WS-8418U-IT
ATOMIC CLOCK WITH OUTDOOR WIRELESS TEMPERATURE AND MOON PHASE

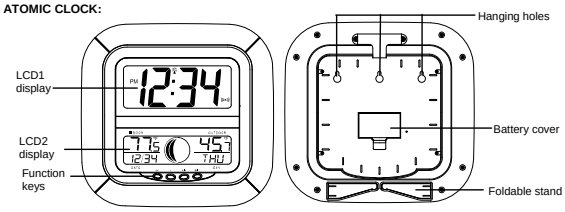
Instruction Manual

This product offers:

INSTANT TRANSMISSION **is the state-of-the-art new wireless transmission technology, exclusively designed and developed by LA CROSSE TECHNOLOGY.** ***INSTANT TRANSMISSION*** **offers you an immediate update (every 4 seconds!) of all your outdoor data measured from the transmitters: follow your climatic variations in real-time!**

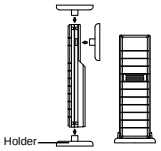
FEATURES:

ATOMIC CLOCK:



- WWVB Radio controlled time with manual time setting
- 12/24 hour time display
- Time display: hour, minute, second optional
- Alarm setting with snooze function
- Calendar display
- Weekday display (4 languages to choose from: English, French, Spanish, and German)
- Time zone setting
- Daylight savings time ON/OFF option (DST)
- ºF or ºC temperature display selectable
- Indoor temperature display
- Outdoor temperature display via 915MHz transmission
- Wall mount or freestanding
- Current moon phase display

OUTDOOR TEMPERATURE SENSOR:



- Remote transmission of outdoor temperature to the atomic clock by 915 MHz signals
- Wall mounting case

TO INSTALL AND REPLACE BATTERIES IN THE ATOMIC CLOCK

The atomic clock uses 2 x AA, 1.5V batteries. To install and replace the batteries, please follow the steps below:

1. Insert finger or other solid object in the space at the bottom center of the battery compartment and lift up to remove the cover.
2. Insert batteries observing the correct polarity (see marking inside battery compartment).
3. Replace compartment cover.

DO NOT SET THE CLOCK.

TO INSTALL AND REPLACE BATTERIES IN THE TEMPERATURE SENSOR

The sensor uses 2 x AA,1.5V batteries. To install and replace the batteries, please follow the steps below:

1. Remove the cover.
2. Insert the batteries, observing the correct polarity (see marking inside battery compartment).
3. Replace the battery cover on the unit.

Alkaline batteries are recommended for use in both units. Avoid using rechargeable batteries.

SETTING UP:

Alkaline batteries are recommended for use in both units. Avoid using rechargeable batteries.

NOTE: Do not set the clock until the outdoor temperature is displayed.

1. Place batteries in the outdoor sensor first, then into the atomic clock. **DO NOT PRESS ANY BUTTONS FOR 10 MINUTES**.
2. Once the batteries are in place, all segments of the LCD will light up briefly. Following the indoor temperature, date, weekday, and the time, as 12:00, will be displayed. If they are not shown in LCD after 60 seconds, remove the batteries and wait for at least 60 seconds before reinserting them. Once the indoor data is displayed user may proceed to the next step.
3. After the batteries are inserted, the atomic clock will start receiving data signal from the sensor. The outdoor temperature should then be displayed on the atomic clock. If this does not happen after 2 minutes, the batteries will need to be removed from both units and reset from step 1 and the signal reception icon is no longer shown.

Note:
In the event of changing batteries in the unit, ensure that the batteries do not spring free from the contacts. Always wait at least 10 minutes after removing the batteries before reinserting, otherwise start up and transmission problems may occur.

FUNCTION KEYS

The atomic clock has four easy to use keys:

SET key : To enter into the set mode for the following functions: time zone, DST ON/OFF (daylight saving time), language, hour, minute, year, month, day, weekday, 12/24 hour, ºC or ºF temperature display

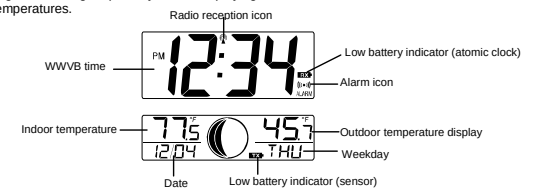
+ key : To toggle between the second, temperature or weekday display
To change any values in manual set mode
To change values in alarm set mode

ALM key : To enter into the alarm set mode
To display the alarm time in normal mode display
To set the alarm ON/OFF

SNZ key : To activate the snooze function during alarm
To exit the setting modes

ATOMIC CLOCK LCD SCREEN DESCRIPTIONS

The atomic clock's LCD is divided into 2 sections and once the batteries are inserted, all the segments will light up briefly before displaying the information for time, date, indoor and outdoor temperatures.



MANUAL SETTINGS

Note:
If the atomic clock has already successfully received the WWVB time signal and displays the correct time and date, then the Manual settings can be skipped.

After completion of the above-described procedures in "**Setting up"** the manual setting modes can be entered by pressing and holding the **SET** key for 3 seconds. The following settings can now be programmed:

- Time zone setting
- DST ON/OFF
- Language display setting

- Manual time setting
- Year setting
- Month setting
- Date setting
- Weekday setting
- 12/24 hour time display setting
- ºF or ºC setting

TIME ZONE SETTING
After entering the manual setting mode as described above, the time zone can be set between the +12 to –12 hour or Greenwich Mean Time (GMT) range in LCD2. To do this:

1. The time zone (LCD2) will start flashing (Default setting "-5h"). Select the desired time zone by pressing and releasing the **+** key.

Note: North American Time Zones are negative numbers. The time zones from –4 to –10 hours will be displayed with 3 characters abbreviations:
- -4 ATL (Atlantic time),
- -5 EST (Eastern time; default time zone),
- -6 CST (Central time),
- -7 MST (Mountain time),
- -8 PST (Pacific time),
- -9 ALA (Alaska time),
- -10 HAW (Hawaii time).
- "GMT" will be displayed if set to GMT (0).

2. Press and release the **SET** key to enter the **"DST Setting"**.

DST SETTING (daylight saving time)
1. The ON digit will start flashing on LCD1. Set the DST ON or OFF by pressing the **+** key.
2. Press and release the **SET** key to enter the **"Language Setting"**.

Note:
The DST default is "ON", meaning that the WWVB will automatically change the time according to Daylight Saving Time in the spring and fall. For areas that do not recognize DST changes (Arizona and parts of Indiana) turn the DST "OFF".

LANGUAGE SETTING
The weekdays can be displayed in LCD1 with the pre-set languages: US English, French, Spanish and German (US, F, E, d).
1. Set the desired language for the weekday display in LCD1 by use of the **+** key.
2. Press and release the **SET** key to enter the mode **"Manual Time Setting"**.

MANUAL TIME SETTING
In case the atomic clock is not able to detect the WWVB-signal (disturbances, transmitting distance, etc.), the time can be manually set. The clock will then work as a normal Quartz clock.

Note: In 12 hours mode the time will be displayed with an additional **"PM"** for the time from 12:00 noon until 11:59.
1. The hour digits will start flashing on LCD1.
2. Set the desired hours by pressing and releasing the **+** key followed by pressing the **SET** key.
3. Now the minute digits will start flashing.
4. Set the desired minutes by pressing and releasing the **+** key. If the **+** key is held, the units will increase by 5.
5. Press and release the **SET** key to move to the **"Year Setting"**.

Note:
The unit will still try and receive the signal every day despite it being manually set. When it does receive the signal, it will change the manually set time into the received time. During reception attempts the WWVB tower icon will flash. If reception has been unsuccessful, then the WWVB tower icon will not appear but reception will still be attempted the next hour.

WWVB reception occurs daily at 12:00 am and 06:00 am. If the reception is not successful at 12:00 am, then the next reception takes place the next hour and so on until 06:00am, or until the reception is successful. If the reception is not successful at 06:00 am, then the next attempt will take place the next day at 12:00 am.

The other times WWVB reception takes place are upon setup and after manual time set exiting mode. Reception is generally not possible during daylight hours due to the interference of the sun.

YEAR SETTING
The year can be selected sequentially from 2001 to 2029 and will then start over again (default setting 2006). Only the last 2 digits of the year will be visible on LCD2.
1. The year digits will start flashing on LCD2. Select the desired year by use of the **+** key.
2. Press and release the **SET** key to switch to the **"Month Setting"**.

MONTH SETTING
1. The month digits on LCD2 will start flashing. Set the desired month by use of the **+** key.
2. Press and release the **SET** key to move to the mode **"Date Setting"**.

DATE SETTING
1. The digits for the date will start flashing on LCD2 (Default setting 1). Set the desired date by use of the **+** key.
   Note: The date can only be set in conjunction with the selected month. For example, it is not possible to set the date 30 if the month of February is selected.
2. Press and release the **SET** key to enter the **"Weekday Setting".**

WEEKDAY SETTING
1. The weekday symbols will be displayed on LCD2 in the pre-set language and flashing. Set the desired weekday by use of the **+** key.
2. Press and release the **SET** key to enter the mode **"12/24 Hours Time Display Setting"**.

12/24 HOURS TIME DISPLAY SETTING
1. The **"12h"** or **"24h"** will start flashing in LCD1 (Default setting 12h). Select the desired time display mode by use of the **+** key.
2. Press and release the **SET** key to enter the **"ºF/ºC Temperature Setting"**.

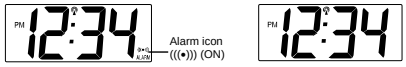
ºF OR ºC TEMPERATURE SETTING
1. The characters **"ºF"** or **"ºC"** will start flashing on LCD1 (Default setting °F). Using the **+** key, select **"ºC"** for temperature display in degrees Celsius or **"ºF"** for degrees Fahrenheit.
2. Press and release the **SET** key to exit the setting mode and switch back to the normal display mode.

EXIT THE MANUAL SETTING MODES
- To return to the normal display mode from anywhere in manual setting mode simply press the **SNZ** key anytime.

- If no keys are pressed for at least 15 seconds in setting mode, the atomic clock will automatically switch back to normal display mode.

ALARM SETTING
To enter into the alarm setting mode:
1. Hold the **ALM** key for 4 seconds. The hour digits start flashing.
2. Press and release the **+** key to set the hour.
3. Press and release the **ALM** key to set the minutes. The minute digits start flashing.
4. Press and release the **+** key to set the minutes.
5. Press and release again the **ALM** key to exit the Alarm setting mode or wait for 15 seconds automatic timeout.

TO DEACTIVATE THE ALARM:



The alarm will be automatically ON when the alarm time is set. To deactivate the alarm (OFF), press and release once the **ALM** key in normal mode display. The alarm icon will disappear, the alarm is now off.

SNOOZE SETTING
The snooze can only be activated during alarm time for a snooze duration of 10 minutes by pressing the SNZ key on the back of the clock

OUTDOOR TEMPERATURE SENSOR:
The temperature is measured and transmitted to the atomic clock every 4 seconds. The atomic clock will update the outdoor temperature display every 4 seconds.
The range of the outdoor temperature sensor may be affected by the temperature. At cold temperatures, the transmitting distance may be decreased. Please bear this in mind when positioning the sensor. Also, the batteries may be reduced in power during periods of extreme cold temperatures.

915MHz RECEPTION CHECK FOR OUTDOOR TEMPERATURE SENSOR

The atomic clock will receive the temperature data within 3 minutes. If the temperature data is not being received 3 minutes after setting up (the display shows "- - -"), then please check the following points:

1. The distance of the atomic clock or outdoor temperature sensor should be at least 6 feet (2 meters) away from any interfering sources such as computer monitors or TV sets.
2. Avoid placing the receiver onto or in the immediate proximity of metal window frames.
3. Using other electrical products such as headphones or speakers operating on the same signal frequency (915MHz) may prevent correct signal transmission and reception.
4. Neighbors using electrical devices operating on the 915MHz signal frequency can also cause interference.

Note:
When the 915 MHz signal is received correctly, do not re-open the battery cover of either the outdoor temperature sensor or atomic clock, as the batteries may spring free from the contacts and force a false reset. Should this happen accidentally then reset all units (see **Setting up** above) otherwise transmission problems may occur.

The maximum transmission range is 330 feet (100 meters) from the outdoor temperature sensor to the atomic clock (in open space). However, this depends on the surrounding environment and interference levels. If no reception is possible despite the observation of these factors, all system units have to be reset (see **Setting up**).

CHANGING THE DISPLAY MODE (DAY, SECONDS, AND TEMPERATURES)

There are 4 possible display modes to view the day, seconds, and temperatures.
The *month&date/weekday/indoor temperature/outdoor temperature is the default.*

To change the display:

1. Press the + key. The display should now show the *month&date/weekday/seconds/outdoor temperature.*
2. Press the + key a second time and the display will show the *month&date/weekday/indoor temperature/seconds.*
3. Press the + key a third time and the display will show the *month&date/seconds/indoor temperature/outdoor temperature.*
4. Press the + key a fourth time and the display will return to the normal display.

WWVB RADIO CONTROLLED TIME

The NIST radio station, WWVB, is located in Ft. Collins, Colorado and transmits the exact time signal continuously throughout the United States at 60 kHz. The signal can be received up to 2,000 miles away through the internal antenna in the atomic clock. However, due to the nature of the Earth's Ionosphere, reception is very limited during daylight hours. The atomic clock will search for a signal every night when reception is best. The WWVB radio station derives its signal from the NIST atomic clock in Boulder, Colorado. A team of atomic physicists continually measures every second of every day to an accuracy of ten billionths of a second a day. These physicists have created an international standard, measuring a second as 9,192,631,770 vibrations of a Cesium 133 atom in a vacuum. This atomic clock regulates the WWVB transmitter.

Once the outdoor temperature is displayed on the atomic clock, the WWVB tower icon in the clock display will start flashing in the top center of the LCD. This indicates that the clock has detected a radio signal and is trying to receive it. When the time code is received, the WWVB tower becomes permanently lit and the time will be displayed.

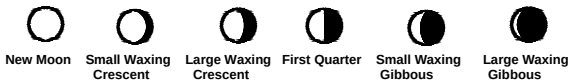
If the tower icon flashes, but does not set the time or the WWVB tower does not appear at all, then please take note of the following:

- Recommended distance to any interfering sources like computer monitors or TV sets is a minimum of 6 feet (2 meters).
- Within ferro-concrete rooms (basements, superstructures), the received signal is naturally weakened. In extreme cases, please place the unit close to a window and/ or point its front or back towards the Fort Collins, Colorado, transmitter.
- During nighttime, the atmospheric disturbances are usually less severe and reception is possible in most cases. A single daily reception is adequate to keep the accuracy deviation below 1 second.

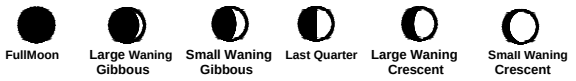
Note:
In case the atomic clock is not able to detect the WWVB-signal (disturbances, transmitting distance, etc.), the time can be manually set (please refer to notes on **Manual time setting**).

MOON PHASE

The Moon Phases and their corresponding dates appear in LCD 2. There are 12 visible Moon Phases that will show in the LCD 2:



New Moon | **Small Waxing Crescent** | **Large Waxing Crescent** | **First Quarter** | **Small Waxing Gibbous** | **Large Waxing Gibbous**



FullMoon | **Large Waning Gibbous** | **Small Waning Gibbous** | **Last Quarter** | **Large Waning Crescent** | **Small Waning Crescent**

POSITIONING

Before permanently mounting ensure that the atomic clock is able to receive WWVB signals from the desired location. Also, extreme and sudden changes in temperature will decrease the accuracy of the atomic clock, and changes in elevation will result with inaccurate temperatures readings for the next 12 to 24 hours. These changes will require a 12 to 24 hour wait before obtaining reliable data.

To achieve a true temperature reading, avoid mounting where direct sunlight can reach the outdoor temperature sensor. It is recommended to mount the outdoor temperature sensor on a North-facing wall or in any well shaded area. The maximum transmitting range is 330 feet (100 meters) obstacles such as walls, concrete, and large metal objects can reduce the range.

Place both units in their desired location, and wait approximately 10 minutes before permanently mounting to ensure that there is proper reception. The outdoor temperature sensor is not waterproof and should not be placed anywhere it will become submerged in water or be directly in the rain.

POSITIONING THE ATOMIC CLOCK:

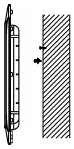
There are two possible ways to mount the atomic clock:

- use of the foldout table stands, or
- wall mounting

FOLDOUT TABLE STANDS

The foldout table stands are located on the backside. Pull the stands out from the bottom center edge of the atomic clock, below the battery compartment. Once the foldout table stands are extended, place the atomic clock in an appropriate location.

WALL MOUNTING



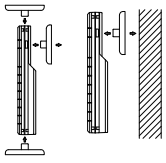
1) Using a straightedge, horizontally space three screw positions on a wall.
2) Install three mounting screws (not included) into a wall within transmission range—leaving approximately 3/16 of an inch (5mm) extended from the wall.
3) Place the atomic clock onto the screws, using the hanging holes on the backside. Gently pull the atomic clock down to lock the screws into place.

Note:
Always ensure that the atomic clock locks onto the screws before releasing.

POSITIONING THE OUTDOOR TEMPERATURE SENSOR

The remote temperature sensor can be mounted with the use of screws

MOUNTING WITH SCREWS



1) Remove the mounting bracket from the remote temperature sensor.
2) Place the mounting bracket over the desired location.
3) Through the three screw holes of the bracket, mark the mounting surface with a pencil.
4) Screw mounting bracket onto the mounting surface. Ensure that the screws are flush with the bracket.
5) Insert the remote temperature sensor into the bracket.

TROUBLESHOOTING

Problem:	The LCD is faint.
Solution:	1) Replace the batteries.
Problem:	No reception of WWVB signal
Solution:	1) It may help reception to face the front of the atomic clock in the general direction of Ft. Collins, Colorado. 2) Wait overnight for signal. 3) Be sure the atomic clock is at least 6 feet (2 meters) from any electrical devices, i.e. TV sets, computers, or other radio controlled clocks. 4) Remove batteries for five minutes, reinsert and leave the unit alone overnight without pressing any keys.
Problem:	Hour is incorrect (minute and date are correct).
Solution:	1) Be sure the correct time zone and daylight saving time are selected.
Problem:	"OF.L" appears in the indoor temperature section of the LCD
Solution:	1) Move the atomic clock to an area with warmer or cooler surrounding temperature. Current surrounding temperatures are outside measuring range. 2) Change batteries.
Problem:	"--.-" appears in the outdoor temperature section of the LCD.
Solution:	1) Remove the batteries of both units for ten minutes, then reinsert them again. Make sure the batteries are new and fresh. 2) Move the atomic clock closer to the sensor or place the sensor closer to the atomic clock. Make sure the clock is at a receivable range from the sensor. 3) Move the units to another location. Interferences from other electrical devices operating on the same signal frequency (915MHz) may prevent correct signal transmission and reception.
Problem:	"OF.L" appears in the outdoor temperature section of the LCD.
Solution:	1) Wait until the current surrounding temperature cools down or increases. Current temperature is outside of the measuring range of the sensor. The outdoor temperature will be displayed again once the current surrounding temperature is within the range of the sensor. 2) Change Batteries 3) Please see all basic troubleshooting info as well

MAINTENANCE AND CARE INSTRUCTIONS

- Extreme temperatures, vibration, and shock should be avoided to prevent damage to the units.
- Clean displays and units with a soft, damp cloth. Do not use solvents or scouring agents; they may mark the displays and casings.
- Do not submerge in water.
- Immediately remove all low powered batteries to avoid leakage and damage.
- Opening the casings invalidates the warranty. Do not try to repair the unit. Contact La Crosse Technology for repairs.
- Do not make any repairs to the units. Please return it to the original point of purchase. Opening and tampering with the units may invalidate the warranty.

SPECIFICATIONS:

Temperature measuring range
Indoor : 14.1ºF to 100ºF with 0.2ºF resolution
-9.9ºC to +37.8ºC with 0.1ºC resolution
("OF.L" displayed if outside this range)
Outdoor : -39.9ºF to +139.8ºF with 0.2ºF resolution
-39.8ºC to +59.9ºC with 0.1ºC resolution
("OF.L" displayed if outside this range)
Temperature checking interval
Indoor : every 20 seconds
Outdoor : every 4 seconds
Transmission distance : maximum 330 feet (100 meters) in open field
Power source (Alkaline batteries recommended)
Atomic clock : 2 x AA, 1.5V batteries
Sensor : 2 x AA, 1.5V batteries
Battery life : about 24 months
Dimensions (L x W x H)
Atomic clock : 10.25“ x 1.16“ x 9.74“ / 260.6 x 29.5 x 247.5mm
Sensor : 5.05“ x 1.50“ x 0.83“ / 128.3 x 38.2 x 21.2 mm

WARRANTY INFORMATION

La Crosse Technology, Ltd provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and used in North America and only to the original purchaser of this product. To receive warranty service, the purchaser must contact La Crosse Technology, Ltd for problem determination and service procedures. Warranty service can only be performed by a La Crosse Technology, Ltd authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to La Crosse Technology, Ltd or La Crosse Technology, Ltd's authorized service center.

La Crosse Technology, Ltd will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of La Crosse Technology, Ltd and must be returned to La Crosse Technology, Ltd. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer. La Crosse Technology, Ltd will pay all expenses for labor and materials for all repairs covered by this warranty. If necessary repairs are not covered by this warranty, or if a product is examined which is not in need or repair, you will be charged for the repairs or examination.

The owner must pay any shipping charges incurred in getting your La Crosse Technology, Ltd product to a La Crosse Technology, Ltd authorized service center. La Crosse Technology, Ltd will pay ground return shipping charges to the owner of the product to a USA address only.

Your La Crosse Technology, Ltd warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage occurring during shipment (claims must be presented to the carrier); (3) damage to, or deterioration of, any accessory or decorative surface; (4) damage resulting from failure to follow instructions contained in your owner's manual; (5) damage resulting from the performance of repairs or alterations by someone other than an authorized La Crosse Technology, Ltd authorized service center; (6) units used for other than home use (7) applications and uses that this product was not intended or (8) the products inability to receive a signal due to any source of interference.. This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

LA CROSSE TECHNOLOGY, LTD WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT. THIS PRODUCT IS NOT TO BE USED

FOR MEDICAL PURPOSES OR FOR PUBLIC INFORMATION. THIS PRODUCT IS NOT A TOY. KEEP OUT OF CHILDREN'S REACH.

This warranty gives you specific legal rights. You may also have other rights specific to your State. Some States do no allow the exclusion of consequential or incidental damages therefore the above exclusion of limitation may not apply to you.

For warranty work, technical support, or information contact:

La Crosse Technology
2809 Losey Blvd. S.
La Crosse, WI 54601
Phone: 608.782.1610
Fax: 608.796.1020

e-mail:
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(warranty work)

sales@lacrossetechnology.com
(information on other products)

web:
www.lacrossetechnology.com

Questions? Instructions? Please visit:
www.lacrossetechnology.com/8418it