Honeywell

T7300D Series 2000 Commercial Microelectronic Thermostat

APPLICATION

The T7300D Series 2000 Commercial Microelectronic Thermostat provides electronic control of 24 Vac commercial single zone heating, ventilating and air conditioning (HVAC) equipment. It is designed for use with Q7300A,G,L subbases for conventional heat/cool applications. The T7300D is field configurable for automatic or manual changeover between heating and cooling. The system and fan selections are done by a keyboard entry. All T7300D Thermostats require a common wire to supply power.

RECYCLING NOTICE

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.

Contact your local waste management authority for instructions regarding recycling and the proper disposal of the old thermostat.

INSTALLATION

When Installing this Product...
1. Read these instructions carefully. Failure to follow the instructions can damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After completing installation, use these instructions to check out the product operation.
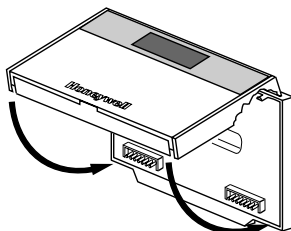
Mounting Thermostat on Subbase
The thermostat mounts on the subbase after it is installed.
1. Engage tabs at the top of thermostat and subbase. See Fig. 1.
2. Press lower edge of case to latch.

NOTE: To remove the thermostat from the wall, first pull out at the bottom of the thermostat; then remove the top.

A. ENGAGE TABS AT TOP OF THERMOSTAT AND SUBBASE OR WALLPLATE.
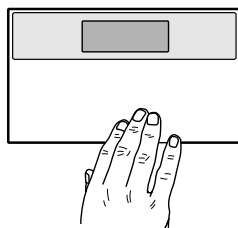

B. PRESS LOWER EDGE OF CASE TO LATCH.

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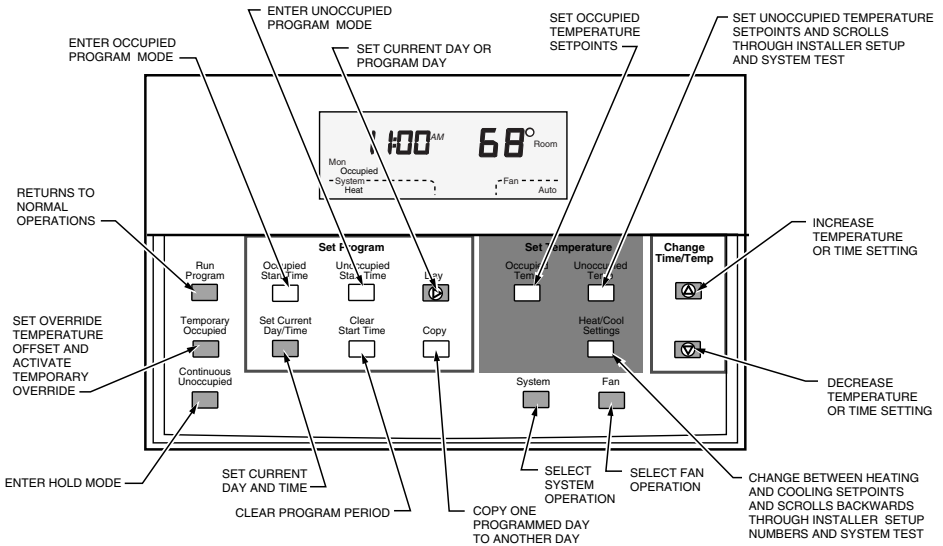**Fig. 1. Mounting thermostat on subbase.**

SETTINGS

Using Thermostat Keys
The thermostat keys are used to:
- set current time and day,
- program times and setpoints for heating and cooling,
- override the program temperatures,
- display present setting,
- set system and fan operation,
- configure Installer Setup,
- check Installer System Test.
See Fig. 2 for key information.

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Fig. 2. Thermostat key locations and descriptions.

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Setting System and Fan (select models)

The system default setting is Heat. The fan default is set so the fan operates continuously in Occupied and Recovery mode and with the heating or cooling equipment in Unoccupied mode. Use the System and Fan keys to change the settings.

The system settings are:
Heat: Thermostat controls the heating.
Off: Both the heating and cooling are off.
Cool: Thermostat controls the cooling.
Auto: Thermostat automatically changes between heating and cooling operation depending on the indoor temperature.

The fan settings are:
On: Fan operates continuously.
Auto: Equipment controls fan.

Setting Temperature

Refer to Table 1 for the default temperature setpoints. See Owners Guide form number 63-4356 for complete instructions on changing the setpoints.

Table 1. Default Temperature Setpoints.

Control	Occupied	Unoccupied
Heating	70°F (21°C)	55°F (13°C)
Cooling	78°F (25.5°C)	90°F (32°C)

INSTALLER SETUP

NOTE: For most applications, the thermostat factory-settings do not need to be changed. Review the factory-settings in Table 2 and if no changes are necessary, go to the Installer Self-Test section.

The Installer Setup is used by the installer to customize the thermostat to specific systems. Installer Setup numbers are listed in Table 2. The table includes all the configuration options available.

A combination of key presses are required to use the Installer Setup feature.
— To enter the Installer Setup, press and hold the Heat/Cool Settings key with both the increase △ and ▽ decrease keys until the first number is displayed. All display segments appear for approximately three seconds before the number is displayed. See Fig. 3 and 4.
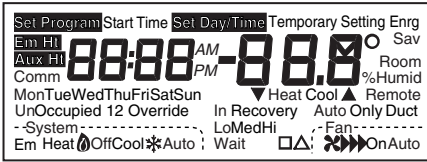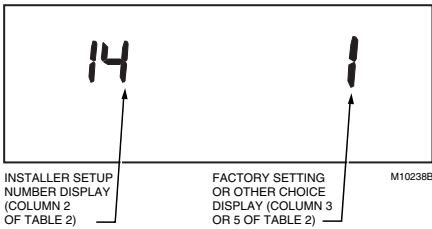
Fig. 3. Display of all the segments of the LCD.

INSTALLER SETUP NUMBER DISPLAY (COLUMN 2 OF TABLE 2)

FACTORY SETTING OR OTHER CHOICE DISPLAY (COLUMN 3 OR 5 OF TABLE 2)

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Fig. 4. Display of Installer Setup number and setting.

— To advance to the next Installer Setup number, press the Unoccupied Temp key.
— To return to a previous Installer Setup number, press the Heat/Cool Settings key.
— To change a setting, use the increase △ or ▽ decrease key.
— To exit the Installer Setup, press the Run Program key. The Installer Setup is automatically exited if no key presses are made for four minutes.

Installer Setup numbers are listed in Table 2.

⚠ **CAUTION**

Electric heat systems must be configured correcting in Installer Setup 2 to prevent equipment damage caused by the system running without the fan.

IMPORTANT

Only configurable numbers are shown on the device. Example: If thermostat does not have a system key, Installer Setup Number 12 will not be displayed. Review Table 2 factory-settings and mark any desired changes in the Actual Setting column. When Installer Setup is complete, review the settings to confirm that they match the system.

Table 2. Thermostat Installer Setup Options.

Select	Installer Setup Number (Press Unoccupied Temp key to change)	Factory-Setting		Other Choices (Press △ or ▽ key to change)		Actual Setting
		Display	Description	Display	Description	
Not used	1	—	—	—	—	—
Fan operation	2	0	Conventional applications where equipment controls fan operation in heat mode	1	Electric heat applications where thermostat controls fan operation in heat mode	
Output stages of heating	3	Depends on subbase	Stages of heat	0, 1, 2, or 3	0—No heating 1—One stage of heat 2—Two stages of heat 3—Three stages of heat	
Heating cycle rate	4	6	Stage 1—4 cph	8	3, 4, 8, 9 cph	
	5	6	Stage 2—4 cph			
	6	6	Stage 3—4 cph			
Not used	7	—	—	—	—	—
Output stages of cooling	8	Depends on subbase	Three stages of cool	0, 1, 2 or 3	0—No cooling 1—One stage of cool 2—Two stages of cool 3—Three stages of cool	

(continued)

Table 2. Thermostat Installer Setup Options (Continued).

Select	Installer Setup Number (Press Unoccupied Temp key to change)	Factory-Setting		Other Choices (Press △ or ▽ key to change)		Actual Setting
		Display	Description	Display	Description	
Cooling cycle rate	9	4	Stage 1—4 cph	3	3—3 cph	
	10	4	Stage 2—4 cph			
	11	4	Stage 3—4 cph			
System setting adjustment (models with System key)	12	Depends on model	System selection	0, 1 or 2	0—System setting key is operational 1—Auto setting is disabled 2—Auto only setting	
Degree temperature display	14	0	Temperature is displayed in °F	1	Temperature is displayed in °C	
Clock format	16	0	12-hour clock format	1	24-hour clock format	
Intelligent Fan™ operation	17	2	Fan operates continuously in Occupied and Recovery mode. Fan operates with call for heating or cooling in Unoccupied mode.	0 or 1	0—Fan only operates with calls for heating or cooling in Occupied and Unoccupied modes. 1—Fan operates continuously in Occupied mode. Fan operates with calls for heating or cooling in Unoccupied mode.	
Auxiliary Contact Operation	18	0	0—Time of day contacts	1	1—Economizer contacts	—
Fan key adjustment (models with Fan key only)	21	0	Fan setting key is operational	1	Fan setting key is Auto only	
Remote sensing	22	0	Remote sensing not activated	1	Remote sensing activated	
Keypad lockout level (keypad lockout is enabled and disabled by DIP switch 1 on back of thermostat)	25	0	No lockout	1 or 2, 3	1—Lockout all keys on thermostat except system and fan settings, temporary setpoint, clock and day adjustments 2—Lockout all keys except Set Current Day/Time, increase △ and decrease ▽ keys. 3—Lockout all keys except Temporary Occupied, Set Day and Clock keys	
Duration of temporary override	26	3	3—Three hour override	1, 8 or 12	1—One hour override 8—Eight hour override 12—Twelve hour override	
Minimum off time for the compressor	33	4	4 minute minimum off time for the compressor	0, 1, 2, 3 or 5	Minimum number of minutes (0 thru 5) the compressor will be off between calls for the compressor	

(continued)

Table 2. Thermostat Installer Setup Options (Continued).

Select	Installer Setup Number (Press Unoccupied Temp key to change)	Factory-Setting		Other Choices (Press △ or ▽ key to change)		Actual Setting
		Display	Description	Display	Description	
Temperature display adjustment	37	0	No difference in displayed temperature and actual room temperature89	1 thru 6	1—Display adjusts to 1°F higher than actual room temperature 2—Display adjusts to 2°F higher than actual room temperature 3—Display adjusts to 3°F higher than actual room temperature 4—Display adjusts to 1°F lower than actual room temperature 5—Display adjusts to 2°F lower than actual room temperature 6—Display adjusts to 3°F lower than actual room temperature	
Minimum off times in heating	38	4	4—4 minute minimum off time	0, 1, 2, 3, or 5	Minimum number of minutes (0 thru 5) the heating equipment will be off between calls for heat	
Installer Setup lockout (keypad lockout is enabled and disabled by DIP switch 1 on back of thermostat)	40	0	0—No Installer Setup lockout	1	1—Installer Setup lockout activated	

IMPORTANT

> Review the settings to confirm that they match the system. Press Run Program to exit the Installer Setup. Be sure to set the current day and time immediately.
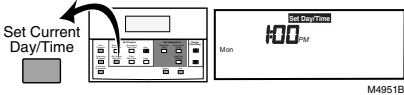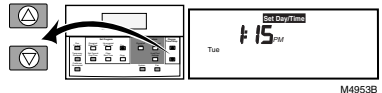
Setting Current Day and Time

1. Press Set Current Day/Time.

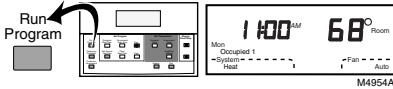   NOTE: On initial power up or after an extended power loss, 1:00 pm flashes on the LCD until a key is pressed.

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2. Press Day until the current day is displayed.

   NOTE: Sun=Sunday, Mon=Monday, Tue=Tuesday, Wed=Wednesday, Thu=Thursday, Fri=Friday, Sat=Saturday.

M4952B

3. Press increase △ or decrease ▽ until the current time is displayed.

   NOTE: Tapping the Set Current Day/Time will change the time in one hour increments.

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62-0132

4.. Press Run Program.

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INSTALLER SYSTEM TEST

Use the Installer System Test to check the thermostat configurations and operation. Refer to Table 3 for a list of the available system tests.

Table 3. Tests Available in Installer System Test.

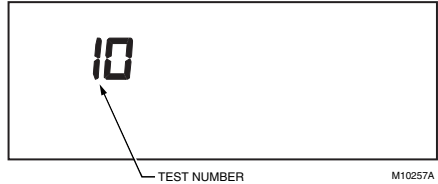| Test Number	System Test Description
10 to 19	Heating equipment can be turned on and off
30 to 39	Cooling equipment can be turned on and off
40 to 49	Fan equipment can be turned on and off
60 0 to 60 19	Keyboard keys test
70 to 79	Thermostat information including date code, software versions and subbase identification are displayed

To start the system test:

CAUTION

The minimum off time for compressors is bypassed during the Installer System Test. Equipment damage can occur if the compressor is cycled too quickly.

Press and hold the increase △ and ▽ decrease keys, at the same time, until 10 appears. All segments of the LCD are displayed for three seconds before 10 appears. See Fig. 5 and 6.

M4916

Fig. 5. Display of all the segments of the LCD.

TEST NUMBER   M10257A

Fig. 6. Display of test number.

Refer to Table 4 and Thermostat Information section for directions and results of the specific system tests.

NOTE: Press Run Program to exit the system test. The system test times out after four minutes without any key presses.

Table 4. Installer System Test Options.

Key to Press	Test Number	Description
Heating Equipment System Test		
Heat/Cool Settings	10	Enter heating equipment system test.
△	11	Stage-one heat comes on. When Installer Setup number 02 is 01, the system fan is also energized.
△	12	Stage-two heat comes on. Stage-one heat and system fan remain on.
△	13	Stage-three heat comes on. Stage-one and stage-two heat with the system fan are on.
▽	12	Stage-three heat turns off.
▽	11	Stage-two heat turns off.
▽	10	Stage-one heat and system fan turn off.

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Table 4. Installer Self-Test Options (Continued).

Key to Press	Test Number	Description
Cooling Equipment System Test		
Heat/Cool Settings	30	Change from heating to cooling equipment system test.
△	31	Stage-one cooling and system fan come on.
△	32	Stage-two cool comes on. Stage-one cool and system fan remain on.
△	33	Stage-three cool comes on (Q7300G only). Stage-one and stage-two cool with system fan remain on.
▽	32	Stage-three cool turns off.
▽	31	Stage-two cool turns off.
▽	30	Stage-one cool and system fan turn off.
Fan Equipment System Test		
Heat/Cool Settings	40	Change from cooling to fan equipment system test.
△	41	Fan comes on.
▽	40	Fan turns off.
Key Operation System Test		
Heat/Cool Settings	60 2	Change from fan to key operation system test.
Unoccupied Temp	60 0	Unoccupied Temp test number is displayed.
Occupied Temp	60 1	Occupied Temp test number is displayed.
△	60 3	Increase test number is displayed.
▽	60 5	Decrease test number is displayed.
Clear Start Time	60 7	Clear Start Time test number is displayed.
Day	60 8	Day test number is displayed.
Copy	60 9	Copy test number is displayed.
Unoccupied Start TIme	60 10	Unoccupied Start Time test number is displayed.
System	60 11	System test number is displayed.
Fan	60 12	Fan test number is displayed.
Set Current Day/Time	60 14	Set Current Day/Time test number is displayed.
Run Program	60 15	Run Program test number is displayed.
Temporary Occupied	60 16	Temporary Occupied test number is displayed**.**
Occupied Start Time	60 17	Occupied Start Time test number is displayed.
Continuous Unoccupied	60 19	Continuous Unoccupied test number is displayed.

Thermostat Information

1. Press the Heat/Cool Settings key to access the thermostat information.
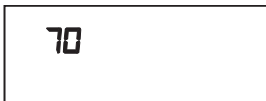
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2. Press the increase △ key to display the production date code. The first two large digits are the month and the third digit is the last digit of the year. (Example: 036 = March 1996)

M4931

3. Press the increase △ key again to display the software identification code. (Example: 02 = software ID code 2)

M4932A

4. Press the increase △ key again to display the software revision number. (Example: 001 = revision number 1)

M10229

5. Press the increase △ key again to display the EEPROM identification code. (Example: 314= EEPROM ID 314)

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74    314
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M4933A

6. Press the increase △ key again to display the subbase identification code. (Example: C= conventional subbase)

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75C    4
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7. Press Run Program to exit the system test. The system test times out after four minutes without any key presses.

Setting Keypad Lockout Switch

The DIP switch 1 on the back of the thermostat activates the lockout feature. The switch must be set to the ON position (up) to activate the lockout feature. See Fig. 7.

The factory-setting is off (down). Remove the thermostat from the subbase and set the switch to ON if keypad lockout is desired. Setting DIP switch 1 to the ON position disables all of the keys on the thermostat.

BACK OF THERMOSTAT

DIP 1 IS ON
DIP 2 IS NOT USED.
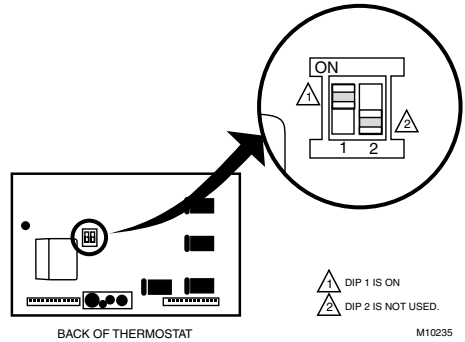
M10235

Fig. 7. Setting the keypad lockout DIP switch 1 on the back of the thermostat.

NOTE: DIP switch 1 should be set to ON prior to entering Installer setup. This only applies when changing Installer setup number 25 or 40.

TROUBLESHOOTING GUIDE

Symptom	Possible Cause	Action
Display will not come on.	Thermostat is not being powered.	• Check that X terminal is connected to the system transformer. • Check for 24 Vac between X and R or RH terminals. — If missing 24 Vac: — check if the circuit breaker is tripped—reset the circuit breaker. — check if the system fuse is blown—replace the fuse. — check if the power switch on the HVAC equipment is in the Off position—set to the On position. — check wiring between thermostat and HVAC equipment—replace any broken wires and tighten any loose connections. — If 24 Vac is present, proceed with troubleshooting.
Temperature display is incorrect.	Room temperature display has been reconfigured.	Enter Installer Setup number 37 and reconfigure the display.
	Thermostat is configured for °F or °C display.	Enter Installer Setup number 14 and reconfigure the display.
	Bad thermostat location.	Relocate the thermostat.
	Display shows two dashes and a degree sign.	Installer Setup 22 is set for remote sensing and the sensor is missing or the circuit is open or shorted.
Temperature settings will not change. (Example: Cannot set heating higher or cooling lower.)	Upper or lower temperature limits were reached.	Check the temperature setpoints: • Heating limits are 40 to 90°F (7 to 31°C) • Cooling limits are 45 to 99°F (9 to 37°C)
	The setpoint temperature range stops were configured.	Check Installer Setup number 34 and 35 and reconfigure the setpoint stops.
	Keypad is locked. When a locked key is pressed, LOC will flash on the LCD.	• Reset DIP switch 1 on back of thermostat to enable keypad.

(continued)

TROUBLESHOOTING GUIDE (Continued).

Symptom	Possible Cause	Action
Temperature settings change from original setting.	Trying to set heating and cooling setpoints too close together. There is a deadband in automatic changeover thermostats. Example: cool setpoint=72, deadband=3, heat setpoint=68, changing heat setpoint to 70 will automatically change the cool setpoint to 73.	• Check that the heating setpoint is lower than the cooling setpoint.
Room temperature is out of control.	Remote temperature sensing is not working.	Checkout all remote sensors.
Heating will not come on.	No power to the thermostat.	• Check that X terminal is connected to the system transformer. • Check for 24 Vac between X and R or RH terminals. — If missing 24 Vac: — check if the circuit breaker is tripped—reset the circuit breaker. — check if the system fuse is blown—replace the fuse. — check if the system switch at the equipment is in the Off position—set to On position. — check wiring between thermostat and HVAC equipment—replace any broken wires and tighten any loose connections. — If 24 Vac is present, proceed with troubleshooting.
	Thermostat minimum off time is activated and wait indicator is displayed.	• Wait up to five minutes for the system to respond. • Enter Installer Setup number 38. Reconfigure minimum off time (if required).
	System selection is not set to Heat.	Set system selection to Heat.
Cooling will not come on.	No power to the thermostat.	• Check that X terminal is connected to the system transformer • Check for 24 Vac between X and R or RC and Y terminals. — If missing 24 Vac: — check if the circuit breaker is tripped—reset the circuit breaker. — check if the system fuse is blown—replace the fuse. — check if the system switch at the equipment is in the Off position—set to the On position. — check wiring between thermostat and HVAC equipment—replace any broken wires and tighten any loose connections. — If 24 Vac is present, proceed with troubleshooting.
	Thermostat minimum off time is activated and wait indicator is displayed.	• Wait up to five minutes for the system to respond. • Enter Installer Setup number 33. Reconfigure minimum off time (if required).
	System selection is not set to Cool.	Set system selection to Cool.
System on indicator (flame=heat, snowflake=cool) is displayed, but no warm or cool air is coming from the registers.	Fan operation set for 0 (conventional heat) when it should be set for 1 (electric heat).	Enter Installer Setup number 2 and reconfigure the fan operation.
	Conventional heating equipment turns on the fan when the furnace has warmed up to a setpoint.	Wait a minute after seeing the on indicator and then check the registers.
	Heating or cooling equipment is not operating.	Verify operation of heating or cooling equipment in self-test.

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