DEGEM SYSTEMS

AT-3002

Autotronics

Electronic Ignition Simulator

- Multi-point injection
- Electronic ignition
- ABS 4 channel system
- Engine controls & sensors
- Car air-conditioning & climate control
- Suspension
- Transmission
- Safety systems
- Automotive accessories
- Main Panel
- Multipoint Fuel Injection
- Emission Control
- Airbag Systems
- Electronic Stability Program
- Hybrid Vehicle Systems

Objectives

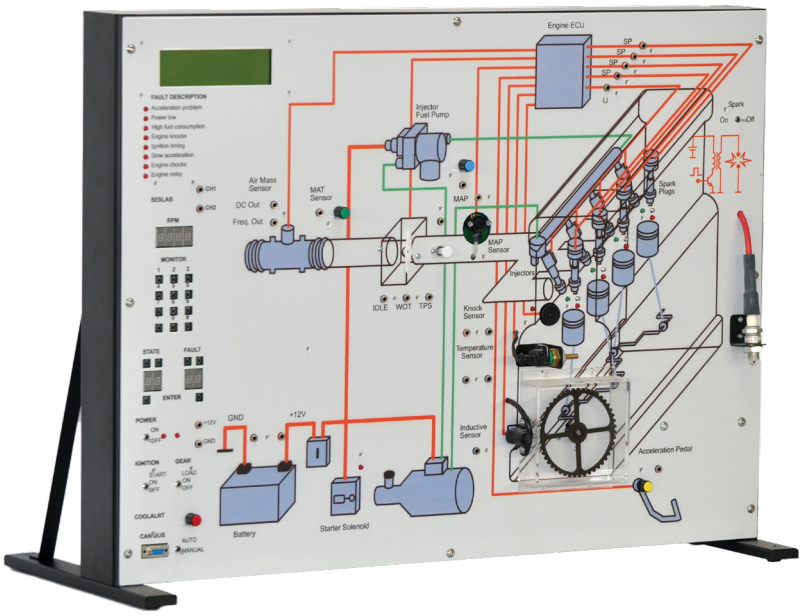
The AT-3002 Automotive Electronic Ignition Training Simulator is designed to provide students with automotive training program introducing various systems and real components in modern cars.

The Simulator brings a comprehensive view of the entire system in the car, the system's actual components and their interconnection, functions, operation, signals, diagnosis and repair methods under hands-on safe activities.

Description

The Simulator includes real and simulated components controlled by internal controller that produces the signals for measurement according to its internal simulating program or according to PC simulation programs.

The Simulator's panel is with colored graphics clearly presenting the system components, connections and inter-relations with test points for real measurements and LEDs describing the component status.



Specifications

TECHNICAL CHARACTERISTICS

The Simulator is in a wide metal enclosure with a colored printed circuit experiment panel (80 x 60 x 10 cm), which ensures easy handling and good visibility of the components and the simulation part.

The Simulator includes real components and simulation components modules. The experimenting panel includes the system drawings with test points and banana sockets.

The Simulator can be operated as a stand-alone system without a PC, guided by experimental book using built in oscilloscope or an external oscilloscope.

The Simulator can be connected to a PC in USB communication using CBT courseware and D-SCOPE software for signal display.

A record of the student progress can be recorded on the student PC using the optional DCML software and can be accessed by the instructor for monitoring, course management and records if a local area network (not supplied) is available.

THE SYSTEM INCLUDES

- A power switch with indicating light
- D-SCOPE 2-channel digital oscilloscope
- 7 segment display and control switches, one for fault insertion unit and one for selecting simulation mode
- Eight (8) LED's to indicate troubleshooting state
- Status mode switches and display
- Warning indicating light
- Graphic and alphanumeric LCD display: 64X240 pixels
- Numeric keyboard
- CAN-BUS interface
- USB communication interface with the PC
- PC / MANUAL switch
- 12V Power adapter
- Digital multimeter
- Operating and simulation switches
- Simulation potentiometers
- Iron disk driven by DC motor
- Real crankshaft position sensor
- Ignition coils
- Spark plug firing sequence indicators
- Knock and MAP simulator sensors
- MAP simulator potentiometer
- Centralized injection system
- Real coolant temperature sensor
- Air temperature sensor simulation
- Temperature idle unit
- Electronic Distributorless Ignition System (DIS)

EXPERIMENTS

This system enables the student to perform several experiments and covers the following topics:

- Centralized injection system
- Electronic ignition system type E-DIS
- Sparks producing and sparks not producing ignition
- Secondary circuit waveforms
- Triggering pulse
- Current restriction in primary circuit and ignition angle
- Ignition timing
- Engine revolution (speed) and ignition timing
- Engine load and ignition timing
- Engine temperature and ignition timing
- Knock control
- RPM measurements
- MAP sensor
- Sensors and valves system
- CAN-BUS communication

An experiment manual for the student and instructor manual accompany the system.

OPTIONAL ACCESSORIES

- Personal computer with MS-Windows
- DCML (Degem Computer Managed Laboratory)