



Hand-held data collector instruction manual



Weihai GEMHO Digital Mine Technology Co., Ltd

Add:10-7# Futian Road, Weihai City, Shandong, China

[Http://www.gemhomining.en.alibaba.com](http://www.gemhomining.en.alibaba.com)

[Http://www.gemho.cn](http://www.gemho.cn) www.minestar.cn

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Chapter I: Product Introduction

1.1 Product overview and functional features

The GH-SC-485 handheld data acquisition instrument is designed with the latest digital integrated circuit technology and international detection technology. The detector uses a 3.2-inch TFT touch screen to display readings in real time and uses a SP3485 chip to maximize compatibility with all RS485 products on the market.

It has low power consumption, high precision, high sensitivity, wide linear range, strong anti-interference ability, excellent repeatability and stability. The product can be widely used in environmental monitoring, soil monitoring, smart agriculture, cold chain transportation and other environments. Compared with the traditional Internet of Things sensors, it has the advantages of high accuracy and easy to carry.

1.2 Product appearance



1.3 Main parameters of product

Functions	Parameters
Power supply mode	Lithium battery charging,built-in backup battery. Normal data and clock working well are guaranteed
Communication mode	RS485 (Modbus protocol)
Screen	240*320 Full dot real color LCD screen,with touch function. ◆The whole screen can display 26 * 13 characters or 10 * 10 Chinese characters in a 24 dot matrix. ◆The whole screen can display 30 * 20 characters or 15 * 20 Chinese characters in a 16 dot matrix. ◆The whole screen can display 40 * 26 characters or 20 * 26 Chinese characters in a 12 dot matrix.
Back light	Display and push-button back light,can be closed independently and delay closed.
Lamplight	Provides 3 different color indicators, 2 of which are programmable.
Sound	AC buzzer, providing switches, tones, pitch length control
Word stock	GB2312 Standard word library,including 24/16/12 three fonts.
Typewriting	Chinese character T9 typewriting, and Stroke input method
Data base	Support the DBF format database,multi-database operation is available.
File system	Dedicated CL file system,unique pre-write backup function, recycle bin function.
Secondary development	Support compilation,C,C++ Secondary development of procedures,Program encryption,and the PC-end provides a dynamic library.
Communication port	High speed USB2.0/RS485/Airborne far infrared
Keyboard	6 keys

CPU	ARM Co. Cortex-M3 core, STM32F103ZET6
Internal storage	8M Byte code area 512K Byte data area 32M Byte file area
Dimension	132mm*62mm*24mm
Standby time	20 days (Non-load)
Weight	170g (Not included battery and sensors)
Volume	132mm*62mm*24mm
Chip type	E2 SP3485 chip

Chapter II System Frame and Installation Instructions

2.1 Usage mode

The sensor uses 12v DC power supply (Data collector default delivery with USB2.0 communication line and power adapter). If adapted to our sensor, sensor outlet HDMI interface is directly inserted into the collector, and if purchase 485 sensor from other manufacturers, delivery equipped with 1 HDMI data interface line for customer access equipment.

Note: If need access other manufacturer' sensors, please contact with our sales in advance and obtain secondary development agreement.

2.2 Accessories

- Handheld data collector*1
- USB2.0 communication line*1 (Communication and charging)
- Power adapter 5v Power supply USB interface
- Sensor connection line*1
- Product certificate*1、warranty card*1



2.3 Description of sensor connection sequence

Item	Line order name	Pound definition
power supply	1	Power positive pole (12V5W)
	4	Power negative pole
communication	2	RS485-A
	3	RS485-B

Note: Please strictly follow the line order instructions, otherwise it is easy to cause too large current and cause equipment damage.

The customer who has purchased the matching sensor from us, we will connect the sensor to the HDMI connector before delivery, and the customer can use it directly after receiving the product.

Chapter III Instructions for the use of the sensor & handheld speed measuring platform

3.1 Version 485, communication protocol and description

parameter	content
code	8-bit binary
data bit	8-bit
parity check bit	No
stop bit	1-bit
error check	CRC (Redundancy cycle code)
baud rate	9600 bit/s

3.2 Device key definition



3.3 Interface introduction

Device selection: Use the products leave factory configuration when reading our devices, Customers who do not purchased sensor devices from us, can set up to associate their own sensor devices according to the custom interface.

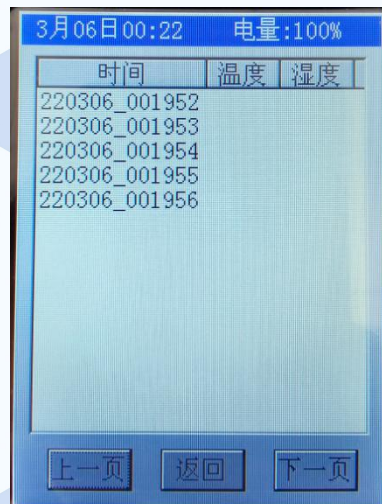
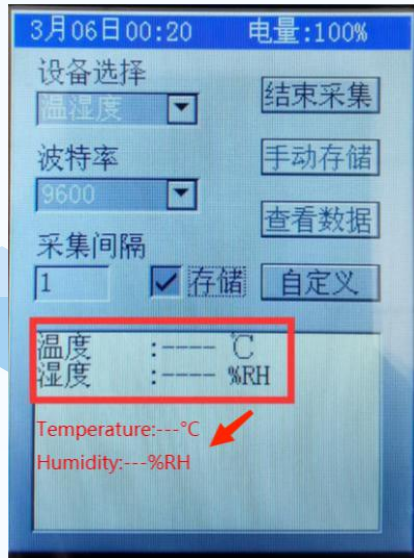


Baud rate: default 9600 (optional:4800/19200/115200)

Collection interval: Unit second

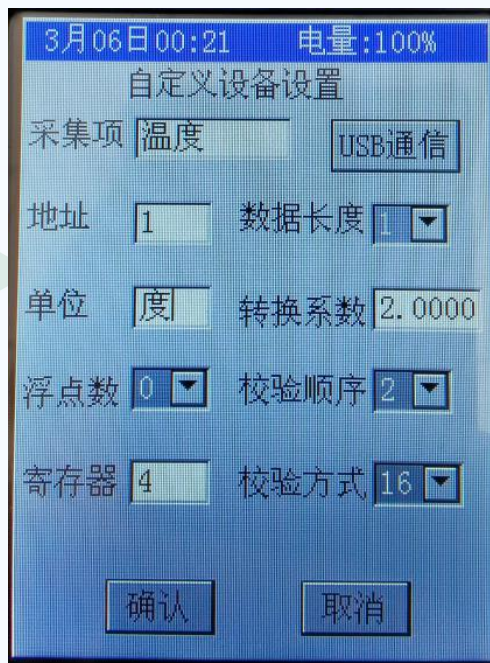
Memory: Can click select automatic save data, or click manual save to store the data.

Start to collect:After clicking, the latest sensor data will be displayed in the window below the screen, refreshed every second.



Show the data:After the collection, click "Show Data" according to the file name (time: year / month / day-time and second) and sensor name, click "View" to enter the lower menu, or click "Delete" the record.After clicking "View", you can view the historical data of the sensor by sliding the progress bar and turning the page key.

parameter	content
collection items	user-defined
address	fill in according to the device address
data length	1/2 (decided by the device register address)
unit	user-defined
change coefficient	user-defined
floating number	0 (default)
Calibration order	2 (default) 1 is CRC check bit high in the front 2 is CRC check bit low in the front
register	User-defined (Subject to the device register address)
Check mode	16bits (default) /32bits (CRC check)

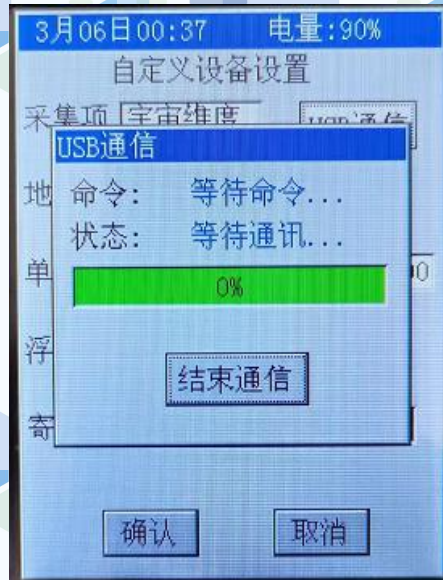


Export the historical data in the device on the computer

Connect the device-computer via USB 2.0 and prepare the computer software

(Contact us for this information).

After connecting, click "USB communication" under the "user-defined" interface of the handheld speed test platform and open the computer communication software "communication". The progress bar shows 100% after success.



Install Driver (see driver installation instructions for details) and then open Application to export.



Up-copy: Copy the specified data collector file to the computer specified folder.

Down-copy: Copy the computer specified file to the data collector file.

config.dbf in the red frame, is Parameter profile, after the computer configuration is complete, need Down-copy to the data collector covering the previous.

The files **in the yellow frame** are the data recorded at the time of collection.

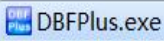
The sample.bin and vercode.txt **in the black frame** are the necessary program files of the handheld data collector, cannot delete.

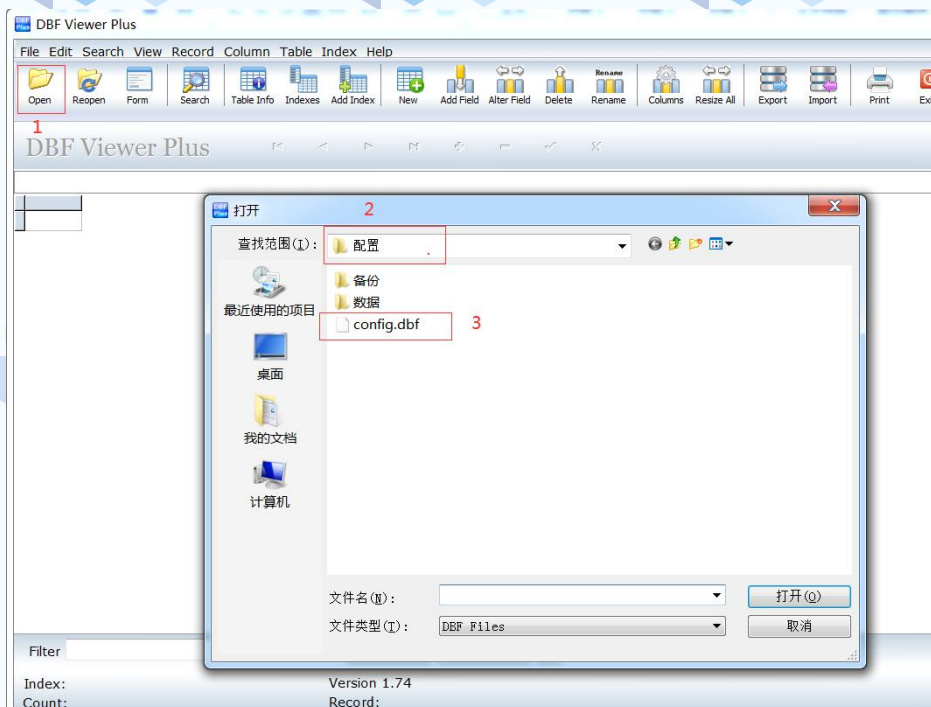
Up-copy finish installation the parameter profile and click “End Communication”.



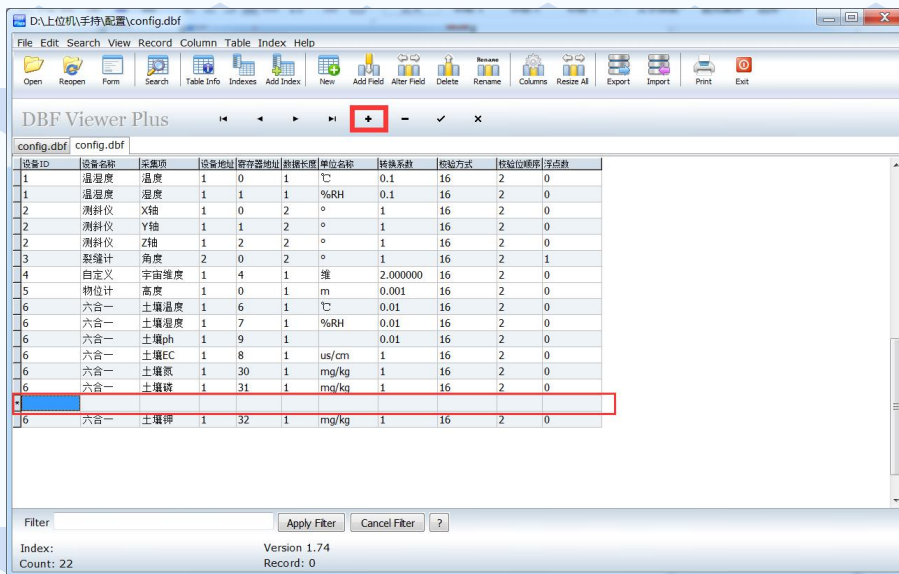
Note: Please delete data on the handheld data collector, the computer terminal contains the configuration file, please do not modify at will the data to avoid the system crash.

Change the 485 read configuration with a computer

1. open  DBFPlus.exe
2. Click top left corner “open”, select and open the parameter profile “config.dbf”, as the figure shows:



3. Build new parameter, click "+" add blank line, write the parameter according to actual.



- ① Device ID: Write in order, if you collect multiple items and times of the same device, the device ID should write the same one as above figure showed: "six in one device".
- ② Device name, collection items, user name: no fixed format can be set at will.
- ③ All the items of the remaining table should be changed according to the actual parameters of the sensor devices.

Chapter IV: Fault Analysis and Quality Warranty

4.1 Fault Analysis

No	Fault	Analysis	Solution
1	communication no signal	Cable fault	Check the power supply circuit with the multimeter
2	Communication is normal, but no data	Interface connection failure	Check the interface connections
3	The measurement data deviates from reality seriously	Sensor fault	Contact the manufacturer

4.2 Warranty terms:

This product warranty is for 6 months from the date of shipment, and accessories (shell / plug / cable, etc.) for 3 months.

The following circumstances are not covered by the warranty

- The purchased products are non-standard customization;
- Counterfeit and imitation of our Company's products;
- Other factors or human beings intentional damage, mechanical damage, violent fall-hit;
- Damage caused by user in abnormal working environment and damage caused by not according to the operation instructions.
- Dismantled by the user, modified or repaired by others not authorized by our company.