

Installation and Maintenance Manual

IM 1366

Group: **Applied Terminal Systems**

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Remote Integrated Thermostat



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Overview

The remote integrated thermostat is used in conjunction with MicroTech 4 Lite equipped units. The thermostat has a digital display for Temperature, Occupancy, Fan Speed, System Mode, Alarm, Setpoint and Status indication. Controls include eight buttons for Setpoint, System Mode, Fan Speed, On/Off, Override Reset, and Programming. (Figure 1).

Figure 1: Thermostat Buttons

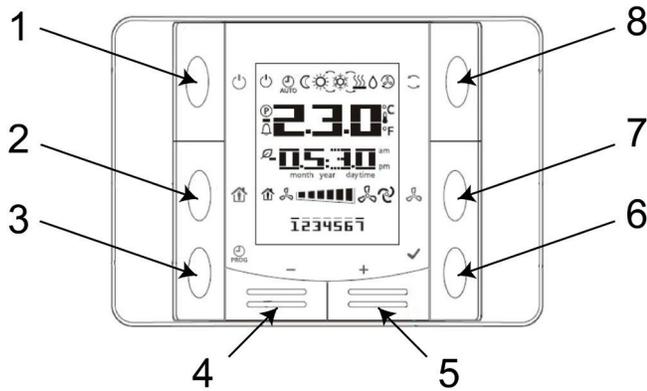


Table 1: Thermostat Buttons

Number	Name	Function
1	ON/OFF	Power on or power off
2	Presence	Enter or exit a programmed presence mode.
3	Program	Time Scheduler. Pressing this button adjusts date/time setting, while holding it allows schedule programming.
4	Minus	Setpoint adjustment. Each operation of the Minus (-) button reduces the setpoint by 0.1 °C/0.5 °F or 0.5 °C/1.0 °F which is defined in controller's setting.
5	Plus	Setpoint adjustment, each operation of the Plus (+) button increases the set point by 0.1 °C/0.5 °F or 0.5 °C/1.0 °F which is defined in controller's setting.
6	OK	Confirms date/time and scheduler settings.
7	Fan	Fan speed adjustment. The fan speed is set up in grades by the controller. By pressing the Fan button, the grades can be selected clockwise in a cyclical way. The current grade selected manually is indicated by the highlighted bar on the display.
8	Mode	Energy mode selection. The 3 energy modes are Auto, Comfort and Economy. By pressing the Mode button, the user can switch HMI-SG between the 3 modes in a cyclical way. The current mode manually selected is indicated by relevant symbol on the display.

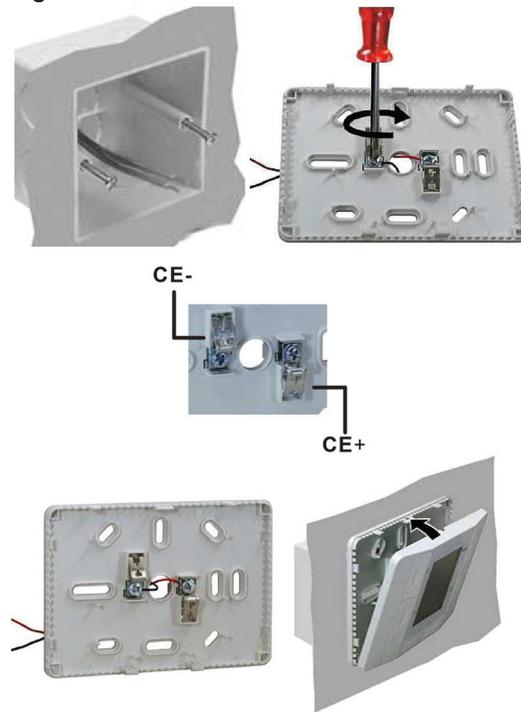
Mounting Considerations

Mounting considerations:

- The device is suitable for semi-flush mounting with a recessed conduit box.
- The unit should not be mounted in recesses, shelving, behind curtains or doors or above or near direct heat sources.
- Avoid direct sun and draught.
- The conduit must be sealed on the device side, as currents of air in the conduit can affect the sensor reading.
- Local installation regulations must be observed.

Use a flathead screwdriver to gently pry the front covering to access the terminals shown in Figure 2.

Figure 2: Thermostat Installation



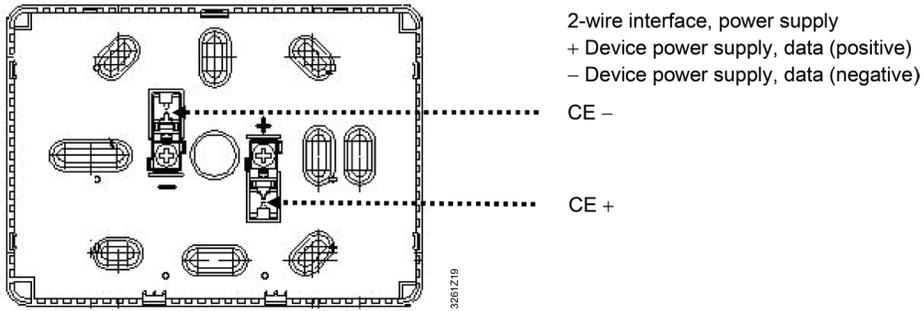
Maintenance

Wipe the display as needed with a damp water only cotton cloth. Do not use any type of cleaner as it may damage the buttons or scratch the display. Do not paint.

Terminations

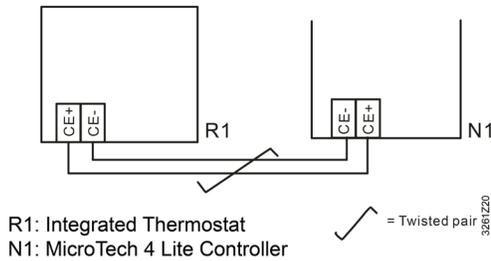
Daikin Applied recommends using a twisted shielded pair of at least 22AWG for the power wire connections. The shield should be earth grounded only at the power source. Larger gauge wire may be required for long runs.

Figure 3: Integrated Thermostat Terminal Layout



Wiring diagram

The example below shows the room unit connected to Microtech 4 Lite controller.



All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin Applied representative.

Terminal descriptions

The thermostat has a 2-wire interface for data and power supply.

- CE +
Device power supply, data (positive)
- CE -
Device power supply, data (negative)

Initial Start-up and Display Descriptions

Initial Start-up

It may take up to 5 minutes on initial power up for the integrated thermostat to establish communications with the MicroTech 4 Lite controller.

Display descriptions and Button Operation

Thermostat Status Cycle

Area 1 shown in Figure 4 will cycle through displaying the current measured room sensor temperature and the active setpoint. Each status will display for approximately 5 seconds before switching to the other.

- Room sensor temperature along with the thermometer icon in Area 1. Current time in Area 2.
- Active setpoint in Area 1 without the thermometer along with the corresponding cooling or heating icon. Displays "STPT" in Area 2.

Figure 4: Thermostat Display

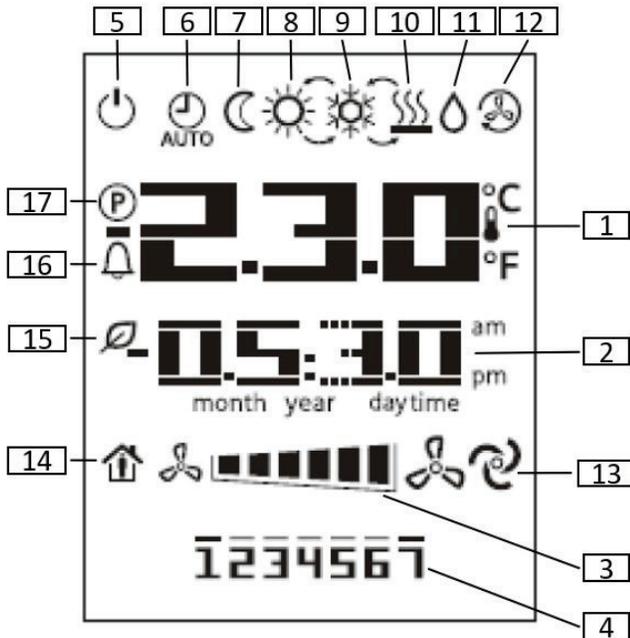


Table 2: Thermostat Display Icons

Number	Function
1	Temperature Area, showing room temperature and set point in C or F. The temperature unit can be selected in service mode of room unit if relevant option was created by the controller.
2	Time
3	Fan Speed
4	Weekday indicator
5	On / Off
6	Auto mode active
7	Economy mode active
8	Comfort mode active
9	Cooling
10	Heating
11	Dehumidification
12	Fan only
13	N/A
14	Occupancy mode
15	N/A
16	Alarm indicator
17	Service mode

Adjusting the setpoint

Temporary Setpoint adjustment is performed by pressing the minus (-) and plus (+) buttons and Effective Occupancy must also be set to OCCUPIED or BYPASS.

NOTE: Temporary Setpoint adjustment will not function if the thermostat is in the Program Mode or if the Effective Occupancy is set to STANDBY or UNOCCUPIED.

Pressing the minus (-) or plus (+) buttons will make Area 1 display the current active setpoint value along with the corresponding cooling or heating icon. Area 2 will change from displaying the time to "STPT".

Subsequent presses of the minus (-) or plus (+) buttons will adjust the setpoint value up or down and will increment by 0.5 degrees.

Pressing the OK button after changing the setpoint value will confirm the setpoint change.

- If the OK button is not pressed within 10 seconds of the last press of the minus (-) or plus (+) buttons, the change will be discarded and the display will exit the setpoint adjustment state.

Pressing the OK button will then switch the display to the other setpoint value along with the corresponding heating or cooling icon, and allow the user to adjust this setpoint.

Occupancy Indicator

When the Effective Occupancy is set to OCCUPIED or BYPASS, then the Comfort Mode Active icon (Area 8) will display.

When the Effective Occupancy is set to STANDBY or UNOCCUPIED, then the Economy Mode Active icon (Area 7) will display.

Fan Status & Speed Indicators

NOTE: See Figure 4 to view display references.

The status bar in Area 3 indicates fan speed. Fan speed can be adjusted only on units configured for constant air volume control.

- A single bar indicates the Supply Fan Minimum Speed value.
- Each added bar represents an increase in supply fan speed value. The value is calculated as:
Supply Fan Maximum Speed - Supply Fan Minimum Speed / 5.
- Six bars indicates the Supply Fan Maximum Speed value.

Pressing the FAN button will cause the fan bars to start blinking, indicating that the user is allowed to adjust the fan speed. Each FAN button press will then cycle through the fan speed values.

Press the OK button to confirm fan speed selection.

NOTE: If the OK button is not pressed within 10 seconds of the last press of the FAN button, the change will be discarded and fan speed state will be exited.

System Mode Selection

The MODE button allows the user to select Auto, Cool, Heat, or Fan Only modes of operation.

NOTE: See Figure 4 to view display references.

- Auto mode is indicated by the Auto icon (Area 6)
- Cool mode is indicated by the Cool icon (Area 9)
- Heat mode is indicated by the Heat icon (Area 10)
- Fan Only mode is indicated by the Fan Recirc icon (Area 12)

Pressing the MODE button will initiate the mode adjustment state and cause the current mode selection icon to start blinking. Subsequent presses of the MODE button will cycle between the different mode options.

Auto Mode

The unit switches automatically to provide heating, cooling, or dehumidification.

Cool Mode

The unit will only provide cooling and dehumidification.

Heat Mode

The unit will only provide heating.

Fan Only Mode

The unit will operate the fan at the selected fan speed setting,

but it will not provide any heating, cooling, or dehumidification.

Press the OK button to confirm mode selection.

NOTE: If the OK button is not pressed within 10 seconds of the last press of the MODE button, the change will be discarded and mode selection state will be exited.

Mode Indicators

NOTE: See Figure 4 to view display references.

ON/OFF (Area 5)

This icon is ON solid when the remote sensor On/Off parameter is set to ON and the unit is running. The icon will blink if the the remote sensor On/Off parameter is OFF and the unit is not running.

COOL (Area 9)

This icon is active only when the unit is in cooling, economizer, economizer and cooling, or dehumidification modes.

DRY (Area 11)

This icon is active only when the unit is in dehumidification mode.

HEAT (Area 10)

This icon is active only when the unit is in heat mode.

RECIRC (12)

This icon is active only when the unit is in fan only mode.

AUTO (Area 6)

This icon is active only when the unit is in auto mode.

View and Clear Alarms

NOTE: See Figure 4 to view display references.

When there is an active alarm, the alarm icon (Area 16) will blink every second.

To view the alarm state, follow these steps:

1. Press the OK button for more than 5 seconds.

NOTE: The PROG button can be used to cancel/exit the alarm state at any time.

2. "ALM" will display in Area 1. Area 2 will display the number for the highest current active alarm.

NOTE: Refer to the unit operation manual for specific information on the various alarms.

3. To clear the alarm, press the OK button. Area 1 will display as "CLR" and Area 2 will display as "No". Press the plus (+) or minus (-) buttons to cycle Area 2 between "No" and "Yes". Press the OK button when "Yes" is displayed, and the screen will return to the Alarm View state.

NOTE: If the alarm conditions persist, the unit will immediately go back into the alarm state.

NOTE: If the PROG button is pressed or if no operation is performed for 30 seconds, the device will exit the Alarm View state.

7-Day Schedule Setup

NOTE: See Figure 1 and Figure 4 to view display references. The user can exit the 7-Day Schedule Setup at any time by pressing the PROG button.

1. Hold the PROG button for more than 10 seconds to enter the Occupancy Scheduler State. The Service Mode (Area 17) and Present Mode (Area 12) icon will be active when in Occupancy Scheduler State.

NOTE: In the Occupancy Scheduler, the PROG button is used to cancel. Pressing the OK button will confirm.

2. Pressing the plus (+) or minus (-) will cycle through the days of the week. The number of the corresponding day will blink on screen (ex. 1=Monday...7=Sunday). When the cursor moves onto one weekday, pressing OK button will select this number or deselect it
3. When one weekday is selected, the day will be displayed on screen constantly. It is possible to select more than one weekday at a time. To confirm your selections, use the plus (+) button to cycle past day 7 (or minus (-) button to cycle before day 1). This will cause all selections to display on the screen with blinking indicators. Press the OK button to confirm their selection.
4. Pressing the plus (+) or minus (-) will jump to a view with OCC in the first line and "--:--" in the second line. The first line indicates that the occupied time is being set; the second line is the time setting.
5. Press the plus (+) or minus (-) buttons to cycle through the occupied time options and press OK to confirm the input.

NOTE: Pressing OK when the cursor has no time number selected (ex. "--") will cancel time setting and the display will return to viewing the current time.

6. The device will then prompt the user to select the Occupied Cooling Setpoint, indicated by "OCSP" in Area 2. Pressing the plus (+) or minus (-) buttons will increment and decrement the Occupied Cooling Setpoint value. Pressing OK will confirm the setting.
7. The device will then prompt the user to select the Occupied Heating Setpoint, indicated by "OHSP" in Area 2. Pressing the plus (+) or minus (-) buttons will increment and decrement the Occupied Heating Setpoint value. Pressing OK will confirm the setting.
8. The device will then prompt the user to select the unoccupied time, indicated by "UNO" displaying in Area 1 and "--:--" in Area 2. Press the plus (+) or minus (-) buttons to cycle the unoccupied time options. Press OK to confirm the setting.

NOTE: Pressing OK when the cursor has no time number selected (ex. "--") will cancel time setting and the display will return to viewing the current time.

9. The device will then prompt the user to select the Unoccupied Cooling setpoint, indicated by "UCSP" in Area 2. Pressing the plus (+) or minus (-) buttons will increment and decrement the Unoccupied Cooling Setpoint value. Pressing OK will confirm the setting.

10. The device will then prompt the user to select the Unoccupied Cooling setpoint, indicated by "UHSP" in Area 2. Pressing the plus (+) or minus (-) buttons will increment and decrement the Unoccupied Heating Setpoint value. Pressing OK will confirm the setting.

NOTE: The device will exit 7-Day Schedule Setup automatically if no operation was performed for 60 seconds. All changes made without pressing the OK button will not be saved.

Date and Time

NOTE: See Figure 4 to view display references.

Press the PROG button to enter time and date settings. The Service Mode icon (Area 17) will be active when in the time and date setting.

Pressing the plus (+) or minus (-) buttons will cycle the variables that are blinking on the screen. Pressing OK button will confirm each variable's changes, and then the cursor will move to the next variable automatically.

The first variable is time setting. The user can change 3 items: hour, minute, time format, and then calendar.

1. Press the plus (+) or minus (-) buttons to cycle the hour Area. Confirm the selection by pressing the OK button.
2. Press the plus (+) or minus (-) buttons to cycle the minute Area. Confirm the selection by pressing the OK button.
3. Press the plus (+) or minus (-) buttons to cycle the time format Area (12-hour AM/PM or 24-hour). Confirm the selection by pressing the OK button.
4. Press the plus (+) or minus (-) buttons to cycle the date. Confirm the selection by pressing the OK button.
5. Press the plus (+) or minus (-) buttons to cycle the month. Confirm the selection by pressing the OK button.
6. Press the plus (+) or minus (-) buttons to cycle the year. Confirm the selection by pressing the OK button. The device will then leave the time and date setting.

NOTE: If there is not any operation for 30 seconds while editing any of the parameters, then the device will exit the time and date setting.

Alarm Reset

Pressing and holding the Presence and Mode buttons for at least 3 seconds but less than 10 seconds will clear the active alarm. The display will then go back to the Alarm View state.

NOTE: If the alarm condition(s) still persist, the unit will immediately go back into the alarm state.

Tenant Override

Pressing the Presence and Mode buttons for less than 1 second will cause the unit to enter the Tenant Override mode, providing a temporary occupied state for the duration of the bypass timer (default of 120 minutes).

Specifications

Supply voltage

- DC 21-30 V
- MAX. 0.31 VA

Operating Data

- Measuring range: 0-40 °C
- Thermal time constant (sensor): Approx. 15 seconds
- Measuring accuracy (5-30 °C): ± 1.0 K

Display

- Segment LCD
- Setpoint adjustment
 - Operating mode
 - Manually selected fan speed
 - Control sequence
- Time Display
 - Time and weekday setting
- Parameter setting (only when selected)

Interfaces

- 2-wire interface KNX
- 9.6 kbps

Housing Protection

- IP 30

Ambient Conditions

- Normal operation transport
- Temperature: 5-40 °C
- Humidity: <85% relative humidity

Industry Standards

- UL916, UL873
- CSA C22.2M205



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