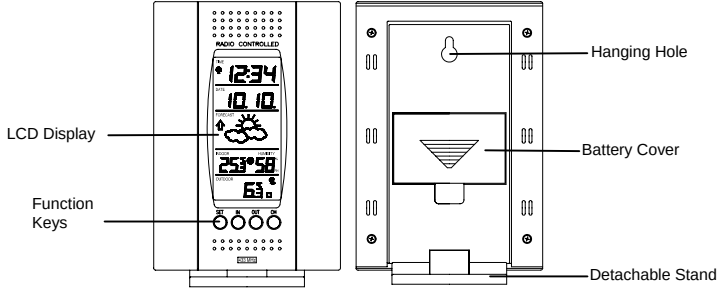
WIRELESS 433 MHz WEATHER STATION

Instructions Manual

INTRODUCTION:

Congratulations on purchasing this Weather Station with wireless 433 MHz transmission of outdoor temperature and display of indoor temperature and humidity, weather forecast icons and weather tendency indicators. It is further featuring a DCF-77 radio controlled clock with calendar display. With only four easy to use function keys, this innovative product is ideal for use in the home or office.

The Weather Station

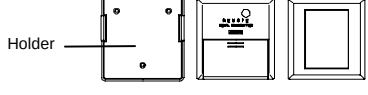


FEATURES:

WEATHER STATION

- DCF-77 Radio controlled time with manual setting options
- Time reception ON/OFF
- 12/24 hour display
- Hour and minute display, seconds indicated by flashing dot
- Time zone option ±12hours
- Date and month calendar display
- Weather forecasting with 3 weather icons and weather tendency indicator
- Weather forecasting icon sensitivity setting
- Temperature display in degrees Celsius (°C) or Fahrenheit (°F) selectable
- Indoor and outdoor temperature display with MIN/MAX recording
- Indoor humidity reading displayed as RH% with MIN/MAX recordings
- All MIN/MAX temperature recordings show date and time received
- All MIN/MAX recordings can be reset
- Indoor comfort level indicator - happy or sad face icons
- Can take up to three outdoor transmitters
- LCD contrast setting
- Low battery indicator
- Wall mounting or table standing

THE OUTDOOR TRANSMITTER



- Remote transmission of outdoor temperature to weather station by 433 MHz signal
- Wall mounting case
- Mounting at a sheltered place. Avoid direct rain and sunshine

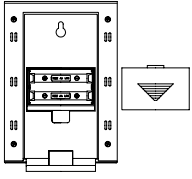
SETTING UP:

1. First, insert the batteries into the Weather station (see "**How to install and replace batteries in the Weather Station**" below). Once the batteries are in place, all segments of the LCD will light up briefly. Following some test data display, the indoor temperature and humidity, the time as 0:00 the date as 1.1. and the weather icons sun and clouds will be displayed. If the indoor temperature and humidity are not displayed after 30 seconds, remove the batteries and wait for at least 10 seconds before reinserting them. Once the indoor data is displayed proceed to step 2.
2. Within 3 minutes of activating the Weather station, place the batteries into the transmitter (see **"How to install and replace batteries in the Temperature Transmitter"** below).
3. After a few seconds of inserting the batteries into the transmitter, the Weather Station will start receiving data from the transmitter. The remote temperature will then be displayed on the Weather Station. If this does not happen after 15 minutes, the batteries will need to be removed from both units and reset from step 1.
4. The Weather Station can take up to 3 remote transmitters. If you have purchased additional transmitters, follow step 2 for all extra transmitters. However, ensure that you leave 10 seconds in between the reception of the last transmitter and the set-up of the following transmitter. The Weather Station will number the transmitters in the order of set-up, i.e. the first transmitter will have the temperature displayed with the number 1 against it and so on.
5. When all the transmitters are set up, there is a testing period, during which the display switches quickly between all the received transmitters at random, according to which random transmission it receives. Pressing any key will stop this process. The process also stops automatically if no keys are pressed for a few minutes.
6. Once the remote temperature has been received and is displayed on the Weather Station, the DCF-77 time code reception is automatically started. This takes typically between 3 - 5 minutes in good

conditions. This time period is an excellent opportunity to locate the transmitter(s) in suitable location(s) outdoors. In order to ensure sufficient 433 MHz transmission however, this should under good conditions be no more than 25 meters from where the Weather Station will be finally positioned (see notes on "**Positioning**" and "**433 MHz Reception**").

7. If after 10 minutes the DCF time has not been received, use the SET key to manually enter a time initially. The clock will automatically attempt to receive the DCF time at each full hour. 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 "**Radio controlled time**" and "**Manual time setting**").

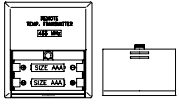
HOW TO INSTALL AND REPLACE BATTERIES IN THE WEATHER STATION



The Weather Station uses 2 x AA, IEC LR6, 1.5V batteries. If the batteries need to be replaced, the low battery symbol will appear on the LCD.
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).
3. Replace compartment cover.

HOW TO INSTALL AND REPLACE BATTERIES IN THE TEMPERATURE TRANSMITTER



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

1. Slide the battery cover downwards and remove.
2. Insert the batteries, observing the correct polarity (see marking).
3. Replace the battery cover.

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 three minutes of power being supplied to it.

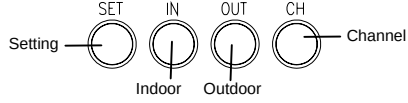
BATTERY CHANGE:

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 authorized depot.

FUNCTION KEYS:

Weather Station:
The weather station has four easy to use function keys.



SET key (Setting)

- Used to enter the set mode for the following functions: LCD contrast, Time zone, Time Reception ON/OFF, 12/24 hour display, Manual time, Year, Date, °C/°F, and Weather forecasting icon sensitivity settings.
- The year can only be displayed in the set mode (not displayed in normal mode)

IN key (Indoor)

- Used to toggle between the current/ minimum / maximum indoor temperature and humidity
- Press for over 3 seconds to reset the indoor maximum and minimum temperature and humidity records (will reset all records to current level)

Note: the Time/date information is only available for MIN/MAX temperature data, and will be changed to default time after the reset operation

- Change LCD contrast, time zone, Time Reception ON/OFF, 12/24 hour display, hour, year, month, day, °C/°F and weather forecasting icon sensitivity units in setting modes
  Note: in 24hr time display mode, the day is set by using the IN key. In 12hr time display mode, the month is set by using the IN key

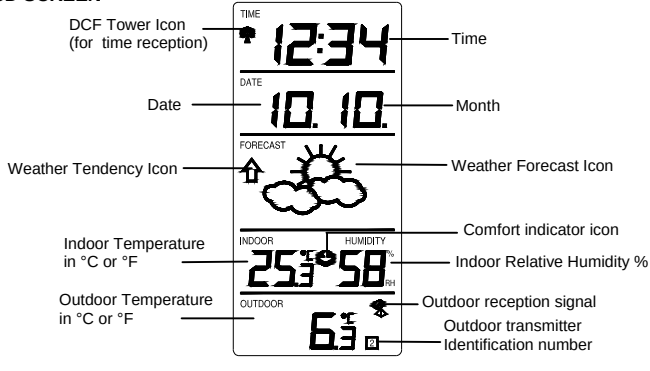
OUT key (Outdoor)

- Used to toggle between the current / minimum / maximum outdoor temperature
- Press for around 3 seconds to reset the outdoor maximum and minimum temperature records (will reset all temperatures to current level of the relative transmitter being reset - each transmitter's data must be reset separately)
  Note: the time/date information of MIN/MAX data will be reset to default time as well.
- Change minute, month, day in setting modes
  Note: in 24hr time display mode, the month is set by using the OUT key. In 12hr time display mode, the day is set by using the OUT key

CH key (Channel)

- Toggle between the outdoor Temperature Transmitters 1, 2 and 3 (if more than 1 transmitter is used)
- Exit manual setting mode

LCD SCREEN



For better distinctness, the LCD screen is split into 5 sections displaying the information for time, date, weather forecast, indoors and outdoors.

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 1500km radius of Frankfurt.

Once the outdoor temperature is displayed on the Weather station, 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 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 Frankfurt 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.

MANUAL SETTINGS

The following manual settings can be changed when pressing the SET key for:

- LCD contrast setting
- Time zone setting
- Time reception ON/OFF setting
- 12/24-Hour setting
- Manual time setting
- Calendar setting
- Snooze setting

- °C/°F setting
- Weather forecasting icon sensitivity setting

LCD CONTRAST SETTING:

The LCD contrast can be set to 8 different levels to suit the users needs (default LCD contrast setting is LCD 5). To set the desired contrast level:

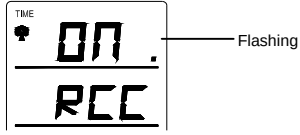
1. Press the IN key to select the level of contrast desired.
2. Press the SET key to confirm and enter the **"Time Zone setting"** or exit the setting mode by pressing the CH key

TIME ZONE SETTING

The time zone default of the Weather Station is 0. 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 IN key, set the time zone. The range runs from 0 to +12 and then runs from -12 back to 0 in consecutive 1 hour 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

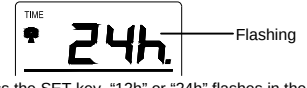


In area where reception of the DCF-77 time is not possible, the DCF-77 time reception function can be turned OFF. The clock will then work as a normal Quartz clock. (Default setting is ON).

1. The digit “ON” will start flashing on the LCD.
2. Use the IN 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.
2. Press the IN 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.

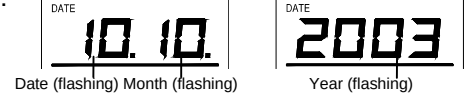
MANUAL TIME SETTING

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 minutes digits start flashing in the time display section.
2. Use the IN key to adjust the hours and the OUT key to adjust the minutes. If you hold the key while you adjust, the hours move 1 hour and the minutes move 5 minutes.
3. Confirm with the SET key and enter the **"Calendar Setting"** or exit the setting mode by pressing the CH key

Note:
The unit will still try to receive the signal at each full hour 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 DCF tower icon will flash. If reception has been unsuccessful, then the DCF tower icon will not appear but reception will still be attempted the following hour.

CALENDAR SETTING:



The date default of the Weather station is 1. 1. of the year 2003. 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 IN key, set the year required. The range runs from 2003 to 2039 (default is 2003).
2. Press the SET key to enter the month and date setting mode.
3. Press the IN (or OUT) key to set the date and the OUT (or IN) key to set the month required.
4. Confirm with the SET key and enter the "**Snooze setting ”** or exit the setting mode by pressing the CH key.

SNOOZE SETTING

Important:
The snooze setting in this Weather Station will not have any effect in this unit performance. This feature is only available in enhance model with alarm function. Simply press the SET key to skip this setting and enter the “°C/°F setting” or exit the setting mode by pressing the CH key.

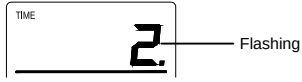
°C/°F SETTING:

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

1. The “°C” will be flashing, use the IN 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 weather conditions.

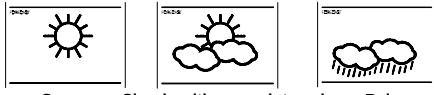


1. Using the IN key to set the weather sensitivity level. There are 3 levels of setting: 1, 2 and 3; level 1 is the most sensitive setting, level 3 is the least sensitive setting (default setting is "2").
2. Confirm with the SET key and exit the **Manual settings**.

WEATHER FORECAST AND TENDENCY

THE WEATHER FORECASTING ICONS

There are 3 weather icons on the third section of the LCD which can be displayed in any of the following combinations:



Sunny **Cloudy with sunny intervals** **Rainy**

For every sudden or significant change in the air pressure, the weather icons will update accordingly to represent the change in weather. If the icons do not change, then it means either the air pressure has not changed or the change has been too slow for the Weather Station to register. However, if the icon displayed is a sun or raining cloud, there will be no change of icon if the weather gets any better (with sunny icon) or worse (with rainy icon) since the icons are already at their extremes.

The icons displayed forecasts the weather in terms of getting better or worse and not necessarily sunny or rainy as each icon indicates. For example, if the current weather is cloudy and the rainy icon is displayed, it does not mean that the product is faulty because it is not raining. It simply means that the air pressure has dropped and the weather is expected to get worse but not necessarily rain.

Note:
After setting up, readings for weather forecast should be disregarded for the next 12-24 hours. This will allow sufficient time for the Weather Station to collect air pressure data at a constant altitude and therefore result in an more accurate forecast.

Common to weather forecasting, absolute accuracy cannot be guaranteed. The weather forecasting feature is estimated to have an accuracy level of about 75% due to the varying areas the Weather Station has been designed for use in. In areas that experience sudden changes in weather (for example from sunny to rain), the Weather Station will be more accurate compared to use in areas where the weather is stagnant most of the time (for example mostly sunny).

If the Weather Station is moved to another location significantly higher or lower than its initial standing point (for example from the ground floor to the first floor of a house), remove the batteries and re-insert them after about 30 seconds. By doing this, the Weather Station will not mistake the new location as being a possible change in air-pressure when really it is due to the slight change of altitude. Again, disregard weather forecasts for the next 12 to 24 hours as this will allow time for operation at a constant altitude.

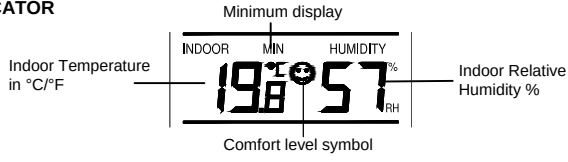
THE WEATHER TENDENCY INDICATOR

Working together with the weather icons are the weather tendency indicators (located on the left and right hand side of the weather icons). When the indicator points upwards, it means that the air-pressure is increasing and the weather is expected to improve, but when indicator points downwards, the air-pressure is dropping and the weather is expected to become worse.
Taking this into account, one can see how the weather has changed and is expected to change. For example, if the indicator is pointing downwards together with cloud and sun icons, then the last noticeable

change in the weather was when it was sunny (the sun icon only). Therefore, the next change in the weather will be cloud with rain icons since the indicator is pointing downwards.

Note:
Once the weather tendency indicator has registered a change in air pressure, it will remain permanently visualized on the LCD.

INDOOR TEMPERATURE AND HUMIDITY READING WITH COMFORT LEVEL INDICATOR



The indoor temperature and humidity are detected automatically and displayed on the fourth section of the LCD.

THE COMFORT LEVEL INDICATORS

Comfortable: A happy face icon "☺" indicating a temperature level between 20.0°C and 25.9°C (68°F to 78.6°F) and humidity between 45% and 65%.

Uncomfortable: A sad face icon "☹" indicating any value outside the comfortable range.

TOGGLING AND RESETTING THE INDOOR RECORDINGS

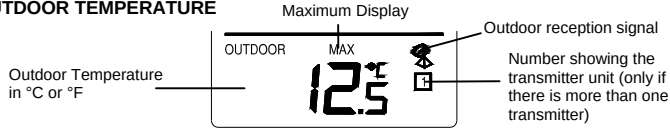
1. To toggle between the indoor current, minimum and maximum temperature and humidity data and the times at which they were recorded, press the IN key:

Once to show the minimum temperature and humidity values with time and date recorded
Twice to show the maximum temperature and humidity values with time and date recorded
Three times to return to the current time, date, temperature and humidity levels.

Note: *the Time/date information is only available for the MIN/MAX temperature data.*

2. To reset the minimum and maximum temperature and humidity data and the times at which they were recorded, press the IN key continuously for about 3 seconds. This will reset all minimum and maximum data recorded to the current time, date, temperature and humidity. The min/max temperatures and humidity recorded are of current time and they remain unaffected by the time zone setting.

OUTDOOR TEMPERATURE



The fifth LCD section shows the outdoor temperature and a reception signal. A number beside the temperature will also show if more than one transmitter is used.

TOGGLING AND RESETTING THE OUTDOOR RECORDINGS:

1. To toggle between the outdoor current, minimum and maximum temperature data and the times at which they were recorded, press the OUT key:
   Once to show the minimum temperature value with time and date recorded
   Twice to show the maximum temperature value with time and date recorded
   Three times to return to the current time, date and temperature level
2. To toggle between transmitters, press the CH key:

Once to show transmitter 2
Twice to show transmitter 3
Three times to return to transmitter 1

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

3. To reset the minimum and maximum outdoor temperature data and the times at which they were recorded, press the OUT key continuously for about 3 seconds. This will reset all minimum and maximum data recorded to the current time, date and temperature. The min/max temperatures recorded are of current time and they remain unaffected by the time zone setting.

Note: *the MIN/MAX data for each transmitter needs to be reset separately.*

TEMPERATURE TRANSMITTER

The outdoor temperature is measured and transmitted every 60 seconds.
The range of the Temperature 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.

433 MHz RECEPTION:

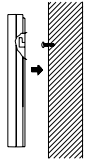
The Weather station should receive the temperature data within 15 minutes after set-up. If the temperature data is not being received 15 minutes after setting up (the display shows "---"), then please check the following points:

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 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 (433MHz) may prevent correct signal transmission and reception.
4. Neighbors using electrical devices operating on the 433 MHz signal frequency can also cause interference.

Note:
When the 433MHz signal is received correctly, do not re-open the battery covers 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 25 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**).

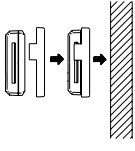
POSITIONING THE WEATHER STATION



The Weather Station comes attached with a removable table stand, which provides the option of table standing or wall mounting the unit. Before wall mounting, please check that the outdoor temperature can be received from the desired locations. To wall mount:

1. Fix a screw (not supplied) into the desired wall, leaving the head extended out 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.

POSITIONING THE OUTDOOR TEMPERATURE TRANSMITTER



The Temperature Transmitter is supplied with a holder that may be attached to a wall with the three screws supplied. Before securing the transmitter, ensure that the 433MHz signal (outdoor temperature readings) is properly received. To attach to the wall, please follow the steps below:

1. Mark the wall using a pen through the holes in the holder to obtain the exact drilling position.
2. Drill holes in the wall at the points marked.
3. Screw holder onto wall.

There is also double sided tape included with the wall mount. On smooth surfaces this can be used instead of drilling holes. The mounting surface can, however, affect the transmission range. If for example the unit is attached to a piece of metal, it may then either reduce or increase the transmitting range. For this reason, we recommend not placing the unit on any metal surfaces or in any position where a large metal or highly polished surface is in the immediate proximity (garage doors, double glazing, etc.). Choose a sheltered place. Avoid direct rain and sunshine.
Before securing in place, please ensure that the Weather station can receive the 433MHz signal from the Temperature transmitter at the positions that you wish to situate them.
The Temperature Transmitter simply clicks in or out of the holder. When inserting or removing the Temperature Transmitter from the wall holder please hold both units securely.

CARE AND MAINTENANCE:

- Extreme temperatures, vibration and shock should be avoided as these may cause damage to the units and give inaccurate forecasts and readings.
- When cleaning the displays and casings, use a soft damp cloth only. Do not use solvents or scouring agents as they may mark the LCD and casing.
- Do not submerge the units in water.
- Immediately remove all low powered batteries to avoid leakage and damage. Replace only with new batteries of the recommended type.
- Do not make any repair attempts to the units. Return it to its original point of purchase for repair by a qualified engineer. Opening and tampering with the units may invalidate its guarantee.
- Do not expose the units to extreme and sudden temperature changes, this may lead to rapid changes in forecasts and readings and thereby reduce their accuracy.

SPECIFICATIONS:

Temperature measuring range
Indoor : -9.9ºC to +59.9ºC with 0.1ºC resolution

		14.2°F to 139.8°F with 0.2°F resolution ("OF.L" displayed if outside this range)
Outdoor	:	-29.9ºC to +69.9ºC with 0.1ºC resolution -21.8°F to 157.8°F with 0.2°F resolution ("OF.L" displayed if outside this range)
Indoor relative humidity measuring range	:	1% to 99% with 1% resolution ("- -" displayed if outside this range)
Indoor Temperature checking interval	:	every 15 seconds
Indoor Humidity checking interval	:	every 20 seconds
Outdoor Temperature reception	:	every 5 minutes
Power Supply:		
Weather Station	:	2 x AA, IEC LR6, 1.5V
Temperature Transmitter	:	2 x AAA, IEC LR3, 1.5V
Battery life cycle recommended)	:	approximately 12 months (Alkaline batteries
Dimensions (L x W x H)		
Weather Station	:	90 x 30 x 138 mm (table stand included)
Temperature Transmitter	:	59 x 22 x 65 mm (wall bracket excluded)

LIABILITY DISCLAIMER:

- The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should an inaccurate reading take place.
- This product is not to be used for medical purposes or for public information.
- This product is only designed to be used in the home as indication of the future weather and is not 100% accurate. Weather forecasts given by this product should be taken only as an indication and not as being totally accurate.
- The specifications of this product may change without prior notice.

- This product is not a toy. Keep out of the reach of children.
- No part of this manual may be reproduced without written consent of the manufacturer.

R&TTE Directive 1999/5/EC

Summary of the Declaration of Conformity : We hereby declare that this wireless transmission device does comply with the essential requirements of R&TTE Directive 1999/5/EC.