

## Systems Integration

# APOGEE® Integration to Siemens LONWORKS® Devices: Designo RXC20/RXC21 Room Controllers FNC02 Motor Actuator

Table 1. RXC20/RXC21 APOGEE Points, Application Number: 8499, Program ID: 80:00:19:51:00:03:04:0F.

Point	Type	Description	Range/Units <sup>a b c</sup>
1	LAO	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	Off/On
11	LAO	Set Point Offset Input	°F °C
12	LAO	Set Point Shift Input Occupied Cool	°F °C
13	LAO	Set Point Shift Input Standby Cool	°F °C
14	LAO	Set Point Shift Input Unoccupied Cool	°F °C
15	LAO	Set Point Shift Input Occupied Heat	°F °C
16	LAO	Set Point Shift Input Standby Heat	°F °C
17	LAO	Set Point Shift Input Unoccupied Heat	°F °C
18	LENUM	Occupancy Scheduler Input Current State	0 = Oc_Occupied 1 = Oc_Unoccupied 2 = Oc_Bypass 3 = Oc_Standby 255 = Oc_Nul

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**Table 1. RXC20/RXC21 APOGEE Points, Application Number: 8499, Program ID: 80:00:19:51:00:03:04:0F. (continued)**

Point	Type	Description	Range/Units <sup>a b c</sup>
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 Input	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	See Table 2
24	LENUM	Heat/Cool Mode Input	See Table 2
25	LAO	Fan Speed Command Value	%
26	LAO	Fan Speed Command State	–
29	LAO	Auxiliary Heat Enable Input Value	%
30	LAO	Auxiliary Heat Enable Input State	–
33	LAO	Energy Hold Off Input Value	%
34	LAO	Energy Hold Off Input State	–
35	LENUM	Valve Override Status	See Table 3
36	LAO	Valve Override Percent	%
37	LAO	Valve Override Flow	cfm
50	LAI	Effective Set Point Output	°F °C
51	LENUM	Occupancy Output	0 = Oc_Occupied 1 = Oc_Unoccupied 2 = Oc_Bypass 3 = Oc_Standby 255 = Oc_Nul
52	LENUM	Heat Cool Output	See Table 2
55	LAI	Fan Speed Output Value	%
56	LDI	Fan Speed Output State	Off/On
57	LAI	Discharge Air Temperature Output	°F °C
58	LAI	Absolute Power Consumption Output	W
60	LAI	Terminal Load Output	%

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**Table 1. RXC20/RXC21 APOGEE Points, Application Number: 8499, Program ID: 80:00:19:51:00:03:04:0F. (continued)**

Point	Type	Description	Range/Units <sup>a b c</sup>
61	LAI	Primary Heat Output	%
62	LAI	Secondary Heat Output	%
63	LAI	Primary Cool Output	%
72	LAI	Energy Hold Output Value	%
73	LDI	Energy Hold Output State	Off/On
83	LAI	Effective Set Point Occupied Cool	°F °C
84	LAI	Effective Set Point Standby Cool	°F °C
85	LAI	Effective Set Point Unoccupied Cool	°F °C
86	LAI	Effective Set Point Occupied Heat	°F °C
87	LAI	Effective Set Point Standby Heat	°F °C
88	LAI	Effective Set Point Unoccupied Heat	°F °C
89	LAI	Set Point Offset Feedback	°F °C
90	LAI	Temperature Sensor Input	°F °C
91	LENUM	Occupancy Sensor Input	0 = Oc_Occupied 1 = Oc_Unoccupied 2 = Oc_Bypass 3 = Oc_Standby 255 = Oc_Nul
100	LAO	Occupancy Temperature Set Point Occupied Cool	°F °C
101	LAO	Occupancy Temperature Set Point Standby Cool	°F °C
102	LAO	Occupancy Temperature Set Point Unoccupied Cool	°F °C
103	LAI	Occupancy Temperature Set Point Occupied Heat	°F °C
104	LAI	Occupancy Temperature Set Point Standby Heat	°F °C
105	LAO	Occupancy Temperature Set Point Unoccupied Heat	°F °C
106	LAI	Receive Heartbeat	sec
<p><sup>a</sup> Values noted for LDIs and LDOs are in the following format: OFF text/ON text.</p> <p><sup>b</sup> This column indicates the value/range or engineering units or both if known.</p> <p><sup>c</sup> 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
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

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**Table 3. HVAC Override Type (hvac\_overid\_t). (continued)**

<b>Value</b>	<b>Description</b>
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
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. RXC20/RXC21 LONWORKS Network Variables, Program ID: 80:00:19:51:00:03:04:0F.

Point	Subpoint Name	NVO Name	NVI Name	CP Name
1	SpaceTemp	nvoSpaceTemp	nviSpaceTemp	nviSpaceTemp
3	OpMode	nvoUnitStatus.mode	-	-
4	HeatOpPrim	nvoUnitStatus.heat_output_primary	-	-
5	HeatOpSec	nvoUnitStatus.heat_output_secondary	-	-
6	CoolOp	nvoUnitStatus.cool_output	-	-
7	EconOp	nvoUnitStatus.econ_output	-	-
8	FanOp	nvoUnitStatus.fan_output	-	-
9	InAlarm	nvoUnitStatus.in_alarm	-	-
11	SetPntOffset	-	nviSetptOffset	nviSetptOffset
12	SPSh_OccCool	-	nviSetptShift.occupied_cool	nviSetptShift.occupied_cool
13	SPSh_SbyCool	-	nviSetptShift.standby_cool	nviSetptShift.standby_cool
14	SpSh_UnoCool	-	nviSetptShift.unoccupied_cool	nviSetptShift.unoccupied_cool
15	SpSh_OccHeat	-	nviSetptShift.occupied_heat	nviSetptShift.occupied_heat
16	SpSh_SbyHeat	-	nviSetptShift.standby_heat	nviSetptShift.standby_heat
17	SpSh_UnoHeat	-	nviSetptShift.unoccupied_heat	nviSetptShift.unoccupied_heat
18	CurState	-	nviOccSchedule.current_state	nviOccSchedule.current_state
19	NextState	-	nviOccSchedule.next_state	nviOccSchedule.next_state
20	TimeToNextSt	-	nviOccSchedule.time_to_next_state	nviOccSchedule.time_to_next_state
21	OccCmd	-	nviOccManCmd	nviOccManCmd
22	OccSensorCmd	-	nviOccSensor	nviOccSensor
23	ApplMode	-	nviApplicMode	nviApplicMode
24	HeatCoolCmd	-	nviHeatCool	nviHeatCool
25	FanSpdCmd_V	-	nviFanSpeedCmd.value	nviFanSpeedCmd.value
26	FanSpdCmd_S	-	nviFanSpeedCmd.state	nviFanSpeedCmd.state
29	AuxHeatEn_V	-	nviAuxHeatEnable.value	nviAuxHeatEnable.value
30	AuxHeatEn_S	-	nviAuxHeatEnable.state	nviAuxHeatEnable.state
33	EngyHldCmd_V	-	nviEnergyHoldOff.value	nviEnergyHoldOff.value
34	EngyHldCmd_S	-	nviEnergyHoldOff.state	nviEnergyHoldOff.state
35	ValveOvr_S	-	nviValveOverride.state	-

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Table 4. RXC20/RXC21 LONWORKS Network Variables, Program ID: 80:00:19:51:00:03:04:0F. (continued)

Point	Subpoint Name	NVO Name	NVI Name	CP Name
36	ValveOvr_P	-	nviValveOverride.percent	-
37	ValveOvr_F	-	nviValveOverride.flow	-
50	EffectSetPt	nvoEffectSetPt	-	-
51	Occupancy	nvoEffectOccup	-	-
52	HeatCool_Out	nvoHeatCool	-	-
55	FanSpeed_OPV	nvoFanSpeed.value	-	-
56	FanSpeed OPS	nvoFanSpeed.state	-	-
57	DischAirT	nvoDischAirTemp	-	-
58	LoadAbs	nvoLoadAbs	-	-
60	TerminalLoad	nvoTerminalLoad	-	-
61	HeatPrim	nvoHeatPrimary	-	-
62	HeatSec	nvoHeatSecondary	-	-
63	CoolPrim	nvoCoolPrimary	-	-
72	EngyHold_OPV	nvoEnergyHoldOff.value	-	-
73	EngyHold OPS	nvoEnergyHoldOff.state	-	-
83	ESP_OccCool	nvoSetptEffect.occupied_cool	-	-
84	ESP_SbyCool	nvoSetptEffect.standby_cool	-	-
85	ESP_UnocCool	nvoSetptEffect.unoccupied_cool	-	-
86	ESP_OccHeat	nvoSetptEffect.occupied_heat	-	-
87	ESP_SbyHeat	nvoSetptEffect.standby_heat	-	-
88	ESP_UnocHeat	nvoSetptEffect.unoccupied_heat	-	-
89	SetpOffsetFb	nvoSetptOffset	-	-
90	TempSensor	nvoTempSensor	-	-
91	OccSensor	nvoOccSensor	-	-
100	SP_OccCool	-	-	nciSetpoints.occupied_cool
101	SP_SbyCool	-	-	nciSetpoints.standby_cool
102	SP_UnocCool	-	-	nciSetpoints.unoccupied_cool
103	SP_OccHeat	-	-	nciSetpoints.occupied_heat
104	SP_SbyHeat	-	-	nciSetpoints.standby_heat

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Table 4. RXC20/RXC21 LONWORKS Network Variables, Program ID: 80:00:19:51:00:03:04:0F. (continued)

Point	Subpoint Name	NVO Name	NVI Name	CP Name
105	SP_UnoccHeat	-	-	nciSetpoints.unoccupied_heat
106	SP_RcvHrtBt	-	-	SCPTmaxRcvTime



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