netvox R72630 Wireless Wind Speed Sensor User Manual

Model: RA0730_R72630_RA0730Y
Wireless Wind Speed Sensor &Wind Direction Sensor &Temperature/Humidity Sensor
User Manual

Contents

R72630 Wireless Wind Speed Sensor

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Introduction

RA0730_R72630_RA0730Y is a ClassA type device based on the LoRaWAN open protocol of Netvox and is

compatible with the LoRaWAN protocol.
RA0730_R72630_RA0730Y can be connected with the sensor of the wind speed, wind direction, temperature and humidity, the values collected by the sensor are reported to the corresponding gateway.

LoRa Wireless Technology:

LoRa is a wireless communication technology dedicated to long distance and low power consumption. Compared with other communication methods, LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data wireless communications. For example, automatic meter reading, building automation device, wireless security systems, industrial monitoring. Main features include small size, low power consumption, transmission distance, anti-interference ability and so on.

LoRaWAN:

LoRaWAN uses LoRa technology to define end-to-end standard specifications to ensure interoperability between devices and gateways from different manufacturers.

Appearance

R72630 Appearance

RA0730Y Appearance

RA0730 Appearance

Main Feature

- Compatible with LoRaWAN
- RA0730 and RA0730Y applies DC 12V adapters
- R72630 applies solar and rechargeable lithium batteries
- Simple operation and setting
- Wind speed, wind direction, temperature and humidity detection
- Adopt SX1276 wireless communication module

Set up Instruction

On/Off

Power On	RA0730 and RA0730Y are connected to DC 12V adapter for power on. R72630 applies solar and rechargeable lithium batteries.
I rn On	Connect with power on to turn on
Restore to Factory Setting	Press and hold the function key for 5 seconds till green indicator flashes for 20 ti mes.
Power Off	Disconnect from the power supply
*The engineering test requires to write the engineering testing software separately.	

Note
The interval between on and off is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.
Network Joining

Never Join the Network	Turn on the device to search the network. The green indicator keeps on for 5 seconds: success. The green indicator remai ns off: fail
Had joined the network (Not in the original setting)	Turn on the device to search the previous network. The green indicator keeps on for 5 seconds: success. The green indicator remains off: fail.
Fail to Join the Network	Suggest checking the device registration information on the gateway or consultin g your platform server provider if the device fails to join the network.

Function Key

Press and Hold for 5 Seconds	Restore to the original setting / Turn off The green indicator flashes 20 times: success The green indicator remains off: f ail
Press once	The device is in the network: the green indicator flashes once and the device sends a data report (It would take 35 seconds for the sensor to sample and proc ess the collected value.)
	The device is not in the network: the green indicator remains off

Low Voltage Threshold

Low Voltage Threshold	10.5 V

Threshold Restore to Factory Setting

	RA0730_R72630_RA0730Y has the function of the power-down saving the mem ory of network-joining information. This function acquiesces in turn off, that is, it will rejoin every time when it is power on. If the device is turned on by the
Description	ResumeNetOnOff command, the last network-joining information will be recorde d when every time it is power on. (including saving the network address informati on that it is assigned, etc.) If users want to join a new network, the device needs to perform the original setting, and it will not rejoin the last network.
	I. Press and hold the binding button for 5 seconds and then release
Operation Method	(release the binding button when the LED flashes), and the LED flashes 20 times .
	2. The device automatically restarts to rejoin the network.

Data Report

After power on, the device will immediately send a version packet report and two data reports.
The device sends data according to the default configuration before any other configuring.
Reapportionment: RA0730_ RA0730Y is 180s. R72630 is 1800s. (subject to original setting) Reapportionment: 30s
ReportChange: 0
* The value of the ReportMaxTime should be greater than (ReportType count *Reapportionment+10). (unit: second)
* ReportType count = 2
* The default of EU868 frequency is ReportMinTime=120s, and Reapportionment=370s.
(EU868 configuration: ReportMinTime must ≥ 120s. ReportMaxTime ≥ 370s.)
Note:

1. The cycle of the device sending the data report is according to the default.
2. The interval between two reports must be the MaxTime.
3. The default ReportMinTime of EU868 band is 120s, and ReportMaxTime = 370s;
4. ReportChange is not supported by RA0730_R72630_RA0730Y (Invalid configuration).
   The data report is sent according to ReportMaxTime as a cycle (the first data report is the start to the end of a cycle).
5. Data report: wind speed, wind direction, temperature and humidity. ReportType count = 2
6. The value of Reportmaxtime should be greater than (ReportType count * ReportMinTime + 10 unit: Second)
7. The device also supports the TxPeriod cycle configuration instructions of Cayenne. Therefore, the device can perform the report according to the TxPeriod cycle. The particular report cycle is ReportMaxTime or TxPeriod depending on which report cycle was configured last time.
8. It would take 35 seconds for the sensor to sample and process the collected value after pressing the button.
   The device reported data parsing please refer to Netvox LoraWAN Application Command document and Netvox Lora Command Resolver **http://loraresolver.netvoxcloud.com:8888/page/index**

5.1 Example of ReportDataCmd
FPort 0x06

Bytes	1	1	1	Var(Fix=8 Bytes)
	Version	DeviceType	ReportType	NetvoxPayLoadData

Version– 1 byte –0x01——the Version of NetvoxLoRaWAN Application Command Version
DeviceType– 1 byte – Device Type of Device
The devicetype is listed in Netvox LoRaWAN Application Devicetype doc
ReportType – 1 byte –the presentation of the NetvoxPayLoadData according the devicetype
NetvoxPayLoadData– Fixed bytes (Fixed =8bytes)

Device	**Devi ce Type**	**Repo rt Type**	**Net \ 0 N. Pa lmadData**				
RA07 serie s R726 serie s RA07**Y s eries	0x05 0x09 OxO D	OxO C	Battery (1Byte, unit :0.1V)	Temperature (Signed2Bytes,uni t:0.01°C)	Humidity (2Byt es,unit:0.01%)	WindSpeed (2 Bytes,unit:O.O ltn/s)	Reserved (1Byte,fixed Ox00)
		OxO D	Battery (l Byte, unit :0.IV)	WindDirection (2Bytes)	Atmosphere (4Bytes,unit:0. 01mbar)	Reserved (1Byte,fixed Ox00)	

Example of RA0730 Uplink
#1 01050C0009C4190001F400

Byte	Value	Attribute	Result	Resolution
1st	1	Version	1	
2nd	5	DeviceType	5	RAO7series
3rd	OC’	ReportType	OC	
4th	0	Battery	0	DC in
5th-6th	09C4	Temperatur e	25.0°C	09C4(HEX)=2500(DEC),2500*0.01°C=25.0°C
7th-8th	1900	Humidity	64.%	1900(HEX)=6400(DEC),6400*0.01%=64.0%
9th-10th	01 F4	Wind Speed	5.0m/s	01F4(HEX)=500(DEC),500*0.01m/s=5.0m/s
I 1th	0	Reserved		

#2 01050D000001FFFFFFFF00

Byte	Value	Attribute	Result	Resolution
1st	1	Version	1	
2nd	5	DeviceType	5	RA07 series
3rd	OD	ReportType	OD	
4th	0	Battery	0	DC in
5th-6th	1	Wind Directi on	1	Northeast
7th—l Oth	F FFFFFF F	Atmosphere	N/A	
11th	0	Reserved		

Example of R72630 Uplink
#1 01090C7809C4190001F400

Byte	Value	Attribute	Result	Resolution
1st	1	Version	1	
2nd	9	DeviceType	9	R726 series
3rd	0(	ReportTypc	OC	
4th	78	Battery	12v	78(HEX)120(DEC),120*0.1v=12.0v
5th-6th	09C4	Temperature	25.0°C	09C4(HEX)=2500(DEC),2500*0.01°C=25.0°C
7th-8th	1900	Humidity	64.%	1900(HEX)=6400(DEC),6400*0.01%=64.0%
9th—l Oth	01 F4	Wind Speed	5 .0m/s	01F4(HEX)=500(DEC),500*0.01m/s=5.0m/s
1 1 th	0	Reserved		

#2 01090D780001FFFFFFFF00

Byte	Value	Attribute	Result	Resolution
1st	1	Version	1	
2nd	9	DeviceType	9	R726 series
3rd	OD	ReportType	OD	
4th	78	Battery	12v	78(HEX)=120(DEC),120*0.1v=12.0v
5th-6th	1	Wind Directi on	1	Northeast
7th—l Oth	FFFFFF FF	Atmosphere	N/A	
11th	0	Reserved		

Example of RA0730Y Uplink
#1 010D0C0009C4190001F400

Byte	Value	Attribute	Result	Resolution
1st	1	Version	0I	
2nd	OD	DeviceType	13	ItA07**Y series
3rd	OC	ReportType	OC	
4th	0	Battery	0	DC in
5th-6th	09C4	Temperatur e	25.0°C	09C4(HEX)=2500(DEC),2500*0.01°C=25.0°C
7th-8th	1900	Humidity	64.%	I900(HEX)=6400(DEC),6400*0.01%=64.0%
9th-1 Oth	01 F4	Wind Speed	5.0m/s	01F4(HEX)=500(DEC),500*0.01m/s=5.0m/s
11th	0	Reserved		

5.2 Example of ConfigureCmd
FPort 0x07

Bytes	1	1	Var (Fix =9 Bytes)
	CmdID	DeviceTyp e	NetvoxPayLoadData

CmdID– 1 byte
DeviceType– 1 byte – Device Type of Device
NetvoxPayLoadData– var bytes (Max=9bytes)

<table>
<tr><th>Description</th><th>Device</th><th>CmdI D</th><th>Device Type</th><th colspan="3">NetvoxPayLoadData</th></tr>
<tr><td>ConfigRepo Sartre</td><td rowspan="5">RA07 Series R726 Series RA07**Y Se ries</td><td>0.01</td><td rowspan="5">0x05 0x09 OxOD</td><td>MinTime (2bytes Unit:s)</td><td>MaxTime (2bytes Unit: s)</td><td>Reserved (5Bytes, Fix ed Ox00)</td></tr>
<tr><td>ConfigRepo rtRsp</td><td>0 .8 I</td><td colspan="2">Status (0x00_success)</td><td>Reserved (8Bytes, Fixed Ox 00)</td></tr>
<tr><td>ReadConfig ReportReq</td><td>0x02</td><td colspan="3">Reserved (9Bytes, Fixed Ox00)</td></tr>
<tr><td>ReadConfig ReportRsp</td><td>0x82</td><td>MinTime (2bytes Unit: s)</td><td>MaxTime (2bytes Unit: s)</td><td>Reserved (5Bytes, Fixed Ox00)</td></tr>
</table>

1. Configure RA0730 device parameter MinTime = 120s, MaxTime = 3600s (3600>120*2+10)

   Downlink: 010500780E100000000000

   Device returns: 8105000000000000000000 (configuration success) 8105010000000000000000 (configuration

failure)

Note:

The value of reportmaxtime should be greater than (ReportType count * ReportMinTime + 10 unit: Second);

The report data of RA0730 device is: wind speed, wind direction, temperature and humidity ReporTtype count = 2;

(The minimum setting time of EU868 band shall not be less than 120s, and the maximum setting time shall not be less than 370s)

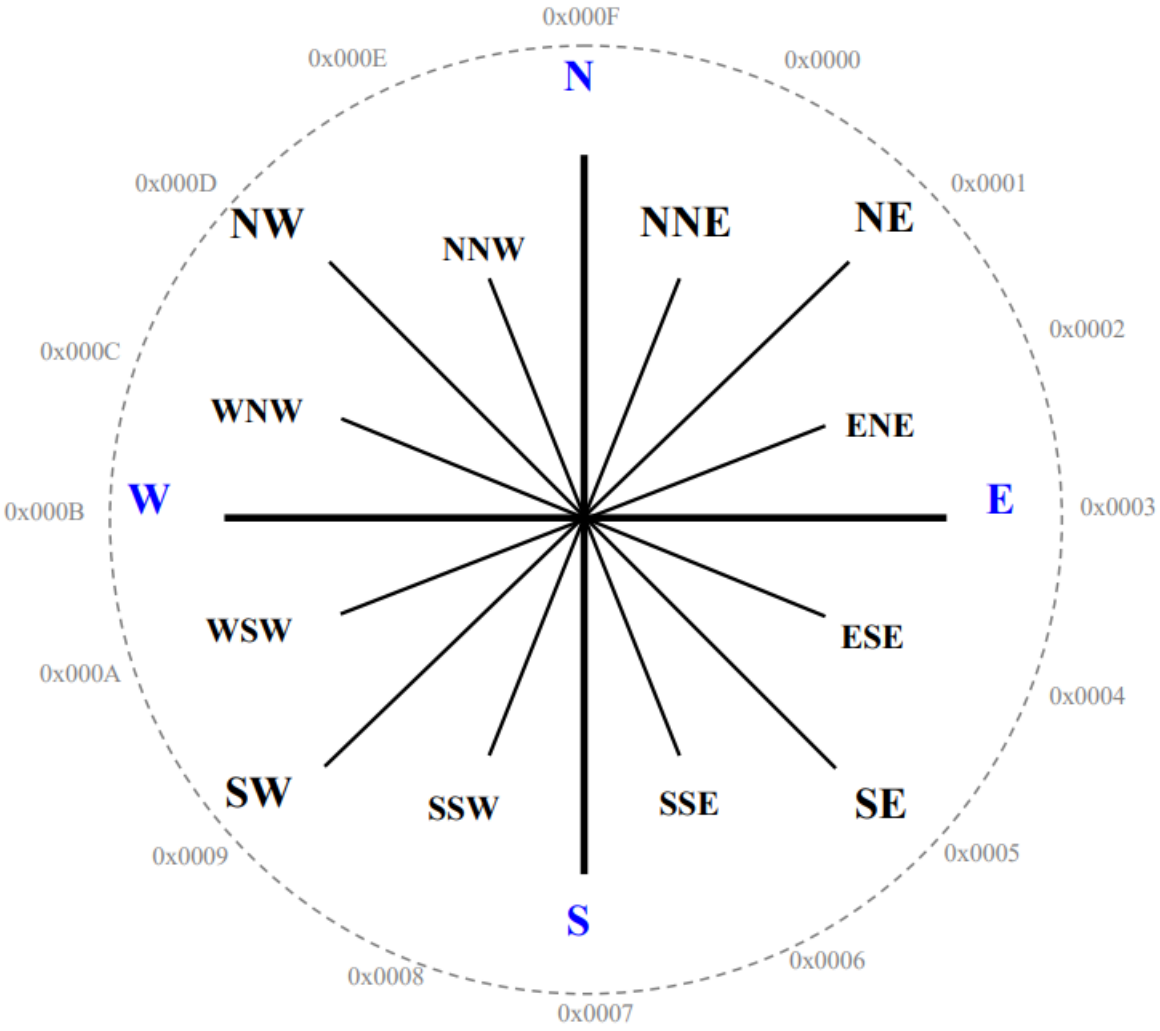
2. Read RA0730 device parameter

   Downlink: 0205000000000000000000

   Device return: 820500780E100000000000 (device current parameter)

Installation

6-1 The output value corresponds to wind direction



Wind direction	The output value
North-northeast	Ox0000
Northeast	Ox0001
East-northeast	0x0002
East	0x0003
East-southeast	0x0004
Southeast	0x0005
South-southeast	0x0006
South	0x0007
South-southwest	0x0008
Southwest	0x0009
West-southwest	Ox000A
West	Ox000B
West-northwest	Ox000C
Northwest	Ox000D
North-northwest	Ox000E
North	Ox000F

6-2 Installation Method of Wind Direction Sensor

Flange installation is adopted. The threaded flange connection makes the lower components of the wind direction sensor firmly fixed on the flange plate. Four installation holes of Ø6mm are on the circumference of the chassis. The bolts are used to tightly fix the chassis on the bracket to make the whole device keep in the best horizontal position to ensure the accuracy of the wind direction data. The flange connection is convenient to use, can withstand greater pressure, and ensures that the aviation connector is facing the direction of the north.

6-3 Installation

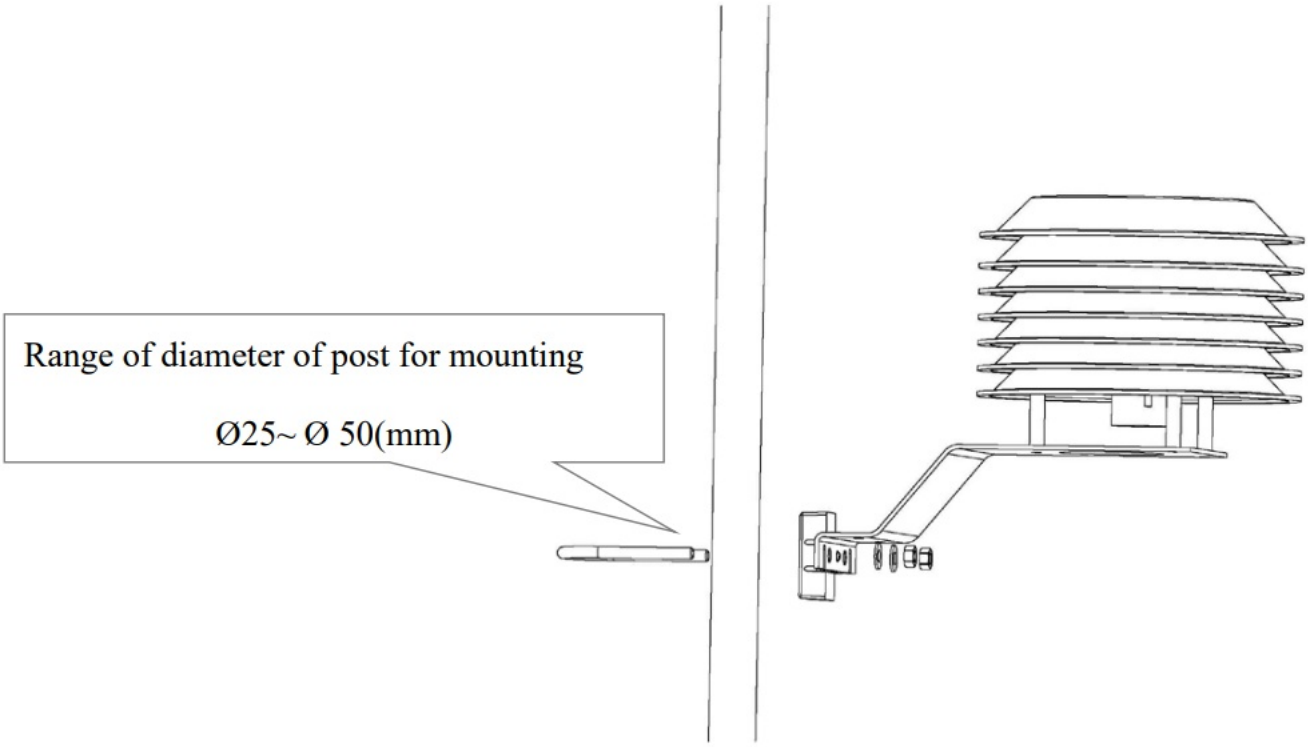
1. The RA0730 does not have the waterproof function. After the device completes joining the network, please place it indoor.
2. The R72630 has a waterproof function. After the device completes joining the network, please place it outdoors.

   (1) In the installed position, loosen the U-shaped screw, the mating washer and the nut at the bottom of R72630, and then make the U-shaped screw pass through the appropriate size cylinder and fix it on the fixing strut flap of R72630. Install the washer and the nut in order and lock the nut till R72630 body is stable and does not shake.

   (2) At the upper side of the fixed position of R72630, loosen the two U-shaped screws, the mating washer and nut on the side of the solar panel. Make the U-shaped screw pass through the appropriate size cylinder and fix them on the main bracket of the solar panel and install the washer and the nut in sequence. Lock nut till the solar panel is stable and does not shake.

   (3) After adjusting the angle of the solar panel completely, lock the nut.

   (4) Connect the top waterproof cable of R72630 with the wiring of the solar panel and lock it tight.

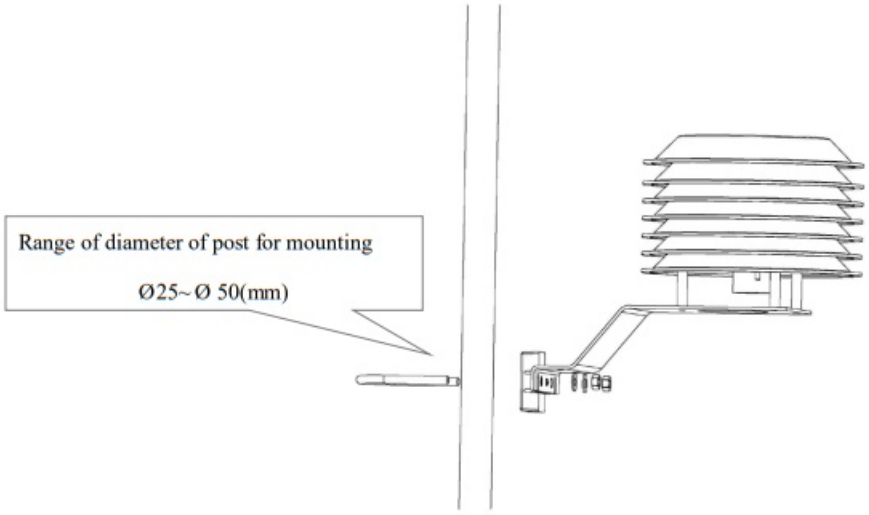


3. RA0730Y is waterproof and can be placed outdoors after the device completes joining the network..

   (1) In the installed position, loosen the U-shaped screw, the mating washer and the nut at the bottom of RA0730Y, and then make the U-shaped screw pass through the appropriate size cylinder and fix it on the fixing strut flap of RA0730Y. Install the washer and the nut in order and lock the nut till RA0730Y body is stable and does not shake.

   (2) Loosen the M5 nut at the bottom of the RA0730Y matte and take the matte together with the screw.

   (3) Make the DC adaptor pass through the central hole of the bottom cover of RA0730Y and insert it into the RA0730Y DC socket, and then put the mating screw to the original position and lock the M5 nut tight.



6-4 Rechargeable lithium battery

R72630 has a battery pack inside. Users can buy and install rechargeable 18650 lithium battery, a total of 3 sections, voltage 3.

every single rechargeable lithium battery, recommended capacity 5000mah. The installation of rechargeable lithium battery st are as follows:

1. Remove the four screws around battery cover.
2. Insert three 18650 lithium batteries. (Please make sure the positive and negative level of the battery)
3. Press the activation button on the battery pack for the first time.
4. After activation, close the battery cover and lock the screws around battery cover.

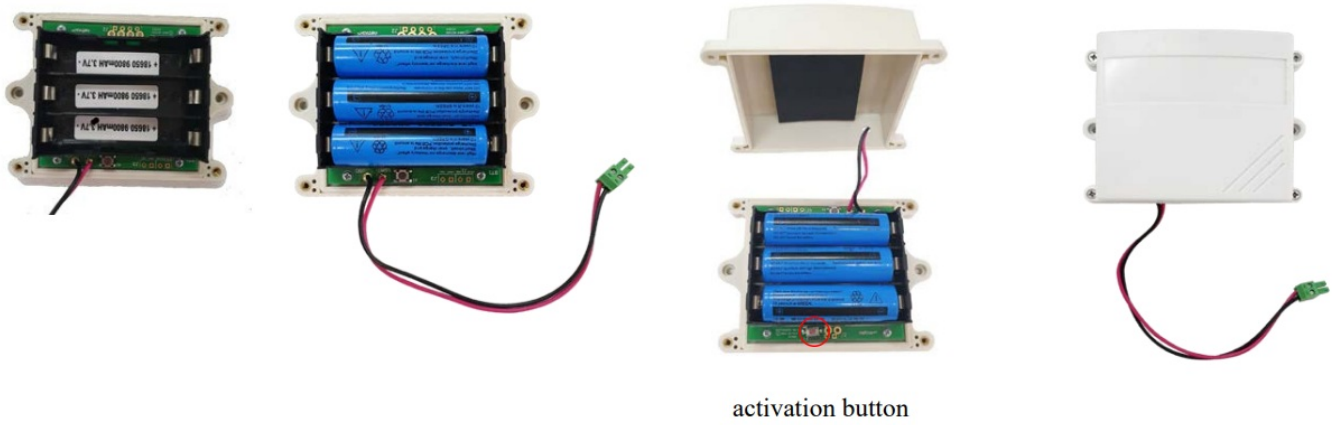


Fig. Rechargeable Lithium Battery

Important Maintenance Instruction

The device is a product with superior design and craftsmanship and should be used with care.
The following suggestions will help you use the warranty service effectively.

- Keep the device dry. Rain, moisture and various liquids or water may contain minerals that can corrode electronic circuits. In case the device is wet, please dry it completely.
- Do not use or store in dusty or dirty areas. This way can damage its detachable parts and electronic components.
- Do not store in excessive heat place. High temperatures can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store in excessive cold place. Otherwise, when the temperature rises to normal temperature, moisture will form inside which will destroy the board.
- Do not throw, knock or shake the device. Treating device roughly can destroy internal circuit boards and delicate structures.
- Do not wash with strong chemicals, detergents or strong detergents.
- Do not paint the device. Smudges can make debris block detachable parts up and affect normal operation.
- Do not throw the battery into the fire to prevent the battery from exploding. Damaged batteries may also explode.

All the above suggestions apply equally to your device, batteries and accessories.
If any device is not operating properly.
Please take it to the nearest authorized service facility for repairing.

Documents / Resources

	**netvox R72630 Wireless Wind Speed Sensor** [pdf] User Manual R72630 Wireless Wind Speed Sensor, R72630, Wireless Wind Speed Sensor, Wind Speed Sensor, Wind Speed Sensor

References

- Netvox Command Resolver

Manuals+,