



DEGEM
SYSTEMS

Autotronics

AT-3007

Transmission 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

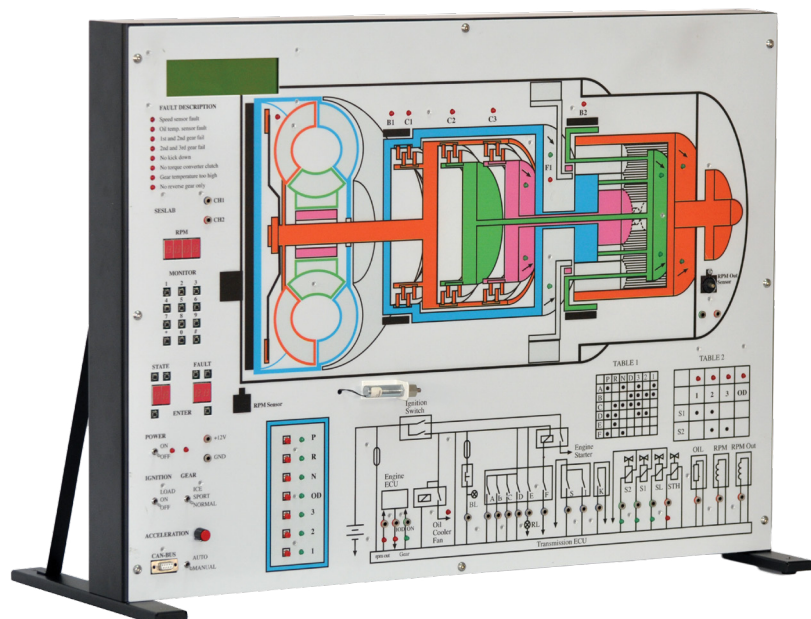
The AT-3007 Automotive Transmission Simulator is designed to provide students with automotive training program introducing various systems and real components in modern cars.

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 LED's to indicate 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 serial communication (RS232 or USB) 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

THE SYSTEM INCLUDES

- Status mode switches and display
- Warning indicating light
- Graphic and Alphanumeric LCD display 64X240 pixels
- Numeric keyboard
- CAN-BUS interface
- Serial or USB communication interface with the PC
- PC / MANUAL switch
- 12V Power adapter
- Digital multimeter
- Operating and simulation switches
- Simulation potentiometers
- Indicator lights for selection of transmission gears, solenoid valves, pressure-modulating control, signal of torque conversion
- Display for selecting lever, selection of programs and alarms
- Remote control switch for the electric fan of oil cooler on automatic transmission
- Electric fan for the oil cooler on automatic transmission, simulator
- Simulator of the signal of transmission revolutions and/or car speed
- Micro switch for sending the signal of gear clutched to the electronic control unit of injection and ignition
- Indicator light for the signal of torque reduction for electronic control unit of injection and ignition
- Simulator for the signal of opening of butterfly valve and engine temperature
- Simulator for the engine load signal
- Simulator for the engine rpm signal, Oil temperature and associated sensor simulator

EXPERIMENTS

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

- Introduction to automatic transmissions.
- Changing gears characteristic curves analysis through 4 gears in relation to output speed of the transmission.
- The butterfly valve and its opening angles.
- Transmission operating programs.
- The combinational commands of the transmission solenoid valves in relation to the various gears and clutches.
- Analysis of pressure control and optimization of clutch times in relation to:
 - Engine rpm type of gearing
 - Opening of the butterfly valve
 - Engine load
 - Output speed of transmission
 - Difference of rpm at the clutching time
 - Insertion of non-destructive faults and troubleshooting.

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

OPTIONAL ACCESSORIES

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