MST-9000+ user's manual

1: Instrument packing list：

Sensor signal simulation	1Set
data cables	20pcs
Power Line	1pcs
USB data cables	1pcs
Data CD	1pcs

2： Instrument special funtion:

MST9000+ is a electrician electon test platform for the general car, is the necessar

y tool for car and computer repairment.
1.It provide the bent axle signal imitate to car, six channel can make the random waveform output. and it can shape all motorcycle type engine crankshaft, camshaft signal(Hoare, magnetoelectricity, photoelectirciy signal), also the wave form data is long sterm storeged by computer.
2. the magnetoelectricity crankshaft signal is isolated by transformer , that can ref rain the signal from the mutual interruptions.
3.It is the OEM & OES sensor signal imitate proficient, rotate speed signal, speen s ignal (Hoare, magnetoelectricity, photoelectirciy signal), wheel speed signal, oxyg en sensor signal, restrictor signal, Air flow meter, intake pressure sensor(imitate, digital), knock sensor signal imitate and so on.
4.The entire car line actuator drive expert: Tachometer, speedometer, a blower control module, fuel injector, ignition coil, ignition module, frequency and pulse width control electromagnetic valve, step motor driver(4 lines、6lines)、Car audio amplifier and so on
5.the entire car line actuator simulation expert: The actuator simulation like ignition coil, injector, idle speed step motor as actuator, the ultrasonic generator and so on

3：the performer's parameter:

1. the driver of command program:driver current 3A,duty crycles 1%~99% continuous adjustment, frequency continuation

2.Sensor signal: electric resistance 100Ω~10000Ω , voltage 0V~5V×4　0 V~1.5

3.output signal: magnetoeleticity signal, Hoare signal, photoelectricity sig nal

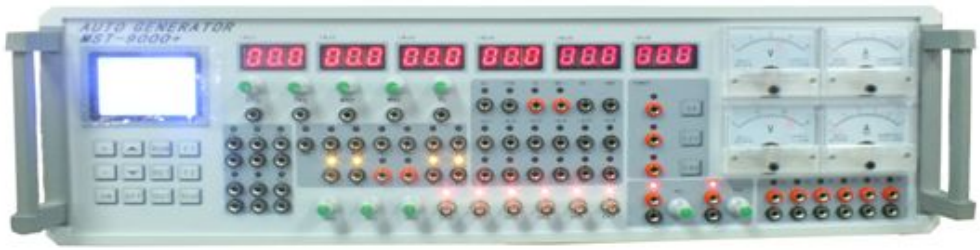
4.steppping motor driver: current 1A, suitable for all the car with the four wire, six wire stepping motor cycle.

5.performer imitate driver: 69 channel output at the same time.

4： Scope :

automotive sensor dynamic diagnosis ,engine ,transmission ,ABS, air-condition, immobilizer etc other ecu diagnose , auto teaching aids model-driven, automotive production and research and development ;(ancillary repair ECU principal : Send signals to ECU by MST-9000+, then can determine which part (ecu or sensor)broken ;send signals to actuator by mst-9000+ ,can check whether the problem is ecu or actuator.

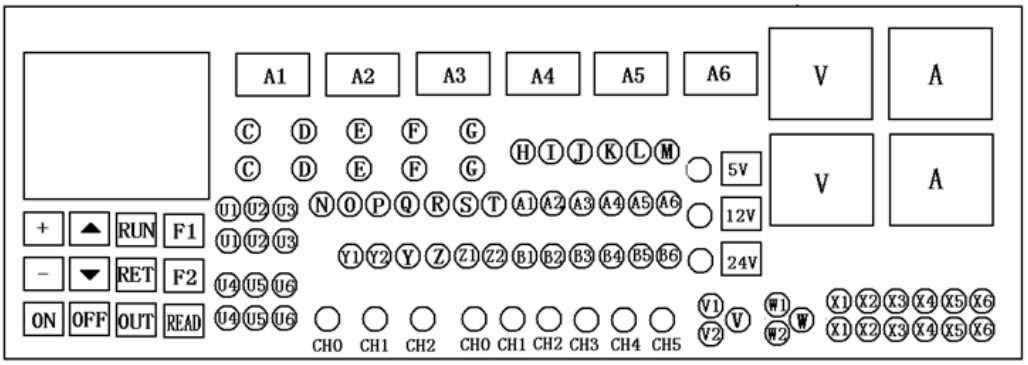
5:User Manual



1:Operator Panel Introduction :

Injector Simulation &injector time measurement (AI-A6)
INJ1: No.1 Cylinder injector & fuel injector &time (ms)
INJ2: No.2 Cylinder injector & fuel injector &time (ms)
INJ3: No.3 Cylinder injector & fuel injector &time (ms)

传感器信号模拟专家操作面板引脚功能说明



INJ4: No.4 Cylinder injector & fuel injector &time (ms)
INJ5: No.5 Cylinder injector & fuel injector &time (ms)
INJ6: No.6 Cylinder injector & fuel injector &time (ms)

Signal Simulation Output

C-CTS: temperature sensor signal analog 0 ~ 10K

D-TPS: EGR valve position, throttle position sensor signal analog 0 to 5V

E-MAP: intake air pressure sensor signal analog 0 ~ 5V

F-MAF: air flow meter signal analog 0 ~ 5V

G-O2: oxygen sensor signal simulation ~~ 1V (manual adjustment)

T-O2: oxygen sensor signal simulation adjust (signals automatically change)

V-KS1: knock sensor signal simulation

W-KS2: knock sensor signal simulation

Digital signal output

N-CKP: crank signal

R-AC: AC signal

S-DC: DC signal

Actuator drive
O-ISC: idle speed control valve drive
P-PFC: ignition driver

Q-INJ: fuel injector driver

Y1\Y2\Z1\Z2-A1\A2\B1\B2: four wire stepping motor dirver

Y1\Y2\Y\Z\Z1\Z2-A\B\+\+\C\D: six wire stepping motor driver

Ignition coil and ignition module simulation (B1-B6)

IG1：one cylinder Ignition coil and ignition module simulation

IG2：two cylinder Ignition coil and ignition module simulation

IG3：three cylinder Ignition coil and ignition module simulation

IG4：four cylinder Ignition coil and ignition module simulation

IG5：five cylinder Ignition coil and ignition module simulation

IG6：six cylinder Ignition coil and ignition module simulation

Magnetic valve simulation:(U1-U6)

SOL1: coil 1

SOL2: coil 2

SOL3: coil 3

SOL4: coil 4

SOL5: coil 5

SOL6: coil 6

Auto pin prompt

I-FPR: fuel pump relay simulation

H-RL：relay simulation

J-+B：12V power supply output

K-NE+：crank shaft signal + ouput

L-NE-：crank shaft signal - ouput

M-GND：power supply negative pole

Channel signal generator

CH0: HALL（photoelectricity）sensor signal 0 output range adjusting

CH1: HALL（photoelectricity）sensor signal 1 output range adjusting

CH2: HALL（photoelectricity）sensor signal 2 output range adjusting

CH3: magneto electricity sensor signal 1 output

CH4: magneto electricity sensor signal 2 output

CH5: magneto electricity sensor signal 3 output

Button Funciton：

F1: shortcut key: general signal generator

F2:shortcut key: choose by car model

↑： manual UP

↓： Manual DOWN

+： signal strengthen

-： signal weaken

RUN： run

RET: return

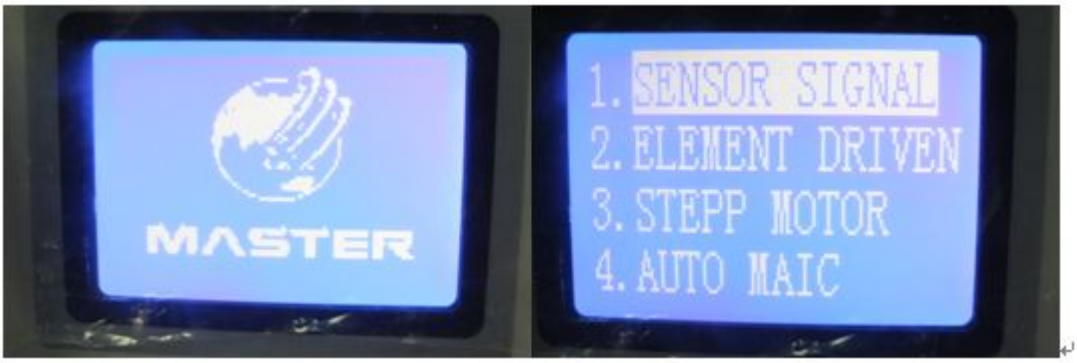
READ: read five channel crankshaft signal data

OUT： crankshaft signal output

6、Operational guidelines：

①**power on: put MST-9000+ connected to the power source(220v or 110v), all the signal lights will turned on when the power comes on, after few seconds will become like photo shows:**

Screen shows:



② select the first option 1. SENSOR SIGNAL ,

shows like

1、DC SIGNAL
2、EXHAUST GAS
3、RPM signal

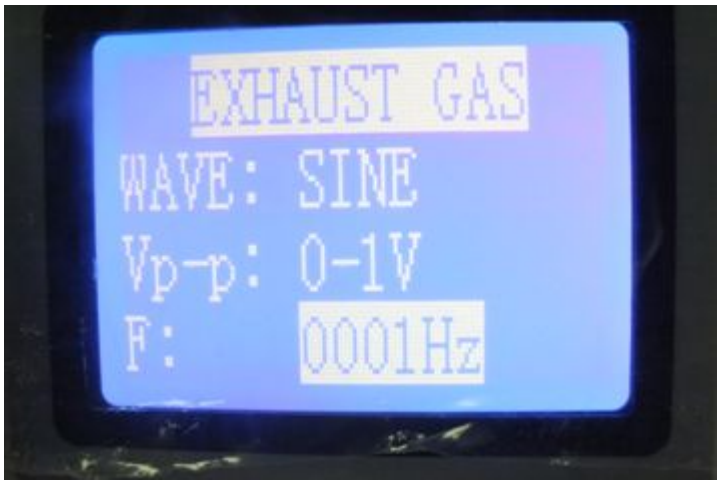
Option 1, DC SIGNAL, press RUN to enter in

Displays on port CTS，TPS MAP，MAF，O2，+B，GND etc. will be blinking on those ports.

Screen shows output voltage numerical, it will shows DC voltage signal when connect CTS, TPS, MAP, MAF, O2 ports (the other end ground joint GND). All the

voltage signals can be adjusted by corresponding potentiometer, adjusting range is 0 to 5v.

Option 2, EXHAUST GAS, press RUN to enter, it shows GND and O2 port light flashing, the output signal is O2 signal, signal frequency can be change by + and – from keyboard, change range is 0001-0020,Hz.



Option 3, RPM signal: enter the engine speed signal simulation, there are 13 selections of ECU type:

Select one ECU type to enter in, display change ECU output frequency (i.e.speed)adjustable range from 0020 to 2160 Hz, adjust by + and —, signal output end is +B (power), GND(ground wire), CKP (crankshaft speed signal), A1, A2, +,+,B1.B2, stepping motor signal output end.

③ **Enter option2 ELEMENT DRIVEN：**

Enter ISC VALVE
INJECTOR
SOLENOID
VSS DRIVEN actuator simulation

This one is a computer simulation of ECU the execution of the signal

1, Simulation executive ISC VALVE, ECU ISC operation signal comes out from ISC port, stepping motor received ISC output end, make the motor according to the instrument issued instructions operation. +,- for control of frequency and CYCLE.

2, Simulation execution injection signal, choose INJECT, according to RUN after entering + B, GND, INJ, three port lamp shining, the analog ECU signal is INJ port, it connect to the nozzle, isntrument sinmulation ECU signal control nozzle work, + and – can control injection instrument frequency, in the top of the instrument INJ - INJ6 six screen can display injection pulse width

3, Simulation ignition driving signal output: choose SOLENOLD, +B,GND,PFC 3 port lamp shining after press RUN to enter, the analog signal ECU is PFC port, the port PFC signal output to ignition signal port, it can make the ignition drive for ignition, +and – for control of frequency and CYCLE.

4, The speed signal simulation execution, select VSS, enter the speed signal simulation execution, give the car issued instructions by AC/DC signal, execution speed signal, use + and – to adjust.

④ Enter the third option stepping motor

This is a simulation idle stepping motor signal output, in can choose 4 steps and 6 steps stepping motor signal simulation.

⑤ The fourth option, the entire vehicle simulation signal AUTO MAIC, select second option universal car signal simulation. (or directly select F1, into the universal car signal simulation)

after enter display:
the data shows that all can regulate LEVEL by different demand. Use upper and lower keys from keyboard and +,— for adjusted SPEED. Usd the corresponding point switch to adjust CTS, TPS, MAP, MAF, O2, KS1, KS2. INJ1-INJ6, IG1-IG6, SOL1-SOL6 according to the type of car is choice 4 cylinder or 6 cylinder, in turn connected 1-4 or 1-6.

Due to the crankshaft signal is different for each models, so the signal can be edit waveform by computer.

Crankshaft signal waveform editing method of use:
1 - installation software:

Put disc into computer, find ECU setup, double click to open start for installation.