## PLEASE READ FIRST



(NEW 2011 VERSION)

## Main features:

engine control system, the user can set different types of crankshaft independent

Signal output (for all models of the computer-driven) automatic transmission input and output shaft signal simulation pin connector commonly used automatic computer tips directly into the waveform data set crankshaft computer automatically set the signal waveform data time to test the independent six-channel injection engine speed signal output speed signal output (Hall signal, magnetic signal) three, four-channel ABS wheel speed signal output diesel electronic control system testing EGR solenoid valve driven electromagnetic valve clearance of carbon cans speed table-driven driven blower control module idle valve driver 12V \ 24V stepper motor drive (four-, six-lane) 12V \ 24V servo motor drive injector drive driven hydraulic solenoid valve ignition module drive

parking sensor (ultrasonic) sensor-driven Automatic Shift Valve Driver Shift Quality Valve Drive hydraulic valve driver water temperature, intake air temperature, outdoor temperature, evaporation temperature sensor signal simulation box oxygen sensor signal simulation (manual) oxygen sensor signal simulation (auto signal) throttle signal simulation Simulation of carbon can remove the solenoid valve EGR solenoid valve analog air flow meter, air pressure sensor (analog, digital) signal simulation Simulation of the ignition coil Simulation Injector idle speed stepper motor simulation (four-, six-lane) A \ C relay simulation pump relay simulation radiator fan relay simulation audio signal output, power amplifier driver automatic transmission shift valve, shift quality valves, hydraulic control valve simulation fuel injection pulse width measurement Central locking server simulation burglar resistance simulation all of the output signal overload protection High-Power 5V \ 12V \ 24V voltage output user extensions

Instrument specific parameters:

output waveform can be set: five-channel arbitrary waveform output settings, which can crank out 1 ° angle signal, the signal sub-cylinder, 1 cylinder TDC signal, cam signal, the phase accuracy. Models for all the world's crankshaft, camshaft signal simulation; also applies to all the world's automatic transmission input and output shaft signal simulation; ABS three, four-channel wheel speed signal simulation; computer settings waveform, the network lifetime free upgrades, At the same time long-wave data can be stored within the memory;

Output: magnetic signals, the Hall signal, optical signal;

actuator drive: drive current 3A, 1% ~ 99% duty cycle continuous adjustment, continuously adjustable frequency;

sensor signal simulation: resistance  $100\Omega \sim 10000\Omega$  voltage 0V  $\sim$  5V  $\times$  3

 $0V \sim 1V$ 

simulation-driven actuator: 54 simultaneous output channels

stepper motor drive: current 1A, applicable to all vehicles with four lines, six lines (12V  $\ 24V$ ) stepper motor drive;

Output current: 5V-5A \ 12V-5A \ 24V-3A

Device can be used:

Dynamic diagnosis of automotive sensors, automotive engine, transmission, ABS, air conditioning, anti-theft and other computer repair, car model-driven teaching aids, research and development in automobile production;

This instrument applies to Germany, the United States, Japan, Korea, China-made mini-cars and dozens of thousands of vehicles;

Instrument Packing List:

sensor signal simulation expert Gold Edition 1 set

write waveform data line 1

Power Line 1

Wave Connection 3

a computer data disc

instrument manual 1

signal simulation-driven data line



About the control panel:

Injector and fuel injection time measurement simulation

INJ1: a tank of fuel injector and fuel injection time (ms)

INJ2: two-cylinder fuel injector and fuel injection time (ms)

INJ3: three-cylinder fuel injector and fuel injection time (ms)

INJ4: Four-cylinder fuel injector and fuel injection time (ms)

INJ5: five-cylinder fuel injector and fuel injection time (ms) INJ6: six-cylinder fuel injector and fuel injection time (ms) Analog output CTS: the temperature sensor signal simulation  $0 \sim 10$ K TPS: EGR valve position, throttle position sensor signal simulation  $0 \sim 5V$ MAP: Simulation of the intake pressure sensor signal  $0 \sim 5V$ MAF: Simulation of air flow meter signal 0 ~ 5V O2: oxygen sensor signal simulation of  $0 \sim 1V$  (manual adjustment) O2A: Simulation of the oxygen sensor signal conditioning (signal 1-1V automatic change) Digital signal output CKP: Crankshaft signal AC: AC Signal DC: DC signal Actuator drive ISC: Idle Speed Control Valve Drive PFC: ignition coil driver INJ: injector drive A1 A2 B1 B2: four-wire stepper motor driver  $A \setminus B \setminus + \setminus + \setminus C \setminus D$ : six-wire stepper motor drive Simulation of the ignition coil and ignition module IG1: a tank simulation of the ignition coil and ignition module (positive \ negative trigger) IG2: two-cylinder ignition coils and ignition module simulation (positive \ negative trigger) IG3: three-cylinder ignition coils and ignition module simulation (positive \ negative trigger) IG4: Four-cylinder ignition coils and ignition module simulation (positive \ negative trigger) IG5: five-cylinder ignition coils and ignition module simulation (positive \ negative trigger) IG6: six-cylinder ignition coils and ignition module simulation (positive \ negative trigger) Solenoid valve analog: SOL1: Coil 1 SOL2: coil 2 SOL3: Coil 3 SOL4: Coil 4 SOL5: Coil 5

SOL6: Coil 6

Automatic Terminal Tips FPR: pump relay simulation RL: relay simulation
+ B: 12V power output
NE +: crankshaft signal + output
NE-: crank signal - output
GND: Negative Power Supply

Multi-channel signal generator

CH1: Hall (optical) sensor output signal 1

CH2: Hall (optical) sensor output signal 2

CH3: magnetic sensor signal 1 output (isolated)

CH4: magnetic sensor signal 2 output (isolated)

CH5: magnetic sensor signal 3 output (isolated)

Key features:

F1: shortcut keys: General Signal Generator

F2: shortcuts: According to the model selection

F3: shortcut keys - 5V, 12V, 24V power supply all closed

↑: Menu Up

↓: Down Menu

+: Signal enhancement

-: Signal is reduced

RUN: running \ sure

RET: Return

READ: Read five-channel signal data crankshaft

OUT: crankshaft signal output

DIV: stepper motor operating voltage 12V \ 24V switch

POWER: Power switch

 $\boxtimes$ 

Rd arbitrary wave signal analog output Features

Rd arbitrary wave signal functional block diagram and working principle of Introduction:

The function of the PC machines for the operating platform, and through the joint control of CPU and memory has generated Rd arbitrary wave signal output, which can produce various models of the crank signal is present; automatic transmission input and output shaft signal; ABS III, IV channel wheel speed signal; and have the waveform storage function.

Arbitrary wave signal generation are based PC, the operating software as the base waveform editor, and an adjustable reference oscillator frequency signal for the synchronization signal, by determining the number and the reference oscillation signal level changes to the output waveform settings.

The "Channel 1, Channel 2" for the square-wave output, mainly used to simulate the Hall, photoelectric crankshaft, camshaft signal. "Channel 3, Channel 4, Channel 5" as the isolated AC signal output, used to simulate the magnetic-electric crankshaft camshaft signal.

Instrument specific steps:



(connect computer—write signal wave data---click F1----click read---click OUT—output signal wave

Waveform set software installation and use:

1, the first simulation experts onboard the CD into the computer drive, and open. The "ELUSetup" file to your desktop, and double-click the file, the program installed.





2, the installation is complete, double click the desktop icon, the following interface:

5, the operation after the waveform editing interface.



6, according to different models, you can configure the interface in the wave zone free of any settings you need to set the waveform, in which Channel 1, Channel 2 is

mainly used for two-channel square-wave set, the other three channels is mainly used for sine wave configuration. After the waveform set in the "End phase" menu, enter the wave at the interface we set "phase map" of where the end (that is, the end of the waveform position) can also be said to be the end of the crankshaft position signal a turn, and then the new cycle. For example: the drawing of the output waveform in the "phase diagram" the end of the 7 position, and repeat the cycle. We in the "end phase" menu, type 7. If a waveform set is not enough, click "Next" to continue with the waveform set.



7, after the end of the waveform settings, click the "Save" to save the settings of the waveform.



8, click the "Save", the pop up screen, select the file path, click the "Save" button.



## Part of the engine computer wave file:

