REZNOR®

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CONTROL SYSTEM GUIDE FOR AIR HANDLER UNITS

OPTIONS D19, D21, D22, AND D23 FOR MODELS RPB, RPBL, AND SSCBL

TABLE OF CONTENTS

CONTROL SYSTEM 2
System Controller 2
Main Screen 2
Main Menu 3
Quick Setpoints Menu 3
Schedule Menu 4
Points List Menu 5
Alarms Menu 5
Service Menu 5
Factory Settings Menu 7
Remote Display 7
Display Screen Navigation 7
Space-Mounted Thermostat with Space-Averaging Sensor(s) (Option CL78) 7
CONTROL DESCRIPTIONS 9
Control Option D19 10
D19 Control via Conventional Inputs 10
D19 Control via Option CL78 10
Control Option D21 10
Control Option D22 10
Control Option D23 10
Temperature Control 11
Supply Fan Control 13
Damper Control 13
BMS Control 13
BACnet MSTP Card (Option BHB8) 13
BACnet IP/Ethernet Card (Option BHB9) 14
Modifying BACnet Parameters 15
SETUP OF UNIT USING SYSTEM CONTROLLER 17
Test Mode 17
Set Date and Time 18
Select Unit Occupancy Type and Enable System 19
ALARMS 21
Acknowledging Alarms 21
Alarm Conditions 22

DO NOT DESTROY. PLEASE READ CAREFULLY. KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

CONTROL SYSTEM

NOTE: Refer to the installation manual and wiring diagrams provided with the unit for specific wiring information.

The option D19, D21, or D22 control system utilizes a factory-installed system controller, an optional field-installed wall-mounted or handheld remote display, a conventional field-installed space-mounted thermostat, and/or an optional field-installed space-mounted thermostat with up to five space-averaging sensors (option CL78). The control system operates the supply fan, dampers, cooling, and heating to maintain a set of discharge air temperature control setpoints and allows for complete access to unit test features, schedules, discharge air setpoints, fan control, alarms, and other unit operational setpoints.

System Controller

The programmable system controller (see **Figure 1**) has an integral display that shows unit features and parameters that can be modified. Refer to the following paragraphs and tables for a listing and description of system controller screens and menus.

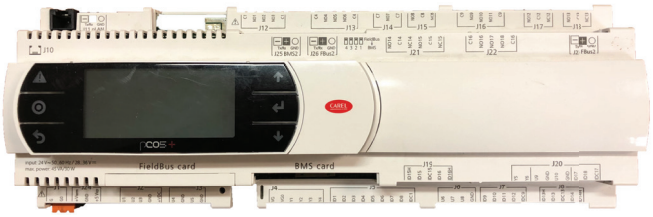


Figure 1. System Controller

NOTE: In the following tables, UOM = unit of measurement. Screen display is dependent on unit configuration.

Main Screen

The main screens display current system conditions and cannot be used to modify system parameters.

Table 1. Main Screens

Screen	Field	Description	Default	Min	Max	UOM
M.1	**Control Option Code**	Current control option code	—	—	—	—
	Mode:	Current unit mode: occupied or unoccupied	—	—	—	
	State_Sel:	Current system state: **Off**, **Auto**, **Cool**, **Heat**	Off	—	—	
	Temperature:	Current OAT	—	—	—	°F
	Humidity:	Current outside air humidity	—	—	—	%
	Dew Point:	Current outside air dew point	—	—	—	°F
M.2	**Space Temp:**	Current space temperature	—	—	—	°F
	Space Temp Sp:	Current space temperature setpoint	—	—	—	
	Space Humidity:	Current space humidity	—	—	—	%
	Space Humidty Sp:	Current space humidity setpoint	—	—	—	
M.3	**NO01 SF_Cmd**	Current status of supply fan command	Off	Off	On	—
	Discharge Air Temp:	Current DAT	—	—	—	°F
	Discharge Air Sp:	Current DAT setpoint	—	—	—	
M.4 (D19)	**Input Type:**	Current status of selected input type for D19 conventional inputs	External	—	—	—
	OccMode_Sel:	Current occupancy setting: **Schedule**, **Digital Input**, or **BMS**	Digital Input	—	—	
	Mode:	Current unit mode: occupied or unoccupied	—	—	—	
	Ext Occ:	Current status of external occupied input	—	Off	On	
	Fan:	Current status of external fan input (G)	—	Off	On	
	Htg:	Current status of external heat input(W1)	—	Off	On	
	Clg:	Current status of external cool input (Y1)	—	Off	On	

Table 1. Main Screens—Continued						
Screen	**Field**	**Description**	**Default**	**Min**	**Max**	**UOM**
M.6, M.8, M.11*	**Spc_Clg_Md:**	Space cooling mode	Off	Off	On	—
	Spc_Htg_Md:	Space heating mode	Off	Off	On	
	Spc_HtgClg_Md:	Space heating/cooling mode	Off	Off	On	
	NA_Clg_Md:	Neutral air cooling mode	Off	Off	On	
	NA_Htg_Md:	Neutral air heating mode	Off	Off	On	
*One of these screens is displayed based on unit configuration.						

Main Menu

Table 2. Main Menu	
Menu Selection	**Description**
A. Quick Setpoints	Allows user to select unit modes and setpoints
B. Schedule	Allows user to select unit operating schedules
C. Points List	Applicable inputs, outputs, and setpoints for unit configuration
D. Alarms	Allows user to view and acknowledge active alarms
E. Service	Allows user to access modifiable fields for service and adjustment
F. Factory Settings	Password-protected factory settings

Quick Setpoints Menu

Table 3. Quick Setpoints Menu						
Screen	**Field**	**Description**	**Default**	**Min**	**Max**	**UOM**
A.1 (D19, D22)	**OccMode_Sel:**	Current occupancy setting: **Schedule**, **Digital Input**, or **BMS**	Digital Input	—	—	—
	System Enable:	Enables system	Off	Off	On	
A.1 (D19 CL78, D21, D23)	**OccMode_Sel:**	Current occupancy setting: **Schedule**, **Digital Input**, or **BMS**	Digital Input	—	—	
	State Select:	Selects system state: **Off**, **Auto**, **Cool**, **Heat**	Off	—	—	
A.2 (D19)	**OAChgOv_SP:**	Selects OAT change-over setpoint	65	—	—	°F
	OAChgOvDiff:	Selects OAT change-over setpoint differential	5	0.5	10	
	OAChgOvDel:	Selects delay period between heating and cooling in **Auto** state	15	5	30	Minute
A.2 (D19 CL78, D21)	**OAChgOv_SP:**	Selects OAT change-over setpoint	65	—	—	°F
	OAChgOvDiff:	Selects OAT change-over setpoint differential	5	0.5	10	
	OAChgOvDel:	Selects delay period between heating and cooling in **Auto** state	15	5	30	Minute
	TempOcc:	Temporary occupied status from space thermostat	Off	Off	On	—
	TempOcc_Time:	Selects temporary occupied time duration	240	0	480	Minute
A.2 (D23)	**TempOcc:**	Temporary occupied status from space thermostat	Off	Off	On	—
	TempOcc_Time:	Selects temporary occupied time duration	240	0	480	Minute
A.2 (D22)	**Setpoint Type:**	Selects setpoint type: **Local** or **BMS**	Local	—	—	—
	DA_Loc_SP	Selects DAT local setpoint	70	—	—	°F
	DA_SP:	Current DAT setpoint	—	—	—	
A.3	**Spc_Temp:**	Current space temperature	—	—	—	
	SpcTempSP:	Selects space temperature setpoint	72	65	85	
	SpcHtgSp:	Space heating setpoint	71	—	—	
	SpcClgSp:	Space cooling setpoint	73	—	—	
	SpcHtgDB:	Space heating dead band	1	0	5	
	SpcClgDB:	Space cooling dead band	1	0	5	
A.4	**SpcEffClgSP:**	Space effective cooling setpoint	—	—	—	
	SpcClgOnDiff:	Selects space cooling on differential	1	0.5	10	
	SpcClgOffDiff:	Selects space cooling off differential	1	0.5	10	
	SpcClgUnoOs:	Selects space cooling unoccupied offset	8	0	15	
	UnoClgOffDiff	Selects unoccupied space cooling off differential	4	0	10	
	DA_SpcClg_SP:	Selects DAT space cooling setpoint	55	50	100	

CONTROL SYSTEM—CONTINUED

System Controller—Continued

Quick Setpoints Menu—Continued

Table 3. Quick Setpoints Menu—Continued

Screen	Field	Description	Default	Min	Max	UOM
A.5	**SpcEffHtgSP:**	Space effective heating setpoint	—	—	—	°F
	SpcHtgOnDiff:	Selects space heating on differential	1	0.5	10	
	SpcHtgOffDiff:	Selects space heating off differential	1	0.5	10	
	SpcHtgUnoOs:	Selects space heating unoccupied offset	8	0	15	
	UnoHtgOffDiff	Selects unoccupied space heating off differential	4	0	10	
	DA_SpcHtg_SP:	Selects DAT space heating setpoint	90	50	140	
A.6	**SpcEffClgSP:**	Space effective cooling setpoint	—	—	—	°F
	SpcHCOnDiff:	Selects space heating cooling on differential	1	0.5	10	
	SpcHCOffDiff:	Selects space heating cooling off differential	1	0.5	10	
	UnoHCOffDiff	Selects unoccupied space heating cooling off differential	4	0	10	
	DA_SpcHtCl_Sp:	Selects DAT space heating mode cooling setpoint	55	50	100	
A.8	**DA_NAClg_SP:**	Selects DAT neutral cooling setpoint	70	50	100	°F
	DA_NAHSPSel:	Selects single or reset setpoint for DAT neutral heating	Setpt	Setpt	Reset	—
	DA_NAHtg_SP:	Current DAT neutral heating setpoint	70	50	100	°F
A.9	**OA_Temp:**	Current OAT	—	—	—	°F
	DA_NAHRst_SP:	Current DAT neutral heating reset schedule setpoint in neutral air heating mode	—	—	—	
	OAT Min:	Selects OAT neutral heating minimum reset setpoint	30	0	100	
	OAT Max:	Selects OAT neutral heating maximum reset setpoint	75	50	140	
	DAT Max:	Selects DAT neutral heating maximum reset setpoint	65	0	100	
	DAT Min:	Selects DAT neutral heating minimum reset setpoint	65	50	140	
A.10	**DA_SpcClg_SP:**	Selects DAT space cooling setpoint	55	50	100	°F
	DA_SpcHSPSel:	Selects single or reset setpoint for DAT space heating	Setpt	Setpt	Reset	—
	DA_SpcHtg_SP:	Selects DAT space heating setpoint	90	50	140	°F

Schedule Menu

Table 4. Schedule Menu

Screen	Field	Description
B.1	**Date:**	Selects mm/dd/yy (default: current date)
	Hour:	Selects hh:mm (am or pm)
	Day:	Current day of week
B.2	**DST:**	Enables/disables DST (default: **ENABLE**)
	Transition time:	Selects transition time (default: 60 minutes)
	Start:	Selects start day, month, and time (default: **LAST SUNDAY in MARCH at 2:00**)
	End:	Selects end day, month, and time (default: **LAST SUNDAY in OCTOBER at 3:00**)
B.3*	**Schedule #:**	Modifiable field used to advance through 10 available schedules
	Time On:	Selects desired on time for selected schedule
	Time Off:	Selects desired off time for selected schedule
	Days Enabled:	Selects desired days of week for selected schedule
B.4–B.7*	**1: through 16:**	Selects mm/dd–mm/dd for holiday ranges 1 through 16

***Displayed when **OccMode_Sel** is set to **Schedule**.

Points List Menu

Table 5. Points List Menu	
Screen	**Description**
C.1	Analog outputs
C.2	Relay outputs
C.5	Analog inputs
C.7	Temperature/humidity values for space sensor 1
C.8, C.9, C.10, C.11, C.12	Temperature/humidity values for space sensors 2–6
C.15	Digital inputs
C.16	

Alarms Menu

Table 6. Alarms Menu	
Screen	**Description**
D	Active alarms are displayed with option of entering **Alarm Logger**
	Refer to **ALARMS** section for detailed information on active and logged alarms

Service Menu

Table 7. Service Menu						
Screen	**Field**	**Description**	**Default**	**Min**	**Max**	**UOM**
E.a._	**Test Mode Screens**					
E.a.1	**Enable:**	Enables test mode	Off	Off	On	—
	Time Out:	Test mode time duration	120	—	—	Minute
	Countdown:	Countdown timer for test mode time remaining	120	0	120	
E.a.2	**Damper:**	Automatically-commanded percentage output to unit damper(s)	100	—	—	%
	Manual Control Fan Supply:	Current setting of supply fan	On	Off	On	—
	Airflow Status:	Current setting of supply fan air proving switch	Off	Off	On	
E.a.3	**Manual Control Cooling Stages**	—	—	—	—	—
E.a.6	—	Analog inputs based on unit configuration	—	—	—	—
E.a.8	**Spc1_Temp:**	Temperature/humidity values for space sensor 1	—	—	—	°F
	Spc1_Humidity:		—	—	—	%
E.a.9–E.a.13	**Temperature**	Temperature/humidity values for space sensors 2 through 6	—	—	—	°F
	Humidity		—	—	—	%
E.a.16, E.a.17	—	Digital inputs based on unit configuration	—	—	—	—
E.b._	**TAB Screen**					
E.b.1	**Save?**	Modifiable field used to save current setpoints	No	No	Yes	—
	Restore?	Modifiable field used to restore current setpoints	No	No	Yes	
E.c._	**Supply Fan Screen**					
E.c.1	**Control:**	Selected fan control option	—	—	—	—
	SupFan_CycleMode:	Supply fan cycle mode	Off	Off	On	
E.d._	**Capacity Screens**					
E.d.1	**Heating Type:**	Heating option	None	—	—	—
	Cooling Type:	Cooling option	None	—	—	
	Evap Cooling	Evaporative cooling option	None	—	—	
	Reheat:	None	—	—	—	
E.d.2	**CL78 Sens Enable:**	Enables CL78 sensor	No	No	Yes	—
	Spc_Avg_Ena:	Enables averaging of multiple space sensors from 2 up to 6	Off	Off	On	
	Num_Avg_Sens:	Selects number of active CL78 sensors from 2 up to 6	2	2	6	
	Ena_Unocc_Spc:	Enables night setback and night setup operation	On	Off	On	
E.d.3 (D21)	**OAHtgLo_SP**	Selects OAT heating lockout setpoint	65	0	150	°F
	OAHtgLoDiff	Selects OAT heating lockout differential	2	0.5	10	
	OAClgLo_SP	Selects OAT cooling lockout setpoint	65	–10	150	
	OAClgLoDiff	Selects OAT cooling lockout differential	2	0.5	10	

CONTROL SYSTEM—CONTINUED

System Controller—Continued

Service Menu—Continued

Table 7. Service Menu—Continued

Screen	Field	Description	Default	Min	Max	UOM
E.d.4 (D19, D22, D23)	**OAClgLo_SP_2**	Selects OAT cooling lockout 2 setpoint	60	0	150	°F
	OAHtgLo_SP_2	Selects OAT heating lockout 2 setpoint	70	0	150	
	OAClgDiff_2	Selects OAT cooling 2 differential	2	0.5	10	
	OAHtgDiff_2	Selects OAT heating 2 differential	2	0.5	10	
E.d.8	**Active Input:**	Current cooling control input	—	—	—	°F
	Setpoint:	Current cooling control setpoint	—	—	—	
	PI Output:	Current output of control loop	—	0	100	%
E.d.9 (D23)	**Active Input:**	Current cooling control input	—	—	—	°F
	Setpoint:	Current cooling control setpoint	—	—	—	
	PI Output:	Current output of control loop	—	0	100	%
E.d.10	**Cooling Stages**	—	—	—	—	—
E.d.11 (reheat valve)	**U03 DA_Temp**	Current DAT	—	—	—	°F
	Setpoint:	Current DAT setpoint	—	—	—	
	PI Output:	Current output of control loop	—	0	100	% VDC
E.d.19	**Auto Reset Safety Alarm:**	Enables auto-reset of safety alarm when alarm condition is cleared	On	Off	On	—
	Auto Reset Phase Loss Alarm:	Enables auto-reset of phase alarm when alarm condition is cleared	On	Off	On	
	AutoRst_AlDel:	Selects time delay period required for auto-reset	30	0	900	Second
E.d.20 (D19)	**TStat_In_Type:**	Thermostat type: **External** or **BMS**	External	—	—	—
	Ext Occ:	External occupancy status	Off	Off	On	
	Fan:	Fan status	Off	Off	On	
	Htg:	Heat state status	Off	Off	On	
	Clg:	Cool state status	Off	Off	On	
E.d.21 (D22)	**Setpoint Type:**	Selects setpoint type: **Local** or **BMS**	Local	—	—	—
	DA_Loc_SP	Selects DAT local setpoint	70	—	—	°F
	DA_BMS_SP	Selects DAT local setpoint	0	—	—	
	DA_SP:	Current DAT setpoint	—	—	—	
E.e._	**Damper Screens**					
E.e.1	**Control:**	Selected damper control option	—	—	—	—
E.f._	**Alarm Configuration Screen**					
E.f.1	**Auto Reset Safety Alarm:**	Enables auto-reset of safety alarm when alarm condition is cleared	On	Off	On	—
	Auto Reset Phase Loss Alarm:	Enables auto-reset of phase alarm when alarm condition is cleared	On	Off	On	
	AutoRst_AlDel:	Selects time delay period required for auto-reset	30	0	900	Second
E.g._	**Information Screen**					
E.g.1	**Control Program:**	Current program option loaded into controller	—	—	—	—
	Ver:	Current software version (number and date)	—	—	—	
	Bios:	Current bios version (number and date)	—	—	—	
	Boot:	Current boot version (number and date)	—	—	—	
E.h._	**BMS Configuration Screens**					
E.h.1	**BMS PORT 1 Protocol:**	Selects BMS protocol: **BACnet MSTP**, **BACnet IP/Eth**, or **Lon**	BACnet MSTP	—	—	—
E.h.2	**Termconf Plugin?**	Enables BACnet plugin setting	NO	NO	YES	
E.h.4	**Instance:**	Selects instance	—	—	—	
	Baudrate:	Selects baudrate: **9600**, **19200**, **38400**, or **76800**	—	—	—	
	MAC Addr:	Selects MAC address	0	0	127	
	MaxMasters:	Selects Max Masters value	0	0	127	
	MaxInfoFrames:	Selects Max Info Frames value	0	0	255	
E.h.5	**Function:**	Selects function: **Read** or **Write**	Read	—	—	—
	Update:	Selects update: YES or NO	NO	NO	YES	
E.h.6	**OA_Hum_Sel:**	Selects OA humidity value from BMS: **Probe** or **BMS**	Probe	Probe	BMS	
	OA_Temp_Sel:	Selects OA temperature value from BMS: **Probe** or **BMS**	Probe	Probe	BMS	
	Occupied_BMS	Selects occupied mode for BMS	Unocc	Unocc	Occ	

Factory Settings Menu

The **Factory Settings Menu** is password-protected. Consult the Factory for the manufacturer password (PW2).

Remote Display

The optional field-installed wall-mounted or handheld programmable remote display (see **Figure 2**) shows unit features and parameters that can be modified as on the system controller.

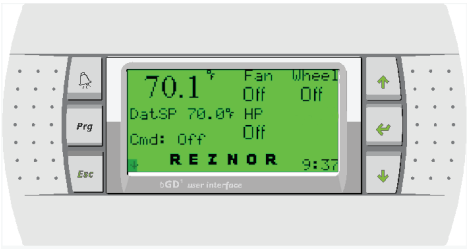


Figure 2. Remote Display

Display Screen Navigation

Navigation through the display screens and menus is accomplished by using the function keys (see **Figure 3**) located on each side of the system controller display or remote display.

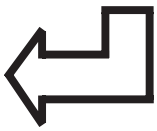
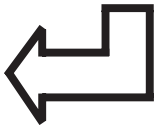
COMPONENT	ALARM	PROGRAM	ESCAPE	UP ARROW	ENTER	DOWN ARROW
SYSTEM CONTROLLER						
REMOTE DISPLAY		Prg	Esc			

Figure 3. Function Keys

Space-Mounted Thermostat with Space-Averaging Sensor(s) (Option CL78)

NOTE: Option CL78 is available with control options D19, D21, and D23 but not with D22.

The space-mounted th-tune thermostat/sensor (option CL78) display shows space temperature and humidity, unit status, and time. These devices are combination temperature and humidity sensors that operate on a RS-485 communication signal. Up to five space-averaging sensors may be added to the control system, in addition to the thermostat, for a total of six space inputs. Controls are shown in **Figure 4** and listed and described in **Table 8**. The space-averaging sensor DIP switches (see **Figure 5**) must be set by the user.

NOTE: A thermostat is not standard equipment but is an installation requirement. The unit may have an optional thermostat available with the system or a field-supplied thermostat.

Space-Mounted Thermostat with Space-Averaging Sensor(s) (Option CL78)—Continued

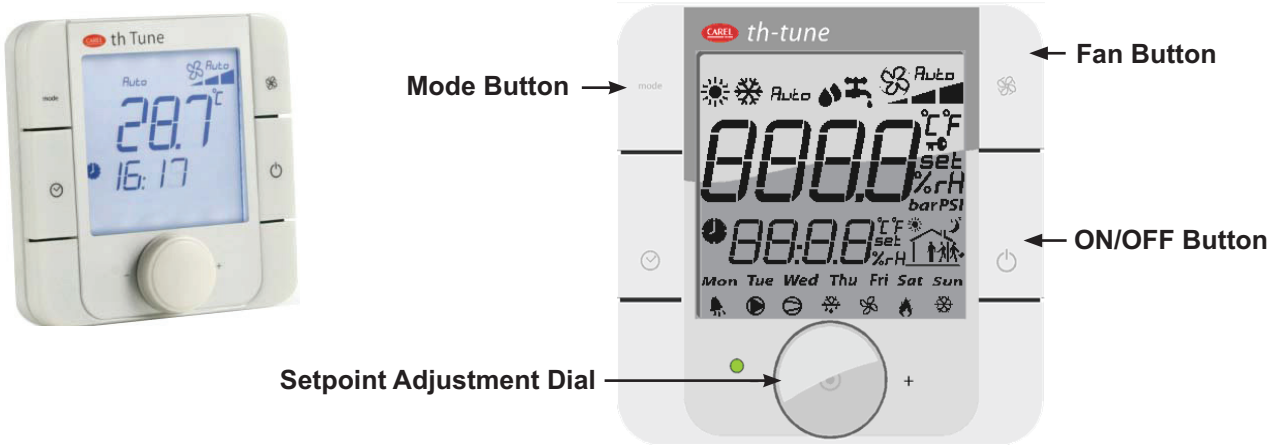


Figure 4. th-tune Sensor (Option CL78)

Table 8. th-tune Controls

Manual Control*	Current State	Action
Mode button	—	Selects **Heat**, **Cool**, or **Auto** state when pressed
Fan button		Initiates temporary occupied period when pressed
ON/OFF button	**Heat**, **Cool**, or **Auto**	Sets unit state to OFF when pressed
	Off	Sets unit state to previous **Heat**, **Cool**, or **Auto** state when pressed
Setpoint adjustment dial	—	Selects temperature setpoint: press inward on dial once and turn dial clockwise (increase) or counterclockwise (decrease)
		Selects humidity setpoint: press inward on dial twice and turn dial clockwise (increase) or counterclockwise (decrease)

*See Figure 4.

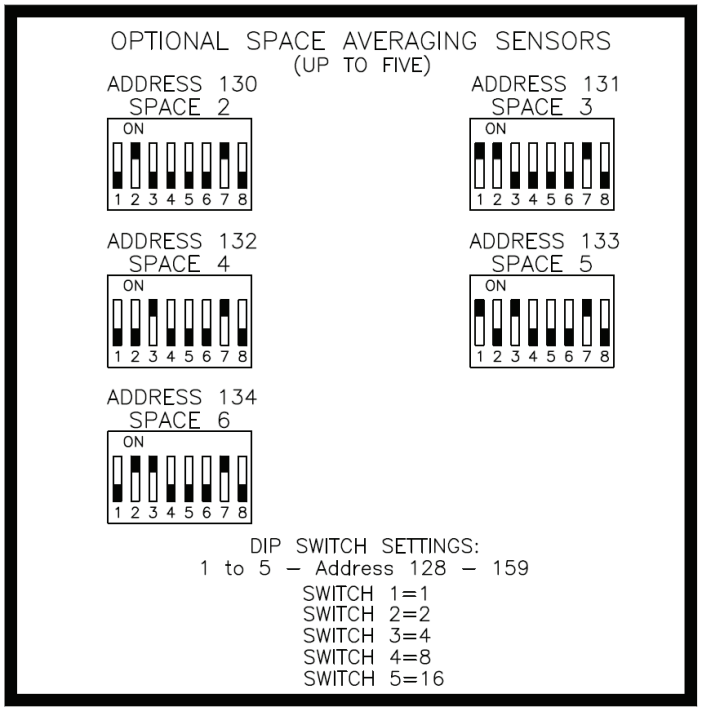


Figure 5. Space Averaging Sensor DIP Switch Settings

CONTROL DESCRIPTIONS

- The control system operates the supply fan, dampers, cooling, and heating to maintain DAT as follows:
  a. The unit supplies air at a neutral temperature that does not affect space conditions.
  b. The unit supplies cold air to provide space cooling.
  c. The unit supplies hot air to provide space heating.
- When the unit is called to operate in the auto, heating, or cooling state, it is controlled in either occupied or unoccupied mode based on one of the following user-selected commands:
  a. Internal time clock schedule
  b. Physical input point (ID4) (contact closed = occupied)
  c. Building automation (BACnet®) command (option BHB8 or BHB9 required)

NOTE: By default unoccupied heating and cooling modes are enabled when the system is equipped with a th-tune (option CL78) space sensor. If unoccupied heating and cooling modes are not desired, set the Ena_Unocc_Spc variable to OFF.

- The control system switches between operating states (refer to **Table 9**) as follows:
  a. **For D19 via conventional inputs:** refer to **D19 Control via Conventional Inputs** section.
  b. **For D19 or D21 via option CL78 or D23 via single setpoint:**
    (1) System controller display (user-selected)
    (2) th-tune sensor
    (3) Building automation (BACnet®) command (option BHB8 or BHB9 required)
    (4) Automatically based on sequence of operation
  c. **For D22 via single setpoint:** refer to **Control Option D22** section.

Table 9. Operational States

Control Syatem			
D19 Control via Conventional Inputs	**D22 Control via Single Setpoint**	**D19 or D21 Control via Option CL78**	**D23 Control via Single Setpoint**
Operational State			
Enable ON • Unit permitted to operate based on automatic control system • Unit switches to this state only when state is manually-selected through user interface device, unit display, or building automation network communication point		**OFF** • Supply fan and all associated mechanical equipment are OFF • There are no associated sequences of operation • Unit switches to this state only when state is manually-selected through th-tune sensor, controller display, or building automation network communication point • Upon initial power, OFF state is default	
Enable OFF • Supply fan and all associated mechanical equipment are OFF • There are no associated sequences of operation • Unit switches to this state only when state is manually-selected through user interface device, unit display, or building automation network communication point • Mechanical system selections are permitted only in this state		**OFF/Alarm** • Occurs only from sequence failure • Unit switches to this state from **Heat**, **Cool**, or **Auto** state • Unit stops all mechanical operation until resolution of failure condition(s)—upon resolving failure, unit returns to **Heat**, **Cool**, or **Auto** state • Alarms may also be cleared by rebooting power to unit	
		Heat or **Cool** • Can be selected from th-tune sensor, controller display, or BMS • Supply fan runs and heating or cooling and dampers are operated to maintain heating or cooling sequence • Unit will not automatically switch to other states except for **OFF/Alarm**	
Enable OFF/Alarm • Occurs only from sequence failure • Unit stops all mechanical operation until resolution of failure condition(s)—upon resolving failure, unit returns to externally-commanded condition • Alarms may also be cleared by rebooting power to unit		**Auto** • Can be selected from th-tune sensor, controller display, or BMS • For D19, unit maintains neutral DAT when space conditions are satisfied and switches between heating and cooling based on an OAT above or below 65°F (18°C) • For D21, unit is in heating state when OAT is <65°F (<18°C) and switches to cooling when OAT crosses changeover setpoint for more than 15 minutes or is >5°F (>2.8°C) beyond changeover setpoint • For D23, supply fan runs and heating or cooling and dampers are operated in auto sequence to maintain space temperature setpoint	

Control Option D19

With control option D19, desired DAT is maintained either via conventional thermostat or Building Maintenance System (BMS) inputs or via option CL78.

D19 Control via Conventional Inputs

Refer to **Table 9** for operational states. Descriptions of the D19 conventional inputs are as follows:

NOTE: The desired input type must be selected. The default is conventional thermostat inputs.

- **Occupied call (occupied contacts or BMS or Local schedule):** when occupied, the dampers follow the occupied mode sequences. When unoccupied, the dampers (refer to **Damper Control** section) follow the unoccupied mode sequences.
- **Fan call (fan contacts or BMS input):** when the supply fan call is ON, the supply fan starts. The fan also automatically starts when heating or cooling calls are on. Otherwise, the fan is OFF. The auto sequence is activated from the fan control when the cooling and heating contacts are open. For continuous supply fan operation, the fan call needs to remain ON.
- **Heating call (heating contacts or BMS input):** when the heating call is ON, the supply fan starts and the heating sequence is enabled. Mechanical heat operates to maintain the DAT heating setpoint at 90°F (32°C).
- **Cooling call (cooling contacts or BMS input):** when the cooling call is ON, the supply fan starts. Cooling operates to maintain the DAT cooling setpoint at 55°F (12°C).
- **Auto sequence:** when the fan call is ON and the cooling and heating calls are OFF, the unit operates in the auto sequence. The unit operates to maintain neutral air temperature at 70°F (21°C) based on OAT. If both heating and cooling calls are ON, the unit will not turn on any mechanical system until the condition is removed.

D19 Control via Option CL78

Refer to **Table 9** for operational states. The system is controlled by th-tune sensor(s) (option CL78). If the sensor fails, the logic ignores space requirements and operates to maintain neutral air temperature.

Control Option D21

Refer to **Table 9** for operational states. The system is controlled by th-tune sensor(s) (option CL78). If the sensor fails, the logic ignores space requirements and operates to maintain neutral air temperature.

Control Option D22

Refer to **Table 9** for operational states. The D22 control option allows the user to set the desired DAT for the unit via a single setpoint. The setpoint variable **DA_Loc_SP** (default: 70°F (21°C)) allows the unit to operate stand-alone without the need for a third-party BMS system. The setpoint variable **DA_BMS_SP** is intended for use by a third-party BMS system for external temperature setpoint adjustment.

Control Option D23

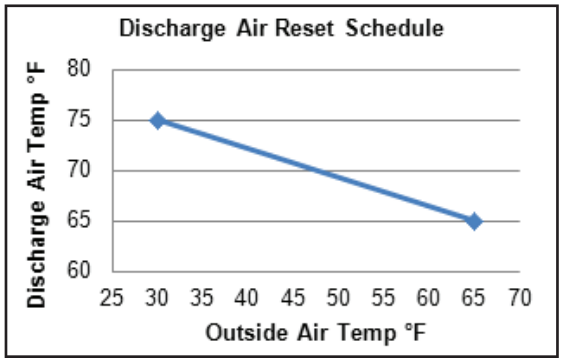
Refer to **Table 9** for operational states. The D23 control option allows the end user to set the desired space temperature for the unit via a single setpoint. If the sensor fails, the logic ignores space temperature requirements, shuts down heating and cooling functions, and operate only with blowers.

Temperature Control

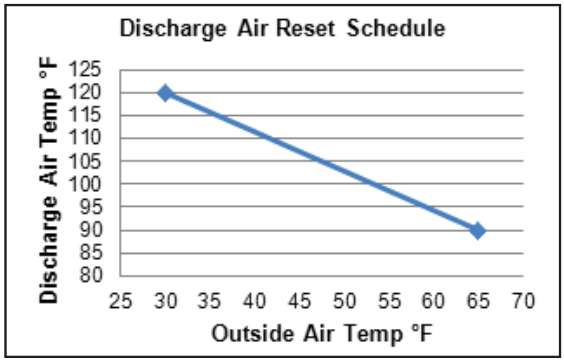
- Selected temperature setpoints are user-adjustable from the system controller display, optional wall-mounted remote display, or optional BMS card. Depending on the state, mode, and control option, temperature is controlled based on the setpoints listed in **Table 10**.
- For control options D19 and D21, the user can select a reset schedule (see **Figure 6**) for the temperature setpoints (refer to **Table 11**) used when in neutral air heating and space heating modes.
- Space temperature setpoint definitions are listed in **Table 12** for occupied and unoccupied modes.

Table 10. Temperature Control Setpoints

Applicable Control Option Code	Variable Name	Variable Description	Default Setpoint	Range
D19, D21	**DA_SpcHtg_SP**	DAT space heating setpoint	90°F (32°C)	50–140°F (10–60°C)
	DA_NAHtg_SP	DAT neutral heating setpoint	70°F (21°C)	
	DA_SpcClg_SP	DAT space cooling setpoint	55°F (12°C)	50–100°F (10–37°C)
	DA_NAClg_SP	DAT neutral cooling setpoint	70°F (21°C)	
D21	**DA_SpcHtCl_Sp**	DAT space heat mode cooling setpoint	55°F (12°C)	50–100°F (10–37°C)
D22	**DA_Loc_SP**	DAT local setpoint	70°F (21°C)	50–140°F (10–60°C)
	DA_BMS_SP	DAT BMS setpoint	—	
D19, D21, D23	**SpcTempSP**	Space temperature setpoint	72°F (22°C)	65–85°F (18–29°C)



Neutral Air Heating Mode



Space Heating Mode

Figure 6. Reset Schedule Air Temperatures

Table 11. Reset Schedule Temperature Setpoints

Neutral Air Heating Mode		Space Heating Mode	
OAT	**DAT**	**OAT**	**DAT**
30°F (–1.1°C)	75°F (23.8°C)	30°F (–1.1°C)	120°F (48.9°C)
65°F (18.3°C)	65°F (18.3°C)	65°F (18.3°C)	90°F (32.2°C)

CONTROL DESCRIPTIONS—CONTINUED

Temperature Control—Continued

Table 12. Occupied/Unoccupied Space Temperature Setpoints

Mode	Setpoint			Mode ON Setpoint	Mode OFF Setpoint
	Variable Name	°F (°C)	Setpoint Calculation		
Occupied heating	**SpcTempSP**	72°F (22°C)	—	≤69°F (21°C)	≥71°F(22°C)
	SpcHtgDB	2°F (1.1°C)			
	SpcHtgSP	70°F (21°C)	**SpcTempSP – SpcHtgDB**		
	SpcEffHtgSp		**SpcHtgSP = SpcEffHtgSp**		
	SpcHtgOnDiff	1°F (0.4°C)	—		
	SpcHtgOffDiff				
	—	69°F (21°C)	**SpcEffHtgSp – SpcHtgOnDiff**		
		71°F (22°C)	**SpcEffHtgSp + SpcHtgOffDiff**		
Occupied cooling	**SpcTempSP**	72°F (22°C)	—	≥75°F(24°C)	≤73°F (23°C)
	SpcClgDB	2°F (1.1°C)			
	SpcClgSP	74°F (23°C)	**SpcTempSP + SpcClgDB**		
	SpcEffClgSp		**SpcEffClgSp = SpcClgSP**		
	SpcClgOnDiff	1°F (0.4°C)	—		
	SpcClgOffDiff				
	—	75°F (24°C)	**SpcEffClgSp + SpcClgOnDiff**		
		73°F (23°C)	**SpcEffClgSp – SpcClgOffDiff**		
Occupied heating cooling*	**SpcTempSP**	72°F (22°C)	—		
	SpcClgDB	2°F (1.1°C)			
	SpcClgSP	74°F (23°C)	**SpcTempSP + SpcClgDB**		
	SpcEffClgSp		**SpcEffClgSp = SpcClgSP**		
	SpcHCOnDiff	1°F (0.4°C)	—		
	SpcHCOffDiff				
	—	75°F (24°C)	**SpcEffClgSp + SpcHCOnDiff**		
		73°F (23°C)	**SpcEffClgSp – SpcHCOffDiff**		
Unoccupied heating	**SpcTempSP**	72°F (22°C)	—	≤61°F(16°C)	≥66°F(19°C)
	SpcHtgDB	2°F (1.1°C)			
	SpcHtgSP	70°F (21°C)	**SpcTempSP – SpcHtgDB**		
	SpcHtgUnoOs	8°F (4.4°C)	—		
	SpcEffHtgSp	62°F (17°C)	**SpcTempSP – SpcHtgUnoOs**		
	SpcHtgOnDiff	1°F (0.4°C)	—		
	UnoHtgOffDiff	4°F (2.2°C)			
	—	61°F (16°C)	**SpcEffHtgSp – SpcHtgOnDiff**		
		66°F (19°C)	**SpcEffHtgSp + UnoHtgOffDiff**		
Unoccupied cooling	**SpcTempSP**	72°F (22°C)	—	≥83°F (28°C)	≤78°F (26°C)
	SpcClgDB	2°F (1.1°C)			
	SpcClgSP	74°F (23°C)	**SpcTempSP + SpcClgDB**		
	SpcClgUnoOs	8°F (4.4°C)	—		
	SpcEffClgSp	82°F (28°C)	**SpcClgSP + SpcClgUnoOs**		
	SpcClgOnDiff	1°F (0.4°C)	—		
	UnoClgOffDiff	4°F (2.2°C)			
	—	83°F (28°C)	**SpcEffClgSp + SpcClgOnDiff**		
		78°F (26°C)	**SpcEffClgSp – UnoClgOffDiff**		
Unoccupied heating cooling*	**SpcTempSP**	72°F (22°C)	—		
	SpcClgDB	2°F (1.1°C)			
	SpcClgSP	74°F (23°C)	**SpcTempSP + SpcClgDB**		
	SpcClgUnoOs	8°F (4.4°C)	—		
	SpcEffClgSp	82°F (28°C)	**SpcClgSP + SpcClgUnoOs**		
	SpcHCOnDiff	1°F (0.4°C)	—		
	UnoHCOffDiff	4°F (2.2°C)			
	—	83°F (28°C)	**SpcEffClgSp + SpcHCOnDiff**		
		78°F (26°C)	**SpcEffClgSp – UnoHCOffDiff**		

*When the **State Select:** field is set to **Auto**.

Supply Fan Control

In occupied mode, the supply fan provides the total volume of conditioned air at a given rate to the space. Once enabled, fan operation is dictated by optional VFD controls. In unoccupied mode when configured for space control, the fan operates intermittently based on space temperature (refer to **Temperature Control** section for space control and setpoint definitions).

Damper Control

When the unit is not enabled, the dampers are commanded to the closed or recirculated air position. Once the unit is enabled, the outside air damper is commanded to open. Damper control is subject to optional damper configurations.

BMS Control

The Building Management System's (BMS) BACnet® network is considered open communication, whereas any device on the network has the capability to receive input from any other controller on the network. Installing the BACnet communication cards in the system controller allows access to selected unit parameters. The currently-supported interface types are MSTP and IP/Ethernet. To configure the unit for BMS control, refer to the BMS Configuration Screens (E.h.) in **Table 7**. Contact the factory if additional protocol support is needed.

NOTE: For units configured with a BACnet® network, there are parameters that need to be set before communication can be established with other devices.

BACnet MSTP Card (Option BHB8)

The BACnet® MSTP card user interface is shown in **Figure 7**. Refer to **Table 13** and **Table 14** for information about the BACnet MSTP card's dip switches and LED indications.

Figure 7. BACnet MSTP Card User Interface

Table 13. BACnet MSTP Card Dip Switches

Location	Switch	Function
Inside front opening of cover	S1	Adds 511-ohm polarization resistance between negative data line (−) and GND
	S2	Adds 120-ohm terminal resistance between two data lines (+) and (−)
	S3	Adds 511-ohm polarization resistance between positive data line (+) and +VCC internal voltage
NOTE: Set all three dip switches to the ON position on the units at the start and end of the BACnet MSTP network. Ensure that all three dip switches on intermediate units are set to the OFF position.		

BMS Control—Continued

BACnet MSTP Card (Option BHB8)—Continued

Table 14. BACnet MSTP Card LED Indications

LED	LED State	Indication
Status*	OFF	At power-up or after restarting BACnet MSTP network
	Quick flash: RED-GREEN	1 second after restarting BACnet MSTP network
	Steady: GREEN	3 seconds after restarting BACnet MSTP network
	Quick flash: GREEN-OFF-GREEN	45 seconds after restarting BACnet MSTP network, communication has been established with system controller
	Slow flash: RED-OFF-RED	45 seconds after restarting BACnet MSTP network, communication has not been established with system controller
	Flash: GREEN-RED-GREEN	45 seconds after restarting BACnet MSTP network, communication error or temporary lack of response from system controller
Network**	OFF	At power-up or after restarting BACnet MSTP network
	Slow flash: GREEN-RED-GREEN-RED	45 seconds after restarting BACnet MSTP network, BACnet LED is active
	Steady: GREEN Occasional flashes: RED	BACnet MSTP communication has been established
	Steady: GREEN	BACnet MSTP network retains control (token) of MSTP network
	OFF: GREEN	BACnet MSTP network does not retain control (token) of MSTP network
	Steady: RED	Poll-For-Master (search for master to pass token to)
	Steady: GREEN Steady: RED	Continuous Poll-For-Master (communication not established because of connection problem or no network device found—may depend on electrical connection difficulties or communication settings that are not compatible with other connected network devices

*The status LED (see **Figure 7**) indicates the status of communication with the controller and the status of the BACnet MSTP card. Approximately 45 seconds after restarting, when the starting sequence has been completed, the status LED flashes to indicate the status of communication with the system controller.

The network LED (see **Figure 7) indicates the status of communication with the BACnet MSTP network (RS485). When the starting sequence has been completed, the network LED flashes to indicate the status of communication with the BACnet MSTP network.

BACnet IP/Ethernet Card (Option BHB9)

The BACnet® IP/Ethernet card user interface is shown in **Figure 8**. Refer to **Table 15** for information about the BACnet IP/Ethernet card's LED indications.

Figure 8. BACnet IP/Ethernet Card User Interface

Table 15. BACnet IP/Ethernet Card LED Indications		
LED	**LED State**	**Indication**
Status*	OFF	At power-up or after restarting BACnet IP/Ethernet network
	Quick flash: RED-GREEN	1 second after restarting BACnet IP/Ethernet network
	Steady: GREEN	3 seconds after restarting BACnet IP/Ethernet network
	Quick flash: GREEN-OFF	45 seconds after restarting BACnet IP/Ethernet network, communication has been established with system controller
	Slow flash: RED-OFF	45 seconds after restarting BACnet IP/Ethernet network, communication has not been established with system controller
	Flash: GREEN-RED	45 seconds after restarting BACnet IP/Ethernet network, communication error or temporary lack of response from system controller
Ethernet**	Steady: GREEN	Communication has been established with BMS system
	Flashing: GREEN	Exchanging data
	Steady: RED	Communication has not been established with BMS system (cable broken or problem at other end of cable)
*The status LED (see **Figure 8**) indicates the status of communication with the controller and the status of the board. During stable operation, the LED flashes to indicate the status of communication with the system controller.		
The Ethernet LED (see **Figure 8) indicates the status of communication with the BACnet IP/Ethernet network.		

Modifying BACnet Parameters

Modify BACnet parameters required by the BMS network in accordance with **Table 16** or **Table 17**.

Table 16. Modifying BACnet MSTP Parameters		
Step	**Description**	**Display Screen**
1	Simultaneously hold **ALARM** and **ENTER** keys to display **SYSTEM INFORMATION** menu, use **DOWN ARROW** key to scroll to **OTHER INFORMATION,** and press **ENTER** key to select	SYSTEM INFORMATION LOG DATA > OTHER INFORMATION FLASH/USB MEMORY
2	Use **DOWN ARROW** key to scroll to **PCOWEB/NET CONFIG** and press **ENTER** key to select	ID/PRODUCT CODE > PCOWEB/NET CONFIG MEMORIES STATUS CHIP IO VERSION
3	Use **DOWN ARROW** key to scroll to **PCONET Settings** and press **ENTER** key to select	PCOWEB Settings > PCONET Settings
4	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **BACnet ID:** and **BACnet baud:** fields to desired values and press **ENTER** key to advance to next screen	BACnet ID: 77000 BACnet baud: 38400bps
5	**NOTE: Typically, the Max Masters: and Max Frames: fields do not need to be changed from the default settings.**	
	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **BACnet MAC:**, **Max Masters:**, and **Max Frames:** fields to desired values and press **ENTER** key to advance to next screen	BACnet MAC: --0 Max Masters: 127 MAX Frames: ---20
6	Use **UP ARROW** key to set **Update pCOnet?** field to **Yes** and press **ENTER** key to save modified values from previous steps—reboot prompt appears	PCONET CONFIG ENABLE Update pCOnet? Yes PCONET CONFIG ENABLE Update complete Reboot pconet to apply new setting
7	Cycle power to controller	
	BACnet MSTP card parameter setup is now complete	
NOTE: See **Figure 3** for keypad descriptions.		

BMS Control—Continued

Modifying BACnet Card Parameters—Continued

Table 17. Modifying BACnet IP/Ethernet Parameters

Step	Description	Display Screen
1	Simultaneously hold **ALARM** and **ENTER** keys to display **SYSTEM INFORMATION** menu, use **DOWN ARROW** key to scroll to **OTHER INFORMATION,** and press **ENTER** key to select	SYSTEM INFORMATION LOG DATA > OTHER INFORMATION FLASH/USB MEMORY
2	Use **DOWN ARROW** key to scroll to **PCOWEB/NET CONFIG** and press **ENTER** key to select	ID/PRODUCT CODE > PCOWEB/NET CONFIG MEMORIES STATUS CHIP IO VERSION
3	Use **DOWN ARROW** key to scroll to **PCOWEB Settings** and press **ENTER** key to select	> PCOWEB Settings PCONET Settings
4	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **DHCP:** field to desired value and to enter **IP Address** if required and press **ENTER** key to advance to next screen	DHCP: Off IP Address: --0.--0.--0.--0
5	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **Netmask:** and **Gateway:** fields if required and press **ENTER** key to advance to next screen	Netmask: --0.--0.--0.--0 Gateway: --0.--0.--0.--0
6	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **DNS1:** and **DNS2:** fields if required and press **ENTER** key to advance to next screen	DNS1: --0.--0.--0.--0 DNS2: --0.--0.--0.--0
7	Use **ENTER** and **UP** or **DOWN ARROW** keys to set **BACnet ID:** field to desired value and to set **Bacnet Type:** field to either **IP** or **Ethernet** and press **ENTER** key to advance to next screen	BACnet ID: 77000 BACnet Type: IP
8	Use **UP ARROW** key to set **Update pCOWeb?** field to **Yes** and press **ENTER** key to save modified values from previous steps—reboot prompt appears	PCONET CONFIG ENABLE Update pCOWeb? Yes PCONET CONFIG ENABLE Update complete Reboot pCOWeb to apply new setting
9	Cycle power to reboot system controller	
	BACnet IP/Ethernet card parameter setup is now complete	

NOTE: See **Figure 3** for keypad descriptions.

SETUP OF UNIT USING SYSTEM CONTROLLER

Test Mode

The test mode (refer to **Table 18**) is used to troubleshoot the unit, to set unit parameters at startup, or to adjust parameters as needed. The test mode is accessed via the service menu and can be entered only when the unit is in the **OFF** state. Once the test mode is enabled, it remains active for a 2-hour period. When the timer expires or when the test mode is disabled, the unit returns to the **OFF** state. Once airflow has been proven to the system controller, the user can manually select (see **Figure 3** for keypad descriptions) the remaining controller outputs to command or adjust for unit testing.

NOTE: The points available to be commanded/adjusted in the test mode are dependent upon specific unit hardware configuration. Contact Reznor support if more information is required.

Table 18. Test Mode Sequence

Step	Description	Display Screen
1	Turn **ON** disconnect switch to energize unit	06:34am 12/26/21 M.1 Reznor AHU D21 CL78 Mode:Occ State_Sel: Off
	System controller initializes in 2 or 3 minutes to display screen **M.1**	Outside Air Conditions Temperature: 78.9°F Humidity: 47.3% Dew Point: 52.7°F
2	Press **PROGRAM** key to access **Main Menu**	Main Menu D. Alarms
	Use **UP** or **DOWN ARROW** key to scroll to **E. Service** and press **ENTER** key to select	**E. Service** F. Factory Settings
3	Use **ENTER** and **UP ARROW** keys to set **password (PW1)** field to **7125** and press **ENTER** key	Service Password Insert service **password (PW1) 7125**
4	**Service Menu** is displayed	Service Menu h. BMS Config
	Use **UP** or **DOWN ARROW** key to scroll to **a. Test Mode** and press **ENTER** key to select	**a. Test Mode** b. TAB
5	**Test Mode** screen **E.a.1** is displayed	Test Mode E.a.1 Manual Control Enable: On
	Press **ENTER** key to select **Enable:** field, use **UP** or **DOWN ARROW** key to set field to **On**, and press **ENTER** key	Time Out: 120m Countdown: 120m
6	Use **DOWN ARROW** key to advance to screen **E.a.2** and verify that **Manual Control Fan Supply:** field is **On**	Test Mode E.a.2 Damper 100%
7	If applicable, verify that unit dampers have actuated (allow time for actuator travel speed) to full open position (outside air) and full closed position (return air)	Manual Control Fan Supply: On
8	Close damper access door and verify proper rotation of supply fan—if rotation is incorrect, de-energize unit and switch any two of three phase leads at main unit disconnect switch	Airflow Status On
9	Verify that supply fan **Airflow Status** is **ON**	
10	Use **DOWN ARROW** key to advance to screens **E.a.3** through **E.a.17** and adjust unit parameters as necessary	Test Mode E.a.3 Manual Control Cooling Stages

Test Mode—Continued

Table 18. Test Mode Sequence—Continued

Step	Description	Display Screen
11	Use **UP** or **DOWN ARROW** key to advance to screen **E.a.1**	Test Mode E.a.1 Manual Control Enable: Off Time Out: 120m Countdown: 92m
12	Press **ENTER** key to select **Enable:** field, use **UP** or **DOWN ARROW** key to set field to **Off**, and press **ENTER** key	
13	To save adjusted parameters, press **ESCAPE** key to return to **Service Menu**	Service Menu a. Test Mode **b. TAB** c. Supply Fan
14	Use **UP** or **DOWN ARROW** key to scroll to **b. TAB** and press **ENTER** key to select	
15	**Screen E.b.1** is displayed	TAB: Service Save E.b.1 Save? Yes Restore? No
	To save unit parameters, **ENTER** enter key to advance to **Save?** field and use **UP ARROW** key to set **Save?** field to **Yes**	
	After 2-second period, **Save?** field automatically returns to **No**	
	NOTE: Unit parameters have now been successfully saved to the controller's permanent memory. From this point forward, the most recently-saved unit parameters can be restored using the Restore? field.	
16	Press **ESCAPE** key to return to **Main Menu**	
	Test mode procedure is now complete	

Set Date and Time

Table 19 lists the procedure for setting the date and time (see Figure 3 for keypad descriptions).

Table 19. Setting Date and Time

Step	Description	Display Screen
1	Turn **ON** disconnect switch to energize unit	06:34am 12/26/21 M.1 Reznor AHU D21 CL78 Mode:Occ State_Sel: Off Outside Air Conditions Temperature: 78.9°F Humidity: 47.3% Dew Point: 52.7°F
	System controller initializes in 2 or 3 minutes to display screen **M.1**	
2	Press **PROGRAM** key to access **Main Menu**	Main Menu A. Quick Setpoints **B. Schedule** C. Points List
	Use **UP** or **DOWN ARROW** key to scroll to **B. Schedule** and press **ENTER** key to select	
3	Screen **B.1** is displayed	Clock B.1 06:34am 12/26/21 Date: 12/26/21 Hour: 06:34am Day: Thursday
	Use **ENTER** key and **UP** or **DOWN ARROW** key to set **Date**, **Hour**, and **Day** fields to current date, time, and day of week	

Table 19. Setting Date and Time—Continued		
Step	**Description**	**Display Screen**
4	Use **DOWN ARROW** key to advance to screen **B.2**	Clock B.2 DST: ENABLE Transition time: 60min Start: LAST SUNDAY In MARCH at 2.00AM End: LAST SUNDAY In NOVEMBER at 2.00AM
5	Use **ENTER** key and **UP** or **DOWN ARROW** key to set **DST:**, **Transition Time:**, **Start:**, and **End:** fields	
6	Press **ESCAPE** key to return to **Main Menu**	
	Setting date and time procedure is now complete	

Select Unit Occupancy Type and Enable System

Table 20 lists the procedure for setting the unit occupancy type and for enabling the system (see Figure 3 for keypad descriptions).

NOTES:

Quick Setpoints screen A.1, offers three settings for the OccMode_Sel: field:

- **Digital Input (default value): The unit ships with a jumper wired on the occupied digital input. The unit remains in the occupied status until the occupied jumper is removed and replaced with an external field-supplied contact.**
- **Schedule: The unit operates based on local time of day schedule. The schedule feature is configurable for up to 10 weekly schedules and 16 holidays.**
- **BMS: The unit operates based on a command from a third-party Building Maintenance System (BMS) system. The BMS occupancy setting requires the BACnet card (option BHB8 or BHB9).**

Table 20. Selecting Unit Occupancy Type and Enabling System Sequence		
Step	**Description**	**Display Screen**
1	Turn **ON** disconnect switch to energize unit	06:34am 12/26/21 M.1 Reznor AHU D21 CL78 Mode:Occ State_Sel: Off Outside Air Conditions Temperature: 78.9°F Humidity: 47.3% Dew Point: 52.7°F
	System controller initializes in 2 or 3 minutes to display screen **M.1**	
2	Press **PROGRAM** key to access **Main Menu**	Main Menu F. Factory Settings **A. Quick Setpoints** B. Schedule
	Use **UP** or **DOWN ARROW** key to scroll to **A. Quick Setpoints** and press **ENTER** key to select	
3	Screen **A.1** is displayed	Quick Setpoints A.1 OccMode_Sel: Digital Input State Select: Off
	Use **ENTER** key and **UP** or **DOWN ARROW** key to set **OccMode_Sel:** field to **Digital Input**, **Schedule**, or **BMS**	

SETUP OF UNIT USING SYSTEM CONTROLLER—CONTINUED

Select Unit Occupancy Type and Enable System—Continued

Table 20. Selecting Unit Occupancy Type and Enabling System Sequence —Continued

Step	Description	Display Screen
4	Press **ESCAPE** key to return to **Main Menu** If **Schedule** mode has been selected, proceed to step 5 If **Digital Input** or **BMS** mode has been selected, proceed to step 9	Main Menu A. Quick Setpoints
5	Use **UP** or **DOWN ARROW** key to scroll to **B. Schedule** and press **ENTER** key to select	**B. Schedule** C. Points List
	Screen **B.1** is displayed	Clock B.1 06:34am 12/26/21 Date: 12/26/21 Hour: 06:34am Day: Thursday
6	Use **DOWN ARROW** key to advance to screen **B.3**	Scheduler B.3 Schedule # 1 Time On: 7:00am
7	Use **ENTER** key and **UP** or **DOWN ARROW** key to set **Time On:**, **Time Off:**, and **Days Enabled:** fields to desired values	Time Off: 5:00pm Days Enabled: MTWTF**
8	Press **ESCAPE** key to return to **Main Menu**	Main Menu F. Factory Settings
9	Use **UP** or **DOWN ARROW** key to scroll to **A. Quick Setpoints** and press **ENTER** key to select	**A. Quick Setpoints** B. Schedule
10	For units equipped with control option D19 via conventional inputs or D22, use **ENTER** key and **UP** or **DOWN ARROW** key to set **System Enable:** field to **On**	Quick setpoints A.1 OccMode_Sel: Digital Input System Enable: On
	For units equipped with control option D19 via th-tune sensor(s), D21, or D23, use **ENTER** key and **UP** or **DOWN ARROW** key to set **State Select:** field to **Heat**, **Cool**, or **Auto**	Quick setpoints A.1 OccMode_Sel: Digital Input State Select: Auto
11	Press **ESCAPE** key to return to **Main Menu** Selecting unit occupancy type and enabling system procedure is now complete	

ALARMS

- The unit can be configured to automatically reset when the contact closes by setting the Auto Reset Safety Alarm variable to ON.
- Selected safeties have an adjustable delay to prevent nuisance alarms. All alarms are time-stamp logged. If a critical shutdown alarm occurs, the unit will not restart until the alarm is cleared via the display or by a power reboot.
- When the system controller has an active or unacknowledged alarm, the alarm status is reflected by a flashing alarm key on the display and by a flashing alarm bell symbol on the face of the optional CL78 space sensor.
- The system controller is equipped with an output configured to energize a factory-mounted unit general alarm relay. The alarm relay has a set of normally-open and normally-closed contacts available for customer use. The status of the output is also reported to the optional BAS communication card.

Acknowledging Alarms

When an active and or unacknowledged alarm occurs, the user needs to manage the condition locally from the unit display or from an optional remote display. **Table 21** lists the procedure for acknowledging unit alarms and for viewing the alarm logger.

Table 21. Acknowledging Alarms and Viewing Alarm Logger

Step	Description	Display Screen
1	Press flashing **ALARM** key	06:34am 12/26/21 M.1 Reznor AHU D21 CL78 Mode:Occ State_Sel: Off Outside Air Conditions Temperature: 78.9°F Humidity: 47.3% Dew Point: 52.7°F
	Most recently-queued active and/or unacknowledged alarm and message are displayed	***Alarm***
2	Use **DOWN ARROW** key to scroll through current list of active and/or unacknowledged alarms	Unit Safety Alarm Unit Off
3	Prompt appears at end of queued alarm list to either clear alarms or to display alarm logger	REZNOR
	If **ALARM** key is pressed, controller is prompted to attempt to reset any critical shutdown alarms that have occurred	Alarm(s) active Press ALARM to clear Press ENTER for the logger
	If critical shutdown condition is no longer active, controller re-enables unit and clears any of non-critical alarms that are no longer active	
	If **ENTER** key is pressed, first page of alarm logger is displayed that shows most recently-logged alarm along with date, time, and Alarm ID	06:34am 12/26/21 001:Alarm ID:1
	Snapshot is displayed of OAT, outside air humidity, DAT, cooling coil temperature (optional), and mixed air temperature (optional) sensors at time alarm was logged	OA_Temp 78.9°F OA_Humidity 21.0% DA_Temp 70.0°F
4	Use **UP ARROW** key to scroll through any remaining logged alarms from most recent to least recent entry	
NOTE: See **Figure 3** for keypad descriptions.		

Alarm Conditions

Table 22 lists alarms and their conditions, accompanying display messages, and reset conditions.

Table 22. Alarm Conditions

No.	Alarm ID	Condition	Control Action	Display Message	Reset Condition
1	**Unit Safety Alarm (Critical Shutdown Alarm)**	Safety relay alarm contact closure opens	Immediate unit shutdown and all mechanical equipment turned OFF	**Unit Safety Alarm Unit Off**	Condition cleared and alarm acknowledged
2	**Supply Fan Failure (Critical Shutdown Alarm)**	Fan operation does not prove	System controller shuts down system	**Supply Fan Failure Unit Off**	Alarm acknowledged
3	**Low Discharge Temperature Alarm (Critical Shutdown Alarm)**	DAT <33°F (<1°C) for more than 10 minutes	System controller shuts down system	**Low Discharge Air Temperature Alarm Unit Off**	
4	**Filter Status**	Main unit filter pressure switch activates ID2 = ON	No other action taken by control system	**Dirty Filter Status Check Filters**	—
5	**Phase Loss (Critical Shutdown Alarm)**	Phase loss input shows ON	Unit shutdown and all equipment turned OFF	**Phase Loss Unit Off**	Condition cleared and alarm acknowledged
6	**Outside Air Humidity Sensor Failure**	Invalid outdoor air humidity sensor reading	Outside air dewpoint enabled dehumidification mode turned OFF	**Outdoor Air Humidity Sensor Failure**	Humidity sensor value restored
7	**Outside Air Temperature Sensor Failure**	Invalid OAT sensor reading	Unit heating and cooling functions turned OFF	**Outside Air Temp Sensor Failure Blower Only**	Temperature sensor value restored
8	**Discharge Air Temperature Sensor Failure (Critical Shutdown Alarm)**	Invalid DAT sensor reading	Unit shutdown and all equipment turned OFF	**Discharge Air Temp Sensor Failure Unit Off**	Condition cleared and alarm acknowledged
9	**Cooling Coil Temp Sensor Failure**	Invalid cooling coil temperature sensor reading	All dehumidification functions turned OFF	**Cooling Coil Temp Sensor Failure**	Temperature sensor value restored
10	**Mixed Air Temp Sensor Failure**	Invalid mixed air temperature sensor reading	—	**Mixed Air Temp Sensor Failure**	—
11	**Building Pressure Sensor Failure**	Invalid pressure sensor reading	—	**Building Pressure Sensor Failure**	
12	**Duct Pressure Sensor Failure**	Invalid pressure sensor reading	—	**Duct Pressure Sensor Failure**	
13	**CO2 Sensor Failure**	Invalid CO2 sensor reading	—	**CO2 Sensor Failure**	
14	**Space Sensor thTune (Option CL78) Offline**	th-tune sensor enabled and serial communication fails	—	**CL78 thTune Serial Sensor Add 1 Space 1 Offline**	Unit continues to operate and reverts to neutral DAT control
15	**Space Sensor thTune (Option CL78) Temperature Sensor Broken**	th-tune sensor enabled and space temperature sensor fails	—	**CL78 thTune Serial Sensor Add 1 Space 1 Temperature Probe Broken**	
16	**Space Sensor thTune (Option CL78) Humidity Sensor Broken**	th-tune sensor enabled and space humidity sensor fails	—	**CL78 thTune Serial Sensor Add 1 Space 1 Humidity Probe Broken**	
17	**Space 2 Sensor Offline**	Optional return air probe enabled and serial communication fails	—	**Serial Sensor Add 130 Space 2 Probe Offline**	—
18	**Space 2 Sensor Temperature Probe Broken**	Optional return air probe is enabled and temperature sensor fails	—	**Serial Sensor Add 130 Space 2 Temperature Probe Broken**	
19	**Space 2 Sensor Humidity Probe Broken**	Optional return air probe enabled and humidity sensor fails	—	**Serial Sensor Add 130 Space 2 Humidity Probe Broken**	
20	**Space 3 Sensor Offline**	Optional return air probe enabled and serial communication fails	—	**Serial Sensor Add 131 Space 3 Probe Offline**	
21	**Space 3 Sensor Temperature Probe Broken**	Optional return air probe enabled and temperature sensor fails	—	**Serial Sensor Add 131 Space 3 Temperature Probe Broken**	

Table 22. Alarm Conditions—Continued					
No.	**Alarm ID**	**Condition**	**Control Action**	**Display Message**	**Reset Condition**
22	**Space 3 Sensor Humidity Probe Broken**	Optional return air probe enabled and humidity sensor fails	—	**Serial Sensor Add 131 Space 3 Humidity Probe Broken**	—
23	**Space 4 Sensor Offline**	Optional return air probe enabled and serial communication fails	—	**Serial Sensor Add 132 Space 4 Probe Offline**	
24	**Space 4 Sensor Temperature Probe Broken**	Optional return air probe enabled and temperature sensor fails	—	**Serial Sensor Add 132 Space 4 Temperature Probe Broken**	
25	**Space 4 Sensor Humidity Probe Broken**	Optional return air probe enabled and humidity sensor fails	—	**Serial Sensor Add 132 Space 4 Humidity Probe Broken**	
26	**Space 5 Sensor Offline**	Optional return air probe enabled and serial communication fails	—	**Serial Sensor Add 133 Space 5 Probe Offline**	
27	**Space 5 Sensor Temperature Probe Broken**	Optional return air probe enabled and temperature sensor fails	—	**Serial Sensor Add 133 Space 5 Temperature Probe Broken**	
28	**Space 5 Sensor Humidity Probe Broken**	Optional return air probe enabled and humidity sensor fails	—	**Serial Sensor Add 133 Space 5 Humidity Probe Broken**	
29	**Space 6 Sensor Offline**	Optional return air probe enabled and serial communication fails	—	**Serial Sensor Add 134 Space 6 Probe Offline**	
30	**Space 6 Sensor Temperature Probe Broken**	Optional return air probe enabled and temperature sensor fails	—	**Serial Sensor Add 134 Space 6 Temperature Probe Broken**	
31	**Space 6 Sensor Humidity Probe Broken**	Optional return air probe enabled and humidity sensor fails	—	**Serial Sensor Add 134 Space 6 Humidity Probe Broken**	
38	**Concurrent Calls for Heating (W1) and Cooling (Y1) (Critical Shutdown Alarm)**	External or BMS conventional calls for heating and cooling active at same time	—	**Concurrent calls for Heating (W1) and Cooling (Y1) Unit Off**	

Specifications and illustrations subject to change without notice or incurring obligations.
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