NiuBoL

Agriculture & Weather IoT Product Providers

Provide accurate meteorological and agricultural sensors

Temperature / Humidity | Water | The soil | Environment | Sensing

Company introduction

Changsha Zoko Link Technology Co., Ltd. (Brand: NiuBoL) : production and sales of soil sensors, automatic weather stations, wind speed sensor, wind direction sensor, ultrasonic sensor, Air temperature, humidity and pressure sensor, rain sensor, Visibility sensor and other sensors, and widely used in poultry breeding , greenhouse automation, irrigated agriculture, forest monitoring, digital agriculture and other application scenarios.

With reliable quality, complete range and reasonable price, our products are exported to many countries such as USA, UK, Portugal, Spain, Netherlands, France, Germany, Romania, Poland, Switzerland, Sweden, Albania, Russia, Belarus, South Korea, Japan, New Zealand, Australia, Qatar, UAE, Saudi Arabia, Serbia (Kosovo), Israel, Palestine, Uzbekistan, India, Pakistan, Bangladesh, Cambodia, Myanmar, Indonesia, Malaysia, Thailand, Singapore, Vietnam, Philippines,Trinidad and Tobago, Mexico, Colombia, Peru, Ecuador, Brazil, Chile, Argentina, Mauritius, Egypt, Algeria, Morocco, Uganda, Nigeria, Zimbabwe, Rwanda and South Africa. And we will always keep the momentum of development, continue to deeply expand the market, and cooperate with everyone for a win-win situation.

Whether it is treating products or customers, we have always been adhering to the business management philosophy of "seeking truth and being pragmatic, and striving for excellence". When dealing with products, every employee of Zoko Link is meticulous, and firmly grasps the quality of each product. When treating customers, we will provide the most professional advice and provide customers with the most professional and most suitable products. For after-sales, we value every customer’s feedback and deal with customer needs immediately. A perfect after-sale can best reflect the true value of a product.

Core competence

Focus on agriculture

Deep technical precipitation
User-centric
Boutique to open up the market

Fully self-produced

Professional R&D team
Standardize the production base
Standard Quality Control

One-stop customized service

Better understanding of needs tailor-made
System integration extension development
Customized special service

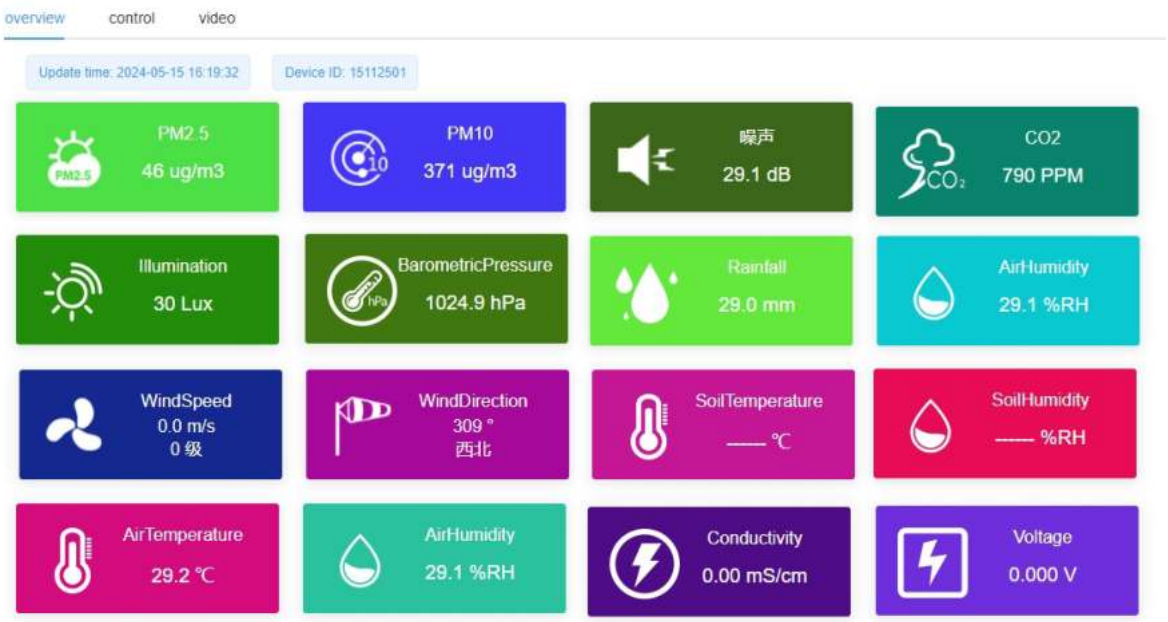
Sound service system

Professional marketing team
Efficient technical support
Reliable after-sales service

Catalog

NiuBoL

Weather Station Series



NiuBoL

NBL-W-SS/Wind speed sensor

NBL-W-SS/The wind speed sensor adopts the traditional three-wind cup wind speed sensor structure, and the wind cup is made of carbon fiber material, which has high strength and good start-up; the built-in signal processing unit of the cup body can output the corresponding wind speed signal according to user needs.

Can be widely used in meteorology, ocean, environment, airports, ports, laboratories, industry and agriculture and transportation and other fields.

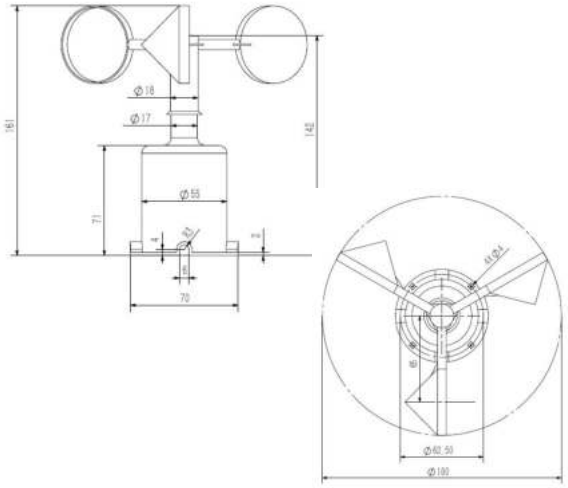
Performance characteristics

- Easy to observe and stable performance
- Choose carbon fiber material
- High strength, good start
- Low power consumption and IP45 protection design

Technical parameter

Measuring range	☐0-45m/s ☐0-70m/s
Accuracy	± (0.3+0.03V) m/s
Resolution	0.1m/s
Start wind speed	⩽0.5m/s
Power supply	☐DC5V ☐DC12V ☐DC24V
Output signal	☐4-20mA ☐RS485 ☐0-5V ☐0-2.5V
Line length	Standard 2.5m (can be customized)
Load capability	Current-mode output impedance: ≤600Ω
	Voltage type output impedance ≥ 1KΩ
Operating temperature	-40-50℃
Working humidity	⩽100%RH
Protection class	Ip45
Product weight	130g
Product power consumption	50mW

Product Size



Installation method

Wind speed sensor
Mounted on a weather station

Specifications and models

Model	Power supply	output method	Description
NBL-W-SS			Wind speed sensor
	5V-		5V power supply
	12V-		12V power supply
	24V-		24V power supply
		A1	0-5V
		V2	0-2.5V
		A1	4-20mA
		W2	Rs485
		M	Pulse
	For example: 5V-M: wind speed sensor (transmitter) 5V power supply, pulse output		

Application field

Meteorological

Agriculture

Ocean

Environment

Harbor

NBL-W-DS/The wind direction sensor adopts a high-precision magnetic sensor chip, and selects a low-inertia ABS wind vane to respond to the wind direction, with good dynamic characteristics. The product has the advantages of large range, good linearity, strong lightning resistance, convenient observation, stability and reliability.

Can be widely used in meteorology, ocean, environment, airports, ports, laboratories, industry and agriculture and transportation and other fields.

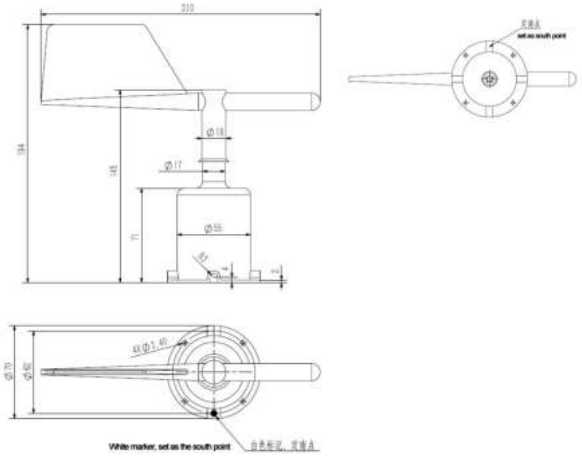
Performance characteristics

- Ip45 protection dynamic characteristics are good
- Large range and good linearity
- Strong anti-lightning ability
- Easy to observe, stable and reliable

Technical parameter

Measuring range	0-360°
Accuracy	±3°
Resolution	1°
Start wind speed	⩽0.5m/s
Power supply	☐DC5V ☐DC12V ☐DC24V
Output signal	☐4-20mA ☐0-5V ☐0-2.5V ☐RS485
Line length	2.5m (can be customized)
Load capability	Current-mode output impedance:⩽250Ω
	Voltage type output impedance ≥ 1KΩ
Operating temperature	-40-50℃
Working humidity	⩽100%RH
Protection class	Ip45
Product weight	210g
Product power consumption	0.15W
Cable grade	Rated voltage: 300V Temperature class: 80℃

Product Size



Installation method

As shown in the picture, use M3 screws and nuts to pass through the sensor4 mounting holes. Fasten the sensor to the mounting bracketPlease avoid disassembling the sensor during installation

Specifications and models

Model	Power supply	output method	Description
NBL-W-DS			Wind direction sensor
	5V		5V power supply
	12V-24V		12V-24V power supply
		V	0-5V
		A1	4-20mA
		W2	Rs485
	Example: 5V-V: Wind direction sensor (transmitter) 5V power supply, 0-5V output		

Application field

Meteorological

Agriculture

Ocean

Environment

Harbor

Atmospheric temperature, humidity and pressure sensor

NBL-W-LBTH/The louver box type atmospheric temperature, humidity and pressure sensor is a fully digital detection, high-precision sensor. It is integrated with high-precision digital temperature, humidity and air pressure. It can accurately and quickly detect atmospheric temperature, atmospheric humidity and atmospheric pressure. The built-in signal processing unit can Output corresponding signals according to user needs, high-strength structural design can accurately detect in harsh weather environments.
Can be widely used in meteorology, ocean, environment, airports, ports, laboratories, industry and agriculture and transportation and other fields.

Performance characteristics

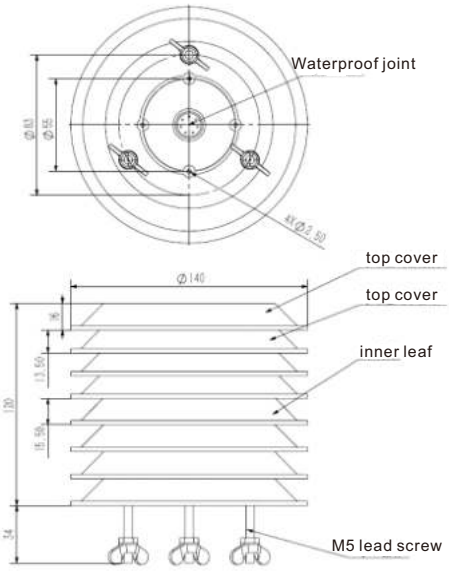
- Stable performance
- Strong anti-interference ability
- Rapid detection of atmospheric temperature, humidity and pressure
- Low power consumption and IP65 protection design

Technical parameter

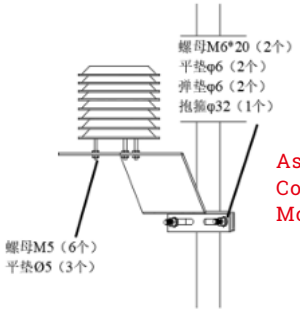
Options	Temperature	Humidity	Air pressure
Measuring range	-40 ~ 80℃	0 ~ 100%RH	10 ~ 1200hPa
Accuracy	±0.5	±5%RH	±1.5hPa
Resolution	0.1℃	0.1%RH	0.1hPa

Measuring range	DC 12V-24V
Output signal	Rs485
Protocol	MODBUS
Materials	ABS
Average power consumption	0.3W
Baud Rate	9600
Operating temperature	-40-70℃
Operating humidity	≤100%RH
Protection class	Lp65

Product Size



Installation method



As the picture shows
Compatible with stand
Mounted on stand

Specifications and models

Model	Power supply	output method	Description
NBL-W-LBTH			temperature and humidity Air pressure sensor
	12V-24V		12V-24V power supply
		W2	Rs485
	For example: 12V-W2: Sensor 12V power supply, RS485 output		

Application field

Meteorological

Agriculture

Ocean

Environment

Harbor

NBL-W-RS/Rain sensor (Rain Gauge) is suitable for meteorological stations (stations), hydrological stations, agriculture, forestry, national defense and other relevant departments, used for remote measurement of liquid precipitation, precipitation intensity, precipitation start and end time

It can be used for automatic hydrological monitoring and reporting systems and automatic field monitoring and reporting stations for the purposes of flood control, water supply scheduling, power station and reservoir water management, etc.

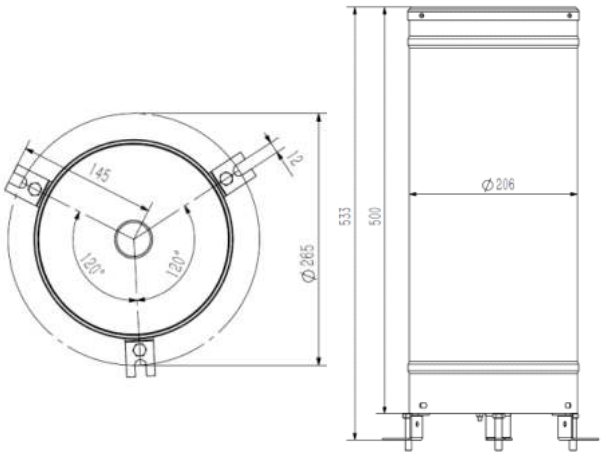
Performance characteristics

- Stable performance
- Anti-static and lightning protection measures
- Extinction treatment, unique structure design
- Low power consumption and IP65 protection design

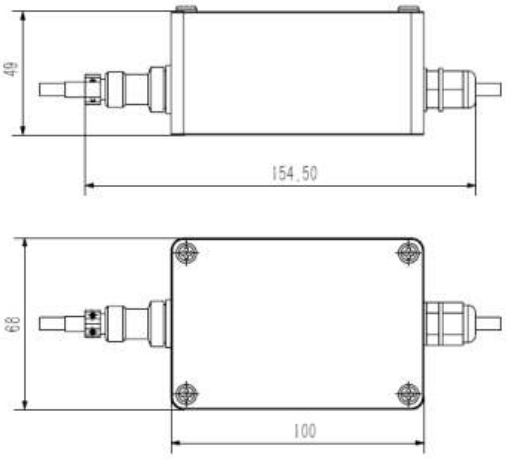
Technical parameter

Water bearing diameter	Φ200 ± 0.6mm, outer edge angle 45 degrees
Measuring range	≤4mm/min (precipitation intensity)
Resolution	0.2mm (6.28ml)
Accuracy	±4% (indoor static test, rain intensity is 2mm/min)
Output signals	Switching signal: reed switch on/off ☐ RS485 ☐ 0~2.5V ☐ 0~5V
Operating temperature	0 ~ 50℃
Storage temperature	-40℃ ~ 80℃
Product weight	Bucket weight 1700 g, total weight 3300 g
Power supply method	☐DC5V ☐DC12-24V

Product Size



Transmitter size



Specifications and models

Model	Power supply	output method	Description
NBL-W-RS			Rain sensor (transmitter)
	12V-24V		
		S	Switching signal output
		V1	0-2.5V
		V2	0-5V
		RS	Rs485
		X	Others
For example: NBL-W-RS-12V-S: Rain sensor 12V power supply, switch signal output			

Application field

Hydrographic Station

Weather station

Flood control

Power Station Reservoir

Agriculture and Forestry

NBL-W-DRS/Double Tipping Bucket Rain Gauge

NBL-W-DRS/Rain sensor (Double Tipping Bucket Rain Gauge) is suitable for meteorological stations, hydrological stations, agriculture, forestry, national defense and other relevant departments, used for remote measurement of liquid precipitation, precipitation intensity, precipitation start and end time

It can be used for automatic hydrological monitoring and reporting systems and automatic field monitoring and reporting stations for the purposes of flood control, water supply scheduling, power station and reservoir water management, etc.

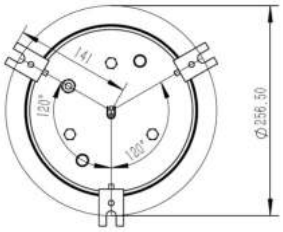
Performance characteristics

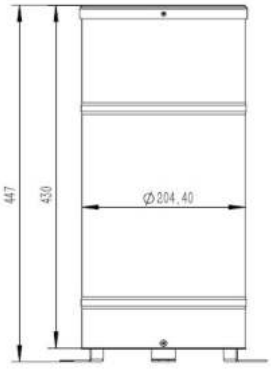
- Stable performance
- Anti-static and lightning protection measures
- Extinction treatment, unique structure design
- Low power consumption and IP65 protection design

Technical parameter

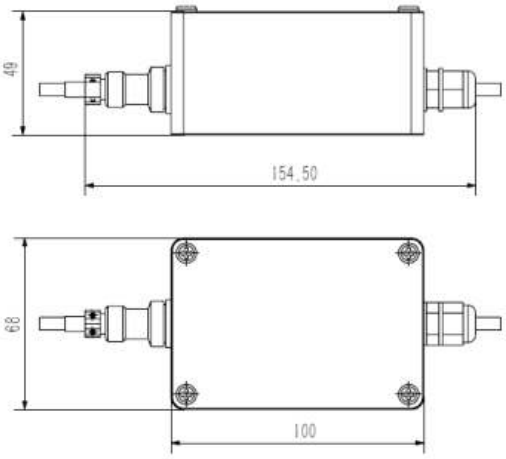
Water bearing diameter	Φ200 ± 0.6mm, outer edge angle 45 degrees
Measuring range	≤4mm/min (precipitation intensity)
Resolution	0.1mm (3.14ml)
Accuracy	±4% (indoor static test, rain intensity is 2mm/min)
Output signals	Switching signal: reed switch on/off ☐ RS485 ☐ 0~2.5V ☐ 0~5V
Operating temperature	0 ~ 60℃
Storage temperature	-40℃ ~ 80℃
Product weight	Bucket weight 2000 g, total weight 3500 g
Power supply method	☐DC5V ☐DC12-24V

Product Size





Transmitter size



Specifications and models

Model	Power supply	output method	Description
NBL-W-DRS			Rain sensor (transmitter)
	12V-24V		
		S	Switching signal output
		V1	0-2.5V
		V2	0-5V
		RS	Rs485
		X	Others
For example: NBL-W-DRS-12V-S: Rain sensor 12V power supply, switch signal output			

Application field


Hydrographic Station


Weather station


Flood control


Power Station Reservoir


Agriculture and Forestry

NBL-W-THPLC/Temperature, humidity, Pressure, illumination and CO2 sensor

NBL-W-THPLC/ 5 in 1 temperature, humidity, barometric pressure, illumination and CO2 sensor is a fully digital detection, high-precision sensor, is composed of high-precision digital temperature, humidity, barometric pressure, CO2 and high sensitivity silicon blue volt detector as illumination sensor integration, can be accurate and fast detection of atmospheric temperature, atmospheric humidity, illumination, CO2 and barometric pressure values.

Widely used in meteorology, marine, environment, airports, ports, laboratories, industry, agriculture and transport.

Performance characteristics

- Fast detection of temperature and humidity, pressure, illumination, Co2
- Accurate detection in harsh climatic environments
- Stable performance
- Low power consumption and IP65 protection design

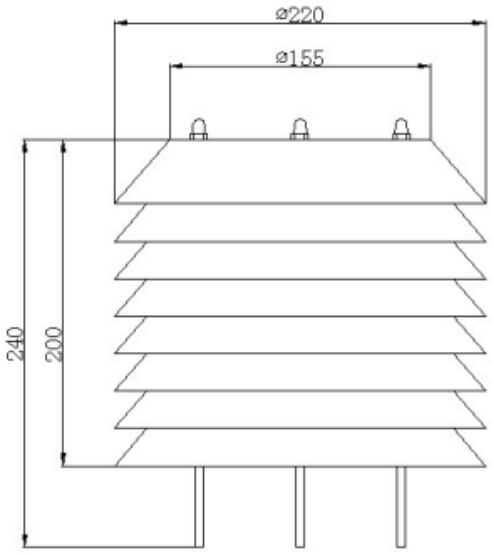
Technical parameter

Options	Temperature	Humidity	Air pressure
Measuring range	-50 ~ 100℃	0 ~ 100%RH	500 ~ 1100hPa
Accuracy	±0.5	±5%RH	±0.3hPa
Resolution	0.1℃	0.1%RH	0.1hPa

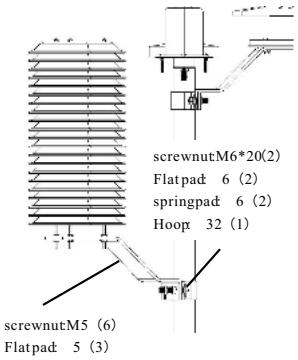
Options	illumination	Co2
Measuring range	0-200000Lux	0~2000ppm
Accuracy	1Lux	± （40ppm+2%F•S
Resolution	±7%	1ppm

Power supply mode	☐DC 12V ☐DC 24V ☐Other
Output form	☐Rs485 ☐Other
Load resistance	Voltage type: RL≥1K Current type: RL≤300Ω
Working temperature	-50℃ ~ 80℃
Relative humidity	0~100%

Product Size



Installation method



Specifications and models

Model	Power supply	output method	Description
NBL-W-THPLC			Temperature, humidity, barometric Pressure, illumination, CO2 sensors
	12V-24V		12V-24V power supply
		W2	Rs485
	For example: 12V-W2: Sensor12V power supply, RS485 output		

Application field

Meteorological

Agriculture

Ocean

Environment

Harbor

NBL-W-51MUWS/5in1 Ultrasonic Weather Station

NBL-W-51MUWS/The 5-in-1 miniature ultrasonic weather station is a fully digital detection, high-precision sensor, which is integrated by ultrasonic principle wind speed and direction sensor, high-precision digital temperature, humidity, and air pressure sensor, which can accurately and quickly detect wind speed, wind direction, atmospheric temperature, Atmospheric humidity and atmospheric pressure, built-in signal processing unit can output corresponding signals according to user needs, high-strength structural design can work reliably in harsh weather environments

Can be widely used in meteorology, ocean, environment, airports, ports, laboratories, industry and agriculture and transportation and other fields.

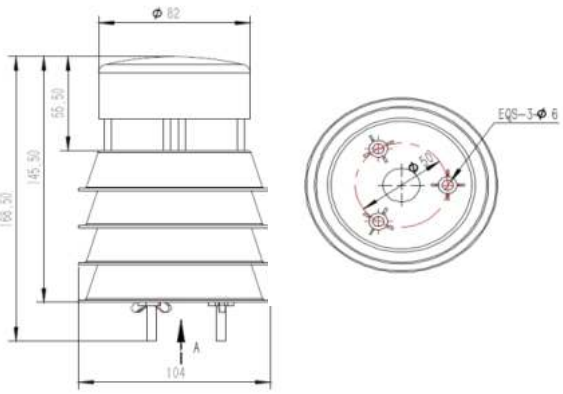
Performance characteristics

- Stable performance
- Anti-static protection
- Lightning protection measures
- Low power consumption and IP65 protection design

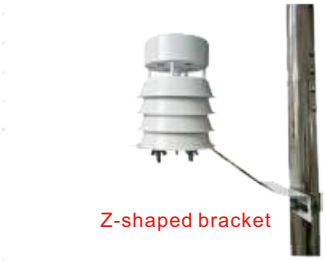
Technical parameter

Power supply		DC12V-24V
Signal output		Rs485
Baud rate		9600
Signal output		MODBUS protocol
Operating temperature		-40-80℃
Working humidity		0-95%RH
Standard cable length: 2.5m,		Material: ABS, protection grade: IP65
Pressure Range		10-1100hPa
Wind speed	Measuring range	0-40m/s
	Measurement accuracy	±0.5+2%FS
	Resolution	0.01m/s
Wind direction	Measuring range	0-360°
	Measurement accuracy	±3°
	Resolution	1°
Temperature	Measuring range	-50-100℃
	Measurement accuracy	±0.5℃
	Resolution	0.1℃
Humidity	Measuring range	0-100%RH
	Measurement accuracy	±5%RH
	Resolution	0.1%RH

Product Size



Installation method



Installation method: 32 hoop and 76 hoop optional (according to the site bracket to choose)

Z-shaped bracket

Instructions for use

The sensor can be installed in any required direction, the meteorological instrument measures the wind speed and direction on different wind surfaces, and the detector should point the pointing point to the north before fixed installation.

Application field

Meteorological

Agriculture

Ocean

Environment

Harbor

NBL-W-71GUWS/7-in-1 Ultrasonic Weather Sensor

NBL-W-71GUWS/7-in-one ultrasonic multi-parameter integrated weather sensor is a fully digital detection, high-precision sensors, can quickly and accurately detect the wind speed, wind direction, atmospheric temperature, atmospheric humidity, atmospheric pressure, the built-in signal processing unit can be output according to the user's needs of the corresponding signals, can be optionally integrated with the PM2.5, PM10, noise, radiation, rainfall and other elements. High-strength structural design can work reliably in the harsh climate environment, high integration, rugged. Widely used in meteorology, environment, airports, harbours, laboratories, industry and agriculture, and transport.

Performance characteristics

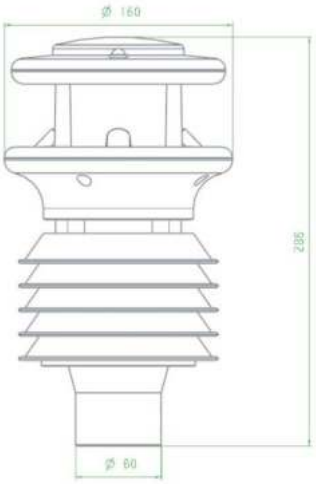
- Stable performance
- Anti-static protection
- Lightning protection measures
- Low power consumption and IP65 protection design

Technical parameter

Power supply	DC12V-24V	
Signal output	Rs485	
Baud rate	9600	
Communication protocols	MODBUS protocol	
Operating temperature	-40-80℃	
Working humidity	0-95%RH	
Standard cable length: 2.5m,	Material: ABS, protection grade: IP65	
Measurement range		
Wind speed	Measuring range	0-60m/s
	Measurement accuracy	±0.3+3%FS
	Resolution	0.01m/s
Wind direction	Measuring range	0-359°
	Measurement accuracy	±3°
	Resolution	1°
Temperature	Measuring range	-40-80℃
	Measurement accuracy	±0.5℃
	Resolution	0.1℃
Humidity	Measuring range	0-100%RH
	Measurement accuracy	±5%RH
	Resolution	0.1%RH
Pressure	Measuring range	10-1100 hPa
	Measurement accuracy	±1.5 hPa
	Resolution	0.1 hPa
Illumination	Measuring range	0～200000Lux
	Measurement accuracy	±7%
	Resolution	10Lux
Rainfall	Measuring range	0～8mm/min
	Measurement accuracy	±10%
	Resolution	0.01mm
Radiation	Measuring range	0～1500W/m2
	Measurement accuracy	±10%
	Resolution	1W/m2

Note: Radiation & Illumination can only be either one or the other.

Product Size



Instructions for use

Positioning: generally the device is mounted on a vertical mounting tube to ensure that measurements are taken on the same horizontal plane;
Alignment: the detector should be installed with the pointing point pointing north before fixing.
Note: It is ideal to use a standard compass to determine the geographic north pole direction during installation and to keep the instrument pointing north in the same direction as the compass;

Application field


Meteorological


Agriculture


Airports


Environment


Harbor

NBL-W-81GUWS/8 in 1Ultrasonic Weather Sensor

NBL-W-81GUWS/8-in-one ultrasonic multi-parameter integrated weather sensor is a fully digital detection, high-precision sensors, can quickly and accurately detect the wind speed, wind direction, atmospheric temperature, atmospheric humidity, atmospheric pressure, the built-in signal processing unit can be output according to the user's needs of the corresponding signals, can be optionally integrated with the PM2.5, PM10, noise, radiation, rainfall and other elements. High-strength structural design can work reliably in the harsh climate environment, high integration, rugged. Widely used in meteorology, environment, airports, harbours, laboratories, industry and agriculture, and transport.

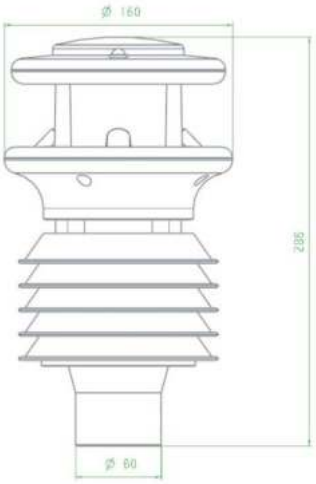
Performance characteristics

- Stable performance
- Anti-static protection
- Lightning protection measures
- Low power consumption and IP65 protection design

Technical parameter

Power supply	DC12V-24V	
Signal output	Rs485	
Baud rate	9600	
Communication protocols	MODBUS protocol	
Operating temperature	-40-80℃	
Working humidity	0-95%RH	
Standard cable length: 2.5m,	Material: ABS, protection grade: IP65	
Measurement range		
Wind speed	Measuring range	0-60m/s
	Measurement accuracy	±0.3+3%FS
	Resolution	0.01m/s
Wind direction	Measuring range	0-359°
	Measurement accuracy	±3°
	Resolution	1°
Temperature	Measuring range	-40-80℃
	Measurement accuracy	±0.5℃
	Resolution	0.1℃
Humidity	Measuring range	0-100%RH
	Measurement accuracy	±5%RH
	Resolution	0.1%RH
Pressure	Measuring range	10-1100 hPa
	Measurement accuracy	±1.5 hPa
	Resolution	0.1 hPa
PM2.5	Measuring range	0～1000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
PM10	Measuring range	0～2000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
Noise	Measuring range	30～130dB
	Measurement accuracy	±5dB
	Resolution	0.1dB

Product Size



Instructions for use

Positioning: generally the device is mounted on a vertical mounting tube to ensure that measurements are taken on the same horizontal plane;
Alignment: the detector should be installed with the pointing point pointing north before fixing.
Note: It is ideal to use a standard compass to determine the geographic north pole direction during installation and to keep the instrument pointing north in the same direction as the compass;

Application field


Meteorological


Agriculture


Airports


Environment


Harbor

NBL-W-91GUWS/9-in-1 Ultrasonic Weather Sensor

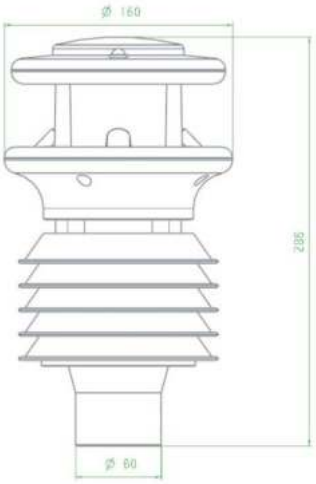
NBL-W-91GUWS/9-in-one ultrasonic multi-parameter integrated weather sensor is a fully digital detection, high-precision sensors, can quickly and accurately detect the wind speed, wind direction, atmospheric temperature, atmospheric humidity, atmospheric pressure, the built-in signal processing unit can be output according to the user's needs of the corresponding signals, can be optionally integrated with the PM2.5, PM10, noise, radiation, rainfall and other elements. High-strength structural design can work reliably in the harsh climate environment, high integration, rugged. Widely used in meteorology, environment, airports, harbours, laboratories, industry and agriculture, and transport.

Technical parameter

Power supply	DC12V-24V	
Signal output	Rs485	
Baud rate	9600	
Communication protocols	MODBUS protocol	
Operating temperature	-40-80℃	
Working humidity	0-95%RH	
Standard cable length: 2.5m,	Material: ABS, protection grade: IP65	
Measurement range		
Wind speed	Measuring range	0-60m/s
	Measurement accuracy	±0.3+3%FS
	Resolution	0.01m/s
Wind direction	Measuring range	0-359°
	Measurement accuracy	±3°
	Resolution	1°
Temperature	Measuring range	-40-80℃
	Measurement accuracy	±0.5℃
	Resolution	0.1℃
Humidity	Measuring range	0-100%RH
	Measurement accuracy	±5%RH
	Resolution	0.1%RH
Pressure	Measuring range	10-1100 hPa
	Measurement accuracy	±1.5 hPa
	Resolution	0.1 hPa
Illumination	Measuring range	0～200000Lux
	Measurement accuracy	±7%
	Resolution	10Lux
PM2.5	Measuring range	0～1000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
PM10	Measuring range	0～2000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
Rainfall	Measuring range	0～8mm/min
	Measurement accuracy	±10%
	Resolution	0.01mm
Radiation	Measuring range	0～1500W/m2
	Measurement accuracy	±10%
	Resolution	1W/m2

Note: Radiation & Illumination can only be either one or the other.

Product Size



Instructions for use

Positioning: generally the device is mounted on a vertical mounting tube to ensure that measurements are taken on the same horizontal plane;
Alignment: the detector should be installed with the pointing point pointing north before fixing.
Note: It is ideal to use a standard compass to determine the geographic north pole direction during installation and to keep the instrument pointing north in the same direction as the compass;

Application field


Meteorological


Agriculture


Airports


Environment


Harbor

NBL-W-10GUWS/10-in-1 Ultrasonic Weather Sensor

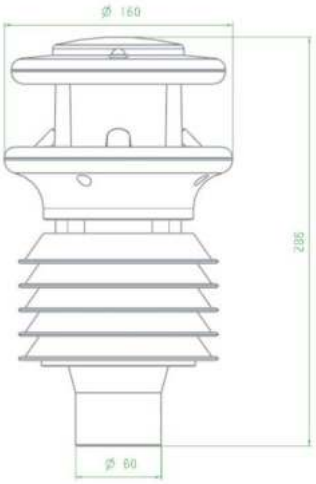
NBL-W-10GUWS/All-in-one ultrasonic multi-parameter integrated weather sensor is a fully digital detection, high-precision sensors, can quickly and accurately detect the wind speed, wind direction, atmospheric temperature, atmospheric humidity, atmospheric pressure, the built-in signal processing unit can be output according to the user's needs of the corresponding signals, can be optionally integrated with the PM2.5, PM10, noise, radiation, rainfall and other elements. High-strength structural design can work reliably in the harsh climate environment, high integration, rugged. Widely used in meteorology, environment, airports, harbours, laboratories, industry and agriculture, and transport.

Technical parameter

Power supply		DC12V-24V
Signal output		Rs485
Baud rate		9600
Communication protocols		MODBUS protocol
Operating temperature		-40-80℃
Working humidity		0-95%RH
Standard cable length: 2.5m,		Material: ABS, protection grade: IP65
Measurement range		
Wind speed	Measuring range	0-60m/s
	Measurement accuracy	±0.3+3%FS
	Resolution	0.01m/s
Wind direction	Measuring range	0-359°
	Measurement accuracy	±3°
	Resolution	1°
Temperature	Measuring range	-40-80℃
	Measurement accuracy	±0.5℃
	Resolution	0.1℃
Humidity	Measuring range	0-100%RH
	Measurement accuracy	±5%RH
	Resolution	0.1%RH
Pressure	Measuring range	10-1100 hPa
	Measurement accuracy	±1.5 hPa
	Resolution	0.1 hPa
PM2.5	Measuring range	0～1000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
PM10	Measuring range	0～2000ug/m3
	Measurement accuracy	±10%
	Resolution	1ug/m3
Noise	Measuring range	30～130dB
	Measurement accuracy	±5dB
	Resolution	0.1dB
Illumination	Measuring range	0～200000Lux
	Measurement accuracy	±7%
	Resolution	10Lux
Rainfall	Measuring range	0～8mm/min
	Measurement accuracy	±10%
	Resolution	0.01mm
Radiation	Measuring range	0～1500W/m2
	Measurement accuracy	±10%
	Resolution	1W/m2

Note: Radiation & Illumination can only be either one or the other.

Product Size



Instructions for use

Positioning: generally the device is mounted on a vertical mounting tube to ensure that measurements are taken on the same horizontal plane;
Alignment: the detector should be installed with the pointing point pointing north before fixing.
Note: It is ideal to use a standard compass to determine the geographic north pole direction during installation and to keep the instrument pointing north in the same direction as the compass;

Application field


Meteorological


Agriculture

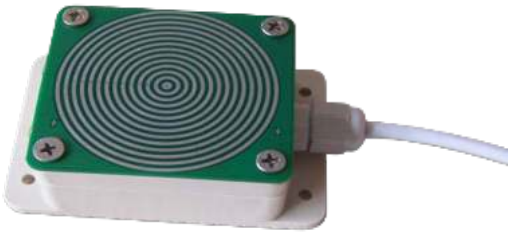

Airports


Environment


Harbor

NBL-W-RSS /rain and snow sensor adopts surface grating electrode to sense the external rain and snow condition, and adopts imported intelligent microprocessor inside, which has sensitive response and high measurement precision. Built-in automatic heating device can exclude the rain and snow attached to the interference, to protect the normal operation of the system. Output a set of relay normally open/closed switch signal, convenient for installation and use.

This product can be widely used in meteorology, ocean, environment, airport, port, laboratory, industry and agriculture and transportation and other fields of rain and snow qualitative measurement.

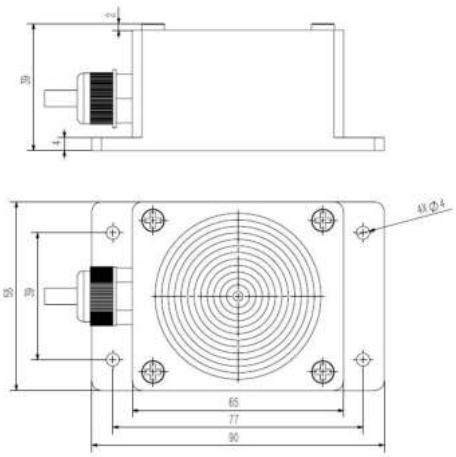


- Built-in automatic heating device
- Easy installation

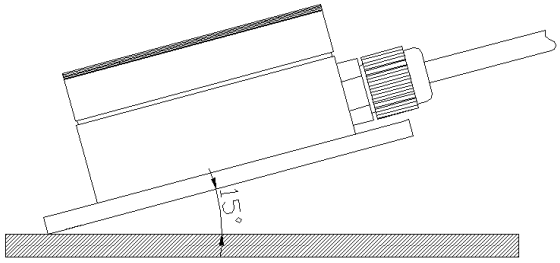
Technical parameter

Rain and snow sensor	
Measuring range	Rain, snow present or absent
Working Temperature	-40℃ ~ 8 0℃
Working humidity	≤100%RH
Output Switching	☐ Normally open □ Normally closed
Product weight	120 g
Power supply	☐DC12-24V
Power consumption	1.5W

Product Size

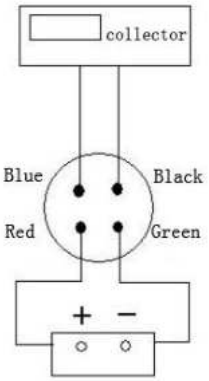


Installation instruction



Keep the sensor sensing surface approximately 15° from horizontal (to prevent rain or snow build-up from affecting sensor measurements) and secure the sensor to the mount as shown;

Wiring Method



Application field


Hydrographic Station


Weather station


Flood control


Power Station Reservoir


Agriculture and Forestry

NBL-W-CO2/The CO2 sensor adopts imported sensing chips and is used to detect the concentration of CO2 in various environments with high precision and good stability. The signal transmitter adopts advanced integrated circuit module, which can output voltage, current and other signals according to different needs of users. The instrument is compact in size, easy to install and reliable in performance; it adopts proprietary circuitry, good linearity, strong load capacity, long transmission distance and strong anti-interference ability.

This product can be widely used in the detection of CO2 concentration in office buildings, public places, greenhouses, production plants and other places.

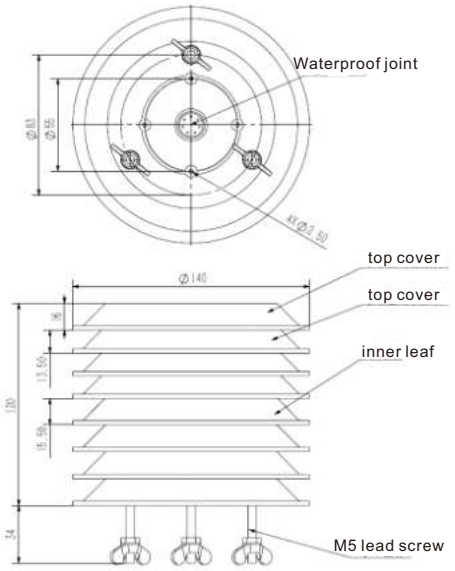
Performance characteristics

- Good linearity with proprietary lines
- High load capacity
- Long transmission distance
- High immunity to interference

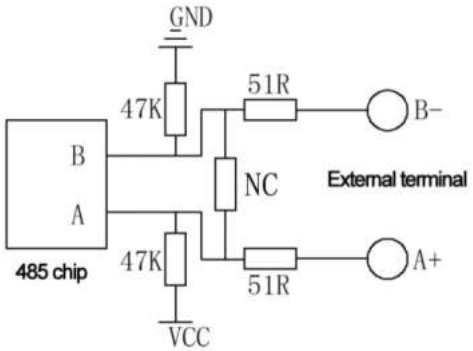
Technical parameter

Range	0～5000ppm or 0~2000ppm
Accuracy	±(50ppm+3%F•S)
Resolution	1ppm
Power supply mode	☐DC 12V ☐DC 24V ☐Other
Output form	☐Current: 4～20mA ☐Rs485 ☐Other
Lnstrument cable length	☐Standard: 2.5 meters ☐Other
Current type	Rl≤250Ω
Relative humidity	0～100%
Working temperature	-10 ～50℃
Product weight	140g
Product power consumption	0.2W

Product Size



Rs485 Circuit



Selection table

Number	Power supply Mode	Output Signal	Description
NBL-W-CO2			Carbon dioxide sensor (transmitter)
	12V-24V		12V-24V power supply
		A1	4-20mA
		W2-	Rs485
	Example: W-CO2-12V-A1: Carbon dioxide sensor (transmitter) 12V power supply, 4-20mA current signal output		

Application field

Production plant

Greenhouse

Public spaces

Environment

Office Building

NBL-W-LUX/The illuminance sensor transmitter uses a highly sensitive silicon blue photovoltage detector as the sensor. Users can configure different ranges according to different measuring places, with a wide measuring range, good linearity, good waterproof, easy installation, suitable for long-distance transmission and other characteristics.

It can be widely used in agricultural greenhouses, urban lighting and other places.

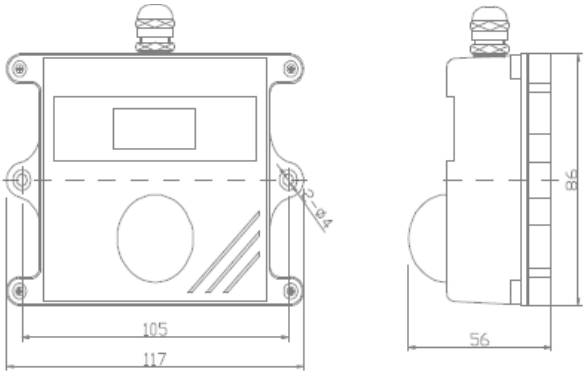
Performance characteristics

- Wide measuring range
- Good linearity and waterproofness
- Easy to install
- Suitable for long distance transmission

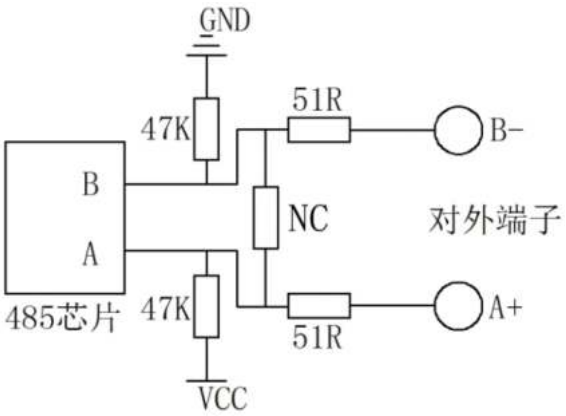
Technical parameter

Measuring range	0-200000Lux
Wavelength range	380 nm-730 nm
Accuracy	±7%
Power supply mode	☐DC 12V □DC 24V □Other
Output form	Current: 4～20mA □Voltage: 0～5V □Rs485 □Other
Lnstrument cable length	☐Standard: 2.5 meters □Other
Load Resistance	☐Voltage type: RL≥ 1K □Current type: RL ≤ 300Ω
Working temperature	-10℃～70℃
Relative humidity	0～80%RH
Product weight	170 g

Product Size



Rs485 circuit



Specifications and models

Model	Power supply	output method	Description
NBL-W-LUX			Illuminance sensors
	5V-		5V supply
	12V-		12V supply
	24V-		24 V supply
		V	0-5V
		A1	4-20mA
		W2	Rs485
	Example: 12V-A1:Illuminance sensor 12V power supply, 4-20mA output		

Application field

Meteorological

Agriculture

Conservatories

Environment

Livestock farming

NBL-W-SDS/Sunshine Duration Sensor

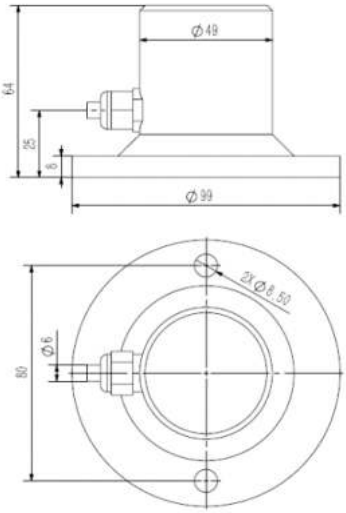
NBL-W-SDS Sunshine Duration Sensor is used for continuous measurement of sunshine hours, when the value of radiation voltage irradiated on the instrument is greater than a preset threshold (200mv), the time is accumulated, and the zero point of each day is cleared, and it is automatically recorded by the collector as the number of sunshine hours. The instrument itself has no moving parts and low power consumption, making it suitable for long-term observation in the field.

The core device of NBL-W-SDS Sunshine Duration Sensor is a high-precision light-sensing element with good stability and high precision; meanwhile, a quartz glass cover made of precision optical cold processing and grinding is installed outside the sensing element, which effectively prevents the influence of environmental factors on its performance. The product can be widely used in meteorology, energy, agriculture, construction and other fields.

Technical parameter

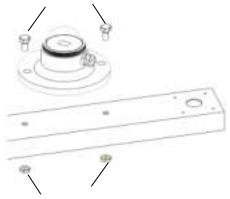
Measuring range	0 ~ 24h
Working environment	Temperature -50℃～80℃ Humidity ≤100%RH
Power supply	DC 12-24V
Output format	□4~20mA □0~2.5V □0~5V □RS485
Product power consumption	0.15W
Spectral range	0.3 ~ 3μm
Response time	<5s
Temperature dependent	＜± 0.08%℃
Temperature characteristic	2%(-10℃ ~ +40℃)
Cosine Response	<±10% (when the sun altitude angle is 10°)
Nonlinear	<±2%
Annual rate of change	<±2%
Product weight	Sensor 420g with transmitter 760g
Line length	2.5m

Product Size



Installation method

M6*20 Hexagon Screws (2pcs)



M6 nut, ¢6 flat washer
¢6 spring washer (2 each)

1. Make sure the mounting bracket is parallel to the ground;
2. As shown in the figure, use M6 screws and nuts to fix the sensor on the mounting bracket through the 2 mounting holes on the sensor;
3. Please avoid disassembling the sensor during the installation process

Specifications and models

Model	Power supply	output method	Description
NBL-W-SDS			Sunshine Duration Sensor
	12V-24V		12-24V power supply
		V	0-5V
		V2	0-2.5V
		A1	4-20mA
		W2	Rs485
	Example: 12V-24V-A1: Sunshine Duration Sensor 12V-24V power supply, 4-20mA current signal output		

Application field

Climate sounding

Agriculture

Meteorological sounding

Building

Energy

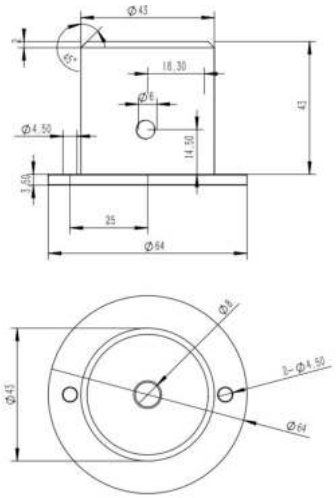
NBL-W-PARS /Photosynthetic Effective Radiation Meter also known as (PAR sensor) is mainly used to measure the photosynthetic effective radiation of natural light in the wavelength range of 400-700nm and is simple to use, can be directly connected to a digital voltmeter or data collector, and can be used in all-weather conditions.

The meter uses a silicon photodetector and passes through a 400 to 700nm optical filter. When there is light irradiation, a voltage signal proportional to the intensity of the incident radiation is generated, and its sensitivity is proportional to the cosine of the angle of direct incidence of the incident light, and each photosynthetically active radiation meter unit is W/m2, which is widely used in agrometeorology, crop growth research.

Technical parameter

Measuring range	0 ~ 2000W/m2
Spectral range:	400-700nm
Power supply	□DC12V-24V
Output	□0~2.5V □0~5V □RS485
Working environment	Temperature -40℃~60℃, humidity≤100%RH
Cosine correction:	up to 80° angle of incidence
Response time	approx. 1s (99%)
Temperature dependence:	max 0.05%/°C
Sensitivity:	5～50μv/μmol-s¹
Internal resistance:	<2K
Line length	2.5m

Product Size



Installation and Maintenance

1. Selection of site
The ideal location for PAR Sensors should be free of any obstacles at the upper end of its sensing element, ensure that there are no obstacles with a height angle of more than 5° on the sunrise and sunset bearing, and should avoid the phenomenon of shadows falling on the sensing surface.

2.Installation
It is recommended that users check the delivered products for any damage caused by transport before installation, and should contact the manufacturer in time.
NBL-W-PARS/PAR Sensors has 2 screw holes with 2 stainless steel screws. Firstly, fix the photosynthetically active radiation meter firmly on the bracket, adjust the horizontal position and tighten it, then connect the output wire to the data collector box, then you can observe.

3.Maintenance
The photosynthetically active radiation sensor that works continuously is checked at least once a week, and the content of the check mainly depends on whether the cosine correction piece is clean or not, such as the appearance of ice, snow, dust, etc. should try to remove these deposits.

If a digital voltmeter is used for measurement, the measured voltage value divided by the sensitivity coefficient of the photosynthetically active radiation meter is the radiation quantity.

Specifications and models

Model	Power supply	output method	Description
NBL-W-PARS			PAR sensor
	12V-24V		12-24V power supply
		V	0-5V
		V2	0-2.5V
		W2	Rs485
	Example: 12V-24V-W2: PAR sensor 12V-24V power supply, RS485 signal output		

Application field

Meteorological studies

Agriculture

Meteorological sounding

Noise sensor is a device used to measure noise, which senses, measures and analyses noise levels in the environment. Such sensors have a variety of application scenarios, such as urban environment monitoring, industrial noise control, medical devices, and sleep monitoring.

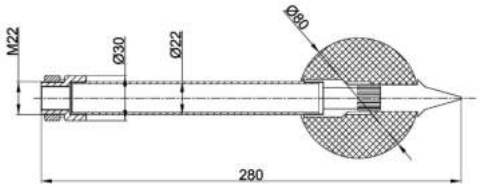
In urban environment monitoring, noise sensors are placed in different areas of the city to monitor the noise levels in the city.

In terms of industrial noise control, noise sensors can be used to monitor noise levels in workplaces to ensure that they meet health and safety standards.

Technical parameter

Noise sensor	
Measuring range	30~130dB.
Frequency range	31.5Hz to 8kHz.
Microphone:	Condenser microphone.
Output	RS485
Microphone size	0.5 inches.
Power supply	□DC12-24V
Working temperature	-15-50°C
Working humidity	<80%

Product Size



Installation instruction

Wiring Method

Red: Power +

Black (Green): Power -

Yellow: A+/TX

Blue: B-/RX

Application field

Metro

City

Park

Factory

Interior Architecture

NBL-W-SNOW/Snow Depth Sensor The snow sensor is an intelligent snow depth sensor that uses ultrasonic telemetry technology to realize automatic and continuous monitoring of snow depth; it calculates the snow depth by transmitting 50KHz ultrasonic waves to measure the time difference from the process of transmitting to returning the signal.

This product can be widely used in the measurement of meteorology, airports, ports, laboratories, industry, agriculture and transportation.

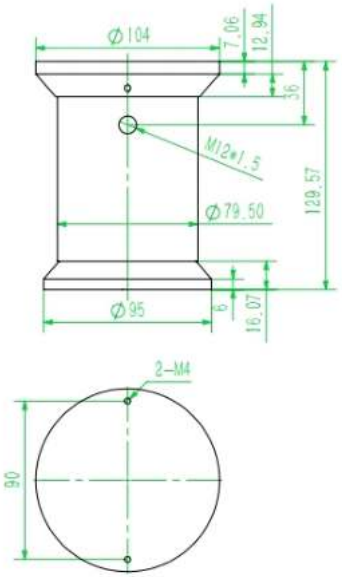
Performance characteristics

- Low power consumption
- Stable performance
- All-in-one design
- Lp66 protection design

Technical parameter

Power	City electricity
Power	DC 12V
Communication	Rs485
Power consumption	Normal temperature：180mW
	Low temperature (<5℃) turn on heating：3 W
Baud rate	9600bps
Working environment	-40—50℃；≤ 100%RH
Storage environment	-40—65≤ 100%RH
Measuring range	01000mm
Measurement precision	±0.1%FS
Length of cable	Standard 5 meters

Product Size



Front view

Selection table

Number	Power supply Mode	Output Signal	Description
NBL-W-SNOW			Snow Depth Sensor
	12V-24V		12V power supply
		W2-	Rs485
	Example:W-SNOW-12V•A1: Snow Depth Sensor 12V power supply		

Application field

Meteorological

Agriculture

Snow

Environment

Harbor

NBL-W-VS/Visibility meters provide measurements related to meteorological visibility, and the sensors are designed based on the aerosol forward scattering principle, which is a new generation of meteorological visibility monitoring equipment developed following the transmission visibility meter.

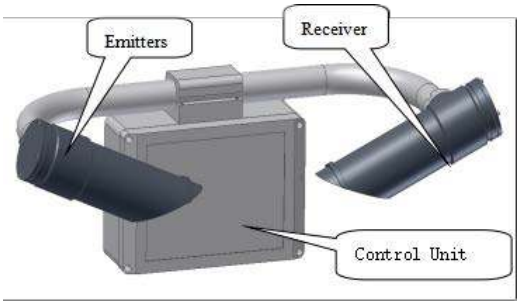
The visibility meter is composed of light transmitter, light receiver and microprocessor controller and other main components. The transmitter emits infrared pulse light, the receiver simultaneously detects the intensity of the pulse light scattered by the forward scattering of aerosol particles in the atmosphere, and all the measurement information is collected by the microprocessor controller and converted into Meteorological Optical Range (MOR) through special mathematical modelling algorithms.

The sensor can be widely used in meteorological stations, remote automatic weather stations, and airports, highways, airways, large ships and other transport sectors.

Technical parameter

Visibility sensor	
Measuring range	Basic:5-10KM Extended type:5-20KM
Working Temperature	-40℃ ~ 8 0℃
Working humidity	≤ 95%RH
Output	RS485
Product weight	<10Kg
Power supply	□DC12V
Power consumption	0.8W
Technical principle	Light scattering
Material	Anodised rigid aluminium with painted exterior
Size	610mm x 230mm x 300mm
Protection class	IP65

Structure composition



Instrument Benefits

- Structural features: visibility meter with integrated structure design, can also be used as a portable instrument; unique double scattering receiver structure design.
- The transmitter and receiver window lenses have been treated with special anti-dust and anti-mould coating.
- Materials: High quality rigid aluminium and 316 stainless steel with anodized passivated surfaces; the interior of the housing is sealed for coastal climate adaptability.
- Real-time data display: the sensor can output a series of digital information every 60 seconds.

Installation instruction

Front Mounting Diagram

Rear Mounting Diagram

Application field

Airports

Weather station

waterways

Highways

Ports

NBL-W-HPRS/Total solar radiation sensor

NBL-W-HPRS/The high-precision total solar radiation sensor adopts the principle of thermoelectric induction and is used in conjunction with various radiation recorders or radiation ammeters to accurately measure the sun's TBQ total radiation, reflected radiation, scattered radiation, infrared radiation, visible light, ultraviolet radiation, long-wave radiation, etc.

It can be widely used in solar energy utilization, meteorology, agriculture, aging of building materials and air pollution to measure solar radiation energy.

Performance characteristics

- Stable performance
- Anti-static and lightning protection measures
- Unique structure design
- Low power consumption and IP65 protection design

Technical parameter

Sensitivity	7 ~ 14μV / w.m-2
Response time	≤35 seconds (99%)
Lnternal resistance	About 350Ω
Weight	2.5kg
Spectral range	0.3 ~ 3μm
Yearly Stability	±2%
Cosine Response	≤ ±7% (when the sun altitude angle is 10°)
Azimuth response error	≤5% (when the sun altitude angle is 10°)
Temperature characteristic	2%(-10℃ ~ +40℃)
Working ambient temperature	-40℃ ~ +50℃
Test Range	0 ~ 2000W/m2
Signal output	0 ~ 20mV
Non-linear	±2%
Power supply	□DC5V □DC12V □24V
Output format	□4~20mA □0~2.5V □0~5V □0~20mV □RS485

Product Size

Installation method

The sensor should be installed in an open area without any obstacles above the sensing surface

Instructions for use

It is installed in a place where the surrounding area is open and there are no obstacles above the sensing surface. Then, align the pyranometer cable plug to the north, adjust the horizontal position, fix it firmly, and then connect the high-precision pyranometer output cable with the acquisition device to observe. It is best to attach the cables securely to the mount to reduce breaks or intermittent interruptions on windy days

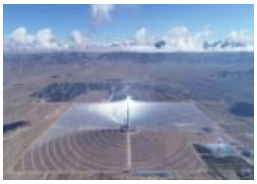
Application field

Climate sounding

Agriculture

Meteorological sounding

Atmosphere



Solar energy utilization

NBL-W-SRS/The total radiation sensor can be used to measure the total solar radiation in the spectral range of 0.3-3μm, and if the sensor is turned downward, it can measure the reflected radiation, and with the shading ring, it can also measure the scattered radiation. The core device of the radiation sensor is a high-precision photoreceptor, which has good stability and high precision; at the same time, a quartz glass cover is installed outside the sensing element, which is made of precision optical cold-processing and grinding, and effectively prevents the influence of environmental factors on its performance.
The product can be widely used in meteorology, energy, agriculture, construction and other fields.

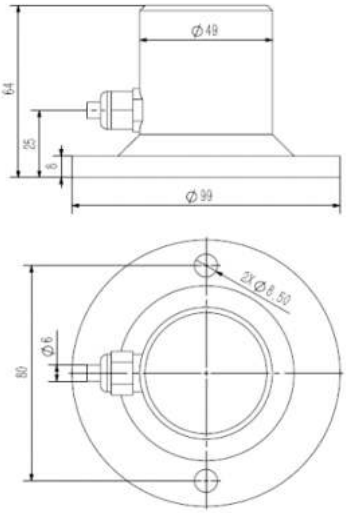
Performance characteristics

- Stable performance
- Anti-static and lightning protection measures
- High precision, down-tilt structure
- Low power consumption and IP65 protection design

Technical parameter

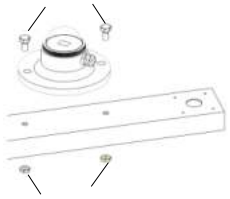
Measuring range	0 ~ 1500W/m2
Working environment	Temperature -20℃~65℃ , humidity≤100%RH
Power supply	□DC5V □DC12V-24V
Output format	□4~20mA □0~2.5V □0~5V □RS485
Product power consumption	1.8mW
Spectral range	0.3 ~ 3μm
Response time	<5s
Temperature dependent	＜±0.08%℃
Temperature characteristic	2%(-10℃ ~ +40℃)
Cosine Response	<±10% (when the sun altitude angle is 10°)
Nonlinear	<±2%
Annual rate of change	<±2%
Product weight	Sensor 420g with transmitter 760g
Line length	2.5m

Product Size



Installation method

M6*20 Hexagon Screws (2pcs)



M6 nut, ¢6 flat washer
¢6 spring washer (2 each)

1. Make sure the mounting bracket is parallel to the ground;
2. As shown in the figure, use M6 screws and nuts to fix the sensor on the mounting bracket through the 2 mounting holes on the sensor;
3. Please avoid disassembling the sensor during the installation process

Specifications and models

Model	Power supply	output method	Description
NBL-W-SRS			Total radiation sensor
	12V-24V		12-24V power supply
		V	0-5V
		V2	0-2.5V
		A1	4-20mA
		W2	Rs485
	Example: 12V-24V-A1: total radiation sensor 12V-24V power supply, 4-20mA current signal output		

Application field

Climate sounding

Agriculture

Meteorological sounding

Building

Energy

NBL-W-PPT/Photovoltaic patch temperature sensor

NBL-W-PPT/The photovoltaic chip temperature sensor adopts high-precision thermal resistance as the sensing component, which has the characteristics of high measurement accuracy and good stability. Using advanced circuit integrated modules, the temperature can be converted into corresponding voltage or current signals according to the different needs of users.

It can be widely used in photovoltaic power generation, environmental monitoring, airports, ports, laboratories, agricultural planting, etc.

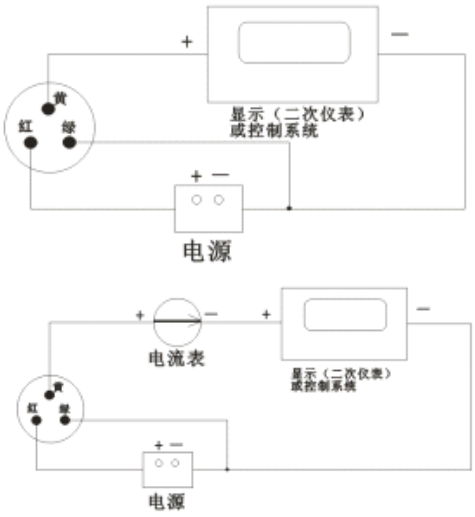
Performance characteristics

- Adopt dedicated line, good linearity
- With high measurement accuracy and good stability
- long transmission distance
- Strong anti-interference ability

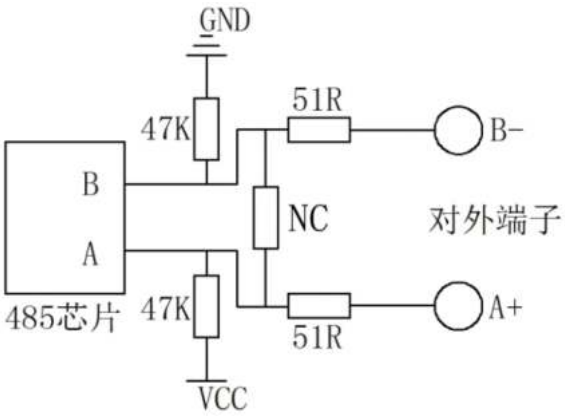
Technical parameter

Measuring range	□-50~100℃ □-20~50 ℃
Accuracy	±0.5℃
Power supply mode	□DC5V □DC12V □DC24V □Other
Output format	□4~20mA □0~2.5V □0~5V □RS485 Other
Lnstrument cable length	□Standard: 5 meters □Other
Load Resistance	□Voltage type: RL≥1K □Current type: RL ≤ 250Ω
Operating temperature	-50℃ ~ 100℃
Relative humidity	0 ~ 100%RH
Product weight	Probe 125g
Product power consumption	0.15W

Product Size



Rs485 circuit



Specifications and models

Model	Power supply	output method	Description
NBL-W-PPT			SMD temperature sensor
	12V-24V		12-24V Powered
		0	No transmission
		V	0-2.5V
		A1	4-20mA
		W2	Rs485
	Example: 12V-A1:SMD temperature sensor 12V power supply, 4-20mA output		

Application field

Meteorological

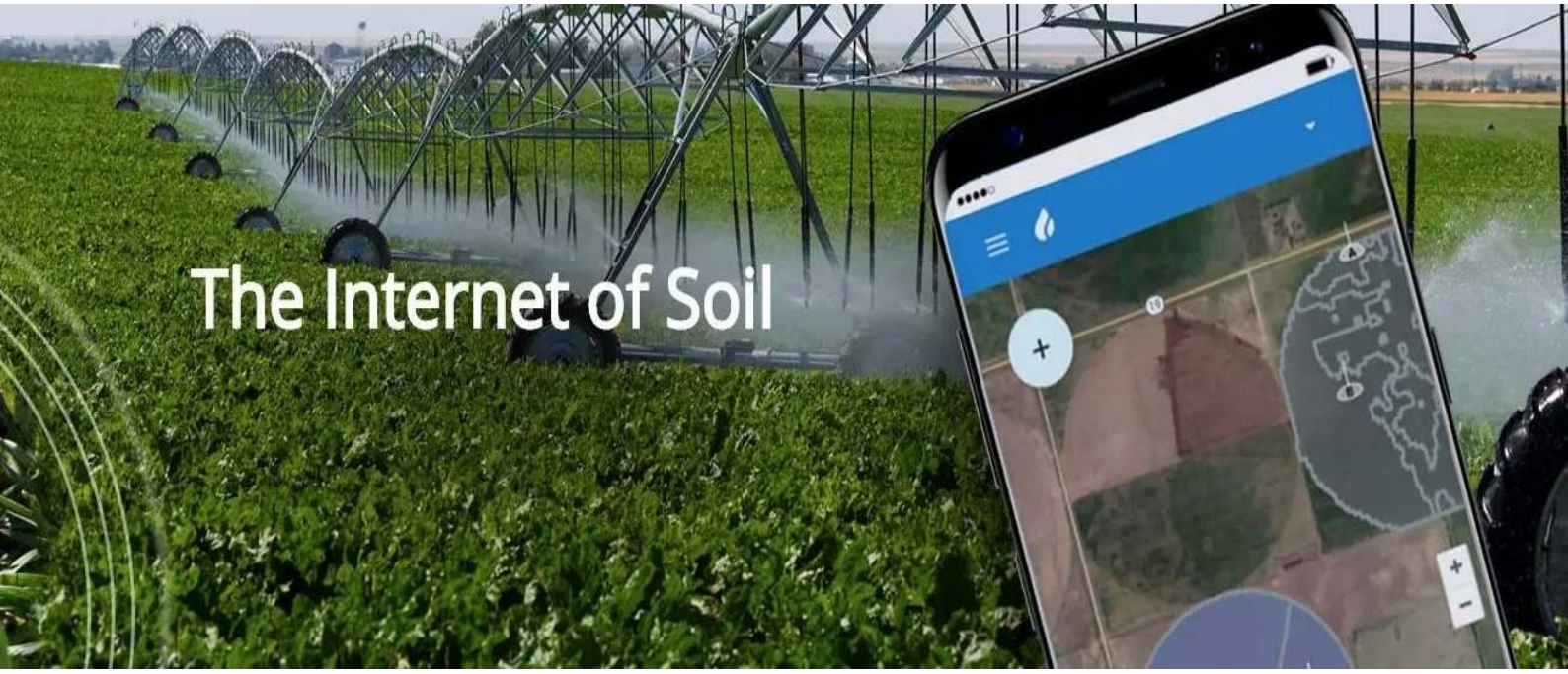
Agriculture

Ocean

Environment

Harbor

NiuBoL



Agriculture sensor series

NBL-S-THR/Soil temperature and moisture sensor is a high-precision, high-sensitivity soil moisture measuring instrument. The electromagnetic wave pulse emitted by the sensor is transmitted to the probe through the coaxial cable, and then enters the soil medium to measure the apparent dielectric constant of the soil, thereby obtaining the real water content of the soil. The influence of metal ions, etc.

It can be widely used in soil moisture monitoring, water-saving irrigation, greenhouses, grassland pastures, soil rapid testing and other fields.

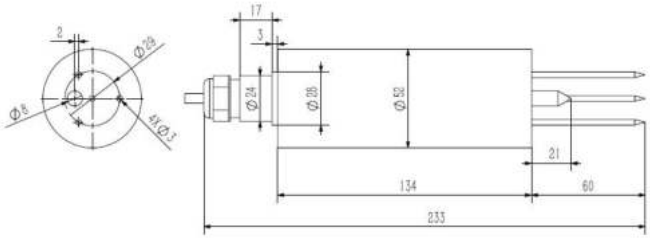
Performance characteristics

- Simultaneously measure soil temperature and soil moisture
- Withstand strong external impact, not easy to damage
- Completely sealed, acid and alkali corrosion resistant
- High precision, fast response, good interchangeability

Technical parameter

Measuring range	Moisture 0-100%RH, temperature -40-100℃
Power supply method	DC 12-24V
Resolution	Soil moisture 0.1%, temperature 0.1℃
Accuracy	Soil moisture ±3%, temperature ±0.5℃
Product power consumption	1.8mW
Signal output	☐ 4～20mA ☐ RS485
Product power consumption	About 0.3W
Runtime environment	-40℃ ~ 80℃
Protection class	Ip68
Measurement principle	TDR
Interchange accuracy	<3%
Retest error	<1%
Response time	<1S
Measurement settling time	1S

Product Size



Installation method

vertical measurement
（1）

Buried measurement
（2）

Instructions for use

Wire the sensor according to the instructions in the wiring method, then insert the probe pin of the sensor into the soil where the humidity is to be measured, turn on the power supply and the switch of the collector, and then the soil temperature and humidity at the measurement point can be obtained.

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-TM/Soil temperature and moisture sensor

NBL-S-TM/The soil temperature and moisture sensor has stable performance and high sensitivity, and can measure soil temperature and soil moisture at the same time; by measuring the dielectric constant of soil, it can directly and stably reflect the real water content of various soils. The soil moisture sensor can measure the volume percentage of soil moisture and is a soil moisture measurement method in line with current international standards.

Suitable for soil moisture monitoring, scientific experiments, agricultural irrigation, greenhouses, flowers and vegetables, grassland and pastures, soil rapid testing, plant cultivation and other occasions.

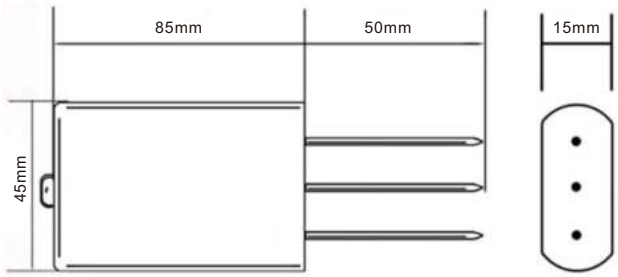
Performance characteristics

- Simultaneously measure soil temperature and soil moisture
- Withstand strong external impact, not easy to damage
- Completely sealed, acid and alkali corrosion resistant
- High precision, fast response, good interchangeability

Technical parameter

Soil temperature range	-40~80℃ Resolution: 0.1 , Accuracy: ±0.5
Soil moisture range	0-100%RH Resolution: 0.1%RH, Accuracy: 5%
Supply voltage	DC12V-24V ☐ DC 5v-24V
Signal output	☐RS485 ☐Modbus protocol
Meamethodsurement principle: soil moisture FDR	
Protection class	Ip68 submerged in water for long-term use
Operating environment	-40~85℃
Probe material: anti-corrosion special electrode	
Sealing material	Black flame retardant epoxy resin
Lnstallation method: all buried or all probes are inserted into the measured medium	
Default cable length: 5 meters, cable length can be customized	
Connection method	Pre-assembled cold-pressed terminals
External dimensions	45*15*135mm
Electrode length	50mm

Product Size



Installation method

vertical measurement
（1）

Buried measurement
（2）

Instructions for use

Wire the sensor according to the instructions in the wiring method, then insert the probe pin of the sensor into the soil to be measured, turn on the power supply and the switch of the collector, and you can obtain the soil temperature and soil moisture at the measurement point

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-TMC/Soil Temperature & Moisture&EC Sensor

NBL-S-TMC/soil temperature & moisture & EC sensor has stable performance and high sensitivity, and can measure soil temperature and soil humidity at the same time; by measuring the dielectric constant of soil, it can directly and stably reflect the real moisture content of various soils. The soil moisture sensor can measure the volume percentage of soil moisture and is a soil moisture measurement method in line with current international standards.

Suitable for soil moisture monitoring, scientific experiments, agricultural irrigation, greenhouses, flowers and vegetables, grassland and pastures, soil rapid testing, plant cultivation and other occasions.

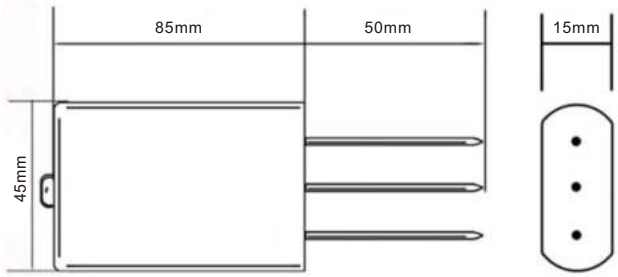
Performance characteristics

- Simultaneous measurement of soil temperature & soil moisture & electrical conductivity
- Withstand strong external impact, not easy to damage
- Completely sealed, acid and alkali corrosion resistant
- High precision, fast response, good interchangeability

Technical parameter

Soil temperature range	-40~80℃ Resolution: 0.1 , Accuracy: ±0.5
Soil moisture range	0-100%RH Resolution: 0.1%RH, Accuracy: 5%
Conductivity range	0-10000us/cm.Accuracy: ±3%
Supply voltage	DC5V-24V □ DC12V-24V
Signal output	□RS485
Meamethodsurement principle: soil moisture FDR	
Protection class	Ip68 submerged in water for long-term use
Operating environment	-40~85 ℃
Probe material: anti-corrosion special electrode	
Sealing material	Black flame retardant epoxy resin
Lnstallation method: all buried or all probes are inserted into the measured medium	
Default cable length: 5 meters, cable length can be customized	
Connection method	Pre-assembled cold-pressed terminals
External dimensions	45*15*135mm
Electrode length	50mm

Product Size



Installation method

vertical measurement
（1）

Buried measurement
（2）

Instructions for use

Wire the sensor according to the instructions in the wiring method, then insert the probe pin of the sensor into the soil to be measured, turn on the power supply and the switch of the collector, and you can obtain the soil temperature and soil moisture & EC at the measurement point

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-TMC-7/7-in-1 integrated soil sensor

NBL-S-TMC-7/The 7-in-1 Soil integrated Sensor is a multi-parameter sensor that combines temperature and humidity, PH, and NPK. By measuring the dielectric constant of soil, it can directly and stably reflect the real moisture content of various soils. It is suitable for soil moisture monitoring, scientific experiments, water-saving irrigation, greenhouses, flowers and vegetables, grass pastures, soil quick test, plant cultivation, wastewater treatment, fine agriculture and other occasions. The input power supply, sensing probe and signal output of the sensor are completely isolated, safe and reliable, with beautiful appearance and easy installation, and the probe is made of stainless steel, which is corrosion-resistant and stable in performance.

Performance characteristics

- Simultaneous measurement of soil temperature & moisture & EC & pH &NPK
- Withstand strong external impact, not easy to damage
- Completely sealed, acid and alkali corrosion resistant
- High precision, fast response, good interchangeability

Technical parameter

Soil temperature range	-40~80℃ Resolution: 0.1, Accuracy: ±0.5
Soil moisture range	0-100%RH Resolution: 0.1%RH, Accuracy: ±3%
Conductivity range	0-10000us/cm.Accuracy: ±10%
NPK range:	0-2000mg/Kg Accuracy of NPK: ±2%
PH effective range:	3-10PH PH precision: ±0.6PH
Supply voltage	DC5V-24V □ DC12V-24V
Signal output	□RS485
Protection class	Ip68 submerged in water for long-term use
Operating environment	-40~80℃
Sealing material	Black flame retardant epoxy resin
Lnstallation method: all buried or all probes are inserted into the measured medium	
Default cable length: 5 meters, cable length can be customized	
Connection method	Pre-assembled cold-pressed terminals
Meamethodsurement principle:	Soil moisture FDR
Electrode length	65mm

Size

Five-pin design, probe material for the solid stainless steel three, hollow stainless steel, a zinc alloy.

Sensor: total length 138±1mm, width 45mm ±1mm, thickness 15±1mm.

Sensor probe: length 65mm±1mm, diameter 3 ±0.2mm.

Probe material: anti-corrosion special electrode.

Installation method

vertical measurement
（1）

Buried measurement
（2）

Instructions for use

Wire the sensor according to the instructions in the wiring method, then insert the probe pin of the sensor into the soil to be measured, turn on the power supply and the switch of the collector, and you can obtain the soil temperature and soil moisture &EC &pH &NPK at the measurement point.

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-NPK/The soil nitrogen, phosphorus and potassium sensor has stable performance and high sensitivity. It can judge the fertility of the soil by detecting the content of nitrogen, phosphorus and potassium in the soil to evaluate the soil condition.

It is suitable for soil moisture monitoring, scientific experiments, agricultural irrigation, greenhouses, flowers and vegetables, grassland pastures, soil rapid testing, plant cultivation and other occasions.

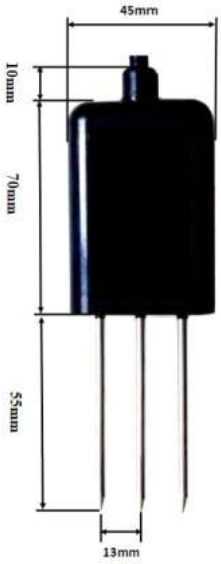
Performance characteristics

- Measure the NKP content of the solution
- Withstand strong external impact, not easy to damage
- Completely sealed, acid and alkali corrosion resistant
- High precision, fast response, good interchangeability

Technical parameter

Soil NPK	Range 0-2000mg/kg
	Resolution 1mg/kg(mg/l)
	Accuracy ±2%F.s
Supply voltage	DC 12V-24V DC5V-24V
Output method	Rs485
Static power	10mA@12V DC
Protection class	Ip68
External dimensions	45*15*135mm
Working environment	-40~85℃
Sealing material	Black epoxy

Product Size



Installation method

vertical measurement
（1）

Buried measurement
（2）

Instructions for use

Wire the sensor according to the instructions in the wiring method, then insert the sensor probe pin into the soil to be measured, turn on the power supply and the switch of the collector, and the soil NPK parameters at the measurement point can be obtained.

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-PH/Soil PH value sensor, which solves the shortcomings of traditional soil PH, such as needing to be equipped with professional display instrument, cumbersome calibration, difficult integration, high power consumption, high price, and difficult to carry.

Can be widely used in agricultural irrigation, flower gardening, grassland pastures, soil rapid testing, plant cultivation, scientific experiments and other fields.

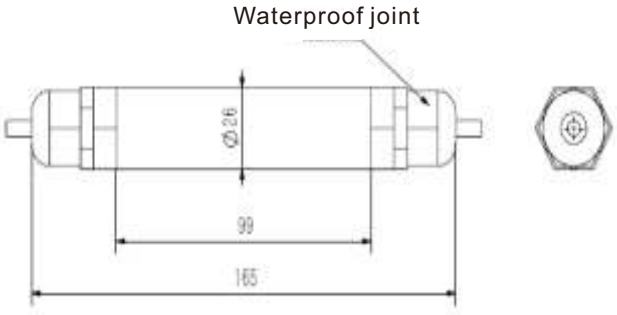
Performance characteristics

- Not easy to block, maintenance free
- High integration and small size
- Low power consumption, easy to carry
- Real low cost, low price, high performance

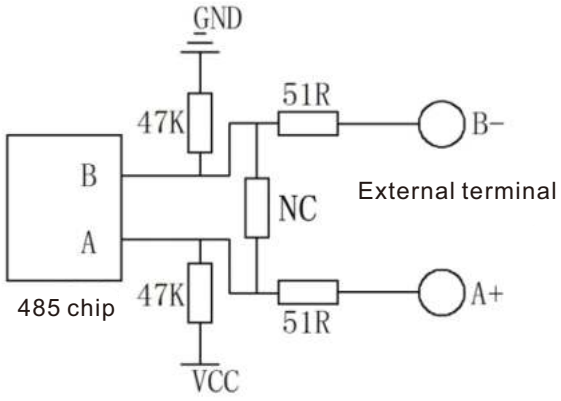
Technical parameter

Measuring range	0-14pH
Accuracy	±0.1pH
Resolution	0.01pH
Response time	<10 seconds (in water)
Power supply method	DC 12V-24V
Output format	□Rs485 □0 ~ 5V □4 ~ 20mA
Lnstrument cable length	10 meters
Working environment	Temperature 0~80℃, humidity 0~95%RH
Power consumption	0.2W
Shell material	Waterproof plastic case
Transmitter size	98*66*49mm

Product Size



Rs485 circuit



Specifications and models

Model	Power supply	output method	Description
NBL-S-PH			PH sensor (transmitter)
	12V-24V		12V-24V power supply
		A1	4-20mA
		V	0-5V
		W2	Rs485
Example: 12V-A1: Soil PH Sensor (Transmitter) 12V power supply, 4-20mA current signal output			

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-LM/The leaf temperature and humidity sensor can accurately measure the leaf surface humidity, and can monitor the trace moisture or ice crystal residue on the leaf surface. The shape of the sensor adopts the imitation blade design, which simulates the characteristics of the page, so it can more accurately reflect the situation of the leaf environment.

The low power consumption allows for long term uninterrupted monitoring. It is easy to install and can be hung from either a greenhouse shed or a weather station mast.

Performance characteristics

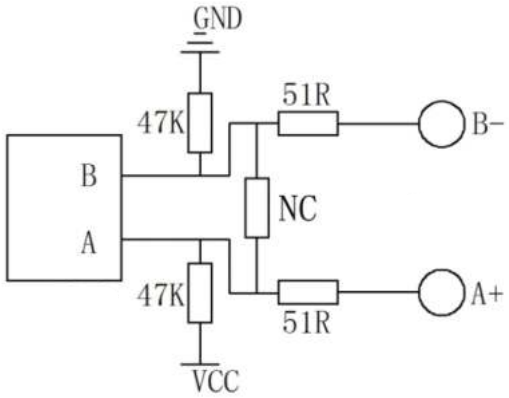
- Multi-application
- Low power consumption
- Long-term dynamic detection
- Easy to install

Technical parameter

Leaf Temperature	Measuring range: -20□~80℃
	Resolution: 0.1℃
	Accuracy: □1℃(25)℃
Leaf humidity	Measuring range□: 0~100%
	Resolution: □0.1%
	Accuracy: ±5%(25℃)
Power supply	DC12V
Signal output	RS-485
Response time	<1s
Working current	17ma□(DC12
Power consumption	DC12V <=0.22W
Settling time	About 10 seconds after power up
Protection class	IP65

External dimensions

Rs485 circuit



Wiring methods

Purchase transmitters separately.
The transmitter matching line wire sequences are

Line color	Output signal:RS485
Red	power +
Black (green)	power -
Yellow	A+/TX
Blue	B-/RT

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Vegetation

Flowers and vegetables

NBL-S-HF/The Soil heat flux sensors are used to measure the energy balance of the soil and the thermal conductivity of the soil layer. Soil heat flux sensors measure temperature gradients using a thermopile, which consists of two different metallic materials. The thermopile detector receives thermal radiation, which creates a temperature difference potential between the junctions of the two different materials.

This product is highly accurate, easy to use, maintenance-free and can be used for a wide range of environmental monitoring.

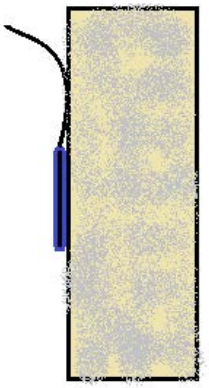
Performance characteristics

- High measurement accuracy
- Easy to use
- Maintenance free
- Widely used for various environmental monitoring.

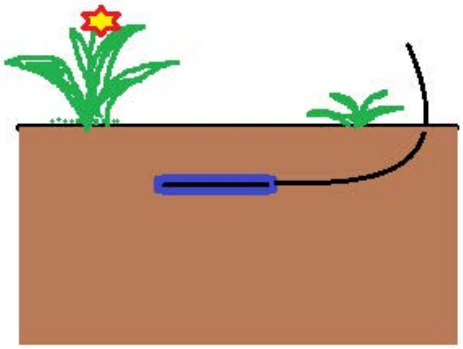
Technical parameter

Measuring range	-200~200W/m2
Accuracy	±5%
Power supply mode	☐DC 5V ☐DC12-24V
Output form	☐ 4-20mA ☐ RS485
Lnstrument cable length	☐Standard: 5 meters
Working temperature	-40℃~50℃
Working humidity	0~100%RH

Measurements on the wall



Measurement methods



Wiring methods

Model	Power supply	Output method	Description
NBL-S-HF			Soil heat flux sensors
	5V-		5V power supply
	YV-		Other power supply
		0	No transmissions
		V	-100mV~100mV
		X	RS485
Example: -5V-V: Soil heat flux sensor (transmitter) 5V power supply, -100mV~100mV output			

Application field

Agricultural irrigation

Greenhouse farming

Soil Quick Test

Meadow pastures

Flowers and vegetables

NBL-S-HS/It is used to quickly measure agricultural environmental parameters such as soil temperature and humidity, PH, salinity and electrical conductivity, which are displayed in real time on the display and the data is stored in the internal chip of the speed recorder. After measurement the data from the logger can be downloaded to the calculator via the included software for easy research or storage. Multi-purpose machine with soil temperature and humidity sensor, salt sensor, PH meter and other components

Widely used in meteorology, environmental protection, agriculture, forestry, hydrology, military, storage, scientific research and other fields.

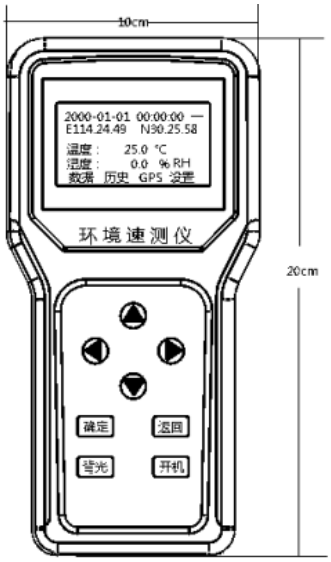
Performance characteristics

- Easy to carry, the interface can be interchanged, does not affect the accuracy
- Can automatically identify the sensor type, no need to manually set
- Data storage function, can store up to 22528 pieces of data
- The instrument has built-in GPS, with latitude and longitude positioning function

Technical parameter

Environmental parameters	Measurement elements	Scope	Resolution	Accuracy
	Soil temperature	-50-80℃	0.1℃	±0.5℃
	Soil moisture	0-100%	0.1%RH	±3%RH
	Soil salinity	0-8000mg/L	1mg/L	±50mg/L
	Soil conductivity	0-10mS/cm	0.01mS/cm	±5%mS/cm
	Soil Ph	0-14PH	0.01PH	±0.02PH
Power supply	Lithium-ion battery (4000mA.h)			
Communications	USB			
Storage	20,000 data			
Size	Mainframe: 100×200×28 mm			
	Whole machine: 405×100×100 mm			
Weight	About 0.5Kg			
Working environment	-20℃ ~ 80℃; 5%RH ~ 95%RH			

Product Size



Host computer software description

Double-click the included HandRTU_setup.exe program, select the installation language, confirm to start the automatic installation, click Next until it is completed

Instructions for use

There are 8 keys on the instrument: parameter plus (▲), parameter minus (▼) previous parameter (◀), next parameter (▶) confirm key, return key, backlight key, and power-on key. The backlight key and the power-on key can be used directly in any interface of the device.

Application field

Meteorological

Agriculture

Ocean

Environment

Science

NiuBoL

Product application scenarios

Provide accurate meteorological and agricultural sensors· Promoting agricultural smart and precision meteorological services for sustainable development.

NiuBoL

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