Multi-Channel Indoor & Outdoor Thermometer with Cable Free™ Sensor & Radio Controlled™ Clock

*MODEL: RMR166*
USER'S MANUAL

MAIN FEATURES

INTRODUCTION

Thank you for purchasing the RMR-166 Multi-Channel Indoor-Outdoor Thermometer with 433MHz Cable Free™ temperature sensor and Radio Controlled™ calendar clock.

This basic package consists of the main temperature and calendar clock unit and a wireless remote temperature sensor, model THN-138. The main unit can support up to three Cable Free™ remote sensors. Additional remote sensors are available.

The main unit has a large easy-read LCD screen that displays the indoor temperature, clock with calendar and temperature data transmitted by the remote sensor to the main unit. In addition, the RMR-166 will store in memory the maximum and minimum indoor temperatures and temperatures transmitted from the remote sensor.

The RMR-166 clock is a radio-controlled clock. The clock automatically synchronizes current time and date with radio signals received from the US Atomic Clock, one of the world's most accurate timepieces. To learn more about the US Atomic Clock visit the US Department of Commerce's National Institute of Standards and Technology website at www.nist.gov. Other features include three-language display choice, four-step crescendo daily alarm and easy-change display modes.
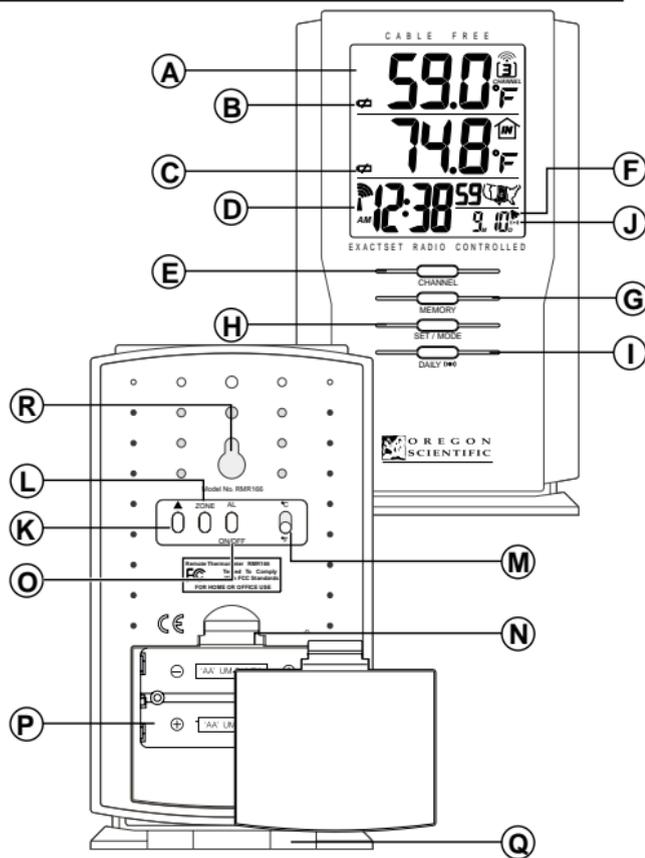
A. THREE-LINE LCD DISPLAY

Easy- read display of remote sensor and indoor temperatures, and calendar clock functions

B. [⚡] REMOTE SENSOR LOW BATTERY ICON
Indicates the remote-sensor battery power is low and batteries need replacing

C. [⚡] MAIN UNIT LOW BATTERY ICON

Indicates the main unit battery power is low and batteries need replacing

D. [⟨⟩] US ATOMIC CLOCK SIGNAL RECEPTION ICON

Graphically displays the radio signal reception strength

E. [CHANNEL] BUTTON

Identifies and selects the remote sensor channels of 1 - 3

F. [▶] ALARM-ON ICON

When displayed indicates that the daily alarm is activated

G. [MEMORY] BUTTON

Displays and switches between Maximum/Minimum temperatures

H. [SET/MODE] BUTTON

Switches between display modes and saves user-selections made during setting the function values

I. [DAILY ((.))] BUTTON

Sets the time for the alarm

J. [((.))] ALARM ICON

Indicates that the alarm time is displayed

K. [▲] BUTTON

Advances the value of a setting

L. [ZONE] BUTTON

Selects the US time zone

M. °C/°F SLIDE SWITCH

Selects between degrees Centigrade (°C) and Fahrenheit (°F)

N. [RESET] BUTTON

Returns all settings to their original default values

O. [ALARM ON/OFF] BUTTON

Activates or disables the alarms

P. BATTERY COMPARTMENT
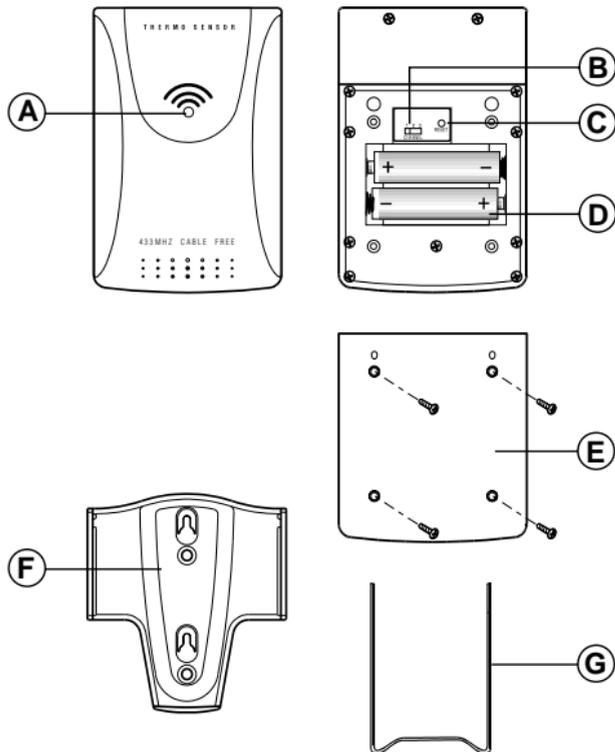
Accommodates two (2) "AA" (UM-3) size batteries

Q. REMOVABLE TABLE STAND

For standing the main unit on a flat surface

R. WALL-MOUNT RECESS
For mounting the unit on a wall

REMOTE SENSOR FEATURES

A. LED LIGHT

Flashes when the remote sensor transmits data to the main unit

B. CHANNEL SLIDE SWITCH

Assigns and identifies the channel of the remote sensor

C. RESET BUTTON

Returns all settings to their original default values

D. BATTERY COMPARTMENT

Accommodates two "AA" (UM-3) size batteries

E. BATTERY COMPARTMENT DOOR

F. WALL-MOUNT HOLDER

Holds the remote sensor for wall-mounted display

G. MOVABLE TABLE STAND

For standing the remote unit on a flat surface

BEFORE YOU BEGIN

For best operation:

1. When using more than one remote sensor assign a different channel to each of the remote sensors.

2. Insert batteries in the remote sensor BEFORE inserting the batteries into the main unit.

3. Press **[RESET]** on the main unit after installing batteries. Place the main unit close to the remote unit as this will expedite initial synchronization between the remote sensor and the main unit.

4. Position the remote sensor within the effective transmission range of 21 - 32 yards (20 - 30 meters) from the main unit.

See "Wireless Transmission" for important information about wireless data transmission.
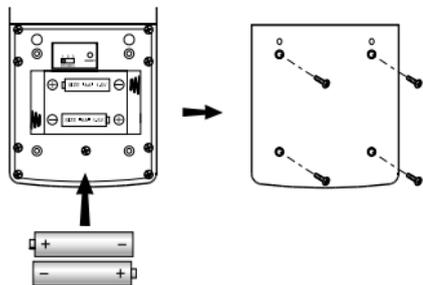
NOTE: Although the remote sensors have been designed for out door use, do not place the remote sensor in direct sunlight, rain or snow.

REMOTE SENSOR BATTERY INSTALLATION & CHANNEL SELECTION

1. Remove the screws on the battery compartment door.

2. Using the **[CHANNEL]** slide switch select the channel number of 1, 2 or 3 for that remote sensor..

3. Insert 2 AA (UM-3) size alkaline batteries according to the polarities as shown. Press **[RESET]**.

4. Replace the battery compartment door and secure the screws.
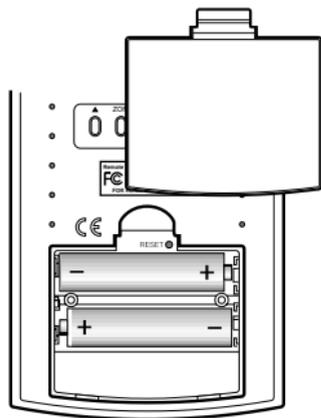
NOTE: Once a channel is assigned to a remote sensor, it can only be changed by removing the batteries or resetting the unit.

MAIN UNIT BATTERY INSTALLATION

1. Gently lift the tab on the battery compartment door and remove door.

2. Install 2 AA (UM-3) size alkaline batteries according to the polarities as shown. Press **[RESET]**.

3. Replace the battery compartment door.

LOW BATTERY WARNING

The RMR-166 features low battery warning icons for the main unit and remote sensor(s). The main unit low battery warning icon will be displayed on the second line of the LCD screen. The low

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battery warning icon for the remote sensor will be displayed on the first line of the LCD and will identify the affected remote sensor by its assigned channel number.

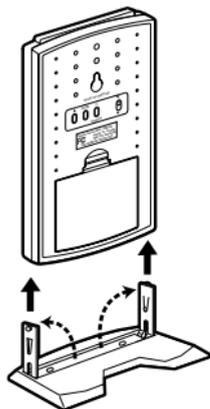## HOW TO USE THE TABLE STAND OR WALL MOUNTING

The main unit has a removable table stand to support the unit on a flat surface or the unit can be mounted on a wall using the recessed screw hole.

The remote sensor also comes with a wall-mount holder as well as a removable table top stand.
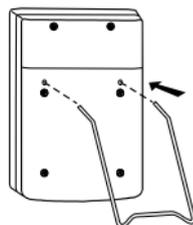
Main Unit:

Wall-mount   Table Stand

Remote Sensor:

Wall-mount   Table Stand

THE RESET BUTTON

Pressing **[RESET]** will clear all setting and cause them to return to their original default values. Use a blunt stylus to hold down the button.

GETTING STARTED

Once batteries have been inserted into the remote sensor, the sensor will start transmitting temperature readings at 30-second intervals to the main unit.

The main unit will start searching for the remote sensor signal about one minute after the batteries are installed. Upon successful signal reception, the remote sensor channel number and corresponding temperature data will be displayed on the top line of the LCD screen. The indoor temperature will be displayed on the second line of the

LCD screen. The main unit will automatically update its readings approximately every 30-seconds.

If no signals are received, blanks "**----**" will be displayed and the kinetic wave icon will show " 🔲 ". Press **[CHANNEL]** and **[MEMORY]** at the same time for about 30-seconds to trigger a signal search. This will synchronize the transmission and reception between the remote sensor and main unit.

REMOTE & INDOOR TEMPERATURES

The indoor temperature is shown on the second line of the LCD screen.

The temperature data received from the remote sensor is displayed on the top line of the LCD screen. Press **[CHANNEL]** to sequence through the channels. The temperature displayed will be the data for that specific channel and remote sensor.

A kinetic wave will be displayed below the channel number indicating the quality of signal reception from that particular

channel. See "Reading the Kinetic Wave Display."

If the main unit does not receive data from the remote sensor after two minutes, blanks "**---**" will be displayed for that channel until future data is successfully received. Verify that the remote sensor is still in position and that the low battery icon is not displayed. Press **[CHANNEL]** and **[MEMORY]** at the same time for about 30-seconds to trigger a signal search between the main unit and the remote sensor.

Should the temperature go above or fall below the maximum and minimum temperature measuring ranges of either the main unit or the remote sensor, the LCD screen will show **"HHH"** or **"LLL."** See "Specifications" for Temperature Measuring Range.

READING THE KINETIC WAVE DISPLAY

The kinetic wave icons shows the signal receiving status of the main unit. There are three different status icons:

The unit is in searching mode.	. 📶
Temperature readings are securely registered.	. 📶 📶 📶
No signals.	.

MAXIMUM & MINIMUM TEMPERATURES

The maximum and minimum recorded indoor temperatures and those of each remote sensor are automatically stored in memory.

To display the indoor recorded temperatures, press **[MEMORY]** once to display the maximum (MAX) temperature and once again for the minimum (MIN) temperature.

To display temperature data from a remote sensor, select the channel of that remote sensor. Press **[MEMORY]** once to display the maximum (MAX) temperature and once again for the minimum (MIN) temperature.

To clear the memory, hold down **[MEMORY]** for two seconds. The maximum and minimum recorded temperatures will be erased. When the memory has been cleared, the maximum and minimum temperatures will be identical to the current temperature until new readings are recorded.

INTERRUPTED SIGNALS

If the display for a particular channel goes blank on the main unit, press **[CHANNEL]** and **[MEMORY]** at the same time for about 30-seconds to trigger a signal search between the remote sensor and the main unit. If that does not reactivate signal reception, verify:

1. The remote sensor is still in position.

2. The low battery warning icon for both the remote sensor and main unit are not displayed. Replace batteries if necessary.

3. The remote sensor is within the effective transmission range (approximately 21 - 32 yards) to the main unit and that the transmission path is clear of obstacles and interference. Shorten the distance between the remote sensor and the main unit if necessary.

NOTE: When the temperature falls below freezing point, the batteries in the outdoor positioned sensor will freeze, lowering the battery voltage supply and the effective range.

WIRELESS TRANSMISSION

Signals from other household devices including door bells, home security systems and entry controls, may interfere with those of this product and cause temporary reception failure. This is normal and does not affect the general performance of the product. The transmission and reception of temperature readings will resume once the interference ends.

The success of wireless transmission of data may vary and is directly related to where the remote sensor is placed and the environmental factors of that location. Should there be difficulty in data transmission, verify:

1. The low battery warning icon is not displayed for the main unit or the remote sensor. Replace batteries if needed.

2. The remote sensor has been placed within the stated effective range (21 - 32 yards) of the main unit.

3. That there is no obstacle (like a transmission tower) or environmental reason (such as a steep hill) which is causing the interference or blockage between the remote sensor and the main unit.

If the difficulty continues, reposition the remote sensor to a different location and/or closer to the main unit.

NOTE ON °C AND °F

Using the **[Temperature Slide Switch]**, select °C for degrees in

Centigrade or °F for Fahrenheit for both the remote sensor and the main unit. If the remote sensor temperature selection differs from that on the main unit, the remote temperature display will default to the temperature display selection of the main unit.

CALENDAR CLOCK DISPLAY MODES

The RMR-166 supports two clock and calendar display modes:

MODE 1.	Local Time

Hour, Minute, Seconds, Day, Month

MODE 2.	Local Time

Hour, Minute, Day-of-the-Week, Day, Month

Pressing the **[SET/MODE]** switch will toggle between the above display choices.

NOTE: The bottom line of the display will be replaced with the set alarm time if the **[DAILY (•))]** button is pressed.

ABOUT RADIO RECEPTION

The split-second, precise timeliness of RMR166 is achieved through its internal radio receiver that responds to a special 60kHz frequency radio signal generated by the US Atomic Clock.

The RMR-166 synchronizes the time and date with the Atomic Clock's signal and also automatically adjusts for daylight savings time.

The RMR-166 will automatically activate its antenna upon battery insertion and should receive the US Atomic Clock signal in about 3 - 7 hours. However, if the RMR-166 is new allow up to 72 hours for the unit to receive the initializing signal. The strongest signal reception usually occurs between midnight and 4:00 AM. If the RMR-166 has not picked up a signal after 48 hours, remove the batteries, allow the unit to clear it settings and then reinsert the batteries. Once the RMR-166 has received the initializing signal, updates are accomplished with greater ease.

IMPORTANT: Do not adjust the time zone until AFTER the clock has picked up the signal.

NOTE: Signal Strength: The RMR-166, like other radio frequency equipment, is most effective when it is placed near a window. The RMR-166 may need to be moved or repositioned to receive a stronger signal. For better reception, place the clock away from metal objects and electrical appliances to minimize interference.

On the bottom line of the LCD screen, immediately to the left of the time display, is an icon indicating the signal reception strength is displayed. Please note that while the RMR-166 is receiving a signal, the "receiving" icon will flash; once the signal reception is complete, the icon will stop flashing.

Signal Strength Indicator Icons:

	- Strong Signal
	- Weak Signal
	- No Reception
	- Receiving Signal

CLOCK & CALENDAR FUNCTIONS

As the RMR-166 is an Radio Controlled™ clock, it does not need manual setting. However, instructions to set the clock manually are   included and follow:

Manually Setting the Clock:

1. Hold **[SET/MODE]** for three seconds. The LCD display will return to Time Display MODE 1 and the hour digits will flash.

2. Use **[▲]** to select the hour. When selecting the hour, be aware of the AM and PM designations. By pressing and hold ing the **[▲]** note that the value will increase or decrease very rapidly.

3. Press **[SET/MODE]** to save the hour selection. The minute digits will then begin to flash. Repeat the same steps, 1 and 2 above, to set the minutes, then the day-of-month, month, and day-of-the-week display language choice.

The time and date are displayed in 12-hour AM/PM format and MONTH/Day format, respectively. There are three choices for the day-of-the-week language display: English (E), Spanish (S) and French (F).

Press **[SET/MODE]** to bypass any function selection setting.

When function selection settings are complete, press **[SET/MODE]** to exit. The LCD screen will return to the display mode last chosen.

IMPORTANT: As soon as any manual setting changes are made to the clock, the signal strength display will indicate a loss of signal strength indicating that the clock is now running on manual settings instead of signals from the Atomic Clock. In this mode, it is very unlikely that RMR-166 will receive signals from the US Atomic Clock. To reactivate reception of the US Atomic Clock signal press **[RESET]** or remove the batteries to allow the unit to clear its settings and then reinsert the batteries.

SELECTING THE TIME ZONE

CAUTION: Do not press and hold **[ZONE]** for more than three seconds doing so will deactivate the automatic time signal reception capability. When the automatic time signal reception is disabled, no signal strength icon will be displayed. To reactive the time search, press and hold the **[▲]** for three seconds.

1. On the bottom line of the LCD screen there is a map outlining the United States that divides the United States into the four time zones.

2. Press and release **[ZONE]** to sequentially advance through the time zones from west to east.

3. The time zone selected will appear to be darkened on the map.

To see the time in a different time zone:

1. Press and release **[ZONE]** until the desired time zone will be shown darkened on the display panel. The correct time for that zone will automatically be displayed.

SETTING THE ALARM

1. Press the **[((.))]**. The ((.)) symbol will appear on the bottom line of the LCD screen lower left corner. The alarm time will also be displayed on the same line of the LCD screen.

2. Press and hold the **[((.))]** until the hour digits of the alarm time will begin to flash.

3. Press and release **[▲]** to increase the hour slowly or press and hold **[▲]** to rapidly advance the hour. When setting the hour, be aware of the AM or PM designation.

4. When the hour is set, press **[((.))]** again and the minute digits will begin to flash.

5. Press and release **[▲]** to increase the minutes slowly or press and hold **[▲]** to rapidly advance the minutes.

6. When the alarm time is set, press **[((.))]** and the alarm will automatically arm itself. When the alarm is active, a bell icon will be displayed on the LCD screen just above the ((.)). To disable the alarm, press **[ON/OFF]** until the bell icon disappears.

ACTIVATING/DISABLING THE ALARM

To turn the alarm on or off, press **[ON/OFF]**.

NOTE: When the alarm is on, the bell icon will appear in the lower left corner of the LCD. If the alarm is off, there will be no bell icon displayed.

To disable the alarm when the alarm sounds there are two ways to turn the alarm off:

1. Press **[((.))]**. The alarm will remain active but will not sound again for 24-hours.

2. Press **[ON/OFF].** The alarm will not sound again until reactivated.

IMPORTANT: If the alarm is not disabled by either option 1 or 2 above, the alarm will automatically go into "snooze" mode once, sound again after 8 minutes and then temporarily turn itself off until the next day.

SETTING THE DAY-OF-THE-WEEK LANGUAGE CHOICE

The RMR-166 has three language choices for displaying the day-of-the-week: English, Spanish, and French. To select the language display choice:

1. Press and hold **[MODE]** until the hour digits begin to flash.
2. Press **[MODE]** five (5) more times and a single letter ("E," "S," or "F") will be displayed next to the time.
3. Press **[▲]** until the desired language is displayed.
4. Press **[MODE]** one more time to lock in language selection and to return to normal time display mode.

PRECAUTIONS

This product has been designed and manufactured to give you years of service if it is carefully handled. Please follow these few precautions:

1. Do not immerse the unit in water.

2. Do not clean the unit with abrasive or corrosive materials. They may scratch the plastic parts and corrode the electronic circuit.

3. Do not subject the unit to excessive force, shock, dust, temperature or humidity, which may result in malfunction, shortened electronic life span, damaged battery and distorted parts.

4. Do not tamper with the unit's internal components. Doing so will invalidate the product warranty and may cause damage to the product. This product contains no user-serviceable parts.

5. Only use fresh batteries as specified in the user's manual. Do not mix new and old batteries as the old ones may leak.

6. Always read the user's manual thoroughly before operating the unit.

SPECIFICATIONS

Temperature Measurement

Main unit:

Indoor Temperature measurement

Proposed operating range:	23.0°F to 122.0°F
	(-5.0°C to +50.0°C)
Temperature resolution:	0.2°F (0.1°C)

Remote Temperature measurement

Temperature resolution:	0.2°F (0.1°C)

Remote Sensor:

Proposed operating range:	-4.0°F to 140.0°F
	(-20.0°C to +60.0°C)
RF Transmission Frequency:	433 MHz
Maximum Number of	
Remote Sensors:	3
RF Transmission Range:	Maximum 32.5 yards
	(30 meters)
Temperature sensing cycle:	Approximately 30 seconds

Radio Controlled Clock

Time set and synchronized by Radio Signal WWVB for USA

12hr Format of hh/mm/ss format

Date Format : Month/Day format

Day-of-week Language
Choice: English, Spanish, or French (E, F, S)

Display of Four US Time Zones with Date and Day

2-minute crescendo alarm

Power

Main unit:	2 pcs AA (UM-3) alkaline battery

Remote sensing unit:	2 pcs AA (UM-3) 1.5V alkaline battery

Weight

Main unit:	5.56 ounces (without battery) 159 g (without battery)
Remote sensing unit:	2.8 ounces (without battery) 80 g (without battery)

Dimension

Main unit:	5.66" (L) x 3.36" (W)x 0.98" (T) 141.5(L) x 84(W) x 24.5(T) mm
RemoteSensor:	4.2" (L) x 2.8" (W) x 0.84" (T) 105(L) x 70(W) x 21(T) mm

FCC :

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

■ Increase the separation between the equipment and receiver.

■ Consult the dealer of an experienced radio/TV technician for help.

Company Name: Oregon Scientific, Inc.

Address: 19861 SW 95th Place, Tualatin, Oregon 97062, USA

Telephone Number: 1-800-853-8883

Name and model number of the product:
Remote Thermometer RMR166

CUSTOMER ASSISTANCE

Should you require assistance regarding this product and its operation, please contact our customer care department at 800-853-8883 or via email at helpme@oscientific.com.

WARRANTY

This product is warranted to be free of manufacturing defects for a period of 1 year from date of retail purchase. Defective product

should be directed to the place of retail purchase for exchange. Should this not be possible, contact our customer care department for assistance and a return material authorization. No returns may be made without a return authorization. Please retain your retail receipt as you may be asked to provide a copy of it for proof of date purchased.

This warranty does not cover product subjected to abuse, misuse, accidental damage or tampering.

CAUTION

- The content of this manual is subject to change without further notice.
- Due to printing limitation, the displays shown in this manual may differ from the actual display.
- The contents of this manual may not be reproduced without the permission of the manufacturer.

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