Gaotiejian

GTJ-EVD-W Light Weight Deflectometer

Operation Manual

Beijing Gaotiejian Technology Development Co.,Ltd.

Contents

Chapter I instrument functions and operation instructions

1 Basis standard

Section 34 "EVD plate load test" in industrial standard of the people's Republic of China code for geotechnical test of Railway Engineering (TB10102-2010).

2 Functions and features

GTJ-EVD-W dynamic deformation modulus tester is used to test the bearing capacity of subgrade, i.e. dynamic deformation modulus EVD index. It is suitable for the construction quality monitoring and testing of railway, highway, airport and industrial buildings under dynamic load.It is especially suitable for the detection of narrow sections of the site, such as transition sections of roads and bridges, subgrade of existing lines, etc.After the measurement program is started, three impact tests will be carried out, and the settlement value will be displayed by the settlement tester after each impact.
After one test cycle, the average settlement value and dynamic deformation modulus value can be obtained and displayed on the LCD.

Basic function test

Three settlement values are tested and displayed. The average settlement value Si and dynamic deformation modulus EVD are calculated automatically.

Storage

Three subsidence values, average subsidence values and EVD values of each test sequence are stored.

Printing

Print test data, calculation results, test curves, etc. on Bluetooth micro printer.

indicator light

Turn on the wireless load plate, the power on is blue indicator light, the connected is green indicator light, and the power shortage is red indicator light.

3 technical parameters

Total weight of mechanical part		30.0kg
Loading device	Weight of drop hammer (including round handle)	10.0kg
	Weight of guide rod (including damping device, guide rod and hook device)	5.0kg
	Maximum impact force	7.07KN
	Impact duration	18.0±2ms
Load plate	diameter	300.0mm
	thickness	20.0mm
	weight	15.0kg
host	Settlement value measurement range	0.1~2.0mm±0.02mm
	Test range of dynamic deformation modulus	EED<225Mpa
	Applicable temperature range	0~50℃

4 Composition of instrument system

GTJ-EVD-W dynamic deformation modulus tester is mainly composed of mobile phone, micro printer, loading device and load plate, as shown in the figure below.

5 Test preparation

Preparation of measurement area

Select a flat area within the measurement range, and place the load plate by gently rotating and pressing.The load plate must be in full contact with the measurement area so that the impact force can be effectively transmitted to the measurement surface, so as to obtain the maximum settlement of the area.If the ground is not flat, the gap under the load plate shall be filled with loose medium grained sand.

Connecting hosts

To establish the connection for the first time, open the wireless load plate, click "Settings" on the mobile phone to open "Bluetooth", and search for a signal such as "GTJ-EVD-W-XXX", which is the signal of the wireless load plate. When clicking the connection for the first time, the password will be prompted. At this time, enter "1234" and click "confirm".

Each time the wireless load plate is opened, the mobile phone will automatically search and connect the wireless load plate, without repeating the above steps.

Loading device in place

The loading device is placed on the central projection of the load plate.

Open the handling lock

The loading device provides a plug-in handling lock, which is used to fix the drop hammer on the guide rod during the handling process. Before the measurement, the handling lock must be opened and locked by right rotation.

Note: carry out the test after the handling lock is opened. It is forbidden to press it during the test. After the test, turn it to the right to unlock the falling hammer.

Preloading of the measuring area

In order for the load plate to make good contact with the measuring surface, the test area under the load plate should first be subjected to three impact preloads: one hand will fully lift the drop weight along the guide rod, and use the hook of the hook device to fix the drop weight on the At a predetermined position, the position of the guide rod is adjusted by a horizontal bubble so that the guide rod is perpendicular to the ground, the hook is released, and the falling weight falls on the top surface of the damping device and rebounds. Support the falling hammer that bounced back by hand, and use the hook device to fix the falling hammer in a predetermined position. Repeat three times to complete the preload.

Chapter II operation guide of mobile app

1. App login

The initial login password of the app on the mobile terminal of the instrument is generated by the unique code of the device that carries the app. After the first login, you can enter the software again and jump to the front page of the app directly without repeated login.

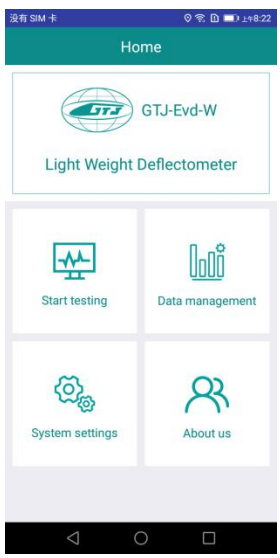
2. Main menu interface

Login to the home page, the software is divided into four modules: "start detection", "data management", "system settings", "about us".

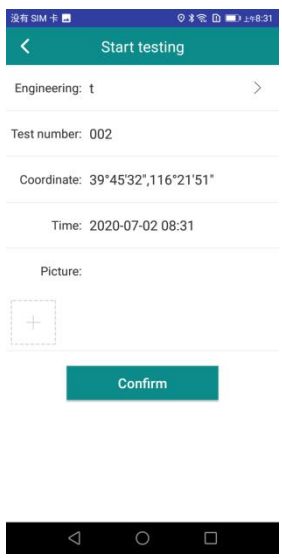
If the Bluetooth device is bound, the system will automatically connect to Bluetooth, as shown in Figure 2-1.

3. Start detection interface

Click "Start Test" on the homepage to enter the test interface. You need to set and read some test parameters, such as: engineering information, test point serial number, coordinate information, and test time, as shown in Figure 2-2.In this interface, you can click the box under the photo to take a photo of the test site, you can take multiple photos, you can delete the photo (only a single deletion), click "OK" to save the measurement point information and picture information, as shown in Figure 2-3.



2-1



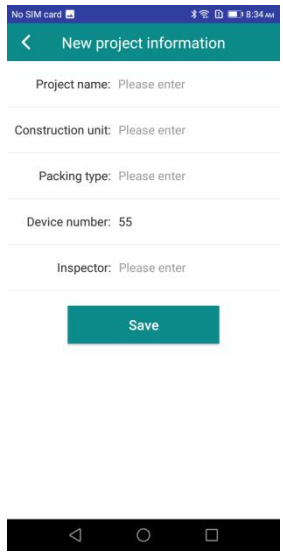
2-2

2-3

Click "Project Information" to enter the "Project List" page, and then click "+" in the upper right corner to enter the "New Project Information" interface to create a project, as shown in Figure 2-4.

On the "Project List" page, select the project and backfill to the "Start Test" page. The serial number of the measurement point defaults to the last measurement point of the current project information +1. If the serial number of the measurement point has not been established, "0001" is displayed on the mobile phone. When the mobile phone card is inserted and the data flow is turned on, the software will automatically interpret the coordinate information coordinates, as shown in Figure 2-5.

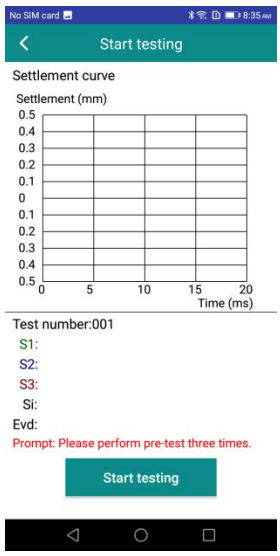
2-4



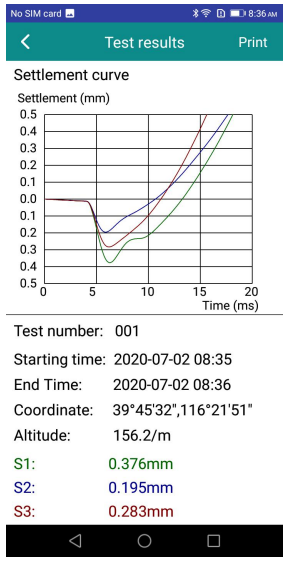
2-5

Click "OK" to enter the test interface, the system will remind "please do three pre-shocks", click "start test" to start the test, the system will send a request to the device side (if prompted "connection timed out, please check the network status" means The phone is not connected to the device, the user needs to check whether it is connected to the device side Bluetooth, whether the device is turned on, etc.), after the voice prompt "please perform the first impact", load the device for the first impact, the page shows the first test Subsidence value. Please perform three impacts in sequence.

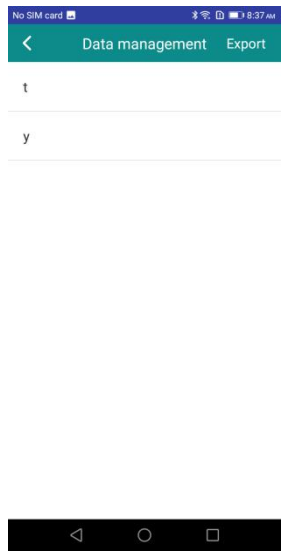
Click "Return" during the test, the system will prompt "please complete three impacts" until the user completes three impacts, as shown in Figure 2-6.



2-6



2-7



2-8

After three tests, the system will calculate the "Si average settlement value" and "EVD value" according to the three test data, and then jump to the test results page, as shown in Figure 2-7.

4. Data management interface

Click "data management" on the home page to enter the "data management" page, which will display the project names of all project information created by the current mobile phone in chronological order, as shown in Figure 2-8.

4.1 Data viewing

In the data management interface, select the project to view, click the project name to view all the information of the project, and click the serial number of the measuring point to view the test data of the measuring point, as shown in Figure 2-9.

4.2 Data export

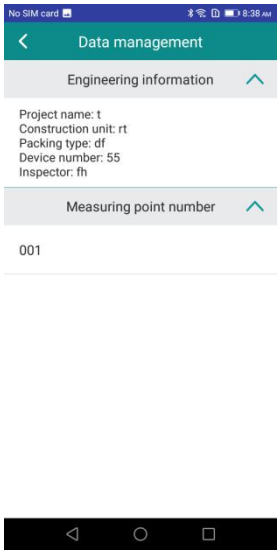
Click "export" in the upper right corner of the data management interface to enter the "data export" list page, select the project name to be exported (multiple project data export is not supported), and export the data to the local storage of the mobile phone, as shown in Figure 2-10.

4.3 Data deletion

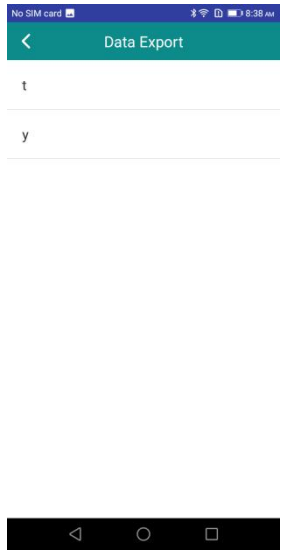
Delete project: in the data management interface, long press the project name in the list to prompt the

project to be deleted. Click OK to delete it engineering.

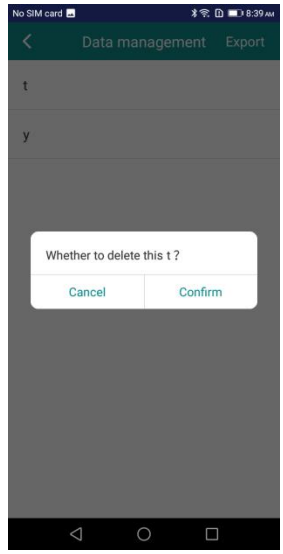
Delete measuring point: in the data project management interface, long press the measuring point name in the list to prompt the measuring point to be deleted, and click "OK" to delete the measuring point, as shown in Figure 2-11.



2-9



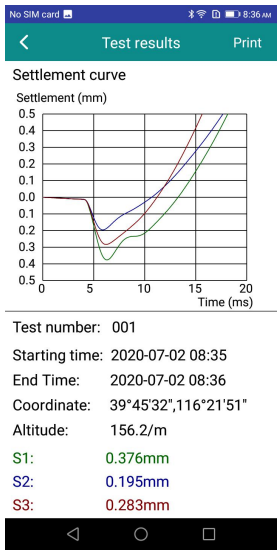
2-10



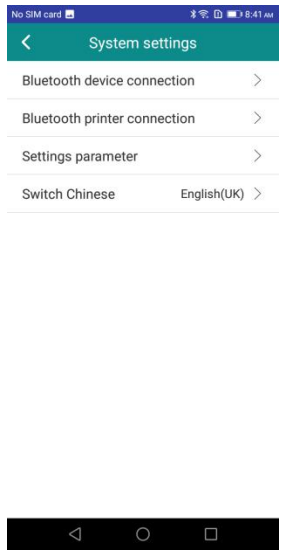
2-11

5. Data printing

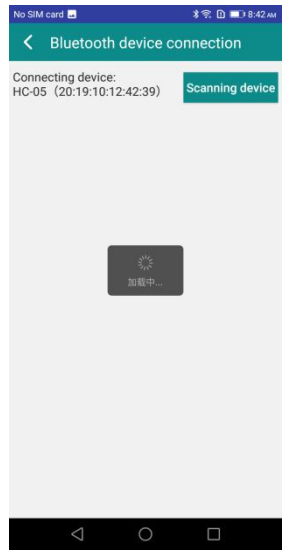
On the test result page, click "print" in the upper right corner (before printing, please make sure the Bluetooth function of the mobile phone is turned on, and the printer and the mobile phone have been paired with Bluetooth) for printing, as shown in Figure 2-12.



2-12



2-13



2-14

The default MAC address of the printer can be set in "system settings" - "Bluetooth printer connection".Can support Chinese and English printing, default Print in simplified Chinese and English.

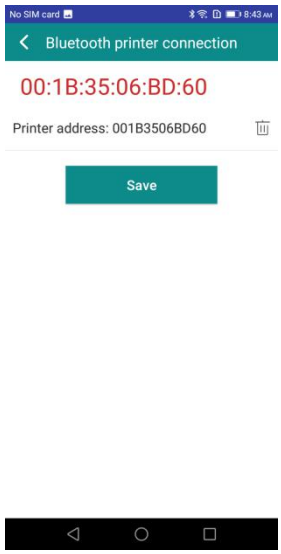
6 System setting interface

Each parameter of the system can be set in the system setting interface, as shown in Figure 2-13.

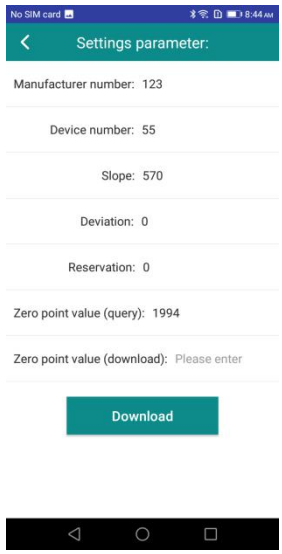
6.1 Bluetooth device connection

In this interface, the software can be connected with the load plate.After the connection is completed, the default boot will automatically connect, as shown in Figure 2-14.

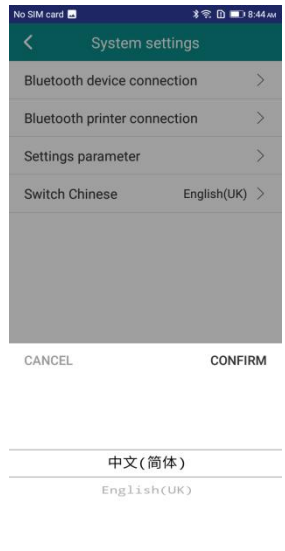
6.2 Bluetooth printer settings



2-15



2-16



2-17

6.3 Parameter setting

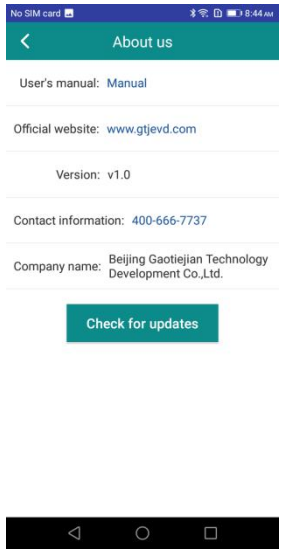
The value of this interface is the corresponding parameter value of this instrument. Please do not modify it by yourself, as shown in Figure 2-16.

6.4 Chinese English switching

Click Chinese or English switch to open the switch language window, as shown in Figure 2-17.

7. About us

The interface includes "user's Manual", "official website", "version information", "contact information" and "company name". Click the user operation manual can be viewed, as shown in Figure 2-18.


No SIM card
8:44 AM
About us
User's manual: Manual
Official website: www.gtjevd.com
Version: v1.0
Contact information: 400-666-7737
Company name: Beijing Gaotiejian Technology Development Co.,Ltd.
Check for updates

2-18

Chapter 3 software introduction

GTJ wireless dynamic deformation modulus analysis software is a software for data analysis and processing of GTJ-Evd-W dynamic deformation modulus tester launched by Beijing GTJ Test Instrument Co., Ltd. It can be run on a computer with a Windows operating system.

The processing object of this software is the measurement data file of "GTJ-Evd-W Dynamic Deformation Modulus Tester". The software can save and display the data of the dynamic deformation modulus tester, and can also print out the analysis results. The printed results can be directly used as the user's test report.

1 Software installation

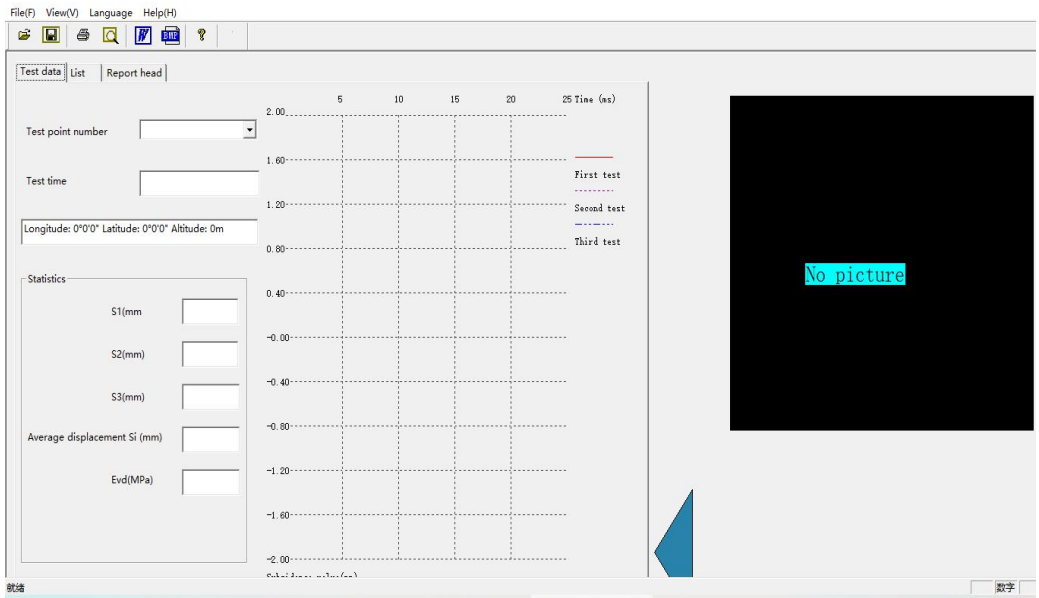
The installation process of this software is basically similar to that of common windows software.Open the memory disk of the mobile phone, select the application program of "GTJ-Evd-W dynamic deformation modulus tester", and install it according to the prompts.

2 Software introduction

2.1 Introduction to software interface

The operation method and interface form of wireless dynamic deformation modulus analysis software of high speed railway construction fully conform to the style of windows, and it has been familiar with users of windows operation can easily master the use of this software.

The software interface is mainly composed of title bar, menu bar, toolbar and main window, as shown in Figure 3-1:



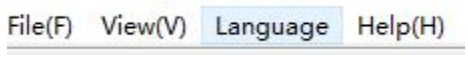
3-1

Title Block

From left to right, the software icon, the software name, and the file name of the current processing are displayed.

Menu bar

It is composed of three pull-down menu items (as shown in Figure 3-2). Click each menu item and a pull-down menu will appear, corresponding to a group of functions.The submenu items of these three menu items contain all the functions of the software.When some menu items are grayed out, this function is invalid in the current state.



3-2

Tool bar

A series of buttons are composed (as shown in Figure 3-3). Each button can realize a common function. Although these commands have been included in the menu command, it is much more convenient to realize these common commands through the toolbar buttons.Pause the mouse on a button for a while, and the function of the button will be automatically displayed on the screen.

3-3

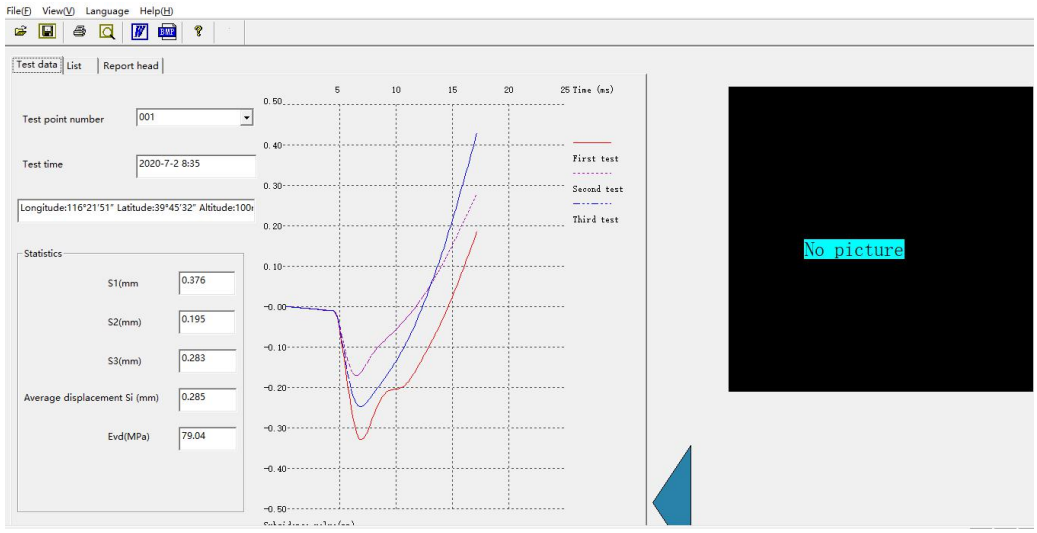
Main window

Including test data, list and report header, the three main windows are used to display test data, input project information, etc., which are the main parts of the program. The following will focus on the introduction.,

2.2 Main window

Test data window

Open the data, click the test data on the main window with the mouse, and the program can switch to the test data window (as shown in Figure 3-4). It includes three areas: statistical value area, subsidence time curve area and photo display area.



3-4

Click the drop-down menu of Test No. to select the name of the test point to be analyzed, the three subsidence values, average subsidence values and EVD values of this group of data will be displayed in the statistics value area; the subsidence time curve of this group of data will be drawn in the subsidence time area.

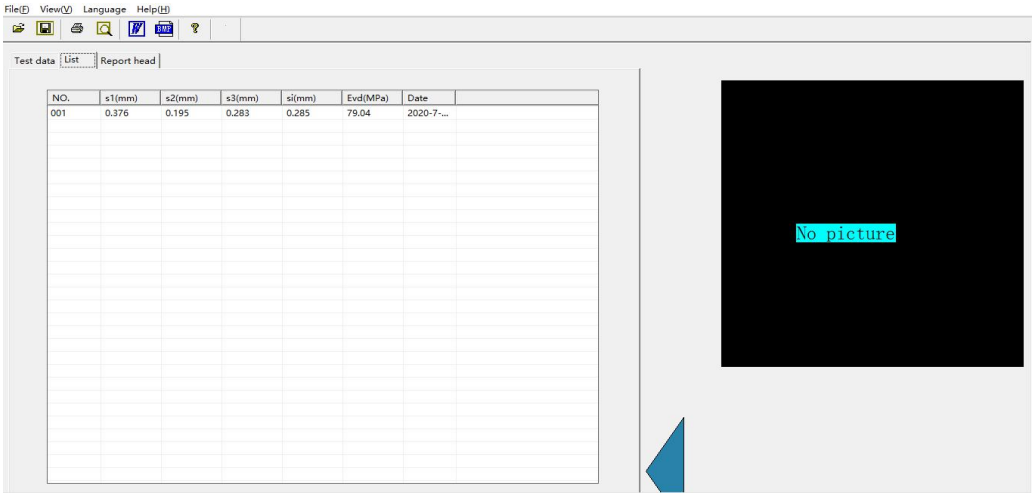
Note that the name of the test point will appear in the pull-down menu only when the data is opened, otherwise the content of the pull-down menu is empty.:

In order to distinguish the three impact curves, the software uses color and linetype to distinguish. The first measurement curve is red solid line, the second measurement curve is rose dot line, and the third measurement curve is blue dot line.

List window

Click the list above the main window with the mouse, and the program can switch to the list window. Its function is to transfer the data in the file according to the test the sequence of the serial numbers is all displayed in the list box, which includes the subsidence value, EVD value and test time of all experimental data.As shown in Figure 3-5:

Note that only after the data is opened or received can the value appear in the list, otherwise the list is empty.

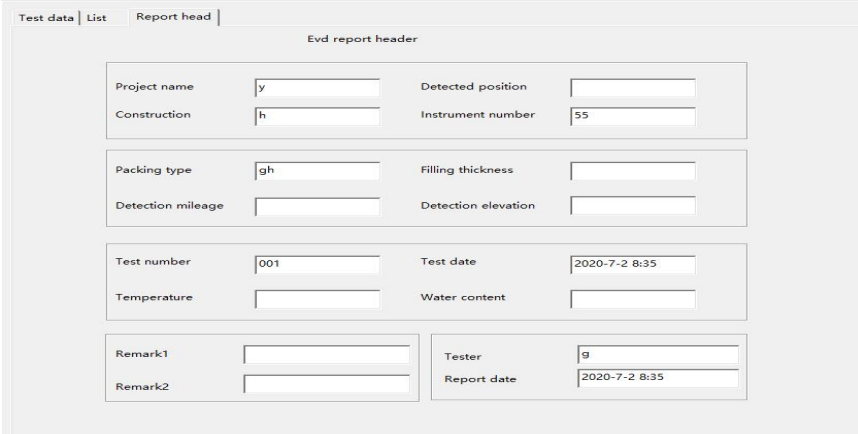


3-5

Report header window

After opening the data and selecting the name of the test point to be analyzed in the test data window, click the report header to enter the report header window, as shown in Figure 3-6.

As can be seen from figure 3-6, at this time, the test number, instrument number and test date have been displayed in the report header. These data are related to the selected test number and can be directly obtained from the received data.



3-6

If the final analysis results of the test point data need to be printed, the corresponding information can be filled in the edit boxes such as project name, detection position, construction site, etc., and these information can be displayed in the printed report.

2.3 Menu introduction

This section describes several important menus of the software: open, save, print, print preview, and change the name of the test point.

Opening of data

Click the open menu bar, and the open data dialog box shown in Figure 3-7 will appear. Select the file type to be opened with the suffix of. EVD in the file type, then select the file to be opened, and click OK to open the selected file.

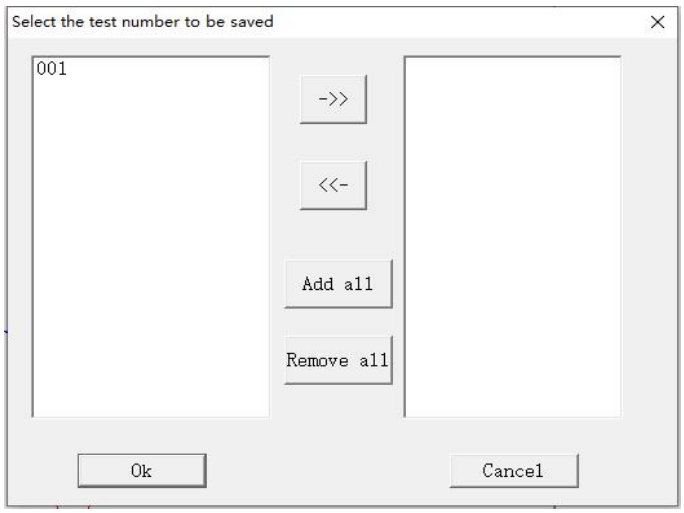
3-7

After opening the data, it can be analyzed, calculated and printed.

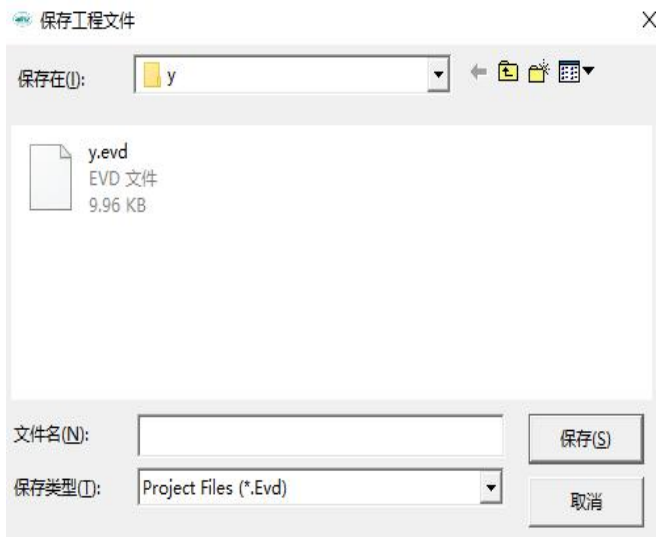
Data storage

Click Save Project File in the menu bar, a dialog box for selecting test points as shown in Figure 3-8 will pop up. The left list in this dialog box displays the names of all test points of the current file, and the right list shows the files to be stored Test point name. The user selects the name of the test point to be saved in the list on the left, and then clicks the ->> button, then the test point is selected in the list box on the right; similarly, in the list on the left of the dialog box Test point name, and then click the <<- button, the test point will be removed from the list on the right. Clicking the Select All button will select all test points into the list on the right, and clicking the Delete All button will clear the list on the right.

Select the test point to be saved, and then click the confirm button in the dialog box in Figure 3-8, the Save Project File dialog box shown in Figure 3-9 will appear, select the save path, and enter the file name (suffix name.Evd) , And then click the save button to save the project file



3-8

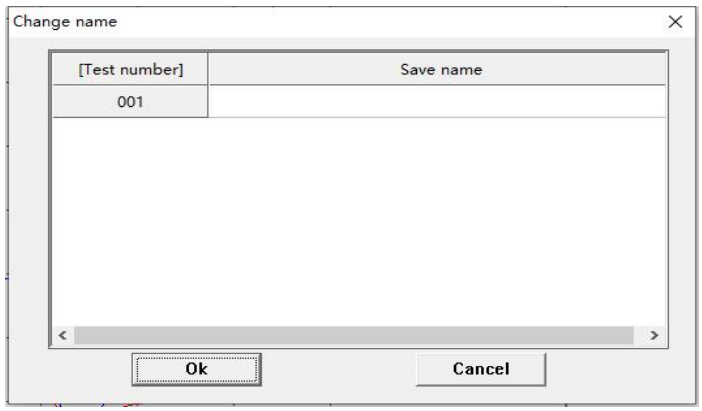


3-9

Change test point name

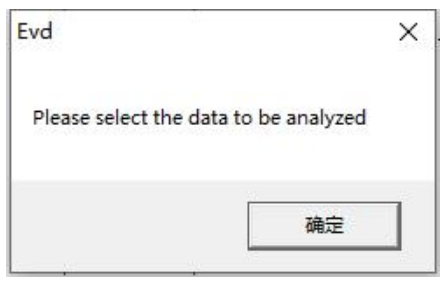
For the original data in the measuring instrument, the name of the test point is named by the test serial number, as shown in Figure 3-10, 1, 2 and 3 are the names of the previous test points (i.e. the test serial number). Arabic numbers are not convenient for the user to remember. After the user saves the original data, the next time he opens the data to view, he may forget when and where the serial number is actually measured.Therefore, the software provides the function of changing the name of test point. Click the file menu bar, and then click the data menu to change the name of test point. The dialog box of changing the name of test point as shown in Figure 3-10 will appear.

In the save name column, double-click the mouse to rename the test point.In this example, change 1 to railway section I, 2 to railway section II, and 3 to railway section III. click OK to change the name of test point.



3-10

You must open the data before you can change the test point name.Otherwise, a dialog box as shown in Figure 3-11 will pop up.

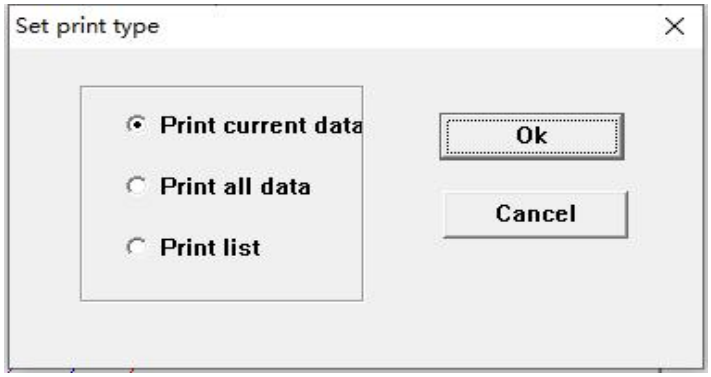


3-11

Print and print preview

Click the print button in the file menu or toolbar to print the analysis report.Click the print preview button under the file menu to see the print preview.The paper type to be printed is A4 paper.

When you click print or print preview, figure 3-12 will appear there are three options in the setting print type dialog box shown in the figure. If you choose to print the current data, the statistics value of the test point selected in the current test data window will be printed, and the settlement time curve will be printed. If you choose to print all data button, the statistics value of all the test points under the file will be printed, and the settlement time curve will be printed. If you choose to print the list, all the data under the file will be printed statistics of test points.

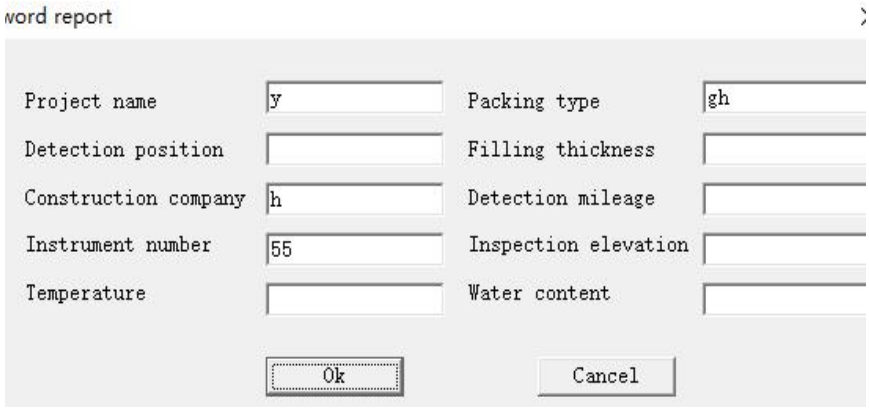


3-12

Save word document

Click Save word document in file menu with mouse to save EVD data in word document.

After opening the data, click in the file menu bar with the mouse, and a dialog box as shown in 3-13 will pop up. The initial value of the information in the dialog box is the data filled in the report header by the user. After filling in the information in the dialog box, click OK to save the test serial number, EVD, test time and other information of all data in the word document.



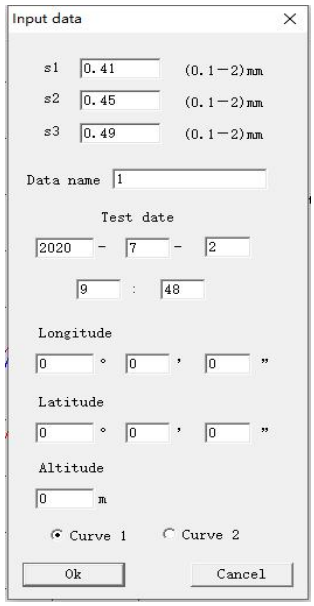
3-13

Save bitmap

Click the save bitmap in the file menu to save the chart information of the current test point to the location specified by the user in BMP format

Enter data manually

If the host fails, the data cannot be transferred to the computer. At this time, the data can be entered manually.Click "input data manually" to input the test data saved in the instrument to the computer.And select the curve type to get the test data and curve.For example, click manual data input in the file menu to open the following dialog box as shown in 3-14:



3-14

Among them, S1, S2 and S3 represent the subsidence values of the first, second and third impact respectively.The test point name should not be the same as the existing test point name. Test time, select the curve type, and click OK to see the data just entered in the test data window.

Help menu

Click the help menu to pop up the service hotline to query the relevant content.

TEL： 400-666-7737
URL: http//www.gtjyq.com