Single Column Electronic Universal Testing Machine

Brand: JNG

Model: JG-500N

(Photo for reference only)

Project Introduction

- The domestic Single Column Electronic Universal Testing Machine started in the early 1990s. Our company is one of the companies that absorb foreign technology and develop and develop electronic universal testing machines. In order to improve the technical level of the company's products, the company has successively absorbed advanced technology at home and abroad, which has brought the company's product technology to a new level.

Application

- The testing machine uses a stepping DC motor as a power source; it adopts advanced chip integration technology, a professionally designed PCI data acquisition amplification and control system, and the amplification of test force, deformation, and A/D conversion process have realized full digital adjustment.
- This machine can test and analyze the mechanical properties of various metals, nonmetals and composite materials, and is widely used in aerospace, petrochemical, machinery manufacturing, wires, cables, textiles, fibers, plastics, rubber, ceramics, food, and medicine.
- For packaging, aluminum-plastic pipes, plastic doors and windows, geotextiles, films, wood, paper, metal materials and manufacturing, the maximum test force value, breaking force value, and yield can be automatically obtained according to GB, JIS, ASTM, DIN, ISO and other standards Test data such as strength, upper and lower yield strength, tensile strength, compression strength, elongation at break, tensile modulus of elasticity, and flexural modulus of elasticity.

Main Description

- Host: The machine adopts a single-column structure, the beam can be steplessly adjusted for lifting and lowering, and the test space can be changed after the column, screw, and outer cover are replaced.
- The transmission system is composed of a low-noise circular-arc synchronous gear belt deceleration system and a lead screw pair, with stable operation, high efficiency, low noise and no pollution.

Attached

- Standard configuration: a pair of corrugated to clamp stretching attachment. The corrugated butt-clamping stretching attachment adopts manual clamping method, which is convenient, reliable, and non-slip. The jaw does not move during clamping, and the clamp moves up and down. The sample is free from additional force, which ensures the accuracy of the test results.

Function Introduction

- The machine adopts a built-in controller to ensure that the testing machine can realize constant velocity displacement control.
- Adopting stepping motor, stable and reliable performance, with protection devices such as overcurrent, overvoltage, overspeed, and overload.
- The electrical control circuit refers to the international standard, conforms to the electrical standard of the national testing machine, and has strong anti-

interference ability, ensuring the stability of the controller and the accuracy of the experimental data.

- Automatic gear shifting: automatically switch to the appropriate range according to the size of the load to ensure the accuracy of the measured data; realize the real physical zeroing, gain adjustment and automatic shifting, zeroing, calibration and saving of the test force measurement. Without any analog adjustment link, the control circuit is highly integrated.
- Condition save: test control data and sample conditions can be made into modules, which facilitates batch testing;
- Automatic speed change: The speed of the moving beam during the test can be changed automatically according to a preset program, or it can be changed manually;
- Automatic calibration: the system can automatically realize the calibration of the accuracy of the indication;
- Automatic save: the test data and curve are automatically saved when the test is over;
- Process realization: the test process, measurement, display and analysis are all completed by the computer;
- Batch test: For samples with the same parameters, they can be completed in sequence after one setting;
- Test software: Chinese WINDOWS interface, menu prompt, mouse operation display mode: data and curve are displayed dynamically along with the test process;
- Curve traversal: After the test is completed, the curve can be re-analyzed, and the test data corresponding to any point on the curve can be found with the mouse;
- Curve selection: The stress-strain, force-displacement, force-time, displacement-time and other curves can be selected for display and printing according to needs;
- Test report: Reports can be prepared and printed in the format required by users; with network interface, data transmission, storage, printing records and network transmission printing can be carried out, and it can be connected to the internal LAN or Internet network of the enterprise.
- Limit protection: It has two levels of program control and mechanical limit protection;
- Automatic shutdown: After the sample is broken, the moving beam will automatically stop;
- Overload protection: When the load exceeds 3-5% of the maximum value of each gear, it will automatically stop;
- The test results are obtained in automatic and manual modes, and reports are automatically formed, making the data analysis process simple.

Technical Specifications

Model	JG-500N
Maximum test force	500N
Test force display range	0 ~ 500N
Effective measuring range of test force	0.2% ~ 100% of full scale
Test force measurement accuracy	Better than ±1% of the indicated value
Displacement speed control range	0.01mm/min ~ 500mm/min, stepless speed regulation, speed can be set arbitrarily
Displament resolution	0.01mm
Displacement speed control accuracy	Better than ±1%
Accuracy of displacement measurement	Better than ±1%
Stretching stroke	0 ~ 800mm
Software and user interface	Software and interactive man-machine dialogue operation interface under WINDOWS operating environment
Power	220V, 50Hz

Test Machine Host Configuration

| Description	Quantity
High-strength host (Single-arm structure)	1 Set
Full digital speed control system and full digital speed control motor	1 Set
High-precision lead screws	1 Set
High-precision arc synchronous deceleration system	1 Set
High-precision sensor (wide test)	1 Set
Configure a set of special stretching aids (Blessing width 56mm and thickness 10mm)	1 Set
Computer & printer	1 Set
Special data acquisition control card for testing machine	1 Set
Special acquisition and control software for testing machine under WINDOWS 2000/XP/WIN 7 operating environment	1 Set

Software Function Introduction

- A host can be configured with up to 4 force sensors at the same time, and users can replace them at any time as needed;
- A host can be equipped with up to 4 deformation sensors (electronic extensometers), and users can replace them at any time as needed;
- The program adopts an open database structure definition, the standard configuration includes the national standard GB/T 228.1-2010, GB7314-2005 and other test methods, and special test methods can be customized according to user requirements;
- The tensile test force, compression test force and peak value are displayed in the whole process, the minimum resolution can be set according to needs, and it can be automatically calibrated and verified; the resolution in the whole process is unchanged;
- is displayed in the whole process, the minimum resolution can be set according to the needs, and it can be automatically calibrated and verified; the whole resolution is unchanged;
- Simultaneously record force-time, deformation-time, displacement-time, stress-time, strain time, force-deformation, force-displacement, stress-strain and other test curves, which can be switched for observation at any time and high-speed sampling;
- Using human-computer interaction to analyze and calculate the mechanical performance indicators of the test material, automatically calculate the elastic modulus, yield strength, plastic extension stress, etc. at the end of the test (different test methods, the analyzed data will be different), on the basis of automatic analysis in order to improve the accuracy of the analysis, the analysis results can also be manually revised;
- The test data adopts database management mode, which automatically saves all test data and curves;
- Provide a variety of report printing interfaces, users can edit reports in any format according to their needs and print them out;
- The software package also contains other tool software, such as configuration toolboxes, programmers, etc., which provide many practical and powerful functions;
- The data interface is reserved and can be directly connected to the comprehensive information management network of the enterprise (laboratory).
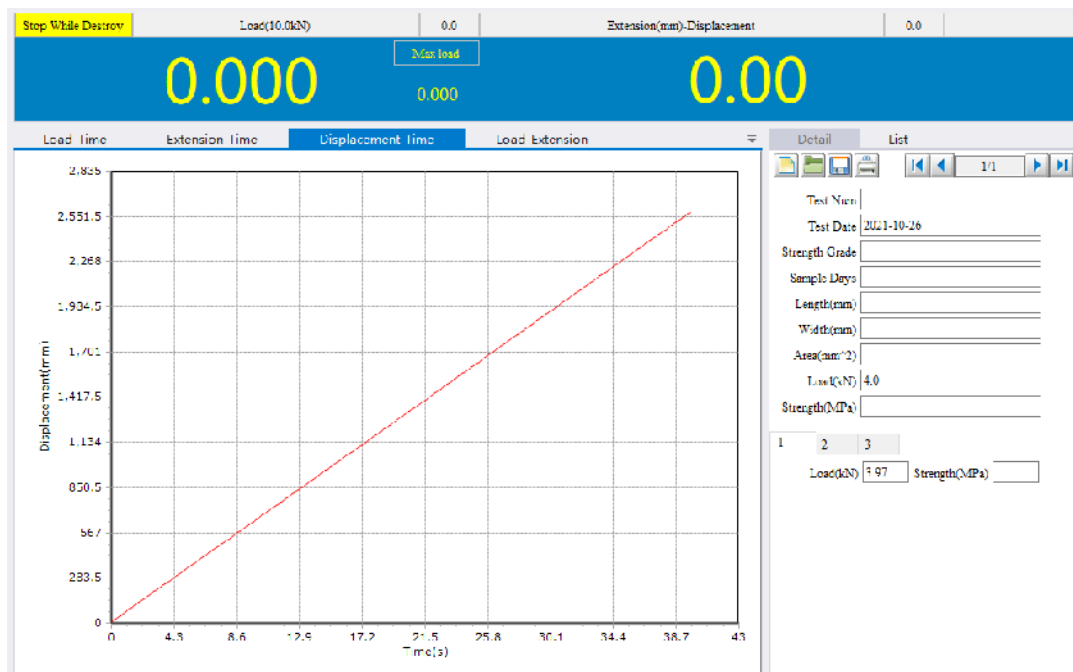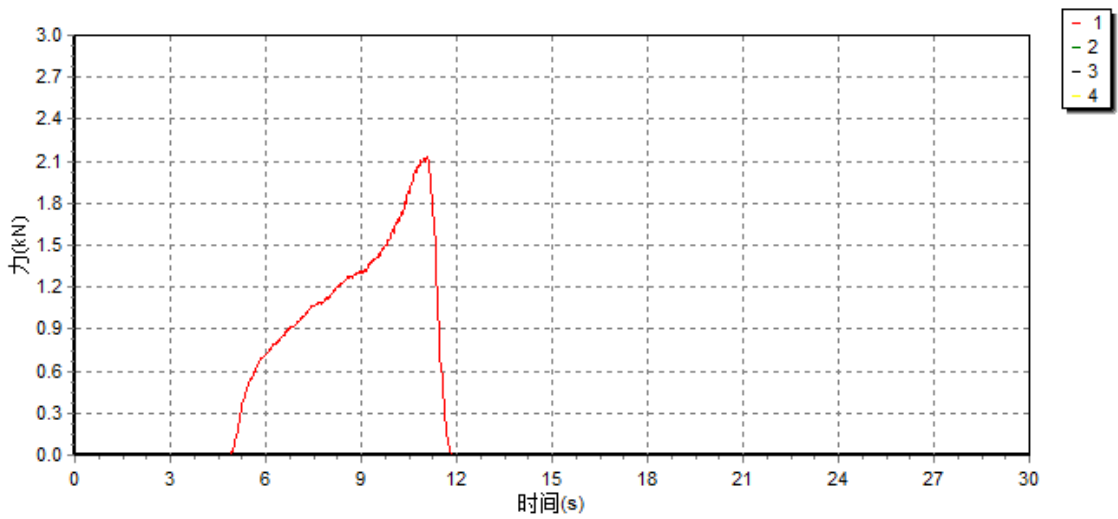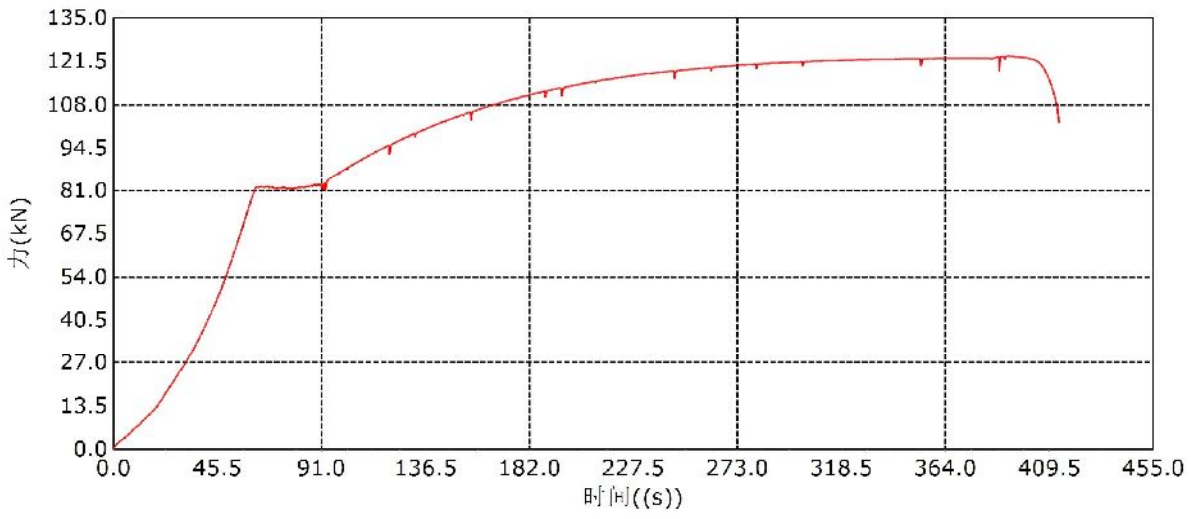
Main Interface

(Using man-machine interactive operation, easier and more user-friendly operation)
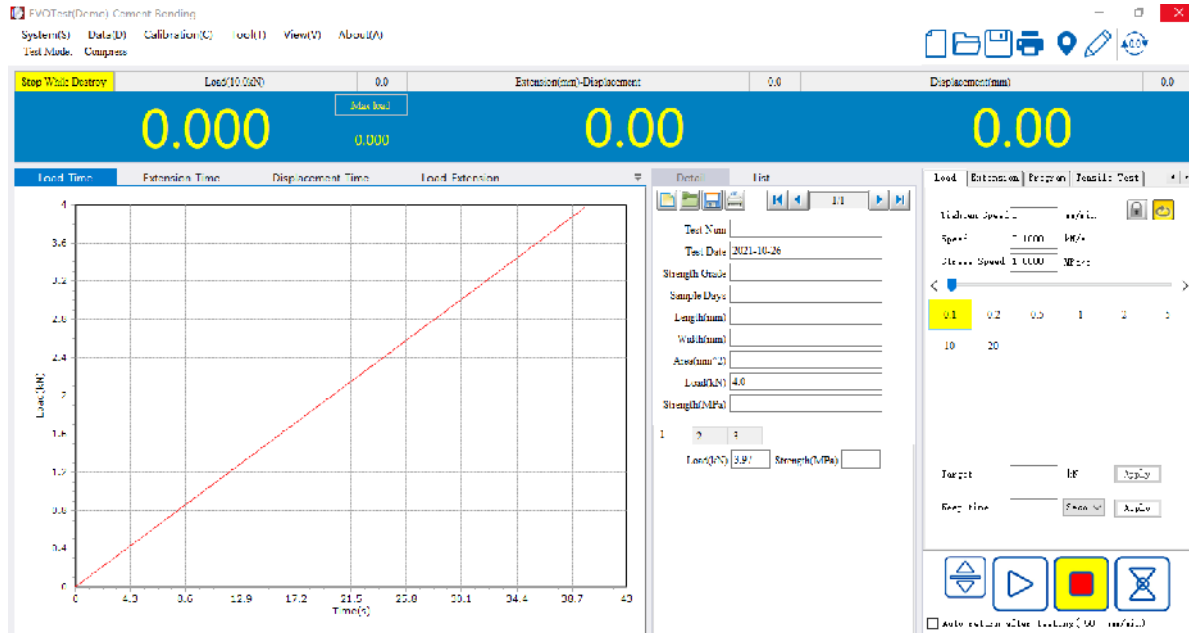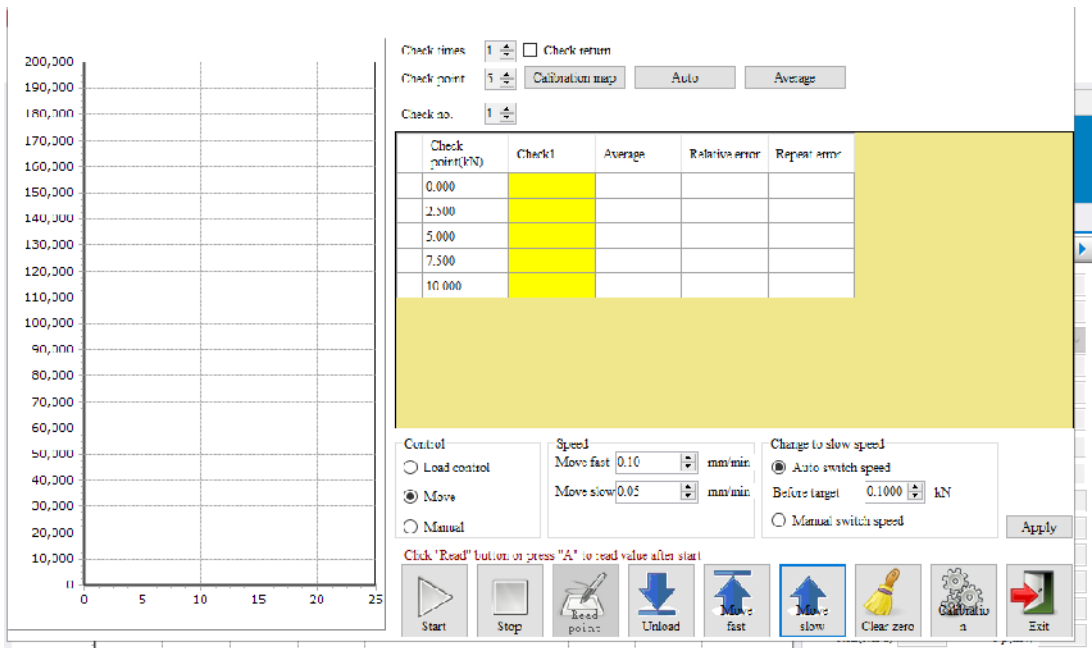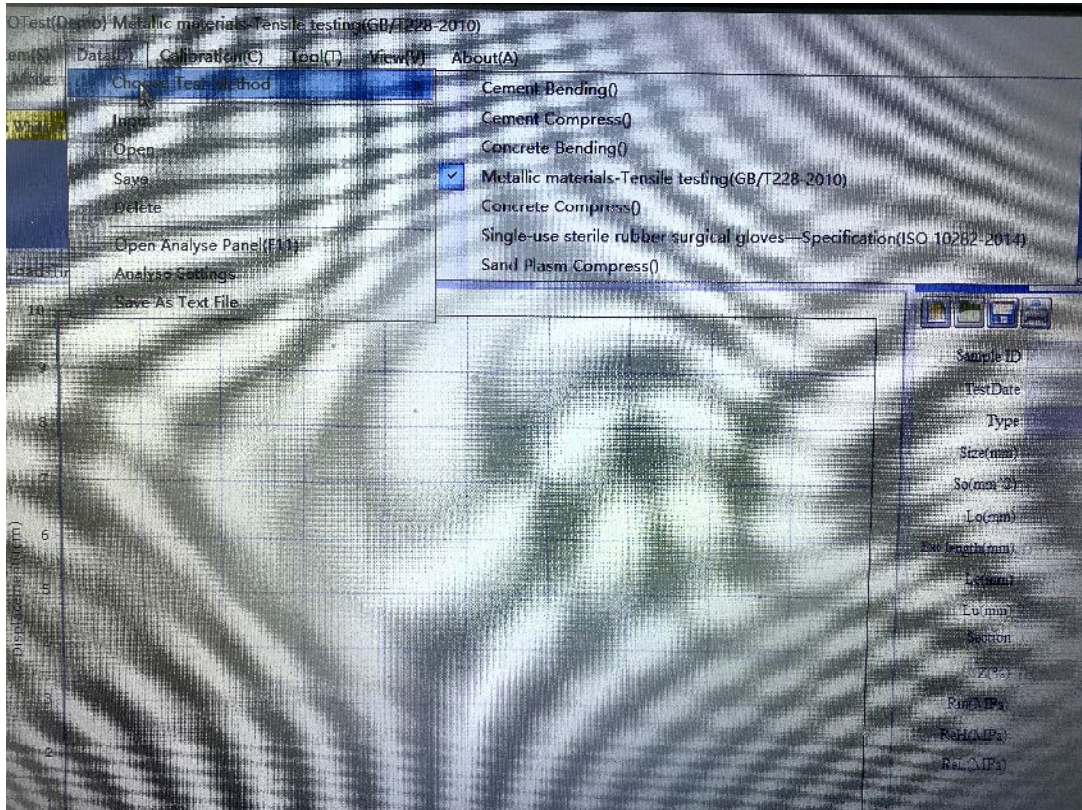

Test Result

(The whole process shows the tensile test force, the compression test force and the peak value, the resolution remains unchanged throughout the process)
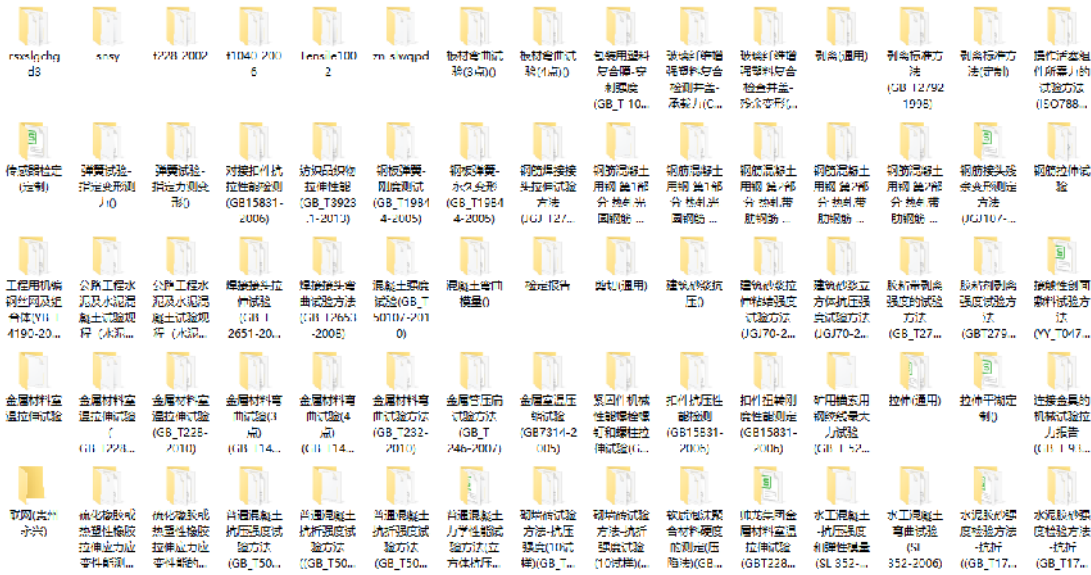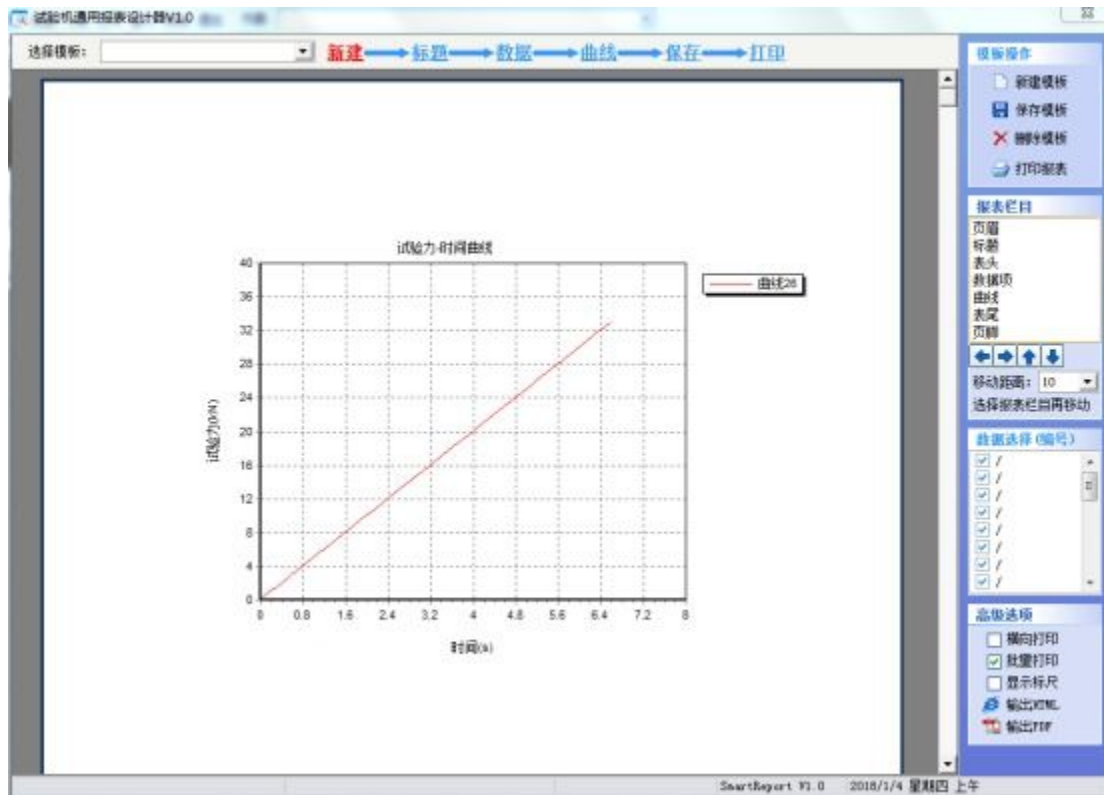
Test Methods

(Hundreds of built-in test methods cover all walks of life, and test methods can be customized according to customer requirements)
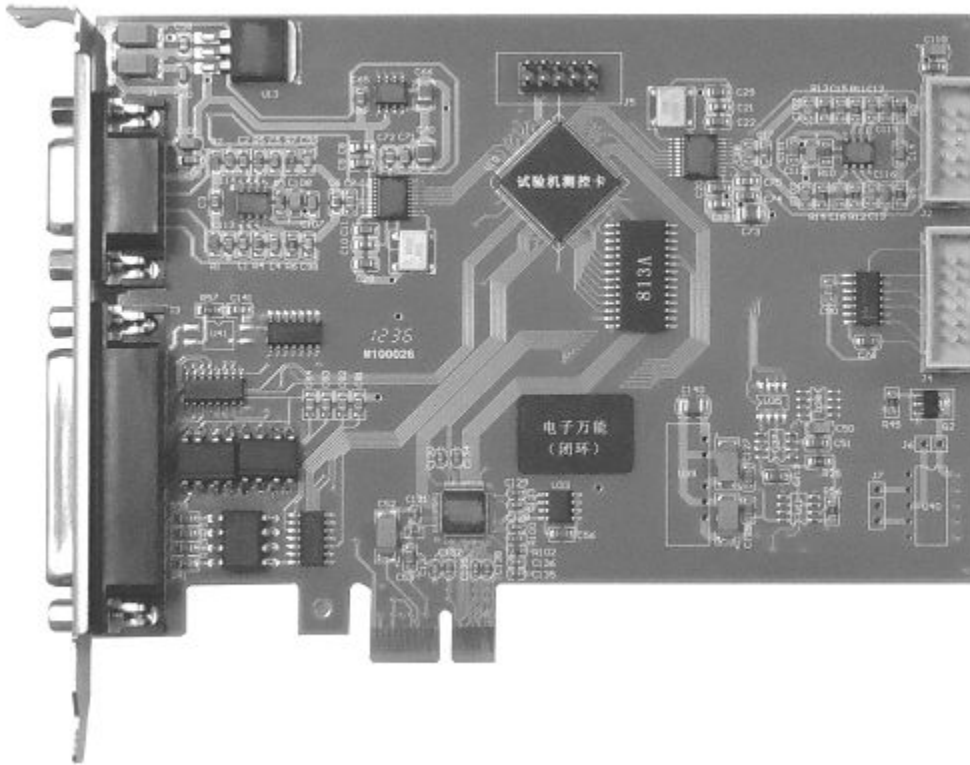
Batch Data Processing and Batch Report Printing Windo

(Test results can be printed individually or in batches)

Appearance of meaurement and control card

Circuit Introduction

- AD800 all-digital data measurement and control acquisition card is a microcomputer built-in PCI test card based on PCI interface, which conforms to PCI2.1 specifications. The card can be directly inserted into any PCI slot of the microcomputer, and it can be directly connected to the testing machine through a simple connection to realize automatic measurement and control of the microcomputer, and truly plug and measure. AD800 universal test card integrates program-controlled amplification, A/D conversion, digital I/O, counting and pulse width (PWM), square wave generation (SWP) and other functions in one. Its system structure is reliable and simple, and it has a very good interaction. Transsexual.

Technical Performance

- The whole system adopts digital design, which is safe, stable, reliable and high precision
- The whole system has no adjustable components, digital zero adjustment and automatic calibration of measurement and control parameters
- The system integrates CPLD computing devices with high-speed computing capabilities and real-time processing of digital signals
- This system adopts PCI2.1 bus standard, which is easy to expand, easy to upgrade and achieve "plug and play"
- Integrated 4-speed programmable amplifier for precision instrument, automatic gear shift
- Automatic zero detection
- The maximum resolution of the channel is 0.0005% or equivalent to ±200,000 yards
- The display resolution of each file is 0.01-0.05% FS
- The maximum collection rate is 400 points/sec, typical 50 points/sec