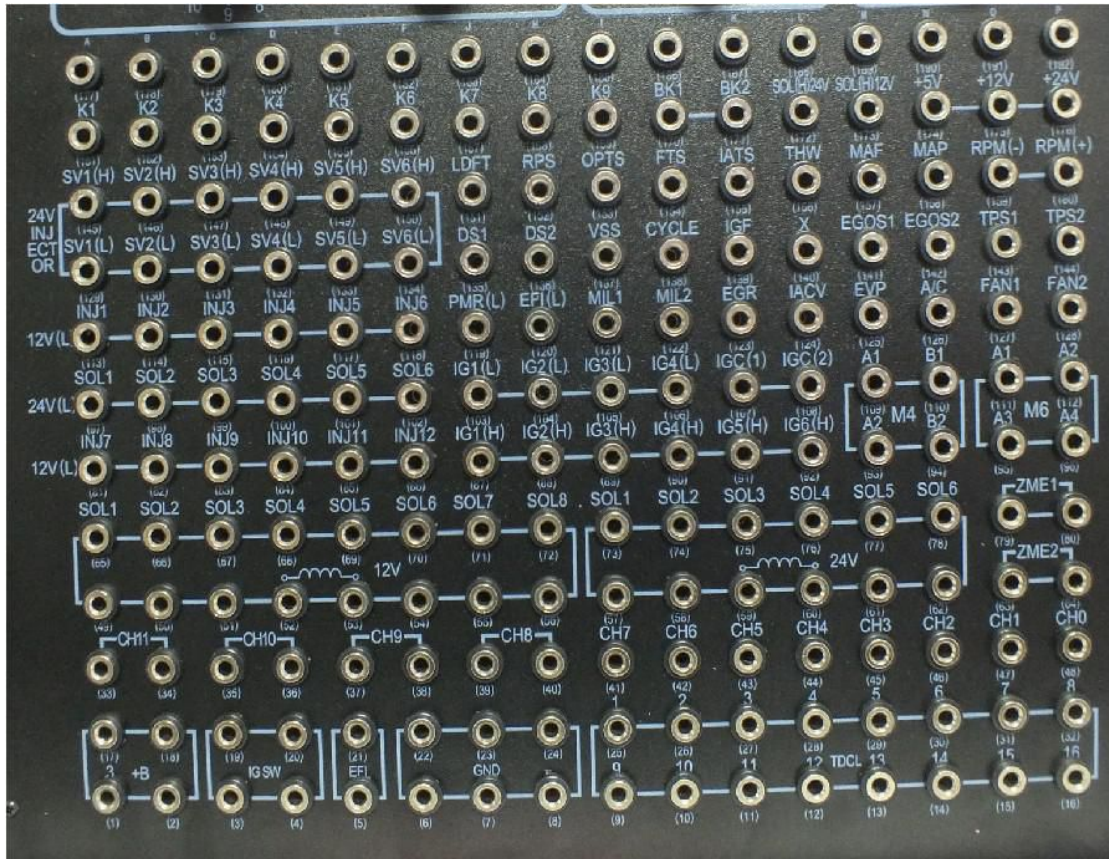


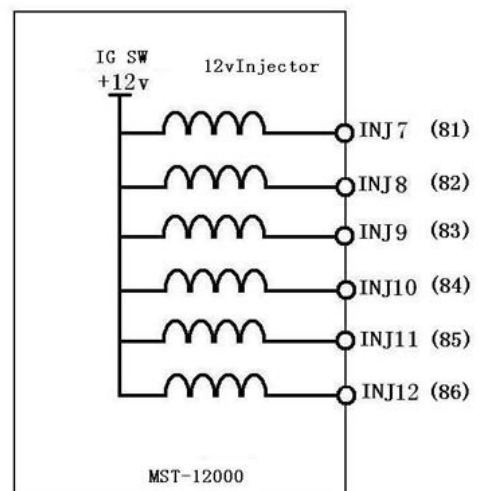
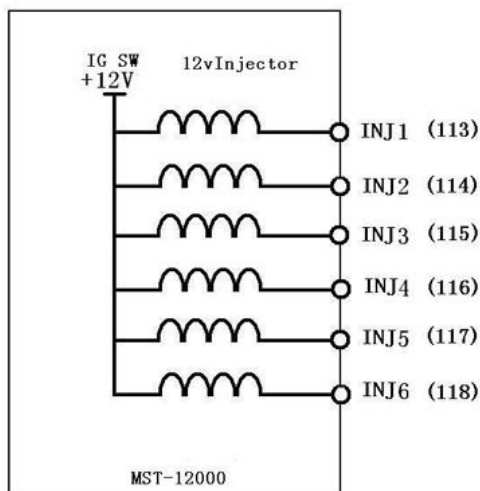
# MST-12000 Universal Automotive Test Platform and ECU Signal Simulation

## Operation panel profile:

Output port: the above of the port said the abbreviation of the port name and the below is the port number (1-192) a total of 192 output ports.

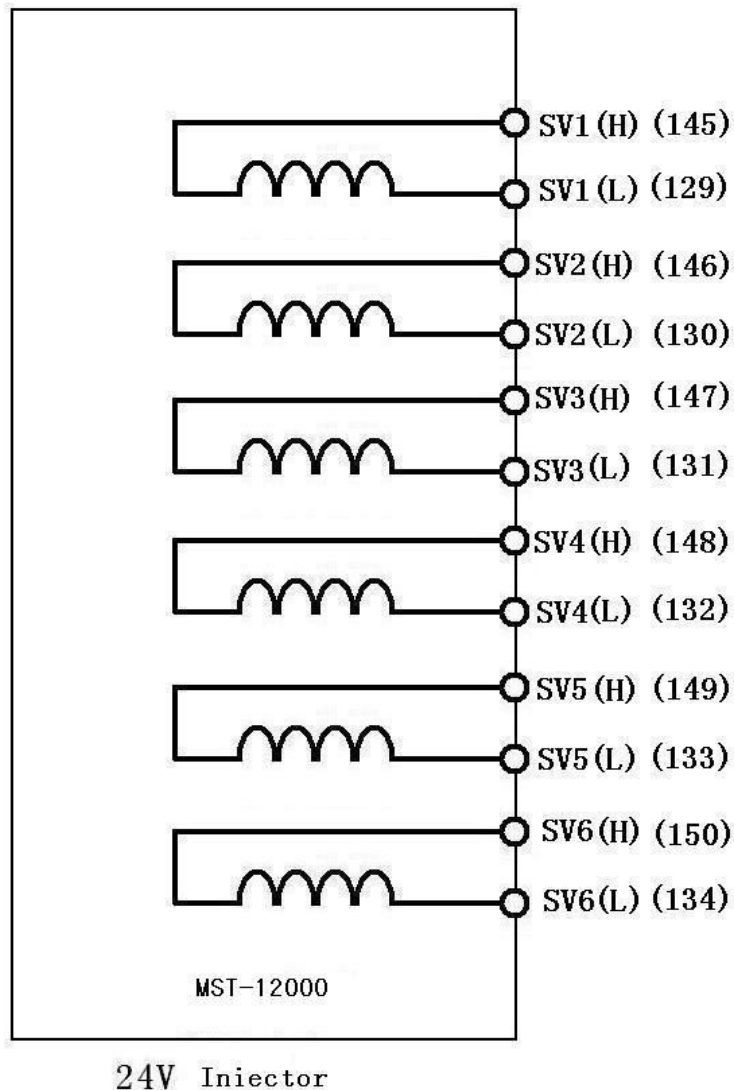


INJ1-INJ12 (port 81-86,113-118): making 1-12 cylinder injector and injection time (MS) (12V,gasoline)



12vInjector

SV1 (H) -SV6 (H) (port 129-134), SV1 (L) -SV6 (L) (port 145-150) diesel injector signal output (24V)



**Analog output:**

IATS: ( Port155 ) air charge temperature sensor 0-5V

THW:( Port156) water temperature sensor 0-5V

TPS1:( Port143) Throttle position sensor signal simulation 0-5V

TPS2: ( Port144) Throttle position sensor signal simulation ratio control 0-5V , used to adjust two throttle signal output ratio. If two throttle position sensor signals need to be 2:1, then adjust TPS1 output voltage to 1v, TPS2 0.5V. And then adjust the voltage of TPS1, two signals can be 2:1.

MAP:( Port158) Air intake pressure sensor signal simulation 0-5V

MAF:( Port57) Air flow meter signal simulation 0-5V

EGOS1:( Port141) Oxygen sensor signal simulation 0-1V

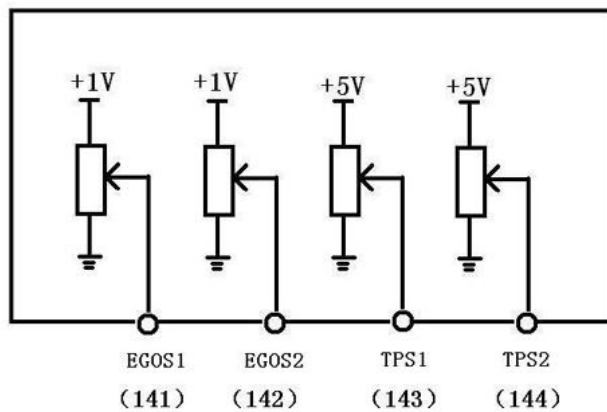
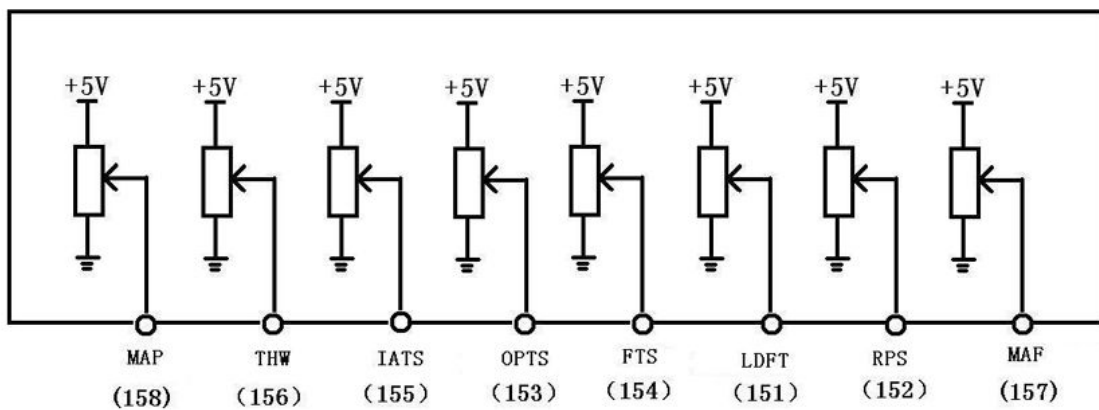
EGOS2:( Port 142) Oxygen sensor signal simulation 0-1V

LDFT:( Port151) Boost pressure sensor 0-5V

RPS; ( Port152) Fuel rail pressure sensor 0-5V

OPTS:( Port153) oil pressure sensor 0-5V

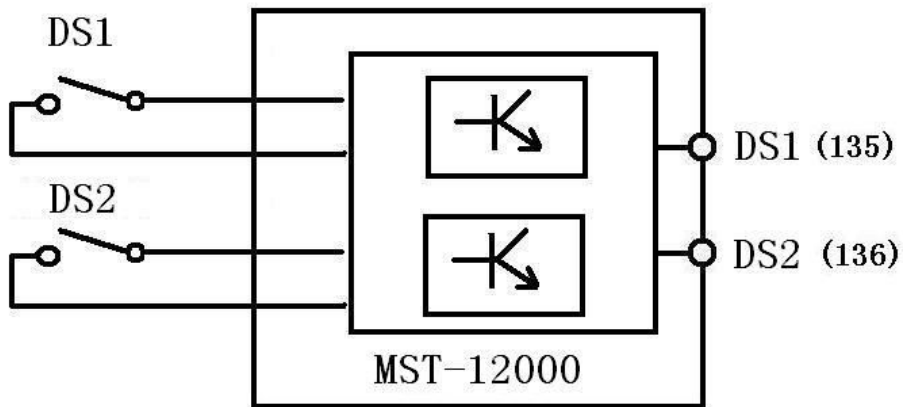
FTS: ( Port154) oil temperature sensor



**Digital signal output:**

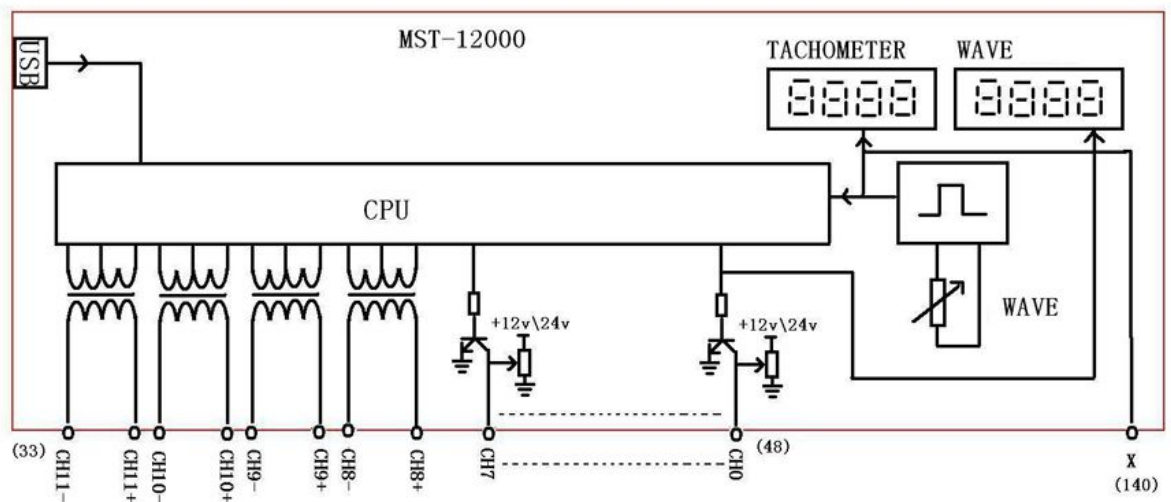
DS1:( Port135) knock sensor 1 signal simulation

DS2:( Port136) knock sensor 2 signal simulation



CH0-CH7: ( Port41-48) The camshaft & crankshaft square wave signal

CH8-CH11: ( Port33-40) The camshaft & crankshaft ac signal( This feature requires a PC through good software calibration input signal of the crankshaft。 Click on a host "OUT" knob it can be output )



**Components of simulation:**

IACV: ( Port140 ) Idle speed control valve displacement simulation

PMR: ( Port135 ) pump relay fuel pump relay

EFI: ( Port136 ) main relay

MIL1: ( Port121) ] indicator light1

MIL2: ( Port122 ) indicator light 2

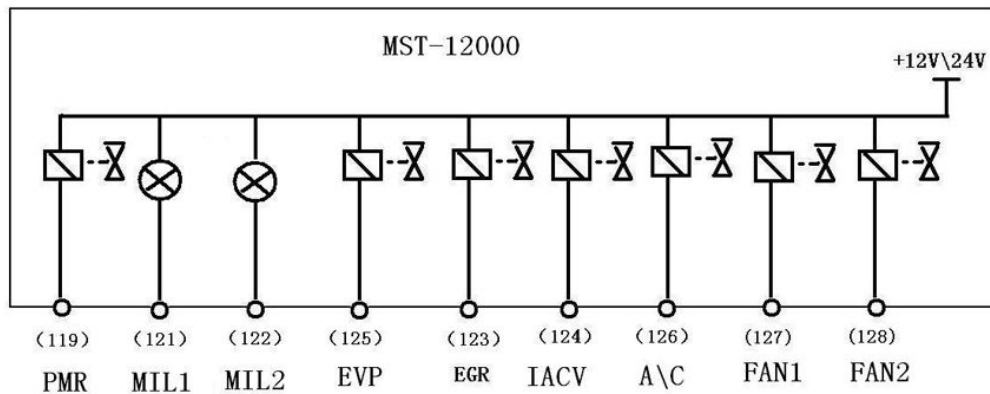
EGR: ( Port123 ) exhaust gas recirculation

EVP: ( Port125 ) CHARCOAL CANISTER-PURGE VALVE

A\C: ( Port126 )Air Conditioner Relay

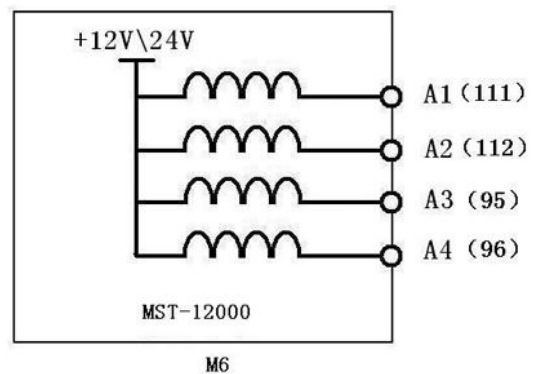
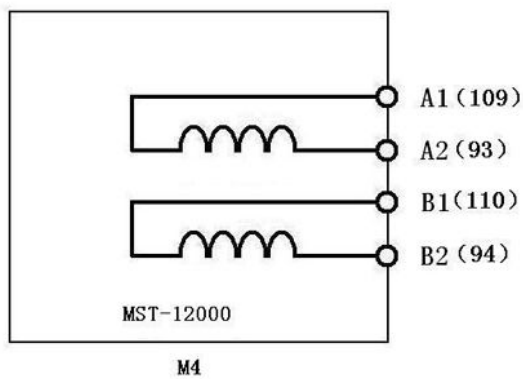
FAN1: ( Port127) EElectric fan relay 1

FAN2: (Port128) EElectric fan relay 2



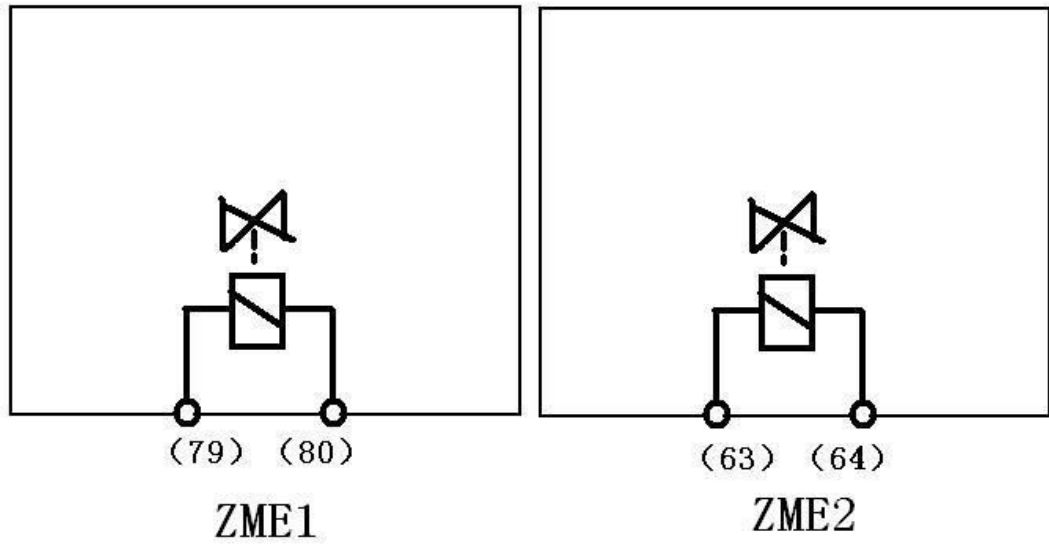
M4: ( M4Port Area, Port93、 94、 109、 110 ) Four wire stepper motor simulation

M6: ( M6Port Area, Port95、 96、 111、 112) Six line stepper motor simulation



ZME1: ( Port79-80 ) Rail pressure regulator 1

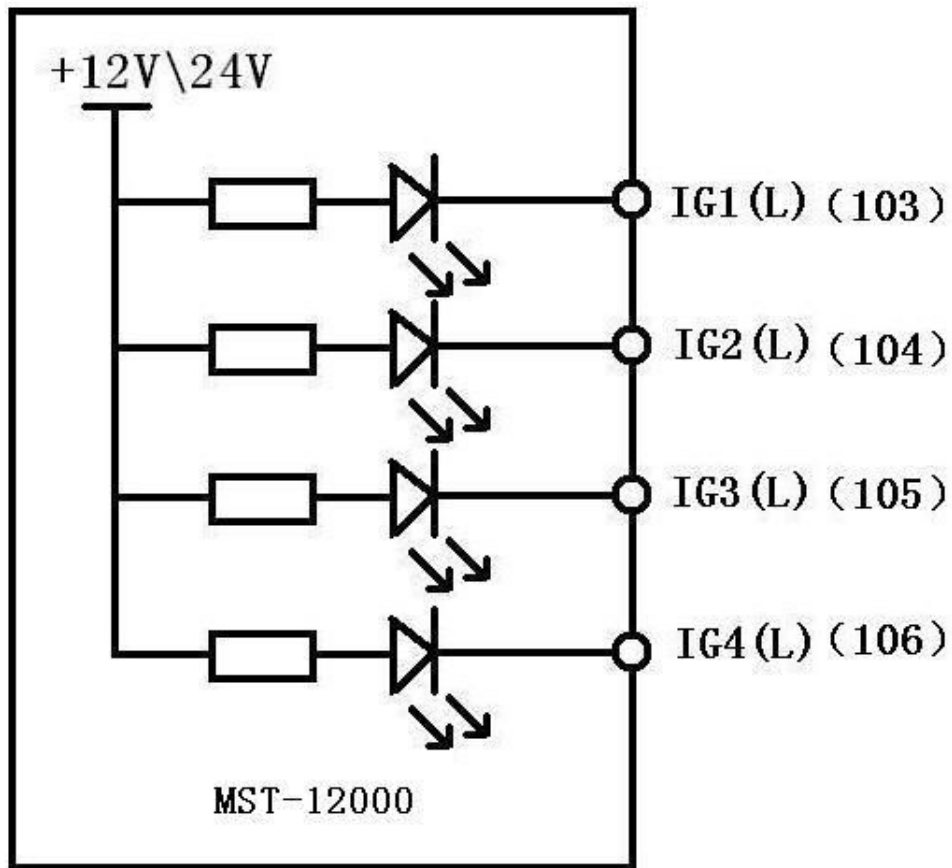
ZME2: ( Port63-64 ) Rail pressure regulator 2 ( standby application )



Ignition coil and ignition module simulation (B1-B6)

IG1 (L) -IG4 (L): (port 103-106) ignition coil and ignition module, indicator light negative

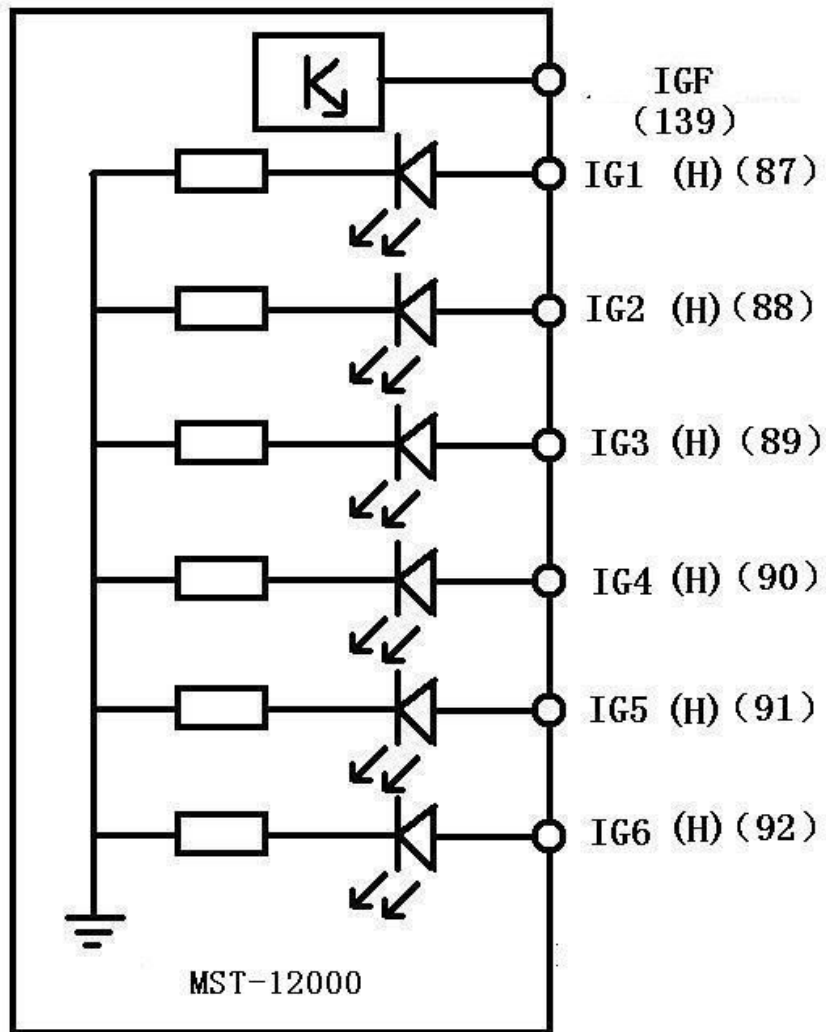
trigger



Ignition control module

IG1 (H) -IG6 (H): (port 87-92) ignition coil and ignition module, the indicating lamp is triggered

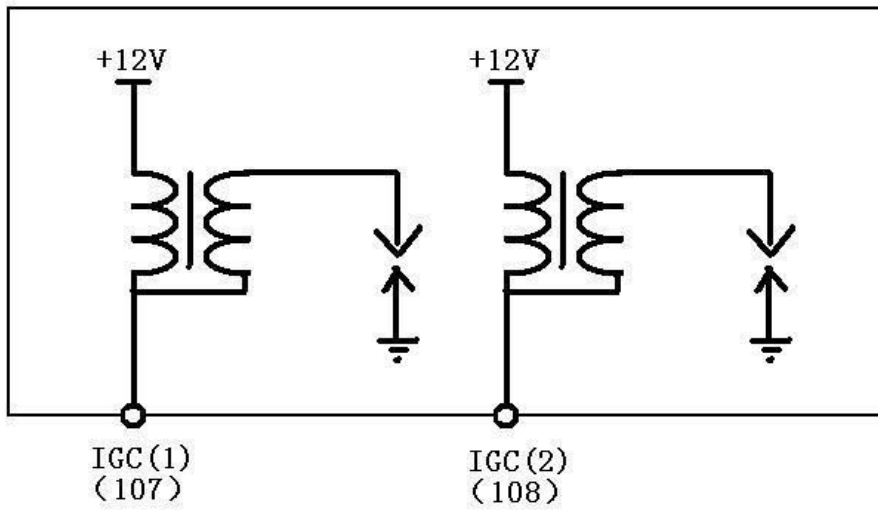
IGF (port 139) ignition feedback signals



Ignition control module

IGC1, IGC2: (port -107-108) ignition coil simulation:

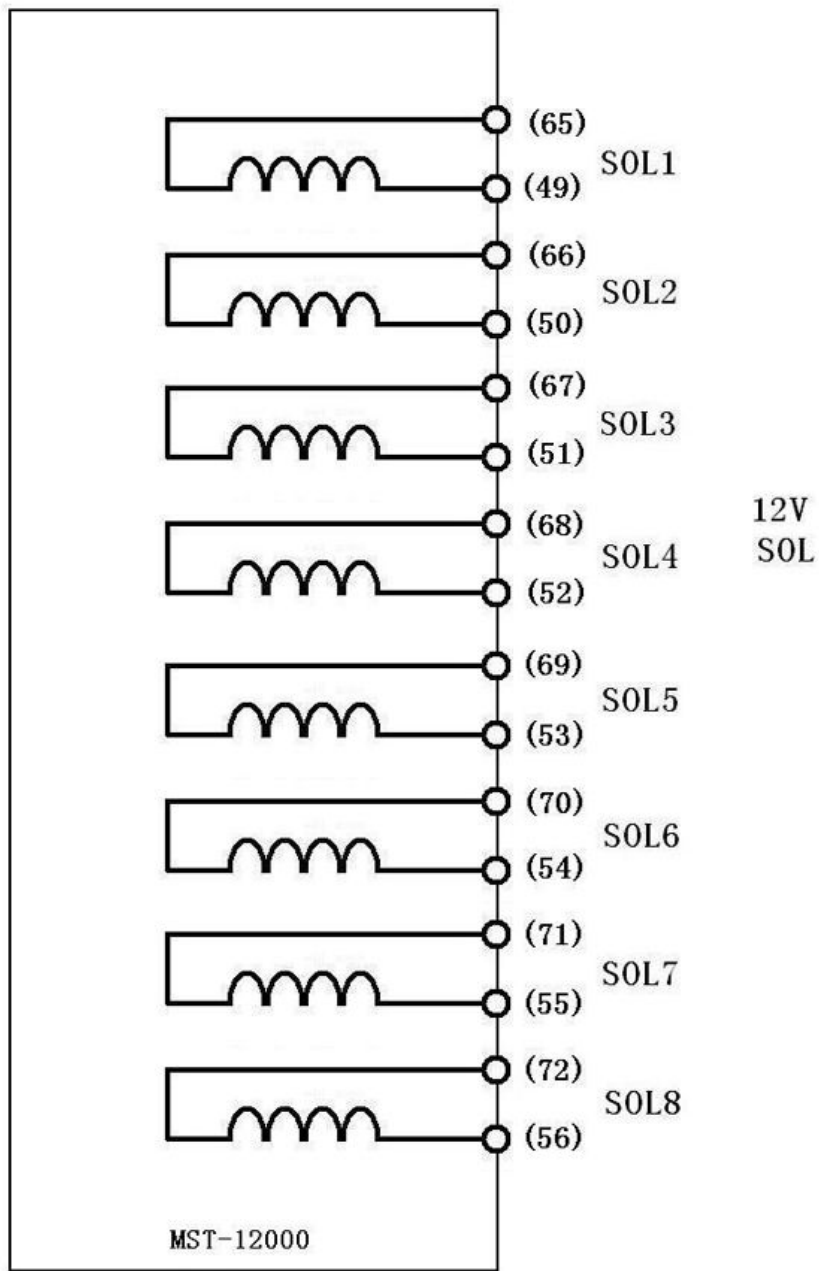




Ignitioncoil

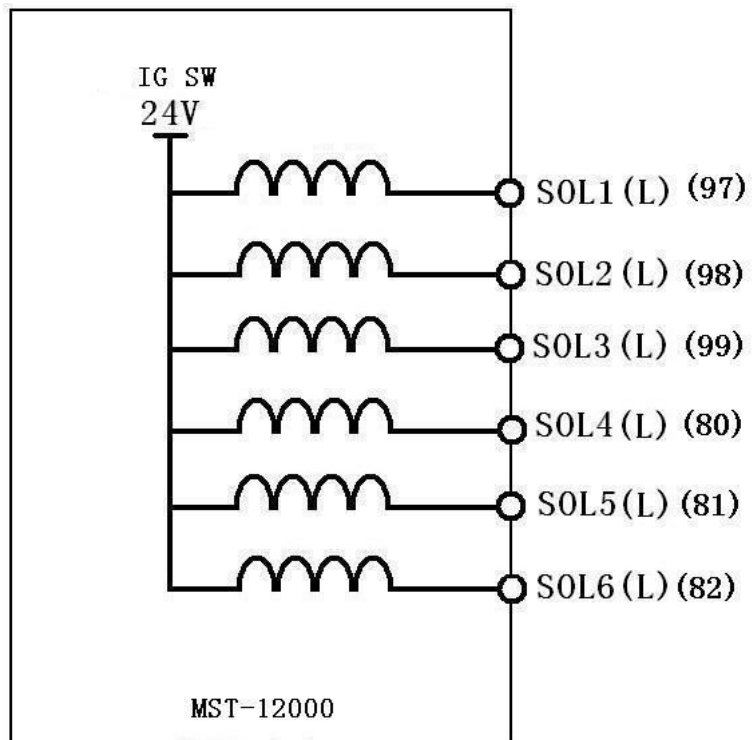
Electromagnetic valve simulation:

SOL1 - SOL8,49 (port 65-65-56)(12V)

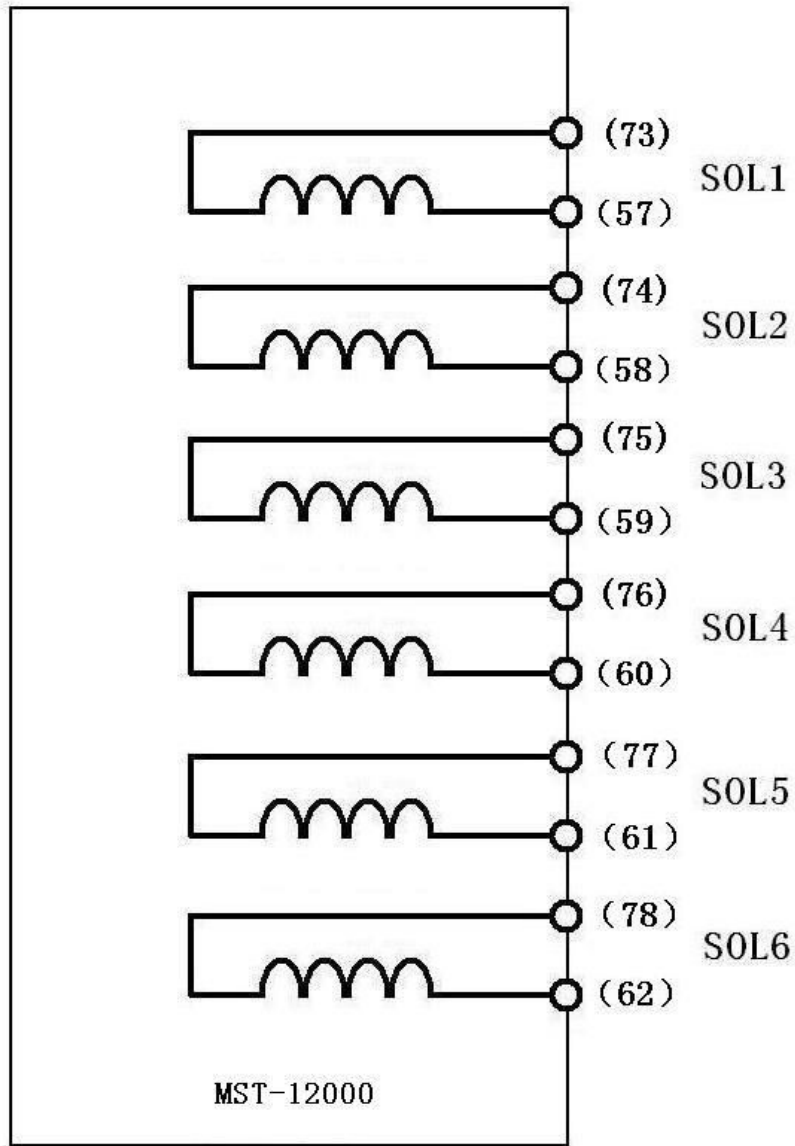


SOL1 (L) -SOL6 (L) (port 80-82,97-99) (24V)

SOL1-SOL6 (port 73-78,57-62)

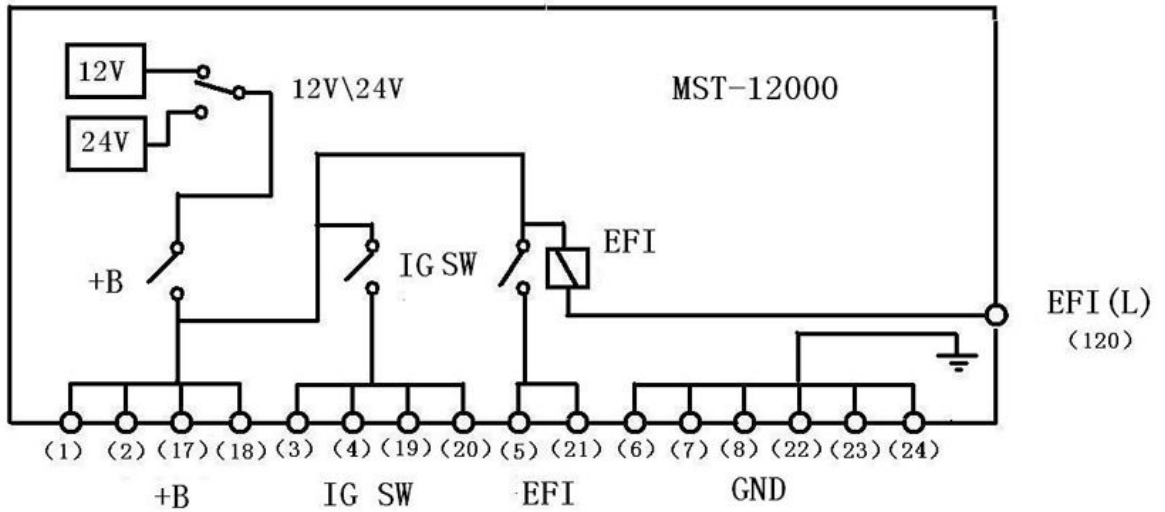


24V SOL

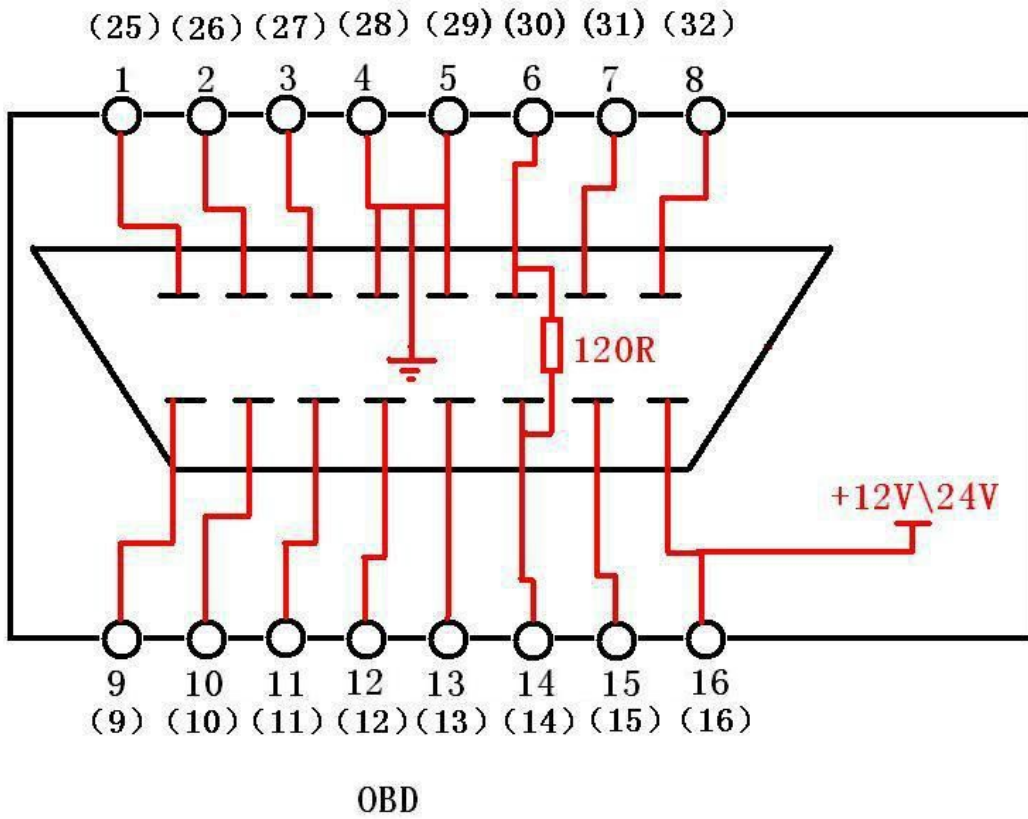


24V SOL

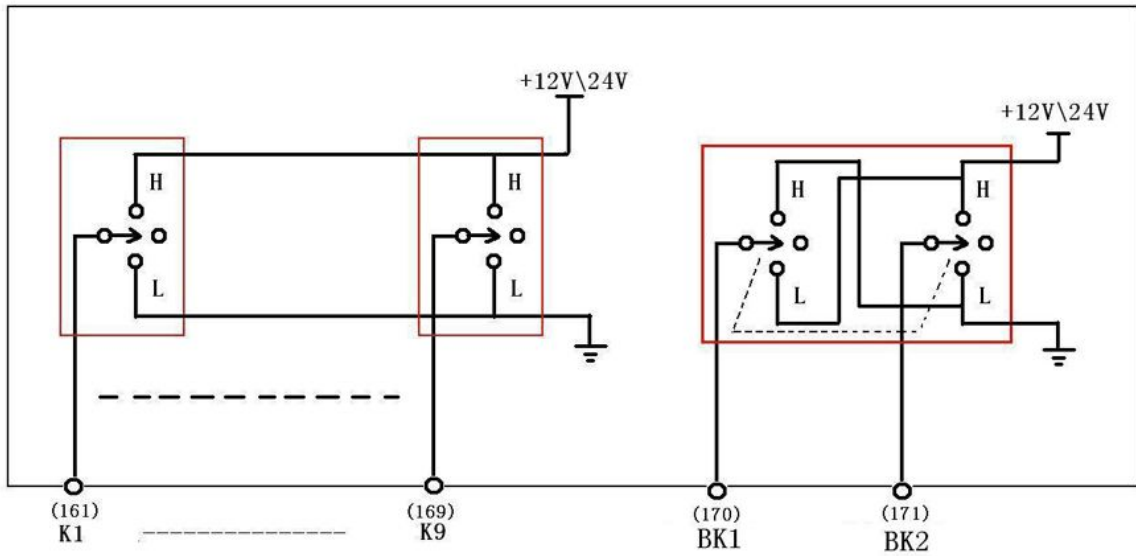
The power supply part:



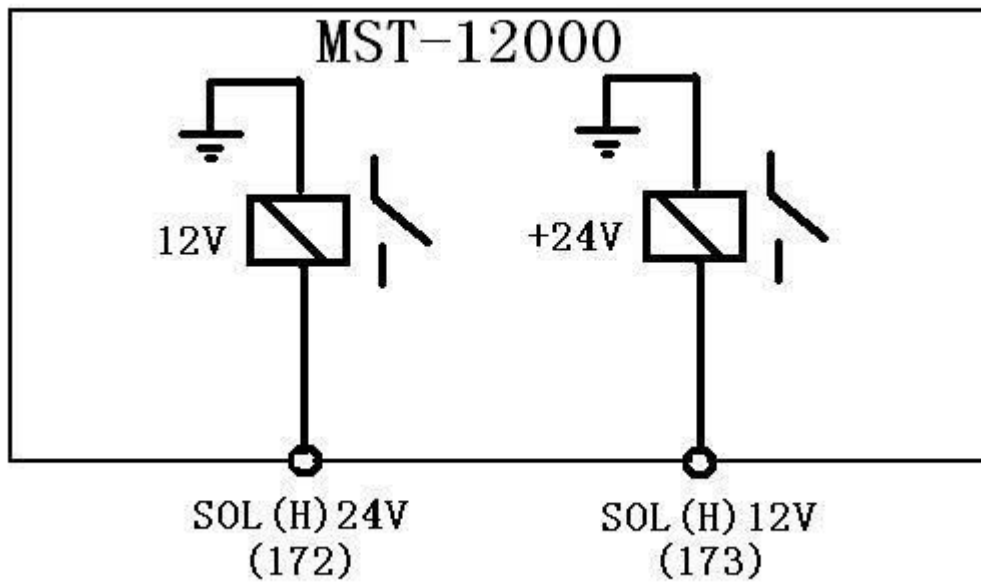
**OBD diagnosis:**



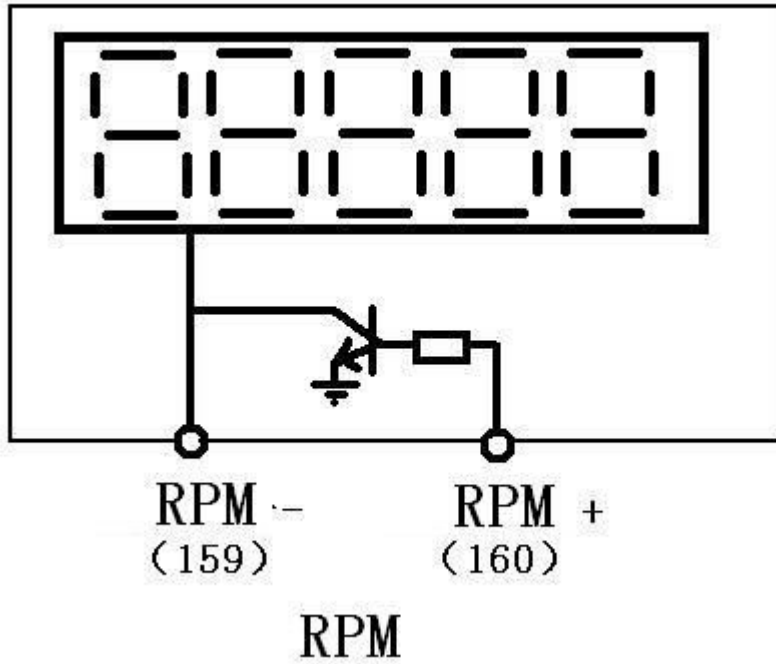
**Digital Signals:**



**Triggered Relay:**



**Tachometer Signal:**

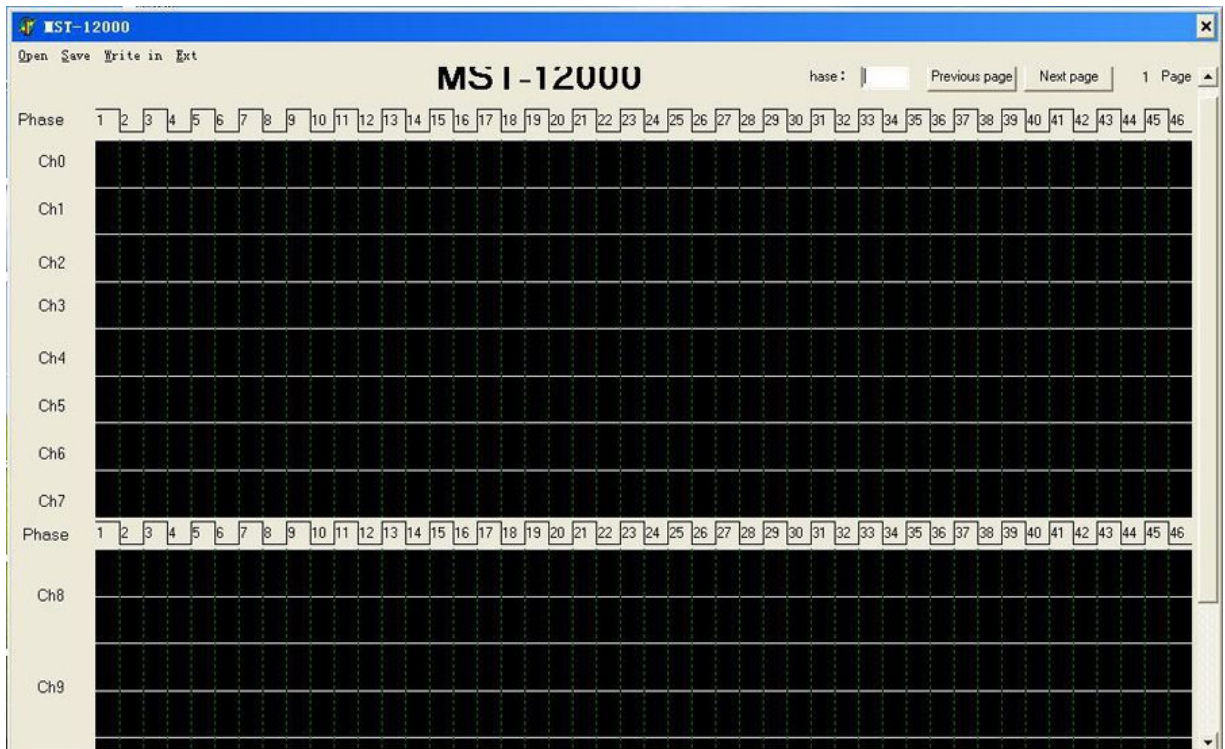


**Wave setting software installation and use method:**

Firstly,pls put the CD into the computer cd-rom,and open the software then copy the "simulation expert official version.Exe" file to the computer desktop and double-click the file,Double-click to open the desktop icon, the followings appear:



Click on the "signal editing", enter the signal editing interface.



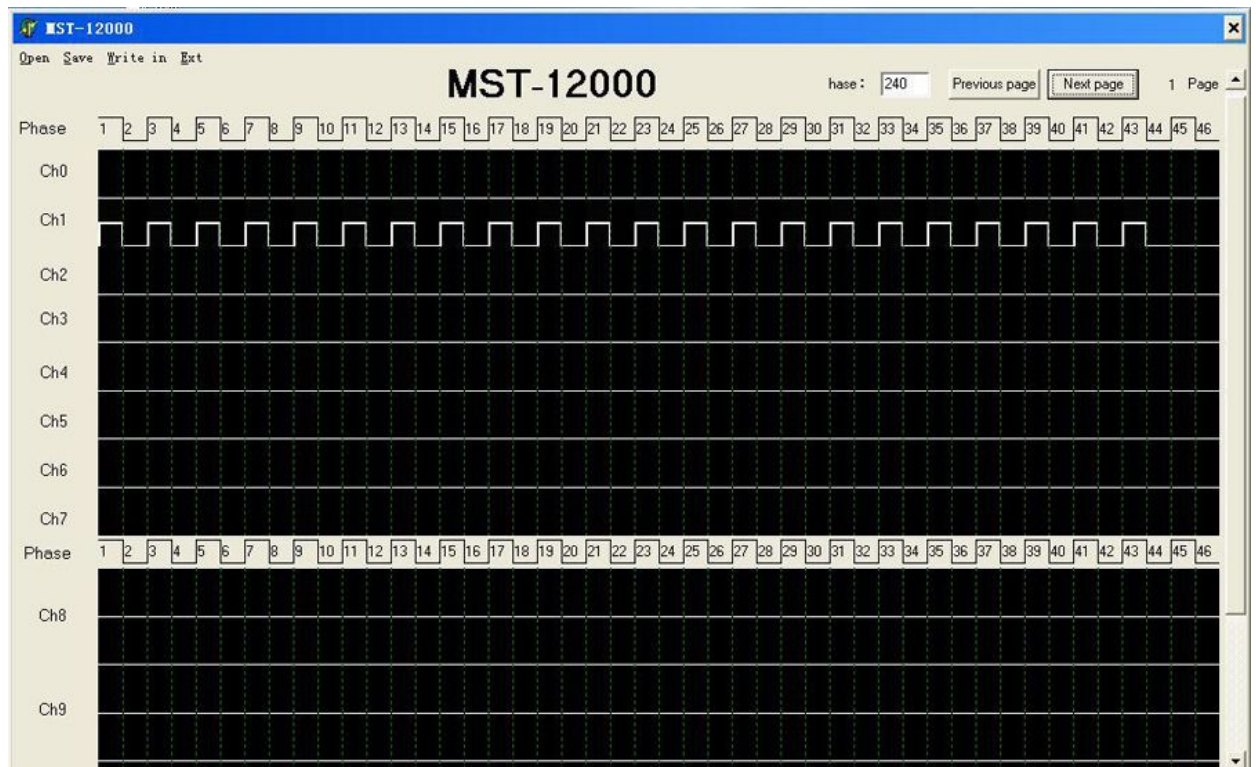


Any set zone can be setted the waveforms you need arbitrary,CH0 is the tachometer channel, every 1 revolutions of the engine crankshaft, the channel 6 pulse.

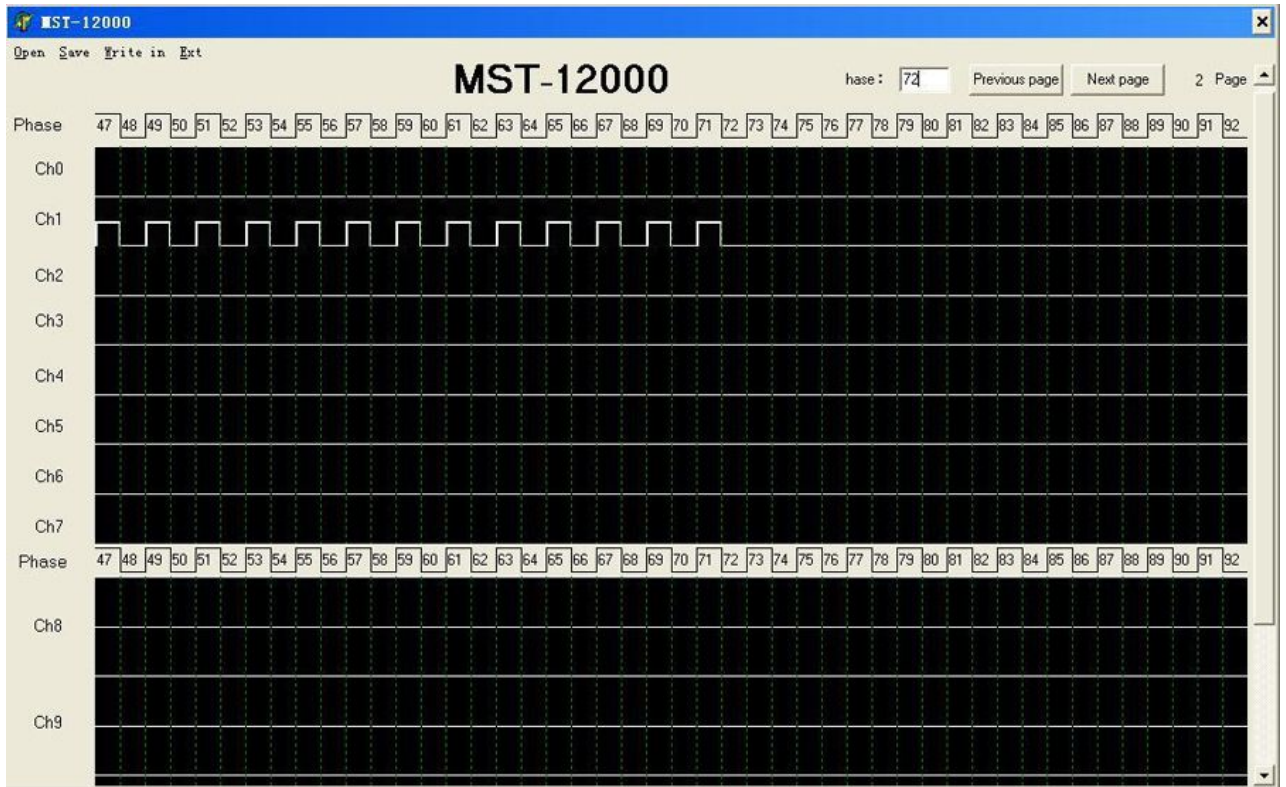
CH1 -- CH7 is mainly used for square wave set, CH8-CH11 is mainly used for sine wave set. After the waveform set, input the waveform end position that we set the in the "hase" menu.

For example: editing a 36-2 square wave crankshaft signal in CH1, and repeat the cycle.

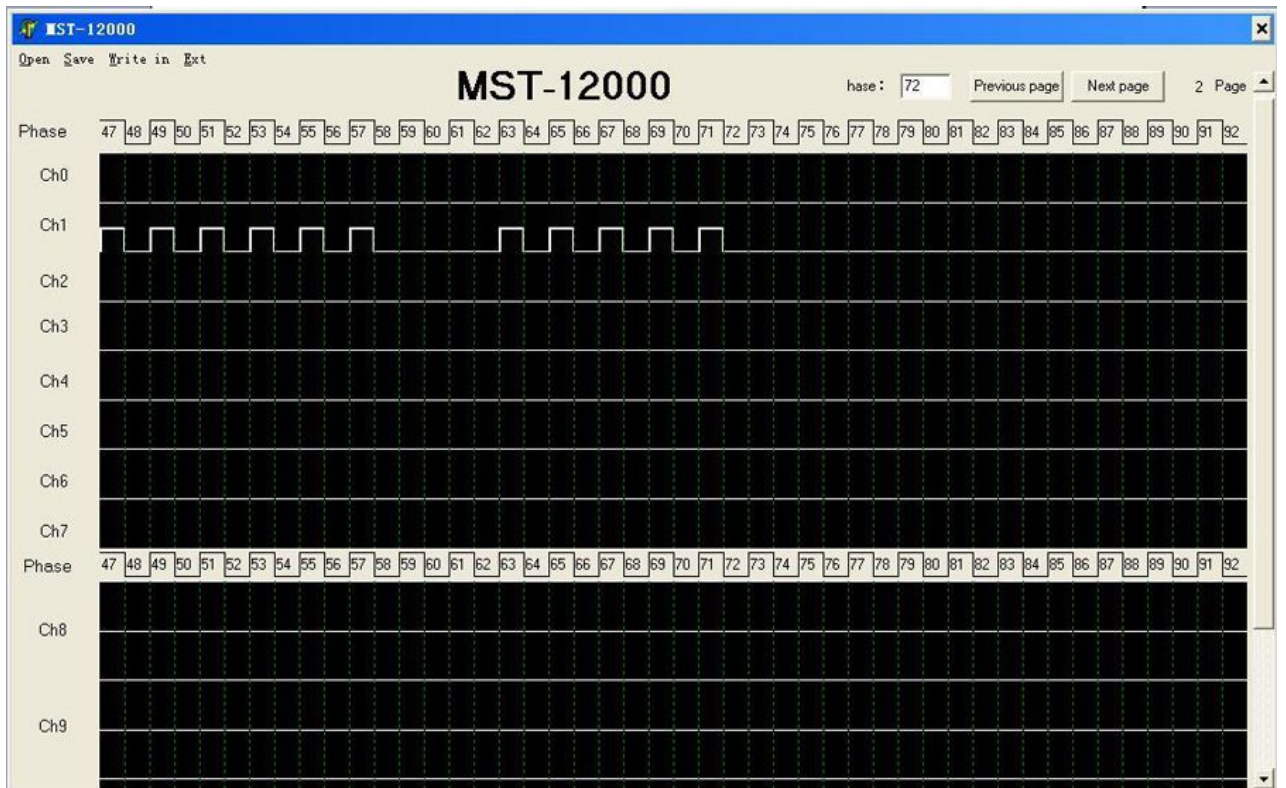
In the CH1 click 36 pulse continuous.



2. In thirty-sixth pulse position as the phase 72. In the "hase" input "72"



3、 Between 36 pulse,remove two pulse at random and continuously, you can get 36-2 signal.



4. With the end phase number of  $72 \div 6 = 12$ , that means every 12 phase then click a pulse in CH0 ,can be set to the tachometer signal.

