0615-0
Desktop Thermo
User Manual

Set Clock

1. Hold the MODE button more than 2 seconds, until the Clock flash.
2. Press HR to increment Hour, MIN to increment Minute. Hold down the key for fast advance.
3. Press and hold both HR and MIN at the same time to toggle 12/24 hour mode.
4. Press REMOTE to toggle °C/°F.
5. Press MODE again to exit to normal.

Remote Sensor

1. In each of the Remote Sensor will has a House Code and Unit code switch.
2. All the Sensor and Receiver must set to same House Code.
3. Each Sensor must set to different Unit code(1-3).
4. Press the TEST button once, the Remote Sensor will transmit the data immediately.
5. The LED on the Remote Sensor will flash once during transmission.
6. If the LED flash continuously at every second, that means the battery need to replace.

Test Mode

To check the communication between Desktop unit and Remote unit.

1. Press and hold the REMOTE button, until the temperature value flash.
2. Press REMOTE button to select the remote unit that will be test.
3. Press and release the TEST button in the Remote unit. If the Desktop unit received the temperature information, it will stop flash.
4. Otherwise, press and hold the REMOTE button again to stop the Test Mode.

Read the Remote Temperature

Press REMOTE to switch sequentially from Remote Sensor 1 to 3. The left-hand side of the OUT temperature will indicate the Remote Sensor number.

Min/Max Memory

The Min/Max memory will be cleared at 0:00 daily. And the temperature will update every 10 minutes.

1. Press the MAX button once the MAX icon will be display, and all the temperature will show the maximum temperature.

2. Press the MAX button again to back to normal display.
3. Press the MIN button once the MIN icon will be display, and all the temperature will show the minimum temperature.
4. Press the MIN button again to back to normal display.

Temperature Alert

If Temperature Alert is set, the corresponding alert icon will be displayed on.
When the temperature reaches or over the alert temperature setting, alarm sound will be emitted for 30 seconds and the corresponding icon and "MIN/MAX" will be flash.

Set In Temperature Alert

1. Press MODE once, the IN MAX alert icon will be flash.
2. If no alert was set before, it will display "---" at the IN temperature.
3. Press "+" or "-" to change the alert temperature.
4. Press MODE again, the IN MIN alert icon will be flash.
5. Press "+" or "-" to change the alert temperature.
6. Press MODE again to exit to normal.

Set Out Temperature Alert

1. During setting In Temperature Alert, press REMOTE button, the In temperature will display normal temperature. And the OUT MAX alert icon will be flash.
2. Press REMOTE to change to next Remote number or Press MODE to change to minimum alert temperature.
3. Press "+" or "-" to change the alert temperature.
4. Press MODE to exit to normal.

Clear Temperature Alert

During setting corresponding Temperature Alert, press and hold both "+" and "-" button for 2 second, it will display "---" and disable that alert function.

Temperature Trend

The first detected temperature will be a reference, upward or downward trend is the result of comparison to this temperature. The reference temperature will be updated each hour.

Battery Low Indication

When Battery is low, there will be a BATTERY LOW icon display at the right-hand side of the Clock.
For the Remote unit, the LED will be flash at 1Hz.

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Desktop Thermo

Temperature range and specification:

- Indoor Temperature sensor range: 0°C ~ +50°C / +32°F ~ +122°F
- Outdoor Temperature sensor range: -40°C ~ +70°C / -40°F ~ +158°F
- Resolution: 0.1°C
- Accuracy: ±1.5°C / ±2.7°F
- Real Time Clock Accuracy: ±0.8 sec/day

Inputs

House Code	4bit	DIP switch
Mode	1bit	Button
Hr / + / MAX	1bit	Button
Min / - / MIN	1bit	Button
°C/°F / Remote	1bit	Button
Voltage level	1bit	External circuitry
Rx Data	1bit	RF circuitry

Outputs

ON/OFF RF circuit	1bit	

MCU Initialization:

- Test display and Buzzer 1 second.
- Detect House code.
- Hour Format and Temperature Unit.
- Detect Temperature.
- Flash Outdoor Temperature.

Rx Unit Operation:

- MCU will turn the receiver circuit ON 0.5 second and OFF 0.5 second repeatedly.
- If Sync pules detected, it will continue to ON until no signal received.
- After success to receive one DATA,

1. For Remote 1
   - OFF RF for 28 seconds and ON 2 seconds. If no data received in this 2 seconds, ON RF 2 seconds again at 28 seconds later. If repeated ON 5 times without received DATA, ON/OFF RF every 0.5 second repeatedly.
2. For Remote 2
   - OFF RF for 37 seconds and ON 2 seconds. If no data received in this 2 seconds, ON RF 2 seconds again at 37 seconds later. If repeated ON 5 times without received DATA, ON/OFF RF every 0.5 second repeatedly.

3. For Remote 3

- OFF RF for 46 seconds and ON 2 seconds. If no data received in this 2 seconds, ON RF 2 seconds again at 46 seconds later. If repeated ON 5 times without received DATA, ON/OFF RF every 0.5 second repeatedly.
- REMARK: If one of the above counter set to ON/OFF 0.5 second, then all counter reset. Otherwise, all counter counting independently.
- If no DATA received for 2 hours, display "---" at outdoor temperature and keep ON/OFF RF every 0.5 second repeatedly.
- Always use the Timer Interrupt to scan the keys and perform the corresponding functions.
- The RX unit will detect temperature at each XX:X9, that means every 10 minutes.

12/24 Hour Mode:

- User can set 12/24 hour mode in set clock mode.

°C/°F Display

- User can set °C/°F in set clock mode.

Temperature Alert Setting:

- If temperature alarm is set, the corresponding alarm icon will be displayed on.
- When the temperature reaches or over the alarm temperature setting, alarm sound will be emitted for 30 Seconds and the corresponding icon and "MIN" or "MAX" symbol will be flashing.
- User can press any key to turn off alarm sound.

Remote Switching:

- Press REMOTE button to switch in sequence 1,2,3 with a number displayed at the side.

Min/Max Memory:

- Each Sensor will have Min and Max memory, and they will be reset at 0:00 everyday.

Test Mode:

- Press and hold the Remote button for 2 sec, the Remote temperature will be flash until received the corresponding Remote signal. Or, press and hold the Remote button again to stop flash.

Low Battery Detect:

- The Low Battery Circuit will output LOW for low battery.

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Remote Sensor

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- Outdoor Temperature sensor range: -40°C ~ +70°C / -40°F ~ +158°F
- Resolution: 0.1°C
- Accuracy: ±1.5°C / ±2.7°F
- Real Time Clock Accuracy: ±0.8 sec/day

Tx Unit:

IC: OKI MSN64160

Inputs

House Code	4bit	DIP switch
Unit Code	2bit	Slide switch
Voltage level	1bit	External circuitry
Rx Data	1bit	RF circuitry

Outputs

LED	1bit	
ON/OFF RF circuit	1bit	
Tx Data	1bit	

MCU Initialization:

- Detect House code and Unit Code.
- Detect Temperature, default unit °C
- Tx Data immediately

Tx Unit Operation:

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- During transmission, the LED will flash once.
- If the battery level is low, the LED will flash at 1Hz continuously.
- If the TEST(RESET) button was pressed and release, it will reset the Tx Unit, so that it will transmit the data immediately.