

Fully functional engine control system is installed in a mobile aluminum frame. This training board-simulator is specially designed to help technical students understand direct petrol injection (FSI) system MOTRONIC MED 7.5.10. The educational training board is based on Audi/VW OEM components. The integrated engine control system shows the different operation modes of the direct fuel injection/ignition system.

The training board-simulator is a great educational tool that allows students to learn the structure of engine control system, study its components and operation modes, perform various measurements, tests and other diagnostic procedures.

### **Technical specifications and functions**

Integrated engine control system with direct petrol injection (FSI);

Monitoring operation of fuel supply system, injected fuel quantity, spray pattern quality, low fuel pressure of the fuel pump;

Low pressure fuel pump is built into a transparent tank which allows to see its operation;

The adjustable air flow rate simulator demonstrates the function of the mass – air flow meter and the air temperature sensor;

Visible work process of the spark plugs;

Easy access to the high voltage measurements;

Manual adjustment of the engine crankshaft speed;

Integrated simulators allow changes to the parameters of each system component:

- Lambda probe signal simulation;
- Engine operation temperature simulation;
- NOx sensor parameter simulation;
- Exhaust gas temperature sensor simulation;
- Intake manifold pressure sensor simulation;

The training board has a complete electric wiring diagram of direct petrol injection system (FSI);

Electric wiring diagram with built – in banana plug jumpers for measurements and simulation of system fault codes;

Ability to monitor the changing operation mode of each system component;

Ability to simulate more than 20 system faults by disconnecting Banana plug jumpers;

Integrated TFT voltmeter displays voltage of electronic system component:

- G212 Exhaust gas recirculation potentiometer;
- G70 Air-mass flow meter;
- G185 Accelerator pedal position sender I;
- G79 Accelerator pedal position sender II;
- G336 Intake manifold flap potentiometer;
- G247 Fuel pressure sensor;
- G187 Throttle valve potentiometer I;
- G188 Throttle valve potentiometer II;
- G71 Intake manifold pressure sensor;
- G62 Engine operation temperature sensor;
- G83 Coolant temperature sensor;
- G235 Exhaust gas temperature sensor;
- Intake manifold flap regulation (vacuum pump is required; optional);

## **Diagnostic and measurement**

### **Oscilloscope/multimeter**

System's parameters are measured by connecting to the banana connector;  
Ability to measure electrical signal parameters of each system component (such as sensor or actuator);  
Ability to measure high voltage circuit of the ignition system;

### **Control unit diagnosis**

Diagnosis through OBD 16 – pin diagnostic connector  
Electronic control unit (ECU) identification  
Reading/erasing fault codes  
Displaying the operating system parameters (live data)  
Activating the actuators (depends on the control unit)  
Throttle valve adaptation  
Control unit encoding/configuration

### **Other**

The stand has a closed structure – internal wiring is not visible  
Power supply: 220V  
Dimensions approx. (HxLxW): 1820x1360x500 mm  
Nett weight approx.: 105 Kg  
Made in EU  
CE certificate

### **Optional accessories**

Examination console for 10 hidden fault simulations  
Vacuum / pressure pump  
Automotive oscilloscope  
OBD diagnostic scan tool