

# MULTI-CHANNEL IN-OUT CABLE FREE THERMO-HYGROMETER

MODEL : EMR963HG

USER'S MANUAL

## INTRODUCTION

Congratulations on your purchase of Orogen Scientific's Cable-Free Thermo-Hygro sensor.

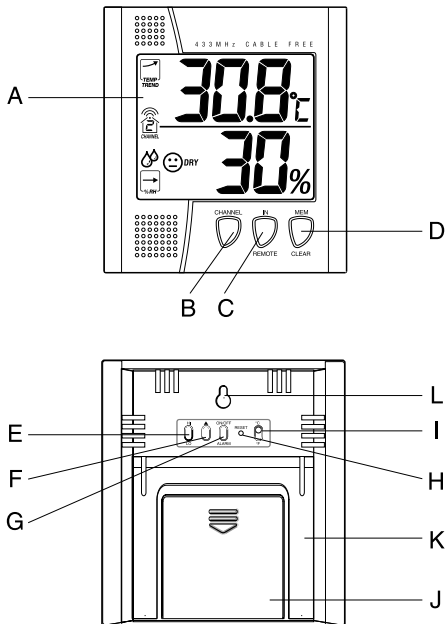
Enclosed with this package is one (1) main display unit and one (1) cable-free remote thermo-hygro sensor unit.

The main unit has an extra-large multifunction 2-line LCD that shows recordings for indoor and outdoor temperatures, humidity, maximum and minimum recordings and trend indicators. The unit supports up to three 433MHz remote thermo-sensors or thermo-hygro sensors. A variety of additional sensors can be purchased separately.

In addition to monitoring maximum and minimum temperature and humidity readings, the unit also has an alarm that can be set to activate once readings exceed a given variance.

No wire installation is required between the main and remote units. As the EMR963HG operates at 433MHz, it can be used in the U.S. and most places in Continental Europe.

## FEATURES: MAIN UNIT



- A Extra large two-line Liquid Crystal Display (LCD)**  
Multifunction display showing temperature and humidity, max./min. memory, and trend indicators for the main unit and remote sensors.
- B CHANNEL button**
- Selects among different channels
  - Activates remote sensor scanning mode
- C IN/REMOTE**
- Selects between the main-unit display and a selected remote unit
  - Activates search mode
- D MEM/CLEAR button**
- Recalls the maximum or minimum temperature and humidity readings
  - Clears the maximum and minimum temperature and humidity memory of remote sensor channels or the main unit display
- E HI/LO button**
- Set the upper or lower temperature alarm limits of individual channels
  - Confirms alarm settings
- F ▲ button**  
Sets the readings for the upper or lower temperature and humidity of individual channels
- G AL ON/OFF button**  
Activates or deactivates alarm
- H RESET**  
Returns all settings to default values and erases all memories

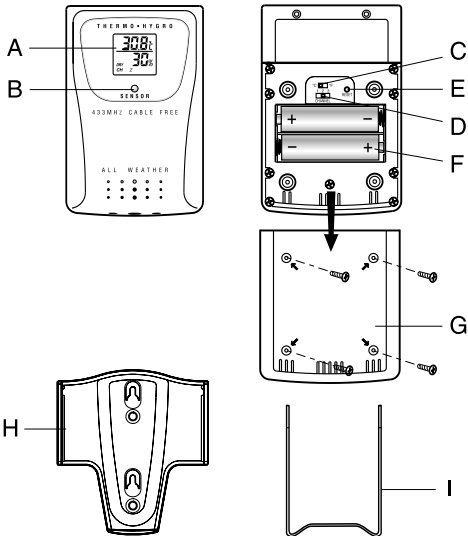
- I °C/°F slide switch**  
Selects between degree Centigrade (°C) and Fahrenheit (°F)
- J Battery compartment**  
Accommodates two AA-size batteries
- K Retractable table stand**  
For standing the main unit on a flat surface
- L Recessed Wall-mount hole**  
For mounting the main unit on a wall

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## FEATURES: REMOTE THERMO-HYGRO SENSOR

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- A Two-line LCD**  
Displays the current temperature and humidity monitored by the remote unit
- B LED indicator**  
Flashes when the remote unit transmits a reading
- C °C/°F slide switch**  
Selects between Centigrade (°C) and Fahrenheit (°F)
- D Channel slide switch**  
Designates the remote unit Channel 1, Channel 2 or Channel 3
- E RESET**  
Returns all settings to default values
- F Battery compartment**  
Accommodates two AA-size batteries
- G Battery door**



#### H Wall-mount holder

Supports the remote unit in wall-mounting

#### I Removable table stand

For standing the remote unit on a flat surface

## BEFORE YOU BEGIN

To ensure proper functioning of the EMR963HG follow this setup procedure.

#### For best operation:

1. Assign different channels to different remote units.
2. Insert batteries for remote units before doing so for the main unit (see instructions for battery installation).
3. Place the main unit as close as possible next to the remote unit, reset the main unit after installing batteries. This will ensure easier synchronization between the transmission and reception of signals.
4. Position the remote unit and main unit within effective transmission range, which, in usual circumstances, is 20 to 30 meters.

*Note that the effective range is vastly affected by the building materials and where the main and remote units are positioned. Try various set-ups for best result.*

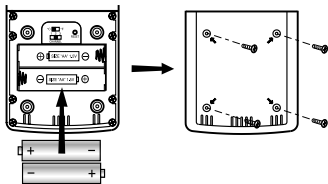
Though the remote units are weather proof, they should be placed away from direct sunlight, rain or snow.

## BATTERY AND CHANNEL INSTALLATION: REMOTE UNIT

The remote thermo-hygro sensor unit uses two (2) UM-3 or "AA" size alkaline batteries.

### Follow these steps to install / replace batteries:

1. Remove the screws on the battery compartment.
2. Select the channel number on the **CHANNEL** slide switch.
3. Select the temperature display unit on the °C/°F slide switch.



4. Insert the batteries strictly according to the polarities shown therein.
5. Replace the battery compartment door and secure its screws.

Replace the batteries when the low-battery indicator of the particular channel lights up on the main unit. (Repeat the steps described in section “BEFORE YOU BEGIN”)

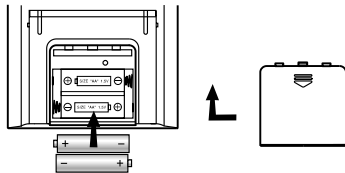
*Note that once a channel is assigned to a remote unit, you can only change it by removing the batteries or resetting the unit.*

## BATTERY INSTALLATION: MAIN UNIT

The main unit uses two (2) UM-3 or “AA” size alkaline batteries.

### Follow these steps to install / replace batteries:

1. Slide open the battery compartment door.
2. Insert the batteries strictly according to the polarities shown therein.
3. Replace the battery compartment door.



Replace the batteries when the low-battery indicator of the indoors temperature lights up. (Repeat the steps described in section “BEFORE YOU BEGIN”)



*If not disposed of properly, batteries can be harmful. Protect the environment by taking exhausted batteries to authorized disposal stations.*

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## GETTING STARTED

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Once batteries are placed in a given remote sensor unit, it will start transmitting information at 40-second intervals.

Also, for approximately a 3-minute duration, the main unit will automatically search for signals once batteries are installed. Upon successful reception, the individual channel temperature reading will be displayed on the top line and the respective humidity reading on the bottom line. The main unit will automatically update its readings at about 40-second intervals.

If no signals are received, blanks " --- " will be displayed and the kinetic wave icon will not show.

### To force a signal search:

- Press and hold **IN/REMOTE** for 2-seconds to enforce a 3-minute search.

This is useful in synchronizing the transmission and reception of the remote and main units.





Repeat this step whenever you find discrepancies between the reading shown on the main unit and that on the respective remote unit.

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## HOW TO CHECK REMOTE AND INDOORS TEMPERATURES

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Display of readings from a remote sensor or the main unit is a one-step procedure. The remote sensor channel or the main unit display is indicated in a box under the kinetic-wave icon.

<b>Kinetic-wave Icon</b>				
<b>Designated Display</b>	Indoor Display	Remote Display Channel One	Remote Display Channel Two	Remote Display Channel Three

### To display temperature / humidity readings from the main unit:

- Press **IN/REMOTE** until a dot is displayed in the box under the kinetic-wave.

### To display temperature / humidity readings from a remote sensor:

- Press **CHANNEL** until the appropriate remote sensor channel is displayed in the box under the kinetic-wave.

If no readings are received from one particular channel for more than 15 minutes, blanks " --- " will be displayed until further readings are successfully searched. Check the remote sensor to ensure that it is secure and that the correct channel has been selected. Optionally, press and hold **IN/REMOTE** for 2-seconds to enforce a search.

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## HOW TO READ THE KINETIC-WAVE DISPLAY

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The kinetic-wave display shows the signal-receiving status of the main unit. There are three possible forms:

The unit is in searching mode.	
Transmission data are securely registered.	
No signals.	

## THE COMFORT-LEVEL ICONS

The comfort level is based on the recorded relative humidity. An indicator will be displayed to show if the level is comfortable, wet or dry.

Comfort-level			
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## TEMPERATURE AND HUMIDITY TREND INDICATORS

The temperature-trend and humidity-trend indicators show the trends of collected readings. Arrows indicate a rising, steady or falling trend.

Arrow indicator			
Temperature Trend	Rising	Steady	Falling

Arrow indicator			
Humidity Trend	Rising	Steady	Falling

*Note: If the temperature goes above or below the temperature measuring range of the main unit or the remote unit (stated in specification), the display will show "HHH" or "LLL".*

## REMOTE SENSOR SCANNING

The unit can be set to automatically scan and display readings from the remote sensors. When the remote-sensor mode is active, the display will show the readings from one channel for about 4-second and then proceed to the next channel display.

**To activate the remote-sensor scanning mode:**

- Press and hold **CHANNEL** for 2-seconds.

### To deactivate the remote-sensor scanning mode:

- Press any button.

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## MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY

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The maximum and minimum recorded temperature and humidity readings will automatically be stored in the memory.

### To display the maximum and minimum display memory:

1. Select the channel to be checked.
2. Press **MEM/CLEAR** once to display the maximum temperature and again the minimum temperature. The respective indicators, MAX or MIN will be displayed.

### To clear the memory:

- Press and hold **MEM/CLEAR** for 2-seconds.

If you press **MEM/CLEAR** now, the maximum and minimum temperatures will have the same values as the current ones until different readings are recorded.

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## HOW TO USE CHANNEL-1 TEMPERATURE/HUMIDITY ALARM

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Upper and lower temperature and humidity limits for channel-1 can be set so that an alarm activates when the limits are exceeded.

The high and low temperature and humidity displays are selected by sequentially pressing **HI/LO**.

### The high-low displays are as follows:

Sequence	Respective Display
Pressing <b>HI/LO</b> once	Enters HI temperature display
Pressing <b>HI/LO</b> twice	Enters HI humidity display
Pressing <b>HI/LO</b> three times	Enters LO temperature display
Pressing <b>HI/LO</b> a four time	Enters LO humidity display

### To set a high or low temperature or humidity alarm:

1. Press **HI/LO**, channel-1 will be displayed.
2. Press **▲** to set the temperature or humidity limit. Each press will increase increments by one degree or percentage. Press and hold the button for a rapid-scrolling sequence by increments of five.

**Note:**

The **temperature** range is from  $-50^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ ) to  $+70^{\circ}\text{C}$  ( $158^{\circ}\text{F}$ ).

If this is the first time you set the limits, the lower limit will start from  $-50^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ ) and the upper limit  $+70^{\circ}\text{C}$  ( $158^{\circ}\text{F}$ ). Otherwise, the reading will start from the temperature last selected.

The **humidity** range is from 2% to 98%.

If this is the first time you set the limits, the lower limit will start from 2% and the upper limit 98%. Otherwise, the reading will start from the humidity last selected.

3. Repeat the steps to set the upper humidity setting and the lower temperature and humidity settings.
4. When finished, press **HI/LO** to set another limit or wait 16-seconds and the unit will automatically return to the normal display. The respective HI, LO or both indicators will light up to signify the status of the alarm.

If in another channel other than channel one is selected, when the alarm activates the display will switch to channel-1 and the display will flash. If left untouched, the alarm will activate for a 1-minute. Press any key to momentarily stop the alarm. The alarm will activate again if the limit continues exceeds the set limit.

**Note:** If a second limit is passed while an alarm is active, the first alarm will complete its 1-minute cycle and the alarm will continue to activate for a second minute to indicate that a second limit has been surpassed.

**To disable an alarm:**

1. Enter the setting mode by pressing **HI/LO**.
2. Then, press **AL ON/OFF**.

The alarm has been disabled and will not sound at the previously set limit.

**To disable a sounding alarm:**

- Press any button, the alarm sound will stop.

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## DISCONNECTED SIGNALS

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If without obvious reasons the display for a particular channel goes blank, press **IN/REMOTE** to enforce an immediate search.

**If that fails, check:**

1. The remote unit of that channel is still in place.
2. The batteries of both the remote unit and main unit. Replace as necessary.

*Note that when the temperature falls below freezing point, the batteries of outdoor units will freeze, lowering their voltage supply and the effective range.*

3. The transmission is within range and path is clear of obstacles and interference. Shorten the distance when necessary.



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## TRANSMISSION COLLISION

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Signals from other household devices, such as door bells, home security systems and entry controls, may interfere with those of this product and cause temporarily 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 recedes.

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## NOTE ON °C AND °F

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The unit of temperature display is selected on the °C/°F slide switch. Select °C for Centigrade or °F for Fahrenheit.

*Note that the remote temperature display on the main unit is dominated by the selection on the °C/°F slide switch of the main unit. Whatever the display units of the remote sensors are, they will be automatically converted to the chosen one of the main unit.*

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## LOW BATTERY WARNING

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When it is time to replace batteries, the respective low-battery indicator will show up when the respective channel is selected. The battery level of the main unit will be shown on the indoor temperature when it is running low.

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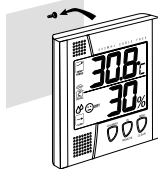
## HOW TO USE THE TABLE STAND OR WALL MOUNTING

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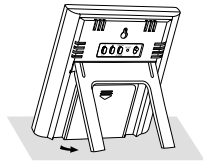
The main unit has a retractable table stand, which when flipped open, can support the unit on a flat surface. Or you can flip close the stand and mount the unit on a wall using the recessed screw hole.

As for the remote unit, it comes with a wall-mount holder and a removable stand. Use either to hold the unit in place.

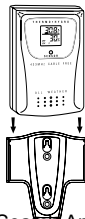
**Main unit**    **Wall-mount**



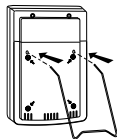
**Table Stand**



**Remote unit**    **Wall-mount**



**Table Stand**



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## THE RESET BUTTON

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This button is only used when the unit is operating in an unfavorable way or malfunctioning. Use a blunt stylus to hold down the button. All settings will return to their default values.

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## PRECAUTIONS

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This product is engineered to give you years of satisfactory service if you handle it carefully. Here are a 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, shorter electronic life span, damaged battery and distorted parts.
4. Do not tamper with the unit's internal components. Doing so will invalidate the warranty on the unit and may cause unnecessary damage. The unit 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.

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## SPECIFICATIONS

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### Main unit

Display temperature range : -50.0° C to 70.0° C  
(-58.0° F to 158.0° F)

Proposed operating range : - 5.0° C to 50.0° C  
( 23.0° F to 122.0° F)

Temperature resolution : 0.1° C to ( 0.2° F)

Temperature compensation : -10.0° C to 60.0° C  
(14.0° F to 140.0° F)

Relative Humidity : 25% RH to 90% RH  
Operating range

### Remote thermo-hygro unit

Display temperature range : -50.0° C to 70.0° C  
(-58.0° F to 158.0° F)

Proposed operating range : -20.0° C to 60.0° C  
( -4.0° F to 140.0° F)

Temperature resolution : 0.1° C to ( 0.2° F)

Temperature compensation : -10.0° C to 60.0° C  
(14.0° F to 140.0° F)

Relative Humidity : 25% RH to 90% RH  
Operating range

## **General**

RF Transmission Frequency	: 433 MHz
No. of Remote unit	: Maximum of 3
RF Transmission Range	: Maximum 30 meters
Temperature compensation	: 0.1° C to ( 0.2°F)
Temperature sensing cycle	: around 40 seconds

## **Power**

Main unit	: 2 pcs UM-3 or “AA” 1.5V alkaline battery
Remote sensing unit	: 2 pcs UM-3 or “AA” 1.5V alkaline battery

## **Weight**

Main unit	: 159.5 gm
Remote sensing unit	: 63 gm

## **Dimensions**

Main unit	: 117 x 107 x 26 mm
Remote sensing unit	: 92 x 60 x 20 mm

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## **NOTE ON COMPLIANCE**

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This product complies to standards and specifications of BZT, FCC and article number 334 of PTT.

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is needed.
- Consult the dealer of an experienced radio/TV technician for help.

## 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 manufacturer and its suppliers held no responsibility to you or any other person for any damage expenses, lost profits, or any other claim arise by using this product.
- The contents of this manual may not be reproduced without the permission of the manufacturer.

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## WARRANTY

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This product is warranted to be free of defects in manufacturing for 90 days after purchase. For technical support please call 800-853-8883 (Monday - Friday, 8am-5pm PST). Defective product returns should be directed to the place of retail purchase. If this is not possible all direct returns must include a Return Authorization Number from Oregon Scientific, together with proof of purchase date, your name and address, shipped prepaid to Oregon Scientific Inc., 19861 SW 95th Place, Tualatin, Oregon 97062

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



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