)													
55	L_SUCT_P_CO	AI_38	551	03,04	PSIG	R	Low Suction Pressure Cutout (Cooling on HP units)													
56	H_DSCH_P_CO	AI_39	552	03,04	PSIG	R	High Discharge Pressure Cutout													
57	COOL_SETP	AI_40	553	03,04	F°	R	Setpoint													
58	SP_SETP_S1	AI_41	554	03,04	F°	R	Setpoint 1 (SP Control)													
59	CONTROL_RG	AI_42	555	03,04	F°	R	Cooling Range													
60	SP_CTL_RG_S1	AI_43	556	03,04	F°	R	Cooling Range 1 (SP Control)													
61	SP_SETP_S2	AI_44	557	03,04	F°	R	Setpoint 2 (SP Control)													
62	HEAT_SETP	AI_45	558	03,04	F°	R	Heating Setpoint (HP Only)													
63	SP_CTL_RG_S2	AI_46	559	03,04	F°	R	Cooling Range 2 (SP Control)													
64	HEAT_RANGE	AI_47	560	03,04	F°	R	Heating Range (HP Only)													
65	S1_DSCH_TEMP	AI_48	561	03,04	F°	R	Sys 1 Discharge Temperature (EEV Only)													
66	S1_DSCH_SHEAT	AI_49	562	03,04	F°	R	Sys 1 Discharge Superheat (EEV Only)													
67	S2_DSCH_TEMP	AI_50	563	03,04	F°	R	Sys 2 Discharge Temperature (EEV Only)													
68	S2_DSCH_SH	AI_51	564	03,04	F°	R	Sys 2 Discharge Superheat (EEV Only)													
69	LEAVING_HOT	AI_52	565	03,04	F°	R	Leaving Liquid Hot Temp (R-410a)													
70	RETURN_HOT	AI_53	566	03,04	F°	R	Return Liquid Hot Temp (R-410a)													
71																				
72																				
74	<b>BINARY MONITOR ONLY POINTS</b>																			
75	S1_ALARM	BI_1	1282	01,02,03	0, 1	R	Sys 1 Alarm													
76	S2_ALARM	BI_2	1283	01,02,03	0, 1	R	Sys 2 Alarm													
77	EVAP_HTR	BI_3	1284	01,02,03	0, 1	R	Evaporator Heater Status													
78	EVAP_PUMP	BI_4	1285	01,02,03	0, 1	R	Evaporator Pump Status													
79	S1_C1_RUN	BI_5	1286	01,02,03	0, 1	R	Sys 1 Comp 1 Run													
80	S2_C1_RUN	BI_6	1287	01,02,03	0, 1	R	Sys 2 Comp 1 Run													
81	S1_LLSV	BI_7	1288	01,02,03	0, 1	R	Sys 1 Liquid Line Solenoid Valve													
82	S1_MODE_SV	BI_8	1289	01,02,03	0, 1	R	Sys 1 Mode Solenoid Valve (HP Only)													
83	S1_HGBV	BI_9	1290	01,02,03	0, 1	R	Sys 1 Hot Gas Bypass Valve													
84	S1_BHS	BI_10	1291	01,02,03	0, 1	R	Bivalent Heat Source (HP Only)													
85	S1_C2_RUN	BI_11	1292	01,02,03	0, 1	R	Sys 1 Comp 2 Run													
86	S2_C2_RUN	BI_12	1293	01,02,03	0, 1	R	Sys 2 Comp 2 Run													
87	S2_LLSV	BI_13	1294	01,02,03	0, 1	R	Sys 2 Liquid Line Solenoid Valve													
88	S2_MODE_SV	BI_14	1295	01,02,03	0, 1	R	Sys 2 Mode Solenoid Valve (HP Only)													
89	LEAD_SYS	BI_15	1296	01,02,03	0, 1	R	Lead System (0 = Sys 1, 1 = Sys 2)													
90	S1_C3_RUN	BI_16	1297	01,02,03	0, 1	R	Sys 1 Comp 3 Run													
91	S2_C3_RUN	BI_17	1298	01,02,03	0, 1	R	Sys 2 Comp 3 Run													
92	CH_LIQ_TYPE	BI_18	1299	01,02,03	0, 1	R	Chilled Liquid Type (0=Water, 1=Glycol)													
93	AMB_MODE	BI_19	1300	01,02,03	0, 1	R	Ambient Control Mode (0=Std Amb, 1=Low Amb)													

TABLE 41 - BACNET AND MODBUS COMMUNICATIONS DATA MAP (CONT'D)

ITEM REF NUM	BACnet NAME	BACnet Object/Inst ance	MODBUS ADDRESS	MODBUS Data Type Supported	ENG UNITS	READ WRITE	POINT DESCRIPTION	Point List Code									
								S=Standard; O=Optional; N=Not Available									
								1	2	3	4	5	6	7	8	9	10
94	CNTL_MODE	BI_20	1301	01,02,03	0, 1	R	Local/Remote Control Mode (0=Local, 1=Remote)										
95	DATA_UNIT	BI_21	1302	01,02,03	0, 1	R	Units (0=Imperial, 1=SI)										
96	AUTO_LL	BI_22	1303	01,02,03	0, 1	R	Lead/Lag Control Mode (0=Manual, 1=Auto)										

TABLE A

Code	Operational Codes
0	No Abnormal Condition
1	Unit Switch Off
2	System Switch Off
3	Lock-Out
4	Unit Fault
5	System Fault
6	Remote Shutdown
7	Daily Schedule Shutdown
8	No Run Permissive
9	No Cool Load
10	Anti-Coincidence Timer Active
11	Anti-Recycle Timer Active
12	Manual Override
13	Suction Limiting
14	Discharge Limiting
15	
16	Load Limiting
17	Compressor(s) Running
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
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TABLE B

Code	Fault Codes
0	No Fault
1	VAC Under Voltage
2	Low Ambient Temperature
3	High Ambient Temperature
4	Low Leaving Chilled Liquid Temp
5	High Discharge Pressure
6	High Differential Oil Pressure
7	Low Suction Pressure
8	High Motor Current
9	LLSV Not On
10	Low Battery Warning
11	High Oil Temperature
12	High Discharge Temperature
13	Improper Phase Rotation
14	Low Motor Current / MP / HPCO
15	Motor Current Unbalanced
16	Low Differential Oil Pressure
17	Ground Fault
18	MP/HPCO Fault
19	Low Evaporator Temperature
20	Incorrect Refrigerant Programmed
21	Power Failure, Manual Reset Required
22	Unit Motor Current
23	Low Superheat
24	Sensor Fault
25	
26	MP/HPCO Inhibit
27	
28	
29	
30	

NOTES

1	The IPU II based YCAL /YCUL Units are configured for Native BACnet MS/TP and Modbus RTU communications. The Microgateway product is not required for these 2 interfaces
2	
3	BACnet Object Types: 0= Analog In, 1 = Analog Out, 2= Analog Value, 3= Binary In, 4 = Binary Output, 5= Binary Value, 8= Device, 15 = Alarm Notification ( 0 -127 are reserved ASHRAE Objects)
4	WC= Inches of water column; CFM = Cubic Feet per Minute; FPM = Feet per Minute; PSI = Lbs per square inch; Pa = Pascals; kPa = Kilopascals; PPM = Part Per Million; kJ/kg = Kilojoules per Kilogram
5	See the applicable Middle Market Chiller Operations Manual for more details
6	The YCWL uses the same firmware as a YCAL , it just ignores Fan Control
7	
8	
9	
10	