

Systems Integration

APOGEE® Integration to Trane LONWORKS® Devices: AH540/541 Air Handler Controller (SCC Profile)

Table 1. AH540/541 Air Handler Controller (SCC Profile) APOGEE Points, Application Number: 9079, Program ID: 80:00:2A:56:0A:03:04:03.

Point	Type	Description	Range/Units ^{a b c}
1	LAO	Space Temperature Input	°F °C
2	LAI	Space Temperature Output	°F °C
3	LENUM	Unit Status Output Mode	See Table 2
4	LAI	Unit Status Output Primary Heat	%
5	LAI	Unit Status Output Secondary Heat	%
6	LAI	Unit Status Output Cool	%
7	LAI	Unit Status Output Economizer	%
8	LAI	Unit Status Output Fan	%
9	LDI	Unit Status Output Alarm	Normal/Alarm
10	LAO	Setpoint Input	°F °C
11	LAO	Offset Input Setpoint	°F °C
12	LAO	Setpoint Shift Input Occupied Cool	°F °C
13	LAO	Setpoint Shift Input Standby Cool	°F °C
14	LAO	Setpoint Shift Input Unoccupied Cool	°F °C
15	LAO	Setpoint Shift Input Occupied Heat	°F °C
16	LAO	Setpoint Shift Input Standby Heat	°F °C
17	LAO	Setpoint Shift Input Unoccupied Heat	°F °C

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Table 1. AH540/541 Air Handler Controller (SCC Profile) APOGEE Points, Application Number: 9079, Program ID: 80:00:2A:56:0A:03:04:03. (continued)

Point	Type	Description	Range/Units ^{a b c}
18	LENUM	Occupancy Scheduler Input Current State	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
19	LENUM	Occupancy Scheduler Input Next State	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
20	LAO	Occupancy Scheduler Input Time to Next State	min
21	LENUM	Occupancy Manual Command	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
22	LENUM	Occupancy Sensor Input	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
23	LENUM	Application Mode Command	See Table 2
24	LENUM	Heat Cool Command	See Table 2
27	LAO	Compressor Enable Input Value	%
28	LAO	Compressor Enable Input State	
29	LAO	Auxiliary Heat Input Value	%
30	LAO	Auxiliary Heat Input State	
31	LAO	Ecconomizer Enable Input Value	%
32	LAO	Ecconomizer Enable Input State	
35	LENUM	Valve Override Input State	See Table 3
36	LAO	Value Override Input Position	%
37	LAO	Value Override Input Flow	cfm <i>Lps</i>
41	LENUM	Emergency Override Input	0=Emerg_Normal 1=Emerg_Pressurize 2=Emerg_Depressurize 3=Emerg_Purge 4=Emerg_Shutdown 5=Emerg_Fire 255=Emerg_Nul
42	LAO	Source Temperature	°F °C

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Table 1. AH540/541 Air Handler Controller (SCC Profile) APOGEE Points, Application Number: 9079, Program ID: 80:00:2A:56:0A:03:04:03. (continued)

Point	Type	Description	Range/Units ^{a b c}
43	LAO	Outdoor Air Temperature Input	°F °C
44	LAO	Space Relative Humidity Input	%
50	LAI	Effective Setpoint	°F °C
51	LENUM	Effective Occupancy	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
52	LENUM	Effective Heating Cooling	See Table 2
53	LAI	Local Setpoint Output	°F °C
62	LAI	Discharge Air Temperature	°F °C
65	LAI	Terminal Load	%
70	LAI	Outside Air Damper	%
71	LAI	Space Relative Humidity Output	%
73	LAI	Outside Air Temperature Output	°F °C
74	LAI	CO2 Output	ppm
90	LAO	Outdoor Air Minimum Position Input	%
91	LAI	Entering Water Temperature	°F °C
92	LAI	Face & Bypass Damper Position	%
93	LAI	Local Space Temperature	°F °C
94	LAI	Mixed Air Temperature	°F °C
95	LAI	Mixed Air Temperature	°F °C
96	LENUM	Current State Output	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
97	LENUM	Occupancy Scheduler Output Next State	0=Oc_Occupied 1=Oc_Unoccupied 2=Oc_Bypass 3=Oc_Standby 255=Oc_Nul
98	LAI	Next State Time Output	min

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Table 1. AH540/541 Air Handler Controller (SCC Profile) APOGEE Points, Application Number: 9079, Program ID: 80:00:2A:56:0A:03:04:03. (continued)

Point	Type	Description	Range/Units ^{a b c}
200	LAO	Temperature Setpoint Occupied Cool	°F °C
201	LAO	Temperature Setpoint Standby Cool	°F °C
202	LAO	Temperature Setpoint Unoccupied Cool	°F °C
203	LAO	Temperature Setpoint Occupied Heat	°F °C
204	LAO	Temperature Setpoint Standby Heat	°F °C
205	LAO	Temperature Setpoint Unoccupied Heat	°F °C
207	LAO	Bypass Time CP Input	min
220	LAO	Space Relative Humidity Setpoint CP Input	%
<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. HVAC Override Type (hvac_overid_t).

Value	Description
0	Hvo_Off
1	Hvo_Position

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Table 3. HVAC Override Type (hvac_overid_t). (continued)

Value	Description
2	Hvo_Flow_Value
3	Hvo_Flow_Percent
4	Hvo_Open
5	Hvo_Close
6	Hvo_Minimum
7	Hvo_Maximum
8	Hvo_Unused8
9	Hvo_Unused9
10	Hvo_Unused10
11	Hvo_Unused11
12	Hvo_Unused12
13	Hvo_Unused13
14	Hvo_Unused14
15	Hvo_Unused15
16	Hvo_Unused16
17	Hvo_Position_1
18	Hvo_Flow_Value_1
19	Hvo_Flow_Percent_1
20	Hvo_Open_1
21	Hvo_Close_1
22	Hvo_Minimum_1
23	Hvo_Maximum_1
24	Hvo_Unused24
25	Hvo_Unused25
26	Hvo_Unused26
27	Hvo_Unused27
28	Hvo_Unused28
29	Hvo_Unused29
30	Hvo_Unused30
31	Hvo_Unused31
32	Hvo_Unused32
33	Hvo_Position_2
34	Hvo_Flow_Value_2
35	Hvo_Flow_Percent_2
36	Hvo_Open_2

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Table 3. HVAC Override Type (hvac_overid_t). (continued)

Value	Description
37	Hvo_Close_2
38	Hvo_Minimum_2
39	Hvo_Maximum_2
40	Hvo_Unused40
41	Hvo_Unused41
42	Hvo_Unused42
43	Hvo_Unused43
44	Hvo_Unused44
45	Hvo_Unused45
46	Hvo_Unused46
47	Hvo_Unused47
48	Hvo_Unused48
255	Hvo_Nul

Table 4. AH540/541 Air Handler Controller (SCC Profile) LONWORKS Network Variables, Program ID: 80:00:2A:56:0A:03:04:03.

Point	NVO Name	NVI Name	CP Name
1	-	nviSpaceTemp	nviSpaceTemp
2	nvoSpaceTemp	-	-
3	nvoUnitStatus.mode	-	-
4	nvoUnitStatus.heat_output_primary	-	-
5	nvoUnitStatus.heat_output_secondary	-	-
6	nvoUnitStatus.cool_output	-	-
7	nvoUnitStatus.econ_output	-	-
8	nvoUnitStatus.fan_output	-	-
9	nvoUnitStatus.in_alarm	-	-
10	-	nviSetpoint	nviSetpoint
11	-	nviSetptOffset	nviSetptOffset
12	-	nviSetptShift.occupied_cool	nviSetptShift.occupied_cool
13	-	nviSetptShift.standby_cool	nviSetptShift.standby_cool
14	-	nviSetptShift.unoccupied_cool	nviSetptShift.unoccupied_cool
15	-	nviSetptShift.occupied_heat	nviSetptShift.occupied_heat
16	-	nviSetptShift.standby_heat	nviSetptShift.standby_heat
17	-	nviSetptShift.unoccupied_heat	nviSetptShift.unoccupied_heat
18	-	nviOccSchedule.current_state	nviOccSchedule.current_state
19	-	nviOccSchedule.next_state	nviOccSchedule.next_state
20	-	nviOccSchedule.time_to_next_state	nviOccSchedule.time_to_next_state
21	-	nviOccManCmd	nviOccManCmd
22	-	nviOccSensor	nviOccSensor
23	-	nviApplicMode	nviApplicMode
24	-	nviHeatCool	nviHeatCool
27	-	nviComprEnable.value	nviComprEnable.value
28	-	nviComprEnable.state	nviComprEnable.state
29	-	nviAuxHeatEnable.value	nviAuxHeatEnable.value
30	-	nviAuxHeatEnable.state	nviAuxHeatEnable.state
31	-	nviEconEnable.value	nviEconEnable.value
32	-	nviEconEnable.state	nviEconEnable.state

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Table 4. AH540/541 Air Handler Controller (SCC Profile) LONWORKS Network Variables, Program ID: 80:00:2A:56:0A:03:04:03. (continued)

Point	NVO Name	NVI Name	CP Name
35	-	nviValveOverride.state	nviValveOverride.state
36	-	nviValveOverride.percent	nviValveOverride.percent
37	-	nviValveOverride.flow	nviValveOverride.flow
41	-	nviEmergOverride	nviEmergOverride
42	-	nviSourceTemp	nviSourceTemp
43	-	nviOutdoorTemp	nviOutdoorTemp
44	-	nviSpaceRH	nviSpaceRH
50	nvoEffectSetpt	-	-
51	nvoEffectOccup	-	-
52	nvoHeatCool	-	-
53	nvoSetpoint	-	-
62	nvoDischAirTemp	-	-
65	nvoTerminalLoad	-	-
70	nvoOADamper	-	-
71	nvoSpaceRH	-	-
73	nvoOutdoorTemp	-	-
74	nvoSpaceCO2	-	-
90	-	nviOAMinPos	nviOAMinPos
91	nvoEnterWaterTmp	-	-
92	nvoFBDamper	-	-
93	nvoLocalSpaceTmp	-	-
94	nvoMATemp	-	-
95	nvoMixedAirTemp	-	-
96	nvoOccSchedule.current_state	-	-
97	nvoOccSchedule.next_state	-	-
98	nvoOccSchedule.time_to_next_state	-	-
200	-	-	nciSetpoints.occupied_cool
201	-	-	nciSetpoints.standby_cool
202	-	-	nciSetpoints.unoccupied_cool
203	-	-	nciSetpoints.occupied_heat

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Table 4. AH540/541 Air Handler Controller (SCC Profile) LONWORKS Network Variables, Program ID: 80:00:2A:56:0A:03:04:03. (continued)

Point	NVO Name	NVI Name	CP Name
204	-	-	nciSetpoints.standby_heat
205	-	-	nciSetpoints.unoccupied_heat
207	-	-	nciBypassTime
220	-	-	nciSpaceRHSetpt

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