sisco

Portable Visibility Meter

SISCO-TH-BN10/20

Product Introduction

BN series portable visibility meter uses forward scattering method to measure the total extinction coefficient of air and calculate the current visibility, which is widely used in emergency, road traffic, meteorology and other scenes.

Technical Characteristics

1. Integrated portable design, light weight, easy to carry and ready to use.
2. 10.1-inch bright touch screen, real-time display of data and historical curves.
3. Built-in large-capacity SD card (8G) can save data in real time and support query and export.
4. Built-in large-capacity lithium battery is convenient for outdoor emergency use.
5. The shell of the instrument is made of high-quality aluminum, and the whole machine has excellent waterproof, dustproof and anti-collision performance.
6. Built-in watchdog circuit ensures reliable and stable outdoor operation for a long time.
7. Instrument communication and power interface all contain lightning protection design, which greatly reduces lightning strike and electrostatic damage.
8. 24V power supply, low power consumption, long-term power supply.
9. The digital interface uses RS232, which is uploaded actively without adaptation protocol.

Main Parameters		Parameter Range	Resolution	Error
Range	BN10	10km	1m	≤2km ± 2% 2km ~ 10km ±5% >10km ±10%
	BN20	20km		
Repeatability		≤4%		
Operating Temperature		-20°C ~ 60°C		
Operating Humidity		0 ~ 100% RH		
Power Supply (Adapter)		100 ~ 240V input		
		24V output 2.5A		
Power Consumption		<10W		
Battery Capacity		6.6AH		
Operating Time		≥12h		
Dimensions		300 x 150 x 220 mm (L x W x H)		
Weight		≤10kg		

Structure and Installation

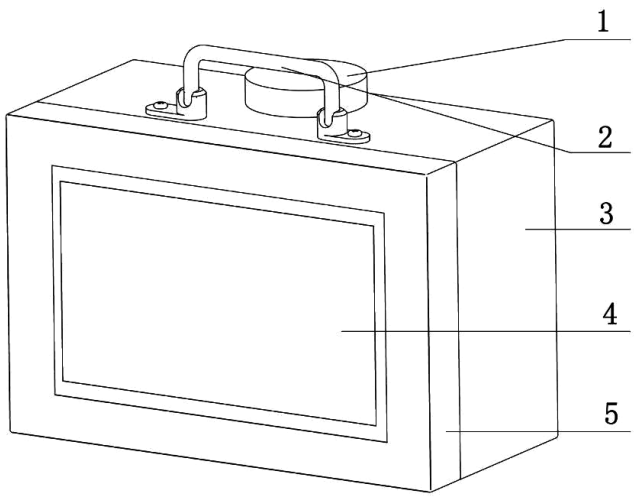


Fig. 1 Front View

1. Air inlet 2. Handle 3. Rear case 4. Touch screen 5. Front case

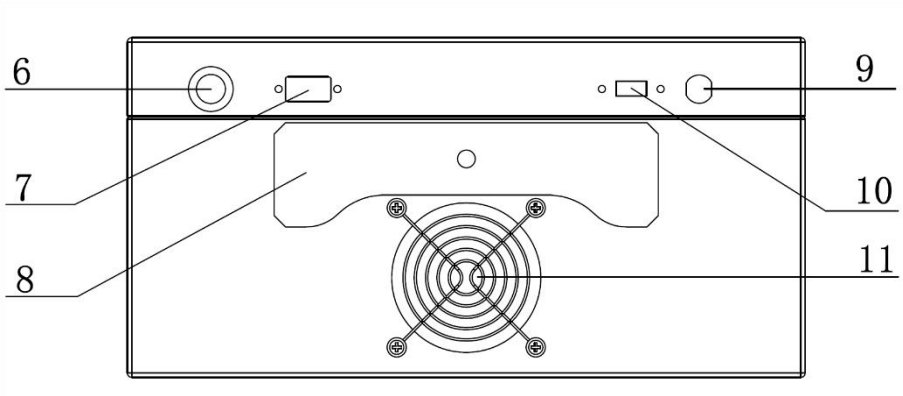


Fig. 2 Bottom View

6. Switch/Charging indicator lamp 7. RS232 interface 8. Mounting seat

9. 24V power interface 10. USB interface 11. Air outlet

Installation Instructions

After the tripod is unfolded, the mounting seat is aligned with the tripod screw, and the instrument can be turned on for use after being tightened.

Handling Instruction

Communication Port Definition

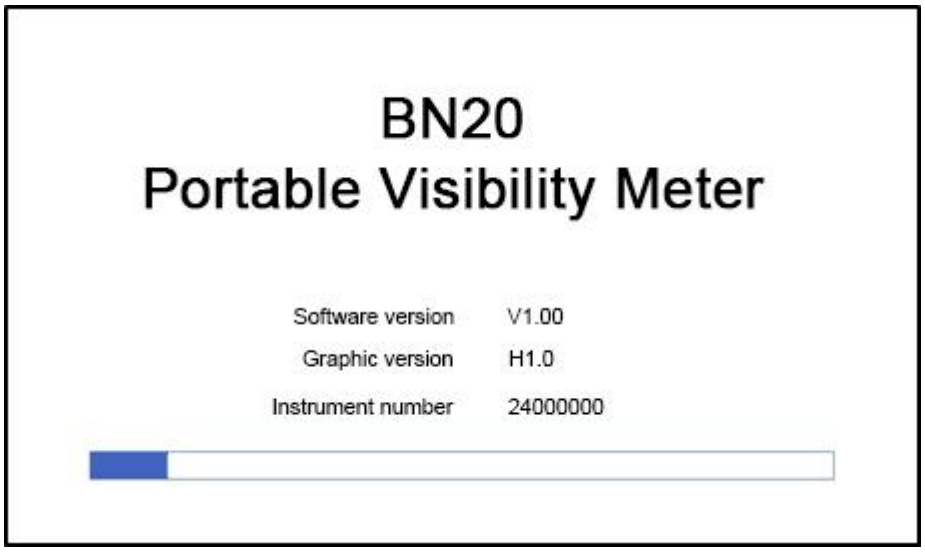
Communication mode	RS232
Start bit	1 bit
Data bits	8 bit
Parity bit	None (no parity)
Stop bit	1 bit
Baud rate (default)	9600

Communication Example:

BN2024000000, 2024-11-07, 14:58:02,21761m

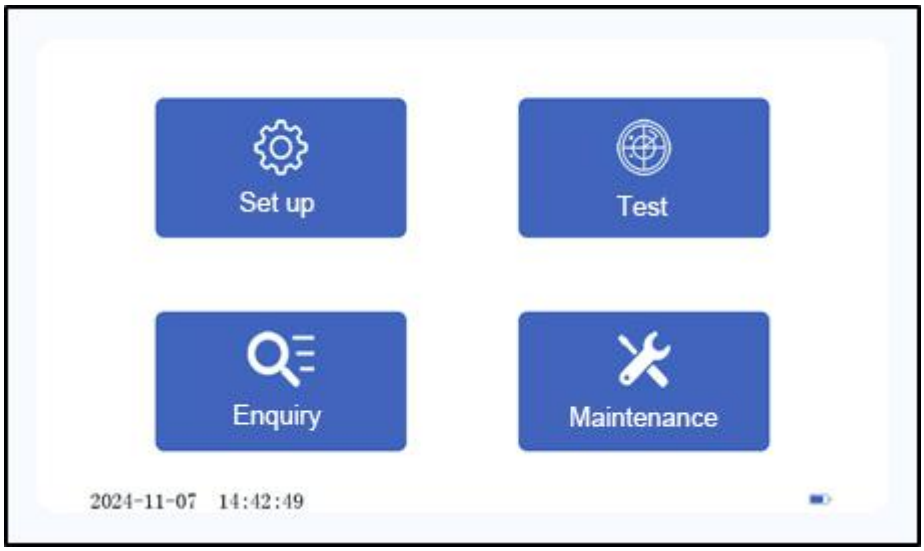
- **BN20**: Instrument model
- **24000000**: Instrument number
- **2024-11-07**: Update date
- **14: 58: 02**: Update time
- **21761m**: Visibility

Self-check



After turning on the switch, the screen will turn black for about 5 seconds and then enter self-checking mode after a "beep" sound. The instrument model, software version, graphics version, and instrument number will be displayed, and the progress bar will advance. The system parameters, SD card capacity, and slave board will be checked, and the check results will be displayed above the progress bar.

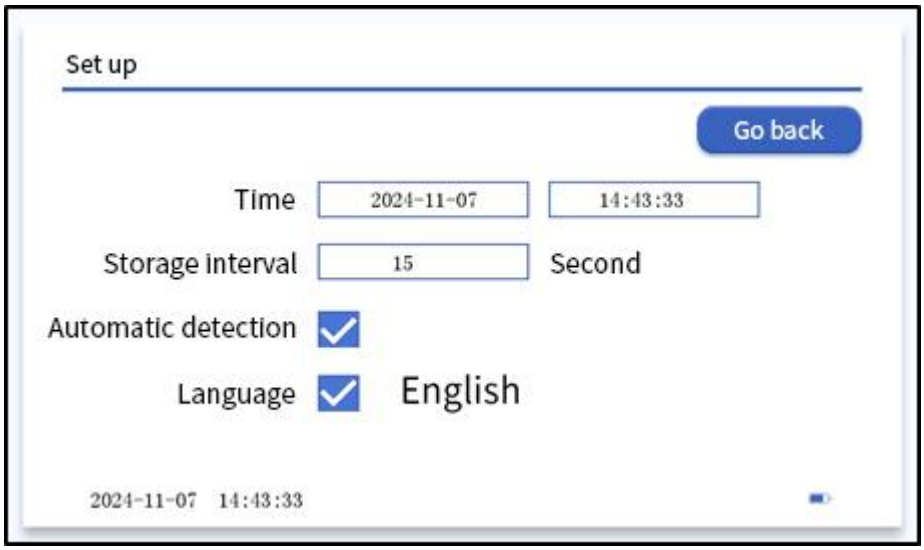
Homepage



- **Settings**: System Parameter Settings
- **Detection**: Enter visibility detection
- **Query**: Query files, history, export data
- **Maintenance**: Restore factory settings, delete files, and other operations

Warning!
Non-professional personnel are prohibited from entering the maintenance operation area

Setting



- **Time**: Set system time.
- **Storage interval**: Visibility will be automatically stored according to the storage interval during detection. Since the visibility update time is 15s, it is recommended that the storage interval be ⩾15s.
- **Automatic detection**: After checking, the device will automatically enter the progress detection mode when powered on.
- **Language**: Switch between Chinese and English. Files saved and exported in English mode are in English. Please pay attention to language settings when using.

Detection

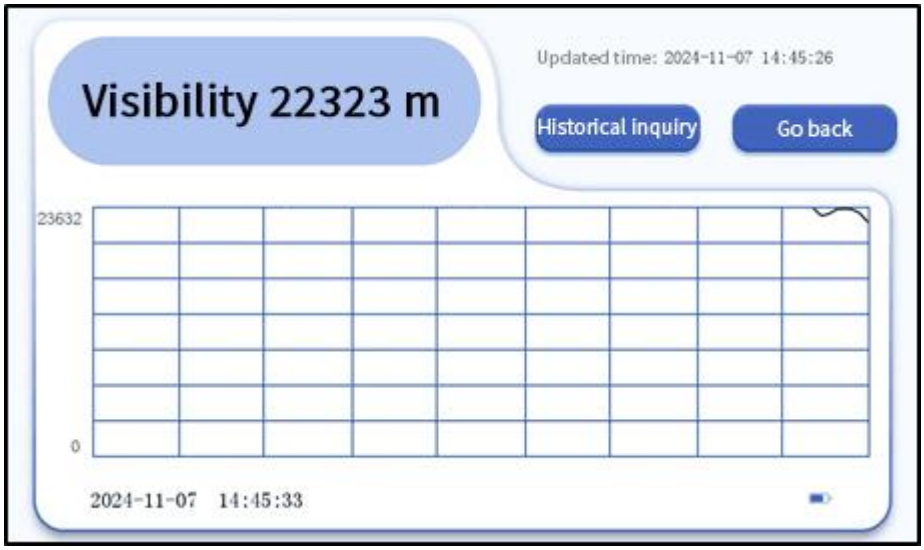


Figure. 6 Visibility Detection

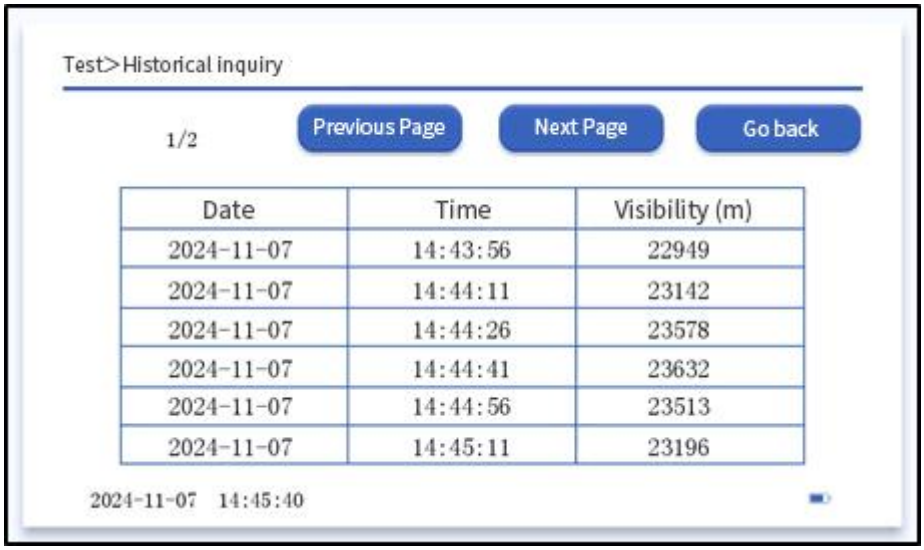
After entering the detection mode, the visibility will be updated every 15 seconds. After 25 minutes, you can query the historical trend of visibility for about 4 hours by dragging the coordinates left and right.

The visibility will be automatically stored at the interval set in the "Storage Interval" setting in "Settings".

Historical query: Query the stored historical visibility

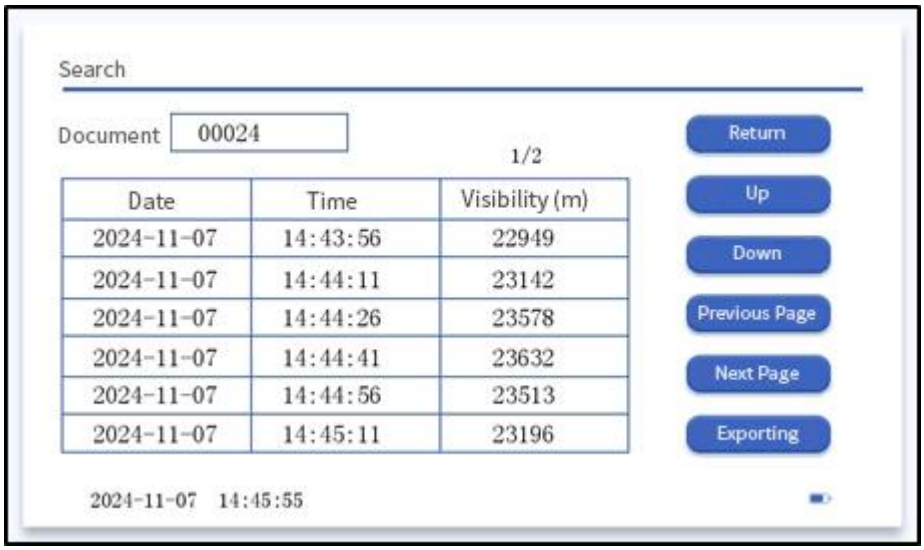
Return: Return to the homepage

History Query



"Historical Query" allows you to view the historical visibility data stored during this test, and you can use the "Previous Page" and "Next Page" buttons to navigate through the pages.

Search



- **Document number**: Select the document number you want to view, and enter the "Query" menu. The latest document will be displayed by default.
- **Previous**: View the previous file.
- **Next**: View the next file.
- **Previous**: View the previous page.
- **Next**: View the next page.
- **Export**: Export data to a USB flash drive.

Export

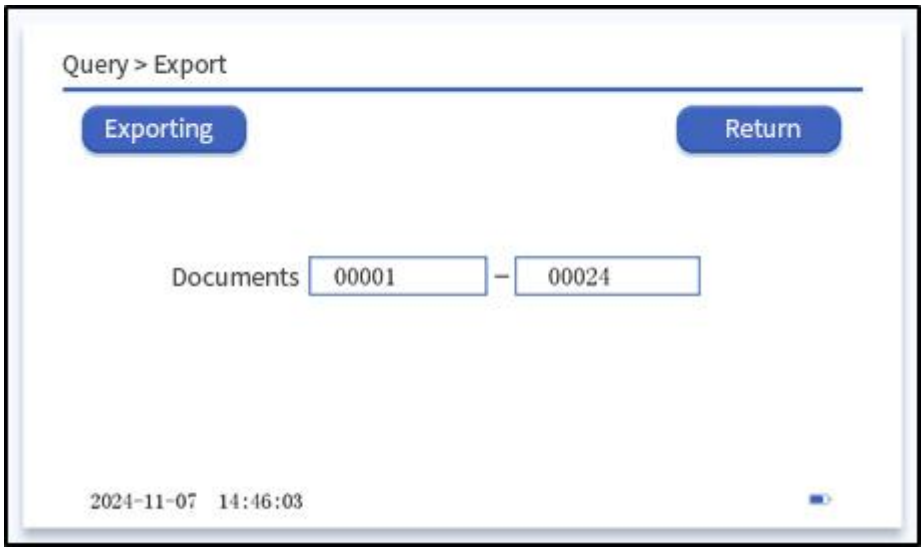


Figure. 9 Export

Insert the U disk, and the icon will appear in the lower right corner. Select the file number you want to export, and the file will be exported to the U disk.

Warning!
It is recommended that the capacity of the USB flash drive be no more than 16GB, and it must be formatted as FAT32!

Maintenance

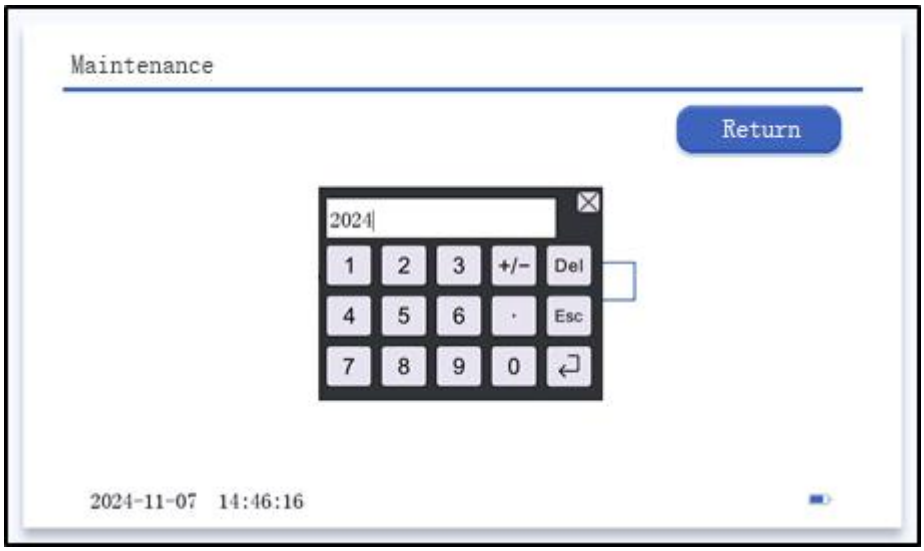


Figure. 10 Maintaining Password

After entering maintenance mode, a keyboard will pop up to enter the maintenance password. The default password is "2024". If the password is entered incorrectly, the keyboard will pop up again. You can also click the input box to pop up the keyboard.

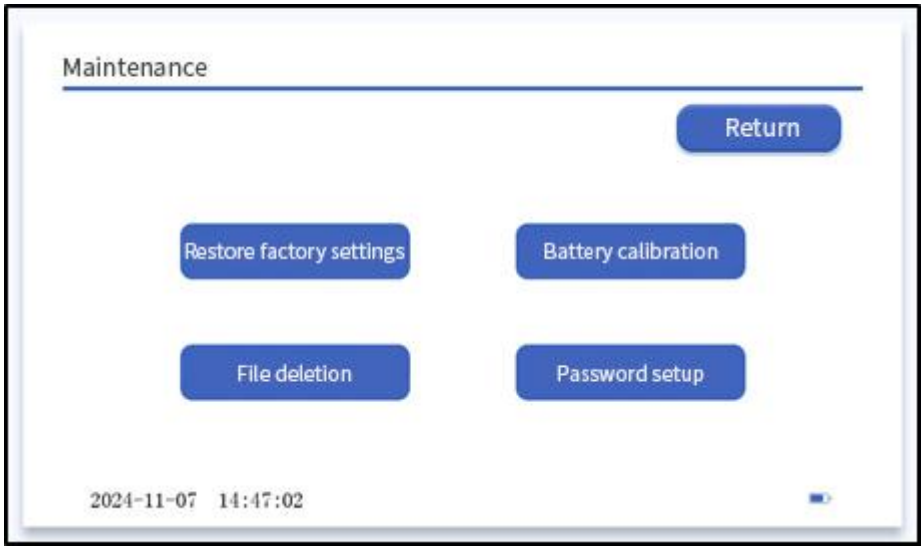


Figure. 11 Maintenance

- **Restore factory settings**: Restore the system parameters to the factory settings.
- **Battery calibration**: Battery voltage and rate setting, generally no operation required.
- **File deletion**: Delete all files and format the memory card.
- **Password setting**: Set maintenance password.

Battery Calibration

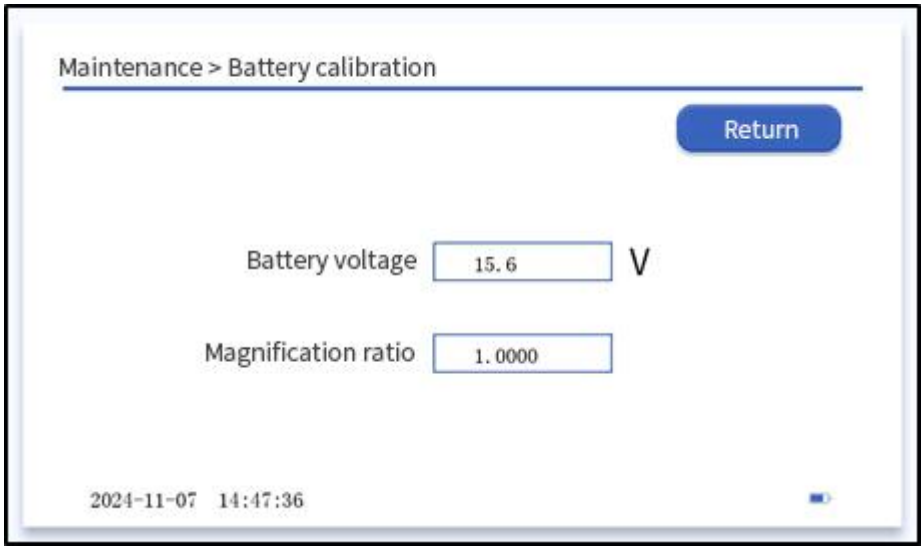


Figure. 12 Battery Calibration

Input the actual battery voltage, and the rate will be calculated automatically; input the rate, and the voltage will be converted automatically.

Warning!
Incorrect battery voltage may cause the instrument voltage display to be incorrect! Users generally do not need to modify the battery voltage!

Password Settings

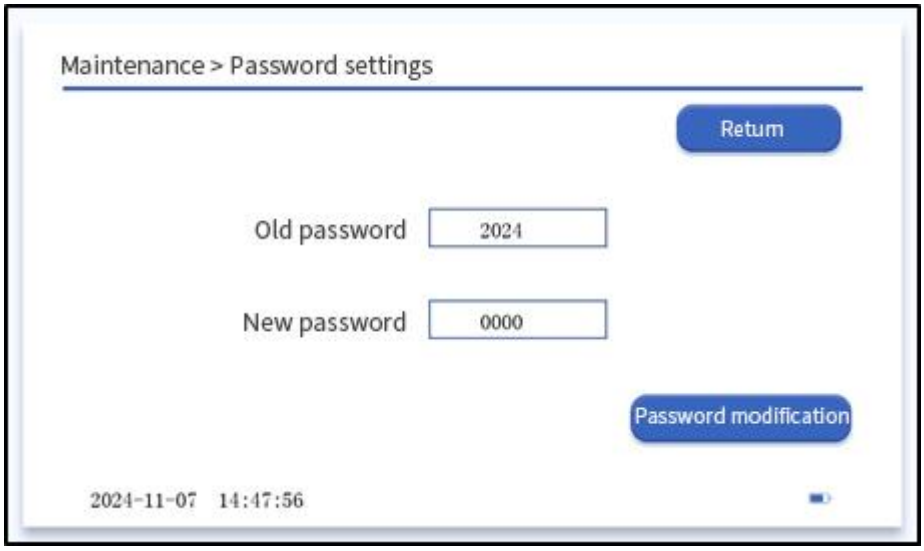


Figure. 13 Password Setting

Input the correct old password, then input the new password, and click "Password Change" to modify the user's maintenance password.
Restoring factory settings will reset the default password.

Warning!
Please remember the new password after changing it!

Precautions

1. Avoid damaging the touch screen with sharp objects.
2. It is prohibited to use the instrument in rainy weather, as water entering the air intake may cause damage to the instrument.
3. It is recommended to connect the instrument power supply before connecting to 220V. Connecting to 220V first may cause sparking at the instrument power port.
4. During transportation, the instrument should be protected from collisions, falls, dust, rain, and snow.
5. The power cord should be avoided from being bent or heavily pressed, and unauthorized modifications are prohibited. If the power cord is damaged, to avoid danger, it should be contacted with a professional for repair.
6. The instrument should be stored in a dry and well-ventilated environment.

Fault Handling

Fault phenomenon	Possible reasons	Fault handling
The screen does not display after powering on	Battery is in a state of depletion	Power on again after connecting the power adapter
Display from board failure or no visibility display	Internal communication error	1. Restart the instrument 2. Contact professional personnel for maintenance
No response from communication	1. The communication cable is not properly connected 2. The cable is bent, resulting in breakage	1. Restart the instrument 2. Fix the cable again to ensure good contact of the terminal 3. Replace the cable
Communication garbled	An inappropriate baud rate has been selected	The factory default baud rate is 9600
Export failed	U disk format error	Format the USB drive to FAT32 format

Factory Packing List

This is a standard packing list, and the actual configuration is subject to the shipment.

Packing unit	Name	Specifications	Quantity	Remarks
Host part.	BN10/BN20		1	
	Power adapter	Input 100-240V Output 24V 2.5A		
	RS232 to USB communication cable	1.8m		
	U disk	4G		HIKSEMI
	Screwdriver			Straight screwdriver
	Certificate of Conformity			
	Instruction manual			
Accessory components	Tripod	WF-6663A		