WIRELESS 868 MHz WEATHER STATION

Instruction Manual

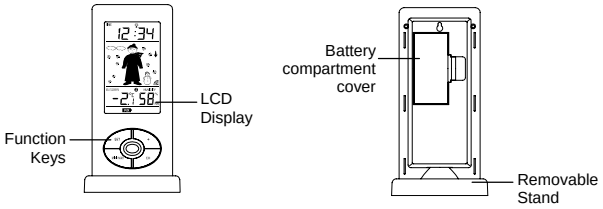
INTRODUCTION:

Congratulations on purchasing this fancy Weather station with wireless 868MHz transmission.It not only displays the indoor temperature and humdity but also receives the outdoor data. It is further acting as a DCF-77 radio controlled clock. With the totally 15 different weather forecast icons featured by "weather man", users can easily observe the forecast weather condition and will no longer worry the sudden weather change. This innovative product is ideal for use in the home or office.

« Instant Transmission+» is the up and coming state-of-the-art new wireless transmission technology, exclusively designed and developed by LA CROSSE TECHNOLOGY.
"IT +" offers you an immediate update of all your outdoor data measured from the transmitters: follow your climatic variations in real-time!

FEATURES:

The Weather station



- DCF-77 Radio controlled time with manual setting options
- DCF Time reception ON/OFF
- 12/24 hour display
- Hour and minute display
- Time zone option ±12 hours
- Wireless transmission at 868 MHz
- Display indoor temperature and humidity
- Display outdoor temperature and humidity (3 channels)
- Outdoor Signal reception intervals at 16-second
- Weather forecasting with 15 easy-to-read weather forecast signs featured by weather man
- Weather forecasting icon sensitivity setting
- Temperature display in degrees Celsius (°C) or Fahrenheit (°F) selectable
- Outdoor temperature and humidity display with MIN/MAX recording
- All MIN/MAX outdoor recordings show date and time received
- All MIN/MAX recordings can be reset
- Can take up to three outdoor transmitters
- LCD contrast setting
- Low battery indicator
- Table standing/ Wall mounting

SETTING UP:

When one transmitter is to be used

1. First, insert the batteries into the Thermo-hygro transmitter. (see "**How to install and replace batteries in the Thermo-hygro transmitter**").
2. Immediately after and within 2 minutes, insert the batteries into Weather station (see "**How to install and replace batteries in the Weather station**"). Once the batteries are in place, all segments of the LCD will light up briefly. Following the time as 0:00 and the "weather man" icon will be displayed. If these are not displayed after 60 seconds, remove the batteries and wait for at least 10 seconds before reinserting them.
3. After inserting the batteries into the transmitter, the Weather station will start receiving data from the transmitter. The outdoor temperature/ humidity and the signal reception icon should then be displayed on the Weather station. If this does not happen after 3 minutes, the batteries will need to be removed from both units and reset from step 1.
4. In order to ensure sufficient 868 MHz transmission however, this should under good conditions be a distance no more than 100 meters between the final position of the Temperature Station and the transmitter (see notes on "**Positioning**" and "**868 MHz Reception**").

When more than one transmitter is to be used

1. User shall remove all the batteries from the temperatuire station and transmitters and wait 60 seconds if setting has been done with one transmitter before.
2. Insert the batteries to the first transmitter.
3. Within 2 minutes of powering up the first transmitter, insert the batteries to the Weather Station. Once the batteries are in place, all segments of the LCD will light up briefly. Following time as 0:00 and the weather man icon 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.
4. The outdoor temperature and humidity from the first transmitter (channel 1) should then be displayed on the Temperature station. Also, the signal reception icon will be displayed. If this does not happen after 2 minutes, the batteries will need to be removed from both units and reset from step 1.
5. Insert the batteries to the second transmitter as soon as the outdoor temperature and humidity readings from the first transmitter are displayed on the temperature station.

Note: User shall insert the batteries into the second transmitter within 45 seconds of reception of the first transmitter.

6. The outdoor temperature and humidity from the second transmitter and the "channel 2" icon should then be displayed on the weather station. If this does not happen after 2 minute, the batteries will need to be removed from all the units and reset from step 1.
7. Insert the batteries to the third transmitter as soon as the "channel 2" icon and outdoor data are displayed on the weather station. Then within 2 minutes, the channel 3 outdoor data from the third transmitter will be displayed and the channel icon will shift back to "1" once the third transmitter is successfully received. If this is not happen, user shall restart the setting up from step 1.

Note: User shall insert the batteries into the third transmitter within 45 seconds of reception of the second transmitter.

8. In order to ensure sufficient 868 MHz transmission however, this should under good conditions be a distance no more than 100 meters between the final position of the Temperature Station and the transmitter (see notes on "**Positioning**" and "**868 MHz Reception**").

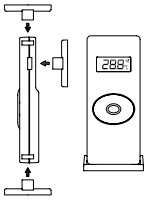
IMPORTANT:

Transmission problems will arise if the setting for additional sensors is not followed as described above. Should transmission problems occur, it is necessary to remove the batteries from all units and start again the set-up from step 1.

9. Once the remote data has been received and displayed on the Weather station, the DCF-77 time code reception is automatically started. This takes typically between 3-5 minutes in good conditions.

If after 10 minutes, the DCF time has not been received, press the SET key to manually enter a time initially.

Daily DCF reception is done at 02:00 and 03:00. If the reception at 03:00 is not successful, then at 04:00 and 05:00 and 06:00 there are other tries, until one is successful. If the reception at 06:00 is still not successful, then the next try takes place at 02:00 next day.
When this is successful, the received time will override the manually set time. The date is also updated with the received time. (Please refer also to notes on "**DCF-77 Radio controlled Time**" and "**Manual Time Setting**").



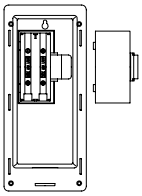
The Outdoor Thermo-hygro Transmitter

- Remote transmission of outdoor temperature and humidity to Weather Station by 868 MHz
- Displays alternately the measured temperature and humidity readings on LCD
- Shower proof casing
- Wall mounting case

- Mounting at a sheltered place. Avoid direct rain and sunshine

HOW TO INSTALL AND REPLACE BATTERIES IN THE WEATHER STATION

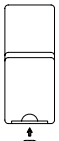
The Weather station uses 2 x AAA, IEC LR3, 1.5V batteries. To install and replace the batteries, please follow the steps below:



1. Remove the cover at the back of the weather station.
2. Insert batteries observing the correct polarity (see marking).
3. Replace compartment cover.

HOW TO INSTALL AND REPLACE BATTERIES IN THE THERMO-HYGRO TRANSMITTER

The Thermo-hygro Transmitter uses 1 x 3.0V IEC CR2032, Lithium battery. To install and replace the batteries, please follow the steps below:



1. Pull out the battery holder at the bottom of the transmitter.
2. Insert the batteries, observing the correct polarity (see marking).
3. Replace the battery holder on the unit.

Note:

In the event of changing batteries in any of the units, all units need to be reset by following the setting up procedures. This is because a random security code is assigned by the transmitter at start-up and this code must be received and stored by the Weather station in the first 3 minutes of power being supplied to it

BATTERY CHANGE:

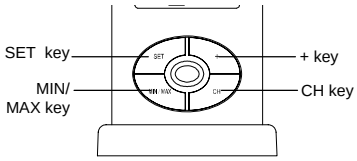
It is recommended to replace the batteries in all units on an annual basis to ensure optimum accuracy of these units.

Please participate in the preservation of the environment. Return used batteries to an authorised depot.

FUNCTION KEYS:

Weather station:

The weather station has four easy to use function keys.



SET key (Setting):

- To enter the set mode for the following functions: LCD contrast, Time zone, Time Reception ON/OFF, 12/24 hour display, Manual time, Year, Month, Date, °C/°F, and Weather forecast sensitivity settings.
- Press to reset at the maximum or minimum temperature and humidity records of the indoor or the currently selected outdoor channel (will reset all records to current level)

MIN/ MAX

- To toggle between the maximum/ minimum indoor and outdoor temperature and humidity data

Note: The Time/date shown is corresponding to MIN/MAX temperature data.

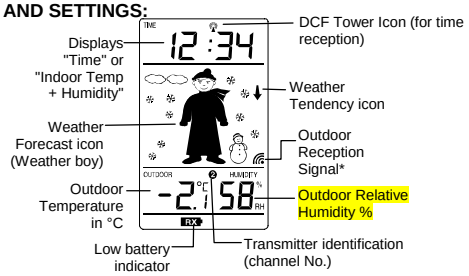
+ key

- To toggle between the current time and current "Indoor Temp + Humidity" display
- To make adjustment for various settings

CH key

- To toggle between the Outdoor transmitters 1, 2 and 3 (if more than 1 transmitter is used)
- To exit from the manual setting mode

LCD SCREEN AND SETTINGS:



For better distinctness the LCD screen is split into 3 sections displaying the information for time and indoor data, weather forecast, and outdoor data.

Section 1 - TIME / INDOOR TEMPERATURE AND INDOOR HUMIDITY

- In normal mode, display the radio controlled time.

A reception tower symbol will be shown

Note: The symbol will not be shown when radio time reception is not successful or when time reception function is turned off.

- Display "Indoor temp + Indoor humidity" when the "+" key is pressed

Section 2 - WEATHER ICON (FEATURED BY WEATHER MAN)

- Display of the weather to be expected in form of 15 fancy weather symbols (featured by Weather man) which change their appearance depending on the air pressure development (past air pressure change) and the current outdoor temperature.
- Display the weather tendency indicator
- Format of the weather man icons refers to the "**WEATHER FORECAST AND TENDENCY**"

Section 3 - OUTDOOR TEMPERATURE AND HUMIDITY

- Display the current outdoor temperature and humidity.
- By pressing the MIN/ MAX key, display the stored MIN/MAX outdoor temperature and humidity, with simultaneous display of MIN/ MAX icon.
- By pressing the CH key, display outdoor sensor data (up to three outdoor transmitters). The channel number 1, 2 or 3 will be shown.
- A signal reception symbol will be shown indicating that receiver is receving outdoor temperature.

DCF-77 RADIO CONTROLLED TIME:

The time base for the radio controlled time is a Cesium Atomic Clock operated by the Physikalisch Technische Bundesanstalt Braunschweig which has a time deviation of less than one second in one million years. The time is coded and transmitted from Mainflingen near Frankfurt via frequency signal DCF-77 (77.5 kHz) and has a transmitting range of approximately 1,500 km. Your radio-controlled Weather station receives this signal and converts it to show the precise time in summer or wintertime. The quality of the reception depends greatly on the geographic location. In normal cases, there should be no reception problems within a 1,500 km radius around Frankfurt.

Once the outdoor temperature is displayed on the Weather station after initial set-up, the DCF tower icon in the clock display will start flashing in the upper left corner. This indicates that the clock has detected that there is a radio signal present and is trying to receive it. When the time code is received, the DCF tower becomes permanently lit and the time will be displayed.
If the tower icon flashes, but does not set the time or the DCF 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 1.5 - 2 metres.
- 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 Frankfurt transmitter.

MANUAL SETTINGS:
The following manual settings can be done in the setting mode:

- LCD contrast setting
- Time zone setting
- Time reception ON/OFF setting
- 12/24-Hour setting
- Manual time setting
- Calendar setting
- °C/ °F setting
- Weather forecasting icon sensitivity setting

Press the SET key to advance to the setting mode:

LCD CONTRAST SETTING

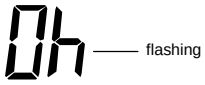
The LCD contrast can be set to 8 different levels to suit the users needs (default LCD contrast setting is LCD 4). To set the desired contrast level:

1. The above display will be seen. Press the + key to select the level of contrast desired.
2. Press the SET key to confirm and enter the **"Time Zone setting"** or exit the setting mode by pressing the CH key

TIME ZONE SETTING:

The time zone default of the Weather station is 0h. To change to another time zone:

1. Press the SET key after completing the LCD contrast setting in order to enter the time zone setting (flashing).
2. Using the + key, set the time zone. The range runs from 0 to +12 and then runs from -12 back to 0 in consecutive 1hour intervals.
3. Press the SET key to confirm and enter the **"Time Reception ON/OFF setting"** or exit the setting mode by pressing the CH key



TIME RECEPTION ON/OFF SETTING

In area where reception of the DCF-77 time is not possible, the DCF-77 time reception function can be turned OFF. The clock will then work as a normal Quartz clock. (Default setting is ON).

1. The digit "ON" and the time reception icon will start flashing on the LCD.
2. Use the + key to turn OFF the time reception function.
3. Confirm with the SET key and enter the **"12/24-Hour Display setting"** or exit the setting mode by pressing the CH key.

Note:
If the Time Reception function is turned OFF manually, the clock will not attempt any reception of the DCF time as long as the Time Reception OFF function is activated. The Time Reception icon will not be displayed on the LCD.

12/24 HOUR TIME DISPLAY SETTING

1. After setting time reception ON/OFF, press the SET key, "12h" or "24h" flashes in the LCD. (default: 24 h)
2. Press the + key to select the "12h" or "24h" display mode.
3. Press the SET again to confirm and to enter the **"Manual Time setting"** or exit the setting mode by pressing the CH key.

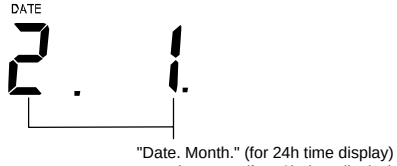
Note: When 24h mode display is selected, the calendar format will be date and month display. When 12h mode display is selected, the calendar format will be month and date display.

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

To set the clock:

1. The hour and minute digits start flashing in the time display section.
2. Use the + key to adjust the hours and then press SET key to go to the minute setting.
3. The minute will be flashing. Press the + key to just the minutes.
4. Confirm with the SET key and enter the **"Calendar Setting"** or exit the setting mode by pressing the CH key

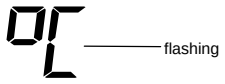
CALENDAR SETTING



The date default of the Weather station is 1. 1. of the year 2006 after initial set-up. Once the radio-controlled time signals are received, the date is automatically updated. However, if the signals are not received, the date can also be set manually. To do this:

1. Using the + key, set the year required. The range runs from 2003 to 2029 (default is 2006).
2. Press the SET key to enter the month setting mode.
3. The month digit will be flashing. Press the + key to set the month and then press the SET key to go to the date setting.
4. The date digit will be flashing. Press the + key to set the date.
5. Confirm with the SET key and enter the "**°C/°F TEMPERATURE UNIT SETTING"** or exit the setting mode by pressing the CH key.

°C/°F TEMPERATURE UNIT SETTING

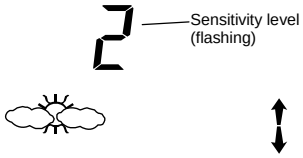


The default temperature reading is set to °C (degree Celsius). To select °F (degree Fahrenheit):

1. The "°C" will be flashing, use the + key to toggle between "°C" and "°F".
2. Once the desired temperature unit has been chosen, confirm with the SET key and enter the "**Weather Forecast Icon Sensitivity setting**" or exit the setting mode by pressing the CH key.

WEATHER FORECASTING ICON SENSITIVITY SETTING

For locations with rapid changes of weather conditions, the threshold can be set to a different level for faster display of changing weather conditions.



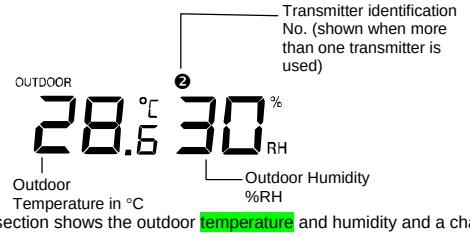
1. Using the + key to set the weather sensitivity level. There are 3 levels of setting: 1, 2 and 3; level 1 is the most sensitive setting, level 3 is the least sensitive setting (default setting is "2").
2. Confirm with the SET key and exit the **Manual settings**.

WEATHER FORECAST AND TENDENCY:

DISPLAY OF INDOOR TEMPERATURE AND HUMIDITY READING:

The indoor temperature and humidity are measured and displayed on the first section of the LCD when the + key is pressed.

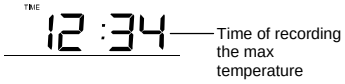
DISPLAY OF OUTDOOR TEMPERATURE AND HUMIDITY:

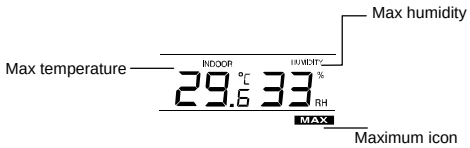


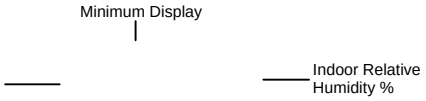
The last LCD section shows the outdoor temperature and humidity and a channel number above the temperature will also show if more than one transmitter has been used.

DISPLAY OF INDOOR MAXIMUM AND MINIMUM RECORDS:

1. In normal display mode, press the MIN/ MAX button five times. The maximum indoor temperature and humidity will be shown in the bottom section of LCD. Also the time of recording this temperature will be displayed.







2. Press the MIN/ MAX button once more to display the date of recording of this temperature reading.
3. Then press the MIN/MAX button one more time, the minimum indoor temperature and humidity will be shown in the bottom section of LCD. Also the time of recording this temperature will be displayed
4. By pressing the MIN/MAX button one more time, the date of recording this temperature will be shown.
5. Press one more time the MIN/ MAX button to go back to the normal display.

RESETTING THE INDOOR MAXIMUM/ MINIMUM RECORDS

1. In normal display mode, press the MIN/ MAX button to advance to the indoor MIN/ MAX display.
2. Press the SET key once, this will reset the currently shown indoor minimum or and maximum data recorded to the current time, date, temperature and humidity.

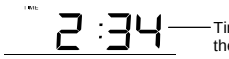
Note:

The indoor minimum and maximum record is to be reset seperatedly.

DISPLAY OF OUTDOOR MAXIMUM AND MINIMUM RECORDS:

1. In normal display mode, press the CH button to select the desired channel. The channel ID will be displayed above the outdoor temperature reading.
2. Press the MIN/MAX button once, the max data of the selected channel will be displayed. Also the time of recording this temperature will be displayed.
3. Press the MIN/MAX button once more, the date of reording this reading will be shown.

4. By pressing MIN/MAX button once more, the min data of the selected channel will be shown. Also the time of recording this temperature will be displayed.



6. By pressing the MIN/MAX button more more time, the date of recording this temperature will be shown.
7. Press one more time the MIN/ MAX button to advance to the indoor Max/ Min display

RESETTING THE OUTDOOR MAXIMUM/ MINIMUM RECORDS

Note:

- It is required to reset the outdoor max/ min records of different channels separately.
- The outdoor minimum and maximum record is to be reset separately.

1. In normal display mode, press the CH button to select a channel. The channel Identification No. (channel No.) will be displayed above the outdoor temperature reading.

Note: **The transmitter number will only be displayed if more than one transmitter is applied**.

2. Press the MIN/ MAX button once. The "max" icon will be displayed.
3. Press the SET button, this will reset the outdoor maximum temperature and humidity record to the current value.
4. Press MIN/ MAX button twice more to show the minimum data. The "min" icon will be displayed.
5. Press the SET button, this will reset the outdoor minimum temperature and humidity record to the current value.
6. Press six more times the MIN/MAX key to return to the normal display.

TEMPERATURE TRANSMITTER:

The range of the Thermo-hygro Transmitter may be affected by the temperature. At cold temperatures the transmitting distance may be decreased. Please bear this in mind when placing the transmitter.

868 MHz RECEPTION

The Weather station should receive the temperature data within 5 minutes after set-up. If the temperature data is not received 5 minutes after setting up (not successfully continuously, the outdoor display shows "- - -"), please check the following points:

1. The distance of the weather station or transmitter should be at least 1.5 to 2 meters away from any interfering sources such as computer monitors or TV sets.
2. Avoid positioning the Weather station 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 (868MHz) may prevent correct signal transmission and reception.
4. Neighbours using electrical devices operating on the 868MHz signal frequency can also cause interference.

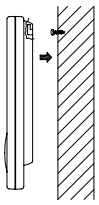
Note:

When the 868MHz signal is received correctly, do not re-open the battery cover of either the transmitter or Weather station, 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 transmission range is about 100 m from the transmitter to the Weather station (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**).

POSITIONING THE WEATHER STATION:

The Weather Station has been designed to be hung onto wall or free standing.

To wall mount



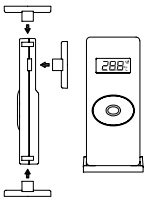
Choose a sheltered place. Avoid direct rain and sunshine.
Before wall mounting, please check that the outdoor temperature and humidity values can be received from the desired locations.

1. Fix a screw (not supplied) into the desired wall, leaving the head extended out the by about 5mm.
2. Remove the stand from the Weather Station by pulling it away from the base and hang the station onto the screw. Remember to ensure that it locks into place before releasing.

Free standing

With the detachable stand, the weather station can be placed onto any flat surface.

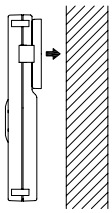
POSITIONING THE THERMO-HYGRO TRANSMITTER:



The Transmitter is supplied with a holder that may be attached to a wall with the two screws supplied. The Transmitter can also be position on a flat surface by securing the stand to the bottom to the Transmitter.

To wall mount:

2. Clip the remote



1. Secure the bracket onto a desired wall using the screws and plastic anchors. temperature/humidity sensor onto the bracket.

Note:

Before permanently fixing the transmitter wall base, place all units in the desired locations to check that the outdoor temperature reading is receivable. In event that the signal is not received, relocate the transmitters or move them slightly as this may help the signal reception.

CARE AND MAINTENANCE:

SPECIFICATIONS:

Temperature measuring range:
Indoor : -9.9ºC to +59.9ºC with 0.1ºC resolution
(14.1°F to +139.8°F with 0.2°F resolution,
"OF.L" displayed if outside this range)

Outdoor : -39.9ºC to +59.9ºC with 0.1ºC resolution
(-39.8°F to +139.8°F with 0.2°F resolution,
"OF.L" displayed if outside this range)

Relative humidity measuring range:
1% to 99% with 1% resolution (displays **"- -"** when lower than 1 %; displays "99" % if higher than 99 %)

Indoor temperature checking interval : every 15 seconds
Indoor humidity checking interval : every 20 seconds
Outdoor data reception : every 16 seconds

Power supply:
Weather station : 2 x AAA, IEC, LR3, 1.5V
Temperature transmitter : 1 x CR2032, 3.0V
Battery life cycle : Approximately 12 months (Alkaline batteries recommended)

Dimensions (L x W x H)
Weather station : 58.2 x 17.6 x 131.9 mm
Thermo-hygro Transmitter : 36.6 x 13.5 x 87.9 mm

LIABILITY DISCLAIMER: