USER MANUAL

Alecto

WS-5500

EN

INDEX

CE:
DECLARATION OF CONFORMITY
Hereby, Commaxx declares that the radio equipment type Alecto WS-5500 is in compliance with directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address:
https://commaxx-certificates.com/doc/ws-5500_doc.pdf

2. INTRODUCTION

The Alecto WS-5500 weather station consists of the following components:

Outdoor unit:
The outdoor unit includes a built-in rain gauge, wind speed gauge, wind direction gauge, temperature sensor, humidity sensor, LUX meter and solar cell. The measurement data from the sensors is transmitted to the display unit. The outdoor unit is powered by a built-in super cap which in turn is powered by the built-in solar panel.
You may also install lithium backup batteries, for this please see below in this user manual.
The outdoor unit comes including mounting materials.

Indoor unit:
The indoor unit receives the measured data from the outdoor unit and also includes its own temperature sensor, humidity sensor and pressure sensor.
The indoor unit is powered through the supplied power adaptor, although you may also install 3x AAA 1.5 V backup batteries (not incl.).
All measurement data is shown in the large 6.9” (17.5 cm) LCD colour screen. Additionally, you may forward these measurements to websites such as ‘Wunderground’ to further publish them via the internet or to share the information with third parties.

3. MAINTENANCE

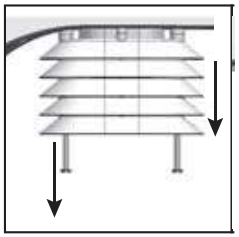
For easy access to the outdoor unit to perform small maintenance or to replace the batteries, it's recommended to install the outdoor unit at an accessible spot. However, keep in mind to place it as open as possible in wind and rain.

3.1 Rain gauge:

You may unscrew the black rain collector tray by turning it counter-clockwise for cleaning the interior of the rain gauge. For this, please use a soft and long-haired brush. Clean the black collector tray and remove any leaves. Replace it onto the rain gauge (pay attention to the 3 protruding notches) and rotate the tray clockwise until you hear a 'click' coming from the mechanism.

3.2 Outdoor temperature and humidity sensor:

Refer to the picture and detach the lower 4 weather vanes from the outdoor unit. Blow into the holder containing the temperature and humidity sensor and use a soft brush with long hairs to clean the wind guides. DO NOT USE WATER.
Replace and tighten the wind guides.



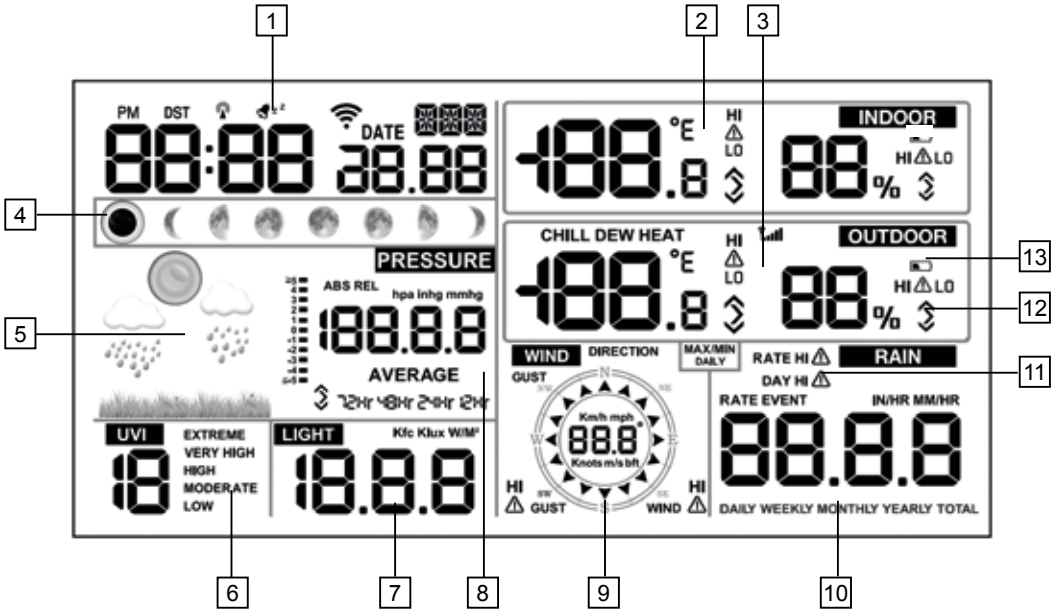
4. SPECIFICATIONS

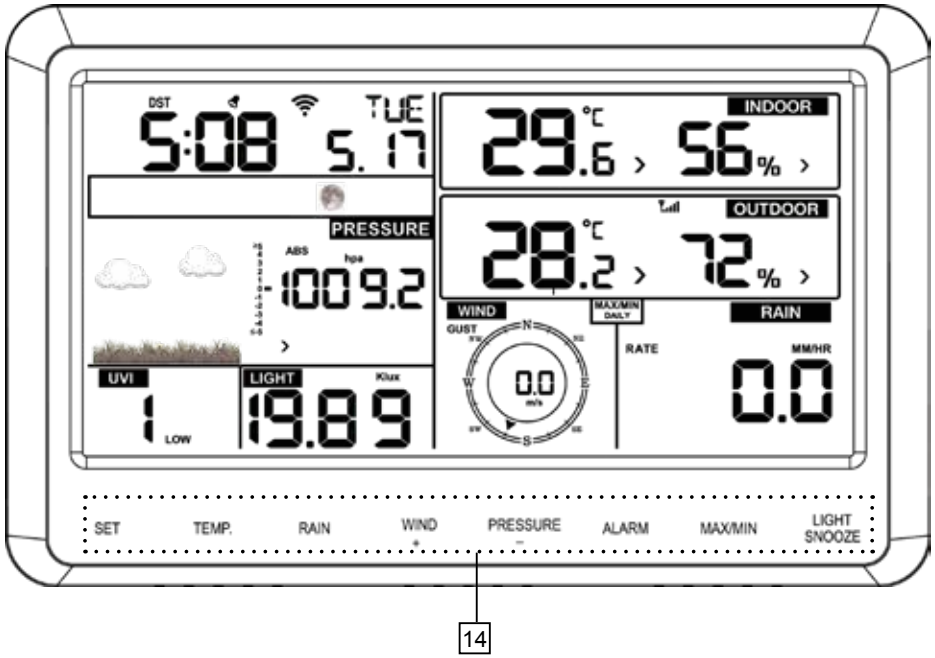
<u>Indoor unit:</u>	
measurement range:	-10°C - 60°C ('---' when out of this range)
resolution:	0.1°C
humidity:	10% ~ 99% RH
resolution:	1% RH
air pressure:	300-1100hpa
UV meter	range: 0-15
	0-2 = Low, 3-5 = Moderate, 6-7 = High,
	8-10 = Very High, >=11 = Extreme
accuracy:	+/-3hpa (at 700-1100hpa)
resolution:	0.1hps
alarm duration:	120 seconds
snooze duration:	10 minutes
power supply:	3x 1.5V battery, size AAA
dimensions:	188(W)x119(H)x20(D)mm
weight:	285gr (batt. incl.)
<u>Outdoor unit:</u>	
measurement range:	-40°C - 60°C ('---' when out of this range)
accuracy:	+/-1°C
resolution:	0.1°C
humidity:	10% ~ 99% RH
accuracy:	+/-5%
rainfall:	0-6000mm ('---' when out of this range)
accuracy:	+/-10%
resolution:	0.1mm at rainfall <1000mm
	1mm at rainfall >1000mm
wind speed:	0-50m/s ('---' when out of this range)
accuracy:	+/- 1m/s at wind speed <5m/s
	+/- 10% at wind speed >5m/s
light:	0-400KLux
accuracy:	+/- 15%
power supply:	2x 1.5V battery, size AA (*)
<u>Radio:</u>	
transmitting frequency:	868 MHz
transmitting interval:	16 sec.
range:	100m
RF power:	< 0 dBm

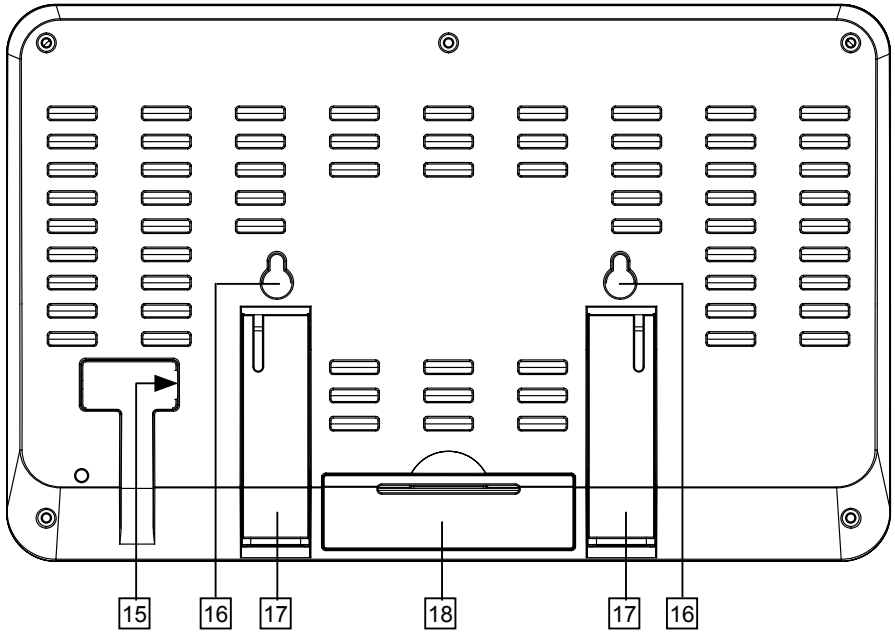
*: for prolonged use at temperatures below 0°C, we recommend using Lithium batteries. See also paragraph 6.2.

5. OVERVIEW

5.1 Indoor unit:



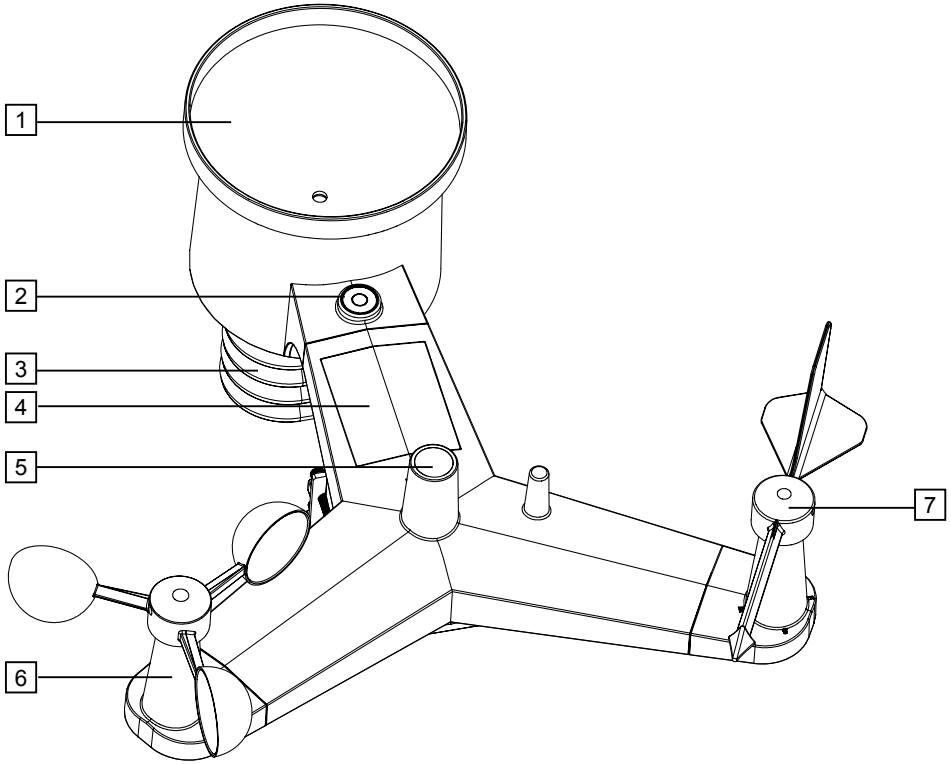


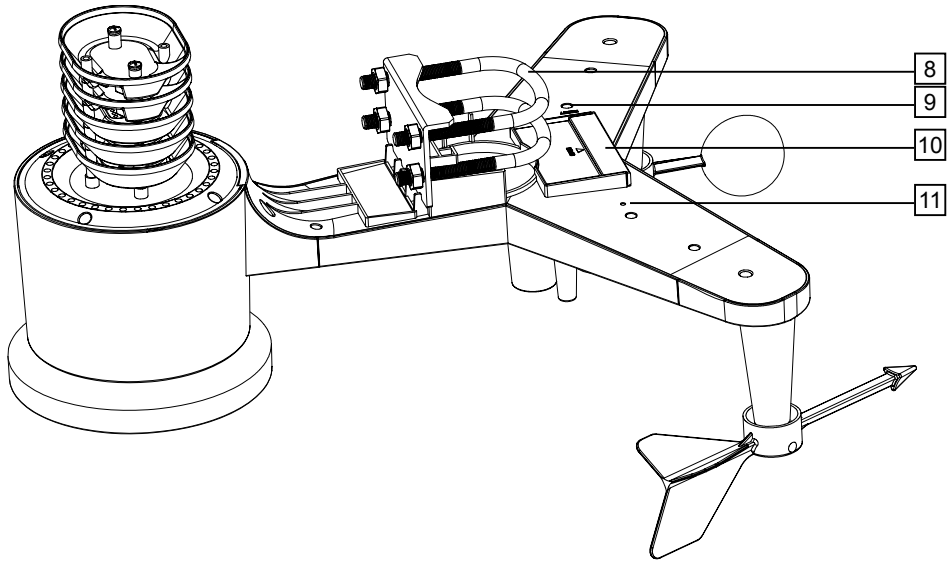


1. Display of the time and date (*)
2. Display of the indoor temperature & humidity (*)
3. Display of the outdoor temperature & air humidity (*)
4. Display of the moon position (*)
5. Display of the weather forecast (*)
6. Display of the UV index (*)
7. Display of the light intensity (*)
8. Display of the air pressure (*)
9. Display of the wind speed and direction (*)
10. Display of the rainfall (*)
11. Indication that the weather alarm is enabled at this measurement value
12. Trend indicator
13. Outdoor unit battery indicator, illuminates when the batteries of the outdoor unit are weak
14. Function buttons
15. Power adaptor input
16. Suspension holes
17. Foldable table support
18. Battery cover

*: See paragraph 7.2 for which display options the indoor unit offers.

5.2 Outdoor unit:





1. Rain gauge
2. Spirit level, to install the outdoor unit horizontally
3. Location of the temperature and humidity sensor
4. Solar panel for charging the super cap (see also paragraph 6.2, item ‘power supply)
5. UV sensor / light sensor
6. Wind speed gauge
7. Wind direction gauge
8. Brackets for attaching the outdoor unit to a pole (not incl.)
9. Reset button, use a bend paperclip to press and hold this button for 4 seconds to reset the outdoor unit
10. Battery compartment for 2 backup batteries (not incl.)
11. LED, flashes every 16 seconds to indicate that measurements are being transmitted to the indoor unit

6. INSTALLATION

6.1 Indoor unit:

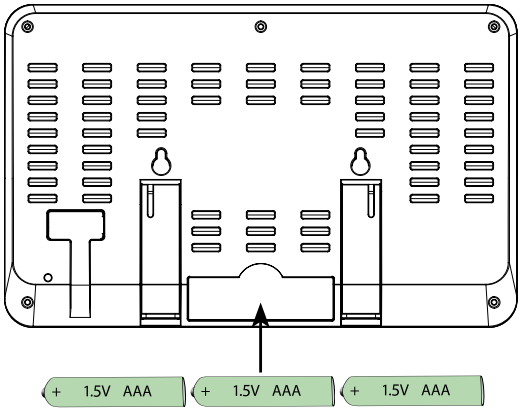
General installation and positioning tips:

- Make sure that the surrounding temperature at the indoor unit is not affected by lights, radiators, doors or windows, draft, etc.
- When suspended: make sure the unit is freely suspended, i.e. not behind a curtain.
- Make sure that the adaptor wire doesn’t create a falling or tripping risk. Use cable-ties when the wire is too long.

Power supply:

The main power of the indoor unit is provided through the supplied power adaptor. Insert the low-voltage plug of the adaptor into the DC5.0V input at the rear of the indoor unit and then connect the adaptor with a 230V wall socket.

You may install 3x 1.5V AAA batteries as a backup for maintaining the measured data in case of a possible power outage or for when the adaptor is disconnected from the wall socket by accident.



1. Open the battery compartment at the rear of the indoor unit.
2. Insert the first battery and slide it completely to the left.
3. Insert the second battery and slide it completely to the right.
4. Insert the third battery in between the first 2 batteries.
5. Finally, replace the battery cover.

Suspended or standing:

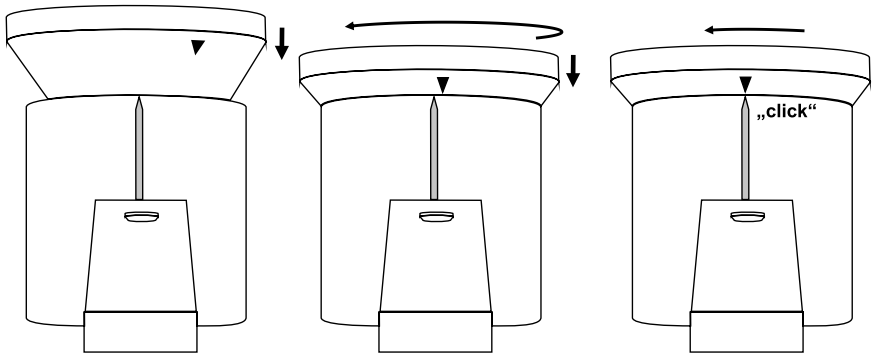
You may choose to use the indoor unit standing freely on a cabinet or desk (for this, fold out the 2 supports at the rear of the indoor unit) or suspended from a wall (see the suspension keyholes at the rear).

6.2 Outdoor unit:

General installation and positioning tips:

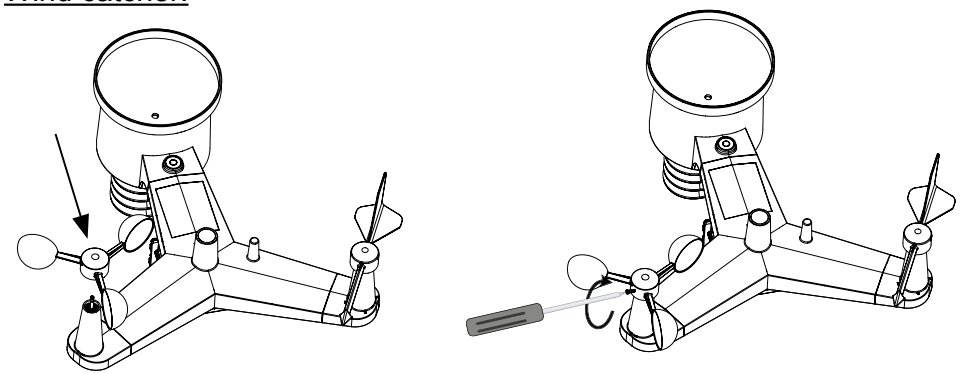
- First check whether the outdoor unit is within range of the indoor unit before permanently installing the outdoor unit. Maintain a distance between the outdoor and indoor unit from 50 to 100 meters.
- Make sure to place the outdoor unit at least 1.5 meters from the ground, positioned freely in the rain and wind.
- To have the rain gauge function as accurate as possible, the outdoor unit must be placed exactly horizontal. For this you may use the built-in spirit level on top of the outdoor unit.
- To be able to indicate from which direction the wind is blowing, the outdoor unit must be aimed to the **North**. For this, see the North indication on top of the outdoor unit. Use an accurate compass (not incl.) to properly orient the unit.
- Make sure that the outdoor unit is suspended or standing freely. Especially the wind speed gauge and weather vane must be suspended directly into the wind.
- Determine the location with the smallest chance of leaves blowing into the unit. Leaves blown into the rain collector can block the rain gauge and affect the measurement results. In any case, we recommend positioning the outdoor unit in such a way that any leaves blown into the unit can be easily removed and the 2 batteries of the outdoor unit can be easily replaced.
- You may of course keep the outdoor unit within reach for the first week to try out all of its functions. After verifying that everything is working properly, you can then permanently install the outdoor unit.

Rain gauge:



The black rain collection tray must first be placed on the rain unit. There are three markings on the rain collection tray.
Position one of the markings approximately 3.5 cm in front of the markings on the rain unit. The whole bowl should now drop into the rain unit. Push in the scale slightly and turn it clockwise until it clicks into place, then, with some force, turn it further clockwise until it clicks into place. The mark on the scale is now directly above the mark on the rain unit.

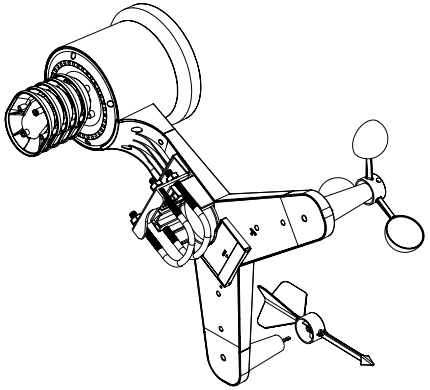
Wind catcher:

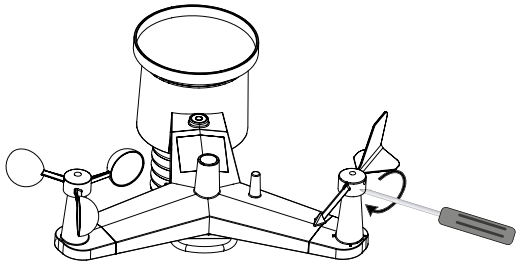


First check whether the small screw of the wind catcher is rotated outward far enough and then push the wind catcher over the axle on the outdoor unit. Adequately push in the wind catcher, but never force it!

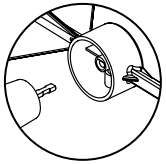
Use a small cross-head screwdriver (excl.) to rotate the small screw and fix the wind catcher onto the axle.
Finally, blow against one of the wind catcher cups to check whether the wind catcher can rotate smoothly.

Wind direction:





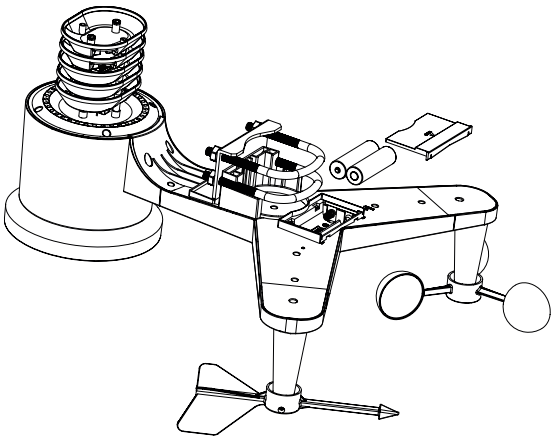
Attention: Both the axle for the weather vane and the weather vane itself are flattened at one end. This ensures that the vane can slide over the axle in only one way. Please keep this in mind during the installation.



First check whether the small screw of the weather vane is rotated outward far enough and then push the vane over the axle on the outdoor unit. Pay attention to the flattened side!

Adequately push in the weather vane, but never force it!
Use a small cross-head screwdriver to rotate the small screw and fix the weather vane onto the axle.
Finally, blow against the side of the weather vane to check whether it can rotate smoothly.

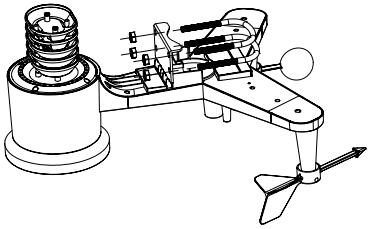
Power supply:
The sensors in the outdoor unit are powered by a built-in ‘super cap’, which is a type or rechargeable battery.
This super cap is charged by the solar panel on top of the outdoor unit.
As a backup, in case the super cap is not properly charged, you must install 2 AA 1.5V batteries into the outdoor unit (not incl.).

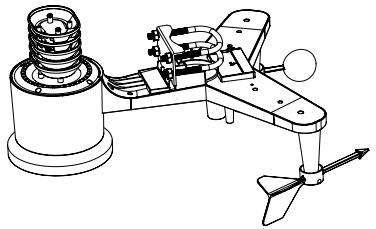


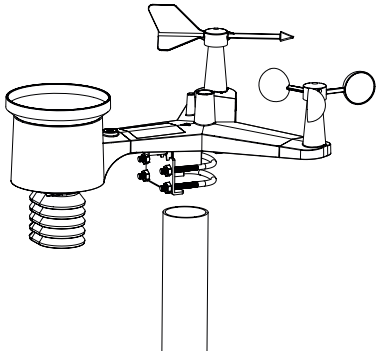
Because regular Alkaline batteries perform poorly or not at all at temperatures around or below 0°C, we don’t recommend using standard Alkaline batteries for the outdoor unit.

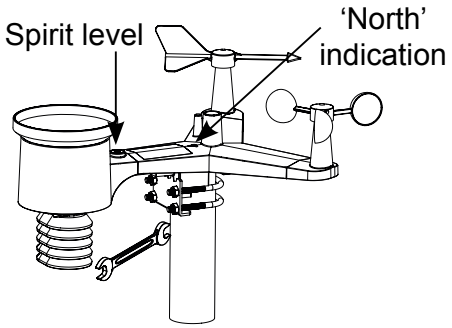
This is why we recommend inserting Lithium batteries into the outdoor unit, because these are developed for functioning within a temperature range of -20°C to 60°C.
These batteries can be ordered from the customer service department of Alecto via telephone number 073 6411 355 (Netherlands) or 03 238 5666 (Belgium) or via internet www.alecto.nl.
Lithium batteries with a capacity of 2900mAh have a life span of at least one year.

Positioning the outdoor unit:
Refer to the images below and fix the U-shaped cable ends to the outdoor unit, place the outdoor unit over the pole (not incl.) and fasten the nuts. Your weather station is now ready for use.









7. OPERATION

7.1 First time use:

General:

Attention: after installation, it can take several hours up to a day before the display of the indoor unit starts showing the correct values.

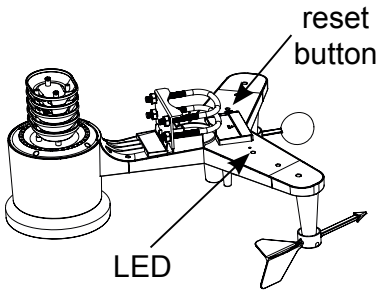
Indoor unit/outdoor unit connection:

Indoor unit:

As soon as the power adaptor is connected to the indoor unit and to a 230V wall socket or as soon as the batteries are inserted, the indoor unit starts searching for the outdoor unit.

Outdoor unit:

Insert the 2 batteries into the battery compartment as described in the previous chapter and use a bend paperclip to press and hold the reset button at the bottom of the outdoor unit for at least 3 seconds. The red LED will now illuminate for 4 seconds and then start flashing briefly every 16 seconds.



Check whether the indoor unit starts showing values at 'OUTDOOR', blow against the wind catchers of the outdoor unit, pour some water into the rain gauge and check whether the values indicated by the indoor unit change.

Standard display:

From this moment on, the indoor unit shows the standard display; see paragraph 5.1 for an overview of all displays.

Paragraph 7.2 describes how the various settings and options of this weather station operate and must be set. Paragraph 7.3 describes how you may personalise the display according to your preferences.

7.2 Basis setup:

Press and hold the SET button for 2 seconds to activate the setup menu:

BEEP	Each time you press one of the touch control buttons, you can have the unit emit a beep tone. Use the + and - buttons to enable (BEEP ON) or disable (BEEP OFF) this key tone.

Press 1x the SET button:

HI:LO RST	Each day at midnight all measured maximum and minimum values may be reset, with the exception of the rainfall data. Use the + and - buttons to enable the reset of these values (RST ON) or to disable the reset (RST OFF). The rainfall values must be reset separately, for this please see chapter 7.3.

Press 1x the SET button: (*)

12H / 24H	Use the + and - buttons to choose the 12 hours or 24 hours time format.

Press 1x the SET button:

HOURS FLASHING	Use the + and - buttons to set the hours.

Press 1x the SET button:

MINUTES FLASHING	Use the + and - buttons to set the minutes.

Press 1x the SET button:

D-M / M-D	Use the + and - buttons to select the day-month display (D-M) or month-day display (M-D).

Press 1x the SET button:

YEAR FLASHING	Use the + and - buttons to set the year.

Press 1x the SET button:

MONTH FLASHING	Use the + and - buttons to set the month.

Press 1x the SET button:

DAY FLASHING — Use the + and - buttons to set the date.

Press 1x the SET button:

PRESSURE — Use the + and - buttons to determine whether the air pressure must be shown in mm mercury pressure (mmHg), in inch mercury pressure (inHg) or in hectoPascal (hPa). In the Benelux the hectoPascal notation is generally used; before the air pressure was also expressed in bar; 1 mbar equals 1 hPa.

Press 1x the SET button:

REL PRESSURE — The absolute air pressure is the air pressure measured by the weather station; the relative air pressure is the air pressure measured by the weather station but now corrected for the altitude at which the measurement is taken.
For this option, use the + and - buttons to set the actual air pressure.
Tip: you may find the current air pressure in your area on the website of airports (or on their teletext pages).

Press 1x the SET button:

LIGHT — Use the + or - button to display the light intensity in W/m² (Watt per m²), fc (foot candle) or LUX.

Press 1x the SET button:

°C / °F — Use the + or - button to display the temperature in degrees Celsius (°C) or in degrees Fahrenheit (°F).

Press 1x the SET button:

WIND — Use the + or - button to display the wind speed in Knots, Miles per hour (mph), Kilometres per hour (Km/h), Beaufort (bft) or meters per second (m/s).

Press 1x the SET button:

RAIN — Use the + or - button to display the amount of rainfall in millimetre (mm) or inch (IN).

Press 1x the SET button:

NTH / STH — Use the + or - button to indicate whether the weather station is used in the Northern hemisphere of the earth (NTH) or in the Southern hemisphere (STH). This concerns the correct display of the moon position.
Tip: The Benelux is situated in the Northern hemisphere, in this case please select NTH.

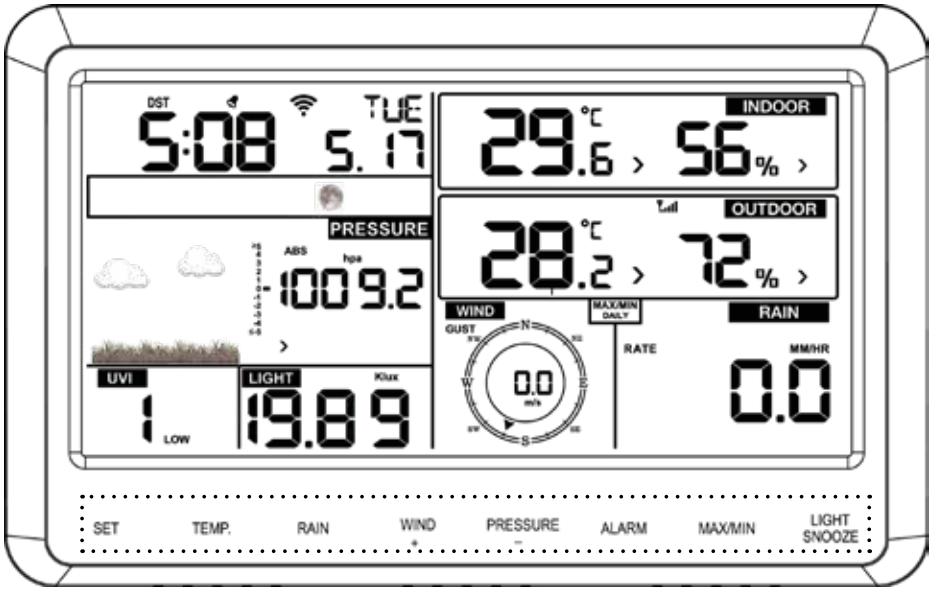
Upon pressing the SET button for the last time, the display will fully illuminate and the setup is now completed.

During setup, you may press the LIGHT/SNOOZE button to instantly end the setup. Any settings already adjusted will remain stored in the memory.

*: as soon as the indoor station is connected with the internet (see chapter 8), the time and date are obtained from the internet. Now repeatedly press the SET button to skip the clock setup.

7.3 Function buttons:

The function buttons underneath the display offer the following functions:



TEMP.

touch repeatedly to see the following in order:

- CHILL: wind chill (calculated through a combination of the air temperature and the average wind velocity).
- DEW: dew point temperature, this is the temperature at which water vapour is converted into water (mist, dew or frost); the dew point depends on the environmental temperature and humidity.
- HEAT: heat index, this is a combination of the measured temperature and the humidity.

When no extra specification is shown, the actual temperature will be displayed.

RAIN

touch repeatedly to see the following in order:

- DAY: rainfall of today, calculated as of midnight
- WEEK: rainfall from the beginning of the week (Sunday)
- MONTH: rainfall from the beginning of the month
- TOTAL: rainfall from the start of the measurements or from the last reset
- RATE: rainfall in the past hour (this shows the rainfall in the last 60 minutes and is updated every 10 minutes)
- EVENT: this is the amount of rainfall from the moment it started raining until now. This value will be reset after an hour without any rain.

Press and hold the RAIN button for 2 seconds to reset the display of that moment to 0.

When doing so, keep in mind the following:
- when resetting the amount of rainfall per week, also the amount of today will be reset
- when resetting the amount of rain per month, also the amount of today and of this week will be reset
- when resetting the total amount of rainfall, also the amount of today, this week and this month will be reset

WIND / +

touch repeatedly to see the following in order:

- GUST: wind speed of wind gusts
- DIRECTION: wind direction in arc degrees

When no extra specification is shown, the actual temperature will be displayed.

During setup (see paragraph 7.2), this button is also used for selecting choices and increasing values

PRESSURE / -

touch repeatedly to see the following in order:
- AVERAGE 12Hr: average air pressure over the last 12 hours
- AVERAGE 24Hr: average air pressure over the last 24 hours
- AVERAGE 48Hr: average air pressure over the last 48 hours
- AVERAGE 72Hr:average air pressure over the last 72 hours

When no extra specification is shown, the actual temperature will be displayed.

press and hold the PRESSURE button for 2 seconds to switch between the absolute air pressure (ABS) and the relative air pressure (REL)

during setup (see paragraph 7.2), this button is also used for selecting choices and decreasing values

ALARM

when touching this for the first time, the set values for the MAX alarm are displayed
when touching this for the second time, the set values for the MIN alarm are displayed
see paragraph 7.5 for setting the MIN and MAX limits and for determining how this function must operate

MAX/MIN

touch repeatedly to see the following in order:
- MAX: the highest values measured are displayed
- MIN: the lowest values measured are displayed

while the MAX or MIN value is displayed, press the TEMP, RAIN or WIND button to see all possible variations

while the MAX or MIN value is displayed, press and hold the PRESSURE button for 2 seconds to switch between the absolute air pressure and relative air pressure

press and hold the MAX/MIN button to reset the displayed data of that moment (i.e. all MIN or all MAX measurements)

see paragraph ‘Basic setup’ (7.2) to automatically reset the MAX/MIN measurements each day at midnight

LIGHT/SNOOZE

repeatedly and briefly touch this button to set the display lighting to low, medium or high

to save battery power, the display lighting will automatically return to the ‘low’ setting after 15 seconds when the unit is being used on battery power only

this button is also used to return to the standard display from any setting or choice

7.4 Wake-up alarm:

Setup:

1. press and hold the ALARM button for 2 seconds, the hour display starts flashing
2. use the + and - buttons to set the hours for the wake-up time and press the SET button
3. use the + and - buttons to set the minutes for the wake-up time and press the SET button
4. briefly press the ALARM button to enable (alarm icon illuminates) or disable (alarm icon off) the wake-up alarm
5. briefly press the LIGHT/SNOOZE button to leave the setup

Operation:

As soon as the set moment of time is reached, an alarm tone is emitted. This tone sounds for approx. 2 minutes with an increasing rhythm or until you press the ALARM button to switch off the alarm or until you press the LIGHT/SNOOZE button to postpone the alarm for 10 minutes.
The alarm is repeated daily until disabled according to the above instructions.

7.5 Weather alert:

In addition to the wake-up alarm with snooze function, this weather station can also emit an alert tone when temperatures are too high/low, when the humidity is too high/low or in case of excessive wind or rain.

Setup:

1. press and hold the ALARM button for 2 seconds and then repeatedly and briefly press the SET button to choose from the following alarms:
   - max. indoor temperature
   - min. indoor temperature
   - max. air humidity indoors
   - min. air humidity indoors
   - max. outdoor temperature
   - min. outdoor temperature
   - max. air humidity outdoors
   - min. air humidity outdoors
   - max. wind speed
   - max. wind gust
2. use the + and - buttons to set the limit for the selected measurement value
3. briefly press the ALARM button to enable the concerned weather alert (the symbol illuminates followed by HI or LO) or to disable it (the symbol disappears)

Overview:

If an alert is programmed for a certain measurement value, this will be indicated by the alarm symbol being constantly illuminated followed by HI or LO. When this symbol is flashing, this limit is exceeded, see also ‘Operation’ below

In display standby mode, briefly press the ALARM button to show all programmed maximum limits. Press the ALARM button again to display all programmed minimum limits. The alert symbol will also appear for any limit associated with an alarm.
Press the ALARM button again or press the LIGHT/SNOOZE button to return the display to standby mode.

Operation:

As soon as one of the limits is exceeded, for 2 minutes alert tones will sound in an increasingly faster rhythm. The alarm symbol together with HI or LO will start flashing to show which limit is exceeded.
Press the ALARM button to stop the alert tones, the alarm symbol continues flashing until the measured value returns to within the set limits.

7.6 Weather forecast:

The display of the indoor unit can predict the weather for the next 6 hours through various displays:

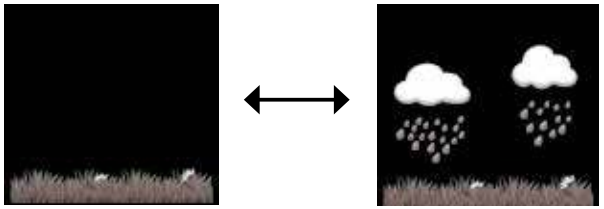

sunny


partially cloudy

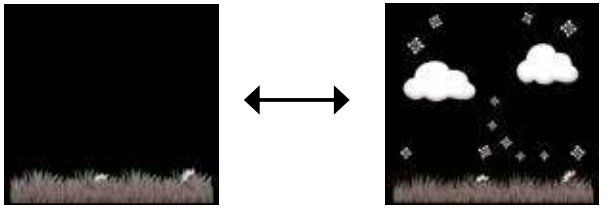

cloudy


rainy

snow
(snow is displayed when the forecast is ‘rainy’ and the outside temperature is below 0°C (32°F))



storm



storm

Remarks:
- the accuracy of a weather forecast based on air pressure is 70% to 75%; keep in mind that a correct forecast cannot be guaranteed
- the forecast is based on the next 6 hours and may not show the actual situation

7.7 Trend indication:

The temperature, humidity and air pressure displays include a built-in trend indicator. Each half hour, the measurements are compared with the measurements of 3 hours ago

The trend indications displays as follows:

	Air humidity:	Temperature:	Air pressure:
∧ : rising	increase >3%	increase >1°C/2°F	increase >1HPA
> : equal	remains <= 3%	remains <= 1°C/2°F	remains <= 1HPA
∨ : falling	decrease >3%	decrease >1°C/2°F	decrease >1HPA

7.8 Calibration:

In case the indoor unit shows a measurement that deviates from the measurement of another sensor or weather station, each display may be adjusted by several percent.

1. press and hold the TEMP and MAX/MIN buttons for 5 seconds and then repeatedly press the SET button to choose from the following measurement values: (in between brackets the values are shown that are used for increasing/decreasing the corresponding reading)
   - indoor temperature (+/- 5°C)
   - indoor humidity (+/- 9%)
   - outdoor temperature (+/- 5°C)
   - outdoor humidity (+/- 9%)
   - air pressure (+/- 10hpa)
   - wind direction (0-360 arc degrees)
   - wind velocity (50% - 150%)
   - amount of rainfall (50% - 150%)
2. use the + and - buttons to increase or decrease the reading
3. briefly press the LIGHT/SNOOZE button to return the display to standby mode

You may reset a reading to the standard factory setting by repeating this instruction, but by pressing the ALARM button in step 2.

8. TO LINK WITH THE INTERNET and Weather Underground

A current operating manual for registering the weather station to your router and instructions for linking to Weather Underground can be found on the Internet.

Use your browser to go to the internet address: WS5500.hesdo.com

Router settings

*Only use 2.4GHz, **not** 5GHz.*
*Make sure the router is on WPA2-psk - AES encryption (**not** TKIP).*
Connect your smartphone to the router at 2.4 GHz.

Information Power Adapter:
Manufacturers name and address : Dongguan Guanjin Electronics Technology Co., Ltd.
Block 16 Qiantou New Industrial Park, Niushan, Dongcheng District,
523128 Dongguan city, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA.
Model Identifier : K05B050100G
Input voltage : 100-240VAC
Input AC frequency : 50/60 Hz
Output voltage : 5.0V DC
Output current : 1.00 A
Output Power : 5.0 W
Average active efficiency : 76.33%
Efficiency at low 10% load : -
No load Power consumption : 0.044 W