

Systems Integration

APOGEE[®] Integration to McQuay LONWORKS[®] Devices: Microtech 2000 Heat Pump Controller

Table 1. Heat Pump APOGEE Points, Application Number: 9110, Program ID: 80:00:25:50:33:04:04:02.

Point	Type	Description	Range/Units ^{a b c}
1	LAO	Space Temperature Input	°F °C
2	LAO	Set Point Input	°F °C
3	LAI	Space Temperature Output	°F °C
4	LENUM	Operating Mode	See Table 2
5	LAI	Heat Output Primary	%
6	LAI	Heat Output Secondary	%
7	LAI	Cooling Output	%
8	LAI	Economizer Output	%
9	LAI	Fan Output	%
10	LDI	In Alarm	Normal/Alarm
11	LENUM	Application Mode Input	See Table 2
13	LAO	Simple Occupancy Input Value	%
14	LDO	Simple Occupancy Input State	Unocc/Occ
18	LAI	Lead Compressor Output	–
19	LAO	Start Compressor 1	–
20	LAO	Start Compressor 2	–
21	LAI	Compressor Hours 1	hrs
22	LAO	Compressor Hours 2	hrs
23	LDO	Clear Fault	No/Yes
24	LAI	Current Fault	–
25	LAI	Previous Fault	–
26	LAI	Compressor Fault #1	–
27	LAI	Compressor Fault #2	–
28	LDI	Loop Flow Request B0	No/Yes

continued on next page...

Table 1. Heat Pump APOGEE Points, Application Number: 9110, Program ID: 80:00:25:50:33:04:04:02. (continued)

Point	Type	Description	Range/Units ^{a b c}
29	LDI	Bad Leaving Water Temperature Sensor B2	Ok/Bad
30	LDI	Bad Discharge Air Temperature Sensor B3	Ok/Bad
31	LDI	Change Filter B5	No/Yes
32	LDI	Room Too Cool B6	No/Yes
33	LDI	Room Too Warm B7	No/Yes
34	LAI	Unit Status McQuay	–
35	LAO	Fan Hours Input	hrs
36	LAI	Fan High Speed Time	min
37	LAO	Filter Hours Left	hrs
38	LAI	Active Cooling Setpoint	°F °C
39	LAI	Active Heating Setpoint	°F °C
40	LAI	Discharge Air Temperature Output	°F °C
41	LAI	Leaving Water Temperature Out	°F °C
42	LAI	Tenant Override Time 0	min
43	LAI	Remote Room Setpoint Adjustment	°F °C
44	LAI	Test Result Base	–
45	LAI	Test Result Auxiliary	–
200	LAO	Occupancy Temperature Setpoint Occupied Cool	°F °C
201	LAO	Occupancy Temperature Setpoint Standby Cool	°F °C
202	LAO	Occupancy Temperature Setpoint Unoccupied Cool	°F °C
203	LAO	Occupancy Temperature Setpoint Occupied Heat	°F °C
204	LAO	Occupancy Temperature Setpoint Standby Heat	°F °C
205	LAO	Occupancy Temperature Setpoint Unoccupied Heat	°F °C
207	LAO	Low Temperature Warning Setpoint	°F °C
208	LAO	High Temperature Warning Setpoint	°F °C
209	LAO	Burnout Trip Setpoint	V
210	LAO	Burnout Recovery Setpoint	V

continued on next page...

Table 1. Heat Pump APOGEE Points, Application Number: 9110, Program ID: 80:00:25:50:33:04:04:02. (continued)

Point	Type	Description	Range/Units ^{a b c}
211	LAO	Burnout Differential Setpoint	V
212	LAI	Compressor On Time Setpoint	sec
213	LAI	Compressor Off Time Setpoint	sec
214	LAI	Compressor Internal Time Setpoint	sec
215	LAO	Initial Delay	sec
216	LAO	Condensation Overflow Setpoint	V
217	LAO	Occupied Fan Mode	–
218	LAO	Unoccupied Fan Mode	–
219	LAO	Compressor Staging Setpoint	°F °C
220	LAI	Leaving Water Temperature Present Value	%
221	LDI	Leaving Water Temperature Present State	No/Yes
222	LAO	Maximun Filter Hours	hrs
223	LAO	Remote Setpoint Adjustment	°F °C
224	LAO	Tenant Override Time Setpoint (First Pass)	sec
225	LAO	Tenant Override Time Setpoint (Second Pass)	sec
226	LAO	Auxiliary Heat 1 Temperature Differential	°F °C
227	LAO	Auxiliary Heat 2 Temperature Differential	°F °C
228	LAO	Auxiliary Heat 3 Temperature Differential	°F °C
<p>^a Values noted for LDIs and LDOs are in the following format: OFF text/ON text.</p> <p>^b This column indicates the value/range or engineering units or both if known.</p> <p>^c The default English value is not italicized. An italicized entry indicates an SI value.</p>			

Table 2. HVAC Mode/Status (hvac_t).

Value	Description
0	Hvac_Auto
1	Hvac_Heat
2	Hvac_Mrng_Wrmup
3	Hvac_Cool
4	Hvac_Night_Purge
5	Hvac_Pre_Cool
6	Hvac_Off
7	Hvac_Test
8	Hvac_Emerg_Heat
9	Hvac_Fan_Only
10	Hvac_Free_Cool
11	Hvac_Ice
255	Hvac_Nul

Table 3. Heat Pump LONWORKS Network Variables, Program ID: 80:00:25:50:33:04:04:02.

Point	Subpoint Name	NVO Name	NVI Name	CP Name
1	SpaceTempIn	-	nviSpaceTemp	nviSpaceTemp
2	SetPointIn	-	nviSetPoint	nviSetPoint
3	SpaceTempOut	nvoSpaceTemp	-	-
4	OpModeOut	nvoUnitStatus.mode	-	-
5	HeatOpPriOut	nvoUnitStatus.heat_output_primary	-	-
6	HeatOpSecOut	nvoUnitStatus.heat_output_secondary	-	-
7	CoolOpOut	nvoUnitStatus.cool_output	-	-
8	EconOpOut	nvoUnitStatus.econ_output	-	-
9	FanOpOut	nvoUnitStatus.fan_output	-	-
10	InAlarmOut	nvoUnitStatus.in_alarm	-	-
11	ApplModelIn	-	nviApplicMode	nviApplicMode
13	OccSwIn_VIn	-	nviOccupSw.value	nviOccupSw.value
14	OccSwIn_SIn	-	nviOccupSw.state	nviOccupSw.state
18	LeadCompOut	nvoLeadComp	-	-
19	CompStarts1	-	nviCompStarts1	nviCompStarts1
20	CompStarts2	-	nviCompStarts2	nviCompStarts2
21	CompHours1	-	nviComp1Hours	nviComp1Hours
22	CompHours2	-	nviComp2Hours	nviComp2Hours
23	ClearFault_S	-	nviClearFault.state	nviClearFault.state
24	CrrntFltOut	nvoCurrentFault	-	-
25	PrevFltOut	nvoPrevFault	-	-
26	CompFlt1Out	nvoCompFaults1	-	-
27	CompFlt2Out	nvoCompFaults2	-	-
28	LoopFlwReqB0	nvoWarn_Request.bit0	-	-
29	BadLWTSnsrB2	nvoWarn_Request.bit2	-	-
30	BadDATSnsrB3	nvoWarn_Request.bit3	-	-
31	ChangeFltrB5	nvoWarn_Request.bit5	-	-
32	RmTooCoolB6	nvoWarn_Request.bit6	-	-
33	RmtooWarmB7	nvoWarn_Request.bit7	-	-
34	UnitStMQOut	nvoUnitStatMcQ	-	-

continued on next page...

Table 3. Heat Pump LONWORKS Network Variables, Program ID: 80-00:25:50:33:04:04:02. (continued)

Point	Subpoint Name	NVO Name	NVI Name	CP Name
35	FanHoursIn	-	nviFanHours	nviFanHours
36	FanHiSpdtrmIn	-	nviHiSpeedTimers	nviHiSpeedTimers
37	FilterHrLeft	-	nviFilterStatus	nviFilterStatus
38	ActCigSptOut	nvoActiveCigSpt	-	-
39	ActHtgSptOut	nvoActiveHtgSpt	-	-
40	DATOut	nvoDischAirTemp	-	-
41	LvgWtrTmpOut	nvoLvgWtrTemp	-	-
42	TenOvrdTimeO	nvoTenOvrdTimer	-	-
43	RmTSPtAfkOut	nvoRoomTSptAdj	-	-
44	TstRstfBOut	nvoTstResultBase	-	-
45	TstRstAuxOut	nvoTstResultAux	-	-
200	SP_OccCool	-	-	nciTempSetpts.occupied_cool
201	SP_StbyCool	-	-	nciTempSetpts.standby_cool
202	SP_UnoccCool	-	-	nciTempSetpts.unoccupied_cool
203	SP_OccHeat	-	-	nciTempSetpts.occupied_heat
204	SP_StbyHeat	-	-	nciTempSetpts.standby_heat
205	SP_UnoccHeat	-	-	nciTempSetpts.unoccupied_heat
207	LowTWarnSpt	-	-	nciLowTWarnSpt
208	HiTWarnSpt	-	-	nciHiTWarnSpt
209	BrnoutTrpSpt	-	-	nciBrnoutTrpSpt
210	BrnoutRecSpt	-	-	nciBrnoutRecSpt
211	BrnoutAdjSpt	-	-	nciBrnoutAdjSpt
212	CmpOnTimeSp	-	-	nciCmpOnTimeSpt
213	CmpOffTimeSp	-	-	nciCmpOffTimeSpt
214	CmplntTimeSp	-	-	nciCmplntTimeSpt
215	InitialDelay	-	-	nciInitialDelay
216	CondOvrFloSp	-	-	nciCondSenTriPt
217	OccFanMode	-	-	nciOccFanMode
218	UnoccFanMode	-	-	nciUnoccFanMode
219	CmpStgDiffSp	-	-	nciStgDiffTSp

continued on next page...

Table 3. Heat Pump LONWORKS Network Variables, Program ID: 80-00:25:50:33:04:04:02. (continued)

Point	Subpoint Name	NVO Name	NVI Name	CP Name
220	LWTPresentV	-	-	nciLWTSenPresent.value
221	LWTPresentS	-	-	nciLWTSenPresent.state
222	MaxFilterHrs	-	-	nciMaxFilterHrs
223	RemoteSptAdj	-	-	nciRmSptAdjSpan
224	TenOrdTime1	-	-	nciTenOvrdrTSpt1
225	TenOrdTime2	-	-	nciTenOvrdrTSpt2
226	OptOut1TDiff	-	-	nciOptOut1Temp
227	OptOut2TDiff	-	-	nciOptOut2Temp
228	OptOut3TDiff	-	-	nciOptOut3Temp

Information in this document is based on specifications believed correct at the time of publication. The right is reserved to make changes as design improvements are introduced. Product or company names mentioned herein may be the trademarks of their respective owners.
© 2006 Siemens Building Technologies, Inc.