USER'S MANUAL

VDA 2.0 Weather station

25/9/2018

Technical specifications

Wind speed	
Measurement range	0 – 60m/s 0 – 116knots 0 – 134mph 0 – 216km/h
Starting threshold	0.1m/s
Resolution	0.1m/s
Accuracy 0 - 60m/s	±0.15m/s ±0.29knots ±0.54m/s
Wind direction	
Measurement range	0 - 360°
Starting threshold	0.1m/s
Resolution	0.1°
Accuracy	±2°
Temperature	
Measurement range	-30°C ……+ 60°C
Resolution	0.1°C
Accuracy	±2°C
Station	
Operating Voltage	3.35 – 4.25V (Li-Ion x 4 parallel)
Working current (whole unit)	10mA @ 4V
Samples Rate	10 per second
Report of average measurements	1min,2min,5min,10min,30min
Weather data report	Wind speed Max wind Min wind Gust 3s Wind direction Temperature
Anemometer Dimensions	80mm top dia. 49mm bottom dia. 190 mm height
GPRS Controller box	155mm x 90mm x60mm

Specifications for temperature humidity barometer sensor

Temperature sensor	
Measurement range	-40C - ...85C -40F - ... 185F
Accuracy at 25C	±0.5C
0 - ...65C	±1C
Humidity sensor	
Operating range	-40C - ...85C
Measurement range	0% - 100%
Resolution	0.1
Accuracy	±3% RH
Pressure sensor	
Operating range	300 ...1100 hPa
Resolution	0.1 hPa
Accuracy	±1 hPa

Station set up

STEP 1.

Make sure that the pin code of the sim card is set to “1234” , and that the sim card is enabled and can send - reiceive messages, also check the GPRS connectivity

STEP 2.

Open the controller box by unscrewing the four screws that holds the case cover, insert the sim card into the slot. The chamfered edge of the simcart must be oriented at the right side of the simcart holder.

STEP 3.

Place the batteries into the case. By now the station is on,
Then check the status led

- Led is blinking every second, the station try to connect to the network.
- Led is blinking every three seconds, the station is connected to the network.
- Led is blinking three times per second, the station is connected to the GPRS network.

STEP 4.

Skip this step if the apn is already saved.
Set your APN by sending the following sms.
“1234”apn”<your apn>”<user>”< password>”

Leave the password and user section empty if password is not required.

If all are ok the station will answer you with a confirmation sms.

Note: Please check that your cell phone sms input mode is set to GSM alphabet or automatic, otherwise you wouldn’t be able to communicate with the station.

From now the station is ready and will start sending data at the preset interval (1 minute) , you can change that later by an sms instruction.

STEP 5.

Go to www.instaweathercy.com and register to the website.

Then go to “add anemometer” page and fill the form with the anemometer id and password that is provided with the station and your ready.

Batteries

The station is powered by four Li-Ion 18650 batteries in parallel configuration , please select capacity accordingly.

For example:

1000mah per cell = 13 days autonomy
2000mah per cell = 26 days autonomy
3000mah per cell = 39 days autonomy

Node that the above values are the minimum, a small amount of sun behind a thin layer of cloud can significantly extend autonomy time.

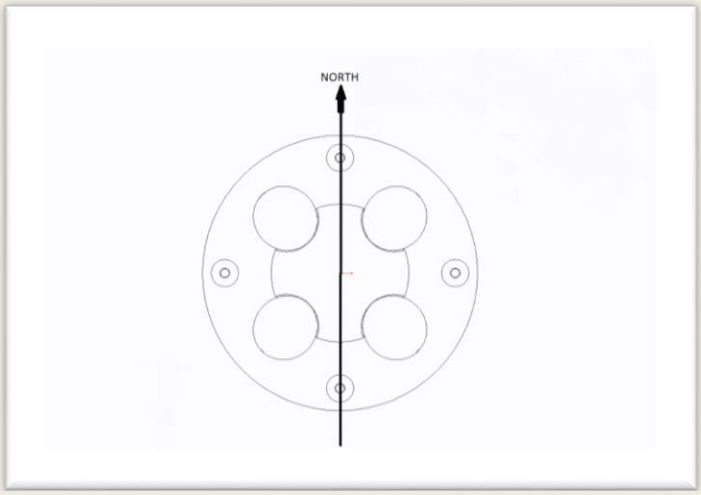
The batteries mast be same brand ,and same voltage level.

Mounting

The station can be mounted on a mast, the anemometer must mounted with the direction sign facing north as described below in the alignment section ,if for any reason you can’t mount it facing the north, you can change the signed angle by sms instruction , for more details see the instructions section.
Also ensure that the solar cell is facing the south south east direction, so max sun radiation can be collected.

Alignment

In order to align the anemometer you will need a compass so you can find the magnetic north, if you need to align the anemometer with the geographical north you mast find the magnetic declination for your location.
The anemometer is marked with an ‘O’ shape mark facing the south direction, so you can see the mark while you aiming the north direction.
With the help of compass aim to the north direction and align the anemometer, so the two bars that holding the ultrasonic reflector above the mark are aligned with the north direction.



SMS INSTRUCTIONS

You can communicate with the station in order to change or set its parameters by sending sms instructions.
All instructions are starting with the code that match your station, default code is “1234”(you can change that later), followed by the instruction and then the parameters if required.
Every instruction must start-end and be separated with quote marks.
All characters mast be lower case.
Only one instruction per sms is allowed.

Note: Please check that your cell phone sms input mode is set to GSM alphabet or automatic, otherwise you wouldn't be able to communicate with the station.

Below are the instructions that you can use .

change code	
Prototype:	"<old code>"ccd"<new code>
Description:	Use this instruction in order to change the security code that placed in front of all instructions.
Example:	"1234"ccd"2345"
Response:	Weather station will send a confirmation message with the old and new security code.

Change anemometer angle	
Prototype:	"<code>"caa"<angle addend>"
Description:	Description: The direction of wind that is measured by the anemometer is related to its orientation (there is a mark on the anemometer indicating the south direction), you may need to change this if you can't physically alter the orientation of the anemometer its self.
Example:	"1234"caa"90.0" this will add 90 degrees to the measured wind direction, (north mark will shift 90 degrees from its original orientation) ***How to calculate the angle addend*** To find the angle addend you can use a compass to measure the deviation of the marked north from the true north.
Response:	weather station will send you a confirmation message with the value you send.

Set your APN	
Prototype:	“<code>”apn”<your apn>”<user>”<password>”
Description:	Use this instruction to set your apn user and password Node: if your connection doesn’t require password just live the password section empty like example 2.
Examples:	1.“1234”internet”user”1234” 2. “1234”internet”
Response:	weather station will send a confirmation sms , with the status of the gprs connection.

Set post interval	
Prototype:	“<code>”spi”<selection numper> selection number: 1 = 1 min interval 2 = 2 min interval 3 = 5 min interval 4 = 10 min interval 5 = 30 min interval
Description:	Use this instruction to set the time between data post.
Example:	“1234”spi”3” this will set post intervals to five minutes not three.
Response:	weather station will send a confirmation sms with the time you set.

Turn anemometer on or off	
Prototype:	“<code>”aon”selection number” selection number: 0 = turns anemometer off 1 = turns anemometer on

Description:	In case want to turn off your anemometer to save power for the next day or for any other reason use this instruction.
Example:	1. “1234”aon”0” the unit will turn off 2. “1234”aon”1” the unit will turn on
Response:	weather station will send you confirmation message.

Reset the unit	
Prototype:	“<code>”rst”
Description:	If something is wrong with the unit you can try reset it with this instruction.
Example:	“1234”rst” this will reset the unit
Response:	weather station will send you an sms when its restarted

INSTRUCTIONS QUICK REFERANCE	
Change code	“<code>”ccd”<new code>”
Change the angle of the anemometer	“<code>”caa”<angle addend>”
GPRS connection check	“<code>”gch”
Set your APN	“<code>”apn”<user>”<password>”
Set post intervals	“<code>”spi”< selection numper >” 1 = 1 minute 2 = 2 minutes 3 = 5 minutes 4 = 10 minutes 5 = 30 minutes
Turn anemometer on or off	“<code>”aon”< selection numper >” 0 = off 1 = on
Reset the unit	“<code>”rst”